

PAHANG PEATLAND RESTORATION PROJECT (PPRP)



Project title	Pahang Peatland Restoration Project
Project ID	5474
Crediting period	1 February 2024 – 13 May 2083; 59-year crediting period
Monitoring period	1 February 2024 – 31 January 2025
(CCB) GHG accounting period	1 February 2024 – 14 May 2083; 59-year total period
Original date of issue	<i>DD-Month-YYYY is the date the monitoring report was completed following the completion of the audit</i>
Most recent date of issue	<i>DD-Month-YYYY is the date the monitoring report was most recently submitted</i>
Version	1.0
VCS Standard version	4.7
CCB Standards version	3.1
Project location	Malaysia, Pahang State, Pekan and Rompin districts
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Validation/verification body	Earthood Services Ltd 1203-1205, Tower B, Emaar digital Greens, Sector 61, Gurgaon-122018, India Email: kaviraj.singh@earthood.in Phone: +91 9871747771
History of CCB Status	N/A
Gold Level criteria	<p>The Project aims to generate exceptional benefits related to climate, community and biodiversity.</p> <p>Climate Change Adaptation Benefits</p> <p>The Project’s adaptation plan targets forest and wetland protection and restoration, biodiversity conservation and community resilience. Measures implemented during the monitoring period included construction of 74 canal blocks, fire prevention training, patrols, early warning systems and infrastructure, together with fire awareness campaigns and training. Community resilience was also strengthened</p>

through capacity building to promote sustainable livelihood development, and climate awareness initiatives. For more information see Section 3.

Exceptional Community Benefits

The Project Zone is home to Indigenous *Jakun* (Orang Asli) communities, many of whom live below the national poverty line and rely on forests for livelihoods and cultural identity. The Project aims to deliver exceptional community benefits by centering these communities in its design and implementation. During the monitoring period, the Project created 45.5 full-time equivalent jobs, directly benefiting 106 community members. It conducted participatory mapping and consultations in 16 villages to co-design future livelihood and well-being programs. To strengthen resilience, the Project launched awareness campaigns on forest fires and poaching, increased patrols, and installed warning signage. It also introduced the FPIC process and grievance redressal mechanism to ensure inclusive participation, especially among women and vulnerable groups. These activities mark significant progress toward long-term socio-economic improvement and community empowerment, aligned with the Project's Gold Level validation for exceptional community benefits. See Section 4 for further details.

Exceptional Biodiversity Benefits

The Project covers an area with high levels of biodiversity that is threatened by ongoing deforestation, degradation and wetland destruction. The initial project instance supports populations of at least 13 species classified by IUCN as Critically Endangered (Raffles' Banded Langur, Sunda Pangolin, Ramin Melawis and Meranti Paya) and Endangered (Wrinkled Hornbill, White-handed Gibbon, Dusky Langur, Common Long-tailed Macaque, Southern Pig-tailed Macaque, Malayan Tapir, Flat-headed Cat, and Hairy-nosed Otter). Protecting existing habitat and restoring deforested and degraded areas will improve carrying capacity and connectivity in what has become a fragmented and contracting wetland landscape. These efforts will contribute to the long-term persistence and recovery of biodiversity in the region. During the monitoring period the Project continued to support the conservation of these species by preserving their ecosystem through SMART patrols, with additional community awareness activities. Detailed information is presented in Section 5.

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1 SUMMARY OF PROJECT BENEFITS

1.1 Unique Project Benefits

Outcome or Impact	Achievements during the Monitoring Period (also during the Project Lifetime since this is the first monitoring report)	Section Reference
<p>1) Reduced fire incidence through canal blocking, the development of near real time monitoring systems for early detection and the establishment of a fully equipped in-house firefighting team integrated into regional firefighting systems including government agencies and local NGOs. The benefits of this include a reduction in the frequency and scale of haze events, which positively impacts the respiratory health of local communities and helps mitigate economic losses in the wider area.</p>	<ul style="list-style-type: none"> • 74 canal blocks constructed to rewet peatland, reducing the risk of fire ignition and spread. • Fire Emergency Response Team (FERT) established, consisting of 20 trained and fully equipped personnel. • Integrated into regional firefighting systems, collaborating with government agencies and NGOs. • Custom-built near real-time fire monitoring system using satellite imagery, drones, and ground sensors was developed and deployed. • 10 fire suppression operations conducted, with some guided by the government fire brigade. • Fire awareness campaigns and village-wide consultation events were held across 16 <i>Orang Asli</i> villages (KOA) to educate communities and improve early response. • 6.1 km of fire breaks constructed as part of fire prevention infrastructure. 	3
<p>2) Preservation and revitalization of the indigenous <i>Jakun</i> culture and traditions through targeted investments in community-requested programs aimed at restoring a forest-oriented culture that is increasingly threatened by modernization. By empowering younger generations to reconnect with their cultural heritage, these efforts will foster stronger</p>	<ul style="list-style-type: none"> • Employment of <i>Jakun</i> staff to facilitate culturally appropriate engagement and ensure trust and representation. • Community-requested programs co-designed to support traditional knowledge, forest-oriented lifestyles, and cultural practices. • Participatory mapping and consultations conducted in 16 <i>Jakun</i> villages to 	4

<p>stewardship of land and natural resources.</p>	<p>document land use, cultural values, and forest-dependence.</p> <ul style="list-style-type: none"> • Cultural heritage areas identified using the High Conservation Value (HCV) method and protected through project zoning and planning. • Engagements with <i>Jakun</i> youth and elders to incorporate traditional ecological knowledge into forest stewardship. • Community Learning Hub development initiated to promote intergenerational knowledge transfer, including storytelling, traditional skills, and vocational training relevant to <i>Jakun</i> identity. • Capacity-building initiatives were designed to be culturally sensitive and gender-responsive, ensuring inclusive participation. 	
<p>3) Protection and restoration of an area that forms primary linkages in Malaysia’s Central Forest Spine Master Plan (CFSMP) that aims to connect habitats of the critically endangered Malayan tiger (<i>Panthera tigris jacksoni</i>) along the length of Peninsular Malaysia.</p>	<ul style="list-style-type: none"> • Conservation of 96,569 ha of tropical peat swamp forest—habitat for at least 13 Critically Endangered and Endangered species (e.g., Raffles’ Banded Langur, Wrinkled Hornbill, Flat-headed Cat, Malayan Tapir, Ramin Melawis, Meranti Paya). • Habitat restoration and hydrological rewetting through 74 canal blocks improved ecosystem conditions and enhanced habitat quality. • SMART patrolling system deployed with trained field teams to prevent poaching and monitor wildlife presence. • Camera trap biodiversity survey launched in May 2024 to monitor presence and movements of rare, threatened and endangered species. • Bird biodiversity surveys conducted (both monsoon and off-monsoon seasons) to track avian diversity as indicators of ecosystem health. • 13 community events organized to raise awareness about biodiversity, poaching, and species conservation. 	<p>5</p>

- No logging or land conversion permitted in the Initial Project Area, ensuring intact forest corridors and connectivity.

1.2 Standardized Benefit Metrics

For each metric, quantify the net benefit the project has achieved during the monitoring period covered by this report and since the project start date (if this is the project's first verification report, the two columns will be the same). Insert "not applicable" where the metric does not apply and "data not available" where the metric does apply but there are no means of quantification. Data included in the monitoring period column shall be substantiated in this document as denoted by the corresponding section reference.

Category	Metric	Achievements during Monitoring Period (Also during Project Lifetime as this is the First Monitoring Report)	Section Reference
GHG emission reductions & removals	Net estimated emission removals in the project area, measured against the without-project scenario	N/A for this Monitoring Period	3.2
	Net estimated emission reductions in the project area, measured against the without-project scenario	1,187,893 tCO _{2e}	3.2
Forest ¹ cover	For REDD ² projects: Number of hectares of reduced forest loss in the project area measured against the without-project scenario	3,449 ha	3.2
	For ARR ³ projects: Number of hectares of forest cover increased in the project area measured against the without-project scenario	Not reported for this period	3.2
Improved land manage	Number of hectares of existing production forest land in which IFM ⁴ practices have occurred as a result of the project's	N/A	N/A

¹ Land with woody vegetation that meets an internationally accepted definition (e.g., UNFCCC, FAO, or IPCC) of what constitutes a forest, which includes threshold parameters, such as minimum forest area, tree height and level of crown cover, and may include mature, secondary, degraded and wetland forests (VCS Program Definitions)

² Reduced emissions from deforestation and forest degradation (REDD) – Activities that reduce GHG emissions by slowing or stopping conversion of forests to non-forest land and/or reduce the degradation of forest land where forest biomass is lost (VCS Program Definitions)

³ Afforestation, reforestation and revegetation (ARR) – Activities that increase carbon stocks in woody biomass (and in some cases soils) by establishing, increasing and/or restoring vegetative cover through the planting, sowing and/or human-assisted natural regeneration of woody vegetation (VCS Program Definitions)

⁴ Improved forest management (IFM) – Activities that change forest management practices and increase carbon stock on forest lands managed for wood products such as saw timber, pulpwood, and fuelwood (VCS Program Definitions)

	<i>activities, measured against the without-project scenario</i>		
	<i>Number of hectares of non-forest land in which improved land management has occurred as a result of the project's activities, measured against the without-project scenario</i>	N/A	N/A
Training	<i>Total number of community members who have improved skills and/or knowledge resulting from training provided as part of project activities</i>	1,196 participants attended 13 consultation programs aimed at raising awareness on the importance of peatlands, the impacts of carbon emissions on climate change, forest fire prevention, and project activities designed to protect peatlands, reduce carbon emissions, and preserve biodiversity and ecosystem integrity within the peatland forest.	4.3
	<i>Number of female community members who have improved skills and/or knowledge resulting from training provided as part of project activities of project activities</i>	66% (795) of the participants attended the consultation programs are female.	4.3
Employment	<i>Total number of people employed in of project activities,⁵ expressed as number of full-time employees⁶</i>	46	4.3
	<i>Number of women employed in project activities, expressed as number of full-time employees</i>	17	4.3
Livelihoods	<i>Total number of people with improved livelihoods⁷ or income generated as a result of project activities</i>	N/A	N/A

⁵ Employed in project activities means people directly working on project activities in return for compensation (financial or otherwise), including employees, contracted workers, sub-contracted workers, and community members that are paid to carry out project-related work.

⁶ Full time equivalency is calculated as the total number of hours worked (by full-time, part-time, temporary and/or seasonal staff) divided by the average number of hours worked in full-time jobs within the country, region, or economic territory (adapted from UN System of National Accounts (1993) paragraphs 17.14[15.102]; [17.28])

⁷ Livelihoods are the capabilities, assets (including material and social resources) and activities required for a means of living (Krantz, Lasse, 2001. *The Sustainable Livelihood Approach to Poverty Reduction*. SIDA). Livelihood benefits may include benefits reported in the Employment metrics of this table.

	<i>Number of women with improved livelihoods or income generated as a result of project activities</i>	N/A	N/A
Health	<i>Total number of people for whom health services were improved as a result of project activities, measured against the without-project scenario</i>	N/A (Expected to start in September 2025)	N/A
	<i>Number of women for whom health services were improved as a result of project activities, measured against the without-project scenario</i>	N/A (Expected to start in September 2025)	N/A
Education	<i>Total number of people for whom access to, or quality of, education was improved as a result of project activities, measured against the without-project scenario</i>	N/A (Expected to start in October 2025)	N/A
	<i>Number of women and girls for whom access to, or quality of, education was improved as a result of project activities, measured against the without-project scenario</i>	N/A (Expected to start in September 2025)	N/A
Water	<i>Total number of people who experienced increased water quality and/or improved access to drinking water as a result of project activities, measured against the without-project scenario</i>	N/A (Expected to start in 2027)	N/A
	<i>Number of women who experienced increased water quality and/or improved access to drinking water as a result of project activities, measured against the without-project scenario</i>	N/A (Expected to start in 2027)	N/A
Well-being	<i>Total number of community members whose well-being⁸ was improved as a result of project activities</i>	N/A (Expected to have result in 2030)	N/A
	<i>Number of women whose well-being was improved as a result of project activities</i>	N/A (Expected to have result in 2030)	N/A
Biodiversity conservation	<i>Change in the number of hectares significantly better managed by the project for biodiversity conservation,⁹ measured against the without-project scenario</i>	96,569	5.1

⁸ Well-being is people's experience of the quality of their lives. Well-being benefits may include benefits reported in other metrics of this table (e.g. Training, Employment, Health, Education, Water, etc.), but could also include other benefits such as empowerment of community groups, strengthened legal rights to resources, conservation of access to areas of cultural significance, etc.

⁹ Biodiversity conservation in this context means areas where specific management measures are being implemented as a part of project activities with an objective of enhancing biodiversity conservation.

	<p><i>Number of globally Critically Endangered or Endangered species¹⁰ benefiting from reduced threats as a result of project activities,¹¹ measured against the without-project scenario</i></p>	<p>13</p>	<p>5.1</p>
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¹⁰ Per IUCN's Red List of Threatened Species

¹¹ In the absence of direct population or occupancy measures, measurement of reduced threats may be used as evidence of benefit

2 PROJECT DETAILS

2.1 Summary Description of the Implementation Status of the Project

2.1.1 Summary Description of the Project (VCS, 2.1, 3.6; CCB, G1.2)

The Pahang Peatland Restoration Project (PPRP) is a grouped project aimed at restoring and conserving approximately 96,569 ha of tropical peat swamp forest in Pahang State, Malaysia. With 77,499 ha making up the Initial Project Area, the project safeguards one of Peninsular Malaysia's last contiguous peatland ecosystems. This high conservation value area supports critical biodiversity, regulates water systems, and provides essential ecosystem services to surrounding Indigenous *Jakun* communities.

During the first monitoring period (01 Feb 2024 – 31 Jan 2025), the Project successfully implemented a suite of activities aligned with its climate, community, and biodiversity objectives:

- Fire prevention and peatland rewetting:
 - Construction of 74 canal blocks to restore natural hydrology and reduce fire risk.
 - Formation of a 20-member Fire Emergency Response Team (FERT) trained and equipped for fire suppression and integrated into regional coordination networks.
 - Development and deployment of a near real-time remote sensing monitoring system (custom Web-GIS platform) for fire and deforestation alerts, which came online in December 2024.
- Forest protection and biodiversity monitoring:
 - Launch of the SMART patrolling system and ground patrols to deter illegal activities and monitor biodiversity threats.
 - Set up two outposts at main entrances to provide social fencing for the Project Area.
 - Camera trap and bird surveys were initiated to establish biodiversity baselines and assess species presence, including Critically Endangered wildlife.
- Community engagement and development:
 - Socio-economic baseline studies completed in 10 villages, forming the basis for culturally appropriate livelihood and education programs.
 - Conducted Phase 1 Free, Prior, and Informed Consent (FPIC) process via village-wide consultation events involving 16 villages, and participatory mapping exercises with smallholders in the Project Zone.
 - Initiated Phase 2 FPIC with 12 potentially impacted community members inside Project Area to assess the risks, costs and benefits of the Project on them in a participatory manner.

- Biodiversity conservation:
 - Conservation efforts supported habitat for over 29 rare, threatened, or endangered species, including the Raffles' Banded Langur, Wrinkled Hornbill, and Malayan Tapir.
 - Patrolling and habitat protection activities were complemented by community awareness campaigns.

The project's estimated GHG impact during the monitoring period is the avoidance and removal of 1,187,893 tCO₂e, with full accounting and quantification presented in Section 3.2. These results reflect emissions avoided from deforestation and peat degradation with future monitoring periods to also include emissions reductions from rewetting and fire suppression as well as removals from reforestation efforts.

In its first year of operation, the PPRP has made significant progress in implementing its nature-based climate mitigation strategy, while simultaneously advancing community empowerment, cultural preservation, and biodiversity conservation.

2.1.2 Audit History (VCS, 4.1)

Audit Type	Period	Program	VB Name	Number of years
Validation/ Verification	August 2025 (start)	VCS+CCB	Earthood Services Ltd	One year

2.1.3 Sectoral Scope and Project Type (VCS, 3.2)

Sectoral Scope	14: Agriculture, forestry, and other land use
AFOLU Project Category	Reducing Emission from Deforestation and Degradation (REDD) Wetland Restoration and Conservation (WRC) Afforestation, Reforestation and Revegetation (ARR)
Project Activity Type	Combination of following Activity Types: <ul style="list-style-type: none"> • Avoiding Planned Deforestation (APD) • Conservation of Intact Wetlands (CIW) • Restoring Wetland Ecosystem (RWE) • Reforestation

2.1.4 Project Proponent (VCS, 3.7; CCB, G1.1)

Organization name	Enggang Pekan Sdn Bhd
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2.1.5 Other Entities Involved in the Project

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Role in the project	Co-developer
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2.1.6 Project Start Date (VCS, 3.8)

Project start date	01 February 2024
Justification	<p>The official project start date is 1 February 2024, marking the point at which activities directly leading to GHG emission reductions and removals were first implemented under the legal authority of Enggang, the holder of a Carbon Activity Use Permit issued by the State Government of Pahang.</p> <p>Although the Carbon Project Agreement (CPA) was executed nearly a year prior to this date, it included a provision allowing pre-existing logging concessions—with paid-up annual use rights—to continue operating until either their expiration or successful negotiation for early termination by Enggang. These concessions included active logging compartments with annual permits.</p> <p>Once these compartments were logged out, the CPA explicitly prohibited the issuance of any new logging licenses or permits. This restriction enabled Enggang to assume full operational control over the site for the purposes of ecosystem conservation and peatland restoration, thereby initiating the start of creditable project activities.</p>

2.1.7 Benefits Assessment and Project Crediting Period (VCS, 3.9; CCB, G1.9)

Crediting Period	The project crediting period is 59 years, as the project start date is almost one year after the start of a 60-year concession. The Project Proponent is committed to long term investment in the Use Permit Area and to generating long term GHG benefits from
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	a critically threatened peat landscape. This meets the VCS requirements of being more than 20 and less than 100 years.
Start Date of First or Fixed Crediting Period	01-February-2024 to 14-May-2083
Total Number of Years of Crediting Period	59 years
CCB Benefits Assessment Period	01-February-2024 to 14-May-2083

2.1.8 Project Location (VCS, 3.11; CCB, G1.3)

KML file has been provided

2.1.9 Title and Reference of Methodology (VCS, 3.1)

Type (methodology, tool, module)	Reference ID (if applicable)	Title	Version
Methodology	VM0007	REDD+ Methodology Framework (REDD+MF)	1.8
Methodology	VM0047	Afforestation, Reforestation, and Revegetation	1
Module	VMD0001	Estimation of carbon stocks in the above- and below-ground biomass in live tree and non-tree pools (CP-AB)	1.2
Module	VMD0006	Estimation of baseline carbon stock changes and greenhouse gas emissions from planned deforestation/forest degradation and planned wetland degradation (BL-PL)	1.4
Module	VMD0009	Estimation of emissions from activity shifting for avoiding planned deforestation/forest degradation and avoiding planned wetland degradation (LK-ASP)	1.3
Module	VMD0013	Estimation of greenhouse gas emissions from biomass and peat burning (E-BPB)	1.3
Module	VMD0015	Methods for monitoring greenhouse gas emissions and removals (M-REDD)	2.3
Module	VMD0016	Methods for stratification of the Project Area (X-STR)	1.3

Type (methodology, tool, module)	Reference ID (if applicable)	Title	Version
Module	VMD0017	Estimation of uncertainty for REDD project activities (X-UNC)	2.2
Module	VMD0042	Estimation of baseline soil carbon stock changes and greenhouse gas emissions in peatland rewetting and conservation project activities (BL-PEAT)	1.1
Module	VMD0044	Estimation of emissions from ecological leakage (LK-ECO)	1.1
Module	VMD0046	Methods for monitoring soil carbon stock changes and greenhouse gas emissions and removals in peatland rewetting and conservation project activities (M-PEAT)	1.1
Module	VMD0054	Module for estimating leakage from ARR activities	1.0
Tool	NPRT	AFOLU Non-Permanence Risk Tool	4.2
Tool	T-SIG	CDM Tool for testing significance of GHG emissions in A/R CDM project activities	1.0
Tool	VT0001	Tool for the demonstration and assessment of additionality in VCS agriculture, forestry and other land use (AFOLU) project activities	3.0
Tool	VT0005	Tool for measuring aboveground live forest biomass using remote sensing	1.0

2.1.10 Double Counting and Participation under Other GHG Programs (VCS, 3.23; CCB, G5.9)

2.1.10.1 No Double Issuance

Is the project receiving or seeking credit for reductions and removals from a project activity under another GHG program, or any other form of community, social, or biodiversity unit or credit?

Yes No

2.1.10.2 Registration in Other GHG Programs

Was the project registered or seeking registration under any other GHG programs?

Yes No

2.1.10.3 Projects Rejected by Other GHG Programs

Has the project been rejected by any other GHG programs?

Yes No

2.1.11 Double Claiming, Other Forms of Credit, and Scope 3 Emissions (VCS, 3.24)

2.1.11.1 No Double Claiming with Emissions Trading Programs or Binding Emission Limits

Are project reductions and removals or project activities also included in an emissions trading program or binding emission limit? See the VCS Program Definitions for definitions of emissions trading program and binding emission limit.

Yes No

2.1.11.2 No Double Claiming with Other Forms of Environmental Credit

Has the project activity sought, received, or is planning to receive credit from another GHG-related environmental credit system? See the VCS Program Definitions for definition of GHG-related environmental credit system.

Yes No

2.1.11.3 Supply Chain (Scope 3) Emissions

Do the project activities affect the emissions footprint of any product(s) (goods or services) that are part of a supply chain?

Yes No

If yes:

Is the project proponent(s) or authorized representative a buyer or seller of the product(s) (goods or services) that are part of a supply chain?

Yes No

If yes:

Has the project proponent(s) or authorized representative posted a public statement on their website saying, "Carbon credits may be issued through Verified Carbon Standard project [project ID] for the greenhouse gas emission reductions or removals associated with [project proponent or authorized representative organization name(s)] [name of product(s) whose emissions footprint is changed by the project activities]."?

Yes No

2.1.12 Sustainable Development Contributions (VCS, 3.17)

The Project supports the UN 2030 Agenda and Malaysia's 11MP and SDG Roadmap, contributing to 12 SDGs. It promotes poverty reduction, health, education, gender equality, and clean water access. It creates jobs, reduces inequalities, and fosters sustainable communities by restoring peat swamp forests and cultural heritage. It encourages responsible consumption, climate resilience, and biodiversity conservation. Monitoring is covered under climate, community, and biodiversity plans. Stakeholder engagement includes communities, companies, and government bodies. Key initiatives include life skills training, inclusive employment, hydrology restoration, and waste reduction, all aimed at enhancing resilience, equity, and sustainability across affected regions. Table 1 details the Project's sustainable development contributions to date.

Table 1: Sustainable Development Contributions

Row number	SDG target	SDG indicator	Net impact on SDG indicator	Current project contributions (also contributions over project lifetime since this is the first monitoring report)
1)	1.2	Reduce poverty	The Project creates job opportunities for local communities through full-time and part-time employment, and short-term waged jobs.	The Project employed 45.5 FTE, consisting of 39 full time permanent positions, 18 multiple-month contracts and various daily waged jobs, benefiting 106 community members during the monitoring period.
3)	3.9	Reduce air pollution	The Project conserves forest and prevents forest and peat fires, reducing emissions of GHGs and particulate matter into the atmosphere.	By conserving 77,499 ha of tropical peat swamp forest, the Project has mitigated 1,187,893 tCO ₂ e during the monitoring period. The Project's Forest Protection and FERT team has successfully suppressed 10 fire incidents that would otherwise create air pollution from airborne soot and particulate matters.
4)	4.3	Participation of youth and adults in formal and non-formal education and training	The Project co-designed education and capacity building programs to supplement government run institutions.	The Project conducted social baseline surveys in 10 villages, engaged with school teachers, the Department of Education, and the Department of Orang Asli Development to identify the educational needs gaps as a step towards co-designing impactful interventions.
5)	4.5	Equal opportunities for women in education and capacity building programs	The education and capacity building programs that the Project co-designs will be culturally-sensitive and gender-responsive.	

Row number	SDG target	SDG indicator	Net impact on SDG indicator	Current project contributions (also contributions over project lifetime since this is the first monitoring report)
6)	4.7	Education for sustainable development and global citizenship	Through consultations with stakeholders, the Project has created awareness of climate change and the importance of nature conservation.	Climate change and the relationship between peatland conservation, transboundary haze and flooding were explained during 13 village-wide consultation events that involved 16 villages and 1,196 participants. Knowledge of biodiversity was also shared with communities during this monitoring period.
7)	5.5	Proportion of women in decision-making positions	The Project promotes gender equality in its human capital management policy and encourages women's participation in the community.	50% of the Project Proponent's leadership team members are female (Project Lead, Community Development Manager, Finance Manager and Human Resource Manager).
8)	6.1	Provide clean water supply	Needs assessment undertaken through community consultations.	Water supply was identified as a gap in three villages, namely Selingkong, Permatang Siput, and RPS Runchang. The Project engaged with the government water supply management body (PAIP) to determine the government's plan for the area. RPS Runchang was selected for project interventions as the government plans to upgrade water supply infrastructure in the other two.
9)	6.6	Protect and restore peatland, which is a wetland ecosystem	The Project will conserve and restore 80,147 ha of peatland with the UPA.	The Project constructed 74 canal blocks during the monitoring period to rewet the peatland, and to restore its hydrological function.
10)	8.3	Informal employment	The Project encourages informal income generation activities such as working as local guides and boatmen.	The Project directly paid for 106 local guides, boatmen, enumerators, event facilitators, etc., during the monitoring period.

Row number	SDG target	SDG indicator	Net impact on SDG indicator	Current project contributions (also contributions over project lifetime since this is the first monitoring report)
11)	8.5	8.5.2 Unemployment Rate	The Project will reduce unemployment rate by creating various types of job opportunities: full time, part-time, multiple month contracts and daily paid waged jobs.	The Project employed 45.5 FTE, consisting of 39 full time permanent employees, 18 multiple-month contracts and various other daily waged jobs benefiting 106 community members during the monitoring period.
12)	8.9	Promote sustainable tourism that creates jobs and promotes local culture and products	The Project will identify and support the development of ecotourism potential in and around the project area, including the potential	Although interest in ecotourism was identified, the Project recognized that a full feasibility study needs to be conducted, hence no concrete contribution during the present monitoring period.
13)	10.1	Income growth of the bottom 40% of the population	The Project creates job opportunities for local communities through full-time, part-time employment and short-term waged jobs.	The Project employed 45.5 FTE, consisting of 39 full time permanent employment, 18 multiple month contract and various daily paid waged jobs benefiting 106 community members during the monitoring period.
14)	11.4	Protection and conservation of all cultural and natural heritage	The Project has identified cultural and natural heritage areas using the High Conservation Value (HCV) method.	Through conservation of the Project Area, the Project protects the natural and cultural heritage of the largest remaining contiguous peat swamp forest in Peninsular Malaysia.
15)	12.5	Recycled waste materials	Waste segregation and recycling campaign started.	Waste segregation campaign started internally at the Project Proponent's office in Pekan.
16)	13.0	Total GHG emissions per year	The project will mitigate 186,016,187 tCO ₂ e of GHG emissions over its lifetime.	Over the monitoring period, the project mitigated 1,187,893 tCO ₂ e of GHG emissions.

Row number	SDG target	SDG indicator	Net impact on SDG indicator	Current project contributions (also contributions over project lifetime since this is the first monitoring report)
17)	13.3	Education for sustainable development	The Project exchanges knowledge with educators about sustainable development.	The Project engaged 20 schools, 34 school teachers and the Department of Education to tell them about the Project's role in mitigating climate change and promoting sustainable development.
18)	15.1	Conserve and enhance forest cover	The Project will conserve and enhance 59,062 and 4,838 ha of natural forest, respectively, over its lifetime.	77,499 ha (initial Project Area) are protected from commercial logging and agriculture expansion. At project outset, 26,645 ha with the UPA is stratified as non-forest. Through project intervention, 17,451 ha is regenerated during the monitoring period.
19)	15.2	Reforestation	The Project will block legacy canals to rewet the peatland, thus preventing fires and assisting in natural regeneration of forest.	74 canal blocks were installed during the monitoring period.
20)	15.3	Restore degraded land		
21)	15.5	Red List Index	The Project will protect and restore the habitat of threatened species.	96,569 ha of peat swamp forest with two river systems are conserved with patrolling and social fencing to protect 29 rare, threatened and endangered species.
22)	17.17	Encourage and promote effective public, public-private and civil society partnerships	The Project will work closely with government agencies and civil society to conserve and restore the ecosystem.	The Project held 55 engagements with various government agencies and civil society, and jointly organized 7 community awareness campaigns on fire prevention and management. Internships were offered to 4 local university students.

2.2 Project Implementation Status

2.2.1 Implementation Schedule (VCS, 3.2; CCB, G1.9)

Date (D/M/Y)	Milestone(s) in the project's development and implementation
2023	Initial community engagement around the Project Area and biodiversity conservation initiated by NGOs and research programs. Participatory mapping and planning initiated, social baseline data gathering.
2023	Initial engagement with government agencies identified as stakeholders.
Q4 2023	Biomass (above- and below-ground) surveys completed.
1/2/2024	Start of first monitoring period.
Feb 2024	Field team trained in SMART Patrol system.
Feb 2024	Grievance Redressal Mechanism (GRM) formalized.
Apr – Oct 2024	291 piezometers installed and actively monitored.
Apr 2024	Social baseline study completed.
May 2024	Biodiversity survey using camera traps commenced.
Jun 2024	Establishment of FERT with 20 members.
Jul – Oct 2024	First canal blocking campaign. 74 canal blocks installed during dry season inside the Project Area without persistent community presence.
Jul – Sept 2024	Village-wide consultation events involving 16 communities.
Sept 2024	First fixed transect bird biodiversity survey (off-monsoon season) conducted.
Oct 2024 – Feb 2025	Participatory smallholder verification in the field.
Oct 2024 – May 2025	Establishment of the integrated management system and the ISO 45001 compliant Occupation Health and Safety Management System.
Dec 2024	Customized web-GIS based fire and deforestation monitoring system on stream.
Jan 2025	Bird biodiversity survey (monsoon season) conducted.
2025	Community nurseries engaged and reforestation program initiated.
31/1/2025	End of first monitoring period.

A total of 395 ha of Project Area was burned across multiple uncontrolled fire events during this monitoring period. The emissions from the burning of peat and biomass from these fires are accounted for in Section 3.2.2.1 and equated to 6,238 tCO_{2e}. Because no VCUs have yet been issued for this project the loss of carbon stocks in this report are not considered loss or reversal events.

2.2.2 Baseline Reassessment (VCS, 3.2.6, 3.2.7)

Did the project undergo baseline reassessment during the monitoring period?

- Yes No

2.2.3 Methodology Deviations (VCS, 3.20)

The Project has applied two deviations from VCS tool VT0005 'that do not impact on the applicability of the methodology':

1. The use of satellite, rather than aerial, LiDAR (i.e., GEDI) to generate a wall-to-wall biomass map.
2. An alternative approach to validation, comparing the map directly against the 30 field plots, in place of 15 additional independent field plots.

2.2.3.1 Use of satellite LiDAR (GEDI)

VT0005 was developed prior to NASA's GEDI, the first spaceborne LiDAR designed for forest monitoring, was launched. This was therefore a time when suitable spaceborne LiDAR data were not available. While the revision of VT0005 v1 to determine AGB through a combination of remote sensing data and field measurements has not yet been released (it was put on hold and expected to resume in Q2 2025), we believe that spaceborne LiDAR can reasonably replace the role of airborne LiDAR as the high accuracy sampling tool in producing accurate maps of aboveground carbon using satellite remote sensing.

The justification for using satellite LiDAR, which has similar properties to the plot-averaged airborne LiDAR, is threefold:

- Costs are considerably lower, and feasibility is higher. Flying fixed wing drones or planes in the area is bureaucratically difficult and therefore costly to implement.
- Emissions are lower: satellites, once launched, operate at very low carbon costs, whereas repeated plane flights over a study area have a clear and high carbon cost, especially considering flights from often remote airports, and transfers of the planes from their base.
- Improved geographical spread and repeat time of data: satellites routinely collect LiDAR footprints over the study site. Only with a near-unlimited budget could the whole area be repeatedly sampled with airborne LiDAR, meaning the data would be spatially biased and likely sparse in time.

Similar approaches have been used to generate global canopy height models using Sentinel-2 (Lang et al., 2023) and Landsat (Potapov et al., 2021) using moderate resolution optical data, as well as with ICESat-2 data (Li et al., 2020), although this satellite is not optimized for retrieving forest canopy

height data. This approach was widely used by a previous generation of satellite LiDAR sensors. For example, many studies mapped AGB using the ICESAT GLAS satellite that operated in the 2000s. This had a 70 m footprint, compared to GEDI's 25 m, so we would expect its accuracy to be lower, but nonetheless even with these older methods and satellite technologies good results were obtained.

Other projects, for example GREEN GOLD LORETO 1 (VCS ID 2345), have previously applied the same deviation following VM0010 using VT0005, leading to issued credits based on spaceborne LiDAR data.

2.2.3.2 Map Validation Approach

Ground plot measurements were collected following protocols based on the Rainfor methodology (Phillips et al., 2021), which meets the requirements of the VCS Standard and VM0007. This recommends a large plot size of 0.5 ha, to ensure that biomass values are stable even in tropical forests with large trees.

Cost and logistical limitations made it impossible to create the full 45 plots as required in VT0005, where 30 are used to develop relationships, and 15 held back for validation. Instead of 15 additional test plots, direct validation of the final biomass map against the field plot data was undertaken, as described in PDD, obtaining an RMSE value of 78.7 Mg ha⁻¹.

This direct validation is valid and conservative because the field plots are not directly used to derive the map, rather, they were used to develop the relationship between forest canopy height and biomass. Inevitable uncertainties in the geolocation of the forest inventory plots and errors in map determination mean that this uncertainty estimate remains conservative, even though independent plots were not used. Perfectly located plots would produce a lower RMSE value, but do not exist. Using 30 plots for validation, rather than 15 as in the methodology, provides a wider range of values and reduces the variability in error estimation based on validation plots.

2.2.4 Minor Changes to Project Description (CCB Program Rules, 3.5.6)

Not applicable.

2.2.5 Project Description Deviations (VCS, 3.21; CCB Program Rules, 3.5.7 – 3.5.10)

Not applicable.

2.2.6 Grouped Projects (VCS, 3.6; CCB, G1.13-G1.15, G4.1)

While this is a grouped project, this is the first verification. No new project activity instances have been added or removed.

2.2.7 Risks to the Project (CCB, G1.10)

The Project maintains and regularly updates a risk register, ensuring changes in circumstances and risk profiles of all aspects of the Project are captured and mitigation measures developed and implemented. The risks encountered and mitigation measures implemented during the monitoring period are set out in Table 2 below. Further information is available in the Project Risks Table in Appendix 2, and the full Project Risk Register is available to auditors on request

Table 2: Project Risks and Mitigation Measures Implemented.

Identified Risk	Potential impact of risk on climate, community and/or biodiversity benefits	Actions needed and designed to mitigate the risk
Uncontrollable peat and forest fire	<ul style="list-style-type: none"> • Severe respiratory illness among members of communities surrounding the Project Area due to fires. • Property damage (e.g., house, vehicles). • Loss of livelihood activities (e.g., crops, NTFPs). 	<ul style="list-style-type: none"> • The Project halted commercial logging and agricultural conversion that leads to drainage and drying of the peatland, thus reducing fire risk. • 74 canal blocks were installed to rewet peatland (thus reducing fire risk). • The Project is a core member of a group of regional stakeholders (local government agencies, NGOs and neighboring plantations) coordinating on fire prevention and suppression. • Fire prevention information was shared during village-wide consultation events with 16 villages. The Project also contributed to three fire awareness events organized jointly by NGOs and government agencies. • An early warning system was established incorporating remote sensing, ground patrols and a community liaison network to enable rapid response to hotspots and fire. • The Project established, equipped and trained 20 employees as fire-fighters for prevention and suppression of fires. Ten fire suppression operations were successfully conducted during the monitoring period, some under the guidance of government fire brigade. In addition, 6.1 km of fire breaks were constructed.

Identified Risk	Potential impact of risk on climate, community and/or biodiversity benefits	Actions needed and designed to mitigate the risk
<p>Risks from canal blocking activities:</p> <ul style="list-style-type: none"> • Elevated water table • Loss of transportation access via man-made canals • Loss of access to fishing grounds in man-made canals • Changes in species composition in restored canal system 	<ul style="list-style-type: none"> • Potential loss of livelihoods due to crop failure caused by inundation of root systems. • Potential material loss or damage of property from flooding. • Boat access restricted in manmade canals that have become common throughfares which may impact access to livelihood options or other areas within the Project Zone. • Canal blocks may limit access to former fishing grounds and impact livelihood outcomes. • Abundance and diversity of fish populations may change as a result of ecological restoration, which may impact livelihoods. 	<ul style="list-style-type: none"> • Phase 2 FPIC was conducted with potentially impacted stakeholders to assess risks, costs and benefits before canal blocking plan was finalized. During this monitoring period, an alternative location of canal blocks was agreed with one smallholder to avoid adverse impacts. • Field observations and community feedback were sought about the impact on fish populations after canal blocking. Positive impacts were observed during this monitoring period.
<p>Risk of loss of agricultural land due to Project reforestation activities</p>	<p>Replanting and reforestation may restrict the land available for future agricultural activities of the communities.</p>	<ul style="list-style-type: none"> • Smallholder mapping was carried out to ensure the Project does not reforest areas with overlapping community land rights without the consent of the communities or smallholders therein.
<p>Risk of loss of productive time due to participation in Project community development activities</p>	<p>Loss of income due to time taken up for program participation in lieu of waged job.</p>	<ul style="list-style-type: none"> • Community consultations and programs were carried out during weekend, when most stakeholders have time off from their formal jobs.
<p>Dangerous and difficult field conditions for workers</p>	<p>Workers need to undertake activities in the peat swamp forest with hazards such as uneven or slippery and/or waterlogged terrain, attacks by wildlife, contact with toxic</p>	<ul style="list-style-type: none"> • The Project implemented an occupational health and safety management system based on ISO 45001.

Identified Risk	Potential impact of risk on climate, community and/or biodiversity benefits	Actions needed and designed to mitigate the risk
	<p>plants, falls into water bodies, physical exhaustion, etc. The risks are exacerbated by flooding. Workers who have to work near fire can encounter additional respiratory and heat exhaustion hazards.</p>	<ul style="list-style-type: none"> • Staff were trained regularly in health and safety policies and practices, including first aid techniques and skills to identify hazards and control risks. • Personal protective equipment (PPE) and field communication devices were used by Project staff when working in the field. • Regular maintenance of all PPE, vehicles and field facilities, tools, and infrastructure was undertaken to ensure that all the equipment meets safety standards. • Specific training was given for high-risk activities such as fire-fighting. • Training in off-road driving, water transport safety and swimming were provided to staff to ensure teams are adequately prepared for field work conditions.
<p>Protecting and preserving property rights, customary rights, or protecting legal or customary tenure/access rights to territories, property, and resources, including collective and/or conflicting rights</p>	<p>See Section 2.5.5 on customary rights.</p>	<ul style="list-style-type: none"> • The Project does not restrict the access of local indigenous people to the Project Area and Project Zone. This was clearly communicated to community members during consultations. • The Project respects customary land tenure by excluding claimed customary rights land from the initial Project Area. • The Project engaged with potentially impacted stakeholders to ensure permissions were obtained and FPIC process was followed, as necessary, before any project activities were implemented.

Identified Risk	Potential impact of risk on climate, community and/or biodiversity benefits	Actions needed and designed to mitigate the risk
Risk caused by <i>Acacia sp.</i> – an existing invasive species	<i>Acacia sp.</i> may crowd out local floral in the regeneration of forest.	Areas with <i>Acacia sp.</i> were mapped to facilitate the formulation of a management and monitoring plan. The Project used hydrology restoration as a strategy to naturally success them with local peatland species.

2.2.8 Benefit Permanence (CCB, G1.11)

The following measures were implemented during the present monitoring period to ensure the long-term permanence of Project benefits beyond the project lifetime.

1. **Community involvement:** The Project has established deep-rooted relationships with communities and acknowledged their traditional ecological knowledge of the landscape. By placing them at the center of the transformational change to the management of the landscape through engagement, consultation, employment and development, the Project fosters a model of ownership and responsibility among communities for the ecological integrity of the Project Area.
2. **Monitoring and evaluation:** Ongoing monitoring and evaluation of conservation efforts using the integrated national SMART Patrol data model will help track progress and identify areas in need of improvement. This will foster an adaptive management mindset among project staff and stakeholders and strengthen the longevity of conservation outcomes.
3. **Education and awareness:** Engagement and consultation events have elevated awareness on environmental protection and fire prevention. This is the foundation for more in-depth and wider-reaching campaigns that will expound on the importance of conserving peatland and be reinforced through education programs for younger generations.
4. **Partnerships and collaboration:** The Project has developed close working relationships with government agencies, local NGOs, plantation companies and communities, in particular around fire response and management. These types of multi-stakeholder coordination efforts will continue to be developed to ensure their effectiveness is maintained beyond the project lifetime.
5. **Research and innovation:** The Project has started investing in research on biodiversity and development of innovative solutions such as the early warning system for fire response. The application of innovation and technology will help address emerging conservation challenges and improve existing strategies that will be in place beyond the project lifetime.

2.3 Stakeholder Engagement & Safeguards

2.3.1 Stakeholder Identification (VCS, 3.18, 3.19; CCB, G1.5)

During the monitoring period, the Project team maintained an active and adaptive approach to stakeholder identification, continually updating the stakeholder list to reflect shifts in community dynamics, landscape use, and project influence. The same comprehensive and inclusive methodology described in the PDD continues to guide this process, ensuring that all relevant stakeholders—especially those potentially affected by project activities—are accurately identified and appropriately engaged.

This ongoing process includes informal site visits, follow-up consultations, and consistent communication with previously engaged communities. New stakeholders are identified through continued fieldwork, employing the snowball sampling method—whereby existing community contacts help identify others connected to or impacted by the project. This ensures that individuals or groups

not initially captured during the early project phases, but who have since become relevant to the Project Area, are included in stakeholder engagement and, where applicable, FPIC processes.

As of this reporting period, no changes have occurred to the official village list as presented in the PDD. The Community Development Unit maintains and updates the stakeholder database quarterly. Stakeholders identified through this ongoing process—particularly those whose interaction with the project is new or increasing—will be considered for inclusion in future FPIC activities prior to the implementation of any new project components. The most recent version of the stakeholder list is available to auditors upon request.

2.3.2 Stakeholder Access to Project Documents (VCS, 3.18, 3.19; CCB, G3.1)

The Project ensures that all project documentation including the Project Description Document (PDD), Monitoring Reports (MRs), Community Monitoring Plans, and Biodiversity Monitoring Plans are made fully accessible to Project Zone communities and other relevant stakeholders throughout the project lifetime.

Hard copies of the PDD, MRs, and their summaries, available in both English and Malay, are stored at the Project Office in Pekan and distributed to village heads in each Project Zone village. Soft copy summaries are shared through WhatsApp broadcasts to the communities and clarification sessions with Project staff are offered as needed to ensure full community understanding and address any literacy barriers. Public also can access the documents through Project website and Verra's project pages.

Relevant government agencies, plantation owners, and NGOs are formally informed of project progress and provided with access to project documentation. Any community concerns or feedback are managed through the established Grievance Redressal Mechanism (GRM), ensuring transparency and inclusive engagement.

2.3.3 Dissemination of Summary Project Documents (VCS, 3.18, 3.19; CCB, G3.1)

As outlined in the previous section (see Section 2.3.3), the Project has established clear procedures to ensure that all summaries of Project Documents are effectively disseminated to stakeholders.

2.3.4 Informational Meetings with Stakeholders (VCS, 3.18, 3.19; CCB, G3.1)

Since mid-2023, the Project Team has actively conducted informational meetings with a wide range of stakeholders to ensure transparent communication about project objectives, activities, and progress.

Initial outreach focused on key government stakeholders, including the Pahang State Forestry Department (JPNP), Department of Irrigation and Drainage (JPS), Pahang Biodiversity Council (MBP), Department of Wildlife and National Parks of Peninsular Malaysia (PERHILITAN) and the Department of Orang Asli Development (JAKOA). These engagements laid the foundation for broader collaboration and formal recognition of project activities. In November 2023, several meetings were conducted to share updates and gather feedback, with follow-up sessions held in May 2024. Additionally, in July 2024, local NGOs with an interest in community development and conservation within the Project Zone were invited to a dedicated roundtable discussion.

Complementing institutional outreach, the Project Team conducted socio-economic scoping in September 2023 across several villages. With approval from JAKOA, in-depth social surveys were carried out by the Community Development Unit in 10 villages during November and December 2023. These efforts were expanded in March 2024 to assess the relationship between local communities and the Project Area, focusing on forest dependence, land use, and cultural ties.

From July to September 2024, the project organized a series of village-wide consultation events across 16 villages. These sessions were designed to:

- Present detailed information about the project.
- Encourage community feedback and input.
- Conduct participatory mapping and activity identification.

To maximize participation, events were scheduled on weekends and held in accessible venues such as village halls or temporary tents. Publicity and community outreach were coordinated one week in advance, using a combination of:

- Posters displayed in communal spaces.
- Announcements made by village heads or community facilitators (see Figure 1 for an example of an announcement for a consultation event).
- WhatsApp messages, phone calls, and direct outreach to ensure all relevant stakeholders were informed.

As a result of this consultation campaign, 11 villages were identified as having strong historical, cultural, or livelihood connections to the Project Area. These communities have been flagged for ongoing engagement throughout the project's lifetime, ensuring that their perspectives continue to inform project design and implementation.



Figure 1: Project Staff Posting Announcements for Village-wide Consultations Events

2.3.5 Risks from the Project and No Net Harm (VCS, 3.18, 3.19)

The Project has been through a comprehensive initial assessment of likely natural and human-induced risks including fire, flooding, ecosystem change, and impacts on human well-being and livelihoods. Mitigation strategies have been developed and implemented to address key risks, following international best-practice and national guidelines and laws to ensure that the project will cause no harm. The mitigation strategies are included in the project proponent’s Integrated Management System Manual. Detailed risks and mitigation strategies can be found in Appendix 2.

2.3.6 Community Costs, Risks, and Benefits (CCB, G3.2)

The PPRP is committed to transparent, participatory and timely community engagement, ensuring that all information regarding potential costs, risks, and benefits are communicated clearly and accessible before communities make decisions regarding their involvement in the project. This process is facilitated by locally recruited staff, who have established long-standing relationships with the communities and uphold high standards of integrity and trust.

During the monitoring period, the PPRP conducted inclusive consultations addressing risks, costs, and benefits. Key activities included:

- Village-wide consultations were conducted to assess land use and identify potential overlaps between Project activities and community livelihoods such as farming, fishing, and non-timber forest product (NTFP) collection. These consultations helped identify potentially affected stakeholders. During this Phase 1 FPIC process (see Section 2.5.7 for further details on FPIC), Project staff explained key activities—including canal blocking, piezometer data collection, and wildlife monitoring—to the communities. The potential costs, risks, and benefits were presented in general terms, prompting communities to consider how the project might affect them. The GRM was also introduced as a way for communities to voice concerns or grievances related to the project.

- Pre-mapping educational sessions to help communities identify potential risks and understand mitigation measures.
- Participatory smallholder verification in the field to map farming activities within forest reserves and the project landscape.

Below are the summarized general costs, risks and benefits as they have been determined throughout the consultation process to date.

Costs

The project has clearly communicated potential costs to communities, particularly related to compliance with environmental commitments. These include:

- Cessation of illegal activities such as commercial logging, hunting of species not permissible under law, and the use of fire for land clearing on peat.
- Short-term economic impacts for households who are reliant on these practices.

To address these challenges, the Project prioritizes support to affected households by providing viable livelihood alternatives that aim to equal or surpass previous income levels, improve working conditions, and target the most vulnerable groups within communities.

Risks

Project activities designed to bring long-term benefits may present short-term risks to the communities. These include:

- Risk of crop yield being affected by rising water table due to canal blocking.
- Uncertainty around the immediate success of alternative livelihood strategies.

To mitigate these risks, the PPRP:

- Maintains frequent communication with communities.
- Operates a GRM.
- Provides tailored support and adaptive project management to reduce community vulnerability.

Importantly, the project has not restricted access to vital livelihood activities such as fishing and the collection of NTFPs.

Benefits

The Project is structured to deliver long-term benefits to communities, including:

- Job opportunities either as permanent staff, contract workers or service providers.
- The formation of CDA ensuring community perspectives are represented and respected.
- Livelihood programs aimed at enhancing income, improving food security, empowering women, and diversifying household income sources.
- Targeted support to the most affected, vulnerable and marginalized groups.
- Capacity building for sustainable natural resource management and post-project self-reliance.

The project also serves as a model for sustainable land use in the region, promoting knowledge exchange among government agencies, NGOs, and other stakeholders. Its broader benefits include:

- Reducing carbon emissions.
- Conserving biodiversity.
- Promoting inclusive, equitable development.

Additionally, the Project contributes to community well-being by offering health and education initiatives for youth, women, and the elderly.

PPRP is committed to maintaining the highest standards of transparency, accountability, and collaboration throughout the life of the project. Project managers and staff are fully aware of their responsibility to prevent harm and promote sustainable development. All community benefit activities are designed with future community ownership in mind, ensuring longevity and effectiveness beyond the project's duration.

2.3.7 Information to Stakeholders on the Verification Process (VCS, 3.18.6, 3.19; CCB, G3.3)

The Project ensures that communities and stakeholders are fully informed about the validation and verification (VVB) processes under the VCS and CCB frameworks. These efforts reflect the Project's ongoing commitment to transparency, accountability, and inclusive participation.

Activities and Processes Implemented

To build awareness and understanding of verification processes during the monitoring period, the Project undertook the following key activities:

- Regular inclusion of VVB process information during community meetings, consultation sessions, and participatory engagements.
- Targeted discussions on validation and verification were embedded within broader project communications and milestone updates.
- Community Development Unit (CDU) staff, over half of whom are *Jakun*, played a key role in communicating these processes in local languages and culturally appropriate formats, ensuring comprehension among Indigenous communities.

Stakeholders were informed of their rights to engage independently with auditors, and the process was contextualized in relation to project accountability and community benefits.

Communication Methods Used

A combination of direct and culturally appropriate communication methods was used to ensure wide and inclusive outreach:

- Face-to-face meetings with village leaders, community members, and stakeholder groups remained the primary and most effective mode of communication.
- Posters and printed materials were displayed in communal spaces such as village halls, noticeboards, and local shops.
- Dedicated information sessions on validation and verification were held, allowing community members to ask questions and voice concerns.

- Local digital channels, including village-wide WhatsApp broadcasts and informal networks, were used for broader dissemination.
- Village committees and community focal points acted as trusted intermediaries to convey and clarify information.

This multi-modal approach ensured that information sharing was both transparent and responsive to local norms, literacy levels, and communication preferences. Stakeholder feedback was encouraged at every stage and is continuously welcomed throughout the verification process.

All materials related to the validation and verification process, including those shared during consultations, are available for review upon request by the auditor.

2.3.8 Site Visit Information and Opportunities to Communicate with Auditor (VCS, 3.18.6, 3.19; CCB, G3.3)

To uphold the principles of transparency and accountability, the Pahang Peatland Restoration Project (PPRP) ensures that communities and stakeholders are informed in a timely and accessible manner about upcoming site visits by the independent auditor. Once the audit schedule is confirmed, the Project team will disseminate information about the site visit at least two weeks in advance. This notification will include:

- The purpose and importance of the verification visit,
- The types of activities or questions that may be involved, and
- The opportunity for stakeholders to engage directly with the auditors.

Information will be communicated through multiple locally appropriate channels, including:

- Face-to-face briefings with village leaders and community representatives,
- WhatsApp broadcasts and phone calls to ensure wide outreach.

To facilitate independent and candid communication with the auditors, community members will be:

- Encouraged to engage in private discussions with the VVB team without the presence of Project staff,
- Provided with local language support, including translation in *Jakun* or Malay where needed,
- Informed of their right to raise concerns, feedback, or questions freely during the auditor's visit.

These arrangements are designed to ensure that all stakeholders, particularly local and Indigenous communities, are given a safe and respectful platform to express their views, reinforcing the integrity of the verification process.

2.3.9 Stakeholder Consultation (VCS, 3.18; CCB, G3.4)

Ongoing consultation

The community group survey formed part of a baseline assessment designed to gather essential data on forest-dependent communities. Its purpose was to ensure that these communities were fully informed about the Project and to assess their level of dependency on the Project Area (UPA). This process helps safeguard against potential negative impacts on their livelihoods and social

	well-being. Continuous engagement mechanisms have been established to provide project updates and monitor any emerging impacts on community over time. During the monitoring period, 693 (61% female) individuals were surveyed.
Date(s) of stakeholder consultation	10-12/3/2024 – Api Larat 16-18/4/2024 – Permatang Siput 20-22/3/2024 – Landai 17-19/3/2024 – Meranti 1-4/4/2024 – RPS Runchang 27-30/3/2024 – Simpai 5-7/4/2024 – Seri Bangkong 24-26/3/2024 – Sawah Batu 13-15/3/2024 – Selingkong 13-15/4/2024 – Arong
Communication of monitored results	The results of community group surveys informed the FPIC process (see Section 2.5.7) and discussions around the design of community development programs. The concept of community development programs was presented in the village-wide consultation events. The monitoring plan for community development programs was disseminated via WhatsApp, printed, distributed, and explained in the boundary agreement consultations.
Consultation records	Findings were recorded and stored in the internal database. The outcomes of the engagements were documented in a comprehensive Social Baseline Report.
Stakeholder input	Through this engagement, Project staff identified community members who engage in forest-dependent activities. Participants also shared their income sources and the locations of their activities within the forest. This information will be used to support the design of livelihood safeguards and ensures the Project does not adversely impact their social or economic well-being.

Ongoing consultation	<p>Village-wide consultation events were conducted to explain and inform communities, particularly those who may be dependent on the UPA, about the nature and potential impacts of the Project. These events served as a forum to ensure that communities received accurate information and had direct access to Project staff and project documentation. These consultation events form part of Phase 1 FPIC to identify potentially impacted stakeholders. These engagements also aimed to gather concerns and initiate transparent dialogue between communities and Project staff.</p> <p>Invitations to these events were shared via WhatsApp broadcasts with individuals previously engaged during the Social Baseline Study. Announcements were also promoted through posters placed in communal spaces and information shared by village leaders.</p> <p>1,196 (66% female) individuals attended the event, and 674 (66% female) signed the consultation form to indicate their understanding of the consultation.</p>
Date(s) of stakeholder consultation	14/7/2024 - Api Larat 28/7/2024 - Meranti, Landai 4/8/2024 - Seri Bangkong, Arong, Bendaling 9/8/2024 - Kaya

	<p>10/8/2024 - Sawah Batu</p> <p>11/8/2024 - Simpai</p> <p>17/8/2024 - RPS Runchang</p> <p>25/8/2024 - Selingkong</p> <p>7/9/2024 - Jong</p> <p>8/9/2024 - Padang</p> <p>21/9/2024 - Sungai Kalong</p> <p>22/9/2024 - Permatang Siput</p> <p>29/9/2024 - Durian Sebatang</p>
Communication of monitored results	<p>The social baseline study and community group survey were presented in the village-wide consultation events for further feedback. The Grievance Redress Mechanism (GRM) was explained during the consultations, and mailboxes were installed in each village to encourage continuous feedback.</p>
Consultation records	<p>Consultation outcomes were documented through group discussion notes, photographic evidence, and participant attendance lists. Key concerns and suggestions were compiled by Project staff and recorded in internal database and village-specific engagement files. Follow-up communication was provided to all villages.</p>
Stakeholder input	<p>During consultations, community members expressed concerns about potential overlaps between smallholdings and the proposed Project Area, risks of restricted access to traditional lands, the possibility of inundation caused by canal blocking, the use of camera traps, and limitations on forest use within Permanent Reserved Forest (PRF) areas. In addition to voicing concerns, communities also proposed a range of environmental and livelihood initiatives, including tree nurseries, weaving programs, hydroponics, and livestock farming. A strong emphasis was placed on the need for formal agreements, clear boundary demarcation, and inclusive decision-making processes.</p> <p>In response, the Project committed to a collaborative boundary demarcation process with affected communities. Project staff engaged directly with villages and individual smallholders to identify and map customary and communal lands, which were subsequently excluded from the initial Project Area. A formal Boundary Agreement mechanism was introduced to ensure that community-requested areas were respected and clearly distinguished from the Project boundary.</p> <p>Additionally, a small group of vocal community members from Durian Sebatang chose not to participate in the Project. Their decision was fully respected and has been formally documented.</p> <p>These community inputs have played a central role in shaping the Project's design, implementation approach, and ongoing stakeholder engagement strategy, reinforcing a participatory and respectful development process.</p>
Ongoing consultation	<p>Participatory smallholder verification activities were carried out to verify smallholding boundaries and identify potentially impacted stakeholders which is the 1st phase of FPIC. These activities ensured that customary claims and cultivated lands were accurately identified and excluded from the initial</p>

	Project Area as requested by the communities. Smallholders were approached respectfully and participation was voluntary. Dedicated Project staff facilitated ongoing engagement to ensure two-way communication throughout the verification period.
Date(s) of stakeholder consultation	October 2024 to February 2025
Communication of monitored results	Verified smallholder maps were developed and shared with communities through village leaders and disseminated in hard copy during boundary agreement consultations. These maps excluded existing smallholdings and customary claims from the initial Project Area. Project staff also used the verified data to guide future engagement, boundary demarcation efforts, and targeted follow-up under Phase 2 FPIC, as necessary.
Consultation records	Smallholders participated in the verification process by completing structured questionnaires through one-to-one interview with Project staff. The QField mobile app was used to capture GPS-based smallholding boundaries and field data. In addition, aerial drone photos were collected to support visual verification. All the information was later analyzed and documented in internal database. All engagements were carried out respectfully and only with willing participants.
Stakeholder input	Smallholders provided detailed information on their farm boundaries, crop types, land dependency, and customary claims. This input informed the refinement of the Project Area boundaries and ensured exclusion of identified community land. A few potentially impacted individuals were identified for further consultation in the 2nd phase of FPIC.

Ongoing consultation	<p>Phase 2 FPIC consultations were conducted with a smallholder in the Protection Zone whose land use or livelihoods potentially overlapped with canal blocking activity. The stakeholder was approached respectfully through phone calls, WhatsApp messages, and direct in-person visits. Multiple engagements were carried out to deliver comprehensive project information, address community concerns, and allow sufficient time for informed decision-making.</p> <p>The Project's GRM was explained to ensure the stakeholder had a formal channel for ongoing feedback or concerns. Dedicated Project staff established strong relationship with this potentially impacted stakeholder to monitor any emerging impacts from Project activities and ensure that community well-being would not be adversely affected.</p>
Date(s) of stakeholder consultation	March 2024 – March 2025: Smallholder in Nenasi PRF
Communication of monitored results	The smallholder was given adequate time to reflect on the information before giving feedback. The Project responded to her concern by adjusting the canal block design in Nenasi PRF. The stakeholder confirmed that her livelihood would not be adversely affected with the new canal block design and agreed to ongoing monitoring arrangements. The GRM channel remained in place for

	continued feedback. Summary documents and project updates were also shared via WhatsApp and during follow-up visits.
Consultation records	Consultations were documented using field notes, GPS data, photographs, and WhatsApp communication records. The QField app and drone imagery were used in areas involving land and water use mapping. All data was securely stored in the internal database.
Stakeholder input	The smallholder shared information on her farming areas, dependency on nearby natural resources, and potential risks related to canal blocks or forest access. In response, the Project refined its intervention design to avoid disrupting key livelihood zones and ensured inclusive communication continued through dedicated Project staff. The smallholder confirmed that her livelihood would not be negatively impacted.

Ongoing consultation	<p>Phase 2 FPIC consultations were conducted with smallholders and fishers whose land use or livelihoods potentially overlapped with Project activities and the Project Area. These individuals were approached respectfully through phone calls, WhatsApp messages, and direct in-person visits. Multiple engagements were carried out to deliver comprehensive project information, address community concerns, and allow sufficient time for informed decision-making.</p> <p>The GRM was explained to ensure stakeholders had a formal channel for ongoing feedback or concerns. Dedicated Project staff established strong relationships with potentially impacted stakeholders to monitor any emerging impacts from Project activities and ensure that community well-being would not be adversely affected.</p>
Date(s) of stakeholder consultation	<p>January – March 2025: 4 households along Mercung River</p> <p>January – April 2025: 7 households in Kampung Melogo area</p>
Communication of monitored results	Stakeholders were given adequate time to reflect on the information before making decisions. Stakeholders confirmed that their livelihoods would not be adversely affected and agreed to ongoing monitoring arrangements. The GRM channels remained in place for continued feedback. Summary documents and project updates were also shared via WhatsApp and during follow-up visits.
Consultation records	Consultations were documented using field notes, GPS data, photographs, and WhatsApp communication records. The QField app and drone imagery were used in areas involving land and water use mapping. All data was securely stored in the internal database.
Stakeholder input	Smallholders and fishers shared information on their farming areas, fishing routes, seasonal dependence on nearby natural resources, and potential risks related to canal blocks or forest access. Stakeholders in all areas confirmed that their activities would not be negatively impacted, and those with additional concerns were offered further engagement through Phase 2 FPIC follow-up.

Ongoing consultation	<p>The Project is an active member in a public-private-civil society collaboration initiatives in peatland management. Meetings and discussions were held with government agencies and NGOs to jointly organized activities such as fire prevention awareness campaigns and knowledge sharing workshops. Core participating entities of this initiative include:</p> <table border="1"> <thead> <tr> <th>Stakeholder</th> <th>Category</th> </tr> </thead> <tbody> <tr> <td>Pahang State Forestry Department (JPNP)</td> <td>Government</td> </tr> <tr> <td>Department of Environment (JAS)</td> <td>Government</td> </tr> <tr> <td>Department of Irrigation and Drainage (JPS)</td> <td>Government</td> </tr> <tr> <td>Fire and Rescue Department (Bomba)</td> <td>Government</td> </tr> <tr> <td>Pahang Biodiversity Council (MBP)</td> <td>Government</td> </tr> <tr> <td>Department of Wildlife and National Parks of Peninsular Malaysia (PERHILITAN)</td> <td>Government</td> </tr> <tr> <td>Department of Orang Asli Development (JAKOA)</td> <td>Government</td> </tr> <tr> <td>Pekan and Rompin district and land offices</td> <td>Government</td> </tr> <tr> <td>Global Environmental Centre (NGO)</td> <td>NGO</td> </tr> </tbody> </table>	Stakeholder	Category	Pahang State Forestry Department (JPNP)	Government	Department of Environment (JAS)	Government	Department of Irrigation and Drainage (JPS)	Government	Fire and Rescue Department (Bomba)	Government	Pahang Biodiversity Council (MBP)	Government	Department of Wildlife and National Parks of Peninsular Malaysia (PERHILITAN)	Government	Department of Orang Asli Development (JAKOA)	Government	Pekan and Rompin district and land offices	Government	Global Environmental Centre (NGO)	NGO
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Date(s) of stakeholder consultation	<p>During the monitoring period, consultations were held on: 14/2/2024, 26/6/2024, 14-16/8/2024, 28-29/8/2024, 11-12/9/2024, 25-26/9/2024, 11/10/2024, 16/10/2024, 6/12/2024, 19/12/2024</p>																				
Communication of monitored results	<p>Progress of the project were shared with stakeholders. Monitored results (e.g., fire hotspots) were shared with subset of the group as necessary and appropriate for the topics discussed.</p>																				
Consultation records	<p>Official letters, presentation materials, photo and meeting summaries are filed internally.</p>																				
Stakeholder input	<p>Stakeholders share government initiatives and NGO activities in the Southeast Pahang peatland landscape. This enables the Project to collaborate and align activities with them. For example, the Project will prioritize canal-blocking effort within the Project Area whereas other stakeholders will manage canal-blocking outside. The Project will also jointly organize some fire prevention awareness events with the NGO.</p>																				

Ongoing consultation	<p>The Project held informational meetings and discussions with key government agencies with. Key agenda with these government agencies include licensing and data request. These meetings also served as progress update for the government authorities.</p>										
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	4/3/2024, 18/4/2024	Department of Wildlife and National Parks of Peninsular Malaysia (PERHILITAN)
	23/4/2024, 3/1/2025	Department of Orang Asli Development (JAKOA)
	18/10/2024	Pekan District and Land Office
Communication of monitored results	Progress of the project was shared with stakeholders. Formal reports are sent to these authorities on a regular basis.	
Consultation records	Official letters, presentation materials, photo and meeting summaries are filed internally.	
Stakeholder input	Stakeholders informed the Project on procedures to acquire necessary license and permits, and changes in laws and regulations. Stakeholders also discussed with the Project about public-private collaboration opportunities.	

Ongoing consultation	A series of structured engagements were conducted with the District Education Office (PPD Pekan) and schoolteachers to identify and address the educational challenges faced by <i>Jakun</i> students. These engagements will continue to ensure that the establishment of the Community Learning Hub effectively supports efforts to improve school attendance and increase education completion rates among <i>Jakun</i> students.	
Date(s) of stakeholder consultation	<p>21 October 2024: Initial briefing to PPD Pekan and school leaders to introduce the Project and its education-related community development plans.</p> <p>8 November 2024: Meeting with PPD Pekan to propose a program with teachers in the school nearby to Project Area.</p> <p>16 January 2025: Full-day workshop with schoolteachers with close connections to <i>Jakun</i> students to gather input in a Focus Group Discussion (FGD) setting for future intervention planning.</p>	
Communication of monitored results	Stakeholders were briefed on key project components and early socio-economic trends. Findings shared during the engagements included high dropout rates, low academic completion, and youth social challenges. Formal communication of any findings or outcomes will be provided to the stakeholders via email and official letters.	
Consultation records	All engagements were thoroughly documented in a comprehensive report, which includes detailed descriptions of the engagement processes and key findings. Supporting materials such as meeting minutes, voice recordings, FGD notes, and photographs taken during the programs were also recorded and archived as part of the documentation.	
Stakeholder input	<p>The consultation process offered valuable insights into the systemic challenges faced by <i>Jakun</i> students. These findings were thoroughly analyzed and directly informed the enhancement of educational interventions under the Project.</p> <p>Key issues identified and corresponding responses include:</p>	

Socioeconomic challenges:	<p>Poverty, low self-esteem, lack of parental guidance, peer pressure, and student disengagement were highlighted as major factors contributing to school dropouts. In response, the Project prioritized the establishment of a Community Learning Hub designed to offer holistic support—including mentorship, psychosocial services, and learning incentives.</p>
Post-COVID disengagement:	<p>After the pandemic lockdown, many students, especially those from homes ill-equipped for remote learning, fell behind academically and lost interest in school. Additionally, some families grew reliant on their children's help with farm work. To address this, parental engagement sessions were integrated into the Learning Hub model to rebuild commitment to education.</p>
Social risks:	<p>Issues such as drug use, underage employment, loitering, and alcohol abuse were prevalent. The Project responded by incorporating preventive education modules focused on hygiene, structured sports activities, and emotional wellness workshops.</p>
Interest in vocational fields:	<p>Students expressed strong enthusiasm and aptitude for vocational areas like the arts, sports, robotics, and digital technologies—including AI. Consequently, TVET-aligned content was added to the educational modules.</p>
Technology access gaps:	<p>Limited access to digital devices—most students rely on shared smartphones—was a significant barrier. Schools recommended the creation of digital learning labs and tablet-lending schemes, both of which are now part of the Learning Hub's infrastructure development plan.</p>
Parental involvement:	<p>While engagement levels vary, participation in Parent-Teacher Associations (PIBG) tends to rise when social incentives are offered. To leverage this, the Project will embed community events within school programs as part of its parent engagement strategy.</p>
Need for emotional support and role models:	<p>Teachers underscored the importance of stable emotional support and relatable role models. The Project will address this by including motivational talks, alumni mentorship, and regular teacher-student bonding activities within the Learning Hub framework.</p>

Ongoing consultation	<p>An initial visit was conducted with the Pahang State Health Department (JKNP) to present the Project and explore collaboration for health-related community development initiatives. The engagement aimed to identify key health concerns affecting communities within and surrounding the Project Area. The meeting was part of a broader effort to gather baseline data, understand potential health risks, and align future activities with government policy.</p>
Date(s) of stakeholder consultation	<p>29 November 2024</p>
Communication of monitored results	<p>No results have been gathered at this stage. Formal communication of any findings or outcomes will be provided to the stakeholders via email and official letters. These communications include direct links to Verra's project pages where all supporting documentation is available.</p>

Consultation records	Attendance was recorded, and presentation materials were prepared by the Project staff. Photo and meeting summaries are filed internally.
Stakeholder input	<p>JKNP staff agreed to share aggregated health statistics from target areas for use as baseline data.</p> <p>They expressed interest in collaborating on community health programs in the future.</p> <p>No change to the Project design was necessary; however, this input shaped the planning of health interventions and justified integration of healthcare support into the community development roadmap.</p>
Ongoing consultation	Initial engagement was held with the Head of Operations of the Water Management Agency (PAIP) to discuss the current water supply conditions in several villages within the Project Zone. The Project team sought PAIP's confirmation on villages with verified water access issues to ensure that any planned community water initiatives are aligned with PAIP's existing infrastructure and development plans. The discussion also aimed to avoid redundancy and promote coordinated implementation.
Date(s) of stakeholder consultation	4 December 2024
Communication of monitored results	No monitoring results have been produced at this stage. Once available, findings and updates will be formally communicated to PAIP through email and official letters. These communications include direct links to Verra's project pages where all supporting documentation is available.
Consultation records	Attendance was recorded, and presentation materials were prepared by the Project staff. Photo and meeting summaries are filed internally.
Stakeholder input	PAIP confirmed that several villages are experiencing water supply issues. Among them, RPS Runchang was selected as the first site for the Project's clean water supply initiative due to its insufficient raw water and limited tank capacity. As a proposed solution, PAIP recommended the construction of a tubewell. Other villages—such as Selingkong, Permatang Siput, Simpai, Meranti, Landai, Seri Bangkong, and Api Larat—also face water-related challenges and are currently undergoing government interventions. These villages will be considered for future phases if the problem is still unresolved. PAIP stressed that all water-related activities must adhere to official procedures and be coordinated through their office.
Ongoing consultation	Engagement with NGOs was carried out during the monitoring period to ensure that all information shared was accurate, consistent, and transparent. These engagements have provided valuable insights, particularly in relation to Indigenous Peoples, community dynamics, and development program. Engagements will continue in the future to strengthen collaboration, foster mutual understanding, and support the design and implementation of

	community-focused programs in a culturally appropriate and responsive manner.	
Date(s) of stakeholder consultation	15/3/2024	Meeting with Earthworm Foundation
	3/7/2024	Global Environmental Centre (GEC)
	10/7/2024	NGO Roundtable attended by Centre for Orang Asli Concern (COAC), Persatuan Suku Jakun Pahang (PSJP), Jaringan Orang Asli SeMalaysia (JOAS), Global Peace Foundation Malaysia, Jaringan Kampung Orang Asli Pahang (JKOAP), Jaringan Kampung Orang Asli Semenanjung Malaysia (JKOASM), Apa Kata Wanita Orang Asli, Global Environment Centre, representatives of Padang & Jemeri villages.
	25/10/2024	Meeting with Persatuan Suku Jakun Pahang (PSJP) and Jaringan Kampung Orang Asli Semenanjung Malaysia (JKOASM)
	21/11/2024	Meeting with Global Peace Foundation
Communication of monitored results	Stakeholders were briefed on key project components and the progress of the project during the engagements. Formal communication of any findings or outcomes will be provided to stakeholders via email and official letters. These communications will include direct links to Verra’s project pages, where all supporting documentation is made available to ensure transparency and accessibility.	
Consultation records	Engagements were documented and stored in the internal database.	
Stakeholder input	NGOs highlighted the importance of clear, sustained communication with Indigenous communities, visibility of tangible project benefits, and greater support for education, livelihoods, and awareness. Concerns were also raised regarding land access, trust issues due to unclear messaging, misconceptions about the carbon market, and the need to respect Indigenous leadership structures. These inputs informed revisions to FPIC tools, project planning documents, and the design of community development initiatives to ensure they align with the priorities and aspirations of Indigenous stakeholders.	

Ongoing consultation	Consultation with neighboring plantation companies consisted of group discussions and individual meetings. A group consultation was held to facilitate a discussion forum together with government agencies involved in the management of the landscape. Individual meetings were held to discuss issues specific to the stakeholders.	
Date(s) of stakeholder consultation	14/5/2024	Group consultation with government agencies and neighboring plantations and oil palm industry players. Participants included JPNP, MBP, JAKOA, Bomba, JAS, PERHILITAN, Yayasan Pahang Plantation Holdings (YPPH), PKPP Plantations Sdn Bhd, Negeri Sembilan Oil Palm

	<p>Berhad, IOI Plantation, Malaysian Palm Oil Green Conservation Foundation</p> <p>19/11/2024 Meeting with Ladang Sg. Bebar Selatan (YPPH)</p> <p>21/1/2025 Meeting with Pahang Coconut Valley Corporations</p> <p>11/2/2025 Meeting with Rangkaian Delima Plantations' contractor Ace Empire</p> <p>21/3/2025 Meeting with Ladang Ibam, NSOP</p> <p>16/6/2025 Meeting with Ladang Proper Simpai (Prosper Capital Holdings Sdn Bhd)</p> <p>7/7/2025 Meeting with Ladang Pekan Barat (YPPH)</p> <p>Aside from consultations and formal meetings, informal meetings were also held between the Project staff and plantation personnel on a regular basis to discuss, inter alia, hydrology and fire management, wildlife monitoring, and access routes for data collection.</p>
Stakeholder engagement process	<p>A group consultation session was held with neighboring plantations and government agencies. Smaller meetings in plantations were held to discuss specific topics. Meetings were preceded by formal letters.</p>
Consultation outcome	<p>Neighboring plantations were made aware of Project activities and, in some cases, discussions held regarding access to the Project Area through their plantations. Generally, plantations were determined to be not impacted by Project activities inside PRFs.</p>
Stakeholder input	<p>Stakeholders did not give any input about the general project design, but specific relevant activities such as canal-blocking and fire management were discussed, and information about biodiversity was also exchanged.</p>

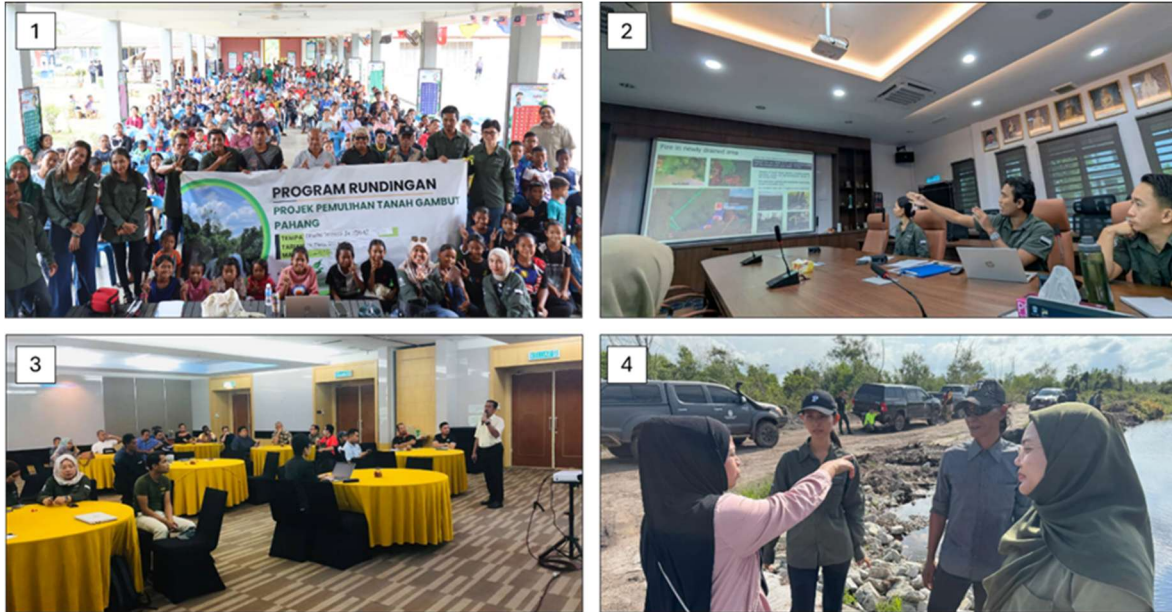


Figure 2: 1) Village-wide Consultation 2) Small-group Consultation with Plantation Representatives 3) Consultation Meeting with Neighboring Plantations 4) Hydrological Site Visit by Forestry Department’s Consultant at Palma Valley, Pekan FR

2.3.10 Continued Consultation and Adaptive Management (VCS, 3.18; CCB, G3.4)

Describe how communication and consultation about the project has continued between the project proponent(s) and communities and other stakeholders. Explain the processes the project proponent has used to consider this input and how this communication and consultation has influenced the project through adaptive management.

The PPRP adopts a continuous and inclusive stakeholder engagement strategy to ensure long-term project success and integrity. Engagement is tailored to project phases and community needs, with a strong focus on transparency and responsiveness. Key mechanisms include regular collaboration with the CDA as a community liaison, fortnightly visits to target villages for co-developing livelihood strategies and gathering feedback, and rigorous application of FPIC principles for land-related decisions. A functional GRM enables stakeholders to raise concerns safely and ensures timely resolution.

The project follows an adaptive management approach, integrating stakeholder input into planning and evaluation to remain flexible and aligned with core objectives. Institutional engagement with NGOs, the private sector, and government bodies is facilitated through stakeholder forums, sector-specific working groups and joint monitoring efforts to promote coordination, technical exchange, and regulatory compliance.

Summary of comments received	Actions taken
A public comment was received on 29 June 2025 via the Verra Secretariat outside of the public comment period (before requesting validation/verification). The comment was also	The Project contacted the coordinator of the public comment on 4 July 2025 to inform them that any concerns would be addressed through the GRM. The Project GRM team requested for a meeting to discuss

Summary of comments received	Actions taken
<p>published online and emailed to the Project team. The commenters are three local NGOs who had read the draft PDD submitted for project listing and had concerns about the FPIC and project design processes implemented by the Project.</p>	<p>and validate the concerns. Requests were sent initially via WhatsApp to the coordinator, but no response was received until 10 July, when the coordinator indicated they were unavailable to meet. Follow-up emails were sent to all three NGOs on a weekly basis, offering to meet any of them at a time of their convenience.</p> <p>On 5 August 2025, the comment coordinator acknowledged receipt of the messages and shared that they would be unavailable until mid-September 2025.</p> <p>As of the date of this monitoring report, the Project anticipates that the GRM process will be formally initiated once the complaint is validated in September. The outcome of this process is expected to be included in the next monitoring report.</p> <p>The Project reaffirms its commitment to taking all stakeholder input—whether supportive or critical—seriously and remains open to constructive dialogue. No changes have been made to the project design at this stage, as the grievance has not yet been validated and relates to the content of a preliminary draft of the PDD. However, the Project has taken note of the feedback and has clarified and elaborated on relevant sections in the PDD submitted for validation, to more clearly communicate the Project’s approach to FPIC and overall design.</p>

2.3.11 Stakeholder Consultation Channels (CCB, G3.5)

All consultations and participatory processes are conducted directly with communities and stakeholders, or through their legitimate, recognized representatives, in a manner that promotes inclusiveness, transparency, and informed participation. The Project emphasizes that communication and decision-making processes are equitable and accessible, particularly for marginalized or vulnerable groups.

Direct and Inclusive Stakeholder Engagement

Engagement activities have been and will continue to be conducted in-person by Project staff in target communities using culturally appropriate, participatory methods. Key activities include:

- Participatory mapping: Collaborative identification of land uses, customary boundaries, natural resources, and culturally significant areas to inform planning and reduce the risk of land-use conflicts.

- Key Informant Interviews (KIIs): Conducted with a diverse range of local leaders, elders, women’s groups, youth, and other key community actors to capture multiple perspectives on community priorities, concerns, and perceptions.
- Focus Group Discussions (FGDs) and general community meetings: Regularly convened to validate findings, co-develop strategies, and provide a platform for two-way dialogue.
- FPIC: Systematically implemented, ensuring that potentially impacted communities are identified, fully informed of the project’s scope and their rights to accept, modify, or reject project participation. Impact assessment will be carried out in a participatory manner with the potentially impacted communities, which may lead to consents with benefit sharing, as applicable.
- Conflict resolution and mediation sessions: Conducted in cases where intra- or inter-community disagreements arise, ensuring peaceful and equitable outcomes.

In cases where it is not feasible to involve the entire community—due to time, logistics, or social dynamics—engagement is conducted through recognized community representatives (e.g., village chiefs, elected leaders, village committee members, women’s committee group leaders, youth group leaders etc.), while maintaining awareness of potential elite capture and ensuring follow-up with broader groups to verify consensus and legitimacy.

Project staff are trained to identify power imbalances and social dynamics that may inhibit full participation. Special attention is given to ensuring the voices of women, youth, indigenous people, and other underrepresented groups are heard and meaningfully incorporated into project decisions.

Communication Channels and Information Sharing

To complement face-to-face interactions, the project employs a variety of digital and remote communication tools to disseminate information and maintain ongoing dialogue:

- WhatsApp text messaging, voice messaging, video messaging, SMS, and voice calls: Widely used for real-time updates, meeting notifications, and community feedback, especially where mobile phone penetration is high. A WhatsApp broadcast group is set up for each village to facilitate communications between Project staff and villagers.
- Email, printed bulletins and letters: Shared with institutional stakeholders, community representatives, and NGOs to ensure transparency and traceability of communications.
- Notice boards: Used for public announcements, awareness campaigns, and summarizing key project decisions or timelines.

These channels are adapted to suit local communication preferences and levels of digital literacy. Where access to digital tools is limited, the project prioritizes direct outreach and verbal dissemination through community meetings or mouth-to-mouth information sharing.

Justification of Adequate Information Sharing

The project’s engagement approach is guided by the principle that stakeholders must be adequately informed and meaningfully involved in decisions that affect their land, resources, or livelihoods. To ensure this, the Project has:

- Provided information in locally appropriate languages and formats (e.g., oral presentations, visual aids).

- Offered multiple opportunities for feedback and clarification before key decisions are made.
- Information sharing via trusted third parties, e.g. NGOs, researchers to ensure critical information is understood.
- Documented and archived all consultation sessions, including attendance records, minutes, and follow-up actions to ensure accountability and traceability.
- Ensured timely and repeated engagement at all critical stages of project design and implementation.

The Project remains committed to continuous learning and adaptation of consultation strategies, as needed, to improve inclusivity, responsiveness, and trust among stakeholders. Detailed evidence of these communication channels is available to auditors on request.

2.3.12 Stakeholder Participation in Decision-Making and Implementation (VCS, 3.18, 3.19; CCB, G3.6)

The Project has implemented a comprehensive and inclusive stakeholder engagement strategy to ensure the full, effective, and culturally appropriate participation of all communities, with a strong emphasis on gender sensitivity.

Culturally Appropriate Engagement Practices

Prior to any formal engagement, the Project Team seeks permission from community leaders, including Batins and other recognized representatives, through formal letters, WhatsApp messages, and phone calls. No project activities are initiated without prior community approval. All engagements are conducted in Malay or *Jakun*, with support from staff who are fluent in local languages and customs, ensuring mutual understanding and respect.

The Project Area and Zone are predominantly inhabited by Orang Asli of *Jakun* ethnicity. To facilitate culturally grounded interactions, the entire site-based team comprises Malaysian nationals, over half of whom identify as *Jakun*. This has fostered trust, improved communication, and reduced the risk of cultural misalignment during planning and implementation.

Inclusive Consultation Processes

During the monitoring period, the Project conducted village-wide consultations across 16 communities (July–September 2024), reaching 1,196 participants, of whom approximately 66% were women. These consultations were structured to ensure inclusivity, with active participation from village leaders, women, youth, and marginalized groups. Issues discussed included land use, forest access, canal blocking, and proposed livelihood activities. Feedback was systematically documented and co-signed by community representatives.

Additionally, Phase 2 FPIC consultations were conducted with smallholders and fishers potentially affected by project interventions. These engagements prioritized informed, voluntary participation, and allowed stakeholders to propose adjustments to project activities, which the Project incorporated—e.g., modifying canal block locations to avoid disrupting livelihoods.

Gender-Sensitive Approaches

The Project explicitly prioritizes gender equity in its engagement and implementation processes. Key gender-responsive actions during the monitoring period included:

- Women-only consultation sessions, facilitated by female staff, providing a safe and comfortable space for women to express their views freely.
- Consultation scheduling in collaboration with communities to accommodate women's availability, supported by childcare provisions and transportation assistance.
- Women accounted for 30–70% of participants in all major engagement activities during the period.
- 50% of leadership roles within the Project Team—including the Project Lead, Community Development Manager, and HR Manager—are held by women.
- The Community Development Unit is predominantly female, enabling more effective outreach to women and families.
- Women are actively involved in project co-design, smallholder verification, and sustainable livelihood programs, and are already leading over 50% of proposed community initiatives such as weaving, seedling nurseries, and eco-craft training.

This holistic, participatory approach ensures that community voices—particularly those of Indigenous peoples and women—remain central to the design, decision-making, and implementation of all project activities.

2.3.13 Anti-Discrimination Assurance (VCS, 3.19; CCB, G3.7)

Commitment to Non-Discrimination and Zero Tolerance for Harassment

Enggang Pekan Sdn Bhd maintains a zero-tolerance policy for discrimination and harassment in all project-related activities. This includes strict prohibitions against discrimination based on gender, ethnicity, religion, age, sexual orientation, disability, or any other personal characteristic, as well as explicit safeguards against sexual harassment.

During the monitoring period, this commitment was actively upheld through the implementation of preventive measures, training programs, policy enforcement, and field protocols to ensure a safe and inclusive environment for all project stakeholders.

Policy Framework

The following policies and standard operating procedures (SOPs) were applied throughout the monitoring period:

- Human Capital Management Policy – Reinforces fairness, equal opportunity, and workplace dignity.
- Recruitment & Selection SOP – Ensures hiring and advancement decisions are based on merit and free from bias.
- Compliance Policy – Includes a whistleblower mechanism and safe channels for reporting misconduct.

- Sexual Harassment Rules – Provide definitions, examples, preventive guidance, and reporting procedures for all staff.
- Code of Conduct & Disciplinary SOP – Outlines unacceptable behaviors and the disciplinary process for breaches.
- Employee Handbook – Consolidates all policies, distributed to and acknowledged by every staff member.

Mandatory onboarding and refresher trainings were conducted during the monitoring period. These sessions covered:

- Case studies of inappropriate behavior,
- Reporting mechanisms,
- Roles and responsibilities of staff in upholding ethical conduct.

New hires during the monitoring period also received targeted briefings on non-discrimination, respectful engagement, and the Project's zero-tolerance stance.

Field-Level Safeguards and Community Engagement Protocols

The PPRP implements specific safeguards to prevent discrimination and harassment during fieldwork and community engagement activities:

- Gender-sensitive facilitation in community consultations to promote equitable participation.
- Field Code of Conduct for all staff and contractors to guide behavior during community interactions.
- Community Engagement Guidelines explicitly prohibit any form of inappropriate behavior and clearly state consequences for violations.
- Confidential Grievance Mechanism accessible to both staff and community members, providing a trusted channel for reporting concerns and ensuring timely investigation and resolution.

Monitoring and Accountability

The Project maintains robust monitoring and accountability systems to ensure a safe, respectful, and inclusive environment for all stakeholders. Project staff are expected to proactively identify, report, and prevent discriminatory or inappropriate conduct. Where necessary, additional capacity-building efforts are undertaken to reinforce understanding of policies and responsibilities.

All relevant documents—including the Employee Handbook, Sexual Harassment Rules, and SOPs—are available to auditors upon request. The Project remains committed to ongoing policy review, training, and enforcement to ensure full alignment with best practices and to uphold the highest ethical standards throughout the project lifecycle.

2.3.14 Grievances (VCS, 3.18.4; CCB, G3.8)

Grievances received	Resolution and outcome
<p>On 5 March 2024, villagers from Padang raised concerns regarding the installation of camera traps, signboards, and the FPIC process. They requested additional information during consultations.</p>	<p>The Community Development Team explained that the camera traps identified were installed by PERHILITAN and cannot be removed. Similarly, the signboards were installed by JPNP to demarcate the forest reserve boundary, as required by law. These clarifications were provided during a follow-up consultation. The grievance was closed on 14 June 2024.</p>
<p>On 8 September 2024, villagers from Durian Sebatang expressed concerns about the potential impacts of the project on their community, environment, and livelihoods.</p>	<p>A village-wide consultation was held on 29 September 2024 in Durian Sebatang to provide detailed information about the project and its potential impacts. During the session, one of the villagers declined involvement in the Project while the rest of the villagers did not voice their opinions. In response, the project team acknowledged this request and provided assurance that no Project activities would be carried out in the village area, other than potentially for emergency access through the village, such as for fire-fighting (as took place in August 2024). It was further clarified that individual villagers may be identified as stakeholders if they are fishers, NTFP gatherers, traditional hunters or smallholders who access UPA, and that individual villagers would be welcome to join community development activities organized by the Project. The grievance was resolved to the community's satisfaction and closed on 12 February 2025.</p>
<p>On 17 October 2024, villagers from Padang submitted an objection to the Project office to all of the Project's activities, citing boundary disputes between their area and the project site.</p>	<p>The project team conducted multiple engagements (21/10/2024, 24/10/2024, 28/10/2024, 13/11/2024, 22/11/2024, 6/12/2024, 2/1/2025, 9/1/2025, 9/2/2025) to explain the project activities and their potential impacts. The community's claimed area was respected and mutually agreed upon for exclusion from the initial Project Area. A map of the Project Area was provided to the villagers, clearly illustrating the exclusion of their area. The grievance was resolved and closed on 12 February 2025.</p>

2.3.15 Worker Training (VCS, 3.19; CCB, G3.9)

To ensure effective and inclusive implementation of the project, the Project has designed a comprehensive orientation and training program for all individuals employed through project activities, including those from the surrounding communities. The core objective of this program is to build locally relevant skills and knowledge, promote meaningful local participation, and strengthen long-term community capacity.

Local talent development is a core element of the Project's Human Capital Management Policy. The Project is committed to investing in people at multiple levels—from communities within the Project Zone, to the broader State of Pahang, and across Malaysia. The Project prioritizes equitable employment and training opportunities regardless of gender, age, ethnicity, religion, or socioeconomic background. Special attention is given to hiring and upskilling individuals from local

communities, recognizing that this approach enhances both project success and community resilience.

A training plan is developed based on individualized training needs analyses and resources are allocated accordingly in the annual work planning and budgeting exercise. Training needs include mandatory training on general subjects such as ethics and compliance, health and safety, communication protocols, and job-related subjects such as groundwater level measurement or camera trap setting.

Training content is designed not only to meet project needs but also to leave a lasting legacy of skills within local communities. This ensures that local capacity is retained, even in the event of staff turnover. Knowledge-sharing protocols, documentation of standard operating procedures, and team-based approaches are in place to reduce dependency on individual staff and ensure continuity of expertise.

During the monitoring period, 6,113 man-hours of workers training were conducted.

Table 3: Training Delivered During Reporting Period

Date	Topic	Duration	Trainer External(E)/ Internal (I)	Number & type of participants
19-25/2/2024	SMART, QGIS and CT Data Management	51 hours	(E) Pelindung Alam	12 permanent employees
22/2/2024	Fire-fighting - Bomba Community Module	10 hours	(E) Balai Bomba dan Penyelamat Nenasi	15 permanent employees, 5 community members from Api Larat
3/3/2024	HCV Management and Monitoring	12 hours	(E) HCV Network	4 permanent employees
8/3/2024	Carbon Project	2 hours	(I) Technical Director	12 permanent employees
16/5/2024	Grievance Redressal Mechanism	1 hour	(I) Community Engagement Senior Officer	24 permanent employees
29/5/2024	Community School (PDK)	1 hour	(I) Community Engagement Senior Officer	24 permanent employees
29/5/2024	Village-wide Consultation Campaign (I)	2 hours	(I) Community Engagement Manager	24 permanent employees
13/6/2024	Hornbill	1 hour	(I) Biodiversity Manager	11 permanent employees
27/6/2024	<i>Jakun</i> Culture	1 hour	(I) <i>Jakun</i> Employees	15 permanent employees
1/7/2024	Sexual Harassment	1 hour	(I) Human Resource Manager	19 permanent employees
3/7/2024	Getting to Know Our Communities	1 hour	(I) Community Engagement Manager	34 permanent employees
11/7/2024	Village-wide Consultation Campaign (II)	1 hour	(I) Community Engagement Manager	21 permanent employees
16/7/2024 – 11/8/2024	Bomba Community Training (FERT)	160 hours	(E) Balai Bomba dan Penyelamat Nenasi	21 permanent employees

Date	Topic	Duration	Trainer External(E)/ Internal (I)	Number & type of participants
25/7/2024	Drone Mapping	1 hour	(I) Forest Protection Assistant Manager	18 permanent employees
8/8/2024	Fire Safety & Fire Drill	2 hours	(I) Health, Safety, Security Manager	28 permanent employees
15/8/2024	HOBO Weather Station, HOBO Water Level Sensor, Lutron Humidity/ Barometer and Temperature Recorder: Setup and Installation, and Data Extraction	2 Hours	(I) MRV Manager	8 permanent employees
22/8/2024	Hydrology Research Experience in Japan (Jepun: Hutan Hujan)	1 hour	(I) MRV Manager	28 permanent employees
12/9/2024	HOBO Water Logger Installation and Deployment	2 Hours	(I) MRV Senior Officer	11 permanent employees
12/9/2024	SMART Briefing	2 hours	(I) Forest Protection Senior Officer	14 permanent employees
3/10/2024	Sexual Harassment	1 hour	(I) Human Resource Manager	32 permanent employees
19/9/2024	The Diversity of Tree Species in The Peat Swamp Forest	1 hour	(I) Forest Protection Officer	28 permanent employees
15/10/2024	Basic 4x4 Vehicles Handling	8 hours	(E) Delta East Dynamic Sdn. Bhd	28 permanent employees
17/10/2024	Carbon Credit	1 hour	(I) Project Lead	26 permanent employees
8/11/2024	Burnt Scar On-site verification	1 hour	(I) MRV Manager	11 permanent employees
14/11/2024	Water to Land: Knowing Our Frogs	1 hour	(I) Biodiversity Officer	17 permanent employees
28/11/2024	Durian	1 hour	(I) Forest Protection Senior Officer	30 permanent employees
28/11/2024	4WD Winch Training/Loading & Unloading	1 hour	(I) Forest Protection Manager	28 permanent employees, 2 Intern

Date	Topic	Duration	Trainer External(E)/ Internal (I)	Number & type of participants
2/12/2024	Water Level During Flood	1 hour	(I) MRV Manager	11 permanent employees
4/12/2024	What is Artificial Intelligence	30 mins.	(I) Senior Project Coordinator	25 permanent employees
4/12/2024	Anti Bribery Corruption Policy & Ethics Compliance Policy	30 mins.	(I) Project Lead	25 permanent employees
4/12/2024	Insurance Coverage Retraining Session	2 hours	(E) AIA Insurance	25 permanent employees
9/12/2024	Basic QGIS Training	3 hours	(I) Community Development Senior Officer	20 permanent employees
10/12/2024	Basic QGIS Training	5 hours	(I) Community Development Senior Officer	12 permanent employees
11/12/2024	Data Workshop - Overview VCS CCB	7 hours	(I) Community Development Senior Officer	13 permanent employees
12/12/2024	Data Workshop - Understand SharePoint & HCV	7 hours	(I) Community Development Senior Officer	13 permanent employees
13/12/2024	Data Workshop - Identify Impacted, Marginalized, Vulnerable Individual	7 hours	(I) Community Development Senior Officer	13 permanent employees
14/12/2024	Species Distribution Modelling for Wildlife Ecology	3 hours	(E) ESCG ASEAN Group Company	1 permanent employee
18/12/2024	ISO 45001: 2018 Understanding and Implementing	2 hours	(E) SIRIM Academy	22 permanent employees
23/12/2024	Statistic Workshop: Basic Ecology and Diversity	2 hours	(E) ESCG ASEAN Group Company	1 permanent employee
31/12/2024	Statistic Workshop: Intermediate Ecology and Diversity	2 hours	(E) ESCG ASEAN Group Company	1 permanent employee
7/1/2024	ISO 45001: 2018 Occupational Safety & Health Act Legal Awareness	2 hours	(E) SIRIM Academy	24 permanent employees

Date	Topic	Duration	Trainer External(E)/ Internal (I)	Number & type of participants
10/1/2025	Date Extraction from Piezometer Data Logger Using ROG Ally (HOBOWare Software)	2 hours	(I) MRV Senior Officer	8 permanent employees
23/1/2025	Date Extraction from Piezometer Data Logger Using ROG Ally (HOBOWare Software) - On-site (Tanjung Medang)	4 hours	(I) MRV Senior Officer	15 permanent employees
13/1/2025	Focus Group Facilitation	2 hours	(I) Community Development Senior Officer	18 permanent employees
17/1/2025	Basic Course Radio Amateur with Practice	16 hours	(E) Coyote Crew Outdoor Consultant	26 permanent employees

2.3.16 Community Employment Opportunities (VCS, 3.19.13; CCB, G3.10)

Commitment to Inclusive and Equitable Hiring

The Pahang Peatland Restoration Project (PPRP) is firmly committed to ensuring that community members from all backgrounds have equal access to employment opportunities, including technical and managerial roles. This commitment is central to the Project's goals of building local capacity, fostering community ownership, and promoting inclusive development.

During the monitoring period (Feb 2024 – Jan 2025), the Project took active steps to prioritize local hiring across its operational areas. Key outreach strategies included:

- WhatsApp broadcasts through village group chats,
- In-person announcements during consultation and engagement sessions,
- Flyers posted in community centers and shops, and
- Online job postings on platforms accessible to rural job seekers.

These efforts aimed to ensure broad awareness and accessibility, allowing all eligible individuals—particularly those in the Project Zone—to apply for available roles.

As a result, over 50% of current staff are from Indigenous *Jakun* communities residing within or near the Project Area. The Project remains committed to maintaining or increasing this proportion in future recruitment cycles.

Equal Opportunity & Non-Discrimination

The Project is fully committed to providing equal employment opportunities for all, regardless of gender, ethnicity, age, religion, or socioeconomic background. All job roles, including those in management, are filled based on merit. Individuals who meet the job requirements are given equal consideration during the recruitment process.

Gender Equity and Inclusion of Marginalized Groups

Recognizing the importance of gender equity and inclusion, the Project implemented several targeted actions during the monitoring period to support the participation of women, youth, and marginalized individuals:

- Gender-sensitive recruitment practices, including gender-neutral job descriptions and female interviewers where appropriate,
- Mentorship and leadership development opportunities for women staff,
- Women-only engagement sessions, where employment pathways were discussed in a safe and encouraging setting,
- Provision of upskilling and training, particularly for roles in biodiversity monitoring, nursery management, and community development.

As of the end of the monitoring period, women represent approximately 25% of the Project workforce, with growing participation in technical, outreach, and leadership functions. The Project aims to expand this through continued training and inclusive workplace policies.

Capacity Building for Underqualified but Capable Candidates

Where applicants demonstrated strong community knowledge, interest, or aptitude—but lacked specific qualifications—the Project invested in on-the-job training and mentorship. This approach has proven effective in:

- Promoting local talent,
- Reducing dependency on external expertise, and
- Strengthening long-term project sustainability through local leadership.

Recruitment Principles

The Project adheres to the following recruitment principles:

- Merit-based: Positions are filled by candidates best suited to the role.
- Transparent and fair: Processes are open and free from bias or favoritism.
- Diverse and inclusive: Workforce representation reflects the diversity of communities within the Project Zone.
- Equitable pay: The principle of equal pay for equal work is upheld across all roles, regardless of gender or background.

This inclusive and equity-driven employment strategy ensures that the benefits of the Project are shared fairly, while contributing to the long-term economic empowerment of participating communities.

2.3.17 Occupational Safety Assessment (VCS, 3.19; CCB, G3.12)

Ensuring Worker Health and Safety

The Project places the health and safety of all workers—including staff, contractors, and community members—at the forefront of its implementation. In compliance with the Occupational Safety and Health Act 1994, and aligned with ISO 45001 standards, the Project has established a comprehensive Occupational Health and Safety Management System (OHSMS) to assess, communicate, and minimize risks in all operational contexts.

Risk Assessment and Monitoring During the Monitoring Period

Throughout the monitoring period (Feb 2024 – Jan 2025), all field activities—such as canal blocking, biodiversity monitoring, patrolling, and community engagement—were subject to systematic occupational risk assessments. These assessments were:

- Conducted using the HIRARC methodology (Hazard Identification, Risk Assessment, and Risk Control),

- Overseen by the Health, Safety, and Security Unit, which includes two certified safety officers recognized by the Department of Occupational Safety and Health (DOSH),
- Reviewed annually and updated whenever project tasks or field conditions changed (e.g., introduction of drone surveys or new equipment use).

Common risks identified included heat stress, wildlife encounters, slips and falls in peat swamp terrain, water-related hazards, and equipment handling injuries.

Risk Communication and Safety Training

The Project implemented the following actions to inform and protect workers:

- Daily and pre-deployment safety briefings, covering site-specific hazards and emergency protocols.
- Mandatory safety induction training for all new staff and contractors, with refresher sessions conducted quarterly.
- Use of visual signage, safety checklists, and translated materials to ensure accessibility across diverse literacy and language levels.
- Distribution and monitoring of Personal Protective Equipment (PPE) such as boots, gloves, high-visibility vests, hydration kits, and mosquito repellents.
- First aid kits and emergency response plans available at all field sites.

These actions ensured that workers were consistently aware of potential risks and well-prepared to respond safely.

Risk Minimization and Field-Level Controls

Key safety control measures implemented during the monitoring period included:

- Buddy systems for high-risk tasks (e.g., canal inspections and fire suppression),
- Regular site supervision and spot checks by safety personnel,
- Work rotation schedules to avoid fatigue and heat-related illness,
- Clear protocols for wildlife encounters, particularly in areas with known presence of snakes or wild boars,
- Use of GPS devices and communication tools to monitor team locations in remote sites.

No major incidents were reported during the monitoring period, and all minor safety issues (e.g., slips, minor cuts, dehydration) were promptly addressed with incident logging and post-incident reviews.

Monitoring, Documentation, and Continuous Improvement

The Project maintains complete records of all safety-related activities, including HIRARC assessments, training attendance, PPE distribution logs, and incident reports. These documents are available to auditors upon request.

A culture of safety is continually reinforced through:

- Ongoing staff feedback on safety procedures,
- Policy reviews and safety updates aligned with emerging risks,
- Continuous improvement mechanisms within the OHSMS framework.

The Project remains committed to maintaining a safe, responsive, and compliant working environment across all implementation phases. A summary of key safety risks and mitigation actions is provided in Table 4. Full HIRARC worksheets and safety records are available to auditors upon request.

Table 4: Summary of occupational safety assessment

Hazards and Impacts	Risk Rating after Mitigation Actions	Risk Mitigation
Transport safety: driving on tarred road and off-road <ul style="list-style-type: none"> • Driver fatigue from field work, impairing judgement • Heavy rain may cause hydroplaning • Wet weather may result in vehicles getting stuck in mud; flooding may make ditches and potholes hard for drivers to see • Collisions with animals 	Moderate	<ul style="list-style-type: none"> • On-road and off-road driver training • Buddy system as part of Project transport SOP • Emergency response protocol • Regular maintenance of vehicles
Transport safety: watercraft <ul style="list-style-type: none"> • Falls into water bodies during boarding and alighting • Boats capsizing due to collision with other boats, floating or submerged logs 	Minor	<ul style="list-style-type: none"> • Personal flotation device use requirement for all workers and visitors • Watercraft to be operated by experienced boatmen • Water safety training for staff
Trekking in forest: <ul style="list-style-type: none"> • Getting lost • Encounters with dangerous wildlife or toxic plant • Slips and falls • Injuries from thorny plants • Injuries from machetes or chainsaws used to clear vegetation • Injuries from overhead branches • Bites and other injuries or skin irritation or inflammation from insects • Zoonotic disease infection when handling biological samples • Heat stroke 	Minor	<ul style="list-style-type: none"> • GPS and satellite communicators • Buddy system as part of Project transport SOP • First aid training and first aid kit provision • Awareness training on wildlife behavior and hazardous vegetation • Provision of insect repellent • PPE (long sleeve clothing, gloves, appropriate footwear, eye protection, helmet, hydration system)
Firefighting	Moderate	<ul style="list-style-type: none"> • Intensive annual training

Hazards and Impacts	Risk Rating after Mitigation Actions	Risk Mitigation
<ul style="list-style-type: none"> • Fatigue and exhaustion • Heat exposure and dehydration • Smoke inhalation • Falls • Becoming trapped between fires 		<ul style="list-style-type: none"> • Drone with thermal sensor to detect fires before ground deployment • PPE (masks, helmets, fire resistant coveralls, boots and gloves) • First aider standing by at all fire operations

The Project follows the following hierarchy for risk management:

- Elimination – remove hazard from workplace, applicable mostly to office and warehouse
- Substitution – replace work practice with a less hazardous way
- Engineering control – modification and redesign of tools, equipment, etc.
- Administrative control – training
- Mandatory use of PPE

As most of the occupational safety risks involve external uncontrollable factors, training as an administrative control is a major part of the mitigation strategy. Safety training is made mandatory for all staff. Safety management programs such as ‘You See, You Act’ will be introduced to inculcate the culture of safety among workers.

2.4 Management Capacity

2.4.1 Required Technical Skills (VCS, 3.19; CCB, G4.2)

The Project has the potential to generate far-reaching benefits for climate, communities and biodiversity, if it is implemented professionally, transparently and with a focus on quality. The key technical skills and experience required for quality project implementation are summarized below.

Carbon Accounting & Methodology Application

- Proficiency in VCS methodologies (e.g. VM0007 for peatlands, VM0047 for ARR)
- Baseline scenario development and additionality analysis
- GHG quantification and monitoring, including emissions from peat oxidation and fire
- Familiarity with APDD, REDD+, ARR, and WRC activity types

Hydrological Engineering & Peatland Restoration

- Design and implementation of canal blocking and rewetting infrastructure
- Hydrological modelling (including groundwater and surface water monitoring and analysis)
- Water quality monitoring and analysis

- Understanding of peatland and riparian ecohydrology, and degradation dynamics

Biodiversity & HCV Assessment

- Understanding of inland wetland and river ecosystems
- Conducting biodiversity baseline surveys and HCV (High Conservation Value) mapping
- Species distribution and habitat connectivity planning
- Integration of biodiversity co-benefits into project design

Remote Sensing & GIS

- Land cover classification and forest cover change detection
- Use of satellite imagery and UAVs for monitoring
- GIS-based mapping of project zones, leakage belts, and buffer areas
- Drone operation for aerial monitoring and spatial analysis

Forestry and Silviculture Skills

- Forest inventory techniques (e.g. plot sampling, DBH and height measurements)
- Tree species identification and ecological classification
- Integration of inventory data into carbon stock estimation models
- Design and implementation of reforestation, including assisted natural regeneration and replanting.

Community Engagement & FPIC

- Participatory rural appraisal (PRA) and stakeholder mapping
- Implementation of GRM and community feedback channels
- Implementation of Free, Prior and Informed Consent (FPIC) processes
- Design and implementation of culturally appropriate benefit-sharing mechanisms

Livelihoods & Community Development

- Development of alternative livelihoods (e.g. agroforestry, NTFPs, ecotourism)
- Multi-generational social development
- Gender-sensitive and inclusive programming
- Indigenous knowledge integration

Project Management

- Coordination with validation/verification bodies

- Risk assessment and mitigation planning (e.g. non-permanence, financial viability)
- Operations management, including work planning, workers' training, incorporating health, safety and security considerations
- Preparation of inputs and narrative for PDDs and MRs

Legal, Compliance and Safeguards

- Understanding of land tenure, customary rights, and national forest policies
- Navigation of licensing and permitting processes
- Ensuring legal compliance of internal processes and safeguards of stakeholders, especially vulnerable and marginalized groups

ESG & Investor Readiness

- Alignment with ESG reporting standards and investor due diligence
- Development of Theory of Change and impact metrics
- Monitoring and reporting according to various standards and metrics

VCU Sales & Marketing

- Development of financial models and pricing strategies
- Development of communications, marketing materials, term sheets and sales agreements
- Strategizing and accessing potential VCU buyers

2.4.2 Management Team Experience (VCS, 3.19; CCB, G4.2)

At the Project outset, the management team consists of the following:

- The Project Lead, Jane Koh, is an ecologist with more than 25 years of multicultural management experience, including in opportunity origination, structuring, and stakeholder management for land use emission reduction projects. She is also a policy expert in carbon crediting and a corporate sustainability practitioner.
- The Technical Lead, Josh Van Vianen, has worked as forestry research coordinator at the Center for International Forestry Research (CIFOR) and led multiple Verra VCS-CCB projects through validation and verification including the successful Sumatra Merang Peatland Project.
- Southridge Group Co-Founder, Joel Scriven, is an ecologist with more than 15 years' experience in nature-based solutions (NBS) policy and practice, including management of a multinational's NBS portfolio comprising of tropical peatland projects in Southeast Asia.
- The Forest Protection Manager, Azad Janggil Abdullah, is a forestry specialist with over 10 years of experience, including in conservation assessment practices and sustainable forest management auditing.

- The Biodiversity Manager, Ng Wai Pak, is a wildlife biologist with 18 years of experience and a member of the Sun Bear Expert Team of the IUCN/SSC. He is also the member of the Malaysia Otter Network.
- The Community Development Manager, Azmariana Azman, is a sociologist with nearly 15 years of experience working with diverse vulnerable and marginalised communities across Malaysia. Her experience includes designing and implementing community development programs for Indigenous communities, with a strong emphasis on gender sensitivity.
- The Monitoring, Reporting and Verification Manager, Zul Hilmi Saidin, is a forest hydrologist with nearly 10 years of experience. He holds a solid academic background in civil-environmental engineering, with his research focuses on precipitation partitioning by trees from both hydrological and biogeochemical perspectives.
- Health, Safety and Security Manager, Aizuddin Arman, is a certified occupational health and safety practitioner. He possesses over a decade of experience in the field of fire protection, with a strong foundation in both system design, regulatory compliance and management of emergency response team.
- Project Support Manager, Khairul Azam Amirin, is a civil engineer with more than 25 years of experience in project management, crisis management and risk mitigation.

Resumes for the project management team are available to the auditors on request.

2.4.3 Project Management Partnerships/Team Development (VCS, 3.19; CCB, G4.2)

The Project partners are as described above and as shown in Section 2.4.1 of the PDD, supported by a growing network of technical, institutional, and community-based partners. The Project recognizes that effective, equitable, and science-based implementation requires drawing on diverse expertise across ecology, hydrology, community development, and monitoring systems.

Partnerships During the Monitoring Period

In addition to core partners outlined in Section 2.4.1 of the PDD, the Project expanded its collaboration with specialized institutions during the monitoring period (Feb 2024 – Jan 2025), including:

- Universities and research institutes for biodiversity surveys, camera trap deployment, and peatland hydrology assessments.
- Government agencies, such as the Department of Orang Asli Development (JAKOA), Forestry Department (JPNP), and Department of Irrigation and Drainage (JPS), which provided data access, coordination, and site-level support.
- Local NGOs and Indigenous networks, engaged through roundtable discussions and joint awareness campaigns to support fire prevention, FPIC processes, and participatory mapping.

These partnerships helped fill thematic and operational gaps in:

- Technical expertise (e.g., species identification),

- Community engagement with Indigenous populations, and
- Hydrological modeling for canal blocking design.

Team Development and Recruitment Strategy

Enggang (Pekan) Sdn Bhd has prioritized the recruitment and retention of skilled professionals to lead the implementation of the PPRP. Key team development highlights during the monitoring period include:

- No staffing gaps were reported, and all core technical, operational, and community-facing roles were successfully filled.
- The organization maintained a competitive hiring approach, offering industry-standard salaries, professional development opportunities, and attractive employment benefits.
- Several *Jakun* professionals and local hires were trained and promoted into field and supervisory roles, enhancing both cultural competence and local ownership.
- Staff retention remains strong due to the organization's recognition that project success depends directly on the quality and continuity of its team.

In the event that future capacity gaps arise (e.g., due to program scale-up or thematic expansion), Enggang will activate its proven recruitment strategy, which includes:

- Advertising through national and local networks,
- Engaging sector-specific consultants and job boards,
- Leveraging academic partnerships for short-term expert placements, and
- Offering mentorship and upskilling opportunities to internal candidates.

The Project's proactive approach to partnership-building and team development ensures that any skill gaps are identified and addressed early, that institutional memory is preserved, and that the team remains equipped to deliver high-integrity, community-rooted, and ecologically sound outcomes.

2.4.4 Financial Health of Implementing Organization(s) (CCB, G4.3)

Enggang (Pekan) Sdn Bhd has available, as callable and secured financial resources from its principals and other sources, cash required before the Project reaches breakeven. Supporting documentation can be provided to the auditors on request. The Project will engage buyers of VCUs with a view to generating revenue that will cover the operational costs of the project on an ongoing, sustainable basis.

2.4.5 Avoidance of Corruption and Other Unethical Behavior (VCS, 3.19; CCB, G4.3)

Enggang (Pekan) Sdn Bhd has strict ethics, compliance and anti-bribery and corruption policies and practices in place, which can be made available to auditors on request. The policies, procedures and systems in place include:

- A system of financial controls for the detection and prevention of contravening actions such as bribes and facilitation payment.
- Procedures to ensure compliance with all applicable anti-corruption laws and regulations.
- Standards operation procedures on registration and approval of gifts and hospitality to be offered or accepted, including types and value limit of these.
- Rules and procedures to ensure that any actual, potential, or perceived conflicts of interest and any actions required to mitigate them are fully recorded and tracked.
- Compliance rules and procedures for relevant ethics and compliance risks, which will include a periodic assessment to identify any additional risks requiring mitigation, and a system for retaining evidencing documents.
- Antitrust rules for communication with competitors, where applicable, which are in line with leading industry practices.
- A data collection and archiving system that assures the protection of personal data.
- A channel for staff to report any suspected violations, with a clear policy of non-retaliation and investigation procedures for allegations. Third party can report the same using the GRM.

When contracting with third parties, Enggang (Pekan) Sdn Bhd uses risk-based due diligence procedures to ensure that the integrity of such parties is assessed and, where necessary, addressed to its satisfaction. Enggang Pekan Sdn Bhd's ethics, compliance, anti-bribery and corruption policies are communicated to all staff through policies, rules, SOPs and summarized in the Employee Handbook. Additionally, mandatory training on the Code of Conduct for all employees is held every year.

Actions Undertaken During the Monitoring Period

During the monitoring period (Feb 2024 – Jan 2025), the Project took specific steps to ensure these safeguards were not only in place but actively implemented:

- Annual ethics and anti-corruption training was conducted for all staff in June 2025, with attendance tracked and completion mandatory for both new and existing employees.
- Updated staff briefings were held before engagement with communities and contractors to reinforce ethical conduct in procurement, hiring, and consultation processes.
- Pre-contract due diligence was performed on all new vendors and subcontractors, applying a risk-based screening approach. No red flags were identified during this cycle.
- Periodic internal audits of financial records and contracting processes were conducted by the finance unit to detect irregularities. No evidence of corruption or non-compliance was found.
- The GRM and whistleblower channels remained open and active, with no corruption-related grievances or reports submitted during the monitoring period.

2.4.6 Commercially Sensitive Information (VCS, 3.5.2-3.5.4; CCB Program Rules, 3.5.13 – 3.5.14)

The following information is considered commercially sensitive and has been excluded from published documentation. See Appendix 2 for justification.

- Carbon Project Agreement, User Permit and any such instrument executed with the government.
- Forest Concession and Licensing Data. Information about which companies hold logging concessions, the terms of their licenses, and the geographic boundaries of their operations are treated as confidential. Company names in this document have been anonymized.
- Contractual agreements between implementing partners and staff.
- Contractual agreements between implementing partners and vendors.
- Financing and sales agreements.
- Financial models – detailed financial projections for the Project which include all project-related costs and ex-ante carbon estimates.
- Project work plans and budgets – detailed operational/ implementation plans.
- Internal policy documents and standard operating procedures.
- Raw data and parameters.
- Customary land maps produced by respective villages that were shared with the Project.

Unredacted versions of any documentation related to baseline agents and other documents listed above will be made available to the auditor.

2.5 Legal Status and Property Rights

2.5.1 National and Local Laws (VCS, 3.1, 3.6, 3.7, 3.14, 3.18, 3.19; CCB, G5.6)

The legal frameworks outlined in the PDD—including key laws such as the National Forestry Act 1984, Environmental Quality Act 1974, and the Aboriginal Peoples Act 1954—remain applicable and unchanged. No new legislation has come into force that would materially affect project activities or its legal standing.

The Project continues to be implemented in full compliance with all applicable federal and state laws of Malaysia and Pahang, respectively, including those related to land use, forestry, biodiversity, employment, safety, Indigenous rights, and carbon activities. All required permits and licenses remain valid and are available for inspection by the auditor upon request.

To ensure continued compliance, the Project follows an SOP for legal review every six months. This process includes monitoring for updates to relevant legislation and ensuring that any changes are promptly incorporated into project operations.

2.5.2 Relevant Laws and Regulations Related to Worker's Rights (VCS, 3.18, 3.19; CCB, G3.11)

The PPRP is fully aligned with and operates in strict compliance with the Employment Act 1955 of Malaysia.

The PPRP recognizes the importance of these legal protections not just as regulatory requirements but as essential to ethical and responsible project implementation. All contractors, staff, and implementing partners are required to comply with national labor laws and uphold the rights of workers, including provisions related to health and safety, equal treatment, non-discrimination, and access to grievance mechanisms. Furthermore, the Project is committed to continuous monitoring of labor practices on the ground to ensure they align with the spirit as well as the letter of the law. Regular training is provided to all staff on labor rights and ethical conduct, and the Project encourages a positive workplace culture based on dignity, fairness, and mutual respect.

Workers are informed about their rights in the Employee Handbook. Quarterly townhall sessions are conducted to ensure that workers' concerns are addressed by the Company. During the monitoring period, these were conducted on: 1st March 2024, 1st April 2024, 1st July 2024, 3rd October 2024. Meeting materials are available to auditors upon request.

2.5.3 Human Rights (VCS, 3.19)

The Project reaffirms its strong and ongoing commitment to the recognition, protection, and promotion of human rights, particularly the rights of Indigenous People, local communities, and customary rights holders within the Project Zone. These commitments are rooted in full alignment with international human rights instruments, including the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP), ILO Convention No. 169, and domestic human rights legislation, notably the Human Rights Commission of Malaysia Act 1999 (Act 597).

The Project Area is predominantly inhabited by *Jakun* Indigenous communities, whose rights to land, identity, culture, and self-determination are fully recognized and actively integrated into Project design and implementation. This includes the institutionalization of FPIC as a core operational principle.

The PPRP also engages with Indigenous-led NGOs and civil society organizations (see Section 2.3.9). These partnerships facilitate ongoing dialogue, participatory monitoring, and the co-development of culturally appropriate strategies that reflect the values, needs, and aspirations of the *Jakun* people.

Actions Undertaken During the Monitoring Period (Feb 2024 – Jan 2025)

During this period, the Project took specific actions to operationalize its human rights commitments:

- Phase 2 FPIC consultations were conducted in areas where smallholder lands or customary territories intersected with proposed activities (e.g., canal blocking). Community input directly shaped project boundaries and infrastructure placement.
- 16 village-wide consultations were held (July–September 2024), enabling participatory decision-making, grievance resolution, and co-design of project interventions.

- Customary land and forest use areas identified by communities during participatory mapping exercises were excluded from the initial Project Area, ensuring that no customary lands were impacted without consent.
- The Boundary Agreement process was initiated with villages to formally recognize agreed-upon project boundaries and community zones.
- *Jakun* staff members within the Community Development Unit played a key role in building trust, communicating in local languages, and ensuring that engagements respected Indigenous cultural norms and governance structures.

2.5.4 Indigenous Peoples and Cultural Heritage (VCS, 3.18, 3.19)

The PPRP is committed to the preservation and protection of indigenous cultural heritage as a core aspect of its design and implementation. The Project operates within the traditional landscapes of the *Jakun*, and recognizes the deep cultural, spiritual, and historical significance these landscapes hold for local communities. As part of the Project's HCV assessment (see Section 4.1.3 in PDD), several culturally significant areas have been identified within the Project Area and Project Zone. These include:

- Sacred sites and ancestral graveyards regarded as spiritual and ceremonial spaces by the *Jakun* people.
- Traditional-use areas, including semi-permanent fishing huts and shelters used for customary subsistence activities such as fishing, foraging, and NTFP collection.
- Graveyards.

To ensure the protection of these areas, the Project has been designed to conserve the peatland ecosystems in which they are embedded. In doing so, the Project supports in situ the preservation of cultural heritage, ensuring that these important locations remain intact and undisturbed.

Crucially, the Project does not restrict community access to any parts of the Project Area required for traditional and cultural activities. The *Jakun* community retains full rights to engage in their customary practices, including ceremonies, rituals, and resource harvesting, within culturally significant zones.

Through ongoing community consultations, members of the *Jakun* community have expressed growing concern over the erosion of cultural knowledge, oral traditions, and identity, particularly among younger generations. This concern is rooted in broader socio-economic changes and modernization processes occurring across Malaysia, which have marginalized indigenous cultural expression. In response, the PPRP is actively supporting efforts to revitalize and strengthen *Jakun* cultural heritage.

Planning for the following initiatives were started during the monitoring period:

- Intergenerational education programs, where elders pass on traditional knowledge, mythology, and ecological wisdom to youth.
- *Jakun* Cultural Festivals, providing platforms for the community to showcase traditional music, dance, oral storytelling, crafts, and cuisine.

Other initiatives were explored with the communities:

- Cultural heritage documentation, including the recording of oral histories, place names, and sacred narratives.
- Community-led cultural spaces or centers, envisioned as hubs for cultural activities, language preservation, and heritage education.

These initiatives are developed in close collaboration with local leaders, cultural practitioners, and relevant NGOs, ensuring that cultural preservation is both community-driven and respectful of *Jakun* self-determination. Through this integrated approach, the Project not only avoids harm to indigenous cultural values but actively contributes to the revival, resilience, and continuity of *Jakun* cultural identity for future generations.

2.5.5 Recognition of Property Rights (VCS, 3.7, 3.18, 3.19; CCB, G5.1)

Disputes over rights to territories and resources	There were no disputes recorded for this monitoring period.
Respect for property rights	The Project is firmly committed to recognizing, respecting, and supporting property rights within the Project Zone, particularly those held by Indigenous <i>Jakun</i> communities. While the Malaysian legal framework—particularly within PRFs—does not currently allow for the full formalization of customary land tenure, the Project adopts a precautionary and rights-sensitive approach, grounded in community-led consultation, mapping, and agreement-building.

Actions Taken During the Monitoring Period (Feb 2024 – Jan 2025)

To uphold customary rights, and in line with the Project’s human rights and FPIC commitments, the following actions were implemented:

- The initial Project Area was carefully delineated using customary land maps provided by the communities themselves, collected during participatory mapping and FPIC consultations.
- Phase 1 FPIC consultations were conducted across all relevant communities prior to boundary finalization, ensuring voluntary participation, informed consent, and local endorsement.
- Boundary Agreements will be signed with communities in the Project Zone starting May 2025, establishing mutual understanding and respect for boundaries within the UPA.
- Three additional communities have acknowledged and confirmed that the initial Project Area does not overlap with their recognized customary territories.
- No areas with uncertain or disputed property rights were included in the initial Project Area.

Respect for Traditional Use and Customary Practices

The Project does not restrict Indigenous communities’ access to forests or their traditional use of forest resources, including non-timber forest product collection, subsistence fishing, or spiritual/cultural practices. Where any future activities—such as reforestation or canal rehabilitation—may impact existing rights, the Project has committed to triggering a robust FPIC process, including community-specific consultation, co-development of mitigation strategies, and documentation of consent or refusal.

Conflict Prevention and Current Status

As of the close of the monitoring period:

- There are no known disputes regarding rights to land, resources, or territories within the UPA.
- The Project continues to work proactively to prevent potential conflict by maintaining clear communication, co-signed agreements, and a GRM accessible to all stakeholders.

The PPRP remains committed to respecting customary rights and promoting peaceful co-management of natural resources, even where national law does not yet offer full recognition. This commitment is integrated into the Project’s operational protocols, engagement strategies, and long-term landscape planning.

2.5.6 Benefit Sharing Mechanism (VCS, 3.18, 3.19)

The Project did not impact any property rights during the current monitoring period.

Twelve stakeholders were initially identified as potentially affected and were consulted as part of Phase 2 of the FPIC process (see Section 2.3.9). During these consultations, potential risks, benefits, and costs were thoroughly assessed. Following this assessment, none of the stakeholders were determined to be impacted by the Project’s activities. As a result, Phase 3 FPIC, which involves formal consent regarding benefit sharing, was not required during this period.

2.5.7 Free, Prior, and Informed Consent (VCS, 3.18, 3.19; CCB, G5.2)

Consent	<p>The Project uses a three-phased process for securing FPIC for Project activities that impact the rights of local communities, community groups or other stakeholders. This process was followed through prior to the initiation of any Project activities that may impact local communities and Indigenous people during the monitoring period.</p> <p>Impacted stakeholders have the right to refuse to participate, and/or to withdraw their participation, at any point. Regardless of the outcome of the process, the Project team maintains regular communication with relevant stakeholders to keep them informed of Project activities in the proximity of their areas.</p> <p>Phase 1: Stakeholder Identification</p>
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	<p>The process begins with gathering baseline community data through surveys, consultations, and mapping. Permission is always sought before any engagement. From this, stakeholders whose rights may be affected are identified. Clear communication is maintained, and stakeholders are informed of their right to decline or withdraw from participation at any time.</p> <p>Phase 2: Impact Assessment</p> <p>Before any project activities begin, stakeholders are consulted to ensure that potential risks, costs, and benefits are understood and potential impacts are assessed in a participatory manner. Details such as timing, location, and reversibility of activities are shared. Stakeholders may raise concerns through the GRM. All consultations are documented, and while signatures are encouraged, they are not mandatory.</p> <p>Phase 3: Consent and Benefit Sharing</p> <p>Consent will not be requested from impacted stakeholders without an agreed benefit sharing mechanism. If negative impacts are identified, a fair and transparent Benefit Sharing Mechanism will be developed jointly. Consent is documented and shared with stakeholders. If consent is not granted, the project activity will be redesigned or cancelled in the affected area.</p> <p>Respecting the rights and autonomy of Indigenous and local communities is a foundational principle of our approach. FPIC is not just a procedural requirement, it is a safeguard to ensure that interventions do not proceed without meaningful engagement and voluntary agreement.</p>
Outcome of FPIC	<p>The Project has invested significant time, resources, and effort into the delivery of an inclusive, tenure-based approach that respects and protects the rights of Indigenous Peoples, local communities, and customary rights holders.</p> <p>As part of Phase 1 FPIC, the Project facilitated the creation of detailed participatory maps with Project Zone communities (see Section 2.3.2 in the PDD). This participatory mapping not only documents community land claims and areas of livelihood use—such as smallholdings, fishing grounds, and NTFP collection zones—but also enables communities to understand their spatial relationship to Project activities and to plan future land use within their village boundaries. At least 2,856 stakeholders have been consulted during Phase 1 FPIC and identified as potentially impacted.</p>

A tenure-based approach underpins the Project design to ensure that the rights of Project Zone communities to lands, territories, and natural resources are fully respected. Mutual understanding of the Project’s objectives and anticipated activities has been a core focus of the consultation process, and the Project has prioritized transparent information disclosure at every stage. The outcome of Phase 1 FPIC conducted to date was used to design the initial Project Area by excluding existing smallholdings and areas claimed as customary land.

Following the delineation of the initial Project Area, additional consultations (Phase 2 FPIC) were undertaken with eight smallholders and four fishers who were assessed as potentially affected. Through these discussions that covered risks, costs and benefits (see Section 2.3.9), four fishers and seven smallholders confirmed that their rights and livelihoods would not be impacted. One smallholder expressed concerns that the originally proposed canal blocking activities would negatively affect their land. In response, the Project revised the canal blocking design, reassessed risks, costs and benefits in close collaboration, and ultimately reached a mutual agreement that the revised plan avoided adverse impacts.

During the present monitoring period, none of the stakeholders identified through Phase 1 FPIC and impact-assessed through Phase 2 FPIC require Phase 3 FPIC involving consent with benefit sharing agreements. Nonetheless, the Project recognizes that FPIC is an ongoing and iterative process. As activities expand into new areas, especially additional canal blocking and restoration interventions, relevant stakeholders identified in Phase 1 will be re-engaged for Phase 2 FPIC to assess the impact of Project activities.

2.5.8 Property Right Protection (VCS, 3.18, 3.19; CCB, G5.3)

During the monitoring period (1 February 2024 to 31 January 2025), the Project maintained its commitment to upholding and protecting the property rights of Indigenous Peoples, local communities, and customary rights holders within the Project Zone.

The Project confirms that:

- No involuntary removal, resettlement, or relocation of any property rights holders occurred;
- No displacement of cultural, spiritual, or livelihood activities essential to local communities took place as a result of project interventions;
- No project activity required or resulted in community members ceasing access to land or resources tied to their identity, heritage, or well-being.

All project activities during the reporting period—including peatland rewetting, biodiversity surveys, patrolling, and community engagement—were carefully implemented to avoid interference with customary land use or community movement. In areas where canal blocking or fire prevention infrastructure was proposed near community-used land, an FPIC process was initiated to assess whether any rights were impacted and consent with benefit sharing is required before implementation.

Recognition of Customary Land Claims

The Project acknowledges the existence of customary land claims, even in the absence of formal legal title. In several cases, local villages have initiated formal applications for their territories to be gazetted under the Aboriginal Peoples Act 1954 as Aboriginal Reserves or Aboriginal Areas. To respect these claims:

- Such areas have been excluded from the initial Project Area;
- Where overlaps exist with the broader UPA, Project activities are restricted unless community consultation and consent is explicitly obtained;
- No physical or legal restrictions have been imposed on these lands.

Community Collaboration in Overlapping Zones

In areas where customary territories partially overlap with the UPA, the Project has actively collaborated with communities to co-manage forest resources, including:

- Participatory mapping,
- Awareness-raising about fire risks and forest conservation, and
- Support for maintaining traditional and subsistence practices, such as fishing, gathering, and small-scale agriculture.

Through this approach, the PPRP continues to contribute to the protection of Indigenous property rights, cultural integrity, and community well-being, ensuring that conservation objectives are achieved without compromising human rights or social equity.

2.5.9 Identification of Illegal Activity (VCS, 3.19, CCB, G5.4)

The Project acknowledges the presence of illegal activities within and surrounding the Project Zone that have the potential to undermine environmental and social outcomes. The Project maintains a firm commitment to ensuring that no project benefits are derived from illegal acts, and that no forced labor, child labor, or victims of human trafficking are engaged in any aspect of project implementation.

Illegal Activities Observed During the Monitoring Period (Feb 2024 – Jan 2025)

Based on community reports, patrol data, and stakeholder consultations, the following illegal activities were identified in the Project Zone:

- Open burning for land clearing – Conducted by some individuals (including local residents), in contravention of the Environmental Quality Act 1974 and National Forestry Act 1984.

- Unauthorized agricultural expansion – Land clearing and smallholder farming inside Permanent Reserved Forests (PRFs) remain illegal under the National Forestry Act 1984.
- Illegal hunting and resource extraction – Perpetrated primarily by non-community outsiders accessing forest areas without permits.
- Speculative land encroachment – External parties attempting to clear and cultivate burnt land to create de facto land claims, in anticipation of future legal recognition.

Prevention and Mitigation Measures Implemented

To reduce the occurrence of these activities and protect project integrity, the following multi-pronged strategy was actively implemented during the monitoring period:

1. Community Engagement and Education
 - Village-wide consultation events (16 villages, July–September 2024) included sessions on legal rights, conservation laws, and consequences of illegal land use.
 - Awareness campaigns emphasized the ecological and health risks of burning, aligned with haze prevention efforts.
 - Support for village-level resource management planning promoted legal, sustainable use of forest resources.
2. Livelihood Alternatives and Targeted Outreach
 - Individuals vulnerable to engaging in illegal activities were offered employment in fire patrols, biodiversity monitoring, and reforestation programs.
 - Smallholder groups and hunters were engaged to transition into formal roles as guides, nursery managers, or FERT volunteers.
3. Community-Based Monitoring and Enforcement
 - SMART patrols were conducted regularly in partnership with local stakeholders to monitor illegal entry, encroachment, and wildlife poaching.
 - Guard posts and outposts were constructed at high-risk access points to deter external incursions.
 - A community informant system was piloted to encourage reporting of suspicious activity.
4. Fire Management and Emergency Response
 - The FERT responded to multiple fire incidents during the dry season, particularly in buffer zones susceptible to external burning.
 - Local teams were trained in fire prevention and suppression techniques and equipped with necessary tools and safety gear.

Labor Protections and Human Rights Compliance

The Project has maintained a strict zero-tolerance policy against:

- Forced labor – Prohibited under the Federal Constitution and the Employment Act 1955.
- Child labor – All workers are required to be 18 or older, in line with the Children and Young Persons (Employment) Act 1966.
- Human trafficking – Prevented through stringent hiring practices aligned with the Anti-Trafficking in Persons and Anti-Smuggling of Migrants Act 2007.

During the monitoring period:

- All staff and contractors were formally vetted, with verified identification and proof of age.
- The Human Capital Management Policy emphasized local recruitment, greatly reducing trafficking-related risks.
- A Legal Compliance Review SOP was followed and updated, confirming compliance with all relevant labor laws.

No violations or suspected cases of labor exploitation or trafficking were reported.

The PPRP will continue to prioritize community engagement, law enforcement collaboration, and transparent monitoring to ensure that all project outcomes are achieved ethically and lawfully, in alignment with both national legislation and international safeguards.

2.5.10 Ongoing Disputes (VCS, 3.18, 3.19; CCB, G5.5)

There are currently no ongoing disputes in the Project Area.

3 CLIMATE

3.1 Monitoring GHG Emission Reductions and Removals

3.1.1 Data and Parameters Available at Validation (VCS, 3.16)

See Appendix 6

3.1.2 Data and Parameters Monitored (VCS, 3.16)

See Appendix 7

3.1.3 Monitoring Plan (VCS, 3.16, 3.20)

During this monitoring period, the PPRP followed a structured and systematic approach to obtain, compile, and analyze data and parameters collected and derived (see section 3.1.1). Monitoring activities were carried out to ensure the accuracy, consistency, and transparency of data used for greenhouse gas (GHG) accounting, land use change detection, and hydrological and ecological assessments. Table 5 below provides a summary of data collection activities during Monitoring Report 1 (MR1).

Table 5: Summary of Data Collection and Restoration Activities during this Monitoring Period

Peat Dome / Forest Reserve	Manual Water Table Measurements (of readings)	Automatic Water Table Measurements (daily log count)	Permanent Vegetation Plot (no.)	Hotspots detected (no.)	Burnt Scar Area (ha)	Burnt Scar Verifications (no.)	Canal Blocks Installed (no.)
Project Area							
Pekan East	235	1,244	9	20	76.3	3	70
Pekan West	94	2,498	2	3	2.2	1	-
Nenasi	242	1,817	16	8	201.2	4	-
Resak	251	2,182	3	4	115.6	2	4
Protection Zone							
Kedondong	130	231	-	38	-	-	-
Total	952	7,972	30	73	395.3	10	74

3.1.3.1 Monitoring Carbon Sequestration

No monitoring of carbon sequestration was conducted during this monitoring period, as verification of ARR credits is not being sought for this cycle.

3.1.3.2 Monitoring Forest Degradation

Indigenous people in the Project Zone may legally take lumber for house construction. To detect and monitor forest degradation due to illegal logging and fuelwood collection, a structured, ground-based approach centered on participatory and empirical techniques was conducted. During this monitoring period, the primary detection methods included:

- SMART Patrols conducted on the ground to observe and report on forest conditions, and
- Remote sensing analysis to detect signs of timber harvesting or other degradation activities.

No instances of forest degradation were detected during this monitoring period.

Looking ahead, SMART Patrols will be integrated with biennial Participatory Rural Appraisals (PRAs) as outlined in the Monitoring Plan, further strengthening the Project's capacity to track and address forest degradation.

3.1.3.3 Monitoring Deforestation

Deforestation within the Project Area was monitored using medium-resolution satellite imagery ($\leq 30\text{m}$), primarily sourced from Landsat and Spot sensors. Imagery was acquired and processed to ensure geometric correction, geo-referencing, and removal of cloud and shadow interference. A consistent classification methodology was applied as per the PDD to detect land-use and land-cover changes, focusing on identifying the conversion of forest to non-forest land. Forest Cover Monitoring Maps (see Section 3.1.3.3.2) were updated for this monitoring period, and classification accuracy was validated to exceed 90%. In instances where cloud cover exceeded acceptable thresholds, multi-date composites were used to reduce interference and ensure reliable detection. No deforestation events were detected during this monitoring period except for those caused by fire and accounted for as emissions from biomass burning.

3.1.3.3.1 Land cover change of monitoring period 2024 to 2025

3.1.3.3.1.1 Cloud-free mosaic image of 2025

To support accurate land cover classification and change detection for the current monitoring period, a cloud-free satellite mosaic (Figure 3) was generated using the following procedure:

- Sentinel-2 imagery was sourced from the COPERNICUS/S2_HARMONIZED dataset, covering the period from January to July 2025. This harmonized collection ensures consistency across Sentinel-2A and 2B platforms, with radiometric adjustments for improved temporal analysis.
- Cloud and shadow contamination were removed using the Cloud Score+ (GOOGLE/CLOUD_SCORE_PLUS/V1/S2_HARMONIZED) dataset. Cloud Score+ is a quality assessment (QA) algorithm designed for medium- to high-resolution optical imagery. It produces a pixel-level cloud probability score, enabling the identification of relatively clear pixels.
- Cloud Score+ is operationally applied to the harmonized Sentinel-2 L1C collection. It generates cloud and cloud-shadow masks that are effective for both Top-of-Atmosphere (L1C) and Surface Reflectance (L2A) products, making it suitable for pre-classification mosaic generation.

- Only pixels with low cloud probability (as determined by Cloud Score+) were retained and composited using a median reducer, resulting in a high-quality cloud-free mosaic optimized for land cover analysis and visual interpretation.

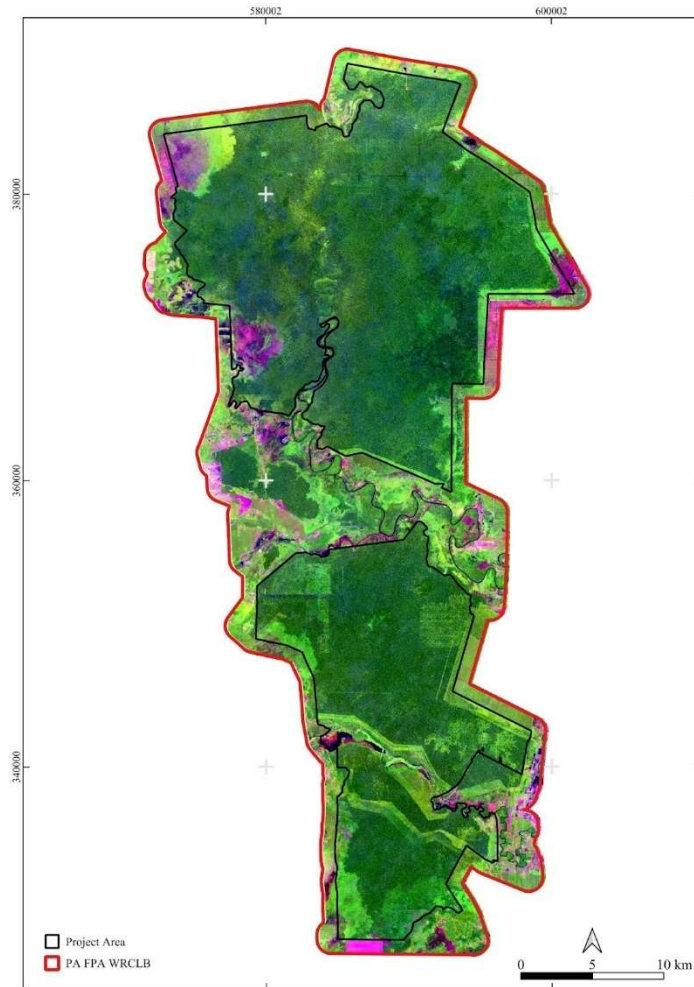


Figure 3: Cloud free mosaic image from January 2025

3.1.3.3.2 Land cover classification comparison of 2024 and 2025

Using the same procedure applied on classification of 2024, a new land cover classification was performed for the year of 2025. The process applies a random forest algorithm with stable samples used on classification of 2024 followed by visual correction and stratification of forest classes.

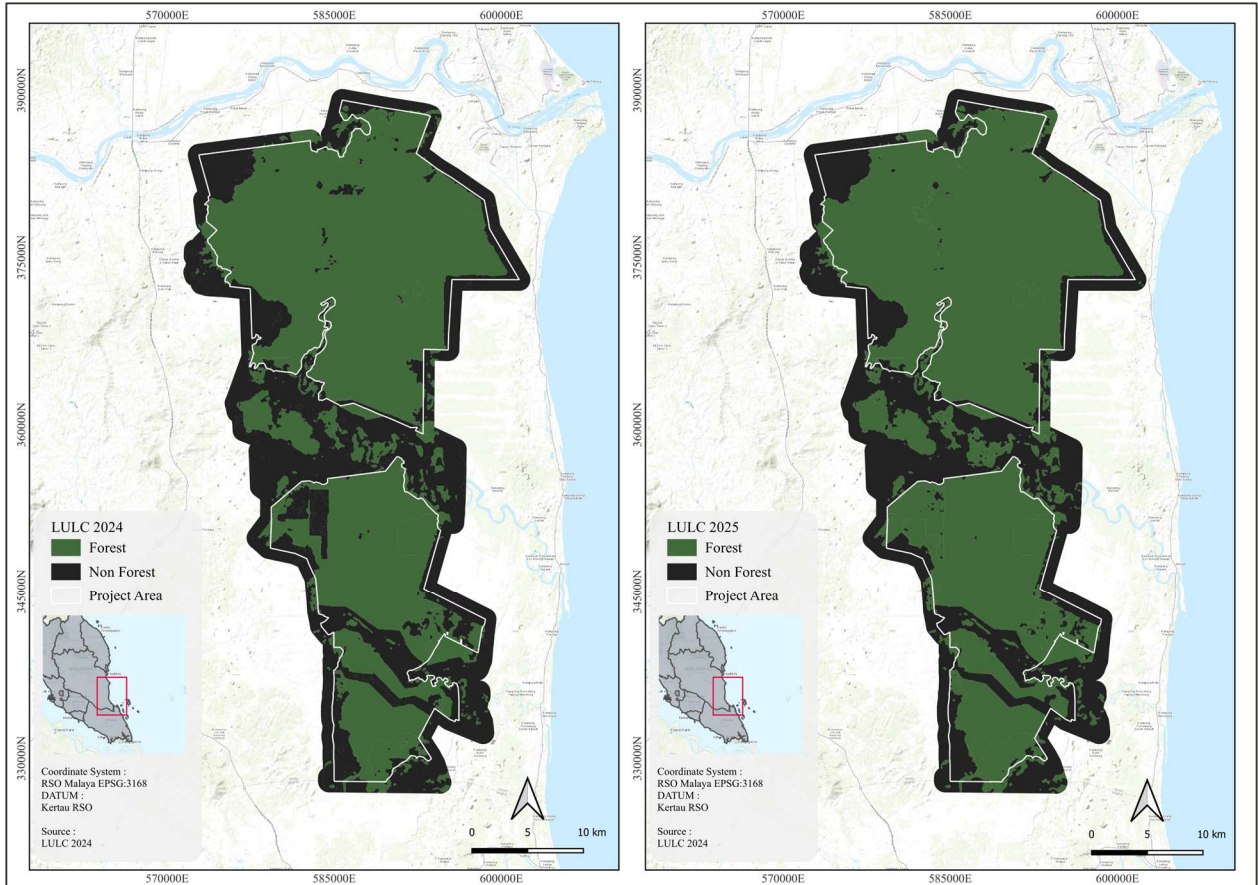


Figure 4: Land cover classification results of 2024 and 2025

A comparison between the land cover of 2024 and 2025 land cover classification maps revealed noticeable changes in several land cover classes (Figure 4). However, a portion of these changes are not linked to real-world land cover transitions, but rather to pixel-level discrepancies common in automated classification workflows. The results are summarized below.

Table 6: Summary of Forest Cover Changes Before Validation

Land cover	2024 (Ha)	2025_v1 (Ha)	Changes (%)
Good Forest	59,062	59,848	1.33%
Degraded Forest	3,821	3,938	3.05%
Severe Degraded Forest	1,018	2,849	179.86%
Non-Forest	13,599	10,864	-20.11%

This discrepancy was most obvious with the observed increase in forest classes, particularly in severely degraded forest (+179.86%), is influenced by greener pixel reflectance in 2025 imagery, which may have resulted from seasonal or atmospheric differences during image acquisition. This can lead to higher NDVI or vegetation index values, which favour classification into forest-related classes.

Sharp Drops in Non-Forest Area (-20.11%) were also attributable to pixel level discrepancies. This significant reduction is largely attributed to reclassification of transition zones (e.g., sparse or recovering vegetation) into degraded or severely degraded forest classes. These changes often occur without actual land cover conversion and are typical in edge areas where pixel classification is sensitive to spectral variation.

The observed discrepancies between the 2024 and 2025 land cover classifications are primarily attributed to classification artifacts rather than actual land cover change. These artifacts arise from several factors: (1) model uncertainty, where machine learning algorithms such as Random Forest introduce variability due to differences in training sample selection and internal randomness; (2) mixed pixels at class boundaries, where transitional zones between land cover types exhibit spectral ambiguity, making them sensitive to minor reflectance variations; (3) temporal variability in imagery, where differences in atmospheric conditions, solar angle, or vegetation phenology—despite seasonal consistency—can affect pixel classification; and (4) training data drift, where even slight modifications in training data across years may shift decision boundaries and impact classification consistency. Overall, while statistical differences—particularly in severely degraded forest and non-forest classes—appear significant, these are largely explained by classification noise and edge effects. As such, visual interpretation and field verification remain essential to accurately distinguish real land cover changes from classification inconsistencies.

3.1.3.3.3 Visual detection on land cover changes 2024 to 2025

The changes observed during the monitoring period from 2024 to 2025 were visually interpreted and verified using a combination of the 2025 cloud-free satellite mosaic, historical imagery, and field validation. This multi-source approach enabled accurate detection and confirmation of land cover transitions.

Special attention was directed to areas affected by known and potential deforestation and degradation agents, including Selective and illegal logging, Agricultural expansion, Fires, Infrastructure and road development (Figure 5).

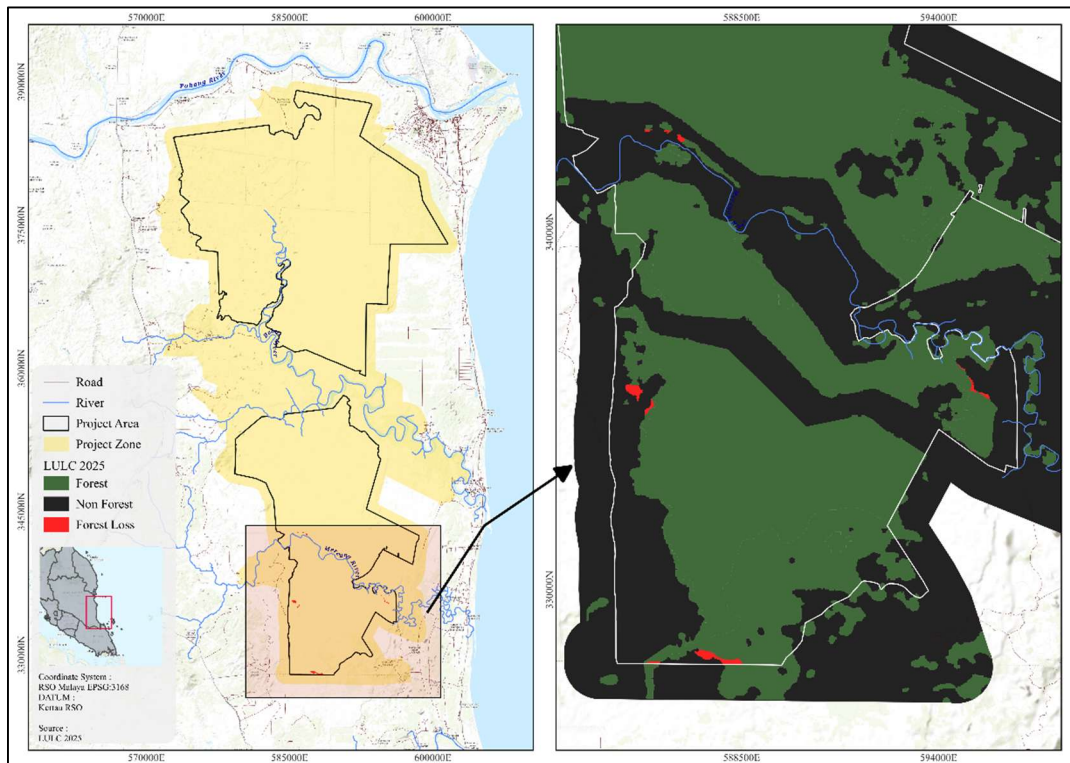


Figure 5: Forest Cover Change detected during monitoring period 2024-2025

This targeted verification approach enabled the detection of subtle or fragmented changes, particularly in transition zones between forest and non-forest classes. In contrast, areas with no visible change and no known disturbance signals were assumed to be stable and unchanged throughout the monitoring period. The results are summarized below:

Table 7: Forest cover change for the monitoring period based after visual validation

Land cover	LULC 2024	LULC 2025_v2	Changes (%)
Good Forest	59,062	59,052	-0.02%
Degraded Forest	3,821	3,789	-0.84%
Severe Degraded Forest	1,018	1,012	-0.59%
Non-Forest	13,599	13,646	0.35%

The observed forest cover changes within the project area were minimal and primarily attributable to a fire incident originating outside the project boundary, which marginally impacted forested zones within the area. Based on spatial analysis of land cover transitions and field validation, an estimated 47 hectares of forest loss occurred during the this monitoring period, all of is attributed to fires within the project area the emissions from which are estimated in Section 3.2.2.1. as burning of biomass in the project scenario. All other areas within the project boundary remained relatively stable, with no significant disturbances or conversions detected.

3.1.3.4 Monitoring Burnt Areas

Emissions from forest and peat fires during this monitoring period were estimated based on data collected from verified fire events within the Project Area. Fires were primarily identified through the Project's near real-time hotspot and fire monitoring dashboard, which automatically alerts designated managers and personnel, and Fire Emergency Response Team (FERT) members via email and Telegram when a hotspot is detected within a 2 km radius of the project boundary.

Post fire burned areas were identified using remote sensing acquired and processed to detect fire scars and smoke plumes. Imagery was geometrically corrected, geo-referenced, and filtered for cloud and shadow interference. Spectral indices such as the Normalized Burn Ratio (NBR) were applied to delineate burn scars. A total of 73 hotspots were detected across both the Project Area and Protection Zone during the reporting period.

On-site verification of peat burnt depth was subsequently conducted at 10 identified burnt scar locations, representing post-fire events within the Project Area. These burn scars were distributed across four forest reserves: Pekan East (3 sites), Pekan West (1 site), Nenasi (4 sites), and Resak (2 sites) (see Table). Further, 40 locations, including non-peat were identified/analyzed by satellite imagery to support estimation of peat and biomass emissions (refer to Section 3.2.2.1). All remotely sensed burnt scar data was verified through ground-based measurements, including GPS-referenced field and drone surveys, as well as visual confirmation of fire damage (e.g., burnt scar depth and orthophotos of burnt area). Transect walks were conducted to, where possible, validate burn scar boundaries, and photo documentation was collected to support classification accuracy. To estimate emissions from peat burning, the depth of each burnt scar was measured directly by excavating into the peat profile at multiple sampling points within the affected area (Figure 6). At each point, a vertical pit was dug until the boundary between burned and unburned peat was visually identified, typically marked by a change in color, texture, or moisture content. The depth from the surface to the intact peat layer was recorded using a measuring tape, and the average depth across all sampling points was used to calculate the volume of peat combusted. The SOP on Fire Scars Area and Depth - Field Measurement (EP-SOP-MRV01) can be made available to auditors upon request. Bulk density and carbon content values derived from soils sampling during the project design (see PDD) were applied to convert this volume into total carbon loss.



Figure 6: Measurement of peat burnt scar depth using a measuring tape, based on visual identification of the boundary between burned and unburned peat layers

Burned areas were also stratified into peat and non-peat, and forest and non-forest, classes. This straightforward stratification was used to estimate the pre-fire total forest biomass and apply the correct emission factors required to produce accurate GHG estimates.

All calculations were aligned with IPCC 2006 Guidelines and documented for this monitoring period. This monitoring approach was implemented to support annual verification and ensure conservative and consistent accounting of emissions from fire-related disturbances.

3.1.3.5 Hydrological Monitoring

3.1.3.5.1 Water Tables

Water table depths were monitored regularly across the Project Area to support quantification of GHG emissions and removals associated with peatland rewetting and conservation activities. Measurements were taken at 291 fixed sampling points and distributed across representative land cover and drainage strata (Figure 7).

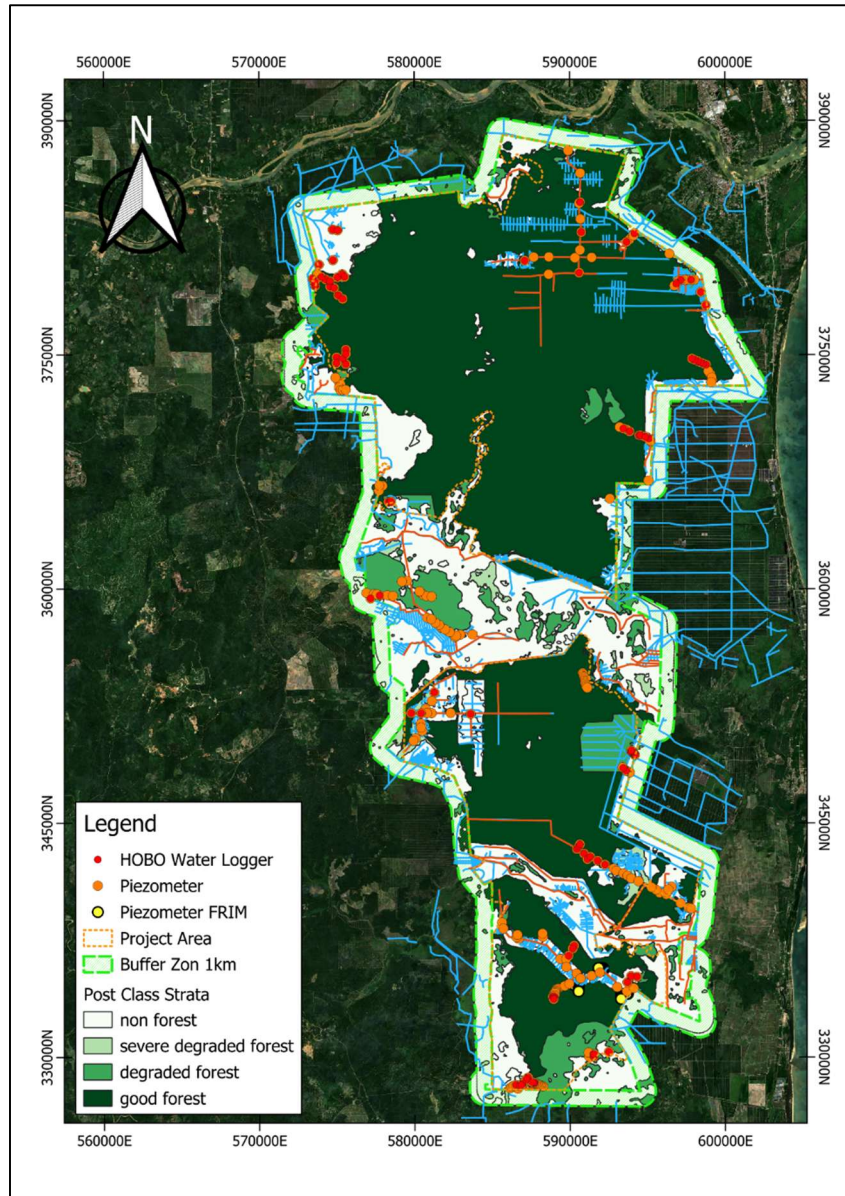


Figure 7: Locations of installed and routinely monitored piezometers within the Project Area and Protection Zone, including those equipped with automatic HOBO data loggers

At each sampling point, water table depth was measured relative to the soil surface. Measurements were recorded in centimeters, with positive values indicating water above the surface and negative values indicating water below the surface. Water table depths were monitored at a minimum frequency of once every one to two months, in accordance with the requirements of the methodology (VMD0046, M-PEAT, minimum 2 months interval). During this monitoring period, 93 automated data loggers were installed across the Project Area. A total of 8,924 measurements were taken during this time (Automated = 7,972 readings; Manual= 952 readings) with loggers set to record data at 10-minutes (dry season) and 30-minute (monsoon season) intervals, generating high-resolution time series data to support stratification updates, hydrological modelling, and verification reporting.

During the monitoring period, 93 automated data loggers were installed across the Project Area and, where appropriate, distributed evenly per stratum to facilitate consistent and spatially representative

monitoring of water table fluctuations. The number and coverage of automatic data loggers installed across the peat domes / Forest Reserve are as follows:

Table 8: Automatic Data Logger Installation and Coverage by Peat Dome / Forest Reserve

Peat Dome / Forest Reserve	Automatic Data Logger Installed (no.)	Piezometer Installed (no.)	Coverage (% of Piezometers with Data Logger)
Project Area			
Pekan East	24	60	40
Pekan West	28	41	68
Nenasi	18	61	30
Resak (Including additional set installed by FRIM)	23	90	25
Total	93	252	40
Protection Zone			
Protection Zone (Excluding Kedondong)	0	14	0
Kedondong	3	25	12
Grand Total	96	291	33

In addition, several piezometers (including automated data loggers) were installed in the Protection Zone to provide reference data on hydrological conditions and support early detection of potential ecological leakage. While these points are outside the core accounting boundary, they form part of the monitoring network for the hydrological buffer zone (WRC leakage belt) to assess lateral water movement and guide the placement of mitigation measures, such as canal blocks. Refer to Section 3.2.3.2 of the PDD for further details.



Figure 8: Piezometer data collection at Pekan East FR with manual measurement and HOBO automatic data logger



Figure 9: Joint piezometer data collection by FERT and Forest Protection teams at Pekan West FR using manual readings and HOBO logger data extraction



Figure 10: Forest Protection team marking coordinates (integrated with SMART Patrolling), preparing ROG for HOBOL logger data extraction, and manually measuring water table level as reference at Nenasi FR



Figure 11: Forest Protection team conducting manual and HOBOL logger data extraction at Resak FR—one of the most challenging sites

3.1.3.5.2 Rainfall and Temperature

Two separate automated weather stations were installed during this monitoring period to continuously monitor rainfall, temperature, and humidity (Figure 12). These stations collected weather data at a high temporal resolution, with measurements recorded every three minutes. The weather stations have been strategically positioned in Pekan East FR (coordinate: 3.45208233, 103.33572186) and

Nenasi FR (coordinate: 3.18358266, 103.23721714) to capture spatial variability in rainfall across different hydrological zones, such as distinct peat hydrological domes and river basins.

For the period of February 2024 to August 2024, where data gaps existed prior to the installation of the weather stations, rainfall and temperature measurements were supplemented using the nearest available weather stations owned by the Department of Irrigation and Drainage (DID Malaysia). Where feasible, rainfall measurements have been cross-referenced with datasets from the nearest national meteorological (MET Malaysia) and drainage agency (DID Malaysia) stations to ensure consistency and completeness.



Figure 12: Weather station at Bukit Bangkong, Pekan East Forest Reserve during the end of monsoon period

During this 12-month period from February 2024 to January 2025, total accumulated rainfall and average air temperature and their standard deviations were 2265 ± 156 mm and $26.5 \text{ }^\circ\text{C} \pm 0.7$, respectively. Figure 13 illustrates the monthly accumulated rainfall (mm) and average monthly temperature ($^\circ\text{C}$) recorded across the PPRP area during this period. Overall, the rainfall distribution shows significant monthly variation, with notably low rainfall from February to August, peaking in December at over 500 mm. A sharp increase in rainfall begins in September, indicating the onset of the wet season, with October and December experiencing the highest rainfall levels. In contrast, the average monthly temperature follows a gradual decline over the same period. The highest temperatures were observed between April and May, exceeding 27°C , while the lowest average temperature occurred in January, at around 25°C . A steady cooling trend is apparent from October onwards, coinciding with increased rainfall.

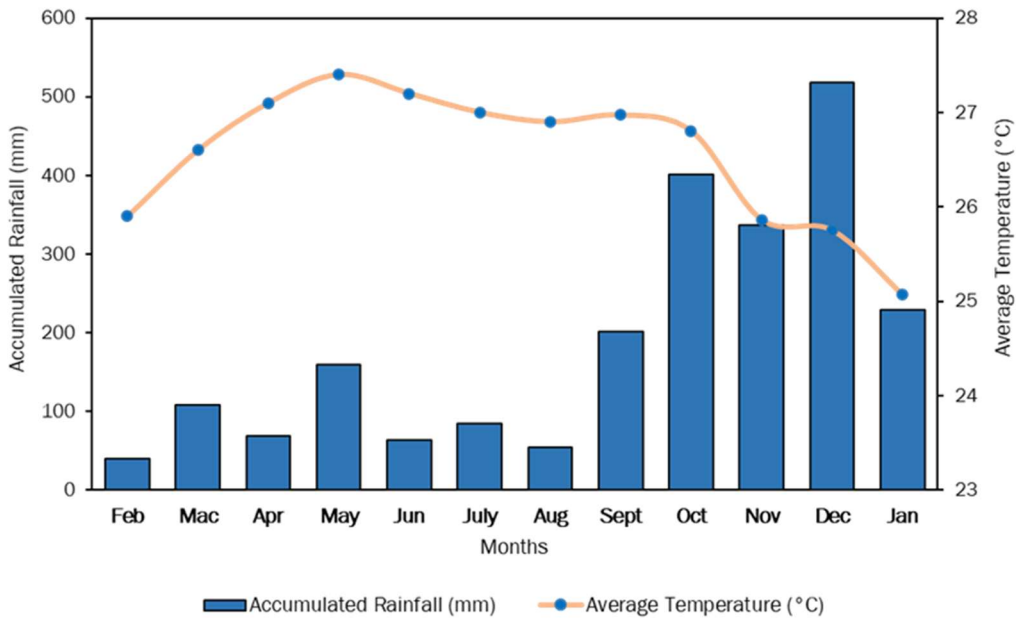


Figure 13: Monthly accumulated rainfall (mm) and average monthly temperature (°C) in the PRRP during the first monitoring period (1 February 2024–31 January 2025)

3.1.3.5.3 Canal Block Construction

During this monitoring period, a total of 74 canal blocks were installed across the Project Area (See Appendix 5 for full list and coordinates of canal blocks installed during this monitoring period). These canal blocks function as critical peatland restoration structures designed to raise and maintain the groundwater table, prevent further peat subsidence, and reduce the risk of fire. Their installation forms a key component of the hydrological rehabilitation strategy, aiming to restore ecological balance and enhance long-term carbon storage in the peatland ecosystem. Site selection for canal block installation was based on hydrological modelling and prioritization criteria, with a focus on areas (in PRFs) most in need of intervention and located away from settlements and smallholdings in areas confirmed to be of no risk to communities (e.g., by causing flooding of crops). All canal blocks were constructed with peat compaction techniques, wherein peat is taken from a loan pit and used to fill the canals and block flow. The excavator then uses its weight through the back of the bucket to compact the accumulated peat and reduced porosity at the canal block location



Figure 14: Pre- (left) and post-(right) canal blocking by peat compaction in Tanjung Medang, Pekan FR (Canal Block ID: CB_PKN046)

The Tanjung Medang sector had the highest number of canal block installations during the monitoring period, with 63 blocks constructed. This high density reflects the extensive canal network in the area, a legacy of both historic and more recent logging-related drainage. Intensive restoration in this sector is crucial to retain surface and subsurface water, re-saturate the peat profile, and stabilize forest conditions. These interventions also play a vital role in protecting the integrity of the Pekan East peat dome. This area was also chosen as it is far away from any potentially impacted community members.

In the YP sector, seven canal blocks were installed. Their placement was influenced by the proximity of oil palm plantations, which had been extracting water from the canal network, particularly during dry periods. This extraction had led to lowered water tables in adjacent buffer zones and peatlands. The canal blocks were strategically installed to reduce outflow, retain moisture, and restore natural hydrological balance in the area.

A smaller number of installations occurred in Resak, where two canal blocks were built. The lower number reflects either limited canal density or relatively intact hydrological conditions. Nonetheless, these interventions contribute to localized hydrological recovery in vulnerable areas.

In Jemeri, two additional canal blocks were installed as targeted responses to peat fires recorded in both the current and previous years. The primary objective here was to raise the water table and sustain wetter peat conditions to reduce fire risk and enhance ecosystem resilience. For the spatial distribution of all canal block locations (Figure 15).

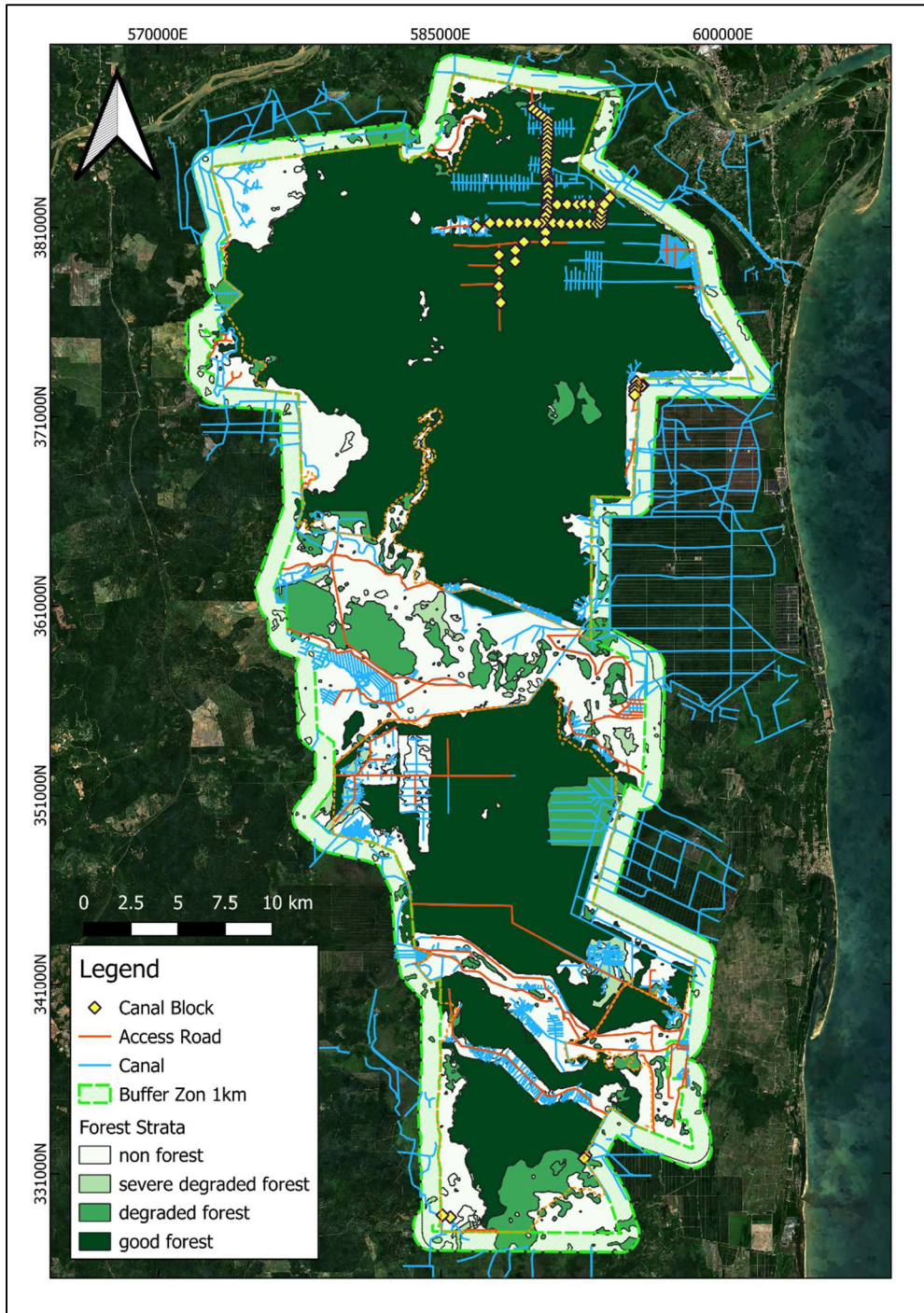


Figure 15: Canal blocks installed across the Project Area during the February 2024 – January 2025 monitoring period, totaling 74 units: Tanjung Medang (63), YP (7), Resak (2), and Jemeri (2)

3.1.3.5.4 Hydrological Modelling

All of the above data was collected and stored in preparation for input into hydrological models that will incorporate:

- Drainage network conditions, including the layout, density, and connectivity of ditches and canals.

- Digital Terrain Models (DTM), which defined elevation gradients and flow paths.
- Groundwater flow dynamics, informed by hydraulic conductivity and subsurface stratigraphy.
- Rainfall data, sourced from nearby meteorological stations or on-site rain gauges, to capture recharge events and seasonal variability.
- Canal water levels were monitored regularly within the Project Area—particularly in boundary canals—and utilized as boundary conditions in the model.

These inputs will be used to simulate water table behavior across the Project Area, identify zones of hydrological stress or recovery, and support the estimation of GHG emissions from peat oxidation. Where historic drainage structures (e.g., collapsed canal blocks) were present, their influence on water table dynamics was assessed using expert judgment and conservative assumptions.

All water table data and model outputs were documented and will be used to inform emission calculations, stratification updates, and verification reporting in the next monitoring period after which the monitoring approach will be implemented to support annual verification and to ensure conservative and consistent accounting of hydrological conditions relevant to peatland GHG emissions.

3.1.3.6 Organizational Structure

During the current monitoring period, the Project utilized its Monitoring, Evaluation, and Learning (MEL) system that provides a clear framework for tracking project progress, assessing performance, and integrating learning to improve implementation as described in the PDD. All key personnel involved in MEL were retained throughout the monitoring period (refer to Section 3.3.3.6 of the PDD for details).

All MEL key personnel possess relevant academic backgrounds and field experience in forestry, environmental science, GIS, community development or data management. To strengthen technical competencies, the Project conducted both in-house and external professional training, as well as field refreshers. These covered topics such as hydrological measurements and data extraction, remote sensing validation, social surveys and questionnaires, and post-fire assessments. Details of the training activities are provided in Section 2.3.15.

3.1.3.7 Procedures for QA/QC and Internal Auditing

During this monitoring period, a robust data QA/QC system was fully integrated into the MEL framework, ensuring the accuracy, consistency, and credibility of all data collected. Key measures implemented included:

- Application of standardized data collection protocols (SOPs) with clearly defined indicators, schedules, and methodologies.
- Training and certification of field teams, including community data collectors.
- Regular calibration and maintenance of all monitoring equipment.
- Validation and cross-verification of remote sensing outputs against field data.

- Conducting spot audits, field supervision visits, and supervisory reviews of all data entries and assessments.
- Use of double-entry and error-flagging systems for critical datasets; and
- Ensured complete traceability and version control by maintaining separation between raw data, working files, and analysis files within the centralized data system.

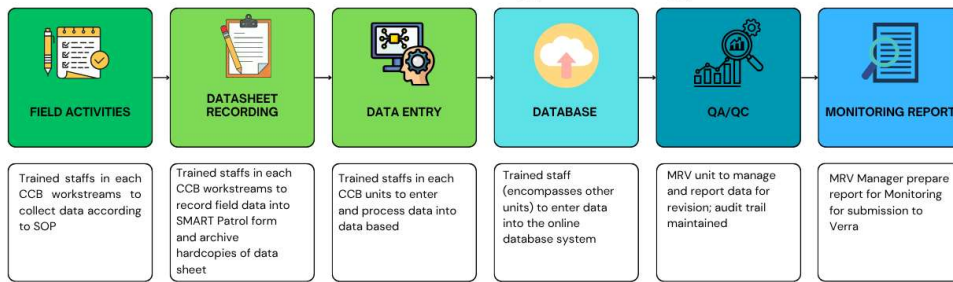
Any data anomalies or missing values identified were flagged and resolved before inclusion in internal reports. Updates to methodology and tools used in monitoring were documented, and any problems encountered during this period were recorded to facilitate ongoing improvements to project monitoring.

3.1.3.8 Project Data Management and Knowledge Platform

During the current monitoring period, all validated data was securely stored in a centralized digital database, hosted on SharePoint, with strict access controls, comprehensive metadata tagging, and regular backup protocols as described in the Data Management SOP. The implementation of the knowledge management system has enabled:

- Trend analysis and data visualization using interactive web tools
- Systematic documentation of lessons learned, case studies, and field observations from current activities
- Timely preparation of stakeholder reports, third-party audit packages, and Verra registry submissions
- Long-term archival of project data (now stored in Box) to ensure project continuity, institutional memory, and replicability

Monitoring Stage



RESPONSIBILITY MATRIX

HEAD OF UNITS	MRV UNIT	
R	S	R
A	C	R
PROJECT LEAD		
I		

R: RESPONSIBLE, A: ACCOUNTABLE, S: SUPPORTIVE, C: CONSULTED, I: INFORMED

Figure 16: Monitoring Stages and QA/QC Responsibilities

By integrating data collection, QA/QC, and knowledge management in this monitoring period—as illustrated in Figure 3—we have ensured high-quality monitoring, transparent reporting, and continuous learning throughout the life of the Project.

To maintain consistency and traceability, all data collection and storage processes are governed by detailed Standard Operating Procedures (SOPs), which align with relevant Verra standards (VCS, CCB) and internal QA/QC protocols.

These SOPs are part of the Project Proponent’s Integrated Management System Manual that will support internal capacity-building, third-party audits, and transparency. SOPs for data collection are summarized in Table 9 below.

To maintain consistency and traceability, all data collection and storage processes were governed by detailed Standard Operating Procedures (SOPs), which aligned with relevant Verra standards (VCS, CCB) and internal QA/QC protocols.

These SOPs formed part of the Project Proponent’s Integrated Management System Manual and supported internal capacity-building, third-party audits, and transparency. SOPs for data collection are summarized in Table 9 below.

Table 9: SOPs for Data Collection of Project Activities

Unit	SOP Title	SOP No.
Forest Protection	SMART Patrol	EP-SOP-FP01
	Canal Block Installation and Monitoring	EP-SOP-FP02
	Piezometer Installation & Data Collection	EP-SOP-FP03
	Aerial Drone Mapping Using Waypoint Map	EP-SOP-FP04

Unit	SOP Title	SOP No.
	General Unmanned Aerial System (UAS) Operations	EP-SOP-FP05
	Reforestation	EP-SOP-FP06
	Above Ground Biomass (AGB) Survey	EP-SOP-FP07
	Below Ground Biomass (BGB) Survey	EP-SOP-FP08
	Herbarium Preparation	EP-SOP-FP09
	Boundary Demarcation	EP-SOP-FP10
Biodiversity	Biodiversity Management and Monitoring Work Planning	EP-SOP-BIOD01
	Camera Trapping	EP-SOP-BIOD02
	Bird Survey	EP-SOP-BIOD03
Community Development	Community Development Fieldwork Operation	EP-SOP-CD01
	Community Development Program Planning	EP-SOP-CD02
	Obtaining Free, Prior and Informed Consent	EP-SOP-CD03
	Grievance Redressal Mechanism	EP-SOP-CD04
Monitoring, Reporting and Verification (MRV)	Satellite Monitoring for Fire and Deforestation	EP-SOP-MRV06
	Fire Scars Area and Depth - Field Measurement	EP-SOP-MRV01
	Loss Events and Reversals Reporting	EP-SOP-MRV05
	Data Extraction Using HOBOWare for Weather Station and Piezometer Water Logger	EP-SOP-MRV04
Project Support	Data Management	EP-SOP-PSM11

3.1.4 Dissemination of Monitoring Plan and Results (VCS, 3.18; CCB, CL4.2)

Project has established clear procedures to ensure that Monitoring Plans and all summaries of Project Documents are effectively disseminated to stakeholders (see Section 2.3.3),

3.2 Quantification of GHG Emission Reductions and Removals

3.2.1 Baseline Emissions (VCS, 3.15)

In this section the methods for baseline quantifications are replicated from the corresponding section in the PDD. In the PDD, baseline emissions are estimated annually and are not bound by calendar years or specific vintages. When presenting the estimates in Section 3.2.4, baseline emissions are presented prorated for calendar years to cover 1st February 2024 to 31st January 2025.

3.2.1.1 Avoided Planned Deforestation (APD) Baseline Modelling

3.2.1.1.1 Methods for Quantifying Baseline Emissions from REDD (BL-PL)

The methods for estimating net carbon stock changes and GHG emissions from planned deforestation under the baseline scenario are described in module BL-PL §5 Part 1.

3.2.1.1.1.1 Calculating the annual area of planned deforestation (Part 1)

Step 1.1 - Identification of agent of planned deforestation

The agents of planned deforestation are the Dairy Farm and Agroforestry Companies. The baseline involves the complete draining of the agroforestry development area and partial conversion to agriculture and agroforestry and the complete conversion of the Dairy Farm area to feed crops and milking infrastructure. These agents were identified from license documents and official plans shared with the Project by the State EXCO (See detailed baseline management plans in PDD).

Step 1.2. - Area of planned deforestation

The areas of planned deforestation are determined from spatially explicit commercial plans shared with the Project from the State EXCO. The APDef boundaries are generated by intersecting the forest area stratification boundaries with the planned development boundaries and identifying all areas of forest subject to planned deforestation. In the case of the Dairy Farm this only includes areas that were classified as good or degraded forest, as severely degraded and non-forest areas were identified as target reforestation areas under ARR activities. Consequently, although the entire area would be converted to the baseline land cover, the Project only claims the avoided emissions from deforestation for 5,915 ha. The specific areas for planned deforestation are modeled for all combinations of activities, i.e. APD, APD+CIW and APD-RWE.

Step 1.3. - Rate of planned deforestation

The planned deforestation rate is specified in Section 3.2.1.3.2 of the PDD. Areas deforested are explicitly defined and delineated. The baseline management plans are valid and reasonable propositions, meeting Malaysia legal requirements, being permissible under the regulations, practical in terms of plantation siting and practical implementation, and technically feasible from an operational perspective with plans including feasibility assessments.

Step 1.4 - Likelihood of planned deforestation

Since both baseline concessions are zoned for deforestation, they would be under the private control of the concessionaire, and not under government control for the entire duration of the concession license, the likelihood of deforestation (L-Di) is assumed to be 100%.

Step 1.5 - Risk of abandonment

The risk of abandonment is evaluated as being zero as per the PDD.

3.2.1.1.1.2 Baseline Carbon Stock Change (Part 2)

The Project next applies Part 2 – Baseline Carbon Stock Change as per VMD0006 (BL-PL). For terrestrial carbon pools, stock changes in each pool are calculated by subtracting post-deforestation carbon stocks from forest carbon stocks using equation 6 of VMD0006 BL-PL.

$$\Delta C_{AB,tree,i} = C_{AB,tree,bsl,i} - C_{AB,tree,post,i}$$

Where:

- $\Delta C_{AB,tree,i}$ = Baseline carbon stock change in aboveground tree biomass in stratum i ; t CO₂-e ha⁻¹
- $C_{AB,tree,bsl,i}$ = Forest carbon stock in aboveground tree biomass in stratum i ; t CO₂-e ha⁻¹
- $C_{AB,tree,post,i}$ = Post-deforestation carbon stock in aboveground tree biomass in stratum i ; t CO₂-e ha⁻¹
- i = 1, 2, 3, ... M strata (unitless)

Pre-deforestation stock is equal to the average carbon density estimated from wall-to-wall biomass maps for each forest strata where planned deforestation occurs.

The long-term average carbon stock is based on the post deforestation land-use of pasture and agricultural crops. Post-deforestation carbon stock in aboveground tree biomass is assumed to be 0.

Stock changes in above ground biomass are emitted at the time of deforestation and modelled following the equation for calculating the change in carbon stock in terrestrial carbon pools for REDD activities in combination with avoided planned wetland degradation from the BL-PL module. As above, only tree biomass pools are included in baseline accounting and so a simplified version of the following equation is used.

$$\begin{aligned} \Delta C_{BSL,i,t} = & AA_{planned,i,t} \times (\Delta C_{ABtree,i} - \Delta C_{WP,i} + \Delta C_{ABnon-tree,i} + \Delta C_{LI,i}) \\ & + \left(\sum_{t-10}^t AA_{planned,i,t} \right) \times (\Delta C_{BBtree,i} + \Delta C_{BBnon-tree,i} + \Delta C_{DW,i}) \times \left(\frac{1}{10} \right) \\ & + \left(\sum_{t-20}^t AA_{planned,i,t} \right) \times (\Delta C_{WP100,i}) \times \left(\frac{1}{20} \right) \end{aligned}$$

Where:

- $\Delta C_{BSL,i,t}$ = Sum of the baseline carbon stock change in all terrestrial pools in stratum i in year t , tCO₂-e
- $AA_{planned,i,t}$ = Annual area of baseline planned deforestation for stratum i in year t ; ha
- $\Delta C_{ABtree,i}$ = Baseline carbon stock change in aboveground tree biomass in stratum i ; tCO₂-e ha⁻¹
- $\Delta C_{WP,i}$ = Carbon stock entering the wood products pool at the time of deforestation that is expected to be emitted over 100-years from stratum i ; tCO₂-e ha⁻¹
- $\Delta C_{ABnon-tree,i}$ = Baseline carbon stock change in aboveground non-tree biomass in stratum i ; t CO₂-e ha⁻¹
- $\Delta C_{LI,i}$ = Baseline carbon stock change in litter in stratum i ; tCO₂-e ha⁻¹
- $\Delta C_{BBtree,i}$ = Baseline carbon stock change in belowground tree biomass in stratum i ; t CO₂-e ha⁻¹

- $\Delta C_{BBnon-tree,i}$ = Baseline carbon stock change in belowground non-tree biomass in stratum i ; t CO₂-e ha⁻¹
 $\Delta C_{DW,i}$ = Baseline carbon stock change in dead wood in stratum i ; t CO₂-e ha⁻¹
 $\Delta C_{WPP100,i}$ = Carbon stock entering the wood products pool at the time of deforestation that is expected to be emitted over 100-years from stratum i ; t CO₂-e ha⁻¹
 i = 1, 2, 3, ... M strata (unitless)
 t = 1, 2, 3, ... t^* years elapsed since the projected start of the project activity

Note that wood products, non-tree vegetation/biomass, deadwood, and litter pools are not included in the project. Below ground biomass is also conservatively excluded to avoid potential double counting with organic soil carbon pools.

3.2.1.1.2 Area of land deforested in baseline

Planned deforestation is scheduled in the Dairy Farm and Palma Valley areas. In the dairy farm, deforestation is for the purposes of conversion to feed crops (e.g. corn and Napier grass). In Palma valley, deforestation is for the purpose of conversion to a variety of mixed agricultural crops.

Deforestation is modeled in association with three combinations of activity classes – APD, APD+CIW, and APD+RWE. The total area of land planned for conversion to the dairy farm is ~8,400 ha, within which the Project accounts for the loss of good and degraded forest classes totaling 5,916 hectares cleared over six years, the rest of the area being allocated for ARR. In the agroforestry baseline the Project conservatively only accounts for the deforestation of areas that are being converted to agriculture (482 ha) and conservatively does not account for the forest loss from the development of the agroforestry blocks that would need to be cleared before being planted. All Agroforestry development occurs in year one. Total forest loss accounted for under REDD activities in this monitoring period is 3,449 ha (Table 10).

Table 10: Year One Baseline Deforestation for the Dairy Farm and Agroforestry (AgFor) Developments

Activity	Areas of deforestation by year on REDD areas (ha)		Total
	Year 1		
	AgFor	Dairy Farm	
APD			
Good Forest	-	5.8	5.8
Degraded Forest	-	0.2	1.6
Severely Degraded Forest	-	-	-
Sub-Total	-	6.1	6.1
APD+CIW			
Good Forest	287.1	922.9	1,210.0
Degraded Forest	-	46.4	46.4
Severely Degraded Forest	-	-	-
Sub-Total	287.1	969.3	1,256.4
APD+RWE			
Good Forest	195.2	1,899.7	2,094.9
Degraded Forest	-	91.6	91.6

Severely Degraded Forest	-	-	-
Sub-Total	195.2	1,991.3	2,186.5
Total	482.3	2,966.7	3,448.9

3.2.1.1.3 Changes in terrestrial above ground tree carbon pools in the baseline

The carbon stock changes in above ground biomass are calculated according to the methods described in 3.2.1.1.1.2 and are presented in Table 11 and Table 12.

Table 11: Carbon Stock Changes in the Dairy Farm Baseline for Above Ground Biomass

Year	Above ground tree biomass in baseline ($C_{AB_tree_bsl,i}$)			Baseline carbon stock change in above ground biomass ($\Delta C_{AB_tree_bsl,i}$)		
	Good Forest	Degraded Forest	Severely Degraded Forest	AGB (t)	CO ₂ -C (t)	CO ₂ -e (t)
Pre-project	777,540	127,247	-	-	-	-
Year 1	330,650	109,550	-	464,587	218,356	800,710
Total			-	464,587	218,356	800,710

Table 12: Carbon Stock Changes in the Agroforestry Development Baseline for Above Ground Biomass

Year	Above ground tree biomass in baseline ($C_{AB_tree_bsl,i}$)			Baseline carbon stock change in above ground biomass ($\Delta C_{AB_tree_bsl,i}$)		
	Good Forest	Degraded Forest	Severely Degraded Forest	AGB (t)	CO ₂ -C (t)	CO ₂ -e (t)
Pre-project	82,950	-	-	-	-	-
Year 1	-	-	-	82,950	38,986	142,963
Total	82,950	-	-	82,950	38,986	142,963

3.2.1.1.3.1 Changes in terrestrial below ground tree carbon pools in the baseline

The baseline carbon stock changes in below ground biomass are conservatively excluded for this project.

3.2.1.2 Wetlands Restoration and Conservation (WRC) Baseline Modelling

3.2.1.2.1 Methods for Quantifying Baseline Emissions from WRC (BL-PEAT)

3.2.1.2.1.1 Annual area of planned wetland degradation

CIW areas are intact wetlands that are planned for drainage and degradation in the future. These areas were derived from either specific drainage plans like the Agroforestry Park, common practice for agricultural development on peat or by extending the logging practices that were occurring in the area up until the project start date (see Section 3.1.5.2 of the PD). These areas of future drainage

were spatially and temporally mapped. CIW activities happened in both isolation and in combination with APD where drained areas would also be deforested in the future.

The year of CIW area drainage in the Dairy Farm and Palma Valley are determined by the management plans for each respective area. CIW in buffer areas of 1 km around Dairy Farm and Agroforestry development are also incorporated into the CIW area estimates for those respective locations.

For the drainage in the selective logging baseline, CIW areas associated with existing logging licenses are drained over a 45-year period. From year 46 onwards, CIW continues in selective logging areas in the unallocated logging compartments over a period of 32 years (See Section 3.1.5.2.3 of the PDD).

3.2.1.2.1.2 Calculating the annual area of planned rewetting

RWE areas are areas that were already drained at the project start date. Under the baseline scenario, RWE areas will remain drained for the duration of the project. Because of the drainage impacts from canals and ditches, RWE activities can occur in isolation (RWE) where forests have already been cleared or where there is forest cover but no accounting for deforestation or degradation occurs, or where REDD activities also occur (RWE +APD).

3.2.1.2.1.3 Calculating the annual surface area of drainage canals

The surface of the canals that drain the project area are estimated to be 2.06% of the estimated drained area.¹²

3.2.1.2.1.4 Total Baseline Emissions from Peatlands

The baseline net GHG emissions from peat using equations 1 - 3 of VMD006 BL-PEAT are calculated as follows:

$$GHG_{BSL-PEAT} = \sum_{t=1}^{t^*} \sum_{i=1}^M (A_{peatsoil-BSL,i,t} \times GHG_{peatsoil-BSL,i,t} + A_{ditch-BSL,i,t} \times GHG_{peatditch-bsl,i,t} + A_{peatburn-BSL,i,t} \times GHG_{peatburn-BSL,i,t})$$

Where:

$GHG_{BSL-PEAT}$ = Net GHG emissions in the WRC baseline scenario on peatland up to year t^* (t CO₂e)

$GHG_{peatsoil-BSL,i,t}$ = GHG emissions from the peat soil within the project boundary in the baseline scenario in stratum i at year t (tCO₂e ha⁻¹ yr⁻¹)

$GHG_{peatditch-bsl,i,t}$ = GHG emissions from water bodies in the baseline scenario in stratum i at year t (t CO₂e ha⁻¹ yr⁻¹)

$GHG_{peatburn-BSL,i,t}$ = GHG emissions from burning of peat in the base line scenario in stratum i at year t (t CO₂e ha⁻¹ yr⁻¹)

$A_{peatburn-BSL,i,t}$ = Area of peat burnt in stratum i in year t in the baseline scenario (ha)

$A_{peatsoil-BSL,i,t}$ = Area of peatland (not open water, not burnt) in stratum i in year t in the baseline scenario (ha)

¹² In the absence of detailed information on canal length and dimension, this estimate was obtained from other verified peatland conservation projects.

$A_{ditch-BSL,i,t}$	= Area of ditch and other open water in stratum i in year t in the baseline scenario (ha)
i	= 1, 2, 3, ... M strata (unitless)
t	= 1, 2, 3, ... t^* years elapsed since the projected start (yr)

For all strata i where the project duration exceeds the peat depletion time (PDT or t_{PDT}), for $t > t_{PDT-B}$, the following applies:

$$GHG_{peatsoil-BSL,i,t} = 0$$

$$GHG_{peatditch-BSL,i,t} = 0$$

$$GHG_{peatburn-BSL,i,t} = 0$$

Where:

$t_{PDT-BSL,i,t}$	Peat Depletion Time in the baseline scenario in stratum i in years elapsed since the project start; estimated in Module X-STR (yr)
$GHG_{peatsoil-BSL,i,t}$	= GHG emissions from the peat soil within the project boundary in the baseline scenario in stratum i at year t (tCO ₂ e ha ⁻¹ yr ⁻¹)
$GHG_{peatditch-BSL,i,t}$	= GHG emissions from water bodies in the baseline scenario in stratum i at year t (t CO ₂ e ha ⁻¹ yr ⁻¹)
$GHG_{peatburn-BSL,i,t}$	= GHG emissions from burning of peat in the base line scenario in stratum i at year t (t CO ₂ e ha ⁻¹ yr ⁻¹)
i	= 1, 2, 3, ... M strata (unitless)
t	= 1, 2, 3, ... t^* years elapsed since the projected start (yr)

In the baseline, GHG emissions from peatland degradation and from ditches are accounted for. The project does not include emissions from peat burning, opting for the use of the Fire premium instead which is provided as an alternative to baseline fire modeling.

3.2.1.2.1.5 Baseline Emissions from Peat Drainage

GHG emissions from the peat soil per stratum due to drainage in the baseline scenario are estimated as per project equation 6 of VMD0042 BL-PEAT and landcover proxies:

$$GHG_{proxy-BSL,i,t} = GHG_{proxy-CO_2,i,t} + GHG_{proxy-CH_4,i,t}$$

Where:

$GHG_{proxy-BSL,i,t}$	= GHG emissions in relation to the chosen proxy in the baseline scenario in stratum i at year t (t CO ₂ e ha ⁻¹ yr ⁻¹)
$GHG_{proxy-CO_2,i,t}$	= Emission of CO ₂ in relation to the chosen proxy in stratum i at year t (t CO ₂ e ha ⁻¹ yr ⁻¹)
$GHG_{proxy-CH_4,i,t}$	= Emission of CH ₄ in relation to the chosen proxy in stratum i at year t ; can conservatively be omitted in the baseline scenario (t CO ₂ e ha ⁻¹ yr ⁻¹)
i	= 1, 2, 3, ... M strata (unitless)
t	= 1, 2, 3, ... t^* time elapsed since the start of the project activity (years)

The annual emissions of CO₂ and CH₄ from drained peat soil are estimated using the IPCC emission factors.

Table 13: Emissions Factors Applied for Estimating Peat loss from Decomposition

Location	IPCC EF Factor used	EF _{peatloss} (t CO ₂ -e ha ⁻¹ yr ⁻¹)	
		CIW	RWE
Agroforestry Development	Drained degraded peat swamp forest (RWE) and conversion to tree plantations (CIW)	55.01**	56.33*
Dairy Farm	Drained degraded peat swamp forest (RWE) Conversion to drained tropical croplands (CIW)	51.34***	56.33*
Selective Logging Areas	Drained degraded peat swamp forest (CIW & RWE)	56.33*	56.33*

* Cooper et al (2020) Greenhouse gas emissions resulting from conversion of peat swamp forest to oil palm plantation. Nature Communications volume 11, Article number: 407, Heterotrophic respiration from logged over drained PSF that has undergone the same destructive logging practices as the PPRP

** Intergovernmental Panel on Climate Change. 2013. 2013 Supplement to the 2006 IPCC guidelines for national greenhouse gas inventories: Wetlands. Table 2.1, CO₂E, Tropical plantations long rotation drained

*** Intergovernmental Panel on Climate Change. 2013. 2013 Supplement to the 2006 IPCC guidelines for national greenhouse gas inventories: Wetlands. Table 2.1, CO₂E, Tropical Croplands

3.2.1.2.1.6 Baseline GHG emissions from ditches and other open water bodies

GHG emissions from ditches and other water bodies in the baseline are derived from the surface area of open water combined with an emission factor as per equation 7 of VMD0042 BL-PEAT:

$$GHG_{peatditch-BSL,i,t} = GHG_{peatditch-CO2i,t} + GHG_{peatditchCH4-BSL,i,t}$$

Where:

- $GHG_{peatditch-BSL,i,t}$ = GHG emissions from ditch and other open water stratum i at year t in the baseline scenario (t CO₂e ha⁻¹yr⁻¹)
- $GHG_{peatditch-CO2i,t}$ = Emission of CO₂ in relation to the chosen proxy in stratum i at year t (t CO₂e ha⁻¹ yr⁻¹)
- $GHG_{peatditchCH4-BSL,i,t}$ = Emission of CH₄ in relation to the chosen proxy in stratum i at year t ; can conservatively be omitted in the baseline scenario (t CO₂e ha⁻¹ yr⁻¹)
- i = 1, 2, 3, ... M strata (unitless)
- t = 1, 2, 3, ... t^* time elapsed since the start of the project activity (years)

The annual emissions of dissolved organic carbon (DOC) and CH₄ from ditches and other open water bodies were estimated using IPCC emissions factors and converted to tCO₂-e, where appropriate, using global warming potential (GWP) and other conversion factors.

Table 14: Emissions Factors Applied for Estimating Emissions from Open Ditches

Land Use	GHG	Emission factors
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Surface area of canals	Degradation*	CH ₄	2,259	kg CH ₄ ha ⁻¹ yr ⁻¹
	Dissolved Organic Carbon*	DOC	0.82	tonnes C ha ⁻¹ yr ⁻¹

*Intergovernmental Panel on Climate Change. 2013. 2013 Supplement to the 2006 IPCC guidelines for national greenhouse gas inventories: Wetlands. Methodological guidance on lands with wet and drained soils and constructed wetlands for wastewater treatment. Gyldenkaerne, S. and Lin, E. (eds). Japan: Institute for Global Environmental Strategies [IGES].

3.2.1.2.2 Baseline Emissions – CIW

3.2.1.2.2.1 Areas of drained land and surface areas of drains in the baseline

The areas drained in this monitoring period under CIW and combined APD-CIW activities for Dairy Farm, Palma Valley and the rest of the project area are presented in the table below.

Table 15: CIW areas Drained in the Baseline Scenario

Location	Activity	Areas of drainage by year from CIW and APD+CIW areas (ha)	
		Year 1	
Dairy Farm	REDD+CIW		1,654
	CIW		236
Agroforestry Development	REDD+CIW		287
	CIW		1,868
Selective Logging Areas	CIW		498
Total			4,543

The areas land drained in this monitoring period under CIW and APD+CIW activities in the baseline are shown in Table 16.

Table 16: Annual Drained Areas for CIW Activities

Year	Drained area estimates (ha) ($A_{\text{peatsoil-BSL},i,t}$)		
	CIW	APD+CIW	Total CIW
1	2,602	1,941	4,543

The surface area of canals in areas under CIW and combined APD+CIW activities in the baseline are presented in the table below.

Table 17: Annual Canal Areas for CIW Activities

Year	Surface area of drainage canals (ha) ($A_{\text{ditch-BSL},i,t}$)		
	CIW	APD+CIW	Total CIW
1	54	40	94

3.2.1.2.2.2 Emissions from Future Degradation of Peat (CIW)

The annual emissions from microbial decomposition of peat areas undergoing planned degradation in the baseline are presented in Table 18

Table 18: Annual Emissions from Peat Microbial Decomposition in CIW Areas

Year	Baseline Emissions from Peat Decomposition (GHG _{proxy-BSL,i,t}) (tCO ₂ -e)		
	CIW	APD+CIW	Total
1	143,288	100,968	244,256

3.2.1.2.2.3 Baseline Emissions from ditches and other open water bodies in areas for planned degradation (CIW)

The emissions from ditches and open water bodies in the baseline are presented in the Table 19 below:

Table 19: Annual Emissions from Open Ditches in CIW Areas

Year	Baseline Emissions from Open Ditches (GHG _{proxy-BSL,i,t}) (tCO ₂ e)		
	CIW	APD+CIW	Total
1	3,552	2,649	6,201

3.2.1.2.3 Baseline Emissions – RWE

3.2.1.2.3.1 Areas of drained land and surface areas of drains in the baseline

The area of existing drainage (RWE) including those areas that are already drained and would also be deforested in the baseline are presented in Table 20. Where these areas occurred inside either Dairy Farm or the Agroforestry Developments they were modelled with the other commercial activities for each agent. All other RWE areas were modelled together with the selective logging areas.

Table 20: Drained Areas for Rewetting Activities (RWE)

Location	Activity	Areas of drained peatland under RWE and APD+RWE activities (ha)
Dairy Farm	REDD+RWE	2,225
	RWE	1,383
Agroforestry Development	REDD+RWE	195
	RWE	160
Rest of Project Area (Selective Logging Areas)	RWE	32,260
Total		36,224

The estimated annual baseline emissions from areas of drained peat where rewetting activities (RWE and APD+RWE) are planned are presented in Table 21.

Table 21: Annual Areas of Existing Drainage in the Baseline Scenario

Year	Area of Existing Drainage (ha) ($A_{\text{peatsoil-BSL},i,t}$)		
	RWE	APD+RWE	total
1	33,803	2,421	36,224

3.2.1.2.3.2 Baseline Emissions from Existing Drainage (RWE)

The baseline emissions from microbial decomposition of peat from existing drainage areas presented in Table 22.

Table 22: Annual Baseline Emissions from Existing Drainage Where Rewetting Activities Are Planned

Year	Baseline Emissions from Existing Drainage ($\text{GHG}_{\text{proxy-BSL},i,t}$) (tCO ₂ -e)		
	RWE	APD+RWE	total
1	1,901,500	125,313	2,026,813

3.2.1.2.3.3 Emissions from ditches and other open water bodies in peatlands

Emissions from ditches and other open water bodies where RWE activities occur are excluded. Rewetting of peatlands involves the blocking of canals, which suppresses emissions from microbial decomposition of peat but has little impact on the emissions from ditches and other water bodies as the surface area remains largely unchanged.

3.2.1.2.4 Baseline Emissions from Peat Burning

The *Fire Reduction Premium* approach is taken to address human-induced peat fires occurring in drained peatland and establish a conservative default factor, based on fire occurrence in the baseline scenario, as an alternative to the direct assessment of GHG emissions from fire in the baseline and the project scenarios.

3.2.1.3 Reforestation (ARR)

Carbon stock changes in the baseline scenario are accounted for by the performance benchmark outlined in Section 3.1.5.2.2 of the PDD. In the event of statistically significant increases in the Stocking Index at control points, these result in a credit deduction. In the baseline scenario, project and leakage emissions are respectively zero. Ex-ante predictions of ARR VCUs generated from forest regrowth in this monitoring period were 308,774.

3.2.2 Project Emissions (VCS, 3.15)

3.2.2.1 Project Emissions from Fire

During the reporting period, the Project experienced a series of fire events across both the Initial Project Area and the surrounding Protection Zone (Figure 17). These incidents occurred primarily between August and October 2024, coinciding with the region's dry season and heightened fire risk due to historical peat drainage and degradation.

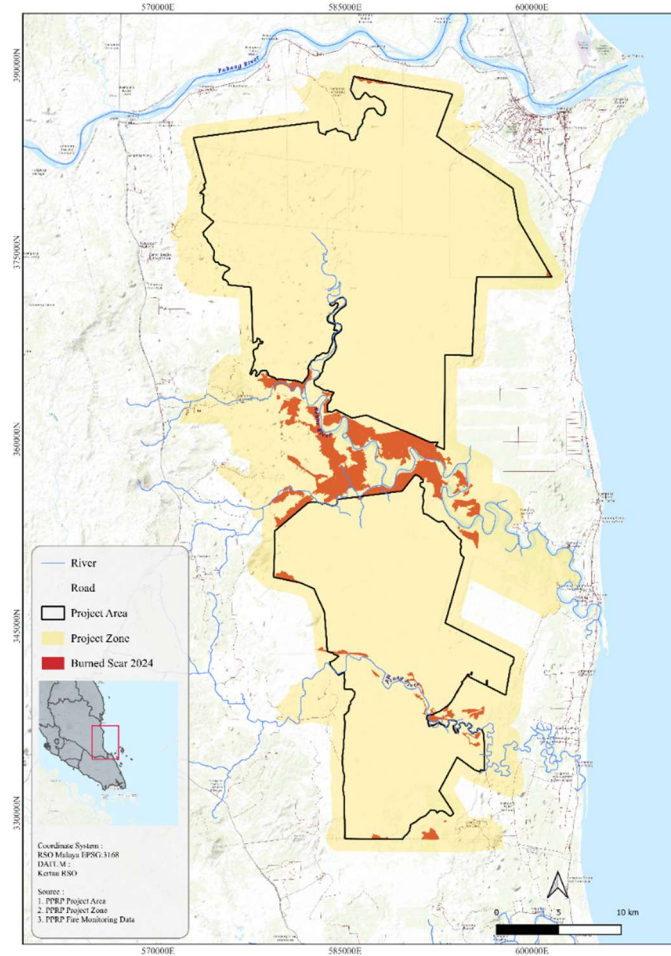


Figure 17: Map of verified fires in the Project Area and Project Zone

The FERT, established as part of the Project’s fire management strategy, was mobilized in response to each fire event. A total of nine suppression operations were carried out across key locations including Meranti, Durian Sebatang, Padang, Sri Kempas, Simpai, and Pulau Lanjut. Fires were detected through a combination of satellite-based fire alert systems, ground patrols, and community reports. Alerts were verified in the field by FERT personnel, who confirmed active fire presence and initiated suppression protocols. Figure 18 shows a screenshot of the customized satellite-based monitoring system developed for the Project.

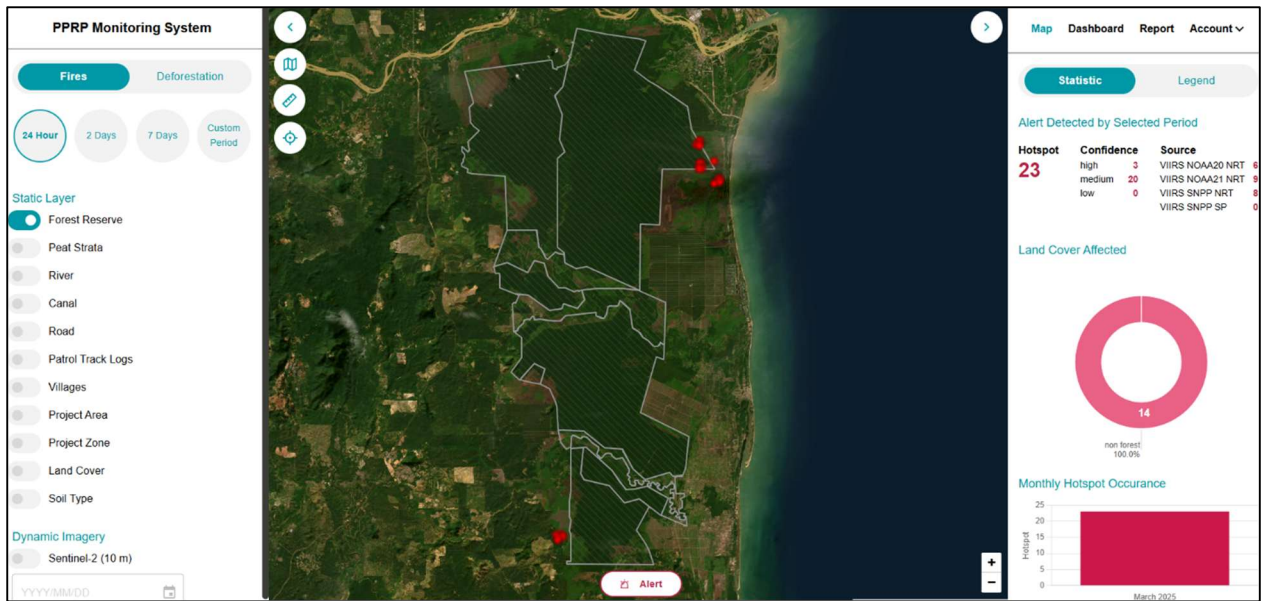


Figure 18: Screenshot of the Tailor-made Satellite-based Monitoring System for Fire and Deforestation

Importantly, fire suppression efforts extended beyond the Project Area, with several operations carried out in the surrounding Protection Zone and adjacent regions—demonstrating the project's broader commitment to regional fire risk mitigation. In line with VCS reporting requirements and the Project's monitoring plan, emissions were only quantified for fire events that occurred within the officially defined Project Area boundary.

In total there were 73 hotspots detected in the Project Area including Protection Zone and 40 fire events were verified. Of these, 10 occurred within the Project Area and were included in the emissions estimates for both peat and biomass burning where required (see Table 23).

Not all fires were able to be suppressed by the FERT team. For example, the Jemeri fire event began with the detection of 17 hotspots between 2 April 2025 until 5 April 2025. As the Fire Emergency Response Team (FERT) had not yet been established, no fire suppression operations were conducted during this period. Following the fire, a burn scar depth verification campaign was carried out, involving burn scar depth measurements across the affected Jemeri area to assess the extent of peat combustion and support emission estimations.

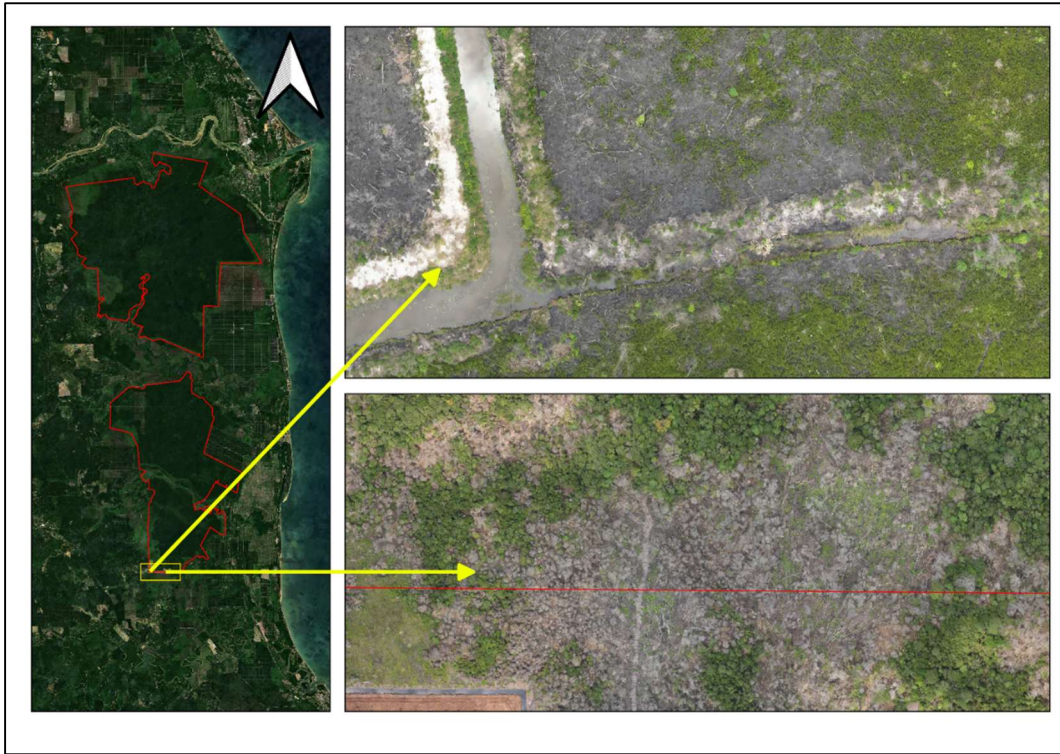


Figure 19: Aerial View of Verified Burnt Scar Area in Jemeri, Resak Forest Reserve

After verified fires were extinguished, the resulting burn scars were mapped using high-resolution satellite imagery and drone surveys. These maps were then cross-checked against GPS data collected during field verification to accurately delineate the burned areas within the Project Area.

For each confirmed burn scar, peat burn depth was assessed through manual probing at multiple sampling points across the affected area. The measurements were averaged to determine a representative burn depth for each fire zone, following the procedures specified in VCS Module VMD0013.

A significant fire event during the monitoring period was the Padang fire, which ignited on 22 September 2024. Despite five consecutive days of suppression efforts, the fire advanced more rapidly than expected. Operations were ultimately suspended due to safety concerns, including the risk of trees falling. This was the only incident during the period where full suppression could not be achieved, and the fire was only extinguished following sustained rainfall.



Figure 20: FERT operation near Padang at Nenasi FR

To strengthen fire containment elsewhere, firebreaks were constructed in Durian Sebatang and Selingkong. These measures successfully prevented lateral fire spread and protected adjacent forest areas.

Emissions from both biomass and peat burning within the Project Area were calculated using the VCS-approved methodology VMD0013 (Estimation of GHG Emissions from Biomass and Peat Burning), aligned with IPCC 2006 guidelines and the Project’s monitoring plan.

In total, 21 fires partially encroached into the Project Area, burning approximately 395 ha, including 311 ha of peatland. Forest biomass within these areas was initially estimated at 3,254 tonnes and later adjusted to 3,882 tonnes to account for uncertainty in aboveground biomass (AGB) estimates, using the correction factor described in VT0001 (refer to the PDD).

These adjusted biomass values were used to estimate emissions from:

- Forest biomass burning ($E_{biomass}$)
- Peat burning (using $GHG_{peatburn}$ and $P_{i,t}$)

For biomass emissions, the standard equation was modified slightly: instead of multiplying average per-hectare biomass by the burn scar area, total pre-fire carbon stocks were derived from wall-to-wall biomass maps, providing more accurate estimates in line with the monitoring methodology outlined in VMD0013.

$$E_{biomassburn,i,t} = \sum_{g=1}^G \left((B_{i,t} \times COMF_i \times G_{g,i}) \times 10^{-3} \right) \times GWP_g$$

Where:

$E_{biomassburn,i,t}$ = Greenhouse gas emissions due to biomass burning in stratum i in year t of each GHG (CO₂, CH₄, N₂O) (t CO₂e)

$B_{i,t}$	= Total aboveground biomass stock before burning stratum i, year (t d.m. ha ⁻¹)
$COMF_i$	= Combustion factor for stratum i (unitless)
$G_{g,i}$	= Emission factor for stratum i for gas g (kg t ⁻¹ d.m. burnt)
GWP_g	= Global warming potential for gas g (t CO ₂ /t gas g)
g	= 1, 2, 3 ... G greenhouse gases including carbon dioxide, methane and nitrous oxide (unitless)
i	= 1, 2, 3, ...M strata (unitless)
t	= 1, 2, 3, ... t* time elapsed since the start of the project activity (years)

$$GHG_{peatburn,i,t} = \sum_{g=1}^G (P_{i,t} \times G_{peat,g,i} \times 10^{-3} \times GWP_g)$$

Where:

$GHG_{peatburn,i,t}$	= Greenhouse gas emissions due to peat burning in stratum i in year t of each GHG (CO ₂ , CH ₄ , N ₂ O) (t CO ₂ e ha ⁻¹ yr ⁻¹)
$P_{i,t}$	= Average mass of peat burnt for stratum i in year t (t d.m. ha ⁻¹)
$G_{peat,g,i}$	= Emission factor in stratum i for gas g (kg t ⁻¹ d.m. burnt)
GWP_g	= Global warming potential for gas g (t CO ₂ /t gas g)
g	= 1, 2, 3 ... G greenhouse gases including carbon dioxide, methane and nitrous oxide (unitless)
i	= 1, 2, 3, ...M strata (unitless)
t	= 1, 2, 3, ... t* time elapsed since the start of the project activity (years)

The average mass of peat carbon burnt for a particular stratum is estimated as follows:

$$P_{i,t} = D_{peatburn,i,t} \times BD_{upper,i,t} \times 10^4$$

Where:

$P_{i,t}$	= Average mass of peat burnt for stratum i in year t (t d.m. ha ⁻¹)
$D_{peatburn,i,t}$	= Average fire scar depth in stratum i in year t (m)
$BD_{upper,i,t}$	= Bulk density of the upper peat in stratum i (g cm ⁻³)
i	= 1, 2, 3, ...M strata (unitless)
t	= 1, 2, 3, ... t* time elapsed since the start of the project activity (years)

After applying the procedures for estimating emissions from fire a total of 6,238 tCO₂e was determined to have been emitted through uncontrolled burning with most emissions coming from fires in the Resak peat dome (3,157 tCO₂e). Pekan generally had the lowest emission profile and importantly there was no peat fire recorded in Pekan West (Table 23). To this end, the Project will apply the fire reduction premium to the Pekan West peat dome (see Section 3.2.2.2).

Table 23: Summary of Project Fire Emissions for the Current Monitoring Period

Fire_ID	Date of Hotspot Detected ^a	Location	Peat Dome/Fire Zone (Pekan W. Pekan E, Nenasi, Resak)	Area Burnt (ha)	Peat Area Burnt (ha)	Average Burnt Scar Depth (m)	Total Peat Emissions (tCO _{2e})	Total Forest Biomass (tD.M) incl. GF + DF + SDF	Total Biomass Emissions (tCO _{2e})	Peat and Biomass emissions (tCO _{2e})
1	2 April 2024	N/A	Resak	24.9	23.8	0.04	111	-	-	111
3	31 March 2024	N/A	Resak	29.4	29.4	0.04	111	1,454	1,277	1,388
5	29 April 2024	N/A	Resak	0.4	0.2	0.04	111	-	-	111
6	05 Sept 2024	N/A	Resak	0.9	0.9	0.04	111	-	-	111
9	2 April 2024	N/A	Resak	47.6	43.2	0.04	111	1,010	887	998
11	8 May 2024	N/A	Nenasi	0.2	0.2	0.04	111	-	-	111
13	23 September 2024	N/A	Nenasi	0.0	0.0	0.04	111	-	-	111
16	29 March 2024	Tanjung Medang	Pekan East	2.8	0.0	0.04	111	-	-	111
19	6 April 2024	Runchang	Pekan West	1.1	0.0	0.05	139	383	336	475
20	15 March 2024	Kiara	Pekan East	0.0	0.0	0.07	194	-	-	194
21	14 March 2024	Panjang / Meninik / Ketujuh	Nenasi	17.8	7.3	0.07	194	-	-	194
22	5 April 2024	Runchang	Pekan West	1.0	0.0	0.04	111	-	-	111
24	6 April 2024	Runchang	Pekan East	0.5	0.0	0.04	111	-	-	111
30	7 April 2024	Tanjung Medang	Pekan East	57.7	10.8	0.04	111	-	-	111
31	19 February 2024	Sungai Miang	Pekan East	15.3	15.3	0.01	28	-	-	28
32	26 March 2024	Sawah Batu / Ladang Juasa	Nenasi	75.3	75.3	0.11	305	-	-	305

Fire_ID	Date of Hotspot Detected ^a	Location	Peat Dome/Fire Zone (Pekan W. Pekan E, Nenasi, Resak)	Area Burnt (ha)	Peat Area Burnt (ha)	Average Burnt Scar Depth (m)	Total Peat Emissions (tCO ₂ e)	Total Forest Biomass (tD.M) incl. GF + DF + SDF	Total Biomass Emissions (tCO ₂ e)	Peat and Biomass emissions (tCO ₂ e)
34	14 Jun 2024	N/A	Resak	12.2	6.2	0.04	111	246	216	327
35	6 April 2024	N/A	Nenasi	60.1	58.7	0.11	305	789	692	998
38	9 May 2024	N/A	Nenasi	11.6	3.2	0.04	111	-	-	111
39	5 May 2024	N/A	Resak	0.0	0.0	0.04	111	-	-	111
40	26 July 2024	N/A	Nenasi	36.3	36.0	0.04	111	-	-	111
Total				395	311	N/A	2,830	3,882	3,408	6,238

*N/A: The location does not have specific name given by the local community

^aHotspot detected through PPRP Monitoring System

3.2.2.2 Application of the fire premium

During this monitoring period only Pekan West peat dome/Fire zone did not have any peat fires recorded and so is the only fire zone eligible for the fire premium. The fire premium applies to all emission reductions resulting from rewetting activities. As detailed in the following section, these emissions will be quantified in the next monitoring report, once the hydrological models have been fully calibrated.

3.2.2.3 Project Emissions from Existing Drainage

In line with the Project’s conservative crediting strategy, the first tranche of rewetting (RWE) credits (estimated ex-ante to be 170,186 VCUs) will be deferred to MR2 and treated analogously to afforestation/reforestation (ARR) credits, which are often claimed less frequently in the early years of a project. This reflects the PPRP’s commitment to methodological rigor and aligns with the VCS Program’s emphasis on conservative estimation and uncertainty management. While VM0007 does not require a prescribed hydrological modelling approach for credit issuance, the project has adopted a robust approach that includes MODFLOW-based modelling to simulate peatland hydrology and canal dynamics.

A full set of hydrological data has been collected for the current monitoring period, including water table measurements and canal block implementation records. However, model calibration and simulation have not yet been completed. The first monitoring period coincided with a La Niña phase, resulting in unusually high rainfall and water-saturated conditions. To ensure that observed increases in water table levels are accurately attributed to rewetting interventions—rather than being solely a consequence of anomalously wet conditions—the project team has applied the precautionary principle. For MR1, it is conservatively assumed that baseline and project emissions are equivalent. This avoids premature crediting and ensures that any reductions in emissions attributed to canal rewetting will be substantiated by calibrated model outputs in MR2.

MR2 will present emission reductions from rewetting explicitly for both the current MR1 monitoring period and MR2’s own monitoring period, once model calibration is complete. This approach enhances the credibility of the resulting Verified Carbon Units (VCUs) and aligns with the treatment of early-year sequestration in ARR methodologies such as VM0047 and its associated modules, where conservative withholding of credits is standard practice until sufficient monitoring data is available. To this end, the emissions in the project scenario are considered to equal those in the baseline for RWE area for the purposes of emissions accounting for this monitoring period.

3.2.3 Leakage Emissions (VCS, 2.5, 3.2, 3.6, 3.15, 4.3)

As described in the PDD, the Project assumes no leakage emissions.

3.2.4 GHG Emission Reductions and Carbon Dioxide Removals (VCS, 3.15, 4.1)

State the non-permanence risk rating (%)	16
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Has the non-permanence risk report been attached as either an appendix or a separate document?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
State, in tCO ₂ e, the expected total GHG benefit to date.	1,187,893 tCO ₂ e
If a loss occurred (including a loss event or reversal), state the amount of tCO ₂ e lost:	6,238 tCO ₂ e

3.2.4.1 Ex-post GHG emission reductions from REDD-APD

Ex-ante post net GHG emission reductions from the REDD project activity are calculated as follows:

$$NERR_{REDD-APD} = \Delta C_{BSL-REDD-AP} - \Delta C_{WPS-REDD-AP} - \Delta C_{LK-REDD-AP}$$

Where:

$NERR_{REDD-APD}$ Total net GHG emission reductions of the REDD-APD project activity up to year t* (tCO₂-e)

$\Delta C_{BSL-REDD-APD}$ = Net GHG emissions in the REDD-APD baseline scenario up to year t* (tCO₂-e)

$\Delta C_{WPS-REDD-APD}$ = Net GHG emissions in the REDD-APD project scenario up to year t* - from Module MREDD (tCO₂-e)

$\Delta C_{LK-REDD-APD}$ = Net GHG emissions due to leakage from the REDD-APD project activity up to year t* (tCO₂-e)

Applying the equation above, ex-post net GHG emission reductions from REDD-APD over the monitoring period are estimated to be 940,265 tCO₂-e, as shown annually in Table 24.

Table 24: Ex-ante GHG emissions from REDD-APD project activities within the project period

Years	Net GHG reductions in the APDD project activity (NER-APDD)	Net GHG emissions in the APDD baseline scenario (CBSL-APDD)	Net GHG emissions in the APDD project scenario (CWPS-APDD)	Net GHG emissions due to leakage from the APDD project activity (CLK-APDD)
	(t CO ₂ e)			
1	940,265	943,673	3,408	0
Total	940,265	943,673	3,408	0

3.2.4.2 Ex-post GHG emission reductions from WRC activity

Ex-post total net GHG emission reductions from the REDD project activity are calculated as follows:

$$NERR_{WRC} = \Delta C_{BSL-WRC} - \Delta C_{WPS-WRC} - \Delta C_{LK-W}$$

Where:

$NERR_{WRC}$	Total net GHG emission reductions of the WRC project activity up to year t^* (tCO ₂ -e)
$\Delta C_{BSL-WRC}$	= Net GHG emissions in the WRC baseline scenario up to year t^* (tCO ₂ -e)
$\Delta C_{WPS-WRC}$	= Net GHG emissions in the WRC project scenario up to year t^* – from Module MPEAT (tCO ₂ -e)
ΔC_{LK-WRC}	= Net GHG emissions due to leakage from the WRC project activity up to year t^* (tCO ₂ -e)

Applying the equation above, ex-post net GHG emission reductions from WRC over the monitoring period are estimated to be 247,682 tCO₂-e, as presented in Table 25. Note that for RWE activities, baseline and project scenario emissions are the same, this will be adjusted for the next monitoring report when RWE emissions reductions will be claimed for a two-year period (see section 3.2.2.3).

Table 25: Ex-ante GHG emission reductions from WRC project activities for the project period

Years	Net GHG reductions in the WRC project activity (NERWRC)	Net GHG emissions in the WRC baseline scenario (CBSL-WRC)	Net GHG emissions in the WRC project scenario (CWPS-WRC)	Net GHG emissions due to leakage from the WRC project activity (CLK-WRC)
	(t CO ₂ e)			
1	247,628	2,277,270	2,029,643	0
Total	247,628	2,277,270	2,029,643	0

3.2.4.3 Ex-post removals estimates (ARR)

No removals are being claimed for the current monitoring period.

3.2.4.4 Uncertainty Analysis

An uncertainty assessment was conducted using the X-UNC module to evaluate the overall precision of net GHG emission reductions from REDD and WRC project activities. According to the module's requirements, the acceptable margin of uncertainty is $\pm 15\%$ of the total estimated emission reductions at a 95% confidence level. If this threshold is met, no deduction is necessary. However, if the uncertainty exceeds 15%, a deduction equal to the excess amount must be applied. Based on the calculations (refer to Appendix 4 for details), the project's uncertainty remained below the 15% threshold for this monitoring period, and therefore no deduction was applied.

3.2.4.5 Estimation of buffer withholding and total VCUs

The total Project Non-Permanence Risk Buffer is 16% and as per VM0007 the buffer estimates are applied to all reductions and removals (Table 26)

Table 26: Total GHG Reductions and Removals, Buffer Deductions and VCUs for the Current Monitoring Period

Vintage period	Baseline emissions (tCO ₂ e)	Project emissions (tCO ₂ e)	Leakage emissions (tCO ₂ e)	Buffer pool allocation (tCO ₂ e)	Reductions VCUs (tCO ₂ e)	Removals VCUs (tCO ₂ e)
1/2/2024 to 31/12/2024	1,092,711	6,238	-	173,836	912,637	-
1/1/2025 to 31/12/2025	101,419	-	-	16,227	85,192	-
Total	1,194,131	6,238	-	190,063	997,830	-

Vintage period	Ex-ante estimated reductions/removals	Achieved reductions/removals	Percent difference	Explanation for the difference
1/2/2024 to 31/12/2024	1,614,475	1,086,473	-32.7%	The majority of the discrepancies between ex-ante and ex-post estimate are due to the Project not claiming any rewetting or reforestation reductions/removals which will be accounted for in the next monitoring report. A smaller component of the discrepancy can be attributed to the project emissions from fires that occurred in the monitoring period.
1/1/2025 to 31/12/2025	149,846	101,419	-32.3%	As above
Total	1,764,321	1,187,893	-32.7%	

3.3 Optional Criterion: Climate Change Adaptation Benefits

3.3.1 Activities and/or processes implemented for Adaptation (CCB, GL1.3)

The Project implemented a series of integrated activities during the monitoring period (Feb 2024 – Jan 2025) that support both community and ecosystem resilience in the face of anticipated climate impacts—particularly increased drought frequency, wildfire risk, and water scarcity.

Key adaptation-related actions include:

Hydrological Restoration to Enhance Ecosystem Resilience

- 74 canal blocks were constructed across four sectors (Tanjung Medang, YP, Resak, and Jemeri) to raise the water table, restore peat moisture, and prevent drying and subsidence.
- These interventions are critical for maintaining the integrity of peat domes, reducing fire risk, and stabilizing microclimates, especially during prolonged dry seasons associated with climate change.

Fire Prevention and Early Response Capacity

- The establishment of a 20-member Fire Emergency Response Team (FERT) enhanced the Project's ability to respond to fire threats exacerbated by hotter, drier conditions.
- Deployment of a near real-time fire and deforestation monitoring system supported early detection and response during peak risk periods.

Community-Based Climate Resilience

- Village-wide consultations in 16 communities included education on fire prevention, water conservation, and sustainable forest management—empowering communities to adapt local practices to changing environmental conditions.
- Community input led to the development of livelihood diversification strategies, including low-impact options such as nursery development, weaving programs, and hydroponics, reducing economic dependence on vulnerable ecosystems.

Conservation of Biodiversity as an Adaptation Strategy

- 77,499 ha of tropical peat swamp forest were protected from degradation, providing critical climate refugia for species under stress from shifting habitat conditions.
- Species monitoring (e.g., bird and camera trap surveys) helped track ecological responses and inform adaptive management plans.

Collectively, these activities strengthen the adaptive capacity of both ecosystems and Indigenous communities in the Project Zone. The Project continues to use its validated climate change adaptation causal model to guide planning and implementation, ensuring that interventions are locally appropriate, forward-looking, and grounded in community needs.

4 COMMUNITY

4.1 Net Positive Community Impacts

4.1.1 Community Impacts (CCB, CM2.1)

All community groups within the Project Zone were engaged through a combination of formal consultations, participatory mapping, and informal dialogue, including those who participated in the Project's Free, Prior, and Informed Consent (FPIC) process, as outlined in Section 2.5.7.

Each community group was assured of:

- Uninterrupted access to their smallholdings and traditional areas within the Permanent Reserved Forest (PRF);
- Clear information about the purpose, timing, and locations of key project activities, including canal blocking, camera trap deployment, and patrolling efforts.

During the monitoring period, the Project facilitated a participatory evaluation of potential community impacts, using accessible tools such as:

- Visual aids, maps, and guided prompts to support understanding.
- Site visits to demonstrate restoration activities and discuss community perceptions.
- Follow-up dialogues allowing for reflection and peer consultation before providing feedback to the Project team.

These engagements enabled communities to voice perceived risks, potential costs, and expected benefits of the Project in an inclusive and transparent manner.

As of this reporting period, no community group has experienced negative impacts requiring escalation to Phase 3 FPIC (which would require formal consent and benefit-sharing obligations). Community concerns were addressed through design modifications (e.g., adjusting canal block locations) and continual engagement.

Community Impact Summary and Anticipated Benefits

Table 27 summarizes observed and anticipated impacts for each community group, including those that are:

- Direct (e.g., employment, access to services),
- Indirect (e.g., improved forest condition, reduced haze exposure),
- Perceived risks (e.g., loss of access or changes in water levels),
- Unplanned or secondary effects (e.g., increased external attention to village issues).

While many community development activities are still in the co-design phase, early engagements and needs assessments indicate that programming will be focused on the following thematic areas, as identified through the social baseline survey and gap analysis:

- Livelihood enhancement through capacity-building in sustainable economic activities.
- Local job creation within restoration, patrolling, nursery management, and education.
- Environmental education to increase awareness of biodiversity, peat ecosystems, and climate resilience.
- Establishment of community learning hubs, tailored to local culture and designed to reduce youth dropouts from school.
- Access to clean water, especially for remote or underserved communities, through supplementation of existing government infrastructure.
- Facilitation of healthcare services, such as mobile health screenings and enrollment in public health programs.

The design of these programs is guided by continuous community input and will be monitored for both positive and negative impacts using the Community Impact Monitoring Plan outlined in Section 4.3.1.

Table 27: Community Impacts from Project Activities

Community group	Impact(s)	Type of benefit / cost / risk	Change in well-being during the monitoring period (also during the project lifetime since this is the first monitoring report)
Seven households from RPS Runchang with smallholdings inside the Project Area (impact assessed in Phase 2 FPIC)	Rising water table as canal blocking restores peatland hydrology, resulting in waterlogged crops and reduced yield.	Predicted economic risk	No impact observed. No new canal blocks have been constructed by the Project near these smallholdings since the project start date.
	Canal blocks and rising water tables resulting in impaired or impeded access to smallholdings	Predicted economic risk	No impact observed. No new canal blocks have been constructed by the Project near these smallholdings since the project start date.
	Rising water tables (due to existing canal blocks installed by government agencies) resulting in reduced fire incidence.	Indirect health benefit Indirect economic benefit	No fire incidents were recorded in this area (<i>Tanjung Ipuh</i>) during the monitoring period.
	Loss of privacy due to the use of camera traps to monitor biodiversity.	Perceived risk	No complaint was received about camera traps from these stakeholders during the monitoring period.
Four households of fishers from Sawah Batu who use semi-permanent shelters along the Mercung River inside the Project Area (impact assess in Phase 2 FPIC)	Protected and restored peat swamp forest and Mercung River.	Indirect health benefit Indirect economic benefit	Fishers are expected to benefit from reductions in river pollution and peat fires that increase fish stocks and mitigate respiratory health issue.
	Loss of privacy due to the use of camera traps to monitor biodiversity and the use of drones for aerial monitoring.	Perceived risk	No camera traps were installed near these stakeholders' shelters (<i>Melinggang</i> and <i>Belangok/Bakong</i>) during the monitoring period.
NTFP gatherers	Protected and restored peat swamp forest.	Indirect health benefit Indirect economic benefit	NTFP gatherers are expected to benefit from avoidance of forest degradation due to logging or fire. Avoidance of degradation would sustain NTFP yield, while restoration may further increase it.

Community group	Impact(s)	Type of benefit / cost / risk	Change in well-being during the monitoring period (also during the project lifetime since this is the first monitoring report)
			Avoidance of fire mitigates respiratory health issue.
Fishers	Protected and restored peat swamp forest and rivers.	Indirect health benefit Indirect economic benefit	Fishers are expected to benefit from reductions in river pollution and peat fires that increase fish stocks and mitigate respiratory health issue.
	Loss of access to fishing ground due to canal blocking.	Predicted economic risk	Most canal fishers are leisure fishers who would find other fishing spots. No complaint about loss of access to fishing ground was received during the monitoring period.
Traditional hunters	Protected and restored peat swamp forest.	Indirect economic benefits	Traditional hunters are expected to benefit from conserved and restored habitats that will increase hunting animal abundance.
Smallholders inside the Protection Zone	Rising water tables as canal blocking restores peatland hydrology, resulting in waterlogged crops and reduced yield.	Predicted economic risk	Negative if impacts materialize. Low likelihood in most cases as most smallholders cultivate land along rivers where soil is alluvial or where peat layers are very shallow. Rewetting efforts will primarily target deeper peat areas (e.g., near peat dome and inside Forest Reserve) but may still pose some residual risk to communities in these areas. Phase 2 FPIC was carried out with one smallholder in Nenasi PRF that resulted in change of canal blocking design to mitigate this risk. See Section 2.3.9.
	Rising water tables resulting in reduced fire incidence.	Indirect health benefit Indirect economic benefit	Smallholders will benefit from improved respiratory health as a result of reduced exposure to smoke (particulate matters, i.e., PM2.5) from peat fires. Reduced fire incidence also means

Community group	Impact(s)	Type of benefit / cost / risk	Change in well-being during the monitoring period (also during the project lifetime since this is the first monitoring report)
			reduced risk of property damage by fire (e.g., to crops, dwellings, infrastructure). See Section 3.2.2.1 on fire incidence and peat burning estimates.
	Improved hydrological and ecological functions of surrounding peat domes resulting in reduced frequency and intensity of both flood and drought conditions in the landscape.	Indirect health benefit Indirect economic benefit	Smallholders will benefit from mitigation of health issues exacerbated by weather extremes such as water-borne or vector borne diseases, respiratory or cardiovascular problems. Smallholders will also benefit from reduction in crop mortality due to weather extremes.
	Loss of privacy due to the use of camera traps to monitor biodiversity and the use of drone for land cover mapping.	Perceived risk	No material changes in wellbeing likely as the Project has strong privacy protections for local communities. During the monitoring period, three camera traps were relocated after feedback from stakeholders in the Project Zone.
	Canal blocks and rising water tables resulting in impaired or impeded access to smallholdings.	Predicted economic risk	No impact observed during the monitoring period since the 74 canal blocks were constructed inside Project Area where no potentially impacted smallholders were identified.
Women	Protected and restored peat swamp forest and rivers.	Indirect economic benefit	Protected and restored peat swamp forest and rivers will improve NTFP and fishing yields, which are the key economic activities for some women who do not hold a full-time employment.
	Rising water tables resulting in reduced fire incidence.	Indirect health benefit	Women will benefit from improved respiratory health as a result of reduced exposure to smoke (particulate matters, i.e., P.M _{2.5}) from peat fires, especially during weakened immunity periods such as pregnancy.

Community group	Impact(s)	Type of benefit / cost / risk	Change in well-being during the monitoring period (also during the project lifetime since this is the first monitoring report)
	Improved hydrological and ecological functions of surrounding peat domes resulting in reduced frequency and intensity of both flood and drought conditions in the landscape.	Indirect health and safety benefit	Women will experience improved safety, health, and reduced burdens during floods - both for themselves and those they care for (children, elderly) - through more reliable access to amenities and essentials.
	Loss of privacy due to the use of camera traps to monitor biodiversity and the use of drones for land cover mapping.	Perceived Risk	No material changes in wellbeing likely as the Project has strong privacy protections for local communities.
Youth	Rising water tables resulting in reduced fire incidence.	Indirect health benefit	Youth, especially young children with weaker immunity will benefit from improved respiratory health as a result of reduced exposure to smoke (particulate matters, i.e., PM2.5) from peat fires.
	Improved hydrological and ecological functions of surrounding peat domes resulting in reduced frequency and intensity of both flood and drought conditions in the landscape.	Indirect safety benefit Indirect social benefit (education)	Youth will benefit from reduced disruptions to daily life (e.g., school transportation). Youth will also benefit from reduced health and safety risks caused by floods.
Elderly	Rising water tables resulting in reduced fire incidence.	Indirect health benefit	The elderly, especially those with weak immunity, will benefit from improved respiratory health as a result of reduced exposure to smoke (particulate matters, i.e., PM2.5) from peat fires.
	Improved hydrological and ecological functions of surrounding peat domes resulting in reduced frequency and intensity of both flood and drought conditions in the landscape.	Indirect health and safety benefit	The elderly will benefit from reduced disruption to healthcare access and reduced flood-related health and safety risks.
All community groups	Benefits from participation of community development programs.	Direct benefit	Positive impacts.

Community group	Impact(s)	Type of benefit / cost / risk	Change in well-being during the monitoring period (also during the project lifetime since this is the first monitoring report)
	Time taken to participate, and costs incurred to travel to the venue where community development programs would be held.	Real cost	Depending on the programs implemented. Engagement activities are designed with this cost in mind.
	Potential risk that programs attended (e.g., alternative livelihood program) may not be successful.	Potential risk	Depending on the programs implemented. Activities will be designed to mitigate this risk.

4.1.2 Negative Community Impact Mitigation (VCS, 3.19; CCB, CM2.2)

During the monitoring period, project activities did not generate pollutants, hazardous materials, or waste beyond routine domestic waste from staff. Alcohol used for plant preservation was strictly controlled, stored in secure, labelled containers, handled by trained personnel using PPE, and disposed of in accordance with local environmental regulations. Fuel and equipment use were subject to SOPs to minimize accidental spills and environmental contamination. Spill kits were available on-site, and staff were trained in safe handling and response protocols.

The Project's restoration activities, particularly canal blocking, were carefully planned and adapted through community engagement to avoid unintended inundation of smallholder farms.

The Project carried out FPIC processes (as described in Section 2.5.7) to ensure that all potential impacts on communities were identified, assessed, and addressed. During Phase 1 FPIC, potentially affected stakeholders were identified, and general concerns about the Project were documented. A key concern raised was customary land tenure. In response, the Project excluded areas claimed as customary land (though not officially gazetted) by communities from the initial Project Area.

Phase 2 FPIC assesses potential impacts with specific stakeholders in a participatory manner. Extra care is taken to ensure that the health and safety of women, girls, children, the elderly, and other marginalized groups are not impacted. Communication channels have been established by the Project to facilitate both informal input and formal feedback via the Project's GRM (see Section 2.3.15 in the PDD). Furthermore, the Project will work closely with CDAs to prevent or mitigate any adverse community impacts should they materialize (see Section 4.5.8 in the PDD).

The Project strives to create gender-sensitive employment opportunities and minimize any gender-related adverse impacts. Initiatives include hiring women for roles that can be undertaken in their villages, and targeting a minimum 30% women participation across programs and Project staffing. Community development programs are designed to provide safe spaces for women, youth, and marginalized groups by offering childcare support during consultations and holding separate focus groups for women and youth.

Vulnerable groups—including the elderly, persons with disabilities, and those in poverty—are prioritized for engagement through home visits and targeted programs to reduce barriers to participation.

Potential human-wildlife conflicts are addressed through SMART patrols, camera trap monitoring, and awareness campaigns in collaboration with local communities. Information about wildlife activity is shared to help communities avoid high-risk areas and times.

The Project does not increase community exposure to security threats. It maintains culturally sensitive protocols for reporting illegal activities to authorities.

The Project has identified and mapped cultural heritage sites within the Project Area using the HCV methodology. These areas are designated as exclusion zones, strictly conserved, and no activities are allowed that might disturb them. The Project adopts a precautionary approach whereby work ceases immediately if any previously unknown cultural sites are discovered. Continuous consultation with the community ensures these areas remain protected and accessible for spiritual and ceremonial purposes.

4.1.3 Net Positive Community Well-Being (VCS 3.19; CCB, CM2.3, GL1.4)

During this monitoring period, the Pahang Peatland Restoration Project (PPRP) delivered net positive well-being impacts for all identified community groups, compared to the without-project land use scenario. These gains were realized through job creation, fire prevention, improved water access, and strengthened climate resilience.

Job Creation and Economic Empowerment

A key achievement during the reporting period was the creation of 45.5 FTE jobs, benefitting 106 community members across various roles:

- 39 permanent positions,
- 18 multi-month contract roles, and
- Numerous short-term and daily wage jobs, especially in river navigation and community facilitation.

These jobs prioritized local and Indigenous candidates, and helped diversify household income, reduce economic vulnerability, and build local capacity.

Fire Reduction and Health Benefits

The Project conducted ten successful fire suppression operations through its trained FERT members and forest protection teams. These actions significantly reduced the frequency and scale of peatland fires—a major threat in the without-project scenario.

By lowering fire incidence, the Project contributed to:

- Improved air quality, with measurable reductions in smoke and haze,
- Fewer respiratory illnesses, especially among children, the elderly, and individuals with pre-existing conditions, and
- Decreased healthcare costs and productivity loss in affected communities.

Water Security and Ecosystem Restoration

The installation of 74 canal blocks restored natural peatland hydrology, supporting higher groundwater levels and reducing vulnerability to:

- Saltwater intrusion,
- Water shortages during dry periods, and
- Waterborne illnesses from stagnant or contaminated supplies.

These interventions also improved freshwater availability for drinking, sanitation, and small-scale agriculture—directly enhancing community health and food security.

Climate Change Adaptation and Disaster Risk Reduction

The Project meets the CCB Gold Level criteria for climate adaptation benefits by increasing the capacity of communities to respond to environmental stressors such as:

- Extreme rainfall and flooding,
- Extended droughts, and

- Rising temperatures.

Key measures implemented include:

- Rewetting degraded peatlands, reducing fire risk and restoring local microclimates,
- Participatory fire prevention and early warning systems,
- Community disaster preparedness training, and
- Ecosystem stabilization, which reduced flooding impacts on homes, infrastructure, and farmland.

These adaptation-focused activities build long-term resilience and safeguard livelihoods from climate-driven shocks.

Education, Inclusion, and Community Empowerment

Community-wide consultations and co-designed development programs continued throughout the year, focusing on:

- Environmental education,
- Sustainable livelihoods, and
- Youth mentoring and women's participation.

Inclusive planning, supported by the Project's Community Development Unit, ensured that the voices of women, Indigenous communities, youth, and vulnerable groups were reflected in project activities and benefit sharing.

Through job creation, health improvements, environmental restoration, and climate adaptation, the Project has produced substantial and measurable gains in community well-being. Compared to the without-project scenario—characterized by increased fire risk, environmental degradation, and economic vulnerability—the PPRP is helping to foster resilient, healthy, and empowered communities, with benefits that extend well beyond the current monitoring period.

4.1.4 Protection of High Conservation Values (CCB, CM2.4)

No HCVs related to community well-being were adversely impacted during the monitoring period. Project activities were specifically designed to protect and enhance key HCV areas that support environmental stability, cultural identity, and local livelihoods. See Section 5.1.2 (in PDD) for HCVs related to biodiversity conservation (HCV 1-3) and Section 4.1.3 (in PDD) for HCVs related to communities (HCV 4-6).

Ecosystems critical for water supply, flood regulation, natural firebreaks, wind breaks, soil protection, pollination, carbon sequestration and storage services (HCV 4) were actively preserved and restored to maintain their protective functions.

Water sources, including rivers used for fishing by local communities (HCV 5), were safeguarded through measures that safeguard water quality, prevent contamination, and promote sustainable use. In addition, the Project protects forested areas tied to cultural identity and customary traditions and preserves cultural heritage sites within the Project Zone (HCV 6). These sites (see Figure 21) were identified in a joint effort with the communities, with their coordinates recorded and stories documented (see Section 4.1.3 in PDD).

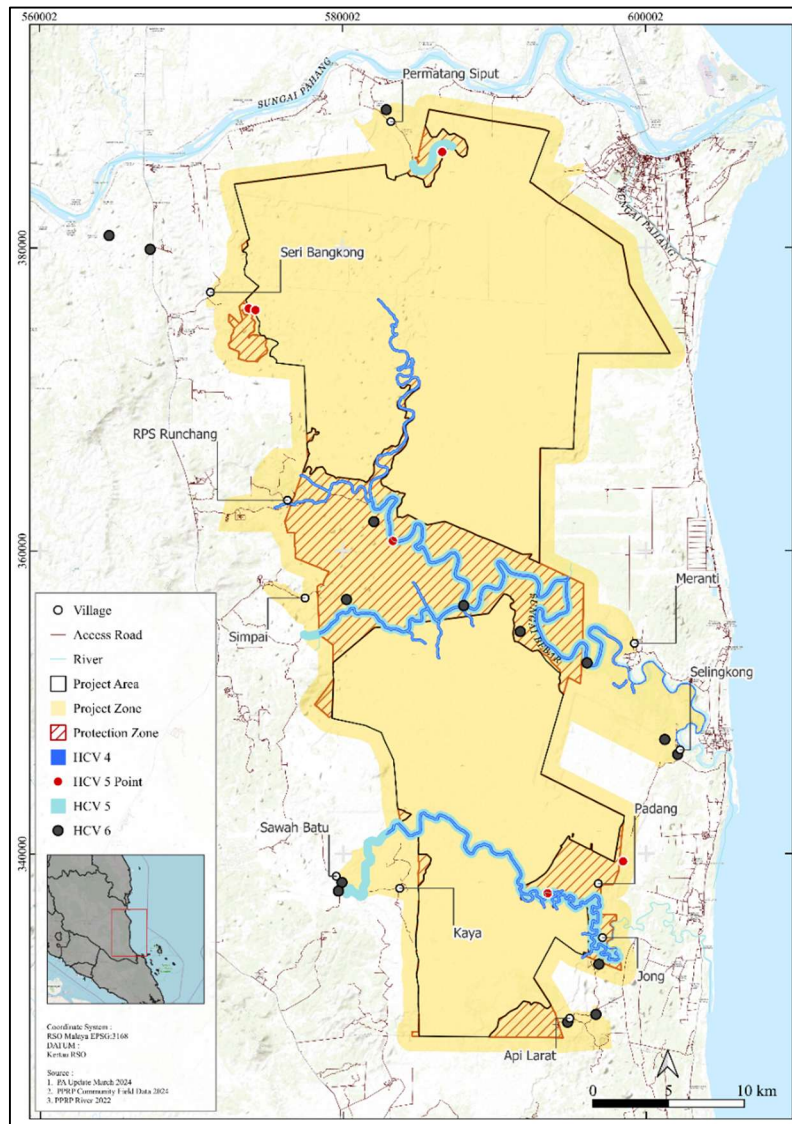


Figure 21: Map of Project Area and Project Zone HCV (4-6) Areas

4.2 Other Stakeholder Impacts

4.2.1 Mitigation of Negative Impacts on Other Stakeholders (VCS, 3.18, 3.19; CCB, CM3.2)

No significant negative impacts on other stakeholders as a result of Project activities were identified during the monitoring period. The Project maintained open and frequent communications with all local stakeholders. Going forward, any unforeseen negative impacts that arise will be addressed through a structured adaptive management approach. This approach enables the Project team to monitor evolving conditions, incorporate stakeholder feedback, and make timely operational adjustments to effectively mitigate risks and ensure stakeholder well-being throughout the project lifecycle.

4.2.2 Net Impacts on Other Stakeholders (VCS, 3.18, 3.19; CCB, CM3.3)

The Project did not result in any net negative impacts on the well-being of other stakeholders during the monitoring period. As outlined in Sections 4.1.1 and 4.2.1, all identified impacts on stakeholder groups—including those beyond the primary target communities—were positive. These include improvements in environmental quality, access to basic services, livelihood opportunities, and overall community resilience. Through proactive planning and inclusive engagement, the Project is committed to ensuring that the benefits extend broadly and equitably across all stakeholder groups.

4.3 Community Impact Monitoring

4.3.1 Community Monitoring Plan (CCB, CM4.1, CM4.2, GL1.4, GL2.2, GL2.3, GL2.5)

Table 28 sets out the results from the present reporting period against the community monitoring plan.

Table 28: Community Development Monitoring Results for the First Monitoring Period (February 2024 – January 2025)

Outcome 1: Improved Livelihood and Economic Well-being					
Outcome 1.1: Enhanced livelihoods					
Objectives and Gaps Addressed: Provide alternative, economically sustainable livelihood options rooted in ecosystem conservation, such as agroforestry and ecotourism					
Program	Targeted community group	Indicator / Variable	First year target	Monitoring frequency	Results from the First Monitoring Period (February 2024 - January 2025)
Capacity building training to enhance knowledge, skills and attitude on sustainable economic activities	Women	Number of participants at capacity building trainings	Identification of community members that have potential to be involved with the training	Annually	Number of identified community members that are potentially to be participants: <ul style="list-style-type: none"> • Smallholders: 355 individuals, with 246 males (69%) and 109 females (31%) • Fishers: 131 individuals, with 41 males (31%) and 90 females (69%) • NTFP gatherers: 135 individuals, with 69 males (51%) and 66 females (49%) • Traditional Hunters: 17 individuals, with 15 males (88%) and 2 females (12%) The communities were also surveyed on their interest in participating in initiatives aimed at improving their socioeconomic status. Out of 443 respondents, 414 (93%) showed their interest in participating in the initiatives.
	Youth (>18 years of age)				
	NTFP Gatherers				
	Fishers				
	Smallholders				
Traditional Hunters					

		Number of capacity building trainings	Design suitable training curricula to improve incomes	Annually	In the first year, the Project focused on designing the multi-module capacity building programs, guided by community feedback. The five planned modules include: <ol style="list-style-type: none"> 1. Reforestation Module 2. Solid Waste Management Module 3. Vocational Skills Module 4. Entrepreneurship Module 5. Ecotourism Module
		Number of participants who have increased their income	Identify current income levels	Annually	Through the baseline community survey, the Project identified that more than 50% of the community members engaged had an income below the poverty line of RM 2,589 (2022 National Poverty Line).

Outcome 1.2: Increased employment opportunities

Objectives and Gaps Addressed: Create expanded employment opportunities through direct jobs, contractual services, and related economic activities

Program	Targeted community	Indicator / Variable	First year target	Monitoring frequency	Results from the First Monitoring Period (February 2024 - January 2025)
Job creation for local communities	Local communities	FTE of local communities for jobs created by Project	15 FTE (minimum 20% women)	Annually	27 FTE local indigenous people employed in full time, multiple-month contract and daily waged job. <ul style="list-style-type: none"> • Male – 20.5 FTE (76%) • Female – 6.5 FTE (24%)

Outcome 2: Improved Level of Education and Environmental Sustainability Awareness

Outcome 2.1: Increased awareness of biodiversity, ecosystems, climate change and sustainability

Objectives and Gaps Addressed: Foster a deeper understanding of environmental issues to support and enhance local communities' ongoing stewardship of the landscape

Program	Targeted community	Indicator / Variable	First year target	Monitoring frequency	Results from the First Monitoring Period (February 2024 - January 2025)
Awareness programs on biodiversity, ecosystems, climate change and sustainability	Local communities	Number of participants attended awareness	Engagement with local communities	Annually	<p>1,196 (66% female) community members attended awareness program during village-wide consultation events.</p> <p>Engagements during participatory smallholder verifications led to the establishment of a WhatsApp group for each village as a communication channel for next awareness program.</p> <p>The communities were also surveyed on their views regarding the environment and sustainable lifestyle awareness program initiative. Out of 443 respondents, 386 (87%) agreed that these programs could be implemented in their community.</p>
		Number of awareness programs conducted	Engagement with local communities	Annually	<p>13 consultation sessions were conducted between July to September 2024, engaging local communities from 16 villages. These sessions raised awareness on the importance of peatland biodiversity, its ecosystem functions, and sustainable land use practices through talks, exhibitions, and multimedia presentations including videos and photos.</p>

		Number of local community participants in replanting efforts	Engagement with local communities for participation in forest replanting efforts	Annually	The communities were surveyed on their views regarding economic initiative programs such as entrepreneurship, ecotourism, and reforestation. Out of 443 respondents, 381 (86%) agreed that these programs could be implemented for the community.
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Outcome 2.2: Increased school attendance

Objectives and Gaps Addressed: School dropout is a key driver of social issues and a major contributor to intergenerational poverty within the Project Zone communities. While government provisions for education and incentives are in place, this program specifically targets the cultural and social barriers that lead to marginalization. It aims to reintegrate youth into the formal education system and equip them with both academic qualifications and essential soft skills to support their educational and career development

Program	Targeted community group	Indicator / Variable	First year target	Monitoring frequency	Results from the First Monitoring Period (February 2024 - January 2025)
Community Learning Hub established to supplement mainstream schooling and mentor children and youth individually to reduce school dropout rate	Children and youth	Number of Community Learning Hub established	Engagement with local communities, NGOs, and schools	Annually	The engagements with the District Education Office and teachers from schools near the Project Zone were conducted between October 2024 and January 2025, provided critical insights into the systemic barriers faced by <i>Jakun</i> students and directly informed the refinement of educational interventions under the Project. Engagements with NGOs further enhanced the inclusivity and quality of the project design. Two key consultations that touched on education issues were held with the Global Peace Foundation (GPF) on 25 October 2024 and Persatuan Suku Jakun Pahang (PSJP) on 21 November 2024. Further details of these engagements are provided in Section 2.3.9.
		Number of children and youth attended the Community Learning Hub	Engagement with school and local communities	Annually	
		Number of children and youth attended the Community Learning Hub who avoided dropout before finishing secondary school	Engagement with school and local communities	Annually	

					<p>The communities were also surveyed on their views regarding the initiative to reduce school dropout rates and support students in completing secondary education. Out of 443 respondents, 390 (88%) agreed that these programs could be implemented in their community.</p>
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Outcome 3: Improved Health and Well-being					
Outcome 3.1: Accessibility to clean water					
Objectives and Gaps Addressed: Improved health and well-being by supplementing government amenities and/or providing 'last mile' services					
Program	Targeted community	Indicator / Variable	First year target	Monitoring frequency	Results from the First Monitoring Period (February 2024 - January 2025)
Clean water program	Local communities in need (households with insufficient clean water supply)	Number of households with improved access to clean water supply	Identify areas and villages with limited access to clean water supply and engagement with water supply agency	Annually	<p>Access to clean water was identified as a major issue in three villages, namely Selingkong, Permatang Siput, and RPS Runchang. The Project subsequently engaged with the government water supply management body (PAIP) to understand the government's existing plans for these areas.</p> <p>Based on the discussion, RPS Runchang was selected for project intervention, as PAIP had confirmed plans to upgrade water infrastructure in Selingkong and Permatang Siput.</p> <p>Communities were also surveyed on the clean water initiative. Out of 443 respondents, 396 (89%) supported the implementation of such programs in their village.</p>
Outcome 3.2: Accessibility to health services					

Objectives and Gaps Addressed: Improved accessibility to healthcare services, such as facilitating health screening services and/or assisting registration with government provided services or programs

Program	Targeted community	Indicator / Variable	First year target	Monitoring frequency	Results from the First Monitoring Period (February 2024 - January 2025)
Improve accessibility to healthcare services	Vulnerable individuals and households in communities, e.g., people with disabilities and elderly people	Number of people participate in the health screening and consultation program	Engagement with health agencies and local communities	Annually	<p>Initial engagement was conducted with the state government health agency in November 2024 to introduce the project and establish relationship for further community program collaboration.</p> <p>Engagement with local communities through multiple activities including household surveys and participatory smallholder verification, Project identified a number of vulnerable individuals:</p> <ul style="list-style-type: none"> • Disabled persons: 12 individuals; 7 males (58%) and 5 females (42%) • Elderly people: 118 individuals; 79 males (67%) and 39 females (33%)

4.3.2 Monitoring Plan Dissemination (CCB, CM4.3)

Project has established clear procedures to ensure that Monitoring Plans and all summaries of Project Documents are effectively disseminated to stakeholders (see Section 2.3.3),

4.4 Optional Criterion: Exceptional Community Benefits

4.4.1 Short-term and Long-term Community Benefits (CCB, GL2.2)

During the monitoring period (February 2024 – January 2025), the Project made tangible progress toward its goal of delivering exceptional community benefits, both in the short term and as part of a longer-term resilience and development strategy. These benefits support smallholders and community members by improving livelihoods, ecosystem health, and climate resilience, in line with its validation at the Gold Level for community benefits under the CCB Standard.

Short-Term Benefits (Achieved During the Monitoring Period)

The Project created 45.5 full-time equivalent (FTE) jobs, directly benefitting 106 local community members across roles in fire prevention, biodiversity monitoring, canal blocking, data collection, and community facilitation. These roles reduced economic insecurity and provided stable income in rural areas.

Capacity-building programs were delivered across multiple villages, providing community members with skills in sustainable land management, fire prevention, and nursery establishment. Many participants from Indigenous *Jakun* communities received hands-on training in peatland ecology, field monitoring, and restoration techniques.

Fire suppression efforts through the FERT led to the containment of nine fire incidents, reducing exposure to haze and the risk of property damage. This contributed to improved respiratory health—particularly among vulnerable groups such as children and the elderly.

Canal blocking activities (74 dams installed) helped raise water tables, which prevented further peat degradation and supported freshwater availability for small-scale agriculture and household use.

Participatory consultation events were held in 16 villages, strengthening local ownership of the Project and reinforcing social cohesion and trust between communities and project implementers.

Long-Term Benefits (On Track for Delivery)

The Project is laying the foundations for sustainable income diversification, particularly in:

- Agroforestry (nursery establishment and planned replanting),
- Community-based ecotourism (currently in feasibility stage), and
- Small-scale fisheries in restored wetland zones.

These initiatives aim to transition smallholders away from unsustainable land use practices such as illegal land clearing or resource extraction, while preserving cultural values and customary knowledge.

Peatland restoration and hydrological recovery are expected to yield lasting environmental benefits, including:

- Reduced flood and drought impacts,
- Greater resilience to wildfires, and
- Long-term protection of key ecosystem services (water storage, carbon sequestration).

Planned community learning hubs and youth mentoring programs (co-designed during this period) aim to reduce school dropout rates and improve education access, particularly for Indigenous children in underserved areas. Long-term well-being is further supported by the Project’s initiatives to improve access to clean water (via last-mile delivery systems) and health screening services (in partnership with local authorities).

The Project continues to demonstrate strong progress toward delivering exceptional community benefits, with measurable short-term impacts already observed during the monitoring period and robust systems in place to support long-term well-being improvements. By integrating job creation, environmental restoration, climate adaptation, education, and participatory governance, the Project is enabling smallholders and Indigenous communities to thrive in a changing socio-economic and climatic landscape.

4.4.2 Marginalized and/or Vulnerable Community Groups (CCB, GL2.4)

During the monitoring period, vulnerable community groups such as children, youth, the elderly and people with disabilities were identified. The Project plans to implement activities with these vulnerable groups starting in 2025. The impacts will be reported in the next monitoring report. Please refer to the tables below on the predicted impacts on vulnerable groups.

Community Group	Children and youth
Net positive impacts	<p>During the monitoring period, the Project made tangible progress toward supporting children and youth through early-stage planning and community engagement for future education, life skills, and youth empowerment programs. While full-scale implementation is scheduled for future reporting periods, groundwork laid during this period contributes to anticipated long-term well-being improvements.</p> <p>Key expected benefits include:</p> <ul style="list-style-type: none"> • Increased access to education support initiatives aimed at reducing school dropout rates among Indigenous <i>Jakun</i> youth, especially in remote villages. • Planned youth-focused programs in areas such as sports, creative arts, and nature education, intended to promote healthy, active lifestyles and meaningful peer engagement. • The co-design of future vocational training and skill development initiatives, intended to enhance employability, prepare youth for higher-paying job opportunities, and help break cycles of poverty.

Benefit access	<p>During the monitoring period:</p> <p>The Project team began mapping existing educational gaps and youth risk factors through consultation sessions in 16 villages and early dialogue with school stakeholders.</p> <p>Communities identified youth disengagement and lack of educational motivation as key challenges—particularly in areas with limited access to secondary schools or low-income households.</p> <p>The Project initiated the design of programs for future delivery, including:</p> <ul style="list-style-type: none"> • Mentoring schemes for students at risk of dropout, • Outreach activities such as sports tournaments, nature camps, and cultural storytelling sessions to build positive engagement, • Plans for scholarship and transport assistance programs, informed by socio-economic data collected during the social baseline. • Youth engagement strategies also drew from ongoing collaboration with Community Development Association (CDA), many of whom are younger adults and serve as peer connectors within their communities.
Negative impacts	<p>No direct negative impacts on children or youth were recorded during the monitoring period. However, the Project anticipates potential barriers to participation and is developing targeted mitigation measures in advance of full program rollout:</p> <p>Parental reluctance or economic constraints that discourage school attendance are being addressed through:</p> <ul style="list-style-type: none"> • Planned awareness campaigns focused on the long-term benefits of education, <p>For youth already engaged in high-risk behaviors, the Project is planning to integrate:</p> <ul style="list-style-type: none"> • Collaboration with local leaders and educators to support re-engagement, • Safe spaces and community-led youth programs designed to offer constructive alternatives and role models. <p>These approaches are consistent with the Project’s broader commitment to inclusive, culturally appropriate community development, and align with the Gold Level adaptation and community benefit objectives.</p>
Community Group	Elderly
Net positive impacts	<p>During the monitoring period, the Project made early progress in identifying and engaging elderly individuals across the 16 participating villages. While most elders are not actively employed, many contribute significantly to family well-being by sharing income</p>

	<p>from the TSK (<i>Tanaman Semula Komersial</i>) scheme and playing key roles as knowledge keepers and caregivers.</p> <p>The Project has begun laying the groundwork for:</p> <ul style="list-style-type: none"> • Improved access to healthcare services through needs assessments and coordination with local health outreach providers. • Future health awareness and screening campaigns, especially targeting non-communicable diseases and preventable conditions among older adults. • Community-driven initiatives to preserve traditional knowledge, recognizing elders as carriers of cultural and environmental wisdom vital to sustaining Indigenous identity.
Benefit access	<p>During community consultations, Project staff conducted informal outreach to identify elderly individuals, particularly those living in remote or underserved areas.</p> <p>Planning began for future partnerships with government health agencies and NGOs to facilitate mobile clinics, screenings, and registration support for public health services.</p> <p>Initial dialogue was held in several villages about co-designing intergenerational knowledge-sharing programs, including:</p> <ul style="list-style-type: none"> • Traditional craft demonstrations, • Medicinal plant identification walks, • Oral history/storytelling circles involving school-aged children and youth. <p>These programs aim to ensure older individuals remain engaged and recognized as vital contributors to community life, while creating meaningful intergenerational connections.</p>
Negative impacts	<p>While no direct negative impacts were reported during the monitoring period, the Project acknowledges potential emotional and cultural stressors facing elderly community members, including:</p> <ul style="list-style-type: none"> • Feelings of isolation in the face of modernization, • Loss of traditional livelihoods, and • Diminishing intergenerational interaction. <p>To mitigate these risks:</p> <ul style="list-style-type: none"> • The Project is integrating traditional elements into community-based activities, ensuring that older individuals are included in consultations, decision-making, and cultural programming. • Planning is underway for group storytelling events, and indigenous knowledge sharing with new generations. • Targeted outreach will continue to individually assess the needs of vulnerable elders, especially those without strong family support networks.

	<p>As programmatic elements evolve, the Project remains committed to ensuring that the elderly are not only recipients of services but active participants in shaping community resilience, heritage preservation, and local knowledge systems.</p>
Community Group	<p>People with disabilities (PWD)</p>
Net positive impacts	<p>During the monitoring period, the Project began taking concrete steps to support people with disabilities by facilitating their access to government support systems and promoting inclusive development.</p> <p>Although full implementation of disability-focused programs is scheduled for the next period, early actions contributed to the Project's long-term goals of:</p> <ul style="list-style-type: none"> • Improving access to healthcare and social services for PWDs, • Promoting registration with government agencies to enable eligibility for government assistance schemes, including monthly allowances and mobility aid support, • Reducing dependency on already financially burdened family members by helping individuals access available benefits and services independently.
Benefit access	<p>Through community consultations and household-level data collection, the Project began identifying individuals with disabilities in participating villages.</p> <p>Early engagements revealed that many people with disabilities were not yet registered with government disability databases, despite being eligible.</p> <p>The Project initiated planning for a registration support process, including:</p> <ul style="list-style-type: none"> • Guidance on completing application paperwork, • Referrals to local health professionals for required medical assessments, • Coordination of transportation and outreach assistance for those with mobility limitations. <p>These activities were supported by the CDA, which provides a culturally sensitive and trusted link between the Project and affected households.</p>
Negative impacts	<p>No negative impacts were recorded during the monitoring period. However, the Project recognizes several barriers that people with disabilities may face in accessing services or participating in project activities, such as:</p> <ul style="list-style-type: none"> • Limited mobility or physical access to events and services, • Lack of information or difficulty understanding bureaucratic processes,

- Family reluctance or overprotection, which may hinder engagement.

To address these issues, the Project is:

- Conducting home visits to ensure mobility limitations do not exclude individuals from engagement or support,
- Preparing inclusive communication materials in plain language and accessible formats for future campaigns,
- Planning awareness sessions with families, highlighting the value of registration and participation in available government programs,
- Including people with disabilities in broader community development discussions to ensure their perspectives and needs are integrated into future planning.

4.4.3 Net Impacts on Women (CCB, GL2.5)

During the first monitoring period, the Project made considerable progress in improving women's well-being through early implementation of gender-responsive measures, as outlined in a gender action plan. While many interventions are still in their formative stages, initial efforts have already led to tangible social and economic outcomes, particularly in women's participation in livelihood activities and decision-making processes.

Economic Empowerment: Through the community engagement and baseline survey processes, the Project identified 109 women smallholders, 90 women fishers, and 66 women NTFP gatherers across 11 villages as potential participants in sustainable livelihood development. These women were targeted for participation in tailored capacity-building modules, which were designed during this reporting period. The modules focused on entrepreneurship, vocational skills development, sustainable reforestation, and waste management. As of this reporting period, out of the 29 local community members employed by the Project in permanent employment or multiple month contracts, six (21%) are women.

Leadership and Participation in Decision-Making: The Project maintained a commitment to ensuring meaningful female representation in community consultations. At least 30% of participants in stakeholder engagements were women, with additional women-only sessions and female facilitators introduced to create safer and more inclusive spaces. WhatsApp groups were also established per village, enabling easier communication and information sharing—especially for women unable to attend meetings due to domestic responsibilities or mobility constraints. The Project's female-led Community Development Unit contributed to building trust and relatability among *Jakun* women, encouraging higher participation rates in decision making.

Health and Well-being: The Project began addressing women's practical needs, particularly those related to clean water and healthcare access. In collaboration with PAIP, RPS Runchang was prioritised for clean water interventions. Initial engagement with the state health department also began during this period, laying the groundwork for future health screening and outreach activities focused on women and other vulnerable groups.

Safeguarding and Gender-Based Protection: The Project has initiated the establishment of gender-sensitive safeguarding measures, including the dissemination of anti-harassment protocols and confidential grievance mechanisms as outlined in Enggang (Pekan) Sdn Bhd’s Integrated Management System Manual and Employee Handbook. Efforts are ongoing to build broader community awareness of these systems.

While it is still early in the Project lifecycle, the foundation has been laid for a comprehensive gender-transformative approach. The observed improvements in access to economic training, safe participation in consultation processes, and engagement with government water and health services indicate emerging net positive impacts on women’s well-being. These early signs will be strengthened through continued monitoring with disaggregated data, and increased integration of gender-responsive measures in all aspects of the Project.

4.4.4 Benefit Sharing Mechanisms (CCB, GL2.6)

Described in Section 2.5.6 above.

4.4.5 Governance and Implementation Structures (CCB, GL2.8)

The Project utilizes a multi-tiered and inclusive governance structure that ensures the full and effective participation of community members in decision-making and implementation of project activities concerning local communities. This structure integrates both project-led and community-based mechanisms to promote inclusive dialogue, transparency, and responsiveness across all levels of engagement (Figure 22).

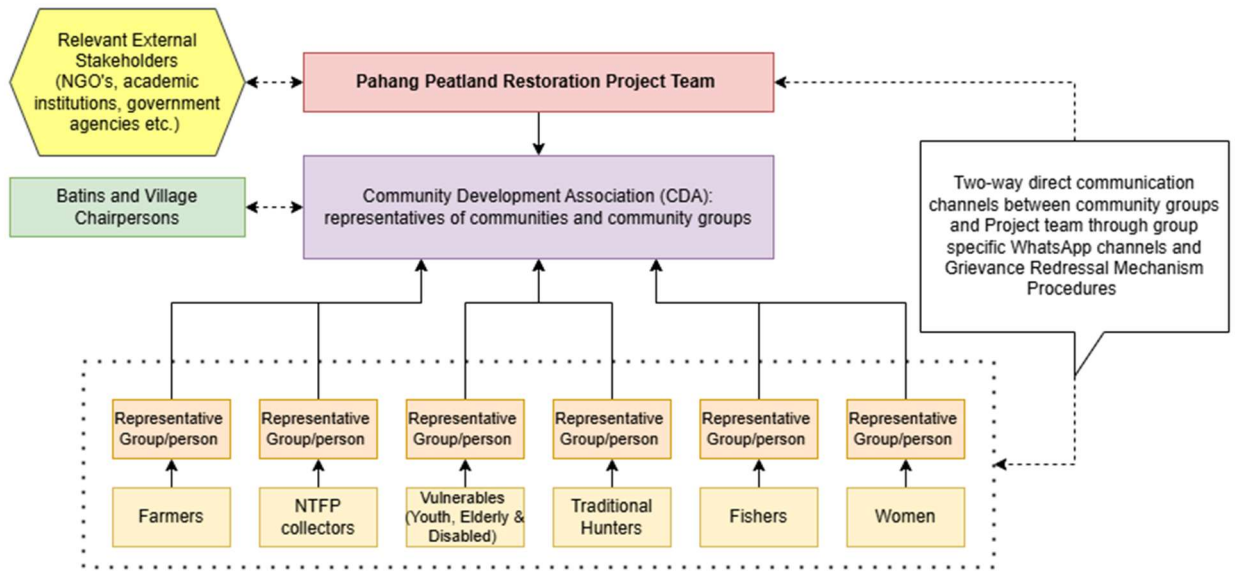


Figure 22: Integrated Project-Community Governance Structure

A dedicated Community Development Unit is responsible for facilitating community engagement and participatory approaches. The unit works closely with village-level stakeholders through the CDA, which comprises representatives from each Project Zone community and community group, serving as a key platform for aggregating and integrating local perspectives into Project planning and execution. Village leaders and chairpersons provide a critical link between formal village governance structures and the Project, ensuring alignment with customary systems and facilitating effective

communication and coordination. The CDA structure enables representation of each community group, including:

- Farmers
- NTFP collectors
- Traditional hunters
- Fishers
- Women
- Vulnerable groups (youth, elderly, and people with disabilities)

Each group is represented by a designated group representative, who participates actively in CDA meetings and collaborates with Project staff from the Community Development Unit to relay group-specific priorities, concerns, and feedback.

The concept of a CDA was communicated to some community members for feedback. It will be implemented in mid-2025.

To enhance participatory governance and grievance resolution, the Project has established direct two-way communication channels, such as group-specific WhatsApp platforms and a clearly defined GRM process, to ensure timely feedback, transparent decision-making, and responsive issue resolution. In addition, the Project engages external stakeholders—such as NGOs, academic institutions, advocacy groups, and government agencies—in advisory and collaborative roles to support knowledge exchange and alignment with broader development objectives. This governance framework is designed to empower local communities—especially marginalized and vulnerable groups—by recognizing existing self-governance systems and enabling their active involvement in shaping Project outcomes.

4.4.6 Smallholders/Community Members Capacity Development (CCB, GL2.9)

During the monitoring period (February 2024 – January 2025), the Project made significant progress in laying the foundation for long-term community capacity development, with a focus on smallholders, Indigenous *Jakun* communities, and local organizations. These efforts aim to ensure inclusive, informed, and sustained community participation in project design, implementation, and management.

Progress During the Monitoring Period

Although full-scale training programs will commence in the following year, the Project carried out several preparatory and enabling actions to support future capacity-building, including:

- Initial community scoping and dialogue sessions across 16 villages to assess capacity development needs and preferences.
- Social baseline data collection to identify knowledge gaps, skill levels, and training priorities for various demographic groups (e.g., women, youth, elderly, persons with disabilities).
- Formation of early-stage CDA roles within participating villages, with capacity development planning underway for the full CDA structure (to be formalized in mid-2025).

These foundational activities were instrumental in ensuring that future programs will be co-designed with communities, context-sensitive, and tailored to their expressed needs and priorities.

Planned Capacity Development Activities (Post-Monitoring Period 1)

The following training programs were identified through community engagement during the monitoring period and are scheduled for co-design and implementation in 2025:

- Environmental education workshops on forest conservation, biodiversity conservation, and climate change, starting in September 2025.
- Civic leadership and organizational development, particularly targeting CDA members and village-level committees, to be launched following CDA formation in June 2025.
- Youth environmental and entrepreneurship programs, including leadership development and sports-based engagement, scheduled to begin in August 2025.

Other programs that have been discussed but not yet formally co-designed with communities include:

- Sustainable livelihood training (e.g., agroforestry, eco-tourism, NTFP processing, and small enterprise development),
- Women-led capacity-building initiatives, focusing on decision-making, household financial planning, and climate-smart practices.

These initiatives will be delivered in partnership with local NGOs, universities, and government agencies, ensuring technical credibility and local relevance. Training will be conducted in local languages and culturally appropriate formats to maximize accessibility and uptake.

Inclusive and Adaptive Implementation

Special attention is being given to ensure inclusive participation across demographic groups, including:

- Women, youth, and elders,
- People with disabilities, and
- Customary rights holders.

The Project's iterative and participatory approach includes:

- Ongoing community feedback loops (see Section 4.3.1),
- Annual evaluation of training effectiveness, and
- Continuous refinement of capacity-building methods based on local input and field learning.

In summary, while the primary training programs will launch in 2025, the Project made strong progress during the monitoring period by:

- Engaging communities in identifying training needs,
- Establishing enabling structures (e.g., CDA), and

- Ensuring that future programs are grounded in local priorities.

These efforts reflect a long-term commitment to empower smallholders and Indigenous communities with the knowledge, skills, and leadership capacity to meaningfully participate in and eventually steward the Project and its associated benefits.

5 BIODIVERSITY

5.1 Net Positive Biodiversity Impacts

5.1.1 Biodiversity Changes (VCS, 3.19; CCB, B2.1)

The PPRP landscape safeguards one of the largest contiguous peat swamp forests in Peninsular Malaysia and is recognized as an Important Bird and Biodiversity Area (IBA MY018) and Key Biodiversity Area (KBA Site ID 16040). It represents the last stronghold for many peatland-dependent species.

Prior to project implementation, a rapid assessment was conducted from 2022-2023, under tight constraints, limited resources, flooding, illegal activities, technical challenges, and inexperienced site selection. Although not comprehensive, it still recorded key Rare, Threatened, and Endangered (RTE) species such as the Raffles’ Banded Langur (*Presbytis femoralis*) and Hairy-nosed Otter (*Lutra sumatrana*), highlighting the ecological importance and urgency of conservation action. Without this project, up-to-date biodiversity data would remain unavailable due to the inaccessibility of peatlands and previous logging activities. The last known comprehensive information dated back to 2008.

With the launch of the Project, a systematic monitoring system has been implemented, including camera trapping, visual encounter surveys (VES), seasonal bird surveys, and SMART patrols. During the first monitoring period, from 1 February 2024 to 31 January 2025, surveys carried out by the Project’s Biodiversity Unit established the presence of 230 species, including 29 RTE species across the Project Area and Project Zone, providing valuable information on landscape occupancy by different mammals, birds and herpetofauna.

All efforts aim to build a strong, evidence-based information foundation—combining robust ecological methods with recognition of local knowledge and lived experience. This foundation will support the development of a comprehensive, adaptive biodiversity management plan in the coming years, with ongoing refinement and responsiveness based on yearly monitoring results.

Change in Biodiversity	Increased detection and identification of bird species
Monitored Change	<p>Total recorded bird species increased from 141 (Initial Assessment Report, 2022) (IAR) to 186 (monitoring period).</p> <p>Recorded RTE bird species increased from 5 (1 EN, 4 VU) in the IAR to 10 (2 EN, 8 VU) during monitoring period.</p> <p>73 bird species recorded during the monitoring period were not recorded in the IAR, amongst them, 19 species were not previously recorded in this landscape at all.</p> <p>The new recorded species include:</p> <ul style="list-style-type: none"> • Garnet Pitta (<i>Erythropitta granatina</i>) NT • Japanese Sparrowhawk (<i>Accipiter gularis</i>) LC, migratory sp.

	<ul style="list-style-type: none"> • Chinese Sparrowhawk (<i>A. soloensis</i>) LC, migratory sp. • Eastern Marsh Harrier (<i>Circus spilonotus</i>) LC, migratory sp. • Pacific Swift (<i>Apus pacificus</i>) LC, migratory sp. • Arctic Warbler (<i>Phylloscopus borealis</i>) LC, migratory sp. • Yellow Bittern (<i>Ixobrychus sinensis</i>) LC • White-breasted Woodswallow (<i>Artamus leucorhyn</i>) LC • Asian Koel (<i>Eudynamys scolopaceus</i>) LC • White-headed Munia (<i>Lonchura maja</i>) LC • Black-headed Munia (<i>Lonchura malacca</i>) LC • Gold-whiskered Barbet (<i>Psilopogon chrysopogon</i>) LC • Indochinese Blue-flycatcher (<i>Cyornis sumatrensis</i>) LC • Horsfield's Babbler (<i>Malacocincla sepiaria</i>) LC • Quail spp. (<i>Coturnix spp.</i>) LC • Common Flameback (<i>Dinopium javanense</i>) LC • Bar-winged Flycatcher-shrike (<i>Hemipus picatus</i>) LC • Stripe-throated Bulbul (<i>Pycnonotus finlaysoni</i>) LC • Germain's Swiftlet (<i>Aerodramus germani</i>) LC
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Justification of change	<p>During the monitoring period, efforts were more systematic, with increased coverage across both dry and wet/migratory seasons, surveys conducted in the morning and evening, and the establishment of 11 fixed point count transects, each consisting of 10 count points. These surveys were carried out across microhabitats in three different forest strata (good forest, non- forest, and degraded forest) and along the two main rivers, enhancing temporal and spatial coverage and resulting in the detection of more bird species.</p>
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Change in Biodiversity	<p>Detection and identification of previously unrecorded mammal species</p>												
Monitored Change	<p>During this monitoring period, 32 mammal species were recorded, which is a slight increase from the 30 species recorded in the IAR. The total number of mammals RTE species also increased from 13 in the IAR to 16 in this monitoring period, with the breakdown as follows:</p> <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th></th> <th>IAR (2022)</th> <th>Monitoring Period</th> </tr> </thead> <tbody> <tr> <td>CR species</td> <td>1</td> <td>2*</td> </tr> <tr> <td>EN species</td> <td>7</td> <td>7</td> </tr> <tr> <td>VU species</td> <td>5</td> <td>7</td> </tr> </tbody> </table>		IAR (2022)	Monitoring Period	CR species	1	2*	EN species	7	7	VU species	5	7
	IAR (2022)	Monitoring Period											
CR species	1	2*											
EN species	7	7											
VU species	5	7											

	<p>*1 CR species were only detected by signs.</p> <p>Mammal RTE species recorded in both the IAR and this monitoring period:</p> <ul style="list-style-type: none"> • Raffles' Banded Langur (<i>Presbytis femoralis</i>) CR • Common Long-tailed Macaque (<i>Macaca fascicularis</i>) EN • Southern Pig-tailed Macaque (<i>Macaca nemestrina</i>) EN • Dusky Langur (<i>Trachypithecus obscurus</i>) EN • Flat-headed Cat (<i>Prionailurus planiceps</i>) EN • White-handed Gibbon (<i>Hylobates lar</i>) EN • Hairy-nosed Otter (<i>Lutra sumatrana</i>) EN • Malayan Tapir (<i>Tapirus indicus</i>) EN • Leopard (<i>Panthera pardus</i>) VU • Asian Small-clawed Otter (<i>Aonyx cinereus</i>) VU • Smooth-coated Otter (<i>Lutragale perspicillata</i>) VU • Sun Bear (<i>Helarctos malayanus</i>) VU • Bearded Pig (<i>Sus Barbatus</i>) VU <p>Additional three RTE and one Least Concerned mammal species detected during this monitoring period (4 new):</p> <ul style="list-style-type: none"> • Sunda Pangolin (<i>Manis javanica</i>) CR – signs detected during SMART patrol • Binturong (<i>Arctictis binturong</i>) VU – captured by a camera trap • Sambar Deer (<i>Rusa unicolor</i>) VU – captured by a camera trap • Malay Weasel (<i>Mustela nudipes</i>) LC – captured by a camera trap.
Justification of change	<p>The observed changes were achieved through a combination of enhanced monitoring methods, including the addition of camera traps across the entire Project Area and Project Zone. Compared to the IAR where only 24 camera traps were deployed, 49 effectively functioning camera traps were deployed during this monitoring period. 186,605 photos and video clips were captured; of which 15,213 captured animals identifiable to the species level, with some identifiable to the genus level. Additional improvements included better site and landscape selection (avoiding areas disturbed by flooding), expanded survey coverage, improved time allocation, and complementary observations during SMART patrols and bird surveys.</p>
Change in Biodiversity	Floral and faunal prevalence

Monitored Change	Based on the results of biodiversity identification in the PPRP Project Area, 230 species of fauna were recorded during the monitoring period. The fauna consists of: <ul style="list-style-type: none"> • 32 mammal species • 186 bird species • 12 herpetofauna species
Justification of change	During the monitoring period, we only focus on mammal and bird diversity monitoring. A total of 3,152 km of SMART Patrol was conducted. For more details, refer to Section 5.3.1.1.
Change in Biodiversity	Maintenance of intact peatland ecosystems
Monitored Change	During the monitoring period, 3,449 ha of forest would be logged in the without-project scenario (see Section 3.2.1.2.2 of the PDD). Under the project scenario, commercial logging and the associated road and drainage were avoided, maintaining the integrity of the peat ecosystems. In addition, 74 canal blocks were constructed (see Section 3.1.3.5.3), rewetting and restoring the peatland ecosystem.
Justification of change	The satellite monitoring and ground patrol undertaken during the monitoring period ensured no forest conversion took place within the initial Project Area.

5.1.2 Mitigation Actions (VCS, 3.19; CCB, B2.3)

To maintain or enhance HCV attributes, the Project implemented a range of proactive measures during the monitoring period, including:

- Halting commercial logging and actively protecting project areas to secure critical habitats needed for species survival.
- 74 canal blocks were constructed to rewet degraded peatlands, which restored hydrology, reduced peat oxidation and fire risk, and supported peat swamp biodiversity.
- 4,547 km of SMART patrols were conducted by the Forest Protection and Biodiversity units consisting of 18 permanent employees, which prevent illegal hunting, encroachment, and open burning. All infractions are reported to enforcement agencies.
- Two project outposts were built at the popular access points to the Project Area, establishing social fencing for the protection of ecosystems while not restricting access of the Indigenous people to the traditional use of forest resources.
- An early warning system centered around a satellite hotspot monitoring and alert system was established, along with community-based fire monitoring and public-private collaboration in fire management. A project fireteam (FERT), comprising 20 local community members were

employed, trained, and equipped to strengthen early fire detection and suppression, to prevent spreading of fire into HCV areas.

- Top-down and bottom-up engagement, involving government agencies (e.g., PERHILITAN, JPNN, JAS, JPS), local communities, and neighboring plantations was carried out to align biodiversity goals through multi-stakeholder input and cooperation, particularly on fire prevention, addressing illegal activities and promoting conservation activities.
- Monitoring using 49 camera traps, 11 fixed point count bird transects, and visual encounter surveys to assess wildlife presence, habitat health, and detect emerging threats.
- Knowledge integration by combining scientific methods with traditional ecological knowledge and on-the-ground experiences shared by indigenous communities.
- Awareness campaigns on fire prevention, environmental and wildlife conservation and wildlife protection knowledge were delivered with the local communities (see Section 4.3).

The Project does not prohibit the local indigenous communities from entry to the HCV areas for traditional resource collection and other cultural uses, providing these activities are consistent with national laws (e.g., Wildlife Conservation Act 2010, National Forestry Act 1984).

All project activities are guided by the precautionary principle, ensuring that HCV 1 (concentrations of biodiversity), HCV 2 (large landscape-level habitats) and HCV 3 (rare, threatened ecosystems and habitats) are fully safeguarded and enhanced under project management.

5.1.3 Net Positive Biodiversity Impacts (VCS, 3.19; CCB, B2.2, GL1.4)

Project interventions—such as peatland rewetting, fire prevention, and reduced forest encroachment—have helped stabilize key ecosystems. New RTE species sightings were recorded in locations where they had not previously been observed. The interplay between semi-aquatic, arboreal, avian, and terrestrial species demonstrates the ecological integrity of the project area. The project’s interventions not only protect individual species but also restore entire ecological networks, enhancing connectivity across the five main peat domes (Pekan East, Pekan West, Kedondong, Nenasi, Resak). The prevention of new disturbances ensures that these ecosystems continue to function as a cohesive whole, leading to measurable net positive biodiversity impacts.

Species and habitat

Semi-Aquatic Species and Peatland Water Ecosystems

Peat swamp forests and their extensive canal systems within the Project Area form a critical aquatic and semi-aquatic ecosystem that sustains a diverse assemblage of wetland-dependent species. These habitats, characterized by slow-moving blackwater streams, flooded forest floors, and canal blocks, provide essential feeding and breeding grounds for reptiles, amphibians, fish, waterbirds, and top predators. The project’s hydrological restoration—through peatland rewetting, blocking of drainage canals, and peat conservation through fire prevention—has stabilized water levels and enhanced the ecological functions of these wetlands.

Endangered species such as the Hairy-nosed Otter, Flat-headed Cat, Malayan Box Turtle, and Spiny Turtle, as well as Vulnerable species including the Asian Small-

	<p>clawed Otter and Smooth-coated Otter, are strongly reliant on these aquatic habitats. The monitoring period recorded a new detection of the hairy-nosed otter in the central peatland, indicating range expansion and possibly a growing population. Canal blocks created fish-rich environments that attracted otters and other wetland predators, supporting the food web.</p>
Species and habitat	<p>Arboreal Species in Peat Swamp Forest Canopies</p> <p>The arboreal layer of peat swamp forests <i>within the Project Area, provides critical habitat for primates and other tree-dwelling fauna. The Project Area’s protection of mature forest stands and prevention of further fragmentation have maintained habitat connectivity essential for these species.</i></p> <p>The Critically Endangered Raffles’ <i>Banded Langur, once thought to be restricted to riparian forests, was observed across the Project Area and beyond its boundaries during this monitoring period. Camera traps revealed ground-use behavior at multiple sites, expanding understanding of this species’ ecology. Other primates such as the White-handed Gibbon, Dusky Langur, Southern pig-tailed Macaque, and Common Long-tailed Macaque, all classified as Endangered, also benefit from intact canopy structure. These species serve as seed dispersers, contributing to forest regeneration.</i></p> <p>Besides the primates, the Vulnerable Binturong and Leopard also rely on the canopy, utilizes the forest structure for foraging and resting. Preservation of vertical forest complexity is crucial to their survival.</p>
Species and habitat	<p>Avian Species and the Integrity of Forest Structure</p> <p>Birds play an essential role in the peat swamp ecosystem, contributing to seed dispersal, pollination, and insect population control. The project safeguards large cavity-bearing trees, ensuring nesting sites for hornbills and other cavity-dependent species.</p> <p>During this monitoring period, the Endangered Wrinkled Hornbill was widely detected, with increased sightings during the monsoon season. Other hornbill species—Rhinoceros Hornbill, Great Hornbill, Wreathed Hornbill, and Black Hornbill—were also present, alongside Vulnerable birds like the Greater Green Leafbird, Wallace’s Hawk-eagle, Cinnamon-headed Green Pigeon, and Great Slaty Woodpecker. Their continued presence indicates that the forest structure remains intact and supports a healthy avian community.</p>
Species and habitat	<p>Terrestrial Species and Forest Floor Integrity</p> <p>The forest floor and understorey vegetation of peat swamp forests provide habitat for numerous terrestrial species that depend on dense cover, open pathways, and access to food resources. Project interventions—halting deforestation, preventing fires, and rehabilitating degraded areas—have safeguarded these ground-level habitats, supporting species that require large home ranges and safe corridors.</p>

The Endangered Malayan Tapir continues to utilize restored areas and benefits from reconnected habitat patches. The Vulnerable Sun Bear, Bearded Pig, and Sambar deer also thrive in these environments, contributing to seed dispersal and forest regeneration. The Leopard, while also using trees, is a key terrestrial predator that requires intact ground habitats for hunting. Together, these terrestrial species illustrate how the project's conservation measures strengthen ecosystem processes at multiple levels.

Climate Change Adaptation Benefits for Biodiversity

During the present monitoring period, the Project implemented key activities that enhanced the capacity of biodiversity to adapt to climate change impacts, such as increased temperatures, prolonged dry spells, shifting rainfall patterns, and habitat degradation.

The construction of 74 canal blocks helped re-saturate degraded peatlands, maintaining cooler microclimates and improving ecosystem moisture levels—critical for buffering sensitive peat swamp species against fire and drought stress. By raising the water table, the Project reduced the risk of peat collapse and preserved habitat integrity for species such as the Sunda pangolin, Storm's stork, and other peatland specialists.

Additionally, the Project's fire prevention efforts, including ten successful fire suppression operations, directly protected high-biodiversity areas from the destructive effects of repeated burning, which depletes forest structure and reduces food availability for fauna.

Biodiversity monitoring via camera traps and point-count surveys was used to identify species presence and assess the impact of ecological restoration. This data informs adaptive management, allowing the Project to prioritize areas most at risk from climate-related stressors and ensure ecological corridors remain functional.

Through hydrological recovery, fire prevention, and continuous monitoring, the Project has strengthened the ecological resilience of the peat swamp forest and improved the ability of biodiversity to persist, recover, and adapt under changing climate conditions, meeting Gold Level for climate change adaptation benefits.

5.1.4 High Conservation Values Protected (CCB, B2.4)

No HCVs related to biodiversity in the Project Area and Project Zone (as identified in Section 5.1.2 of the PDD) were negatively affected by project implementation during the monitoring period. On the contrary, the Project has strengthened the identification, protection, and enhancement of these values through systematic biodiversity monitoring, habitat restoration, and stakeholder collaboration.

Key evidence include:

- **Healthy biodiversity confirmed (HCV 1):** The first monitoring results recorded 29 RTE species, demonstrating that HCV1 within Project Area and Project Zone remains intact and continues to support species of high global conservation significance. See Figure xxx.

- Forest and habitat protected (HCV 1 and 2): The cessation of logging and preservation of standing forest safeguard critical habitats, including large trees required by Raffles' Banded Langur (*Presbytis femoralis*) (CR) and Wrinkled Hornbill (*Rhabdotorrhinus corrugatus*) (EN), and also the peat swamp ecosystems for the wetland species such as Ramin Melawis (*Gonystylus bancanus*) (CR), Meranti Paya (*Rubroshorea platycarpa*) (CR), and Hairy-nosed Otter (*Lutra sumatrana*) (EN).
- Peat swamp forest ecosystem protected (HCV 3): Canal blocking activities undertaken during the monitoring period serve to maintain water levels and restore peatland hydrology (see Table 5), reduce fire risk, and protect the ecological integrity of the peat swamp forest—an ecosystem classified as rare and threatened globally.

5.1.5 Species Used (VCS, 3.19; CCB, B2.5, 2.6)

During the present monitoring period, no planting or species introduction activities were carried out within the UPA. As such, no adverse effects from species introduction were observed or required mitigation during this period.

Preparatory work was conducted to ensure that future planting activities scheduled to begin in August 2025 are ecologically appropriate and risk-free. The Project finalized a list of native and naturalized species suitable for peat swamp forest restoration, taking into account:

- Hydrological and soil conditions across potential planting sites,
- Ecological function and compatibility with surrounding vegetation,
- Community input and traditional knowledge, especially regarding culturally or economically important species.

Key commitments confirmed during the monitoring period include:

- No non-native or invasive species will be introduced in the Project accounting area.
- No monoculture planting will occur, species will be planted in mixed assemblages reflecting natural forest composition and structure.
- Species selection will be site-specific and guided by restoration objectives, including biodiversity enhancement and peatland stabilization.

A full species list is provided in the table below (see Table 28). The Project continues to apply a precautionary approach, and monitoring mechanisms are being developed to detect and respond to any unforeseen ecological impacts once planting begins. Planting is scheduled to commence during the second monitoring period.

Table 29: Species to be Planted for Reforestation.

Species to be planted	Common name	Jakun name	Classification	Justification for use	Adverse effects and mitigation	Status
<i>Alstonia pneumatophore</i>	Pulai	Pulai	Native	Well-adapted to floodplains and waterlogged soils. Bark used in traditional medicine.	No adverse effects	Not planted
<i>Calophyllum ferrugineum</i>	Bintangor gambut	Serah	Native	Tolerate monsoon-flooded forest conditions.	No adverse effects	Not planted
<i>Cratoxylon arborescens</i>	Bintangor jangkang	Bintangor jangkang	Native	Sun-tolerant, slow growing tree. Ecologically, it supports wildlife by offering habitat and food.	No adverse effects	Not planted
<i>Cyrtophyllum fragnans</i>	Tembusu	Tembusu	Native	Grows in freshwater-swamp forests, found in association with <i>Melaleuca</i> spp. Also occurs naturally as a pioneer in burnt-over areas and 'lalang' grassland. Fruits eaten by wild animals.	No adverse effects	Not planted
<i>Dialium indum</i>	Keranji	Kuran	Native	Moderately fast-growing and, once established, shows strong drought tolerance. It is highly resistant to strong winds.	No adverse effects	Not planted
<i>Dillenia reciculata</i>	Simpoh gajah	Simpoh	Native	Grows on alluvial sites with sandy to clayey soils and in wet conditions.	No adverse effects	Not planted
<i>Diospyros maingayi</i>	Kayu arang	Arang	Native	Suited to swampy areas with poor, sandy soils, making it ideal for reforestation on degraded sites.	No adverse effects	Not planted
<i>Durio carinatus</i>	Durian paya	Kasing	Native	Suitable to grow in swamp forests. Fruits eaten by wild animals.	No adverse effects	Not planted

Species to be planted	Common name	Jakun name	Classification	Justification for use	Adverse effects and mitigation	Status
<i>Elaeocarpus griffithii</i>	Mendung	Dermung	Native	An understory tree growing in peat swamp forests along the sides of rivers. Traditionally used for medicinal purposes and furniture making.	No adverse effects	Not planted
<i>Euodia Redleyi/ Rutaceae</i>	Tenggek burung	Engger burung	Native	Suitable to grow in swamp forests. Serves as a habitat for birds.	No adverse effects	Not planted
<i>Fagraea auriculata Jack</i>	Tembusu laut	Tembesu	Native	Fast-growing native species found in lowland tropical and peat swamp forests, valued for its ecological role in supporting wildlife and its cultural significance to indigenous communities.	No adverse effects	Not planted
<i>Ficus benjamina/ Ficus racemosa</i>	Ara	Ara	Native	Tolerate poor growing conditions. It can tolerate considerable shade but can grow best in bright, sunny conditions. Fruits eaten by wild animals.	No adverse effects	Not planted
<i>Gonystylus bancanus</i>	Ramin	Ramin	Native	Peat swamp specialist; endangered; prefers undisturbed swamp forests.	No adverse effects	Not planted
<i>Koompasia malaccensis</i>	Kempas	Kempas	Native	Grows in freshwater peat-swamp forests. Often harvested from the wild for timber.	No adverse effects	Not planted
<i>Macaranga tanarius/ Macaranga pruinosa/ Macaranga triloba</i>	Mahang	Mohong	Native	Fast growing pioneer species. Provides shading canopy for slow grower species. Used in construction and traditional medicine.	No adverse effects	Not planted

Species to be planted	Common name	Jakun name	Classification	Justification for use	Adverse effects and mitigation	Status
<i>Madhuca motleyana</i>	Nyato ketiau	Ketiau	Native	Grows in peat or mixed swamps, also on poor sandy soils. Fruits eaten by wild animals.	No adverse effects	Not planted
<i>Melaleuca leucadendra</i>	Gelam	Gelam	Native	Grows in forests near the edges of rivers and streams on a range of soils. Used in traditional medicine.	No adverse effects	Not planted
<i>Nephelium maingayi</i>	Rambutan hutan	Redan	Native	Suited to lowland forests and riparian habitats. Fruits eaten by wild animals.	No adverse effects	Not planted
<i>Sandoricum beccarianum</i>	Sentul	Ketapi kera	Native	Grows in peat swamps and riverine environments. Fruits are edible by animals.	No adverse effects	Not planted
<i>Shorea platycarpa</i>	Meranti	Meranti	Native	Endangered; suitable to swamp forest environments. Overexploited for timber.	No adverse effects	Not planted
<i>Stemonurus secundiflorus</i>	Sampul keris	Bongkok	Native	Native to peat swamp and riparian environments.	No adverse effects	Not planted
<i>Syzygium</i>	Kelat	Kelat	Native	Tolerant to wet soil; found in riparian and peat swamp environments. Fruits are eaten by animals.	No adverse effects	Not planted
<i>Xylopia malayana</i>	Jangkang	Jangkang	Native	Flowers attract pollinators and wildlife feeds on its fruit.	No adverse effects	Not planted

5.1.6 Invasive Species (VCS, 3.19; CCB, B2.5)

Existing invasive species	Mitigation measures to prevent the spread or continued existence of invasive species
<i>Acacia mangium</i>	<ul style="list-style-type: none"> • Areas with <i>Acacia</i> sp. were mapped to facilitate the formulation of a management and monitoring plan (see Table 30 Biodiversity Impact Monitoring and Figure 24). • The Project used hydrological restoration as a precursor to planting with local peatland species. • Areas with <i>Acacia</i> presence are prioritized for rewetting through canal blocking and hydrological rehabilitation. The return of natural water table levels and acidic swamp conditions will create an unfavorable environment for <i>Acacia</i> regeneration and gradually suppresses its persistence.

5.1.7 GMO Exclusion (CCB, B2.7)

The Project strictly adheres to the Verra CCB Standards, which prohibits the use of genetically modified organisms (GMOs) for project activities generating emissions reductions or removals.

No genetically modified species were introduced, cultivated, or utilized in any project activities.

All habitat restoration, biodiversity conservation, and forest protection activities under PRRP employed natural regeneration, and only using native species for replanting.

5.1.8 Inputs Justification (VCS, 3.19; CCB, B2.8)

No inputs such as fertilizers, chemical pesticides, or biological control agents were used.

5.2 Offsite Biodiversity Impacts

5.2.1 Negative Offsite Biodiversity Impacts (CCB, B3.1) and Mitigation Actions (CCB, B3.2)

Negative Offsite Impact	Mitigation Measure(s)
None observed during the monitoring period.	Not applicable, as no negative impacts were identified.

5.2.2 Net Offsite Biodiversity Benefits (VCS, 3.19; CCB, B3.3)

No negative biodiversity impacts were recorded during the monitoring period. Project activities did not displace threats or cause biodiversity loss in surrounding areas. On the contrary, multiple biodiversity co-benefits were observed both within and beyond the project boundary.

Wildlife movement across boundaries—particularly through the buffer zone into adjacent landscapes—was documented through field observations and camera trap records. Notably, RTE species such as the Hairy-nosed Otter (*Lutra sumatrana*), Wrinkled Hornbill (*Rhabdotorrhinus corrugatus*), and Raffles' Banded Langur (*Presbytis femoralis*) were recorded along canals and forest margins near the boundary of UPA. The langur was even captured by camera traps outside the PRF, within local village areas suggesting a potential positive spillover effect into neighboring landscapes.

Community members have actively engaged in wildlife conservation and monitoring. In one instance, villagers requested the Project to install camera traps in orchards and village areas following suspected tiger presence. This reflects growing awareness, acceptance, and support for the Project, and strengthens collaborative biodiversity monitoring across the landscape.

These findings indicate that improved habitat conditions within the Project Zone have contributed to greater ecological connectivity and species conservation at the regional scale. Given the absence of unmitigated negative offsite impacts and the observed biodiversity gains, the PPRP's net impact on biodiversity both within and beyond its project boundaries is demonstrably positive.

5.3 Biodiversity Impact Monitoring

5.3.1 Biodiversity Monitoring Plan (CCB, B4.1, B4.2, GL1.4, GL3.4)

Table 30 sets out the results from the present reporting period against the biodiversity monitoring plan.

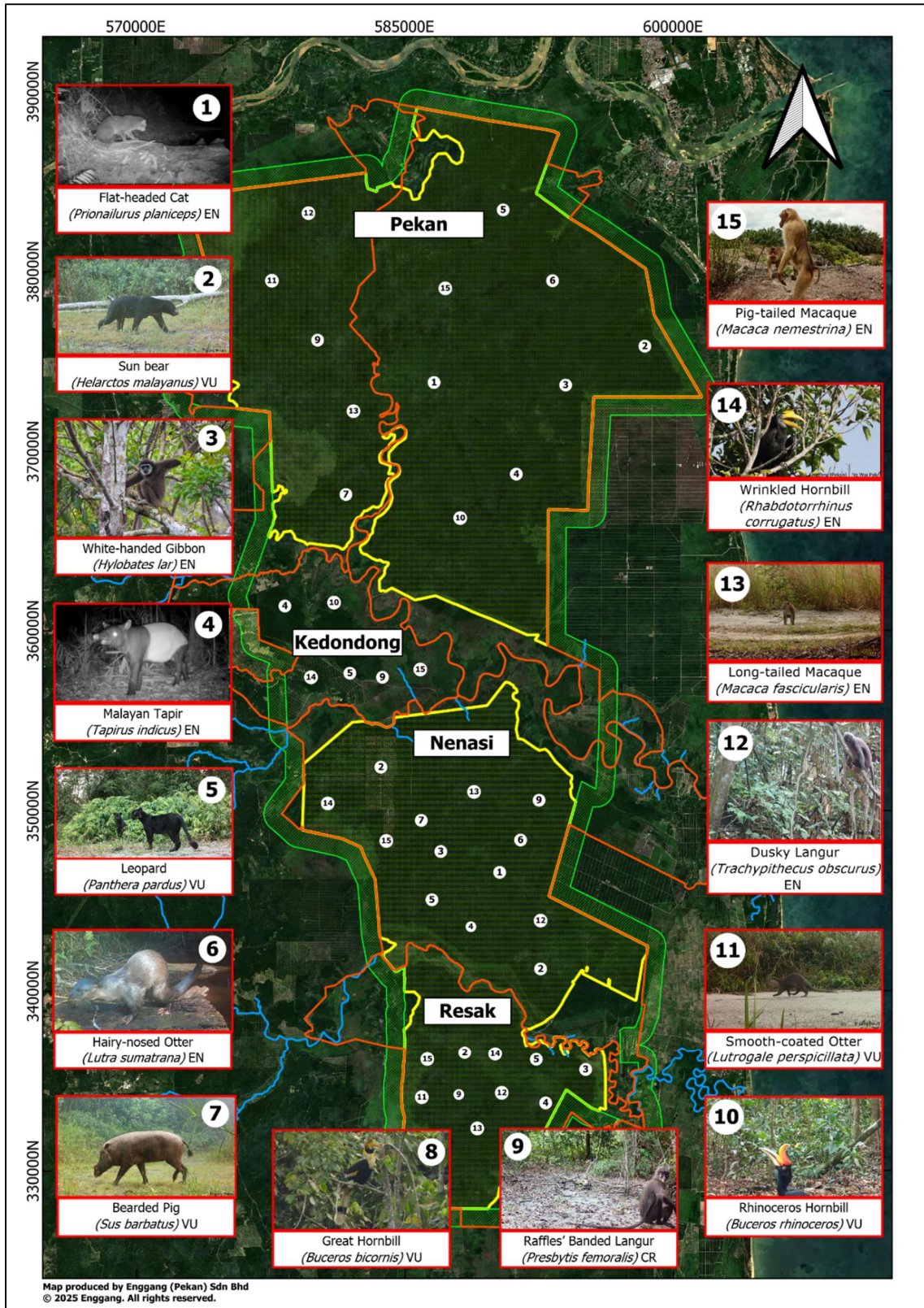


Figure 23: Selected RTE Species Recorded in Forest Reserve (Feb 2024 – Jan 2025, MR1)

Table 30: Biodiversity Impact Monitoring Results for the First Monitoring Period (February 2024 – January 2025)

Outcome 1: Monitoring of Endangered Species						
Outcome 1.1: Endangered species monitoring system in place						
Program	Indicator	First year target	Data collection method	Means of verification	Monitoring frequency	Results from First Monitoring Period (February 2024-January 2025)
Long-term monitoring of presence of endangered fauna RTE species e.g., Raffles' Banded Langur (RBL)	Number of locations with species encountered Number of species/ Abundance/ distribution/ occupancy	Baseline data collected on abundance and distribution of endangered species	Camera traps / field surveys / Visual Encounter Survey (VES) / bio-acoustic devices / eDNA approach / SMART Patrol	Checklist of the RTE species for mammals and birds Distribution maps of the observed biodiversity SMART Patrol report	Monitoring Report: Annually Camera trapping: non-monsoon season, annually Bird diversity survey: hot and wet season, annually Fish diversity: ad hoc, annually SMART Patrol: weekly	<p>Total species recorded combined methods: 230:</p> <ul style="list-style-type: none"> Mammals: 32 species (2 CR, 7 EN, 7 VU, 3 NT, 13 LC), Birds: 186 species (2 EN, 8 VU, 27 NT, 147 LC, 2 N/A), Amphibian: 1 species (1 LC), Reptiles: 11 species (2 EN, 1 VU, 8 LC) <p>Camera trapping effort:</p> <ul style="list-style-type: none"> 62 stations deployed, 49 camera traps captured usable images with a total of 6,277 camera trap-nights. Total images/videos recorded: 186,605; with 15,213 files containing identifiable wildlife including mammals, birds, and reptiles. <p>Bird diversity survey using the point count method at 11 fixed transects with 10 points each, conducted during both the drier and wetter/migratory seasons. 186 bird species were recorded, with:</p> <ul style="list-style-type: none"> 4,213 individual birds counted during the wetter / migratory season and 3,254 individuals during the drier / non-monsoon period.

Outcome 1: Monitoring of Endangered Species

Outcome 1.1: Endangered species monitoring system in place

Program	Indicator	First year target	Data collection method	Means of verification	Monitoring frequency	Results from First Monitoring Period (February 2024-January 2025)
						<p>SMART Patrols conducted weekly accumulated 268 patrols. Distance covered: 4,547 km by boat, on foot, and vehicle; observations were compiled as well as monthly and annual reports.</p> <p>Bioacoustics and eDNA approaches have not yet been implemented; however, consultations with expert groups from conservation NGOs and universities have been conducted to develop the survey design, SOPs, device selection, and staff training. Proper monitoring using these methods is planned to commence in 2nd monitoring period.</p>
Long-term monitoring of presence of flora RTE species	<p>Number of locations with species encountered</p> <p>Number of species</p> <p>Abundance and occupancy</p>	Baseline data collected on abundance and occupancy of endangered flora species	Field surveys / SMART Patrol/ permanent vegetation monitoring plots	Biodiversity monitoring report (distribution map, pictures, species list, SMART Patrol analysis)	Tree Survey: every 5 years	<p>No results for this monitoring period.</p> <p>Field surveys through permanent vegetation monitoring plots will be established in 2nd monitoring period.</p>
Establish and strengthen stakeholder collaboration for the protection of endangered species	<p>Number of communities engaged</p> <p>Number of stakeholders consulted</p>	<p>Conduct awareness program / meeting</p> <p>Deliver stakeholder</p>	Meetings and discussions, field surveys, socialization events and training	Reports on activity and engagement / attendance records	Annually	Community engagement: 13 consultation programs with indigenous communities (1,196 people attended) by introducing the key RTE species, wildlife laws, and indigenous rights to use natural resources.

Outcome 1: Monitoring of Endangered Species

Outcome 1.1: Endangered species monitoring system in place

Program	Indicator	First year target	Data collection method	Means of verification	Monitoring frequency	Results from First Monitoring Period (February 2024-January 2025)
	Number of meetings / related activities held	outreach event on biodiversity conservation				<p>Stakeholder meetings: Two meetings held with neighboring oil palm plantations.</p> <p>Public awareness: Participation in the 2024 World Wetlands Day celebration at Pekan organized by the Pahang Biodiversity Council (MBP) with estimated at 300 participants.</p> <p>Fire Prevention: Participation in a peatland fire prevention awareness program co-organized with JPNP, SMPPEM, JAS, BOMBA, and others, held at Jong (64 individuals in attendance), Selinkong (130), Landai (118), Sg. Kalong (39), Arong (117), Runchang (38), and Simpai (132), with a total of 638 participants.</p>

Outcome 2: Ensure Ecosystem and Habitat Integrity

Outcome 2.1: Protected forest area and habitats

Program	Indicator	First year target	Data collection method	Means of verification	Monitoring frequency	Results in First Monitoring Period (February 2024-January 2025)
Remote forest cover monitoring and detection of fire and deforestation	Net forest change (gain vs. loss) Land cover classification	Assess forest cover at start date	Remote sensing (i.e. satellite / drone monitoring)	Report on number of hotspots and forest cover changes	Post-event and/or annually	Assessments of forest cover (see also Section 3.2.1.1.1 PDD) and potential threats—including encroachment, fire, illegal logging, and land use conversion— have been identified to inform future monitoring and management actions.

	<p>Fire burnt scar area</p> <p>Number of fire hotspots</p>	<p>Assess land use changes in the Project Area and Zone</p> <p>Establish monitoring system</p>	<p>and ground surveys</p>	<p>Fire and deforestation report</p> <p>Loss events and reversal report</p>		<p>Land use changes within the Project Area and Zone have been successfully assessed and documented (i.e., mapped) as part of the project's baseline analysis.</p> <p>A satellite-based fire hotspot and deforestation monitoring website has been fully established and is currently operational. Key personnel receive daily alerts via email and Telegram to support rapid response and decision-making.</p> <p>Information on fire hotspots and actions were shared with stakeholders such as JAS, JPNN, JPS, BOMBA, NGOs, and the adjacent plantation managers via a WhatsApp Group with a total of 70 group members.</p> <p>The digital platform, known as the PPRP Monitoring System, can be accessed at: https://pprp.com.my.</p>
Monitoring of threats	<p>Illegal activity such as illegal logging detected, and alerts sent to operations team</p>	<p>Identify hotspots and frequency of illegal activity based on historical records and community inputs</p> <p>Conduct preliminary survey on poaching, illegal NTFP collection, and illegal logging</p>	<p>SMART Patrolling, Field surveys</p>	<p>SMART Patrol and survey reports</p>	<p>Monthly</p>	<p>Total human activity observations: 118 recorded by Forest Protection and Biodiversity units.</p> <p>Most frequent observations: human signs, followed by weapons/equipment, and fire incidents</p> <p>Hunting evidence: 9 snare structures and 1 box trap detected in and around the project area</p> <p>Fire incidents: recorded and reported to the FERT for action</p> <p>Illegal activities: informed and reported to PERHILTIAN and JPNN</p>

		Implementation of SMART patrols				4,547km was covered by 268 SMART patrols, SMART patrols have been implemented as an initial measure to address poaching activities, with a focus on enhancing monitoring and reporting mechanisms to relevant authorities
Habitat restoration and improvement of species diversity	Area of degraded peat swamp restored to functional habitat	Areas for restoration identified	Field verification: 1. Vegetation cover 2. Survival rate 3. Number / mapping restored areas	Field verification reports / biodiversity monitoring reports / reforestation report	Annually	Restoration plan initiated, methodology designed, and species to replant identified, nursery site and care takers identified.
Rewetting activities	Number of functional canal blocks installed and maintained	Rewetting activities (e.g., canal blocking) planned Install at least 44 canal blocks in priority sites	Field verification: installation records, GPS coordinates, water table measurements	Field verification report, biodiversity monitoring report, hydrological monitoring logs	Monthly	74 canal blocks installed: 63 in Tanjung Medang, 7 in YP, 2 in Resak and 2 in Jemeri Rewetting activities, such as canal blocking, have been planned and implemented as part of peatland restoration efforts (WRC activity). Additional sites identified for future installation to improve water retention and reduce fire risk.
Species richness and diversity monitoring in rewetted areas	Measured change in species richness and diversity (e.g., Shannon-Wiener index) in rewetted vs. non-rewetted areas	Establish baseline species richness and initiate monitoring of biodiversity response to rewetting	Biodiversity surveys using VES, camera traps, and vegetation plots in rewetted and control sites	Biodiversity check list, analysis of diversity indices, species trends comparisons, biodiversity monitoring report	Annually (post-rewetting), with follow-up after each major rewetting intervention	Monitoring framework designed, survey sites in rewetted areas identified, and collaborators engaged. Surveys will be implemented in the next monitoring period to assess biodiversity responses to rewetting.
Monitoring of invasive species	Invasive species list and distribution	Regular monitoring and mapping of invasive species across	Field monitoring	Biodiversity monitoring report	Annually	Invasive <i>Acacia</i> species were observed at multiple locations across the Project Area, with certain sites exhibiting notably high density. These areas have been identified and mapped accordingly to support

		the Project Area				<p>future management and mitigation efforts. The affected sector areas include:</p> <ul style="list-style-type: none"> • Tanjung Medang • Simpai • Kiara (Bebar River) • Pulau Lanjut • Palma Valley <p>Intensive monitoring and updated mapping will be conducted in the next monitoring period. For further details, refer to Section 5.2.6 (PDD), 5.1.6 (MR1) and 5.3.1.5 (MR1).</p>
Capacity building for staff on conservation, ecosystems, and habitat integrity in peatland forest	<p>Number of training sessions conducted</p> <p>Total training hours delivered</p>	All relevant staff attend at least one training session during the year	Training attendance logs, training schedule, participant records	Training reports including training assessment	Annually	<p>The 1st internal SMART Patrol training was conducted in February 2024, with 12 staffs trained.</p> <p>A total of 6 training events, including SMART Patrol training, were conducted, with participation by 48 staff members, covering topics such as SMART Patrolling, fire management, biodiversity monitoring, and data reporting.</p>

Outcome 3: Outreach and Awareness

Outcome 3.1: Improved level of knowledge and awareness among stakeholders

Program	Indicator	First year target	Data collection method	Means of verification	Monitoring frequency	Results from First Monitoring Period (February 2024 - January 2025)
Environmental education module	Environmental education module developed and implemented	Development module on wildlife and peatland conservation	<p>Training / education activities</p> <p>Training session</p>	Module booklet, attendance records, program report / training report	Annually	The module is not yet fully developed, but educational activities have started. Awareness talks were conducted in the local languages, supported by peatland models, and wildlife poster, reaching 16 Indigenous communities

	Community trainers trained		Attendance data			(1,196 participants). Children's activities were also delivered.
	Facilitators/trainers in place					While the module remains under development, foundational content and knowledge-building have commenced to support future improvements.
	Module reviewed and improved					
Produce publication materials	Conservation information conveyed to the public	Produce publications in multiple/local languages and formats	Materials produced	Publications, posters, newspaper articles, leaflets	Annually	Four awareness posters produced and displayed during 13 consultation events with local communities.
	Number of materials published					
Establish outreach and environmental education programs in collaboration with local communities	Environmental education / awareness programs	Identify and design outreach and environmental education program	Outreach and environmental education activities session	Awareness and outreach reports / record of attendance	Annually	Awareness talks for 13 Indigenous communities were delivered.
	Training sessions	Inclusion of youth and women in the programs (e.g., citizen scientist)	Attendance data disaggregated by gender and age			Co-organized CEPA programs with SMPEM, JPNP, JAS, BOMBA, JPS, JAKOA, GEC, for 7 communities: Jong (64 participants), Selingkong (130 participants), Landai (118 participants), Sg Kalong (39 participants), Arong (117 participants), RPS Runchang (38 participants), Simpai (132 participants).
	Youth participation		Number of training sessions delivered			Participated in World Wetlands Day 2024, with an estimated 300 attendants.
	Number of women participants	Deliver training to raise awareness on fire risk, biodiversity conservation,	Number of training events	Training report / record of attendance	Annually	13 consultation programs involving local communities from 16 villages were delivered between July to September 2024, covering awareness on the importance of peatland ecology and sustainable land use via multimedia including presentations, flyers, videos and exhibitions.
			Number of activities implemented			

		and sustainable peatland management	Number of communities engaged / that participate			Project staff were trained by Pelindung Alam Malaysia and received internal training on wildlife species identification.
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5.3.1.1 SMART Patrolling

A total of 268 SMART patrols were carried out across the Project Area between 1 February 2024 and 31 January 2025, covering 4,547 kilometers by vehicle, foot, and boat. These patrols were conducted alongside other field activities, including the installation and monthly inspection of piezometers, canal block checks, camera trap deployment, and bird surveys.

Led by experienced officers with prior SMART patrol experience, the patrol teams also included trained members from local communities. Most received training through Pelindung Alam Malaysia by PERHILITAN-recognized trainers, covering wildlife identification, sign recognition, GPS navigation, and digital data recording to ensure accurate documentation of patrol findings. Patrol data were entered into the SMART database, which undergoes monthly updates and QA/QC processes and is accessible to trained personnel for internal sharing.

During the reporting period, 118 incidents of human activity were recorded, including nine snares, one box trap, and 20 fire events. Wildlife monitoring efforts resulted in 326 observations representing 49 species: 23 birds, 18 mammals, and 8 reptiles/amphibians. Noteworthy sightings included endangered species such as the Raffles' Banded Langur, Malayan Tapir, and Sun Bear.

SMART patrol reports were submitted to JPNP, PERHILITAN, MBP, and other relevant authorities. These data not only support local enforcement but also contribute to national biodiversity surveys and inform broader conservation strategies for biodiversity and wetland ecosystems.

Monthly SMART patrol report summaries for the monitoring period are available upon request.

5.3.1.2 Camera Trapping

A total of 62 camera trap stations were deployed across various forest zones, of which 49 produced usable data. Several units were lost due to theft or technical failures. Over the course of 6,227 camera trap-nights, the survey captured 186,605 images and video clips, including 15,213 instances of wildlife activity. Cameras were strategically positioned across diverse habitat types to monitor the presence and behavior of ground-dwelling species. The exact location of camera trap station is available to auditor upon request.

The survey documented 14 RTE species. These included:

- **Critically Endangered (CR):** Raffles' Banded Langur
- **Endangered (EN):** Hairy-nosed Otter, Flat-headed Cat, Malayan Tapir, Common Long-tailed Macaque, Southern Pig-tailed Macaque, Dusky Langur
- **Vulnerable (VU):** Smooth-coated Otter, Sun Bear, Rhinoceros Hornbill, Leopard, Bearded Pig, Javan Myna, Binturong

Significant observations included repeated detections of the Hairy-nosed Otter at three different locations, as well as sightings of Raffles' Banded Langur both within and outside the Project Area, indicating its use of a wide range of landscape types.

5.3.1.3 Bird Diversity Survey

Bird diversity surveys were conducted in two seasonal rounds—September to October 2024 (dry season) and January 2025 (migratory/rainy season)—to capture seasonal variation. Observations took place at 11 sites (9 terrestrial, 2 riverine) using fixed-point count methods, with sampling stratified by forest condition (intact, regenerating, and degraded) and habitat type. The exact location of survey sites is available to auditor upon request.

Led by experienced ornithologists, the survey recorded 186 bird species, demonstrating high avian diversity across the Project Area. Among these were 10 RTE species, including:

- **Endangered:** Wrinkled Hornbill, Greater Green Leafbird
- **Vulnerable:** Great Hornbill, Black Hornbill, Rhinoceros Hornbill, Wreathed Hornbill, Wallaces's Hawk-eagle, Cinnamon-headed Pigeon, Great Slaty Woodpecker, Javan Myna

RTE species were observed in good and degraded forests as well as at both riverine sites, highlighting the ecological importance of the project's habitat mosaic for sustaining avifaunal diversity.

5.3.1.4 Satellite Monitoring

Satellite monitoring was utilized to detect signs of fire and deforestation within the Project Area and a surrounding 2 km buffer zone. This tool supported proactive mitigation and response strategies, particularly for fire management. For detailed outputs, including forest stratification and satellite analysis results, please refer to the Climate section of this report.

5.3.1.5 Invasive Species

Invasive species monitoring targeted *Acacia mangium* infestations across five key locations. These areas—previously logged and subjected to lowered water tables due to unblocked legacy logging canals and past fires—showed high densities of *Acacia* growth.

Spatial mapping from field surveys identified infestation hotspots at Tanjung Medang, Palma Valley, Kiara, Simpai, and Pulau Lanjut. These zones are highlighted in Figure 24, where red polygons indicate confirmed *Acacia* presence, with some sites exhibiting high-density clusters. The resulting maps will inform ongoing efforts to monitor and control *Acacia* spread, supporting broader rewetting and natural regeneration initiatives in post-fire and degraded forest areas.

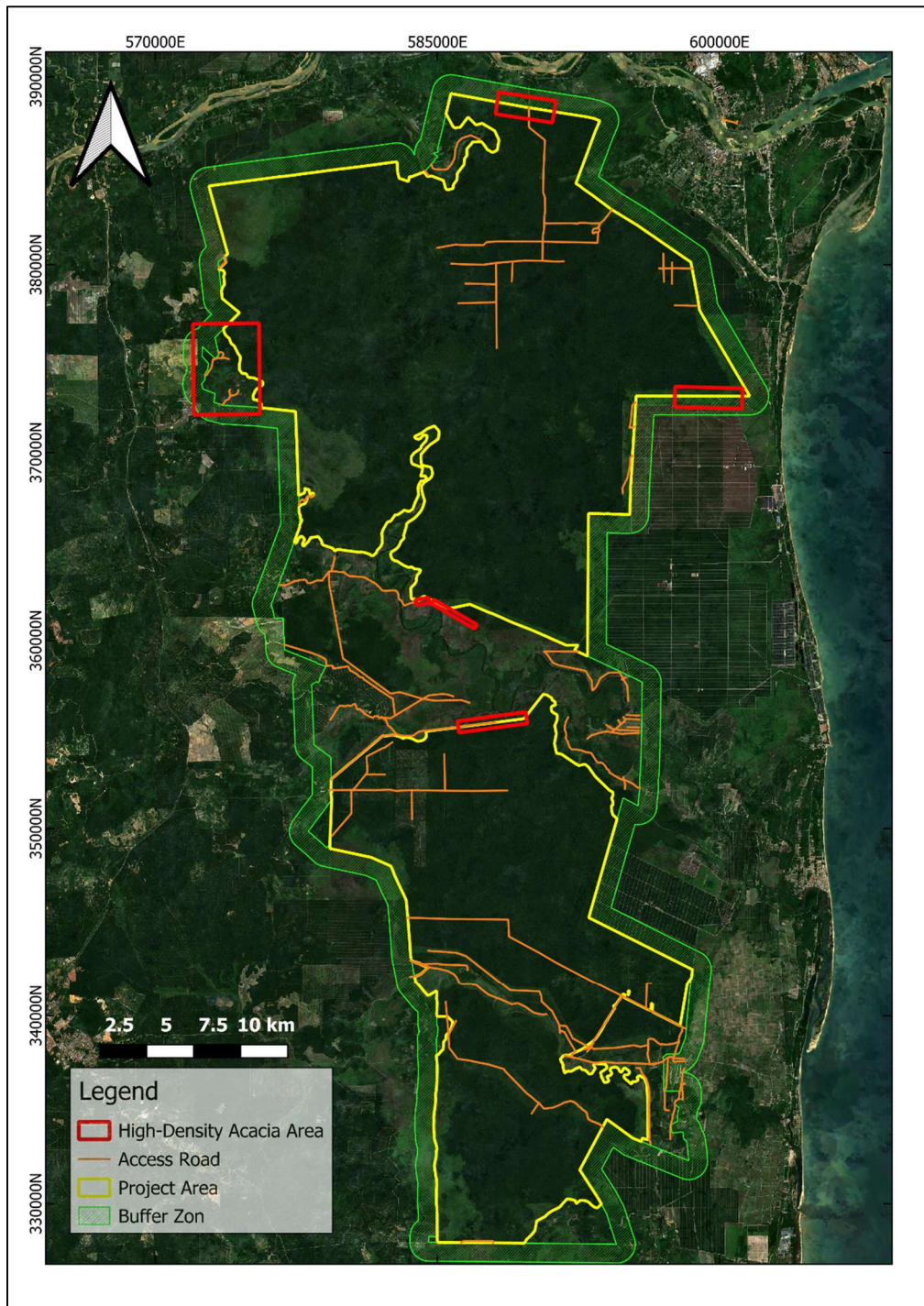


Figure 24: The distribution of *Acacia* sp. as an invasive species in the Project Area. Area with the rectangle were considered as high density of *Acacia* species

5.3.1.6 Habitat Restoration

During the current monitoring period, habitat restoration activities were focused entirely on planning and preparatory work, laying the foundation for future on-the-ground implementation. No physical restoration interventions were carried out during this phase, in terms of tree planting; rather, the focus was on canal blocking that will restore the peatland hydrology, which will in turn create the conditions for natural vegetation to recover in degraded areas.

Key planning activities included:

- Site assessments to identify priority areas for restoration, with a focus on degraded peatland and fire-affected zones.
- Field survey and data collection on vegetation, hydrology, and soil conditions to inform restoration design.
- Development of restoration strategies, including native species selection for replanting, rewetting methods, and invasive species control.
- Stakeholder engagement with local communities and relevant agencies to ensure alignment with land-use objectives and to incorporate traditional knowledge into planning.
- Logistics and resource planning, including procurement of planting materials, mapping access routes, and outlining seasonal timelines for future work.

This preparatory phase is critical to ensuring that future restoration activities are ecologically sound, context-specific, and effectively monitored. Implementation is scheduled to commence in the upcoming reporting period.

5.3.1.7 Outreach and Awareness

As part of ongoing engagement with local communities and stakeholders, several outreach and awareness activities were conducted during the monitoring period to promote understanding of biodiversity conservation within the Project Area:

- Biodiversity talks were delivered to community members and local authorities. These sessions focused on key topics such as the importance of wetland and forest ecosystems, identification of local flora and fauna, and the role of community participation in conservation efforts.
- A mini exhibition was organized during stakeholder consultation events. The exhibition featured informative posters, educational materials, and photographic displays highlighting rare and endangered species documented in the area, including camera trap images and findings from bird surveys. These visual materials helped facilitate discussion and improve awareness of local biodiversity challenges and achievements.

The outreach efforts were well-received—A detailed record of the number of talks conducted, as well as photos and samples of outreach materials, is available upon request.

5.3.2 Biodiversity Monitoring Plan Dissemination (CCB, B4.3)

Project has established clear procedures to ensure that Monitoring Plans and all summaries of Project Documents are effectively disseminated to stakeholders (see Section 2.3.3),

5.4 Optional Criterion: Exceptional Biodiversity Benefits

During the monitoring period, the Project made measurable progress toward conserving and enhancing biodiversity across the peat swamp ecosystem, particularly in areas identified as HCV and critical habitats for threatened species. Key actions and outcomes supporting exceptional biodiversity benefits include:

1. Protection of Critical Habitat and HCV Areas

- The Project safeguarded 77,499 ha of peat swamp forest, including ecologically sensitive areas home to critically endangered, endangered, and vulnerable species.
- All HCV areas identified during project validation—including sacred sites, wildlife zones, and intact peat domes—remained fully protected and undisturbed.
- No illegal activities were conducted in or near these zones, consistent with the Project's HCV management strategy and precautionary approach.

2. Threatened Species Monitoring and Habitat Integrity

- Camera traps and point-count surveys were deployed to monitor the presence and movements of threatened fauna. Preliminary results confirmed ongoing habitat use by key species such as:
 - Raffles' Banded Langur – Critically Endangered
 - Hairy-nosed Otter – Endangered
 - Wrinkled Hornbill - Endangered
- No evidence of species displacement or population decline was observed during the monitoring period.

3. Fire Risk Reduction and Biodiversity Safeguards

The Project successfully suppressed ten fire incidents within or adjacent to the Project Zone. Fire prevention activities including canal blocking (74 structures installed) and SMART patrols directly reduced the threat of habitat degradation and biodiversity loss, particularly for fire-sensitive species dependent on intact peat ecosystems.

4. Avoidance of Invasive Species and Monocultures

No species introductions took place during the monitoring period.

Planning for restoration planting (beginning August 2025) confirms that only native and non-invasive species will be used, with no monoculture planting planned.

Species selection is guided by ecological suitability, conservation value, and input from local stakeholders.

5. Community Engagement for Biodiversity Co-Benefits

- Biodiversity conservation was promoted through 13 village-level consultations, where local communities participated in:
 - Biodiversity awareness,
 - Wildlife monitoring briefing
 - Identification of culturally important species and forest areas.

- Community members were also involved in monitoring patrols, contributing to poaching prevention and forest stewardship.

5.4.1 Trigger Species Population Trends (CCB, GL3.2, GL3.3)

Trigger species	<p>Key trigger species:</p> <ul style="list-style-type: none"> • Raffles' Banded Langur (<i>Presbytis femoralis</i>) CR <p>Other associated trigger species:</p> <ul style="list-style-type: none"> • White-handed Gibbon (<i>Hylobates lar</i>) EN • Dusky Langur (<i>Trachypithecus obscurus</i>) EN • Common Long-tailed Macaque (<i>Macaca fascicularis</i>) EN • Southern Pig-tailed Macaque (<i>Macaca nemestrina</i>) EN
Population trend at the start of project	<p>The Raffles' Banded Langur is found in primary, secondary, and swamp rainforests in Peninsular Malaysia. Most of the populations occur in the state of Johor and are isolated from each other (Endau Rompin National Park, Gunung Arong, Gunung Belumut, Gunung Lambak, Gunung Panti, Gunung Pulai, Kampung Johor Lama). Based on IUCN data, the estimated population of this species in Southern Peninsular Malaysia and Singapore is between 200 - 250 individuals. Prior to the project, there were no scientific records confirming its presence in the Project Zone.</p>
Without-project scenario	<p>This species uses tree canopies as its ecological niche and is very sensitive to changes in the ecosystem. Without project intervention, it is possible that its population will decline with a decrease in its habitat due to timber harvesting and conversion to agricultural land by communities and commercial entities. In the absence of this project, the species' occurrence in this landscape would remain undocumented.</p>
With-project scenario	<p>The project has protected the UPA from commercial exploitation, safeguarding critical forest habitat and reducing threats from poaching, fire, and deforestation through remote sensing, drone surveillance, and regular patrolling. Monitoring efforts include Visual Encounter Surveys (VES) and camera trapping, which were used to detect the species during the first monitoring period (Feb 2024 – Jan 2025).</p> <p>Initially, the langur was only observed along Sungai Bebar during the rapid assessment. However, during this monitoring period, it was recorded at ten locations across all four zones—Pekan (North),</p>

	<p>Nenasi, Kedondong (Central), and Resak (South). This indicates the species is more widely distributed than previously known and suggests the presence of at least five groups, with a total of 35 individuals observed. Considering the estimated global population of 200–250 individuals, this landscape already supports approximately 14–18% of the world population of Raffles’ Banded Langur, underscoring its global conservation importance. Without this project, both protection and ecological data on this species would be lacking.</p>
Trigger species	<p>Key trigger species:</p> <ul style="list-style-type: none"> • Wrinkled Hornbill (<i>Rhabdotorrhinus corrugatus</i>) EN <p>Other associated trigger species:</p> <ul style="list-style-type: none"> • Rhinoceros Hornbill (<i>Buceros rhinoceros</i>) VU • Great Hornbill (<i>Buceros bicornis</i>) VU • Black Hornbill (<i>Anthracoceros malayanus</i>) VU • Wreathed Hornbill (<i>Rhyticeros undulatus</i>) VU (newly observed during MR1)
Population trend at start of project	<p>A peat swamp forest specialist, the Wrinkled Hornbill is rare elsewhere but is the most common hornbill in the Project Area, which is one of the few remaining strongholds for this species. A biodiversity survey found the Wrinkled Hornbill to be well distributed across the Project Area. A total of 36 Wrinkled Hornbills were recorded at four sites, specifically, Bebar River (21 individuals observed), Kedondong PRF (5 individuals observed), Nenasi PRF (6 individuals observed) and Resak (Tambahan) PRF (4 individuals observed).</p>
Without-project scenario	<p>The Endangered Wrinkled Hornbill, together with four other Vulnerable hornbill species, is highly susceptible to habitat loss and disturbance. These species rely heavily on large tree cavities for nesting, which are frequently destroyed by logging, peat fires, and land clearing for plantations. Without intervention, continued habitat degradation would further endanger their survival and result in a decline in their presence across the landscape.</p>

With-project scenario

The project's protection of the UPA from commercial exploitation has successfully preserved critical peat swamp habitats, including mature trees required by hornbills for nesting, through measures such as halting logging operations and preventing peat fires. In addition, the project conducts bird diversity surveys to monitor seasonal changes and microhabitat conditions.

Monitoring during the first period (Feb 2024 – Jan 2025) involved two seasonal bird surveys: one in the mid-year off-monsoon season and another at the beginning of the year during the monsoon and migratory season. The Wrinkled Hornbill was recorded at six transects across the landscape, with higher detection rates during the monsoon season (93 individuals observed) compared to the non-monsoon season (16 individuals observed).

Associated trigger species were also recorded, including 18 Rhinoceros Hornbills, 10 Black Hornbills, 4 Great Hornbills, and notably, 5 Wreathed Hornbills, the latter being a new record for the area.

The continued presence and wider distribution of this Endangered hornbill demonstrate the effectiveness of conservation interventions. Protection of mature trees for nesting and critical foraging habitats is likely supporting population stability and remains crucial for ensuring the species' long-term survival in the Project Area.

Trigger species

Key trigger species:

- Hairy-nosed Otter (*Lutra sumatrana*) EN

Other associated trigger species:

- Asian Small-clawed Otter (*Aonyx cinereus*) VU (newly observed during this monitoring period)
- Smooth-coated Otter (*Lutrogale perspicillata*) VU

Population trend at start of project

The Hairy-nosed Otter is a wetland specialist associated with coastal and peat swamp forest (Sasaki, 2020). This extremely rare species has only been sighted a handful of times in Peninsular Malaysia and in 1998 was deemed to be extinct (International Otter Survival Fund, 2022). The first recorded sighting in Peninsular Malaysia was in 1960. Since then, it has only been recorded six times – two roadkill records (1991 in Perak and 1994 in Nenasi, Pahang); one record from Muar in 1995, another from Terengganu in 2003; one roadkill record in

	<p>2005 from Selangor; and most recently in 2013 at Taman Negara Pahang (Malaysia Biodiversity Information System, 2025; Sebastian, 1995).</p>
Without-project scenario	<p>While little is known about its distribution within the Project Area, the without-project scenario would certainly reduce viable habitat for this species. Logging and land clearing would lead to greater access to the species by hunters, and sedimentation and pollution of waterways.</p>
With-project scenario	<p>The project’s protection of the UPA from commercial exploitation has safeguarded critical peat swamp habitats, while regular SMART patrols have reduced poaching risks. Monitoring is conducted through regular camera trapping and road and river patrols, which provide data on species presence and threats.</p> <p>During the monitoring period, detections confirmed the species’ continued presence in multiple zones. From the previous IAR, it was known only from the project boundary near the oil palm plantation. In this monitoring period, a pair was still observed at this location, and a new confirmed detection was made in central Nenasi, bringing the total to three stations where the species was recorded. These findings demonstrate that viable habitat remains available in both peat swamp and plantation canal systems. Habitat quality improvements and patrol interventions have likely contributed to maintaining occupancy.</p> <p>However, two carcasses were found outside the Project Area during the monitoring period: one individual was killed in a road accident, while the other was found dead on a village road with the cause undetermined. These incidents highlight the critical role of the Project Area as a refuge for the species across the wider peatland landscape and underscore the need to raise public awareness on roadkill risks.</p> <p>To address this concern, meetings have been held with PERHILITAN and the district officer to discuss mitigation measures and promote greater awareness among road users in surrounding areas. The continued presence of this species within the Project Area confirms the effectiveness of current interventions, while also emphasizing the need for expanded conservation efforts beyond project boundaries.</p>

APPENDIX 1 PROJECT RISKS TABLE

	Identified risk(s)	Potential impact of risk on stakeholders, ecosystem health, and biodiversity	Mitigation or preventative measure(s) taken
Natural and human induced risks to wellbeing	Uncontrollable peat and forest fire	<ul style="list-style-type: none"> • Severe respiratory illness for communities surrounding the Project Area due to fires. • Property damage (e.g., house, vehicles). • Loss of livelihood activities (e.g., crops, NTFPs). 	<ul style="list-style-type: none"> • The Project halted commercial logging and agricultural conversion that leads to drainage and drying of the peatland, thus reducing fire risk. • 74 canal blocks were installed to rewet peatland (thus reducing fire risk). • The Project is a core member of a group of regional stakeholders (local government agencies, NGOs and neighboring plantations) coordinating on fire prevention and suppression. • Fire prevention information was shared during village-wide consultation events with 16 villages. The Project also contributed to three fire awareness events organized jointly by NGOs and government agencies. • An early warning system was established incorporating remote sensing, ground patrols and a community liaison network to enable rapid response to hotspots and fire.

	Identified risk(s)	Potential impact of risk on stakeholders, ecosystem health, and biodiversity	Mitigation or preventative measure(s) taken
Risk from canal blocking activities	<ul style="list-style-type: none"> • Increased water table • Loss of transportation access via man-made canals • Loss of access to fishing grounds in man-made canals • Changes in species composition in restored canal system 	<ul style="list-style-type: none"> • Potential loss of livelihoods due to crop failure caused by inundation of root systems. • Potential material loss or damage of property from flooding. • Boat access restricted in manmade canals that have become common throughfares which may impact access to livelihood options or other areas within the Project Zone. • Canal blocks may limit access to former fishing grounds and impact livelihood outcomes. • Fish populations may change in terms of abundance and diversity as a result of ecological restoration which may impact livelihoods. 	<ul style="list-style-type: none"> • The Project established, equipped and trained 20 employees as fire-fighters for prevention and suppression of fires. Ten fire suppression operations were successfully conducted during the monitoring period, some under the guidance of government fire brigade. In addition, 6.1 km of fire breaks were constructed. • Phase 2 FPIC was conducted with potentially impacted stakeholders to assess risks, costs and benefits before canal blocking plan was finalized. During this monitoring period, an alternative location of canal blocks was agreed with one smallholder to avoid adverse impacts. • Field observation and community feedback were sought about the impact on fish populations after canal blocking. Positive impact was observed during this monitoring period.

	Identified risk(s)	Potential impact of risk on stakeholders, ecosystem health, and biodiversity	Mitigation or preventative measure(s) taken
Reforestation	Loss of agricultural land	Replanting and reforestation may restrict the land available for future agricultural activities of the communities.	<ul style="list-style-type: none"> • Smallholder mapping was carried out to ensure the Project does not reforest areas with overlapping community land rights without the consent of the communities or smallholders therein.
Risks to stakeholder participation	Loss of productive time	Loss of income due to time taken up for program participation in lieu of waged job.	<ul style="list-style-type: none"> • Community consultations and programs were carried out during weekend, when most stakeholders have time off from their formal jobs.
Working conditions	Dangerous and difficult field conditions for workers	Workers need to undertake activities in the peat swamp forest with hazards such as uneven or slippery terrain, attack by wildlife, contact with toxic plants, falls into water bodies, physical exhaustion, etc. The risks are exacerbated during floods. Workers who have to work near fire can encounter additional respiratory and heat exhaustion hazards.	<ul style="list-style-type: none"> • The Project implemented an occupational health and safety management system based on ISO 45001. • Staff were trained regularly in health and safety policies and practices, including first aid techniques and skills to identify hazards and control risks. • Personal protective equipment and field communications devices were used by Project staff whenever they go to the field. • Regular maintenance of all personal protective equipment, vehicles and field facilities, tools, and

	Identified risk(s)	Potential impact of risk on stakeholders, ecosystem health, and biodiversity	Mitigation or preventative measure(s) taken
Safety of women and girls	No risk identified	N/A	<p>infrastructure was undertaken to ensure that all the equipment meets safety standards.</p> <ul style="list-style-type: none"> • Specific training was given for high-risk activities such as fire-fighting where only trained FERT members can enter a burning area. • Training on off-road driving, river navigation and swimming were provided to staff to ensure teams are adequately prepared for field work conditions. <p>The Project will remain vigilant to address any concerns from stakeholders raised during continuous engagement or via the GRM.</p>
Safety of minority and marginalized groups, including children	No risk identified	N/A	<p>The Project will remain vigilant to address any concerns from stakeholders raised during continuous engagement or via the GRM.</p>
Pollutants (air, noise, discharges to water, generation of waste, and release of hazardous materials and chemical pesticides and fertilizers)	No risk identified	N/A	<p>The Project's SOPs require all Project generated waste to be removed from the Project Area and disposed of appropriately. No chemical fertilizer, chemical pesticide, or biological control agents will be used in Project activities.</p>

	Identified risk(s)	Potential impact of risk on stakeholders, ecosystem health, and biodiversity	Mitigation or preventative measure(s) taken
Discrimination	No risk identified	N/A	<ul style="list-style-type: none"> • The Project will remain vigilant to address any concerns regarding discrimination from internal and external stakeholders raised via the GRM or other communications channels. • The anti-discrimination section of the Project’s Social Policy and Human Capital Management Policy. • The Project will engage with diverse groups of people and treat equally all staff, partners, and communities, regardless of their gender, nationality, age, religion, race, ethnic group, etc.
Sexual harassment	No risk identified	N/A	<ul style="list-style-type: none"> • The Project will remain vigilant to address any concerns from internal and external stakeholders raised via the GRM or other communications channels. • The Project’s management system includes code of conduct, training and consequence management to prevent sexual harassment.
Equal pay for equal work	No risk identified	N/A	<ul style="list-style-type: none"> • The Project upholds the principle of equal pay for equal work and fully complies with the Employment Act (1955) and all other regulatory requirements concerning employee welfare, minimum wage and overtime compensation.

	Identified risk(s)	Potential impact of risk on stakeholders, ecosystem health, and biodiversity	Mitigation or preventative measure(s) taken
Gender equity in labor and work	No risk identified	N/A	<ul style="list-style-type: none"> • The Project upholds gender equity in labor and work by recruiting staff based on merit and suitability for the role, regardless of their gender. • The Project provides flexible working arrangement opportunities for women to work while they care for their families.
Forced labor ¹³	No risk identified	N/A	<ul style="list-style-type: none"> • The Project is strongly against any forced labor practice. The Project fully complies with Malaysian human rights and labor laws, particularly the Human Rights Commission of Malaysia Act (1999) and Employment Act (1955).
Child labor	No risk identified	N/A	<ul style="list-style-type: none"> • The Project does not employ any person below the age of 18. The Project fully complies with Malaysian human rights and labor laws, particularly the Children and Young Persons (Employment) Act (1966), Human Rights Commission of Malaysia (1999) and Employment Act (1955).
Human trafficking	No risk identified	N/A	<ul style="list-style-type: none"> • The Project is strongly against human trafficking practice. The project complies with all Malaysian

¹³ The identified risks and commensurate mitigation or preventative measure(s) for forced labor, child labor, and human trafficking, must be inclusive of staff and contracted workers employed by third parties.

	Identified risk(s)	Potential impact of risk on stakeholders, ecosystem health, and biodiversity	Mitigation or preventative measure(s) taken
Recognition of, respect of, and promotion of the rights to IPs, LCs and customary rights holders	No risk identified	N/A	<p>human rights and labor law, particularly the Human Rights Commission of Malaysia Act (1999), Employment Act (1955) and the Anti-Trafficking in Persons and Anti-Smuggling of Migrants Act (2007).</p> <ul style="list-style-type: none"> • The Project recognizes and respects the rights of local communities and indigenous peoples, including unregistered villages and land tenure not acknowledged by the state. • The Project proactively assesses the potential impact of its activities through continuous engagement with the communities. • The Project regularly engages with JAKOA and other government agencies with regards to its interaction with the communities.
Preserving and protecting cultural heritage	No risk identified	N/A	<ul style="list-style-type: none"> • The Project conducts participatory mapping with communities to identify HCV 6 areas within the Project Area and Project Zone. • Through continuous engagement with the communities, the Project co-designs community development programs to preserve and protect cultural heritage of the local <i>Jakun</i> communities.
Protecting and preserving property rights, customary	See Section 2.5.5 in PDD on Statutory	See Section 2.5.5 in PDD on Statutory and Customary Property Rights	<ul style="list-style-type: none"> • The Project does not restrict the access of local indigenous people to the Project Area and Project

	Identified risk(s)	Potential impact of risk on stakeholders, ecosystem health, and biodiversity	Mitigation or preventative measure(s) taken
rights, or protecting legal or customary tenure/access rights to territories, property, and resources, including collective and/or conflicting rights	and Customary Property Rights		<p>Zone. This was clearly communicated to the community members during consultations.</p> <ul style="list-style-type: none"> • The Project respects customary land tenure by excluding claimed customary rights land from the initial Project Area. • The Project engaged with potentially impacted stakeholders to ensure permissions were obtained or FPIC process was followed through before any project activities were implemented.
Impacts on biodiversity and ecosystems	No risk identified	See Section 5.1 Without-project Biodiversity Scenario and Section 5.3.1 Negative Offsite Biodiversity Impacts in PDD.	<ul style="list-style-type: none"> • Under the baseline scenario, this is one of the key risks identified. The mitigation measures are described in Section 2.1.17 Project Activities and Theory of Change in PDD.
Soil degradation and soil erosion	No risk identified	See Section 2.2 in PDD on Without-project Land Use Scenario and Additionality.	<ul style="list-style-type: none"> • Peat drainage and erosion, with corresponding changes in the water table, are a principal risk identified under the baseline scenario (see Sections 3.1.4 Baseline Scenario & 3.1.5 Additionality). The mitigation measures are described in Section 2.1.17 Project Activities and Theory of Change in PDD.
Water consumption and stress	No risk identified	See Section 2.2 in PDD on Without-project Land Use Scenario and Additionality.	<ul style="list-style-type: none"> • The Project aims to restore the hydrology of peatland and the associated water regulating ecosystem services. See Section 2.1.17 Project Activities and Theory of Change in PDD.

	Identified risk(s)	Potential impact of risk on stakeholders, ecosystem health, and biodiversity	Mitigation or preventative measure(s) taken
Habitats (and areas needed for habitat connectivity) for Rare, Threatened, or Endangered species	No risk identified	See Section 5.1.3 on Without-project Scenario: Biodiversity, and Section 5.3.1 concerning Negative Offsite Biodiversity Impacts and Mitigation Measures, both in PDD	<ul style="list-style-type: none"> Under the baseline scenario, this is one of the key risks identified. The mitigation measures are described in Section 2.1.17 Project Activities and Theory of Change in PDD.
Areas needed for habitat connectivity	No risk identified	See Section 5.1.3 on Without-project Scenario: Biodiversity, and Section 5.3.1 concerning Negative Offsite Biodiversity Impacts and Mitigation Measures, both in PDD	<ul style="list-style-type: none"> Under the baseline scenario, this is one of the key risks identified as the Project Area and Project Zone forms primary linkages in Malaysia's Central Forest Spine Master Plan (CFSMP) that aims to connect habitats of the Critically Endangered Malayan Tiger (<i>Panthera tigris jacksoni</i>) along the length of Peninsular Malaysia. The mitigation measures are described in Section 2.1.17 Project Activities and Theory of Change in PDD.
Invasive species	Acacia sp. is an existing invasive species in the Project Area and Project Zone, usually dominating regrowth in burnt or disturbed area.	Acacia sp. may crowd out local floral in the regeneration of forest.	<ul style="list-style-type: none"> Areas with Acacia sp. was mapped to facilitate the formulation of a management and monitoring plan. The Project used hydrology restoration as a strategy to naturally success them with local peatland species (see Section Error! Reference source not found. for more information).

	Identified risk(s)	Potential impact of risk on stakeholders, ecosystem health, and biodiversity	Mitigation or preventative measure(s) taken
Ecosystem conversion	No risk identified	See Section 2.2 in PDD on Without-project Land Use Scenario and Additionality.	Under the baseline scenario, this is one of the key risks identified. The mitigation measures are described in Section 2.1.17 Project Activities and Theory of Change in PDD.

APPENDIX 2 COMMERCIALY SENSITIVE INFORMATION

Section	Information	Justification
3.2.1 3.2.3	Forest Concession and Licensing Data	These records are managed by the State Forestry Department. These cannot be shared publicly without formal approval from the Government.
2.3.13 2.3.15	Contractual agreements between implementing partners and staff	These are private and confidential arrangements between two parties.
2.4.5	Contractual agreements between implementing partners and vendors	These are private and confidential arrangements between two parties.
2.4.4	Financing and sales agreements	These are private and confidential arrangements between two parties.
2.4	Project work plans and budgets – detailed operational/ implementation plans	This information may compromise the position of the company in commercial arrangements with vendors and customers.
2.3.13	Internal policy documents and SOPs	Some of the information may compromise the position of the company in commercial arrangements with vendors and customers.
General	Raw data and parameters	Some of the information may compromise the position of the company in commercial arrangements with vendors and customers.
2.3.9 2.5.5	Customary land maps produced by villages	These maps are the property of the respective communities. As they are not officially gazetted, they remain sensitive.

APPENDIX 3 OBSERVED FAUNA DURING THE MONITORING PERIOD

Table 31: List of Mammal Species

	Common name	Latin Name	Family	Class	WCA (Act 716)	IUCN	CITES	2008 record	IAR	MR 1
M03	Raffles' Banded Langur	<i>Presbytis femoralis</i>	Cercopithecidae	Mammalia	Protected	CR	Appendix II	1	1	1
M18	Sunda pangolin	<i>Manis javanica</i>	Manidae	Mammalia	Protected	CR	Appendix I	1	0	1
M01	Common Long-tailed Macaque	<i>Macaca fascicularis</i>	Cercopithecidae	Mammalia	Protected	EN	Appendix II	1	1	1
M02	Southern Pig-tailed Macaque	<i>Macaca nemestrina</i>	Cercopithecidae	Mammalia	Protected	EN	Appendix II	1	1	1
M04	Dusky Langur	<i>Trachypithecus obscurus</i>	Cercopithecidae	Mammalia	Protected	EN	Not Listed	1	1	1
M13	Flat-headed Cat	<i>Prionailurus planiceps</i>	Felidae	Mammalia	Protected	EN	Appendix I	1	1	1
M15	White-handed Gibbon	<i>Hylobates lar</i>	Hylobatidae	Mammalia	Protected	EN	Appendix I	1	1	1
M25	Hairy-nosed Otter	<i>Lutra sumatrana</i>	Mustelidae	Mammalia	Protected	EN	Appendix I	1	1	1
M50	Malay Tapir	<i>Tapirus indicus</i>	Tapiridae	Mammalia	Protected	EN	Appendix I	1	1	1
M06	Sambar	<i>Rusa unicolor</i>	Cervidae	Mammalia	Protected	VU	Not Listed	1	0	1
M10	Leopard	<i>Panthera pardus</i>	Felidae	Mammalia	Protected	VU	Appendix I	1	1	1
M24	Asian Small-clawed Otter	<i>Aonyx cinereus</i>	Mustelidae	Mammalia	Protected	VU	Appendix II	1	1	1
M26	Smooth-coated Otter	<i>Lutrogale perspicillata</i>	Mustelidae	Mammalia	Protected	VU	Appendix II	1	1	1

	Common name	Latin Name	Family	Class	WCA (Act 716)	IUCN	CITES	2008 record	IAR	MR 1
M48	Bearded Pig	<i>Sus barbatus</i>	Suidae	Mammalia	Protected	VU	Not Listed	1	1	1
M55	Sun Bear	<i>Helarctos malayanus</i>	Ursidae	Mammalia	Protected	VU	Appendix I	1	1	1
M62	Binturong	<i>Arctictis binturong</i>	Viverridae	Mammalia	Protected	VU	Appendix III	1	0	1
M05	Southern Red Muntjac (Barking-deer)	<i>Muntiacus muntjak</i>	Cervidae	Mammalia	Protected	LC	Not Listed	1	0	1
M12	Mainland leopard cat	<i>Prionailurus bengalensis</i>	Felidae	Mammalia	Protected	LC	Appendix II	1	1	1
M14	Short-tailed mongoose	<i>Herpestes brachyurus</i>	Herpestidae	Mammalia	Protected	NT	Not Listed	0	1	1
M16	Malayan porcupine	<i>Hystrix brachyura</i>	Hystricidae	Mammalia	Protected	LC	Not Listed	1	1	1
M27	Yellow-throated marten	<i>Martes flavigula</i>	Mustelidae	Mammalia	Protected	LC	Not Listed	1	1	1
M28	Malay weasel	<i>Mustela nudipes</i>	Mustelidae	Mammalia	Protected	LC	Not Listed	0	0	1
M41	Plantain squirrel	<i>Callosciurus notatus</i>	Sciuridae	Mammalia	Non Protected	LC	Not Listed	1	1	1
M44	Black giant squirrel	<i>Ratufa bicolor</i>	Sciuridae	Mammalia	Protected	NT	Not Listed	1	1	1
M45	Shrew-faced squirrel	<i>Rhinosciurus laticaudatus</i>	Sciuridae	Mammalia	Non Protected	NT	Not Listed	0	1	1
M49	Wild pig	<i>Sus scrofa</i>	Suidae	Mammalia	Protected	LC	Not Listed	1	1	1
M53	Common treeshrew	<i>Tupaia glis</i>	Tupaïidae	Mammalia	Protected	LC	Not Listed	1	1	1
M54	Lesser treeshrew	<i>Tupaia minor</i>	Tupaïidae	Mammalia	Protected	LC	Not Listed	0	1	1

	Common name	Latin Name	Family	Class	WCA (Act 716)	IUCN	CITES	2008 record	IAR	MR 1
M66	Common palm civet	<i>Paradoxurus hermaphroditus</i>	Viverridae	Mammalia	Protected	LC	Not Listed	1	1	1
M67	Malay civet	<i>Viverra zangalunga</i>	Viverridae	Mammalia	Protected	LC	Not Listed	1	1	1
M68	Large Indian civet	<i>Viverra zibetha</i>	Viverridae	Mammalia	Protected	LC	Appendix III	0	1	1
	Greater/ Lesser Oriental Chevrotain	<i>Tragulus sp.</i>	Tragulidae	Mammalia	Protected	LC	Not Listed	0	1	1

Table 32: List of Bird Species

	Common name	Latin Name	Family	Class	WCA (Act 716)	IUCN	CITES	2008 record	IAR	MR1
B051	Wrinkled Hornbill	<i>Rhabdotorrhinus corrugatus</i>	Bucerotidae	Aves	Protected	EN	Not Listed	1	1	1
B065	Greater green leafbird	<i>Chloropsis sonnerati</i>	Chloropseidae	Aves	Protected	EN	Not Listed	1	0	1
B016	Wallaces's hawk-eagle	<i>Nisaetus nanus</i>	Accipitridae	Aves	Protected	VU	Not Listed	1	0	1
B047	Black Hornbill	<i>Anthracoceros malayanus</i>	Bucerotidae	Aves	Protected	VU	Not Listed	1	1	1
B049	Great Hornbill	<i>Buceros bicornis</i>	Bucerotidae	Aves	Protected	VU	Appendix I	1	1	1
B050	Rhinoceros Hornbill	<i>Buceros rhinoceros</i>	Bucerotidae	Aves	Protected	VU	Appendix II	1	1	1
B052	Wreathed hornbill	<i>Rhyticeros undulatus</i>	Bucerotidae	Aves	Protected	VU	Not Listed	1	0	1
B083	Cinnamon-headed pigeon	<i>Treron fulvicollis</i>	Columbidae	Aves	Protected	VU	Not Listed	1	0	1
B196	Great Slaty Woodpecker	<i>Mulleripicus pulverulentus</i>	Picidae	Aves	Protected	VU	Not Listed	1	0	1

	Common name	Latin Name	Family	Class	WCA (Act 716)	IUCN	CITES	2008 record	IAR	MR1
B238	Javan Myna	<i>Acridotheres javanicus</i>	Sturnidae	Aves	Non Protected	VU	Not Listed	1	1	1
B002	Japanese Sparrowhawk	<i>Accipiter gularis</i>	Accipitridae	Aves	Protected	LC	Not Listed	0	0	1
B003	Chinese Sparrowhawk	<i>Accipiter soloensis</i>	Accipitridae	Aves	Protected	LC	Not Listed	0	0	1
B005	Jerdon's Baza	<i>Aviceda jerdoni</i>	Accipitridae	Aves	Protected	LC	Not Listed	0	1	1
B006	Black Baza	<i>Aviceda leuphotes</i>	Accipitridae	Aves	Protected	LC	Not Listed	1	1	1
B007	Eastern Marsh Harrier	<i>Circus spilonotus</i>	Accipitridae	Aves	Protected	LC	Not Listed	0	0	1
B008	Black-winged Kite	<i>Elanus caeruleus</i>	Accipitridae	Aves	Non Protected	LC	Not Listed	1	1	1
B012	Grey-headed Fish-eagle	<i>Ichthyophaga ichhyaetus</i>	Accipitridae	Aves	Protected	NT	Not Listed	1	1	1
B013	Rufous-bellied eagle	<i>Lophotriorchis kienerii</i>	Accipitridae	Aves	Protected	NT	Appendix II	1	0	1
B015	Changeable Hawk-Eagle	<i>Nisaetus cirrhatus</i>	Accipitridae	Aves	Protected	LC	Appendix II	1	1	1
B017	Oriental honey-buzzard	<i>Pernis ptilorhynchus</i>	Accipitridae	Aves	Protected	LC	Not Listed	1	1	1
B018	Crested Serpent-Eagle	<i>Spilornis cheela</i>	Accipitridae	Aves	Protected	LC	Not Listed	1	1	1
B019	Common Iora	<i>Aegithina tiphia</i>	Aegithinidae	Aves	Protected	LC	Not Listed	1	0	1
B020	Green Iora	<i>Aegithina viridissima</i>	Aegithinidae	Aves	Protected	NT	Not Listed	1	1	1
B021	Common kingfisher	<i>Alcedo atthis</i>	Alcedinidae	Aves	Protected	LC	Not Listed	1	0	1
B022	Blue-eared Kingfisher	<i>Alcedo meninting</i>	Alcedinidae	Aves	Protected	LC	Not Listed	1	1	1
B025	Black-capped Kingfisher	<i>Halcyon pileata</i>	Alcedinidae	Aves	Protected	LC	Not Listed	1	1	1
B026	White-throated Kingfisher	<i>Halcyon smyrnensis</i>	Alcedinidae	Aves	Protected	LC	Not Listed	1	1	1
B027	Banded Kingfisher	<i>Lacedo pulchella</i>	Alcedinidae	Aves	Protected	LC	Not Listed	1	1	1

	Common name	Latin Name	Family	Class	WCA (Act 716)	IUCN	CITES	2008 record	IAR	MR1
B028	Stork-billed Kingfisher	<i>Pelargopsis capensis</i>	Alcedinidae	Aves	Protected	LC	Not Listed	1	1	1
B030	Lesser Whistling-duck	<i>Dendrocygna javanica</i>	Anatidae	Aves	Protected	LC		1	1	1
B031	Edible-nest swiftlet	<i>Aerodramus fuciphagus</i>	Apodidae	Aves	Non Protected	LC	Not Listed	1	0	1
B032	Germain's Swiftlet	<i>Aerodramus germani</i>	Apodidae	Aves	Non Protected	LC	Not Listed	0	0	1
B034	Pacific Swift	<i>Apus pacificus</i>	Apodidae	Aves	Non Protected	LC	Not Listed	0	0	1
B035	Brown-backed needletail	<i>Hirundapus giganteus</i>	Apodidae	Aves	Non Protected	LC	Not Listed	1	0	1
B036	Silver-rumped Needletail	<i>Rhaphidura leucopygialis</i>	Apodidae	Aves	Protected	LC	Not Listed	1	1	1
B038	Purple Heron	<i>Ardea purpurea</i>	Ardeidae	Aves	Protected	LC	Not Listed	0	1	1
	Pond-Heron	<i>Ardeola sp.</i>	Ardeidae	Aves	-	-	-	1	1	1
B039	Cattle egret	<i>Bulbulcus ibis</i>	Ardeidae	Aves	Protected	LC	Not Listed	1	1	1
B040	Green-backed Heron (Little heron)	<i>Butorides striata</i>	Ardeidae	Aves	Non Protected	LC	Not Listed	1	0	1
B042	Cinnamon bittern	<i>Ixobrychus cinnamomeus</i>	Ardeidae	Aves	Protected	LC	Not Listed	1	0	1
B043	Yellow Bittern	<i>Ixobrychus sinensis</i>	Ardeidae	Aves	Protected	LC	Not Listed	0	0	1
B044	White-breasted Woodswallow	<i>Artamus leucoryn</i>	Artamidae	Aves	Non Protected	LC	Not Listed	0	0	1
B045	Bushy-crested hornbill	<i>Anorrhinus galeritus</i>	Bucerotidae	Aves	Protected	NT	Not Listed	1	0	1

	Common name	Latin Name	Family	Class	WCA (Act 716)	IUCN	CITES	2008 record	IAR	MR1
B046	Oriental Pied Hornbill	<i>Anthracoceros albirostris</i>	Bucerotidae	Aves	Protected	LC	Appendix II	1	1	1
B054	Lesser cuckoo-shrike	<i>Lalage fimbriata</i>	Campephagidae	Aves	Protected	LC	Not Listed	1	0	1
B055	Ashy Minivet	<i>Pericrocotus divaricatus</i>	Campephagidae	Aves	Protected	LC	Not Listed	1	1	1
B059	Malays eared-nightjar	<i>Lyncornis temminckii</i>	Caprimulgidae	Aves	Protected	LC	Not Listed	1	0	1
B062	Red-wattled Lapwing	<i>Vanellus indicus</i>	Charadriidae	Aves	Protected	LC	Not Listed	1	1	1
B064	Lesser green leafbird	<i>Chloropsis cyanopogon</i>	Chloropseidae	Aves	Protected	NT	Not Listed	1	0	1
B066	Lesser Adjutant	<i>Leptoptilos javanicus</i>	Ciconiidae	Aves	Protected	NT	Not Listed	1	1	1
B068	Dark-necked Tailorbird	<i>Orthotomus atrogularis</i>	Cisticolidae	Aves	Protected	LC	Not Listed	1	1	1
B069	Ashy Tailorbird	<i>Orthotomus ruficeps</i>	Cisticolidae	Aves	Protected	LC	Not Listed	1	1	1
B070	Rufous-tailed Tailorbird	<i>Orthotomus sericeus</i>	Cisticolidae	Aves	Protected	LC	Not Listed	1	1	1
B071	Common tailorbird	<i>Orthotomus sutorius</i>	Cisticolidae	Aves	Protected	LC	Not Listed	1	0	1
B072	Yellow-bellied Prinia	<i>Prinia flaviventris</i>	Cisticolidae	Aves	Protected	LC	Not Listed	1	1	1
B073	Rufescent Prinia	<i>Prinia rufescens</i>	Cisticolidae	Aves	Protected	LC	Not Listed	1	1	1
B074	Asian Emerald Dove	<i>Chalcophaps indica</i>	Columbidae	Aves	Protected	LC	Not Listed	1	1	1
B076	Green imperial pigeon	<i>Ducula aenea</i>	Columbidae	Aves	Protected	NT	Not Listed	1	0	1
B077	Mountain Imperial-Pigeon	<i>Ducula badia</i>	Columbidae	Aves	Protected	LC	Not Listed	1	1	1
B078	Zebra Dove	<i>Geopelia striata</i>	Columbidae	Aves	Non Protected	LC	Not Listed	1	1	1
B080	Eastern Spotted Dove	<i>Spilopelia chinensis</i> (<i>Streptopelia chinensis</i>)	Columbidae	Aves	Non Protected	LC	Not Listed	1	1	1
B082	Thick-billed Green-Pigeon	<i>Treron curvirostra</i>	Columbidae	Aves	Protected	LC	Not Listed	1	1	1

	Common name	Latin Name	Family	Class	WCA (Act 716)	IUCN	CITES	2008 record	IAR	MR1
B084	Little Green Pigeon	<i>Treron olax</i>	Columbidae	Aves	Protected	LC	Not Listed	1	1	1
B085	Pink-necked Green Pigeon	<i>Treron vernans</i>	Columbidae	Aves	Protected	LC	Not Listed	1	1	1
B086	Dollarbird	<i>Eurystomus orientalis</i>	Coraciidae	Aves	Protected	LC	Not Listed	1	1	1
B088	Large-billed Crow	<i>Corvus macrorhynchos</i>	Corvidae	Aves	Non Protected	LC	Not Listed	1	1	1
B090	Plaintive cuckoo	<i>Cacomantis merulinus</i>	Cuculidae	Aves	Protected	LC	Not Listed	1	0	1
B091	Banded bay cuckoo	<i>Cacomantis sonneratii</i>	Cuculidae	Aves	Protected	LC	Not Listed	1	0	1
B092	Lesser Coucal	<i>Centropus bengalensis</i>	Cuculidae	Aves	Protected	LC	Not Listed	1	1	1
B094	Greater Coucal	<i>Centropus sinensis</i>	Cuculidae	Aves	Protected	LC	Not Listed	1	1	1
B097	Violet cuckoo	<i>Chrysococcyx xanthorhynchus</i>	Cuculidae	Aves	Protected	LC	Not Listed	1	0	1
B098	Chestnut-winged cuckoo	<i>Clamator coromandus</i>	Cuculidae	Aves	Protected	LC	Not Listed	1	0	1
B099	Asian Koel	<i>Eudynamys scolopacea</i>	Cuculidae	Aves	Protected	LC	Not Listed	0	0	1
B100	Chestnut- breasted Malkoha	<i>Phaenicophaeus curvirostris</i>	Cuculidae	Aves	Protected	LC	Not Listed	1	1	1
B101	Black-bellied malkoha	<i>Phaenicophaeus diardi</i>	Cuculidae	Aves	Protected	NT	Not Listed	1	0	1
B102	Chestnut-bellied malkoha	<i>Phaenicophaeus sumatranus</i>	Cuculidae	Aves	Protected	NT	Not Listed	1	1	1
B103	Green-billed Malkoha	<i>Phaenicophaeus tristis</i>	Cuculidae	Aves	Protected	LC	Not Listed	0	1	1
B104	Raffles's Malkoha	<i>Rhinortha chlorophaea</i>	Cuculidae	Aves	Protected	LC	Not Listed	1	1	1
B105	Drongo cuckoo	<i>Surniculus lugubris</i>	Cuculidae	Aves	Protected	LC	Not Listed	1	0	1
B106	Red-billed malkoha	<i>Zanlostomus javanicus</i>	Cuculidae	Aves	Protected	LC	Not Listed	1	1	1

	Common name	Latin Name	Family	Class	WCA (Act 716)	IUCN	CITES	2008 record	IAR	MR1
B107	Yellow-vented flowerpecker	<i>Dicaeum chrysorrheum</i>	Dicaeidae	Aves	Protected	LC	Not Listed	1	0	1
B108	Scarlet-backed Flowerpecker	<i>Dicaeum cruentatum</i>	Dicaeidae	Aves	Protected	LC	Not Listed	1	1	1
B109	Orange-bellied Flowerpecker	<i>Dicaeum trigonostigma</i>	Dicaeidae	Aves	Protected	LC	Not Listed	1	1	1
B110	Yellow-breasted Flowerpecker	<i>Prionochilus maculatus</i>	Dicaeidae	Aves	Protected	LC	Not Listed	1	1	1
B111	Crimson-breasted flowerpecker	<i>Prionochilus percussus</i>	Dicaeidae	Aves	Protected	LC	Not Listed	1	0	1
B114	Greater Racket-tailed Drongo	<i>Dicrurus paradiseus</i>	Dicruridae	Aves	Protected	LC	Not Listed	1	1	1
B115	Chestnut Munia	<i>Lonchura atricapilla</i>	Estrildidae	Aves	Non Protected	LC	Not Listed	1	1	1
B116	White-headed Munia	<i>Lonchura maja</i>	Estrildidae	Aves	Non Protected	LC	Not Listed	0	0	1
B117	Black-headed Munia	<i>Lonchura malacca</i>	Estrildidae	Aves	Non Protected	LC	Not Listed	0	0	1
B118	Scaly-breasted munia	<i>Lonchura punctulata</i>	Estrildidae	Aves	Protected	LC	Not Listed	1	0	1
B119	White-rumped Munia	<i>Lonchura striata</i>	Estrildidae	Aves	Protected	LC	Not Listed	1	1	1
B120	Green broadbill	<i>Calyptomena viridis</i>	Eurylaimidae	Aves	Protected	NT	Not Listed	1	0	1
B122	Black-and-red broadbill	<i>Cymbirhynchus macrorhynchus</i>	Eurylaimidae	Aves	Protected	LC	Not Listed	1	0	1
B123	Banded Broadbill	<i>Eurylaimus javanicus</i>	Eurylaimidae	Aves	Protected	LC	Not Listed	1	1	1
B124	Black-and-yellow Broadbill	<i>Eurylaimus ochromalus</i>	Eurylaimidae	Aves	Protected	NT	Not Listed	1	1	1

	Common name	Latin Name	Family	Class	WCA (Act 716)	IUCN	CITES	2008 record	IAR	MR1
B126	Black-thighed Falconet	<i>Microhierax fringillarius</i>	Falconidae	Aves	Protected	LC	Not Listed	1	1	1
B129	Grey-rumped treeswift	<i>Hemiprocne longipennis</i>	Hemiprocnidae	Aves	Protected	LC	Not Listed	1	0	1
B130	Barn Swallow	<i>Hirundo rustica</i>	Hirundinidae	Aves	Protected	LC	Not Listed	1	1	1
B131	Pacific Swallow	<i>Hirundo tahitica (Hirundo javanica)</i>	Hirundinidae	Aves	Protected	LC	Not Listed	1	1	1
B133	Asian fairy bluebird	<i>Irena puella</i>	Irenidae	Aves	Protected	LC	Not Listed	1	0	1
B134	Brown Shrike	<i>Lanius cristatus</i>	Laniidae	Aves	Protected	LC	Not Listed	1	1	1
B135	Long-tailed Shrike	<i>Lanius schach</i>	Laniidae	Aves	Protected	LC	Not Listed	0	1	1
B136	Tiger Shrike	<i>Lanius tigrinus</i>	Laniidae	Aves	Protected	LC	Not Listed	1	1	1
B138	Gold-whiskered Barbet	<i>Psilopogon chrysopogon</i>	Megalaimidae	Aves	Non Protected	LC	Not Listed	0	0	1
B140	Malay Brown Barbet (Sooty Barbet)	<i>Caloramphus hayii</i>	Megalaimidae	Aves	Non Protected	NT	Not Listed	0	1	1
B141	Blue-eared Barbet	<i>Psilopogon cyanotis</i>	Megalaimidae	Aves	Protected	LC	Not Listed	1	0	1
B142	Black-eared Barbet	<i>Psilopogon duvaucelii</i>	Megalaimidae	Aves	Non Protected	LC	Not Listed	0	1	1
B144	Red-throated barbet	<i>Psilopogon mystacophanos</i>	Megalaimidae	Aves	Protected	NT	Not Listed	1	0	1
B145	Red-crowned Barbet	<i>Psilopogon rafflesii</i>	Megalaimidae	Aves	Protected	NT	Not Listed	1	1	1
B146	Blue-tailed Bee-eater	<i>Merops philippinus</i>	Meropidae	Aves	Protected	LC	Not Listed	1	1	1
B147	Blue-throated bee-eater	<i>Merops viridis</i>	Meropidae	Aves	Protected	LC	Not Listed	1	0	1

	Common name	Latin Name	Family	Class	WCA (Act 716)	IUCN	CITES	2008 record	IAR	MR1
B148	Black-naped Monarch	<i>Hypothymis azurea</i>	Monarchidae	Aves	Non Protected	LC	Not Listed	1	1	1
B149	Paddyfield Pipit	<i>Anthus rufulus</i>	Motacillidae	Aves	Protected	LC	Not Listed	1	1	1
B151	White-rumped shama	<i>Copsychus malabaricus</i>	Muscicapidae	Aves	Protected	LC	Not Listed	1	0	1
B153	Indochinese Blue-Flycatcher	<i>Cyornis sumatrensis</i>	Muscicapidae	Aves	Protected	LC	Not Listed	0	0	1
B157	Yellow-rumped Flycatcher	<i>Ficedula zanthopygia</i>	Muscicapidae	Aves	Protected	LC	Not Listed	1	1	1
B158	Asian Brown Flycatcher	<i>Muscicapa dauurica</i>	Muscicapidae	Aves	Protected	LC	Not Listed	1	1	1
B159	Blyth's Paradise- Flycatcher	<i>Terpsiphone affinis</i>	Muscicapidae	Aves	Non Protected	LC	Not Listed	0	1	1
B161	Crimson Sunbird	<i>Aethopyga siparaja</i>	Nectariniidae	Aves	Protected	LC	Not Listed	1	1	1
B162	Brown-throated Sunbird	<i>Anthreptes malacensis</i>	Nectariniidae	Aves	Protected	LC	Not Listed	1	1	1
B163	Red-throated sunbird	<i>Anthreptes rhodolaemus</i>	Nectariniidae	Aves	Protected	NT	Not Listed	1	0	1
B164	Plain sunbird	<i>Anthreptes simplex</i>	Nectariniidae	Aves	Protected	LC	Not Listed	1	0	1
B166	Yellow-eared spiderhunter	<i>Arachnothera chrysogenys</i>	Nectariniidae	Aves	Protected	LC	Not Listed	1	0	1
B167	Thick-billed Spiderhunter	<i>Arachnothera crassirostris</i>	Nectariniidae	Aves	Protected	LC	Not Listed	1	1	1
B169	Little Spiderhunter	<i>Arachnothera longirostra</i>	Nectariniidae	Aves	Protected	LC	Not Listed	1	1	1
B171	Long-billed spiderhunter	<i>Arachnothera robusta</i>	Nectariniidae	Aves	Protected	LC	Not Listed	1	0	1
B172	Ruby-cheeked Sunbird	<i>Chalcoparia singalensis</i>	Nectariniidae	Aves	Protected	LC	Not Listed	1	1	1
B173	Olive-backed Sunbird	<i>Cinnyris jugularis</i>	Nectariniidae	Aves	Protected	LC	Not Listed	0	1	1
B174	Purple-naped Spiderhunter	<i>Kurochkinogramma hypogrammica</i>	Nectariniidae	Aves	Protected	LC	Not Listed	1	1	1

	Common name	Latin Name	Family	Class	WCA (Act 716)	IUCN	CITES	2008 record	IAR	MR1
B177	Black-naped Oriole	<i>Oriolus chinensis</i>	Oriolidae	Aves	Protected	LC	Not Listed	1	1	1
B178	Dark-throated oriole	<i>Oriolus xanthonotus</i>	Oriolidae	Aves	Protected	LC	Not Listed	1	0	1
B180	Malay Black magpie	<i>Platysmurus leucopterus</i>	Pachycephalidae	Aves	Protected	LC	Not Listed	1	0	1
B182	Horsfield's Babbler	<i>Malacocincla sepiaria</i>	Pellorneidae	Aves	Non Protected	LC	Not Listed	0	0	1
	Quail spp.	<i>Coturnix spp.</i>	Phasianidae	Aves	-	-	-	0	0	1
B183	Red Junglefowl	<i>Gallus gallus</i>	Phasianidae	Aves	Protected	LC	Not Listed	1	1	1
B184	Arctic Warbler	<i>Phylloscopus borealis</i>	Phylloscopidae	Aves	Protected	LC	Not Listed	0	0	1
B187	Orange-backed Woodpecker	<i>Chrysocolaptes validus</i>	Picidae	Aves	Protected	LC	Not Listed	1	0	1
B188	Chequer-throated Yellownape (Checker-throated Woodpecker)	<i>Chrysophlegma humii (mentale)</i>	Picidae	Aves	Protected	NT	Not Listed	1	1	1
B189	Banded Woodpecker	<i>Chrysophlegma miniaceum</i>	Picidae	Aves	Protected	LC	Not Listed	1	1	1
B190	Common Flameback	<i>Dinopium javanense</i>	Picidae	Aves	Protected	LC	Not Listed	0	0	1
B191	White-bellied Woodpecker	<i>Dryocopus javensis</i>	Picidae	Aves	Protected	LC	Not Listed	1	1	1
B192	Grey-and-buff Woodpecker	<i>Hemicircus concretus</i>	Picidae	Aves	Protected	LC	Not Listed	1	0	1
B193	Buff-rumped Woodpecker	<i>Meiglyptes tristis (grammithorax)</i>	Picidae	Aves	Protected	LC	Not Listed	1	1	1
B195	Rufous Woodpecker	<i>Micropternus brachyurus</i>	Picidae	Aves	Protected	LC	Not Listed	1	1	1
B197	Grey-capped Woodpecker	<i>Picoides canicapillus</i>	Picidae	Aves	Protected	LC	Not Listed	1	0	1

	Common name	Latin Name	Family	Class	WCA (Act 716)	IUCN	CITES	2008 record	IAR	MR1
B198	Crimson-winged Woodpecker	<i>Picus puniceus</i>	Picidae	Aves	Protected	LC	Not Listed	1	1	1
B199	Rufous piculet	<i>Sasia abnormis</i>	Picidae	Aves	Protected	LC	Not Listed	1	0	1
B200	Sunda Pygmy Woodpecker	<i>Yungipicus moluccensis</i> (<i>Picooides moluccensis</i> / <i>Dendrocopus sp.</i>)	Picidae	Aves	Protected	LC	Not Listed	1	0	1
B201	Garnet Pitta	<i>Erythropitta granatina</i>	Pittidae	Aves	Protected	NT	Not Listed	0	0	1
B202	Bar-winged Flycatcher-shrike	<i>Hemipus picatus</i>	Platysteiridae	Aves	Protected	LC	Not Listed	0	0	1
B203	Baya Weaver	<i>Ploceus philippinus</i>	Ploceidae	Aves	Protected	LC	Not Listed	1	1	1
B206	Blue-crowned Hanging-Parrot	<i>Loriculus galgulus</i>	Psittacidae	Aves	Protected	LC	Not Listed	1	1	1
B207	Blue-rumped parrot	<i>Psittinus cyanurus</i>	Psittacidae	Aves	Protected	NT	Appendix II	1	0	1
B210	Black-headed Bulbul	<i>Brachypodius atriceps</i>	Pycnonotidae	Aves	Protected	LC	Not Listed	1	1	1
B211	Puff-backed bulbul	<i>Euptilotus eutilotus</i>	Pycnonotidae	Aves	Protected	NT	Not Listed	1	1	1
B214	Spectacled bulbul	<i>Ixidia erythroptalmos</i>	Pycnonotidae	Aves	Protected	LC	Not Listed	1	1	1
B217	Red-eyed Bulbul	<i>Pycnonotus brunneus</i>	Pycnonotidae	Aves	Protected	LC	Not Listed	1	1	1
B218	Stripe-throated Bulbul	<i>Pycnonotus finlaysoni</i>	Pycnonotidae	Aves	Protected	LC	Not Listed	0	0	1
B219	Yellow-vented Bulbul	<i>Pycnonotus goavier</i>	Pycnonotidae	Aves	Non Protected	LC	Not Listed	1	1	1
B220	Olive-winged Bulbul	<i>Pycnonotus plumosus</i>	Pycnonotidae	Aves	Protected	LC	Not Listed	1	1	1
B221	Cream-vented Bulbul	<i>Pycnonotus simplex</i>	Pycnonotidae	Aves	Protected	LC	Not Listed	1	1	1

	Common name	Latin Name	Family	Class	WCA (Act 716)	IUCN	CITES	2008 record	IAR	MR1
B222	Hairy-backed bulbul	<i>Tricholestes criniger</i>	Pycnonotidae	Aves	Protected	LC		1	0	1
B223	White-breasted Waterhen	<i>Amaurornis phoenicurus</i>	Rallidae	Aves	Protected	LC	Not Listed	1	1	1
B225	Malaysian Pied-Fantail	<i>Rhipidura javanica</i>	Rhipiduridae	Aves	Protected	LC	Not Listed	0	1	1
B241	Purple-backed starling	<i>Agropsar sturninus</i>	Sturnidae	Aves	Non Protected	LC	Not Listed	1	0	1
B242	Asian Glossy Starling	<i>Aplonis panayensis</i>	Sturnidae	Aves	Non Protected	LC	Not Listed	1	1	1
B243	Common Hill Myna	<i>Gracula religiosa</i>	Sturnidae	Aves	Protected	LC	Appendix II	1	1	1
B244	Chestnut-winged babbler	<i>Cyanoderma erythropterum</i>	Timaliidae	Aves	Protected	LC	Not Listed	1	1	1
B247	Fluffy-backed Tit-Babbler	<i>Macronus ptilosus</i>	Timaliidae	Aves	Protected	NT	Not Listed	1	1	1
B248	Abbott's babbler	<i>Malacocincla abbotti</i>	Timaliidae	Aves	Protected	LC	Not Listed	1	1	1
B249	Sooty-capped Babbler	<i>Malacopteron affine</i>	Timaliidae	Aves	Protected	NT	Not Listed	1	1	1
B250	Scaly-crowned Babbler	<i>Malacopteron cinereum</i>	Timaliidae	Aves	Protected	LC	Not Listed	1	1	1
B251	Moustached Babbler	<i>Malacopteron magnirostre</i>	Timaliidae	Aves	Protected	LC	Not Listed	0	1	1
B252	Rufous-crowned Babbler	<i>Malacopteron magnum</i>	Timaliidae	Aves	Protected	NT	Not Listed	1	1	1
B253	Pin-striped Tit babbler	<i>Mixornis gularis</i>	Timaliidae	Aves	Protected	LC	Not Listed	1	1	1
B255	Malayan Black-capped Babbler	<i>Pellorneum capistratum</i>	Timaliidae	Aves	Protected	LC	Not Listed	1	1	1
B256	Short-tailed babbler	<i>Pellorneum malaccense</i>	Timaliidae	Aves	Protected	NT	Not Listed	1	0	1
B257	White-chested babbler	<i>Pellorneum rostratum</i>	Timaliidae	Aves	Protected	NT	Not Listed	1	1	1
B259	Chestnut- rumped Babbler	<i>Stachyris maculata</i>	Timaliidae	Aves	Protected	NT	Not Listed	1	1	1

	Common name	Latin Name	Family	Class	WCA (Act 716)	IUCN	CITES	2008 record	IAR	MR1
B261	Diard's trogon	<i>Harpactes diardii</i>	Trogonidae	Aves	Protected	NT	Not Listed	1	0	1
B262	Scarlet-rumped Trogon	<i>Harpactes duvaucelii</i>	Trogonidae	Aves	Protected	NT	Not Listed	1	1	1
B265	Oriental Magpie-Robin	<i>Copsychus saularis</i>	Turdidae	Aves	Protected	LC	Not Listed	1	1	1
B266	Eye-browed thrush	<i>Turdus obscurus</i>	Turdidae	Aves	Protected	LC	Not Listed	1	0	1
B267	Barred Buttonquail	<i>Turnix suscitator</i>	Turdidae	Aves	Protected	LC	Not Listed	1	1	1
B268	Black-winged Flycatcher-shrike	<i>Hemipus hirundinaceus</i>	Vangidae	Aves	Protected	LC	Not Listed	1	0	1
B271	Large woodshrike	<i>Tephrodornis virgatus</i>	Vangidae	Aves	Protected	LC	Not Listed	1	0	1

List of Amphibian Species

	Common name	Latin Name	Family	Class	WCA (Act 716)	IUCN	CITES	2008 record	IAR	MR1
A04	Mangrove frog	<i>Fejervarya cancrivora</i>	Dicoglossidae	Amphibia	Non Protected	LC	Not Listed	1	1	1

List of Reptile Species

	Common name	Latin Name	Family	Class	WCA (Act 716)	IUCN	CITES	2008 record	IAR	MR1
R28	Malayan Box Turtle	<i>Cuora amboinensis</i>	Geoemydidae	Reptilia	Protected	EN	Appendix II	1	1	1
R31	Spiny turtle	<i>Heosemys spinosa</i>	Geoemydidae	Reptilia	Protected	EN	Appendix II	1	0	1
R22	King cobra	<i>Ophiophagus hannah</i>	Elapidae	Reptilia	Protected	VU	Appendix II	1	0	1
R04	Oriental Garden Lizard	<i>Calotes versicolor</i>	Agamidae	Reptilia	Protected	LC	Not Listed	0	0	1
R07	Common Butterfly lizard	<i>Leiolepis belliana</i>	Agamidae	Reptilia	Protected	LC	Not Listed	1	1	1
R12	Gray Bronzeback	<i>Dendrelaphis caudolineatus</i>	Colubridae	Reptilia	Non Protected	LC	Not Listed	0	1	1
R20	Malayan krait (Common Krait)	<i>Bungarus caeruleus</i>	Elapidae	Reptilia	Protected	LC	Not Listed	1	0	1

	Common name	Latin Name	Family	Class	WCA (Act 716)	IUCN	CITES	2008 record	IAR	MR1
R36	Reticulated python	<i>Malayopython reticulatus</i>	Pythonidae	Reptilia	Protected	LC	Appendix II	1	0	1
R38	Common sun skink (Common Mabuya)	<i>Eutropis multifasciata</i>	Scinidae	Reptilia	Non Protected	LC	Not Listed	1	1	1
R40	Clouded monitor	<i>Varanus nebulosus</i>	Varanidae	Reptilia	Protected	LC	Appendix I	0	0	1
R41	Common water monitor	<i>Varanus salvator</i>	Varanidae	Reptilia	Protected	LC	Appendix II	1	1	1

APPENDIX 4 UNCERTAINTY ANALYSIS

The Project followed the procedures outlined in VMD0017 (X-UNC) as presented below.

Part 1: Uncertainty in REDD baseline estimates

Step 1: Assess Uncertainty in Projection of Baseline Rate of Deforestation or Degradation

It is here assumed that there is zero uncertainty in baseline rate of deforestation or degradation because the Project baseline are based on actual deforestation plans and therefore:

$$UNCERTAINTY_{BSL,RATE} = 0$$

Step 2: Assess Uncertainty of Emissions and Removals in Project Area in Baseline Scenario

Uncertainty for the combined carbon stocks for aboveground tree biomass was assessed across the entire project areas through the production of the wall-to-wall biomass map developed under VT0005, with the percentage uncertainty in the combined carbon stocks and greenhouse gas sources in the REDD baseline scenario equal to 19.3% (see Section 3.2.1.1.3.10 in PDD):

$$Uncertainty_{REDD-BSL,SS} = 19.3\%$$

As the uncertainty for baseline deforestation rate was set to zero the above value was considered the total uncertainty rate for the REDD baseline in **step 3** of the procedures.

$$Uncertainty_{REDD-BSL,t*} = 19.3\%$$

Part 2: Uncertainty in Baseline Estimates for Peatland

Uncertainty calculations for baseline emissions parameters in peat included errors from landcover proxies and ditches for both CO₂ and CH₄. Baseline burning was not included as it is not included in baseline calculations as the Project has taken the Fire Premium approach.

The uncertainty in each parameter was calculated using the below equation:

$$U_{*,t} = \sqrt{\sum_{i=1}^M (A_i \times U_{*,i,t})^2}$$

Where:

- $U_{*,t}$ = Uncertainty in parameter * in year t (t CO₂e yr⁻¹)
- A_i = Uncertainty in parameter * in stratum i in year t , equal to the half width of the 95% confidence interval (t CO₂e ha⁻¹yr⁻¹)
- $U_{*,i,t}$ = Total area of stratum i (ha)
- i = 1, 2, 3, ... M strata (unitless)
- t = 1, 2, 3, ... t time elapsed since the project start (years)

Total uncertainty in the WRC baseline for peatland in year t was then calculated as follows:

$$Uncertainty_{PEAT-BSL,t} = \sqrt{U_{E_{proxy-CO_2,t}}^2 + U_{E_{proxy-CH_4,t}}^2 + U_{E_{peatditch-CO_2,t}}^2 + U_{E_{peatditch-CH_4,t}}^2}$$

Where:

$Uncertainty_{PEAT-BSL,t}$	= Uncertainty in the WRC baseline scenario for peatland in year t (t CO ₂ e)
$U_{E_{proxy-CO_2,t}}$	= Uncertainty in parameter $E_{proxy-CO_2,t}$ (emission of CO ₂ in relation to the chosen proxy in year t) (t CO ₂ e yr ⁻¹)
$U_{E_{proxy-CH_4,t}}$	= Uncertainty in parameter $E_{proxy-CH_4,t}$ (emission of CH ₄ in relation to the chosen proxy in year t) (t CO ₂ e yr ⁻¹)
$U_{E_{peatditch-CO_2,t}}$	= Uncertainty in parameter $E_{peatditch-CO_2,t}$ (emission of CO ₂ in ditch and open water in year in year t) (t CO ₂ e yr ⁻¹)
$U_{E_{peatditch-CH_4,t}}$	= Uncertainty in parameter $E_{peatditch-CH_4,t}$ (emission of CH ₄ in ditch and open water in year in year t) (t CO ₂ e yr ⁻¹)
t	= 1, 2, 3, ... t time elapsed since the project start (years)

Uncertainty was then propagated across years to produce an estimate of cumulative uncertainty up to year t^* as follows:

$$Uncertainty_{PEAT-BSL,t^*} = \sqrt{\sum_{t=1}^{t^*} Uncertainty_{PEAT-BSL,t}^2} \times \frac{1}{\sum_{t=1}^{t^*} GHG_{PEAT-BSL,t}}$$

Where:

$Uncertainty_{PEAT-BSL,t^*}$	= Cumulative uncertainty in the WRC baseline scenario for peatland up to year t^* (%)
$Uncertainty_{PEAT-BSL,t}$	= Uncertainty in the WRC baseline scenario for peatland in year t (t CO ₂ e)
$GHG_{PEAT-BSL,t}$	= Net GHG emissions in the WRC baseline scenario for peatland in year t (t CO ₂ e)
t	= 1, 2, 3, ... t time elapsed since the project start (years)

Part 3: Uncertainty Ex Post in the REDD Project Scenario

Part three is skipped as part of determining uncertainty estimates in the REDD scenario for EX-post calculations and will be completed in subsequent monitoring reports.

Part 4: Uncertainty in WRC Project Scenario Estimates

The same procedures are for baseline WRC uncertainty estimates are used for estimating emissions projected for the project scenario with baseline GHGs, proxies and parameters swapped out for those specific to project emission estimation.

As the project has no tidal wetlands the total uncertainty in the WRC project scenario is determined as being equal to the uncertainty for peat emissions.

$$Uncertainty_{WRC-WPS,t} = \sqrt{Uncertainty_{PEAT-WPS,t}^2}$$

Where:

- $Uncertainty_{WRC-WPS,t}$ = Cumulative uncertainty in WRC project scenario up to year t (%)
 $Uncertainty_{PEAT-WPS,t}$ = Cumulative uncertainty in the WRC project scenario for peatland up to year t (%)
 t = 1, 2, 3, ...t* time elapsed since the start of the project activity (years)

Part 5 Total Error in the REDD+ Project Activity

Total project uncertainty is equal to the combined uncertainty in baseline and project estimates for the REDD and WRC activities:

$$NERR_{REDD+ERROR} = \sqrt{\frac{(Unc_{REDD-BSL,t*} \times \Delta C_{BSL-REDD,t*})^2 + (Unc_{REDD-WSP,t*} \times \Delta C_{WPS-REDD,t*})^2 + (Unc_{WRC-B ,t*} \times \Delta GHG_{BSL-WRC,t*})^2 + (Unc_{WRC-WPS,t*} \times \Delta GHG_{WPS-W ,t*})^2}{(\Delta C_{BSL-REDD,t*} + \Delta C_{WPS-REDD,t*} + \Delta GHG_{BSL-WRC,t*} + \Delta GHG_{WPS-W ,t*})}}$$

Where:

- $NERR_{REDD+ERROR}$ = Cumulative uncertainty for the REDD+ (REDD and WRC) project activities up to year t* (%)
 $Unc_{REDD-BSL,t*}$ = Cumulative uncertainty in REDD baseline scenario up to year t (%)
 $Unc_{REDD-WSP,t*}$ = Total uncertainty in the REDD project scenario (%)
 $Unc_{WRC-BSL,t*}$ = Cumulative uncertainty in the WRC baseline scenario up to year t (%)
 $Unc_{WRC-WPS,t*}$ = Cumulative uncertainty in the WRC project scenario up to year t (%)
 $\Delta C_{BSL-REDD,t*}$ = Net GHG emissions in the REDD baseline scenario up to year t* (t CO₂e)
 $\Delta C_{WPS-REDD,t*}$ = Net GHG emissions in the REDD project scenario up to year t* (t CO₂e)
 $\Delta GHG_{BSL-WRC,t*}$ = Net GHG emissions in the WRC baseline scenario up to year t (t CO₂e)
 $\Delta GHG_{WPS-WRC,t*}$ = Net GHG emissions in the WRC project scenario up to year t (t CO₂e)
 t = 1, 2, 3, ...t* time elapsed since the start of the project activity (years)

Below are presented the tables for each uncertainty component.

Table 33: Uncertainty estimates in the WRC baseline

Year	U-Eproxy-CO2	U-Eproxy-CH4	U-Epeatditch-CO2	U-Epeatditch-CH4	Uncertainty-Peat BSL,t	GHGPeat-BSL	Uncertainty-Peat BSL,t*
1	482,638	2,373	2,644	60	482,651	2,277,270	0.21

For both the WRC project scenario and the REDD baseline, emissions (and error) are only accounted for in the initial years when deforestation and rewetting occur and so the table below is truncated to cover the first 10 years of the project.

Table 34: Uncertainty in peat emission for the project Scenario and the REDD baseline scenario

Year	U-Eproxy-CO2	U-Eproxy-CH4	Uncertainty-Peat BSL,t	GHGPeat-BSL	Uncertainty-Peat BSL,t*	E-ReddBSL,ss,i	Uncertainty-REDD-BSI
1	475,910	2,637	475,917	2,026,813	0.23	346,666	0.193

Table 35: Total project uncertainty

Year	NERRRedd+Error
1	0.15

APPENDIX 5 LIST OF CANAL BLOCKS

No	Canal Block ID	Sector	Area/Dome	Constructed date (Month/Year)	Current Condition	Category	Latitude	Longitude
1	CB_PKN001	Tj. Medang	Pekan East A	October, 2024	Intact	Good	589927	385724
2	CB_PKN002	Tj. Medang	Pekan East A	October, 2024	Intact	Good	590123	387091
3	CB_PKN003	Tj. Medang	Pekan East A	October, 2024	Intact	Good	590325	386935
4	CB_PKN004	Tj. Medang	Pekan East A	October, 2024	Intact	Good	590513	386780
5	CB_PKN005	Tj. Medang	Pekan East A	October, 2024	Intact	Good	590707	386636
6	CB_PKN006	Tj. Medang	Pekan East A	October, 2024	Intact	Good	590700	386390
7	CB_PKN007	Tj. Medang	Pekan East A	October, 2024	Intact	Good	590702	386147
8	CB_PKN008	Tj. Medang	Pekan East A	October, 2024	Intact	Good	590704	385900
9	CB_PKN009	Tj. Medang	Pekan East A	October, 2024	Intact	Good	590687	385661
10	CB_PKN010	Tj. Medang	Pekan East A	October, 2024	Intact	Good	590678	385396
11	CB_PKN011	Tj. Medang	Pekan East A	October, 2024	Intact	Good	590656	385175
12	CB_PKN012	Tj. Medang	Pekan East A	October, 2024	Intact	Good	590644	384894
13	CB_PKN013	Tj. Medang	Pekan East A	October, 2024	Intact	Good	590639	384681
14	CB_PKN014	Tj. Medang	Pekan East A	October, 2024	Intact	Good	590615	384384
15	CB_PKN015	Tj. Medang	Pekan East A	October, 2024	Intact	Good	590621	384181
16	CB_PKN016	Tj. Medang	Pekan East A	October, 2024	Intact	Good	590610	383880
17	CB_PKN017	Tj. Medang	Pekan East A	October, 2024	Intact	Good	590680	383662
18	CB_PKN018	Tj. Medang	Pekan East A	October, 2024	Intact	Good	590731	383473
19	CB_PKN019	Tj. Medang	Pekan East A	October, 2024	Intact	Good	590731	383290
20	CB_PKN020	Tj. Medang	Pekan East A	October, 2024	Intact	Good	590740	383163

No	Canal Block ID	Sector	Area/Dome	Constructed date (Month/Year)	Current Condition	Category	Latitude	Longitude
21	CB_PKN021	Tj. Medang	Pekan East A	October, 2024	Intact	Good	590736	382862
22	CB_PKN022	Tj. Medang	Pekan East A	October, 2024	Intact	Good	590682	382550
23	CB_PKN023	Tj. Medang	Pekan East A	October, 2024	Intact	Good	590671	382243
24	CB_PKN024	Tj. Medang	Pekan East A	October, 2024	Intact	Good	590697	382197
25	CB_PKN025	Tj. Medang	Pekan East A	October, 2024	Intact	Good	591202	382189
26	CB_PKN026	Tj. Medang	Pekan East A	October, 2024	Intact	Good	591739	382201
27	CB_PKN027	Tj. Medang	Pekan East A	October, 2024	Intact	Good	592273	382190
28	CB_PKN028	Tj. Medang	Pekan East A	October, 2024	Intact	Good	592630	382226
29	CB_PKN029	Tj. Medang	Pekan East A	October, 2024	Intact	Good	593064	382200
30	CB_PKN030	Bkt Bangkong	Pekan East A	October, 2024	Intact	Good	593540	382199
31	CB_PKN031	Tj. Medang	Pekan East A	October, 2024	Intact	Good	590659	382010
32	CB_PKN032	Tj. Medang	Pekan East A	October, 2024	Intact	Good	590674	381782
33	CB_PKN033	Tj. Medang	Pekan East A	October, 2024	Intact	Good	590578	381559
34	CB_PKN034	Tj. Medang	Pekan East A	October, 2024	Intact	Good	590588	381257
35	CB_PKN035	Tj. Medang	Pekan East A	October, 2024	Intact	Good	590996	381216
36	CB_PKN036	Tj. Medang	Pekan East A	October, 2024	Intact	Good	591419	381200
37	CB_PKN037	Tj. Medang	Pekan East A	October, 2024	Intact	Good	591913	381156
38	CB_PKN038	Tj. Medang	Pekan East A	October, 2024	Intact	Good	592412	381187
39	CB_PKN039	Tj. Medang	Pekan East A	October, 2024	Intact	Good	592916	381173
40	CB_PKN040	Tj. Medang	Pekan East A	October, 2024	Intact	Good	593284	381173
41	CB_PKN041	Tj. Medang	Pekan East A	October, 2024	Intact	Good	593512	381188
42	CB_PKN042	Tj. Medang	Pekan East A	October, 2024	Intact	Good	593530	381420
43	CB_PKN043	Tj. Medang	Pekan East A	October, 2024	Intact	Good	593536	381645
44	CB_PKN044	Bkt Bangkong	Pekan East A	October, 2024	Intact	Good	593591	381905

No	Canal Block ID	Sector	Area/Dome	Constructed date (Month/Year)	Current Condition	Category	Latitude	Longitude
45	CB_PKN045	Bkt Bangkok	Pekan East A	October, 2024	Intact	Good	593707	382207
46	CB_PKN046	Bkt Bangkok	Pekan East A	October, 2024	Intact	Good	594012	382569
47	CB_PKN047	Tj. Medang	Pekan East A	October, 2024	Intact	Good	590373	381218
48	CB_PKN048	Tj. Medang	Pekan East A	October, 2024	Intact	Good	590115	381206
49	CB_PKN049	Tj. Medang	Pekan East A	October, 2024	Intact	Good	589604	381237
50	CB_PKN050	Tj. Medang	Pekan East A	October, 2024	Intact	Good	589117	381221
51	CB_PKN051	Tj. Medang	Pekan East A	October, 2024	Intact	Good	588657	381225
52	CB_PKN052	Tj. Medang	Pekan East A	October, 2024	Intact	Good	588133	381231
53	CB_PKN053	Tj. Medang	Pekan East A	October, 2024	Intact	Good	587633	381224
54	CB_PKN054	Tj. Medang	Pekan East A	October, 2024	Intact	Good	586907	381037
55	CB_PKN055	Tj. Medang	Pekan East A	October, 2024	Intact	Good	590573	380726
56	CB_PKN056	Tj. Medang	Pekan East A	October, 2024	Intact	Good	590493	380205
57	CB_PKN057	Tj. Medang	Pekan East A	October, 2024	Intact	Good	589439	380225
58	CB_PKN058	Tj. Medang	Pekan East A	October, 2024	Intact	Good	588977	379774
59	CB_PKN059	Tj. Medang	Pekan East A	October, 2024	Intact	Good	588972	379194
60	CB_PKN060	Tj. Medang	Pekan East A	October, 2024	Intact	Good	588112	379534
61	CB_PKN061	Tj. Medang	Pekan East A	October, 2024	Intact	Good	588111	378703
62	CB_PKN062	Tj. Medang	Pekan East A	October, 2024	Intact	Good	588104	377880
63	CB_PKN063	Tj. Medang	Pekan East A	October, 2024	Intact	Good	588195	377013
64	CB_PKN064	YP, Buffer Zone	Pekan East D	September, 2024	Intact	Good	595744	372640
65	CB_PKN065	YP, Buffer Zone	Pekan East D	September, 2024	Intact	Good	595309	373182
66	CB_PKN066	YP	Pekan East D	September, 2024	Intact	Good	595327	372131
67	CB_PKN067	YP	Pekan East D	September, 2024	Intact	Good	595326	372501
68	CB_PKN068	YP	Pekan East D	September, 2024	Intact	Good	595653	372601

No	Canal Block ID	Sector	Area/Dome	Constructed date (Month/Year)	Current Condition	Category	Latitude	Longitude
69	CB_PKN069	YP	Pekan East D	September, 2024	Intact	Good	595429	372589
70	CB_PKN070	YP	Pekan East D	September, 2024	Intact	Good	595400	372819
71	CB_RSK001	Resak, Buffer Zone	Resak East B	October, 2024	Intact	Good	592605	331783
72	CB_RSK002	Resak, Buffer Zone	Resak East B	October, 2024	Intact	Good	592685	331936
73	CB_RSK003	Jemeri	Resak West B	July, 2024	Intact	Good	585487	328693
74	CB_RSK004	Jemeri	Resak West B	July, 2024	Intact	Good	585074	328797

APPENDIX 6 PARAMETERS AVAILABLE AT VALIDATION

Data / Parameter	$A_{BSL,i,t}$ or $A_{i,t}$
Data unit	ha
Description	Area of baseline stratum i in year t
Source of data	Baseline management plans and commercial development applications (See Section 3.1.5.2.3 in PDD).
Value applied	Varies across time and baseline agents of deforestation and degradation. Totals listed below: RWE: 36,224 ha CIW: 36,584 ha REDD: 6,398 ha ARR: 17,451 ha
Justification	Legally sanctioned plans, license and concessions maps and geospatial data supplied to the Project by the State Exco and Forestry Department considered valid and accurate for the determination of baseline emissions.
Purpose of Data	Calculation of peat baseline emissions
Comments	Parameter from module X-STR

Data / Parameter	$A_{ditch-BSL,i,t}$
Data unit	ha
Description	Total area of ditch and other open water stratum i in year t in the Baseline Scenario.
Source of data	Verified areas of existing canals digitized using GIS software, spatially explicit verifiable land use plans and areas determined by common practice.
Value applied	Varies across time and baseline agents and project activities. Total = 613 ha
Justification	Most accurate source of data available, no other data on canal extent existed.
Purpose of Data	Calculation of baseline and project emissions
Comments	Note that emissions from ditches and other open water bodies are estimated for CIW and APD+CIW. However, emissions from ditches and other water bodies in RWE and APD+RWE baseline and project scenarios are not included because there are no significant differences between these scenarios for RWE.

Data / Parameter	A_p
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Data unit	ha
Description	Total area of peat in the Project Area
Source of data	Peat survey and validation of derived peat map
Value applied	73,668 ha
Justification	Most accurate source of data available, the only other data available to the project was low resolution publicly available data
Purpose of Data	Calculation of project emissions
Comments	Parameter from module M-PEAT

Data / Parameter	$A_{\text{peatsoil-BSL},i,t}$
Data unit	ha
Description	Area of peatland in stratum i in year t in the Baseline Scenario
Source of data	Peat available for decomposition derived from project drainage eligibility limit analysis and peat depth map intersected with areas of planned and existing drainage areas and peat depletion time.
Value applied	72,917 ha
Justification	Derived from modelling of field data
Purpose of Data	Calculation of baseline emissions
Comments	Parameter is found in module BL-PEAT

Data / Parameter	$\text{Depth}_{\text{peat-BSL},i,t0}$ $\text{Depth}_{\text{peat-WPS},i,t0}$																																																																	
Data unit	m																																																																	
Description	Average peat depth in the Baseline Scenario and the Project Scenario in stratum i at project start																																																																	
Source of data	Peat depth maps derived from peat depth soil survey in the Project Area.																																																																	
Value applied	Varies across different peat domes: <table border="1"> <thead> <tr> <th>Peat Depth (m)</th> <th>Pekan West (ha)</th> <th>Pekan East (ha)</th> <th>Nenasi (ha)</th> <th>Resak (ha)</th> </tr> </thead> <tbody> <tr> <td>0.5 – 1.0</td> <td>813</td> <td>2,153</td> <td>1,031</td> <td>1,215</td> </tr> <tr> <td>1.0 – 1.5</td> <td>1,853</td> <td>2,702</td> <td>1,687</td> <td>1,055</td> </tr> <tr> <td>1.5 – 2.0</td> <td>2,902</td> <td>2,380</td> <td>2,103</td> <td>1,053</td> </tr> <tr> <td>2.0 – 2.5</td> <td>2,668</td> <td>2,546</td> <td>2,545</td> <td>1,273</td> </tr> <tr> <td>2.5 – 3.0</td> <td>1,764</td> <td>2,556</td> <td>2,444</td> <td>2,202</td> </tr> <tr> <td>3.0 – 3.5</td> <td>1,456</td> <td>2,912</td> <td>3,031</td> <td>1,216</td> </tr> <tr> <td>3.5 – 4.0</td> <td>1,696</td> <td>3,406</td> <td>4,940</td> <td>790</td> </tr> <tr> <td>4.0 – 4.5</td> <td>885</td> <td>3,624</td> <td>847</td> <td>479</td> </tr> <tr> <td>4.5 – 5.0</td> <td>423</td> <td>4,297</td> <td>-</td> <td>312</td> </tr> <tr> <td>5.0 – 5.5</td> <td>411</td> <td>2,572</td> <td>-</td> <td>130</td> </tr> <tr> <td>5.5 – 6.0</td> <td>-</td> <td>1,168</td> <td>-</td> <td>87</td> </tr> <tr> <td>6.0 – 6.5</td> <td>-</td> <td>-</td> <td>-</td> <td>43</td> </tr> </tbody> </table>	Peat Depth (m)	Pekan West (ha)	Pekan East (ha)	Nenasi (ha)	Resak (ha)	0.5 – 1.0	813	2,153	1,031	1,215	1.0 – 1.5	1,853	2,702	1,687	1,055	1.5 – 2.0	2,902	2,380	2,103	1,053	2.0 – 2.5	2,668	2,546	2,545	1,273	2.5 – 3.0	1,764	2,556	2,444	2,202	3.0 – 3.5	1,456	2,912	3,031	1,216	3.5 – 4.0	1,696	3,406	4,940	790	4.0 – 4.5	885	3,624	847	479	4.5 – 5.0	423	4,297	-	312	5.0 – 5.5	411	2,572	-	130	5.5 – 6.0	-	1,168	-	87	6.0 – 6.5	-	-	-	43
Peat Depth (m)	Pekan West (ha)	Pekan East (ha)	Nenasi (ha)	Resak (ha)																																																														
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Justification	Peat depths were derived from existing peat depth and Project Area maps generated from field measurements, e.g., using a peat cores and the digital terrain model (DTM) for the area.
Purpose of Data	Calculation of baseline emissions and project emissions and for the purpose of determining the PDT, determined as the depth of the peat layer down to a level where no further oxidation or other losses occur (e.g., the average water table depth or DEL).

Data / Parameter	Project Forest Cover Benchmark Map
Data unit	Dimensionless
Description	Map showing the location of forest land within the Project Area at the beginning of each Monitoring Period. If within the Project Area some forest land is cleared, the benchmark map must show the deforested areas at each monitoring event.
Source of data	Remote sensing in combination with GPS data collected during ground truthing
Value applied	See map in Figure 48 in PDD
Justification	This data meets the accuracy requirements set out in M-REDD
Purpose of Data	Estimating of forest cover and land cover change and calibration of biomass models.
Comments	

Data / Parameter	C_{AB_tree}
Data unit	t CO ₂ e ha ⁻¹
Description	Mean aboveground tree biomass carbon stock of trees in the Good Forest strata.
Source of data	Derived from wall-to-wall biomass map developed under VT0005
Value applied	Varies: 172 tCO ₂ -e ha ⁻¹ on average across the project area.
Justification	The use of VT0005 for deriving carbon stocks in live tree biomass provides higher levels of accuracy than those derived from average plot values applied to specific strata.
Purpose of Data	Calculation of changes in carbon stocks in baseline and project emissions modelling.
Comments	The map provides pixel level estimates of biomass that are summed for each area and forest cover class where deforestation occurs in the baseline or in the project scenario.

Data / Parameter	CF _{<i>j</i>}
Data unit	t C t d.m. ⁻¹
Description	Carbon fraction of biomass for tree species <i>j</i>
Source of data	Default value of 0.47 t C to t d.m. is used.
Value applied	0.47

Justification	IPCC 2006GL
Data / Parameter	D_j
Data unit	t d.m. m ⁻³
Description	Density of wood by species from World Wood Database
Source of data	(Chave et al., 2009; Zanne et al., 2009)
Value applied	Various
Justification	Derived from World Wood Database
Purpose of Data	Calculation of wood density

Data / Parameter	$E_{REDD_BSL,SS,I,tree}$
Data unit	t CO ₂ e
Description	Carbon stock or GHG sources i.e. trees, in the REDD Baseline Scenario.
Source of data	The terms denoting significant carbon stocks, GHG sources or leakage emissions used in calculating net emission reductions from the following relevant modules: CP-AB, E-NA.
Value applied	Total = 9,120,922
Justification	Derived from wall to wall carbon map and the changes in pre and post deforestation carbon stock
Purpose of Data	Calculation of uncertainty
Comments	The carbon stock estimate only includes tree above ground biomass. The <i>ex-ante</i> estimations are derived directly from the estimations originating in the relevant modules: CP-AB

Data / Parameter	$f_j(X,Y)$
Data unit	t d.m. tree ⁻¹
Description	Allometric equation for species j linking measured tree variable(s) to aboveground biomass of living trees, expressed as t d.m. tree ⁻¹
Source of data	(Manuri et al., 2014b)
Value applied	Derived from $AGB = 0.15 \times DBH^{2.095} \times WD^{0.664} \times H^{0.552}$
Justification	This the most locally relevant allometric equation for Indonesian and Malaysian peat swamp forests. They were derived from destructive sampling of forest trees in the three peat swamps across Sumatra and Borneo
Purpose of Data	Calculation of aboveground biomass

Data / Parameter	R
Data unit	t root d.m. t ⁻¹ shoot d.m.
Description	A root: shoot ratio appropriate for peat swamp forests of 0.3 was applied to account for belowground biomass

Source of data	Derived from multiple relevant locally relevant sources (Eggleston et al., 2006; Jans et al., 2012; Kurnianto et al., 2015; Murdiyarto et al., 2010b)
Value applied	0.3
Justification	See Module CP-AB.
Purpose of Data	Calculation of ex-ante carbon stocks in ARR activity areas.
Comments	Belowground biomass in the REDD baseline is not accounted for and so this ratio is only applied to estimates of biomass accumulation in the project scenario under ARR activities.

Data / Parameter	CC
Data unit	%
Description	The average carbon content of the peat
Source of data	The carbon content of peat was measured in a soil laboratory from 51 samples from the project area.
Value applied	46.63%
Justification	The use of site-specific data provides for more accurate estimates of baseline and project emissions
Purpose of Data	Calculation of project emissions

Data / Parameter	Rate _{peatloss-BSL,i}
Data unit	cm yr ⁻¹
Description	Rate of peat loss due to subsidence and fire in the Baseline Scenario in stratum <i>i</i> ; a conservative (high) value must be applied that remains constant over time from t = 0 to PDT.
Source of data	The rate of peat loss is derived directly from the emissions factors applied for specific peat areas and baseline land cover proxies which are converted to a volume of annual peat loss based on measured peat soil characteristics.
Value applied	Agroforestry Park = 2.04 Dairy Farm = 1.90 Rest of the project area = 2.08
Justification	By combining emission factors with actual soil data collected from the project area the Project has improved the accuracy in peat loss estimates over those provided in the literature.
Purpose of Data	Calculation of baseline and project emissions
Comments	Agroforestry and Dairy development apply different emissions factors for biodegradation as does the area drained for selective logging.

Data / Parameter	t _{PDT-BSL,i}
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Data unit	yr
Description	Peat depletion time (PDT) in the Baseline Scenario in stratum <i>i</i> in years elapsed since the Project start.
Source of data	Project data and peat modelling
Value applied	Varies between 12 and 329 years depending on peat depth and baseline land cover (See Section 3.2.1.1.5.3).
Justification	N/A
Purpose of Data	Calculation of baseline and project emissions

Data / Parameter	VC
Data unit	g C cm ⁻³
Description	Volumetric organic carbon content
Source of data	The organic content of peat was measured in a soil laboratory from 51 samples from the project area.
Value applied	0.158
Justification	Field data is considered more accurate than values derived from literature.
Purpose of Data	Calculation of baseline emissions. Calculation of the total carbon stock in the Project Area Calculation of project fire emissions

Data / Parameter	$A_{planned,i}$
Data unit	Ha
Description	Total area of planned deforestation over the fixed baseline period for stratum <i>i</i>
Source of data	Baseline management plans and commercial development applications See Section 3.1.5.2.3.
Value applied	Total planned REDD area = 6,398 ha, Dairy farm = 5,915 ha Agroforestry park = 482 ha
Justification	Derived from valid and verifiable plans
Purpose of Data	Calculation of baseline planned deforestation

Data / Parameter	$D\%_{planned,i,t}$
Data unit	% year ⁻¹
Description	Projected annual proportion of land that will be deforested in stratum <i>i</i> at year <i>t</i>
Source of data	Derived from spatially explicit and government approved commercial plans for deforestation and peat degradation.
Value applied	Various (see Section 3.1.5.2.3)
Justification	This is the rate from management plans for planned deforestation in the Dairy Farm and Agroforestry areas. It is justified in Section

	3.2.1.3.1.3 in which the baseline is set and calculated as required by BL-PL.
Purpose of Data	Calculation of projected deforestation
Comments	Parameters from module M-REDD & BL-PL and can be found in the Carbon Models

Data / Parameter	GHG _{BLSL-PEAT}
Data unit	t CO ₂ e
Description	Net GHG emissions in the WRC Baseline Scenario up to year <i>t</i>
Source of data	Module BL-PEAT.
Value applied	Total = 184,045,231
Justification	Derived and justified in Section 3.2.1.3 in which the baseline is set and calculated as required by BL-PEAT
Purpose of Data	Calculation of baseline emissions
Comments	Parameter is found in module BL-PEAT and can be found in the Carbon Models

Data / Parameter	GHG _{peatditch-CO₂,i,t}
Data unit	t CO ₂ e ha ⁻¹ yr ⁻¹
Description	Emission of CO ₂ from ditch and open water stratum <i>i</i> at year <i>t</i>
Source of data	Supplement to the 2006 IPCC guidelines for national GHG inventories: Wetlands. Methodological guidance on lands with wet and drained soils and constructed wetlands for wastewater treatment.
Value applied	3.01
Justification	IPCC factors used in the absence of site derived values.
Purpose of Data	Calculation of baseline emissions

Data / Parameter	GHG _{peatditch-CH₄,i,t}
Data unit	t CO ₂ e ha ⁻¹ yr ⁻¹
Description	Emission of CH ₄ from ditch and open water stratum <i>i</i> at year <i>t</i>
Source of data	Supplement to the 2006 IPCC guidelines for national GHG inventories: Wetlands. Methodological guidance on lands with wet and drained soils and constructed wetlands for wastewater treatment.
Value applied	63.25
Justification	IPCC factors used in the absence of site derived values.
Purpose of Data	Calculation of baseline emissions

Data / Parameter	GHG _{peatsoil,BSL,i,t}
Data unit	t CO ₂ e yr ⁻¹

Description	CO ₂ emissions from microbial decomposition of the peat soil within the project boundary in the Baseline Scenario in stratum <i>i</i> in year <i>t</i>
Source of data	Carbon models
Value applied	Total = 184,045,231
Justification	Required from module
Purpose of data	Calculation of baseline

Data / Parameter	GHG _{proxy,CO2,i,t}
Data unit	t CO ₂ e ha ⁻¹ yr ⁻¹
Description	Emission of CO ₂ in relation to the chosen proxy in stratum <i>i</i> at year <i>t</i>
Source of data	IPCC 2006 wetland supplement and relevant literature for logged over drained forest emissions factors (Cooper et al., 2020)
Value applied	Varies depending on year and baseline case: Logged over forest = 56.33 Dairy farm = 51.34 Agroforestry = 55.01
Justification	See Appendix 8 in PDD for the use of non-IPCC values for baseline and existing drainage from logging. IPCC factors used for other emissions factors in the absence of site derived values.
Purpose of Data	Calculation of baseline and project emissions

Data / Parameter	GHG _{proxy-CH4,i,t}
Data unit	t CH ₄ ha ⁻¹ yr ⁻¹
Description	Emission of CH ₄ in relation to the chosen proxy in stratum <i>i</i> at year <i>t</i>
Source of data	Supplement to the 2006 IPCC guidelines for national GHG inventories: Wetlands. Methodological guidance on lands with wet and drained soils and constructed wetlands for wastewater treatment.
Value applied	0.0756
Justification	IPCC factors used in the absence of site derived values.
Purpose of Data	Calculation of baseline emissions

Data / Parameter	U _{*,i,t}
Data unit	t CO ₂ e ha ⁻¹ yr ⁻¹
Description	Uncertainty in parameter * in stratum <i>i</i> in year <i>t</i> * = parameters E _{proxy-CO₂,t} , E _{proxy-CH₄,t} , E _{peatditch-CO₂,t} , E _{peatditch-CH₄,t}
Source of data	IPCC wetland supplements and relevant literature values (see Appendix 8 of the PDD)

Value applied	Various: see uncertainty model
Justification	All values are derived from the errors in emission factors for land cover and ditch proxies supplied by either the IPCC or appropriate literature sources and is justified for use of the mean values and errors as per GHG _{proxy,CO2,i,t}
Purpose of Data	Calculation of uncertainty
Data / Parameter	U _{REDD_BSL,SS,i,Tree}
Data unit	%
Description	Percentage uncertainty (expressed as 95% confidence interval as a percentage of the mean where appropriate) for carbon stocks and GHG sources in the REDD Baseline Scenario (1, 2...n represent different carbon pools and/or GHG sources).
Source of data	Calculations arising from field measurement data and the production of wall-to-wall biomass map
Value applied	0.193
Justification	Derived from the application of tool VT0005 and field plot data
Purpose of Data	Calculation of uncertainty
Comments	Baseline stocks and sources are estimated ex ante for each baseline period. Parameter from module X-UNC.

APPENDIX 7 PARAMETERS MONITORED

Data / Parameter	$A_{burn,i,t}$
Data unit	ha
Description	Area burnt in stratum i in year t
Source of data	Remote sensing, drone mapping and ground verification
Description of measurement methods and procedures to be applied	Best practices for remote fire area monitoring
Frequency of monitoring/recording	After each fire event and prior to any verification events
QA/QC procedures to be applied	Best practices for remote fire area monitoring
Purpose of data	Calculation of baseline and project emissions
Calculation method	N/A
Comments	To be monitored when accounting of $E_{biomassburn,i,t}$ is included in the project scenario

Data / Parameter	$D_{peatburn,i,t}$
Data unit	m
Description	Area burnt in stratum i in year t
Source of data	Post fire ground verification
Description of measurement methods and procedures to be applied	Field teams' sample across areas impacted by fire by measure and record the depth of each burn scar and thus an average value is calculated based on multiple measurements.
Frequency of monitoring/recording	After each fire event
QA/QC procedures to be applied	The MRV team checks data points against photos taken of burn scars to ensure they are accurate
Purpose of data	Calculation of baseline and project emissions
Calculation method	N/A
Comments	To be determined ex ante when accounting of $GHG_{peatburn,i,t}$ is included in the baseline scenario To be monitored when accounting of $GHG_{peatburn,i,t}$ is included in the project scenario

Data / Parameter	$C_{AB,tree,i}$
Data unit	t CO _{2e} ha ⁻¹
Description	Carbon stock in aboveground biomass in trees in stratum <i>i</i>
Source of data	Project wall-to-wall biomass map
Description of measurement methods and procedures to be applied	Estimated with forest inventory data from permanent sampling plots combined with remote sensing analysis using tool VT0001
Frequency of monitoring/recording	Calculated post fire event with remote sensing analysis and by summing the pre fire total tree biomass within the area verified as being burnt.
QA/QC procedures to be applied	N/A
Purpose of data	Calculation of baseline and project emissions
Calculation method	VT0001 requires uncertainty deductions on remotely sensed carbon stocks. For baseline estimates carbon stocks are discounted by 19.3% to ensure conservatism in baseline estimates. The reverse is true for the project scenario where tree biomass stocks are treated as being 19.3% higher to ensure that all project fire emissions are captured.
Comments	To be determined ex ante when accounting of $GHG_{biomassburn,i,t}$ is included in the baseline scenario To be monitored when accounting of $GHG_{biomassburn,i,t}$ is included in the project scenario

Data / parameter	Water Table Level (WTL)
Data unit	m
Description	Distance of water table level from the peat surface
Source of data	Field measurements from network of piezometers installed around the Project Area
Description of measurement methods and procedures to be applied	Mixture of manual measurements by field staff and data collected from HOBO data loggers. Measurement procedures follow the SOP: EP-SOP-MRV04 (Data Extraction Using Hoboware Fore Weather Station and Water Logger)
Frequency of monitoring/recording	For manual measurements at least once every two months and every 30 minutes with automated data loggers
Value monitored	N/A

Monitoring equipment	PVC pipes extending below the peat surface and where possible with installed HOBO data loggers.
QA/QC procedures to be applied	All manual water table measurements are recorded using a standardized field data sheet and cross-verified by a second field staff member. Instruments (e.g., measuring tapes, dip meters) are calibrated periodically to ensure measurement accuracy. HOBO data loggers are regularly checked for data consistency, battery status, and time synchronization. Data downloaded from loggers are validated by comparing with manual readings (via reference water depth) during overlapping periods. Any anomalies or outliers are flagged and reviewed before being included in the final dataset.
Purpose of data	Calculation of project emissions
Calculation method	N/A
Comments	Used as an input to hydrological models for assessing rewetting efficacy
Data / parameter	Rainfall
Data unit	mm
Description	Daily accumulated rainfall amount, number of rainfall events and rainfall duration.
Source of data	Field data supplemented with government meteorological data where necessary
Description of measurement methods and procedures to be applied	<p>Measure by tipping bucket rain gauge installed in two automated weather stations located within the Project Area.</p> <p>Installation and measurement procedures follow the SOPs: EP-SOP-MRV02 (Installation and Setting Up Rain Gauge, Humidity and Temperature Sensors for Weather Stations) and EP-SOP-MRV04 (Data Extraction Using Hoboware For Weather Station and Water Logger)</p>
Frequency of monitoring/recording	Automated recording every 3 minutes via the weather stations
Value monitored	N/A
Monitoring equipment	Tipping bucket rain gauge (HOBO Weather Station Data Logger U30 NRC)
QA/QC procedures to be applied	Automated weather stations are maintained and calibrated regularly in accordance with manufacturer guidelines. Regular field inspections are conducted to ensure proper functioning and cleanliness of tipping bucket rain gauge. Data are validated by checking for anomalies (e.g., negative values or unrealistic spikes) and cross-referenced with government meteorological data where available. Any discrepancies are flagged for review.

	To ensure data integrity, backups are routinely created and stored in secure project databases.
Purpose of data	Calculation of project emissions
Calculation method	N/A
Comments	Used as an input to hydrological models for assessing rewetting efficacy