INDONUSA GROUP









ECOSYSTEM RECOVERY PLAN

PT INTERNUSA JAYA SEJAHTERA (PT IJS)

2025

https://indonusa-plantation.com

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1 Company Profile

PT Internusa Jaya Sejahtera ("**PT IJS**"), located in Ulilin and Elikobel Districts of Merauke Regency, South Papua Province, Indonesia, began its oil palm operations in 2015 following a request from the local government, as stated in Merauke Regent Decree No. 009/SIL/DPMPTSP/II/2017. PT IJS holds a location permit covering an area of 18,184.05 ha, which is divided into three estates: Maro Estate (MOE), Kumbe Estate (KBE), and Novak Estate (NOE).

The geographical boundaries of PT IJS's plantations are as follows:

- North: Adjacent to water catchment and cultivation areas
- South: Adjacent to water catchment and cultivation areas
- West: Adjacent to PT Agrinusa Persada Mulia's oil palm plantation, water catchment area, cultivation area, and urban zone
- East: Adjacent to water catchment area

According to the Minutes of the Land Inspection Committee B No. 1/RPT B/VIII/2017, PT IJS's Right to Cultivate (HGU) area is located within an Other Use Area (APL).

2 Description of Liability

The Hylobates Awara Foundation (Yahywa) conducted forest cover change analysis using an approach aligned with the Intergovernmental Panel on Climate Change (IPCC) standards. This method was applied to track and calculate the extent of deforestation as a basis to design a recovery plan to be implemented by PT IJS to ensure its future supply chain remains free from deforestation. The analysis was also used to identify the level and type of compensation required to offset the loss of biodiversity, carbon emissions, and the impacts on local communities' livelihoods.

This assessment aimed to classify land use and land cover, and to identify PT IJS's responsibilities pertaining to land-use changes over the past eight (8) years within its concessions in South Papua Province. The assessment used Landsat 8 TM satellite imagery from late 2016 to early 2023 at one-year intervals, along with concession boundary maps, baseline forest cover data from the Ministry of Environment and Forestry (MoEF), and peatland data. ArcGIS 10.5 software was used to delineate land use and land-use changes within the concession area.

Land use and land cover classification followed the six (6) categories set out in the IPCC Best Practice Guidelines. Visual digitization (on-screen digitizing) was employed to delineate and classify annual forest cover changes. PT IJS's oil palm plantation area expanded from 1,251.92 ha in 2016 to 11,347.18 ha in 2023. This expansion was from the conversions of secondary dryland forest and secondary swamp forest, leading to liabilities from 2016 to 2023. In 2016, the total forest area within PT IJS's concession was 10,667.41 ha, or approximately 79.42% of the total concession. By 2023, this had decreased to 1,635.89 ha, or 12.18% of the concession area. The assessment found that PT IJS had converted **9,031.52 ha of secondary forest** during the 2016–2023 period.

Table 1. The total area of secondary forests converted into plantations between 2016 and 2023 in PT IJS concessions, South Papua Province

	Land Cover	2023								Total
		Shrub	Shrub swamp	Secondary Dryland Forest	Secondary Swamp Forest	Open land	Settle-ment	Plantation	Agriculture	
2016	Shrub	16.45								16.45
	Shrub swamp		41.47					50.66		92.13
	Secondary Dryland Forest	178.87		1,572.02		74.15		8,567.09	5.51	10,397.64
	Secondary Swamp Forest				63.87			205.90		269.77
	Open land	10.14					21.10	1,269.60		1,300.84
	Settlement						95.34			95.34
	Plantation							1,251.93		1,251.93
	Agriculture								6.55	6.55
Grand Total		**205.46**	**41.47**	**1,572.02**	**63.87**	**74.15**	**116.43**	**11,345.18**	**12.06**	**13,430.65**

Calculation of Liability for the Recovery and Compensation Plan

There are two options for compensation (both can be combined):

a. **Hectare-for-hectare**: conserving an area equivalent in size to the total liability.

b. **Program-for-hectare**: implementing conservation and social program equivalent in value to the total liability.

The programs carried out under the Recovery and Compensation Plan are activities beyond the company's existing Corporate Social Responsibility (CSR) obligations.

3 Recovery and Compensation Plan

The recovery plan, which was originally intended to be implemented in the Bupul Nature Reserve, has been relocated to the mangrove area in Urumb Village, Semangga District, Merauke Regency, South Papua Province. This relocation is based on the following considerations:

1. The implementation details of the Recovery Plan in the Bupul Nature Reserve are still under discussion, making it not feasible to implement in the near future.
2. Accelerating the implementation of the Recovery Plan is a priority, in line with the urgency of ecosystem recovery and the commitment to the program's timeline.
3. The mangrove area in Urumb Village is located within an area designated as APL, which has the same land-use classification as the original site. Therefore, the relocation does not change the land-use designation and remains consistent with applicable recovery policies.

Considering the above, the location of the Recovery Plan has been changed from the Bupul Nature Reserve to the mangrove area in Urumb Village to ensure greater effectiveness, time efficiency, and alignment with the program's objectives. The implementation of the Recovery Plan in the Bupul Nature Reserve will remain part of the long-term program plan, with adjustments to be made in coordination with the Papua Natural Resources Conservation Agency (BKSDA).

3.1 Objective

The Recovery and Compensation Plan aims to restore the ecological, economic, and social functions of areas that have been converted into oil palm plantations.

3.2 Target

The Recovery and Compensation Plan must be supported by sufficient resources, clear objectives, defined timelines, and well-assigned responsibilities in order to achieve the following targets:

a. Deliver added value
b. Be sustainable (25 years)
c. Be fair and reasonable
d. Be science-based

3.3 Aspect

a. Ecological and environmental aspects

Table 2. Risk of ecological and environmental impacts

No.	Target Area for Recovery and Compensation Plan	Area (ha)	Amount (IDR)	SOP
1	Within the concession area			
	Riparian buffer zones under HCV 4 category	3.19		EHS-001: Management and Monitoring of HCV Areas
2	Outside the concession area			
	Biodiversity baseline in the mangrove area of Urumb Village, Semangga District, Merauke Regency	510		

b. Social and cultural aspects

Table 3. Social and cultural aspects

No.	Target Area for Recovery and Compensation Plan	Area (ha)	Amount (IDR)	SOP
1	Within the concession area			
	Riparian buffer zones under HCV 4 category	3.19		EHS-001: Management and Monitoring of HCV Areas
2	Outside the concession area			
	Nursery, planting, and the establishment of Mangrove Center	510.00		

c. Economic and sustainable livelihood aspects

Table 4. Economic and sustainable livelihood aspects

No.	Target Area for Recovery and Compensation Plan	Area (ha)	Amount (IDR)	SOP
1	Within the concession area			
	Riparian buffer zones under HCV 4 category	3.19		EHS-001: Management and Monitoring of HCV Areas
2	Outside the concession area			
	Nursery, planting, and the establishment of Mangrove Center	510.00		

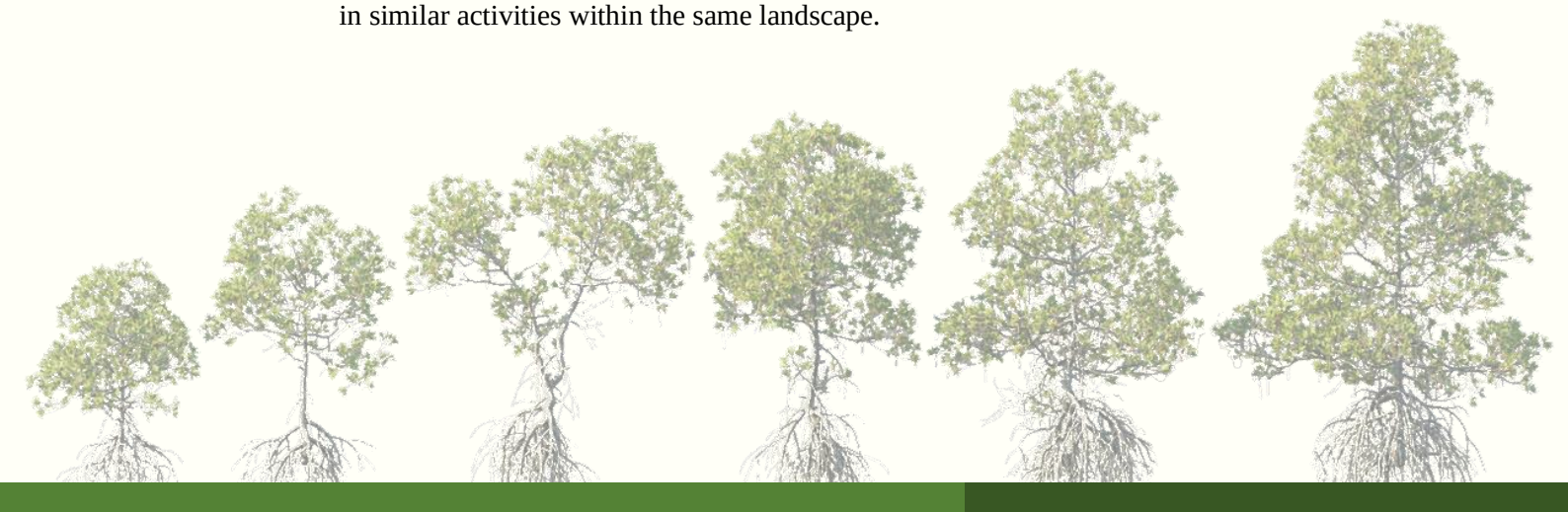
4 Implementation of Recovery and Compensation Plan

4.1 Implementing Organization

The recovery and compensation program may be implemented directly by the company or delegated to qualified third parties with proven competence **in environmental recovery and compensation**.

4.2 Financing and Mechanisms

The full cost of the recovery and compensation program shall be borne by the company as part of the liability replacement program, effective from the announced **cut-off date**. Cost-sharing mechanisms may also be applied if other institutions or stakeholders are engaged in similar activities within the same landscape.



4.3 Timeline

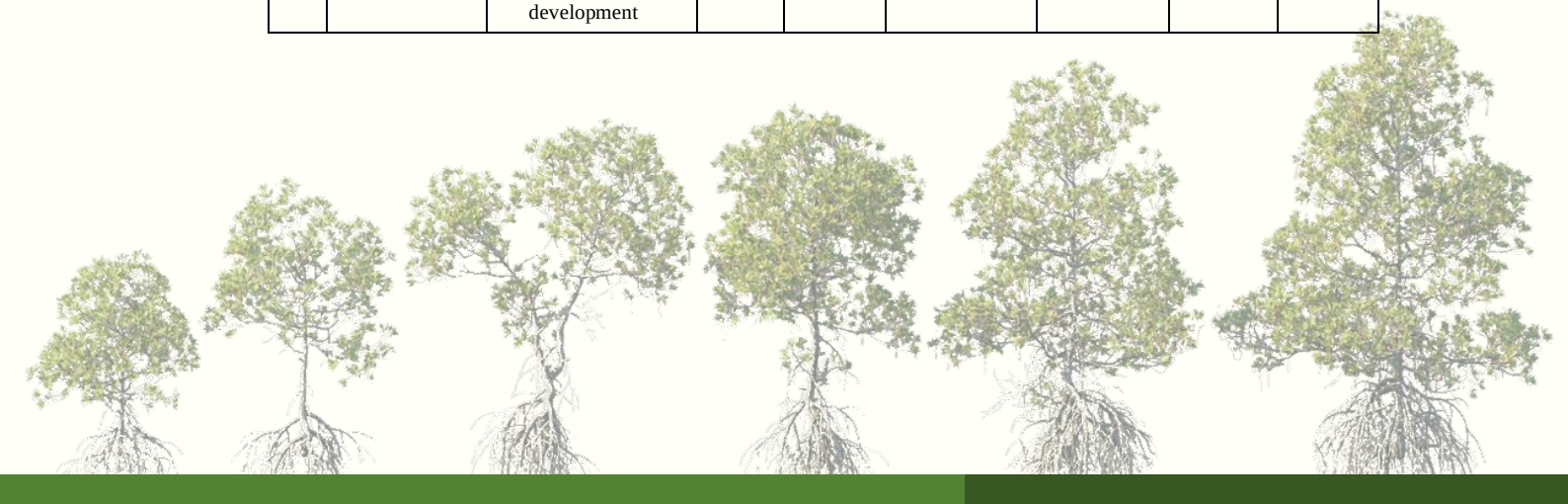
The recovery program will be carried out over a 25-year period, with specific activities planned and reviewed annually or in five-year basis.

4.4 Monitoring, Evaluation, and Reporting

The company is responsible for conducting regular monitoring, evaluation, and reporting of the recovery program. These reports should be shared with relevant stakeholders in the area to ensure transparency, accountability, and legitimacy in assessing the program's progress and impact.

Table 5. Implementation of recovery and compensation plan

No.	Targets for the Distribution of Recovery & Compensation Plans	Program	Area (ha)	Amount (IDR)	PIC and Relevant Stakeholder	Finance Mechanism	Timeline	Priority Level
Within PT IJS Concession Area								
1	Riparian buffers	Enrichment and reforestation of riparian areas	3.19		Sustainability Department	PT IJS		Priority 1
Outside PT IJS Concession Area								
1	Urumb Village, Semangga District, Merauke Regency	Mangrove Center Program: 1. Preparation of a Memorandum of Understanding (MoU) on ecosystem recovery plans between PT IJS and Urumb Village 2. Facilitation of establishment and strengthening of mangrove initiatives in Urumb Village 3. Facilitation of biodiversity baseline development in Urumb Village's mangrove area 4. Community empowerment for mangrove nursery and planting 5. Facilitation of Blue Carbon Mangrove development	510.00		Musamus University, Yahywa, and PT IJS Sustainability Department	PT IJS		Priority 1



5 Activity Description

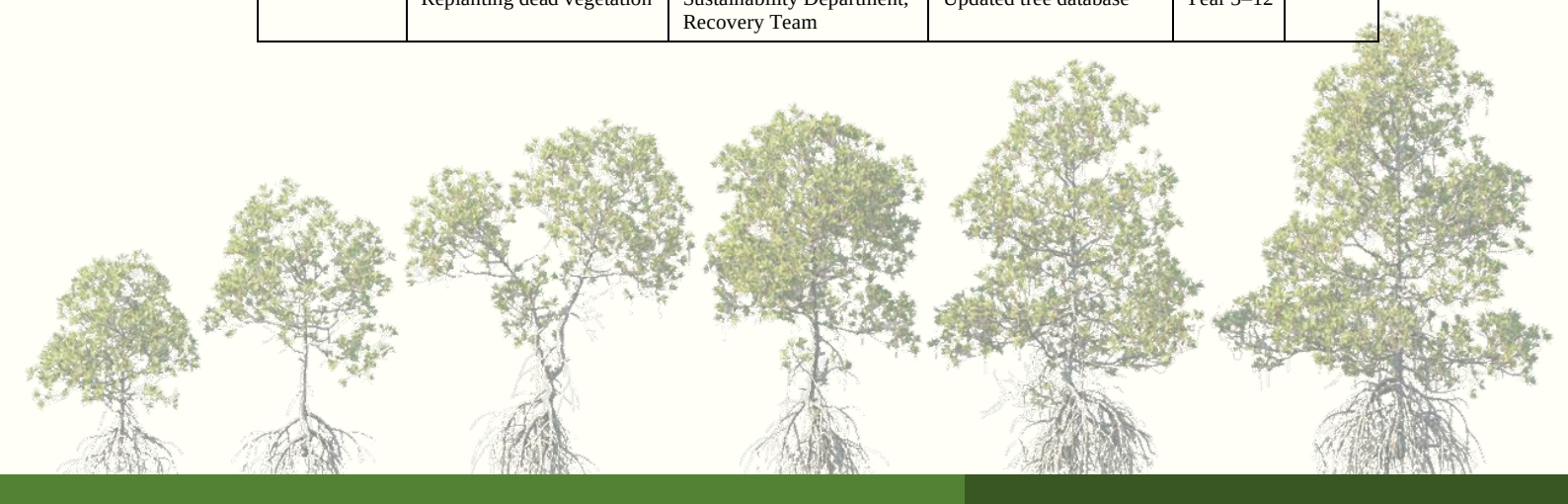
5.1 Recovery Program Within PT IJS Concession

The recovery plan activities within the PT IJS concession focus on riparian areas located within the company's concession area. PT IJS conducted HCV Assessment in 2015, which recommended the need to conserve these riparian zones. As part of the recovery plan in response to the liability assessment, PT IJS is required to conduct planting and enrichment of vegetation in degraded riparian areas within its concession.

The recommended species for enrichment are those listed in the result of HCV Assessment, particularly those classified as CR (Critically Endangered) or ER (Endangered). The enrichment effort will begin with the establishment of riparian buffer zones, which serve two key functions: to maintain the natural condition of riparian ecosystem, and to act as natural firebreaks, helping prevent the spread of wildfires. See table below for details on ecosystem recovery activities.

Table 6. Details of the ecosystem recovery plan in concession areas associated with High Conservation Value

Overview of Remediation	Activity Detail	PIC and Implementer	Measurability Indicator	Timeline	Cost
Mapping of riparian buffer zones	Mapping of degraded areas	Sustainability Department, GIS Team, Recovery Team	Defined boundaries and installation of boundary markers	Year 1–2	
	Preparation of a management and monitoring plan for designated remediated riparian and swamp areas, including boundary regulations. Sampling to monitor water quality	Sustainability Department, GIS Team, Recovery Team	Approved and signed management & monitoring plan (by the area manager)	Year 1–2	
Vegetation planting and maintenance	Nursery preparation	Sustainability Department, Recovery Team	Nursery profile	Year 3–4	
	Seedling collection from nearby forests	Sustainability Department, Recovery Team	Seedling database	Year 3–4	
	Development of a vegetation species database, including their protection status and distribution	Sustainability Department, Recovery Team	Nursery database	Year 3–4	
	Seedling management: Maintenance and monitoring	Sustainability Department, Recovery Team	Nursery report	Year 3–4	
	Tree planting and marking	Sustainability Department, Recovery Team	Planting report	Year 3–12	
	Tree census to identify mortality and sample growth rates by species	Sustainability Department, Recovery Team	Annual report on vegetation mortality and growth rates	Year 3–12	
	Replanting dead vegetation	Sustainability Department, Recovery Team	Updated tree database	Year 3–12	



Overview of Remediation	Activity Detail	PIC and Implementer	Measurability Indicator	Timeline	Cost
	Entry of monitoring data into vegetation remediation monitoring database	Sustainability Department, Recovery Team	Updated monitoring database	Year 3–12	
Fire Prevention & Response	1. Preparation of annual fire risk maps 2. Development of firefighting procedures (SOP) 3. Dissemination and training on fire prevention and control	1. Annual fire risk map and SOPs will be prepared by sustainability staff 2. Plantation and security staff are responsible for training and implementation	1. Annual fire risk maps 2. Firefighting SOPs 3. Dissemination and training on fire prevention and control	Year 3–25	
Monitoring & Evaluation	1. Monitoring and evaluation of vegetation growth and mortality rates 2. Monitoring land cover in remediation areas 3. Regular water quality testing	Sustainability Department, Recovery Team, GIS Team	1. Growth % (diameter, height), mortality rates 2. Forest cover (%) mapping (drone-based) 3. Water quality post-planting	Year 4–25	
Development & Review	Review and evaluation of remediation area management, including the entire remediation process and schedule	Sustainability Department, Recovery Team	Annual report reviewing progress and recommendations for improvement	Year 4–25	
	Review of riparian management and relevant SOPs	Sustainability Department, Recovery Team	Revised riparian management and supporting SOPs	Year 4–25	
	Remediation area management	Sustainability Department, Recovery Team	Revised management plan	Year 4–25	

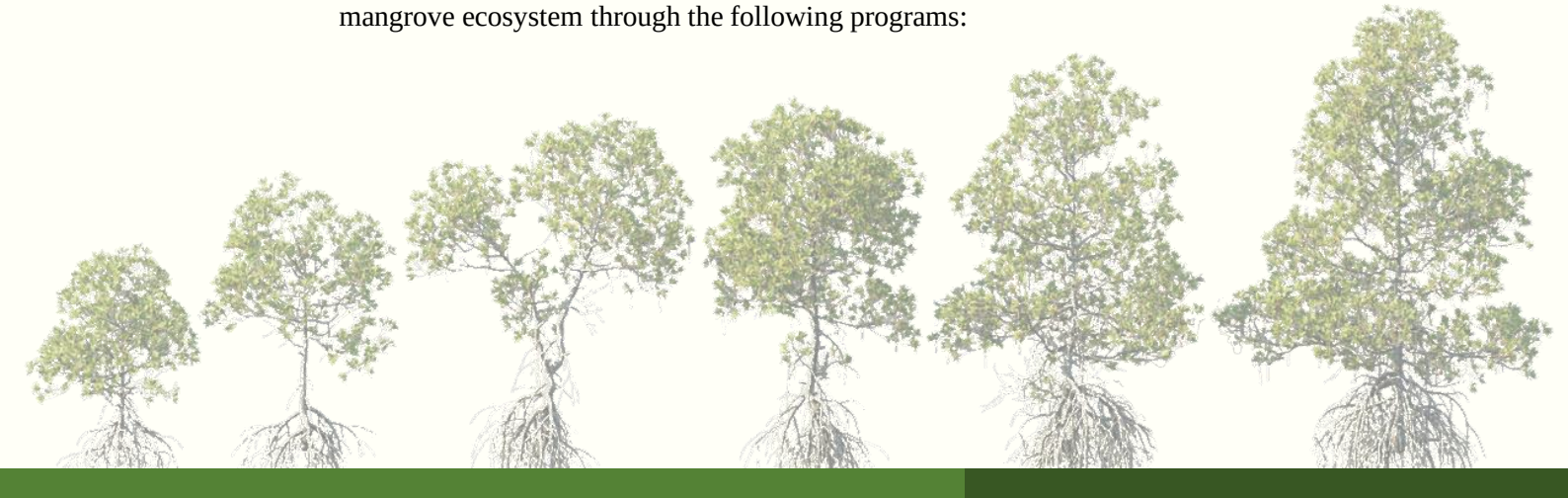
5.2 Recovery Program Outside PT IJS Concession

In addition to recovery efforts within PT IJS's concession, restoration activities must also be implemented outside the company's area, as the liabilities extend beyond the concession boundaries and include areas within the same landscape.

One such area is the mangrove ecosystem in Urumb Village, Semangga District, Merauke Regency, South Papua Province. This area spans approximately 510 ha. Like many mangrove ecosystems across Indonesia, including in Papua, this area faces serious threat from deforestation, land conversion, and environmental pollution—all of which have led to significant loss and degradation of mangrove forests.

The local communities are highly dependent on the mangrove ecosystem for their livelihood and protection, making its degradation a direct threat not only to biodiversity and environmental stability, but also to community well-being. Therefore, enhancing awareness to the value and benefits of mangrove ecosystems is essential to ensuring their long-term conservation. A lack of understanding, both of their economic and non-economic value, can hinder efforts to manage and protect them sustainably.

Yahywa's proposed recovery initiatives in Urumb Village will focus on restoring mangrove ecosystem through the following programs:



a. facilitating the development of a biodiversity and ethnobiological baselines for the mangrove area and its surrounding environment;
b. supporting community-based nursery management and planting;
c. promoting mangrove protection rooted in local identity; and
d. facilitating the development of carbon accounting within the mangrove ecosystem.

Table 7. Details of ecosystem recovery plan outside the concession (per 5 years)

Activity Overview	Activity Details	PIC and Implementer	Measurability Indicators	Timeline	Cost
Preparatory activities for mangrove protection in Urumb Village, Semangga District, Merauke Regency, South Papua Province	Dissemination of the recovery plan in Urumb Village, Semangga District, Merauke Regency	Musamus University, PT IJS, and Yahywa	Activity report, photos, and attendance list	Year 1	
	Location permit for the recovery plan	Musamus University, PT IJS, and Yahywa	Activity report and photos	Year 1	
	Signing of MoU on the recovery plan with Urumb Village communities and PT IJS	Musamus University, PT IJS, and Yahywa	Minutes of meeting, photos, and MoU	Year 1	
PT IJS-supported activities:					
Institutional development: establishment and strengthening of Mangrove Center	Information dissemination with the South Papua Environmental Office (DLHK)	Musamus University, PT IJS, and Yahywa	Activity report and photos	Year 1	
	Inventory of training requirements for institutional staff	Musamus University, PT IJS, and Yahywa	Activity report	Year 1	
	Training facilitation for institutional staff	Musamus University, PT IJS, and Yahywa	Activity report	Year 1	
Biodiversity and ethnobiological baseline development	Development of baseline biodiversity data	Musamus University, PT IJS, and Yahywa	Activity report	Year 2	
	Development of baseline ethnobiological data	Musamus University, PT IJS, and Yahywa	Activity report	Year 2	
Facilitation of mangrove nursery and planting	Facilitation of nursery development	Musamus University, PT IJS, and Yahywa	Activity report	Year 2–4	
	Facilitation of planting and replanting	Musamus University, PT IJS, and Yahywa	Activity report	Year 2–4	
Facilitation of mangrove protection	Establishment of permanent sampling plots for carbon accounting and mangrove growth monitoring	Musamus University, PT IJS, and Yahywa	Activity report	Year 3	
	Spatial analysis to assess mangrove density	Musamus University, PT IJS, and Yahywa	Activity report	Year 2–5	
	Publication and dissemination of baseline study results	Musamus University, PT IJS, and Yahywa	Activity report	Year 2–5	
	Facilitation of carbon analysis	Musamus University, PT IJS, and Yahywa	Activity report	Year 3–5	

Activity Overview	Activity Details	PIC and Implementer	Measurability Indicators	Timeline	Cost
	Capacity building for independent local economic development	Musamus University, PT IJS, and Yahywa	Activity report	Year 3–5	
Monitoring and evaluation of remediation areas	1. Monitoring and evaluation of the recovery plan 2. Monitoring of land cover in the remediation area	Musamus University, PT IJS, and Yahywa	Activity report	Year 5	
Development and Review	Review and evaluation of remediation area management, including all remediation processes and schedules	Musamus University, PT IJS, and Yahywa	Activity report	Year 5	
	Review of conservation management and relevant SOPs	Musamus University, PT IJS, and Yahywa	Revised SOPs	Year 5	
	Review of remediation area management	Musamus University, PT IJS, and Yahywa	Revised management and administrative procedures	Year 5	

6 Risks, Monitoring, and Evaluation

6.1 Risks and Risk Mitigation

This project will adopt the International Finance Corporation (IFC) Performance Standards (2012) to manage both environmental and social risks and impacts. The main risks include reversal risks originating from internal factors (such as limited capacity among local communities and lack of control over illegal logging), external factors (e.g., conflict, political shifts, and economic crises), and natural disasters (e.g., floods, landslides, or droughts).

Primary risks in the mangrove area of Urumb Village, Semangga District, include:

a. illegal logging;
b. land clearing for small-scale agriculture, which may intensify if left unregulated; and
c. uncontrolled hunting and trapping.

6.1.1. Internal Risks

Based on experience in managing and monitoring HCV areas at PT IJS, social and legal constraints in this province remain the main challenges. As such, stronger efforts are required to ensure these areas remain protected.

Risk reduction and management will be formulated through a participatory approach. The involvement of local communities, government bodies, and other key stakeholders will be prioritized at all stages of the project.

A grievance mechanism will also be established to ensure that the voices and aspirations of local communities are heard and addressed. Risks and their potential impacts will be regularly discussed with the community. Through inclusive engagement and trust-building, the project is expected to mitigate risks and manage potential conflicts.

6.1.2. Illegal Logging

Illegal logging remains one of the major drivers of forest degradation and is often difficult to address and control. Addressing this issue effectively requires a deep understanding of the local context, including the scale of the threat, and the fact that illegal logging often linked to corrupt officials and organized networks. It is also closely tied to various other issues, particularly the economic needs of local communities.

To address this issue, together with local communities, and its partners, PT IJS will take the following steps:

a. Conduct a comprehensive threat assessment of the proposed mangrove area in Urumb Village and its surrounding landscape.

b. Organize awareness-raising sessions about illegal logging and potential strategies to address it.

c. Implement regular participatory monitoring activities with local communities.

d. Engage local communities in discussions around law enforcement, facilitate agreements for logging regulation/management, and promote community-supported enforcement. If feasible, the community will be urged to take part in calling for improved law enforcement.

e. Support alternative livelihood initiatives to reduce the community's dependence on illegal logging.

PT IJS will not promote the involvement of military nor police in the enforcement actions during the project implementation. Instead, the main focus will be on strengthening community-led monitoring and enforcement, while reassuring the local community that forest encroachment and illegal logging can be avoided while still generating sustainable income. Strategies to minimize illegal logging threats will be further discussed and developed as part of the conservation management plan.

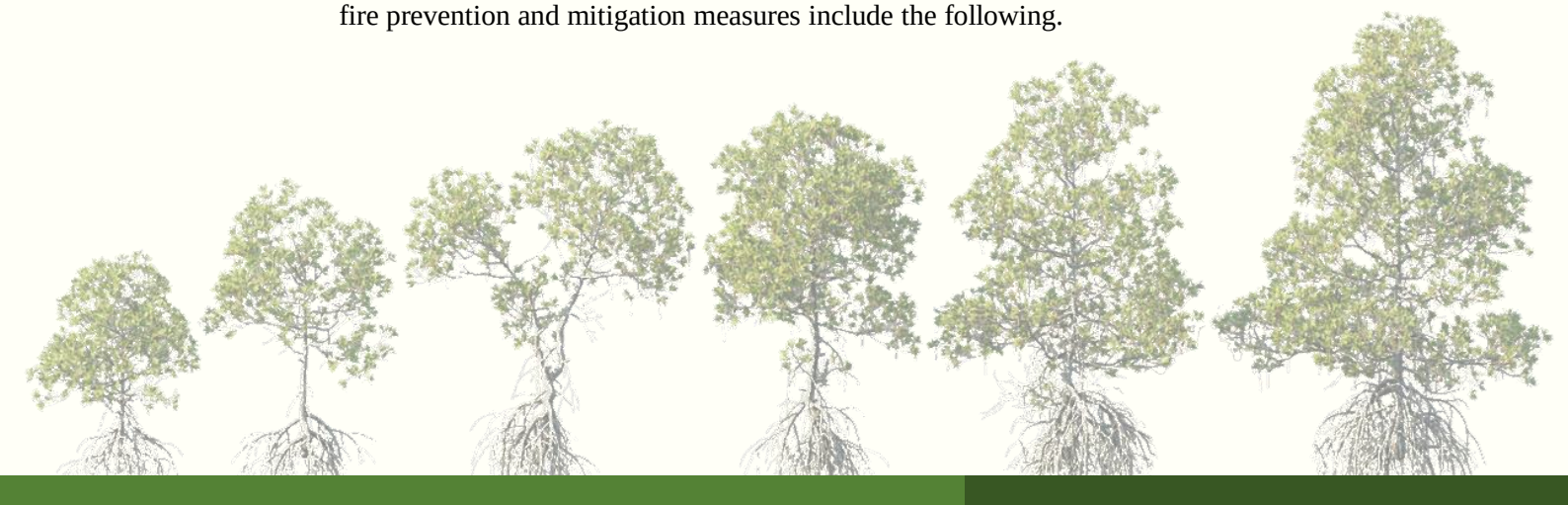
6.1.3. Uncontrolled Hunting

Although most areas of Papua remain forested, several species are heavily targeted for subsistence hunting (as a source of protein). Uncontrolled hunting poses a threat of local extinction and, for rare species, the risk of total extinction. Addressing this issue is essential for preserving biodiversity in the region.

6.1.4. Fire Prevention and Mitigation

PT IJS implements fire prevention and mitigation protocols to reduce the risk of wildfires in and around its concessions. The areas are equipped with firefighting infrastructure, equipment, and personnel who are trained to respond promptly to fire emergencies.

In accordance to SOP No. EHS-005 on Fire Management and Response, the company's fire prevention and mitigation measures include the following.



a. Multi-stakeholder collaboration and awareness campaigns involving government agencies and local communities.
b. Briefings for staff and local communities on wildfire risks, impacts, prevention, and emergency response procedures.
c. Regular inspections to ensure firefighting equipment is functional and ready.
d. Regular training for firefighting teams to enhance preparedness.
e. Rapid response to fire hotspots identified within or near the concession.

6.2 Monitoring and Evaluation

The implementation of activities and their outcomes will be monitored regularly to evaluate whether the program has achieved its intended impacts. Monitoring results will guide the revision of adjustment of management plans and corrective actions as needed. Risk identification and mitigation strategies will also be reassessed during monitoring and evaluation to address any new or previously unidentified threats.

Monitoring of the recovery plan will include assessments of activity performance and duration to ensure that implementation remains within scope, adheres to budget constraints, and meets established timelines.

The outcomes will be verified using indicators developed jointly by qualified experts/academics and PT IJS. Monitoring procedures must be carried out consistently to enable time-based comparisons. However, additional procedures may be adopted as necessary. For example, if monitoring data shows that riparian vegetation is declining or not improving, or if the expected benefits to biodiversity or water quality are not being realized, the management plan must be revised accordingly.

6.3 Reporting Plan

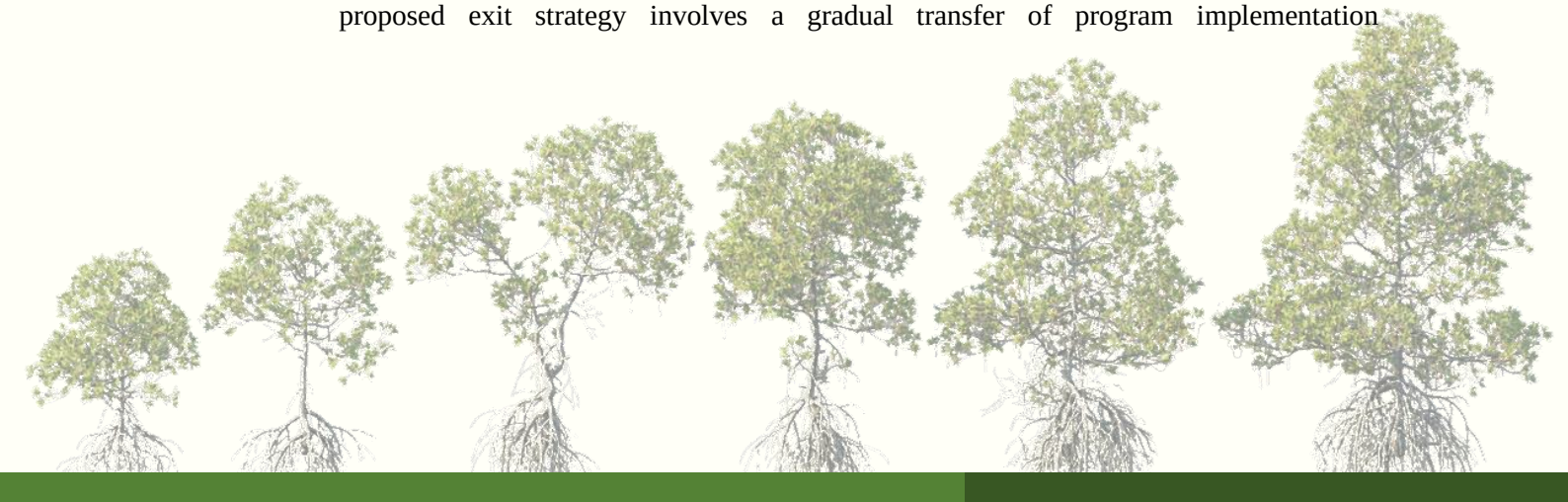
A structured system for analyzing and reporting monitoring data must be in place before monitoring begins to ensure that findings are well-documented, analyzed, reported, and addressed.

a. Semi-annual Management Report
   A semi-annual report will be prepared and submitted to both the company's head office and the South Papua Provincial Government.
b. Annual Report
   An annual report will summarize the implementation of the management plan and its results, evaluating performance against all indicators in the project's management and monitoring framework. This report will also be used as a reference for planning and budgeting activities for the following year.

7 Exit Strategy

Given the long-term nature of recovery plan implementation, it is important for PT IJS to develop a clear exit strategy—or at least, a well-defined vision of success, along with a roadmap for sustainability and reduced dependence on external support.

For the mangrove area in Urumb Village, Semangga District, Merauke Regency, the proposed exit strategy involves a gradual transfer of program implementation



responsibilities to local communities. Throughout the program's design and implementation phases, the focus will be placed on strengthening institutional capacity to ensure that services can eventually be sustained by local organizations.

In developing the exit phases, several key questions must be addressed:

a. How strong is the community's sense of ownership and commitment to continuing the program?

b. To what extent does the community value the program and its activities?

c. How high does the local community demand for the services being gradually delivered?

d. Do community members, groups, and service providers have the necessary knowledge and skills to carry out program activities?

e. Do the local organizations responsible for implementation have sufficient institutional capacity and human resources?

f. Are these organizations resilient to political and social changes or disruptions?

g. Is there a realistic plan in place for securing the external resources needed to support ongoing implementation of activities?

To ensure the long-term project's success, five (5) key strategies are proposed:

a. Implement collaborative governance of the mangrove areas, covering all aspects of forest management. This will help prepare partners to assume full management responsibilities. In the future, a joint agreement between the government, NGOs, and Indigenous People is proposed to ensure shared governance.

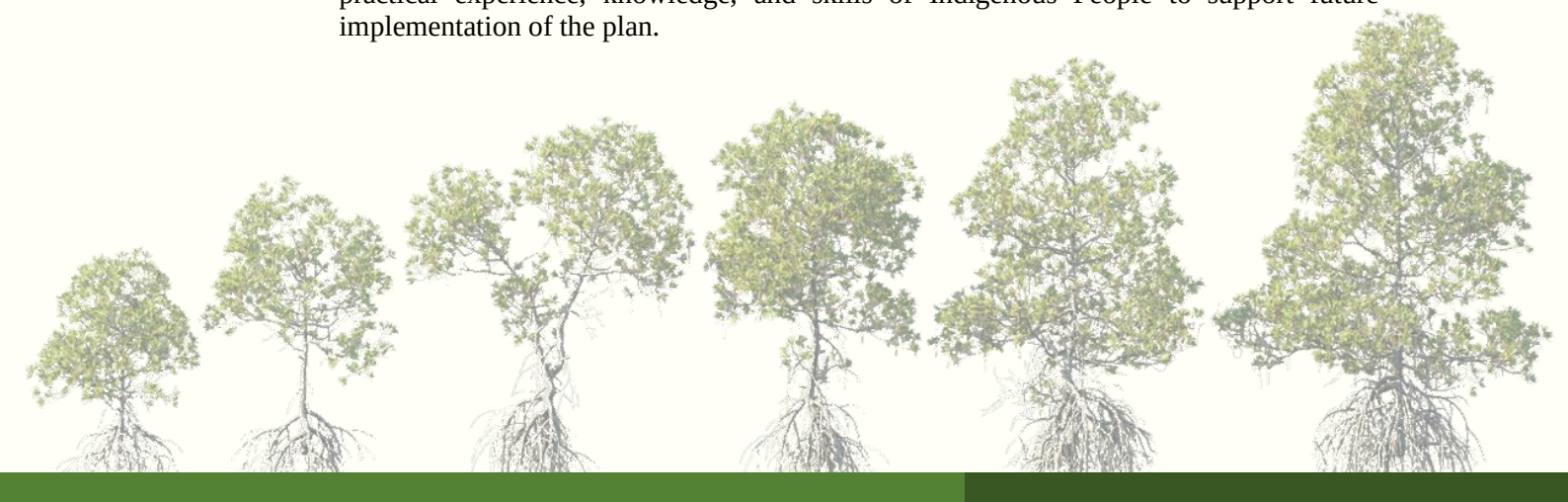
b. Support the role of government facilitators in assisting local communities in addressing external threats that lie beyond their control, such as the encroachment of large-scale business into community territories.

c. Strengthen the role of government regulators in empowering communities, for example, by supporting the establishment of community organizations through participatory, locally led policy-making.

d. Promote the development of strong, sustainable indigenous enterprises, including sustainable agriculture and fisheries, as well as ecosystem service-based businesses such as carbon initiatives, non-timber forest products (NTFPs), and ecotourism.

e. Engage with environmentally responsible financial institutions and maintain the project's visibility through creative communication throughout the implementation period to secure continued external supports.

The management plan must prioritize conservation initiatives that enhance the capacity of customary forest management, fostering greater integration between local cultural values and forest conservation. In addition, training activities will focus on enhancing the practical experience, knowledge, and skills of Indigenous People to support future implementation of the plan.



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