Darwin Initiative Main: Annual Report

Darwin Initiative Project Information

Project reference	29-007
Project title	Developing Sustainable Management of Tropical Peatlands in Southern Borneo
Country/ies	Indonesia
Lead Partner	University of Exeter
Project partner(s)	Borneo Nature Foundation
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Project Leader name	Prof Frank ████
Project website/blog/social media	UoE Darwin Initiative project Website BNF Website ; BNF Facebook ; BNF Twitter ; BNF Instagram
Report author(s) and date	Bernat ████, Pau ████, Alison ████, Prof Frank ████ - 25th April 2024

1. Project summary

Indonesia contains one of the world's largest expanses of tropical peatlands (15 million ha), much of it in southern Borneo (Kalimantan) where these peatlands support a rich and unique biodiversity, including globally important populations of threatened species, notably including the largest remaining populations of critically endangered Bornean orangutans. However, large areas have been deforested and have had extensive drainage canal networks cut into the peat to convert the land for agriculture. Combined with climate-driven drought episodes, this has led to these degraded areas being very prone to wildfires during which the peat itself can burn underground for months. The resulting smoke haze has significant impacts on human health and well-being and the carbon emissions from the fires are huge, commonly exceeding the annual emissions from the entire UK economy in major fire years (Kieley *et al.*, 2021). Key protected areas are also not safe from fires due to a legacy of drainage canals left by past logging operations that dry out the peat, leaving it vulnerable to fire. Large areas of protected forest have already been lost in the last few decades. Without forest cover, the peat in these burnt areas degrades further and becomes especially prone to fire in subsequent years, causing heightened fire risk to adjacent remaining forest (Miettinen *et al.*, 2016; Page & Hooijer, 2016).

Ultimately, poor spatial planning and ineffective or unregulated land management are the underlying causes of this problem, which exacerbates (and is exacerbated by) relatively high poverty levels in the region (Harrison et al., 2020). Recognising the importance of peatlands, the Indonesian government has extended a moratorium on conversion of deep-peat areas and called for improved management and restoration of degraded peatlands, to meet sustainable development goals including building resilience to climate change (RoI, 2021), whilst also reducing poverty by developing sustainable livelihoods. Implementation is needed over large spatial scales to achieve lasting impact, but capacity in Kalimantan, in terms of skills, resources and coordination, remains inadequate, despite a number of small-scale successes.
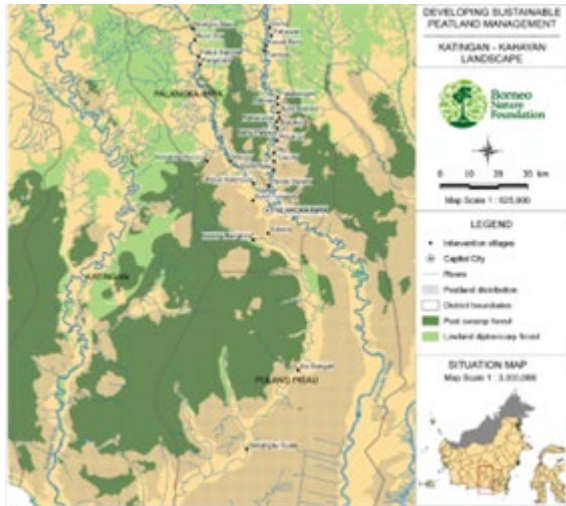
The project target area is found within the Katingan-Kahayan landscape. Approximately half is protected as the Sebangau National Park, where increased efforts to rewet peat and reforest burnt areas are urgently required. From remote sensing analysis, we estimate that approximately 10% of its forest has already been lost to fire, which is likely to accelerate without intervention. The remainder of the landscape is primarily designated for plantation and smallholder agriculture, but where the government's moratorium and some recent plantation permit revocations provide opportunities to implement sustainable land-use activities, the development of protected community-managed areas that improve livelihoods and biodiversity conservation in tandem. This project will focus on both of these landscape elements, securing the protected forest and enabling the sustainable management of unprotected areas to ensure long-lasting impacts.

Figure 1. Forest cover map of the Katingan-Kahayan landscape with intervention villages on it.

2.   Project stakeholders/ partners

The formal partners in this project are the University of Exeter (UoE), the Borneo Nature Foundation (BNF) and the University of Palangka Raya (UPR). This partnership grows from a recently concluded Darwin Initiative grant 25-001 that worked to mitigate peatland fires via fire-fighting networks, practical restoration, improving community participation and building local capacity, as well as the ongoing GCRF project 'KaLi' (on which the lead applicant is PI), which focuses on research into the multiple hazards and impacts associated with drought and fire in degraded peatlands and barriers to peat-friendly agriculture. UoE plays the leading role in project strategy, monitoring and evaluation, and capacity-building components, critically using their expertise as a world-leading institution in conservation science to enable project partners to manage this effectively after the project ends and ultimately delivering lasting positive change in the capacity of all stakeholders. BNF is the primary implementing partner in Indonesia. BNF is leading all in-country project activities, working under formal agreements with the listed local partner institutions to achieve project outcomes. BNF has over 20 years of experience working with local institutions and stakeholders to protect forests and biodiversity. They have collected a 20-year forest ecology dataset as a baseline for monitoring project outcomes for biodiversity conservation; designed impactful restoration techniques; helped communities develop social forestry projects; and building strong long-term relationships with key stakeholders in the region. Notably, this includes the government's regional forest management agencies, which fully support the development of these projects and are working closely with BNF to expand efforts to an -wider area. UPR is a state university in the capital of Central Kalimantan province that has participated in multiple international research projects on relevant topics, including a major focus on permaculture/aquaculture techniques on peat soils. UPR are an implementation and advisory partner, as part of the multi-stakeholder forum and fire-free alliance initiatives. They are contributing expertise and advice to support research and practical implementation of peat-friendly livelihoods and restoration activities throughout this project.

During Year 2, we have continued to meet with key stakeholders to strengthen our existing partnerships with regional and national government agencies in Indonesia which are responsible for the effective management of forest lands and the implementation of conservation initiatives. These agencies include the Central Kalimantan Environmental Agency (DLH), the Social Forestry Agency (BPSKL), the Climate Change & Forest Management Agency (PPI Kalteng), the Disaster Management Agency (BPBPK), the Directorate General of Social Forestry and Environmental Partnership (PSKL), the Directorate of Conflict Management, Tenure and Indigenous Forests (PKTHA) within the Ministry of Forestry and Environment (KLHK).

Key areas of progress during Y2 include working with the Ministry of Forestry and Environment (KLHK) to further extend the collaborative agreement for the next five years between BNF and the Sebangau National Park Office (BTNS). The *Sebangau National Park Habitat Restoration Plan 2023-2027* was developed in partnership with BNF, alongside a *Sebangau National Park Community Empowerment Plan for 2024-2028.* The Integrated Fire Management Network development has progressed during Y2, involving stakeholders including the Sebangau National Park, the Climate Change and Forest Management Agency (PPI Kalteng), and the Disaster Management Agency (BPBPK). Together during Y2 they agreed a *Forest and Land Fire Contingency Management Plan for Central Kalimantan.* The Central Kalimantan Social Forestry and Environmental Partnerships Agency (BPSKL) continues to support BNF's social forestry work by implementing technical verifications for social forestry proposals. BPSKL, in partnership with BNF, developed a *Central Kalimantan plan for the acceleration and management of social forestry areas.* BNF's relationship with Palangka Raya City Government was strengthened during Y2, with the agreement of the Palangka Raya District Strategic Environmental Long Term Development Plan, for the next 20 years. BNF also strengthened its partnerships with Indonesian universities; with extended MoUs with UPR and UMP and partnerships developed with UgM, and UI.

The private sector partnership with PUM continued; surveys were completed on PUM's ecosystem restoration concession (23,613ha) and conservation work plans are in development to promote sustainable management and restoration of the remaining forest cover; capacity building is now the focus. Our existing collaborative agreements with community groups have been maintained, including 15 firefighting teams, 15 community nurseries, 22 Village Forest Management Groups, and local public schools.

[Stakeholders' and partnerships' participation evidence is provided in Annex 4 Section C.]

3.   Project progress

3.1   Progress in carrying out project Activities

Output 1. Local capacity developed to implement, improve and encourage replication of peatland restoration efforts throughout the target landscape.

Activity 1.1 MSFs established comprising community, industry and government stakeholders from each FMU. Information sharing platforms established, technical support provided, and regular planning, feedback and evaluation meetings held.

Further work during Y2 has taken place to develop the Multi-Stakeholder Forums across the region. Information and resource sharing regularly takes place, through workshops and meetings, and training sessions took place throughout Y2.

A Social Forestry Communication Forum (*ForkomPerSos*) was established, including the Kahayan Tengah FMU and 21 Social Forestry Management Units (LPHD) within Palangka Raya City, Gunung Mas and Pulang Pisau Districts. A network of community restoration groups at the village level (locally named *Community Seedling Nurseries*) has been created in partnership with the Sebangau NP to support peatland restoration efforts. This network includes a total of 15 Community Nurseries with 114 members from 5 villages, the Sebangau NP, the Watershed Management and Forest Rehabilitation (BPDAS).

The development of the Integrated Fire Management Network and its management scheme has continued throughout Y2, involving the Sebangau National Park, the Climate Change & Forest Management Agency (PPI Kalteng) and the Disaster Management Agency (BPBPK). This led, in December 2023, with the completion of the Contingency Plan for Fire and Disasters Management, and an agreed SOP for Effective Firefighting Coordination. Our 15 established Community Fire-fighting Teams across 14 villages receive regular technical, capacity building and resource support from BNF.
[Multi-Stakeholders Forums establishment and capacity development evidence is provided in Annex 4 Section D]

Activity 1.2a Peat rewetting training delivered to BTNS, relevant resources (damming materials, monitoring equipment) provided, and dams built to close drainage canals and rewet the peat.

Peat rewetting training continued in Y2, with firstly a socialisation event facilitated by CIMTROP and BNF for 19 participants on 16th August 2023. This was followed by a two-day training session on 27th September 2023, which focused on hydrology monitoring and data gathering. Further training sessions will be provided in Y3.

Drainage channels discharging into four major rivers within the Katingan - Sebangau Peat Hydrological Unit were identified, mapped and targeted for blocking at the start of this project. During Y2 a total of 48 dams were built, in two phases. In September 2023, 32 dams were constructed in Canal Bahkan on the Sebangau River, then in December 2023, 16 dams were built in canal Sutris 2 on the Rasau River.

Initial surveys of the canals of the Rasau River took place in November 2023 and February 2024. A total of 25 canals were identified and mapped during this time, and plans were made for Y3 including blocking 12 of these canals, with 184 dams to be constructed.
[Peat rewetting and training delivered to BTNS evidence is provided in Annex 4 Section D]

Activity 1.2b Hydrological monitoring training conducted, equipment installed, stations established, and data collected, including pre-damming baseline data for comparison, to monitor impacts on peat hydrology.

Hydrology monitoring surveys and base-line data collection has been undertaken throughout Y2, as we continue to build up data on water discharge rates and groundwater tables (GWT). Monitoring conducted during Y2 included:
-    Regular monthly surveys conducted in seven canals, with a total of 39 water flow locations, 52 manual GWT and two automatic GWT stations, as part of our long-term data sets
-    Annual surveys in three canals, for remote canals blocked in 2020, with a total of 16 water flow locations, 28 manual GWT and two automatic GWT stations.
-    Pre-dam building data collected in twelve canals, for canals surveyed during year 2, with a total of 72 water flow locations.
-    Regular monthly surveys implemented in six canals on the Rasau River, at varying distances from the canal, with a total of 36 water flow locations, 120 manual GWT and eight automatic GWT stations.
-    Regular weekly surveys implemented in canal Bahkan, to intensively monitor the impact of canal blocking in the sedge area, with a total of 7 water flow locations and 12 manual GWT stations.

We use all these data to assess the impacts of canal blocking on ecosystem hydrological recovery. Further manual and automatic monitoring stations will be set up during year 3, after surveying other areas.
[Hydrological monitoring evidence are provided in Annex 4 Section D]

Activity 1.3a Community Nursery Program socialised to additional families invited to participate with up to 15 new nursery collectives created. BNF's expert reforestation staff will train each new group, helping them build the required infrastructure and providing necessary technical skills and resources to source, plant and raise seedlings of target species to minimum planting heights.

The Community Nursery (CN) programme has continued and evolved positively, reaching a total of 15 established community nurseries; a network of community groups working across five villages surrounding the Sebangau National Park; and fully involved on the peatland's reforestation programme. In Y2, we have undertaken regular visits and capacity building efforts to support each community nursery, working with members of the local communities to improve the quantity and quality of the seedling stock that each produce.
[Community Nursery programme development evidence is provided in Annex 4 Section D]

Activity 1.3b Once planting size reached, we will buy seedlings back from community nurseries, thus generating income and replant degraded areas, followed by ongoing monitoring and protection of reforestation area.

The seedlings planted in the 3rd and 4th quarter of 2023 were purchased from 12 Community Seedling Nurseries, in March and November respectively, representing a total of 116,583 seedling stock provided from community groups.

In total in Y2, our replanting efforts culminated in seedlings being planted in seven different reforestation blocks within the Sebangau National Park, including:
- Km 53 site: 3,425 seedlings planted, 3.08ha reforested (following on the 2022 planting).
- Hiu Putih site: 3,145 seedlings planted, 2.83ha reforested (following on the 2022 planting).
- Block F site: 17,424 seedlings planted, 20.89ha reforested.
- Agus Manyan site: 47,233 seedlings planted; 42.51 ha reforested.
- Block G site: 23,180 seedlings planted; 42.51 ha reforested.
- Block H site: 46,073 seedlings planted; 41.47 ha reforested.
- Block I site: 20,900 seedlings planted; 18.81 ha reforested.

During Year 2 a total area of 151 hectares was planted with tree native species. All planting sites were reforested to their maximum capacity, except for Block I which will require future planting in consecutive years.

A subset of all these seedlings will be monitored for a five-year period. Monitoring of the condition of the planted seedlings began in June 2023 (Year 2) and will continue on an annual basis. A total of 21 monitoring events were undertaken, covering all seven planting sites, and those previously planted in Year 1. To date a total of 54,000 seedlings are available in 15 Community Nurseries for the 2024 planting.
[Seedlings purchased and planted evidence is provided in Annex 4 Section D]

Activity 1.4a Establish Scientific Advisory Board of international and Indonesian experts, working alongside new Research Division within BNF, strengthening scientific foundations, produce Indonesian-led scientific publications, support local student development, produce good-practice guidelines and technical feedback/input to MSFs, and advise local peatland restoration efforts.

The Scientific Advisory Board (SAB) and the BNF Research Working Group continued its work during the second year of the project, holding regular meetings every two weeks to develop, advice and build local capacity to strengthen scientific development. The Research Working Group is composed of 3 International Research Directors, 2 Indonesian scientists, the Head of Research and Partnerships Department, a Programme's Director and a Research Manager. Amongst others the Research Division has provided technical input to multi-stakeholder forums, scientific expeditions, study designs, local students supervision, development of series of SOP, strengthened partnerships with Indonesian Universities (UgM, UNAS and UPR) and supported the development of local scholarships and research project to young Indonesia students.
[Scientific Advisory Board development evidence provided in Annex 4 Section D]

Activity 1.4b UPR supported to relaunch their Journal of Tropical Peatlands, serving as an open access repository of peer-reviewed research on all aspects of tropical peatland socio-ecology and sustainable management.

Initial discussions have been held with the new head of UPT LLG CIMTROP and the University of Palangka Raya but no specific development on this area during Y2. A document with the Journal guidelines, scope, objectives, topics covered, the tentative Board of Editors and the instructions for authors has been completed.

On the 23rd and 24th of April, UPT LAHG CIMTROP in partnership with BNF will host and organise an International Conference on Tropical Peatland Management, focused on sustainable land and biodiversity management of peatlands; the conference will be a stepping stone to support local scientists to present and publish their work; discussions on the Journal of Tropical Peatlands re-launch will be held, and particularly on the capacity for UPR to manage it.
[Evidence for the relaunch of the Journal of Journal of Tropical Peatlands available in Annex 4 Section D)

Activity 1.4c Rewetting and revegetation GPGs and M&E protocols, plus Indonesian-led journal papers produced, peer reviewed, translated, published OA, promoted through media and networks, and directly disseminated via MSFs.

During Y2 several SOPs, Guidelines/Protocols and scientific manuscripts have been published by BNF and in partnership with key stakeholders. These include a Contingency Plan for Fire and Disasters Management, a SOP for Effective Firefighting Coordination, a revision of a Reforestation planting and monitoring protocol, and a hydrology restoration plan, developed in partnership with key stakeholders. Further information on the specific outputs is in Section 3.2 Progress towards project Outputs.

During the reporting period a total of four papers and 2 publications in scientific books have been published (3 of them led by BNF researchers and co-authored by Indonesian scientists).
[M&E Protocols, SOP and published manuscripts evidence provided in Annex 3 and Annex 4 Section D]

Output 2. Communities develop more 'peat-friendly' agriculture and livelihoods in peatland areas and are empowered to tackle peatland fire and degradation impacts.

Activity 2.1a Paludiculture introduced to smallholders, including socialisations and site visits to discuss suitable options. Training provided, with new crops, land rehabilitation and harvesting methods trialled, and M&E systems introduced.

Activities related to farming and agroforestry systems have continued throughout the second year of the project. Additional 161 smallholders from nine community groups within a further five target villages gained capacity and developed skills during Year 2. Needs-based training was provided alongside ongoing support for the implementation of peat-friendly practices; during Y2, BNF supported 32 capacity building sessions, over 54 days, for 161 participants.

A total of 19 community groups from 14 villages and 362 people have now been supported to implement alternative peat-friendly livelihoods including permaculture and aquaculture, with monitoring and evaluation systems developed by BNF in place.
[Farming and agroforestry socialisation, training activities and monitoring evidence provided in Annex 4 Section E]

Activity 2.1b M&E of success indicators collected and evaluated in Y2 with initial participating smallholders, with expected success helping recruit additional smallholders in Y3.

Following the successful trials carried out in Year 1 by the Habitat Restoration and Community Development teams, the number of smallholders has steadily increased. Through the monitoring and evaluation that has been carried out to date, we can see a clear increase in the number of participants over time, and we are already close to meeting the project target of participants. The gender balance of participants is 73% female to 27% male. Each group regularly tracks their harvesting yields, in terms of volume, selling price and money earned by date.

From this data, we can calculate that, on average, participants are able to boost their incomes by 35% (based on a local minimum wage rate). Permaculture is more lucrative but yields only one harvest per year, whereas fishponds can yield three harvests per year. Revenues from the fishponds are lower due to the higher set-up costs involved' however, with training provided this year, the aim is to help community members to reduce their costs while increasing revenues.

During Y2, the Nested Spheres of Poverty (NESP) surveys were implemented to assess the success of the project conservation efforts. Further details in Outcome 5 and in the Monitoring and Evaluation section.
[Farming and agroforestry socialisation, training activities and monitoring evidence provided in Annex 4 Section E]

Activity 2.2 Fire-free alliance created via MSF, encouraging project participants and other local stakeholders to commit to reduced burning. Recognition system agreed with MSF. Work to increase concept awareness and drive acceptance as standard.

During Year 2, BNF's Integrated Fire Management approach gathered momentum, as BNF worked with key stakeholders including the Sebangau NP, the Central Kalimantan Agency for Disaster Management and Fire Fighting (BPNB-PK), CIMTROP to ensure preparedness and operational capacity for Fire-fighting teams were in place, as a severe El Nino climatic conditions were predicted.

In anticipation of the likelihood of a prolonged and severe dry season in 2023, BNF delivered a series of technical training sessions, consultation workshops and coordination meetings to build capacity and ensure the network would be ready for an emergency response. This included the provision of a firefighting training session for the newly established Marang women's firefighting group, as well as the provision of firefighting and safety equipment to each of the 15 patrol and firefighting teams that we work with. BNF co-led two public consultation workshops for the '*Forest and Land Fire Contingency Plan for the Central Kalimantan Province*'. We also facilitated socialisation events to inform communities about the increased fire risk and the impact of forest and land fires on the community.

Between July and October 2023, when the time came to mobilise our teams, each one was ready and attacked the fire hotspots early and effectively. Over 200 people, including 135 community firefighters joined these emergency firefighting efforts, spending over 718 hours fighting 100 fires bordering the National Park. Thanks to their efforts, the very successful level of coordination across the Fire-free alliance among all stakeholders, and the long-term mitigation strategies which are now beginning to make a difference, this fire season caused little damage across the Sebangau region, and no forest was lost.

After the fire period, the stakeholders within the Fire-free alliance worked to assess the level of damage and ensure efficient targeting of future efforts. Post-fire evaluations were conducted with the firefighting teams, to identify where improvements could be made; this included a fire workshop, reviewing the actions of the firefighting season, to gain lessons learned to develop strategies for fire mitigation in 2024. At this time, a training and capacity building session was held, with a focus on GIS skills for disaster management. Also at this time, the Contingency Plan for Fire and Disasters Management was finalised, alongside an SOP for Effective Firefighting Coordination for Forest and Land Fires. In December 2023, a disaster risk-mapping web portal called *PERISAI* was launched, with members of the Fire-free alliance including Palangka Raya City government, local firefighting teams, and the Palangka Raya City Department of Communication and Information. This portal is intended to act as an early analysis system for future fires.
[Free-fire alliance development and coordination meetings evidence provided in Annex 4 Section F]

Activity 2.3a Evidence compiled from literature, expert/fisher interviews and our fish data collection (Y1). Recommendations to ensure net positive impacts of peat restoration activities on fish and fishing livelihoods created (Y2).

Existing base-line data (from 2016 to 2022) on fish species composition and water quality (pH, NO3, NO2 and P) for the Sebangau river/canals have been compiled and used as an indicator to verify the positive impacts on hydrology and peat restoration activities. Along Y2 the hydrology restoration team revised the dam building designs to ensure that hydrology restoration strategies in the Sebangau NP do not compromise fisheries and the fishing practices led by community members.

During the first year of the project and in collaboration with scientists from the University of Palangka Raya, BNF carried out a study identifying the scale for the rampant development of illegal gold mining activities in the Rungan River and the impacts on the water quality and fish populations due to mercury pollution. The research report has been completed and confirms mercury contamination in all sediment samples collected (n = 235), water (n = 235) and fish (n = 30) along the Rungan River. These results have been socialised with governmental agencies and local communities to raise awareness on the impacts of illegal mining on the environment and human health. Following on the study results BNF and the City Government of Palangka Raya published a Mercury Use Mitigation Action Plan, with a series of regulations and recommendations which have been implemented in Y2.

BNF is currently planning a workshop on peatland restoration, followed by a workshop for fishermen and other stakeholders to discuss the impact of their current practices, particularly around fires. This workshop will provide recommendations on alternative practices.
[Evidence on fish research and recommendations, including published reports and Action Plans provided in Annex 4 Section G]

Activity 2.3b Above recommendations socialised with peat restoration projects and fishers (including through MSFs) in Y3. Participating local fishers engaged regarding recommendation implementation and feedback compiled to demonstrate upscaling potential.

The results of the mercury pollution research were presented in Y1 during a technical session with representatives from BNF, the Central Kalimantan Environmental Agency (DLH), University of Palangkaraya (UPR), the Central Kalimantan Provincial Health Agency, the Central Kalimantan Fisheries Agency and Community representatives from Mungku Baru, Bukit Sua, Panjehang and Petuk Berunai villages. The Central Kalimantan Environmental Agency in partnership with BNF implemented series of socialisation events in the Rungan river communities during 2023 to present the report results on the high levels of mercury found in water and fish samples. Communities gained understanding of the impacts of illegal mining, the potential health impacts of the use of mercury. Following the socialisations, community members requested training and support for the development and sustainable management of fishponds.

Output 3. Enhancing long-term sustainable management of peatlands by local government and community stakeholders, by expanding community forest management, supporting implementation of long-term management plans and capacity building.

Activity 3.1a Forest Management Units engaged to identify training and resource needs, and other barriers to effectively implement management plans which benefit biodiversity within remaining forests. Plans co-created where do not already exist.

BNF revised and developed specific collaborative partnerships with the Central Kahayan Forest Management Unit (FMU) and the Sebangau National Park Agency during the first year of the project. At this time, yearly Workplans were aligned with the Darwin initiative's expected outcomes and priority capacity building and resource needs identified.

Specific partnerships and collaborations were formalised at the district level (including MoUs with Palangkaraya City Government, Gunung Mas District Government and Pulang Pisau District Government); and effective collaboration and coordination established at the province level (including the Central Kalimantan Education Agency, the Central Kalimantan Social Forestry and Environmental Partnership Agency (BPSKL) and the Central Kalimantan Environmental Agency (DLH).

During Y2, these collaborative partnerships were strengthened, stakeholders involved in meetings, socialisations and training sessions; with ongoing discussions and agreements including 2024 workplans, amongst others during the second year of the project, the following implementation of long-term management plans have been developed in partnership with key stakeholders:
-   The *Sebangau National Park Habitat Restoration Plan 2023-2027* (BNF and BTNS)
-   Sebangau National Park Community Empowerment Plan 2024-2028 (BNF and BTNS)
-   *Forest and Land Fire Contingency and Management Plan for Central Kalimantan* (BNF, BTNS and BPBPK)
-   *Central Kalimantan plan for the acceleration and management of social forestry areas* (BNF and BPSKL)
-   Palangka Raya District *Strategic Environmental Long Term Development Plan (KLHS RPJPD) 2025-2045* (BNF and Palangka Raya City Government)
-   *Long Term Management Plans (RPJP)* have been prepared for eight Social Forestry Managing Groups (BNF and Social Forestry management Groups)
[FMU engaged and training resources needed evidence provided in Annex 4 Section G]

Activity 3.1b Contributions (training, implementation, collaboration, etc.) provided to conservation and M&E activities in existing management plans (e.g., 2007-2026 Sebangau NP management plan), and appropriate additional activities proposed.

During the second year of the project, several training sessions, collaborative events and contributions have been led by BNF supporting the existing management plans; specifically, activities supporting the *2007-2026 Sebangau National Park* management plan have developed substantially. Specific training sessions included capacity building on integrated firefighting, hydrology restoration and biodiversity management, implemented with Sebangau NP staff and project partners. BNF is also currently working with the Sebangau National Park and the Ministry of Forestry and Environment (KLHK) to further extend the collaborative agreement for the next 5-10 years ensuring a long-lasting relationship.
[Contribution provided to conservation and M&E activities evidence provided in Annex 4 Section G]

Activity 3.2a Village Forest designation facilitated in unprotected areas under Indonesia's social forestry scheme. Village Forest designation provides legal rights to villages to manage and sustainably use customary land for community benefit.

During Y2, BNF's Social Forestry team built on the progress made in Y1, supporting a further 3 villages to gain official Village Forest designation (with another village in progress), involving 606 community members and covering a total of 6,774 ha of community-managed land. This brings the total to 21 villages which have achieved Village Forest designation to date, reaching 24,532 hectares and involving 1,275 community members managing sustainable used of costumary land for community benefits.

The BNF team supported villages at various stages in the process, from providing assistance with social forestry proposals and submitting the proposals to the Kalimantan Social Forestry and Environmental Partnerships Agency, to building community capacity, leading participatory mapping in the Indicative Areas for Social Forestry (PIAPS), and biodiversity assessments in partnership with Community Management Units (LPHD). The BNF Social Forestry Division has started the process to support eight additional social forestry proposals, which are expected to be delivered by year 3.
[Village Forest Designation evidence provided in Annex 4 Section G]

Activity 3.2b BNF's experienced social forestry team will socialise with communities, train village representatives in requirements and procedures, and support them to collect required data, complete and submit their community forest application.

BNF facilitated socialisation and information sessions on the development and improvement of social forestry proposals, on the submission and technical verification of the proposals. Support was also provided for Social Forestry decree publication and socialisation of the management permit approval. Free Prior and Informed Consents (FPIC) were signed by community members ensuring that their rights, perspectives, and concerns were acknowledged and respected throughout the decision-making process.

During year 2, BNF supported community members from four villages (Marang, Bukit Sua, Tumbang Tahai and Tumbang Rungan) in the process of submitting the proposal for the establishment of designated social forestry areas. Activities varied from initial socialisation events in villages, assistance in the initiation of the proposal documents, proposal submission and technical verification processes. BNF's support has been in many shapes and forms: capacity building for the right understanding of procedures and developing the proposal; reducing timings, thanks to BNF's expertise in knowing the right channels and tempos to carry out the process; and financial, providing funds for processes such as technical verifications.
[Village Forest Socialisations and FPIC process provided in Annex 4 Section G]

Activity 3.2c Management plans describing administration and sustainable use prepared for each Village Forest, facilitated by BNF, coordinating with FMU. Necessary management, M&E tools and training provided, including regarding sustainable livelihood and financing options.

BNF facilitated sessions for six villages that had received Social Forestry Management rights, towards the effective management of their community land. The process included the agreement and marking of boundaries of the Protected Area. Support was provided to five villages to identify and map the potential of the area; implementing spatial planning; preparation of bylaws, workplans and management plans; and establishing Social Forestry Business groups. Additionally, BNF worked with three existing forest villages to strengthen their Social Forestry Management Group. BNF Community Development and Social Forestry Divisions supported the revision of the Village Forest Management plans for the three villages with the existing management right.

See Figure 83 for training sessions delivered during Y2 to support the development of Management plan and sustainable use for Village Forest.
During the reporting period, BNF teams, in partnership with the Kahayan Tengah Forest Management Units and BPSKL carried out two workshops for the Preparation of Statutes, Bylaws, Workplans and Management Plans. In January 2024 the BNF team carried out three additional sessions (one in each village) to strengthen the newly created managing groups (reaching 78 community members)
Other key capacity building sessions:
- 2x Training for the mapping of the Survey of Social Forestry Areas potent (beneficiaries: 8 managing groups and 49 community members)
- 2x Strengthening SF managing institutions (beneficiaries: 2 managing groups and 50 community members)
[Village Forest Management plans development evidence provided in Annex 4 Section G]

Activity 3.3a Stakeholder training needs identified and bespoke training plans created in Y1, and relevant external assistance acquired to cover specialist topics.

Training needs and technical capacity building were identified during Y1 for already supported stakeholders and during Y2 for newly supported ones (i.e. Sebangau NP, Education Agency, Forest Management Units, Village Forest Management Groups, etc.); training plans and assistance needed were agreed. Training sessions and Capacity building needs were added in the specific partnership technical documents (i.e. Annual Workplan -RKT and/or the Project Work Plan – RKP).
[Stakeholder training needs and training plans evidence provided in Annex 4 Section G]

Activity 3.3b Training initiated in Y2 and extended into Y3, with coordination through the MSFs, and M&E of knowledge gain and training success assessed.

During Y2 a total of 46 training and capacity-building sessions (100 days) took place regularly in coordination with the MSFs and landholders, covering topics including land management, peat-friendly livelihoods, hydrology restoration, reforestation and community nurseries, and integrated fire management.

Training sessions continue to evolve with the changing needs of the community members and other stakeholders, and sessions are being planned currently for Y3.

Training was provided to a wide range of stakeholders including government agencies, village forest management units, universities, community groups and firefighting groups. A total of 440 people from 37 different units were involved in the training sessions.
[Stakeholder training sessions implemented evidence provided in Annex 4 Section G]

3.2   Progress towards project Outputs

1.1 Multi-stakeholder forum (MSF) established by end Y1 to ensure coordination and communication between different stakeholders active in peatland restoration, share resources including creation of data management system to map and monitor progress, and ensure integration with national strategy

Baseline condition: Base-line data available. No existing MSFs related to peatland restoration and sustainable peatlands management.

Change recorded to date:
- One Social Forestry Forum (*ForkomPerSos*) created integrating 37 Social Forestry Management Groups and other key stakeholders
- Ongoing development of a Peatlands Restoration Network for the Sebangau-Kahayan landscape integrating 19 Community Seedling Nurseries and other key stakeholders
- Development of Integrated Fire Management Alliance in collaboration with the Sebangau NP and the Central Kalimantan Disaster Management Agency (BPBPK),.with 24 stakeholders engaged with this initiative.

Source of evidence available: MSF establishment documents, meetings implemented, attendance minutes, and internal and external Back to the Office (BoR) reports.

[MSFs establishment indicators evidence provided in Annex 4 Section D]

1.2 10 training sessions held (20% in Y1, 50% Y2, 30% Y3) and resources provided to implement peat rewetting activities with Sebangau NP (target 350 dams built by end Y3), slowing annual average water-table drawdown by up to 70% compared to pre-project baselines

Baseline condition: Base-line data collected and available. Non training sessions held and 22 historically canals blocked pre-project (2020: 50 dams/ 4 canals; 2021: 0 canals) and water-table drawdown data available.

Change recorded to date: In Y2, one peat rewetting training session held, in partnership with CIMTROP; 2 canals blocked (48 dams built); ongoing monthly hydrology monitoring took place, with regular data collection. To date during this project, a total of 86 dams have been constructed, on 6 canals, and 3 training sessions have been held. Average water tables increased by 33% compared to existing pre-project baselines.

Source of evidence available: Training session materials and session records are available, including attendance lists; hydrology restoration data, hydrology monitoring plan and spatial information on canal, dam and hydrology monitoring locations document.

[Training sessions and peat rewetting indicators evidence provided in Annex 4 Section D]

1.3 15 training sessions held (20% in Y1, 50% Y2, 30% Y3) and resources provided to upscale community nursery programme into 5 additional villages, providing conservation-based income to 100 families in rural communities and targeting equal participation by women.

Baseline condition: Base-line data collected and available. 10 training sessions held to the 10 previous existing groups with 75 members.

Changes recorded to date: In Y2, 2 training sessions were held for member of community nurseries, to learn about reforestation monitoring, meaning a total of seven training sessions during the project period. BNF continues to support all 15 community nurseries in 5 villages, with a total of 114 community members fully involved with the habitat restoration programme.

Source of evidence available: Training sessions attendance list, GPS location, pictures and monitoring data of Community Nurseries groups for each village including full names, gender and address for each.

[Training sessions and community nursery indicators evidence provided in Annex 4 Section D]

1.4 By Y3, good-practice guidelines for tropical peat rewetting and revegetation including M&E protocols, published; minimum two Indonesian scientist-led papers published in international indexed scientific journals and 10 Indonesian students supported; target min. 15 papers published in newly re-established Journal of Tropical Peatlands; and feedback provided to MSFs with uptake evident by Y3

Baseline condition: Base-line data available. No GPG is available and no M&E Hydrology protocols in place. Two relevant revegetation publications on peat rewetting and revegetation

Changes recorded to date: in year 2 we started the development of two new SOPs: Reforestation of degraded peatlands SOP and Peatland Hydrology Restoration SOP. At this point, these are final drafts, but under review, we aim to finalise them during Y3.
Four additional papers have been published in Y2 with Indonesian scientist co-authored (See Annex 3 Table 2)
7 Indonesian and 6 international students supported on the development and implementation of their research dissertation.

Source of evidence available: Publication of open access, protocols, SOP and M&E Plans; the number of journal papers submitted/published and nationality of the lead author, Journal of Tropical Peatlands Call and Guidelines Document.

[Evidence on guidelines and papers published in Annex 4 Section D]

Output 2. Communities develop more 'peat-friendly' agriculture and livelihoods in peatland areas and are empowered to tackle peatland fire and degradation impacts.

2.1 Peat-friendly agriculture and agroforestry practices (paludiculture) introduced to smallholders in target area, aiming for minimum 40% take-up by Y2 and increased number of participants up to 400 individuals by end Y3. Target equitable participation by women in sustainable livelihoods activities.

Baseline condition: Base-line data available. 112 smallholders in four target villages engaged with peat-friendly practices.

Changes recorded to date: new peat-friendly practices introduced to 161 new members in 5 additional villages, making 14 villages and 362 individuals in total. (27% men: 73% women)

Source of evidence available: Monitoring database, Groups and gender composition, names and address for members.
[Evidence on peat-friendly practices introduction in Annex 4 Section E]

2.2 A regional network of community-fire-fighting teams and government agencies, alongside, NGO and private stakeholders forms a fire-free alliance to tackle fires, encourage paradigm shift and behaviour change.

Baseline condition: Base-line data available. No existing Free-Fire Alliance.
Changes recorded to date: A total of 191 community members are involved in the 15 firefighting teams that are now well established and operational in 14 villages. Fire-free Alliance set up with the network of community patrol and firefighting teams and government agencies, NGOs and other key stakeholders. Regular meetings were held throughout Y2, for discussions, planning and capacity building. Production of Contingency Plan for Fire and Disasters Management and SOP for Effective Firefighting Coordination for Forest and Land Fires.
Source of evidence available: Firefighting teams database for the target areas, team composition and names, records of number of local community members and meetings held. SOPs and Plans.
[Evidence on the regional firefighting network in Annex 4 Section F]

2.3 Recommendations on sustainable fisheries and mitigation of impacts identified from restoration projects to fishers and restoration projects to protect fishing livelihoods by end Y2; and engaging with 30-40 local fishers regarding implementing these recommendations and positive feedback from these fishers received by end Y3, demonstrating upscaling potential.

Baseline condition: Base-line data available. No recommendations or mitigation actions in place.
Changes recorded to date: Research on Mercury pollution levels in the Rungan River completed and published in partnership with University of Palangkaraya (UPR), community's socialisation and discussions on mitigation impact held with governmental agencies, ongoing support provided by BNF and UPR development of Decrees and Action Plan for Mercury Use Mitigation for Central Kalimantan.
Source of evidence available: Completion of research describing impacts of mining activities on fish and fish-based livelihoods, drafted Decrees and Action Plans, Socialisation and meeting records and Back to the Office reports
[Evidence on sustainable fisheries in Annex 4 Section G]

Output 3. Enhancing long-term sustainable management of peatlands by local government and community stakeholders, by expanding community forest management, supporting implementation of long-term management plans and capacity building.

3.1 For each Forest Management Units (FMU) within the landscape, by end Y3: successful review, update and implementation of Long-term Management Plan activities which benefit biodiversity. Training and resource needs identified and provided via training workshops leading to quantified skill improvements.

Baseline condition: Base-line data available. Three existing Management Plans for the Central Kahayan FMU (one for each Sub-unit) and 1 Management Plan for Sebangau NP (2007-2026). No training needs identified or existing implementation partners except for BNF for the Sebangau NP and FMU. Additional Management plans to be developed or updated (ei. Habitat restoration and community development management plans for Sebangau National Park)
Changes recorded to date: Currently supporting the development of the existing management plans for the Sebangau NP and the Central Kahayan FMU, specific partnership/work plans developed with key partners (including the Education Agency and the three District Governments); training and resource needs identified, and ongoing capacity building developed.

- BNF supported during Y2 the development and update for the Habitat restoration Management Plan for Sebangau National Park (2024-2028). Sebangau National Park Community Empowerment Activity Plan (2024-2028) finalised and agreed.
- Continued development of existing management plans for the Sebangau NP and the Central Kahayan FMU, in addition to development of eight Social Forestry Management Groups.
- Private sector partnership with Ecosystem Restoration Concession PT PUM (23,613ha) continues its development, the Orangutan Baseline Population Assessment has been completed and published, additional capacity building sessions on biodiversity management have been completed.

Source of evidence available: MoUs/Collaborative agreements in place, Work plans in place with training and resource needs identified, Long-term Management Plans implementation evidence, training sessions derived from it, plus training records, including participant lists and published reports.
[Long-term Management Plans evidence in Annex 4 Section G]

3.2 Support creation and management of community-managed 'Village Forest' areas in peatland through expansion of national social forestry scheme to cover 20,000 ha benefiting >2,000 households in the target landscape, identifying sustainable livelihoods programmes and providing associated management and M&E tools and training to communities by end Y3.

Baseline condition: 13 existing community-managed Village Forest (13,474 ha and 226 households) in peatland areas.
Changes recorded to date: Three newly established Village Forests in Y2 (6,774 ha and 606 community members), totalling nine new Village Forests, 10,800ha and 1,038 community members since the grant started.Ten more Village Forests are planned to be developed during year 3. To date BNF is supporting a total of 22 Village Forest Groups in the target area, with 1,275 households involved, representing 24,532 ha of community managed land in peatland areas. (See Summary map provided).
Progress has been made to support the effective management of four Social Forestry Areas which received their official decree prior to the start of this project. BNF has supported the managing groups to implement good management practices.

Source of evidence available: Formal documents and maps of Village Forest establishment and coverage, Management Groups composition records, shapefiles and records of training and management tools provided.
[Village Forest establishment indicators evidence in Annex 4 Section G]

3.3 Development and implementation of targeted capacity building programme for land managers (Forest Management Units; Sebangau NP, Communities) to include Best Management Practices, GIS/Remote Sensing, Firefighting, SMART Monitoring and Patrolling, with each stakeholder receiving specific relevant training on the above aspects by end Y3 (30% delivered in Y1, 50% Y2, 20% Y3)

Baseline condition: Base-line data available. Records of BNF capacity-building interventions for land managers as Sebangau NP, FMU and other Community Groups

Changes recorded to date: Management Units capacity building needs identified and formally agreed with Land Managers/Governmental Agencies Work Plans. In Y2 we continued the implementation of the capacity building programme developed with 46 training sessions delivered to 440 participants from 37 different stakeholder units (government agencies, Village Forest Management Units, universities, community groups and firefighting teams). In total (Y1 and Y2), we have delivered 85 capacity building sessions to 1,559 people from 62 stakeholders.

Source of evidence available: Partnership Work Plans with Capacity building needs identified and listed on it, records of capacity building activity/training sessions implemented, including attendance and before and after surveys.
[Capacity building to improve land management evidence in Annex 4 Section G]

3.3   Progress towards the project Outcome

Outcome 1 - Indicator: Number of fires in the target area reduced to 25% of baseline value by Y3, compared to climatologically comparable pre-project years.

Data Source: Baseline figures for the number of hotspots (MODIS hotspots VIIRS Catalogue) in the target area were established for pre-project years (2015-2021) and compiled annually during the project, alongside the ENSO index for each year.

  - *Hotspots - MODIS VIIRS Catalog.* Imagery from the Land, Atmosphere Near real-time Capability for EOS (LANCE) system operated by NASA's Earth Science Data and Information System (ESDIS)
  - Multivariate ENSO index values: National Oceanic and Atmospheric Administration (NOAA) of the US Government

Evidence Presented:
Spatio-temporal analysis of MODIS hotspot distribution in the Katingan – Kahayan landscape compared to previous years with similar ENSO index.
Hotspot maps for target area using MODIS VIIRS Catalog pre- and during the project period.
Fire periods and ENSO events from 2000- 2023.

Means of verification/adequacy of indicators: The number of hotspots detected is a reliable and adequate indicator as it correlates with burned area size but should take into account that one fire can include many hotspots and hotspots can be undetected when smoke haze is very thick.

Progress: Baseline figures for number of fires in the target area have been established for previous pre-project years, Y1 and Y2.
[Fire occurrence evidence in Annex 4 Section H]

Outcome 2 - Indicator: Area of peatland burned and resultant carbon emissions in target area reduced by 25% by Y3, compared to climatologically comparable pre-project years.

Data Source: Spatial datasets of burned areas for the pre-project years (2015-2021) and for Y1 and Y2 have been compiled and processed.
Spatial data from Tyukavina *et al.* (2022) *Global trends of forest loss due to fire, 2001-2019* have been used to extract yearly and historical base-line data.
The processed data presented on peatland burned, forest loss due to fires since 2017 and yearly carbon emissions have been collected from the new Forest Fires Monitoring platform (SiPongi+ Karhutla Monitoring Sistem; Indonesian Ministry of Forestry)
Spatial data published by the Indonesian Ministry of Forestry has been used to map the extension of burned areas in 2023 fire crisis.

Evidence Presented:
Map of the peatland burned areas due to fires in the target area in 2023.
Petland burned for the target area on a yearly basis (baseline, Y1 and Y2) representing total ha and resulting Carbon emissions in Central Kalimantan.

Means of verification/adequacy of indicators: We consider the indicator reliable and adequate. Further analysis on Y2 and Y3 will be required to validate the area of peatland burned in the target area using satellite imagery and to be assessed against climatologically comparable years (i.e. similar ENSO index and rainfall)

Progress: Baseline, Y1 and Y2 data compiled and processed.
[Peatland area burned and resulting Carbon emissions evidence in Annex 4 Section H]

Outcome 3 - Indicator: Additional 50,000 ha of degraded peatland subject to rewetting and revegetation initiatives, with positive impacts on peat hydrology (increase in water table depth and decrease in dry-season drawdown) and vegetation (increases in seedling density and vegetation cover).

Data Source: baseline figures are available for historical canals/areas and new data has been compiled for new canals and reforestation-targeted areas; all areas have been mapped and characterised before intervention. Selected canals/burned areas will remain as control locations, which will be monitored on a monthly/yearly basis and compared against.

Orthophoto composition using VTOL drone and aerial mapping/analysis (i.e. Elevation Model produced)
Monthly water-flow (100 stations) and GWT (212 manual and 12 automatic stations) monitoring.
GPS, ground truthing and intervention/monitoring data from the field (for both canals' blocking and tree planting).
Digital Elevation Model (DEM) used to delineate the water sub-catchments for hydrology restored areas

Evidence Presented:
Baseline, Y1 and Y2 average Ground Water Tables for 40 stations located in the Sebangau forested and non-forested areas
VTOL drone Ortophoto-composition for aerial mapping of a reforestation planting site
Reforestation species planted composition in the Y1 and Y2 planting sites.
DEM and water sub-catchment delineation map and table

Means of verification/adequacy of indicators: Shapefiles and maps of additional rewetting and revegetation intervention areas, supported by ground and drone verification; combined with monthly monitoring of trends and yearly checks remain as adequate means of verification. The water sub-catchments delineation will be used as a proxy to define the total peatland area subject to rewetting; it is assumed that if canals drain the peat within a specific catchment, the groundwater levels will be permanently raised by blocking the canals returning groundwater levels close to the land surface (H. Wösten *et al.* 2010; I.Urzainki 2023)

Progress: 9,417 ha of degraded peatland restored in Y1 and Y2 by blocking 6 canals (86 dams) and planting 333,864 seedlings (318 ha). GWT and water drawdown monitoring implemented in control and intervention canals and revegetation data collected.
[Impacts of rewetting and revegetation initiatives evidence in Annex 4 Section H]

Outcome 4 - Indicator: By Y3, Zero forest loss, improved forest condition (5% increase in tree above-ground biomass and forest litterfall, no increases in tree mortality), and increased or at minimum stable populations of key forest fauna (including target 10% increase in orangutan and gibbon density), improved river water quality and stable populations of economically important fish species), as compared to pre-project baselines

Data Source: Baseline data for indicators that demonstrate forest condition improvement were collated and compared to annual monitoring data collected during the project period. These tree growth and mortality rates in 2.4 ha of permanent forest plots; orangutan and gibbon population surveys using line transects of nests and acoustic triangulation; organic matter litter-fall and monthly monitoring of fauna species presence and abundance using fixed location camera-traps.

Baseline Forest loss spatial data (Hansen *et al.* 2022) during the period 2015 – 2022
Analisis of forest loss in 2023 using burned areas shapefile provided by the Indonesian Ministry of Forestry, drone imagery and ground validation surveys.

* Sebangau NP – Sebangau Forest Block (*Kawasan Khsusus* 45,000 ha)

Yearly tree size increase (2003-2023): from BNF Forestry plots (2.4 ha; trees >20 cm DBH)
Orangutan population density estimates (1997 to 2023): from BNF monthly nest surveys across seven transects.
Gibbon population density estimates (2006 – 2023): BNF yearly data from gibbon triangulation surveys in 3 habitat types
Forest organic matter/ litter-fall: from litterfall traps (2017-2023): from 16 x 1 m^2 traps, data collected monthly along two transects.
Fauna species presence and abundance (2015-2023): BNF Camera traps monthly surveys: 79 camera traps (Y2)

* Rungan Forest block:

KHDTK Managed Area (4,910ha) -. Rungan Forest block:

Tree size, DBH, and species composition forest condition (36 plots 3.24ha)
Orangutan population density estimates (2016 to 2023): from BNF monthly nest surveys across six transects.
Fauna species presence and abundance (2016-2023): BNF Camera traps monthly surveys: 20 camera traps

Bukit Bamba (1,216ha) Village Forest and Pamarunan Village (1,045ha) Village Forests Managed Areas:

Tree size, DBH, and species composition forest condition (baseline 2022) 40 plots each

Tuwung Village Forest (811ha); Sigi Village Forest (832ha), Balukon Village Forest (761ha); Tambak Village Forest (591ha), Goha Village Forest (543ha) and Bawan Village Forest (844ha)

Fauna species presence and abundance (2022): BNF Camera traps monthly surveys: 58 camera traps

* PT PUM – Ecosystem Restoration Concession (23,613 ha):
Orangutan population density estimates (baseline 2022 and 2023): nest surveys across six transects.
Evidence Presented:
Tree size increase in BNF historical Forestry plots (2003 – 2023, monitoring implemented every 2 years): including the following variables as indicators: stem density /ha, Basal area (m2/ha), AGB t/ha, BGB t/ha and total Biomass (t/ha).
Orangutan population density trends: number of nests found every month (from 1997 to 2023) and population density analysis yearly for each habitat type (Mixed Swamp Forest, Tall interior Forest and Low-pole Forest), the total number of orang-utans in Sebangau in a 13 x 10 Km sample area.
Gibbon population density trends: number of Gibbon groups/km^2 on a yearly basis for each habitat type (Mixed Swamp Forest, Tall interior Forest and Low-pole Forest).

Fauna species presence and abundance: camera trap results for the period 2015-2023 presented yearly, including camera trap effort, camera trapping days, the total amount of species caught on camera, the total amount of photos and occupancy index for key species.
Forest organic matter/ litter-fall: 2017-2023 data set, processed analysis for litterfall leaves (kg/ha).
Forest loss table for the target area for 2023 from the main big fire events
Graph comparing air quality (pm10) and ENSO index 2017 – 2023.

Means of verification/adequacy of indicators: The indicators are considered to be reliable to verify the forest condition and populations of key fauna. The forest structure changes and biodiversity variables provided evidence of responses to improved conservation management.

Progress: baseline data for indicators that will demonstrate forest condition improvement have been collated for several peat-swamp forest blocks and managed areas (including the Sebangau NP Research Area, PT PUM Ecosystem Restoration Concession, Education Forest (KHDTK) and Village Forests Managed Areas). The first two years of monitoring data (Y1 and Y2) have been collected, compiled and analysed.
[Impact on forest condition and key fauna populations evidence in Annex 4 Section H]

Outcome 5 - Indicator: Overall target 10% reduction in poverty indicators across multiple spheres (economic, natural, social and political), and subsequent 10% increase in subjective well-being scores among local community members in target villages by Y3, compared to pre-project (where available) or Y1 baseline.

Data Source: The Nested Spheres of Poverty (NESP) analysis has been sed as an indicator to report against poverty reduction across multiple spheres (economic, natural, social and political) for the target community groups. To capture all these notions and attributes of poverty a structured interview questionnaire (with a total of 55 questions) has been developed. The following parameters will be used to assess poverty reduction: (i) Subjective well-being; (ii) Core aspects (including health, adequate wealth and knowledge; (iii) Contextual aspects (including the Natural, Economic, Social and Political spheres); and (iv) Interacting with all four spheres are infrastructure and services.

Evidence Presented:
Summary table of respondents to the NESP questionnaires. A total of 314 community members were interviewed across six villages, 141 respondents didn't have any previous relation with BNF (control) and 173 respondents were involved in BNF community development programmes.
Graphs with initial analysis from the interviews' results for the six villages.
A map with the respondents' homes georeferenced.

Means of verification/adequacy of indicators: The indicators are considered to be reliable and the methodological approach is adequate based on the model for Multidimensional Poverty assessment and monitoring designed by CIFOR.

Progress: In Y2 a group of four independent surveyor (to prevent any conflict of interests when responding) carried out 314 interviews in the six targeted villages. Initial interpretation and analysis of the results has been carried out. During Y3 we will further analyse and interpret the results, increasing number or interviews if needed.
[Poverty reduction and subjective well-being indicators evidence in Annex 4 Section H]

Outcome 6 - Indicator: More "peat-friendly" livelihoods, following paludiculture principles, implemented by end Y3, indicated by increased number of local community members willingly engaged in these activities and improved peat hydrology in target intervention areas, compared to pre-project baseline.

Data Source: Annual surveys of fishers and farmers in target intervention areas, including self-reporting of economic activities conducted and income levels from these (categorised as peat un/friendly based on reported practices used, including peat drainage levels established through hydrological monitoring; and fire use/incidence in their farming/fishing area, conducted with at least 75% of respondents

Evidence Presented:
Summary tables, maps and impacts for peat-friendly practices developed during the project (Figure 41 and Figure 45 Annex 4)
Summary table for capacity building sessions provided related to the development and implementation of targeted capacity building programme for land managers and stakeholders (Figure 83 Annex 4)
Increased number of local community members engaged in these activities in target intervention areas, compared to pre-project baseline.
Self-reporting economic activities evolving from the livelihoods models developed and income levels (Figure 47 Annex 4)

Means of verification/adequacy of indicators: The indicators are considered to be reliable; further work will be required in Y3 to develop an adequate methodological approach to quantify the outcome at the landscape level and verify the assumptions.

Progress: Activities monitoring spreadsheets have been designed and quantitative information added for each community group where peat-friendly interventions have been implemented.
[Community members engagement in "peat-friendly livelihoods" evidence in Annex 4 Section H]

3.4   Monitoring of assumptions

OUTCOME ASSUMPTIONS

Assumption 1 and 2: 0.1 & 0.2 Fire incidence and severity is directly linked to peat drainage (i.e., peat water levels). Fire hotspots and burn scars can be effectively detected and distinguished by remote and drone imagery, and on-the-ground observations.

Comments: Yes, the assumption has held true. Above assumptions all supported by peer-reviewed studies.

Assumption 3: *Target rewetting and replanting areas can be accurately mapped. Peat water levels show detectable changes within project period. Rewetting and revegetation monitoring sub-sets are indicative of wider intervention area (to be guarded against through selection of random sampling locations).*

Comments: Yes, the assumption has held true. Reforestation areas have been accurately mapped and selected based on the Sebangau NP Zonation system *(within the Rehabilitation Area)* and the Sebangau NP Ecosystem Recovery Plan (RPE 2017-2022 and RPE 2023-2027) Criteria for site selection have been defined and drone teams have mapped the area pre-planting. Rewetting catchments can be delineated using DEM to define the impact area of the hydrology restoration work.

Assumption 4: *Forest structure, biomass and biodiversity variables show detectable responses within the project period to changes in conservation management interventions. Forest-loss projections are reasonable and evidence-based.*

Comments: Yes, the assumption has held true. Above assumptions all supported by peer-reviewed studies. Base-line data and Y1 and Y2 monitoring on forest structure and biodiversity variables have been collected. Assumption to be finally re-assessed in Y3.

Assumption 5: *5 Local community members are willing to engage within and reply truthfully and openly to NESP surveys. Changes in poverty and subjective well-being indicators can be reasonably attributed to changes in local factors arising from/relating to project activities.*

Comments: To ensure people responded truthfully, NESP surveys were implemented by people outside of BNF. To date assumption has held true. Some community members expect small financial compensations for information sharing; this practice has been widely implemented by other conservation organisations in Indonesia. BNF is reluctant to implement these practices but working on reciprocity approaches and trust.

Assumption 6: *Fisher and farmer survey respondents self-report accurately and truthfully (guarded against by introducing checks, and employing separate survey and intervention implementation teams, and for fire incidence by checking against MODIS satellite hotspot data), and are representative of the wider fisher and farmer population in the target intervention area (guarded against through random respondent selection*

Comments: The assumption couldn't be monitored yet; BNF is planning to conduct a workshop during Y3 to monitor the suitability of this assumption and carry out further work to be with community members.

OUTPUT 1 ASSUMPTIONS

Assumption 1.1 *MSF keeps good, formal written documentation of establishment, forum members, meetings held, etc., and are willing to implement electronic data management systems. MSFs are willing to share these records for verification (while ensuring data confidentiality is maintained). Guarded against through training delivered by project.*

Comments: Yes, the assumption has held true. BNF Monitoring and evaluation team have developed series of monitoring spreadsheets with access through a newly developed online server platform.

Assumption 1.2 *Training materials produced are kept and documented; accurate records of training sessions delivered, resources provided and dams built are kept. Guarded against through training delivered by project. Surveyees respond truthfully during before-and-after training assessments.*

Comments: Yes, the assumption has held true. Materials, documents and resources produced have been stored and made available through the online server.

Assumption 1.4 *Suitably qualified scientists accept positions on BNF Scientific Advisory Board (SAB) and as scientific staff within new BNF Research Division. Scientific stakeholders remain committed and continue to engage post-establishment. Guarded against by collaborative development and decision making from the outset. Journal of Tropical Peatland hosts (University of Palangka Raya) remain committed to journal establishment (expected, given their partnership in the project). MSFs are open to receiving feedback and implementing scientific recommendations. Guarded against through continual dialogue. Our recommendations are of relevance to external partners. Expected by project grounding in national and international conservation, climate and SDG policy.*

Comments: Yes, the assumption has held partially true. Several Indonesian scientists and local universities developed collaborative agreements with BNF and supported the project development and leading on research developemet. The SAB and the Research division improved coordination and impact capacity. Further re-evaluation of the capacity of UPR to re-launch the *Journal of Tropical Peatland* assumption will be required after running the International Symposium of Tropical Peatlands Sustainable management (in April 2024).

OUTPUT 2 ASSUMPTIONS

Assumption 2.1 *A significant number of members of local community are willing to engage in peat-friendly livelihoods activities, believed to be true based on existing communication and feedback, Survey respondents self-report accurately and truthfully and are representative of the wider sector in the target intervention area.*

Comments: Yes, the assumption has held true to date and community members receive with positive attitude the proposed peat-friendly approaches and practices. Being said, the "community" concept is heterogeneous and therefore is subjected to

many meta-perceptions and conflicts of interests; we truly believe that time and long-term presence increase community trust and reduce resistance to behavioural change.

Assumption 2.2 *Individuals are willing to make public commitments to join alliance. Alliance is launched and continuously promoted by MSF members, community is aware of alliance, alliance commitments are simple, clear and verifiable.*

Comments: it has not yet been possible to assess this assumption as the output hasn't been developed enough

Assumption 2.3 *Impacts are detectable and can be reliably attributed (or not) to changes in management activities. MSFs and local fishers self-report accurately and truthfully and are open to engaging with the project and implementing recommendations.*

Comments: it has not yet been possible to assess this assumption as the output hasn't been developed enough.

OUTPUT 3 ASSUMPTIONS

Assumption 3.1 *FMUs remain accepting of project' engagement and involvement in plan development, and in sharing information with the project. Guarded against through continual dialogue during project period.*

Comments: Yes, the assumption has held true; FMU and Sebangau National Park officials are fully engaged and involved in plan and activities development. MoU and Annual Work plans remain active and aligned with the current project. BNF, the Sebangau National Park and the Ministry of Forestry started discussions and evaluations for the extension of the existing MoU.

Assumption 3.2 *National and local support for social forestry continues. Local communities are supportive, and willing to contribute efforts to establishment of Village Forests.*

Comments: Yes, the assumption has held true; province-level and national agencies are supportive to BNF intervention, including the Central Kalimantan Social Forestry and Environmental Partnerships (BPSKL), the Directorate of Tenure and Customary Forest Conflict Management (PKTHA) - Ministry of Forestry and Environment (KLHK); both agencies responded positive to BNF requests and implemented the technical verifications for the proposed Social Forestry proposals. Communities remain committed and engaged to the Village Forest efforts initiated.

Assumption 3.3 *Training materials produced are kept and documented; accurate records of training sessions delivered and resources provided are kept. Guarded against through training delivered by project. Surveyees respond truthfully during before-and-after training assessments.*

Comments: Yes, the assumption has held true. Materials, documents and resources produced have been stored and made available through the online server.

3.5 Impact: achievement of positive impact on biodiversity and poverty reduction

The ongoing trend of peatland and peat-forest loss and degradation through conversion, drainage and fire in Central Kalimantan is causing severe negative impacts for biodiversity conservation and prospects for sustainable economic development to alleviate poverty. Poor planning, low management capacity, plus existing poverty and marginalisation of local communities are crucial underlying drivers of these trends. This project aims to contribute towards achieving reduced forest loss and sustainable economic growth in one of the most important peat landscapes in the region.

The planned change, as detailed in the original application form, is to reduce the number of fire outbreaks in peatland areas, thus reducing trends in biodiversity population declines of key peat forest species, such as the Critically Endangered Bornean orangutan, and reducing the occurrence of adverse health effects associated with the smoke emitted from fires on local people. This will be achieved through enhanced firefighting capacity, greater area of land under active rehabilitation and community protection, plus changes in fire use and drainage by surrounding communities, all combining to reduce fire risk. We aim for these initiatives to be sustained and combined with scaled-up habitat restoration initiatives, development of practical alternative livelihood opportunities and strengthened land management structures, including the designation of Village Forests through the national Social Forestry scheme. These changes will result in reduced deforestation, enable biodiversity recovery and ensure long-lasting poverty reductions. Building from positive changes in government policy, sustainable finance sources will be identified to enable regional replication and multiply project benefits. This project will thus deliver substantial positive change for biodiversity conservation, climate change mitigation and progress towards SDGs locally.

Positive changes arising from the project include:
Enhanced conservation of peatland biodiversity in Central Kalimantan, notably the world's largest protected population of the Critically Endangered Bornean orangutan (> 6,000 individuals) in Sebangau National Park, and significantly lower risk of catastrophic impacts from forest-fires [Positive impact in biodiversity evidence provided in Annex 4 Figure 101]

Potential emission savings of 27-66 tCO2/ha/yr from peat rewetting and 101-455 tCO2e for each hectare prevented from burning. [Positive impact on emissions savings from rewetting and burning evidence provided in Annex 4 Figure 88]

Reduced haze pollution and associated negative health impacts experienced by the ~500,000 people living in the landscape. [Reduced haze pollution evidence provided in Annex 4 Figure 97]

Proof of concept development of more peat-friendly approaches towards agriculture and fishing, supporting the long-term development of more resilient and sustainable local economies. [Proof of concept development of more peat-friendly approaches evidence provided in Annex 4 Figure 41]

Involvement of rural communities in conservation actions, and income benefits arising, through support of community-led fire-fighting teams (ca. 100 people), community nurseries (ca. 100 families), development of peat-friendly agriculture among smallholders (up to 400 individuals) and peat-friendly fishing practices (up to 40 people). [Involvement of rural communities in conservation actions evidence provided in Annex 4 Figure 23, Figure 41 and Figure 50]

Villages obtain management rights over an anticipated cumulative 20,000 ha of customary forests, enabling sustainable community use of resources and maintenance of social and cultural values, benefiting a minimum 2,000 households. [Villages obtain management rights evidence provided in Annex 4 Section G]

Wider public in Kalimantan learning about these issues through the project's media engagement, including social media, events and exhibitions (est. ~100,000 people). [Public in Kalimantan learning about these issues through the project's media engagement evidence provided in Annex 4 Section I and Section J]

4. Project support to the Conventions, Treaties or Agreements

4.1 Contribution to Global Goals for Sustainable Development (SDGs)

The main aim of this project is to improve local capacity and stakeholder coordination enabling effective implementation and upscaling of sustainable peatland/forest management, mitigating the effects of forest fires and improving human wellbeing. We plan to do this by implementing several activities with defined outcomes which if successful, will contribute to the SDG goals listed below:

Goal 1: Zero Poverty – To be achieved by:
Ensuring that all men and women, in particular the poor and the vulnerable, have equal rights to economic resources, as well as access to basic services, management and control over land, access to natural resources, and financial services, including microfinance; the project supports this goal by developing and raising stakeholders capacity to develop and manage more 'peat-friendly' agriculture and livelihoods and developing community-led initiatives related to peatlands ecosystems protection and restoration (i.e. Community Fire Fighting Teams, Community Seedling Nurseries, Hydrology Restoration Units, etc.).
Developing policy frameworks at the national and regional levels, based on pro-poor and gender-sensitive development strategies. The project is contributing towards this objective by supporting Regional and National governments to develop frameworks for social forestry, indigenous rights, management and Action Plans.
Goal 3: Good health and well-being – To be achieved by reducing the prevalence of peat forest fires, rehabilitating degraded peatland and improving livelihoods and wellbeing developing 'peat-friendly' agriculture and livelihoods in peatland areas, thus maintaining the existing ecosystem services, traditional economies and creating local circular economy. Our main objectives towards these goals are peat rewetting, fire-fighting training, community outreach, village forest development, stakeholder liaison, revegetation and environmental education.

Goal 4: Quality Education – To be achieved by ensuring that all girls and boys complete free, equitable and quality primary and secondary education leading to relevant effective learning outcomes; and that all learners acquire the knowledge and skills needed to promote sustainable development, lifestyles and appreciation of cultural diversity. The project supports the Quality Education Goal by developing an outschool education programme in rural communities and integrating principles of environmental and sustainable development in local schools, building teachers' capacity and developing resources and modules to enhance school's curriculum in partnership with regional Education Agencies.

Goal 5: Gender equality – To be achieved by adopting and implementing Equal Opportunities within UoE, BNF and project partners, promoting the role of women in leadership positions, considering equal input from the female community and cooperative members in work implementation and plan development. Our main contribution towards this is to get women evenly included in our conservation outreach sessions, environmental education sessions, reforestation project (community nurseries) and Integrated Fire Management (during Y2 BNF continued to support the first Community Patrol Team 90% composed by women in the Marang village. Gender balance in capacity building sessions delivered was 40 : 60)

Goal 12: Responsible consumption – To be achieved by the development of more sustainable management of natural resources and by promoting more widespread understanding of sustainable lifestyles and resource use: Our main objectives include education sessions with local schools and cooperative groups, developing peat-friendly alternative fishing and farming plans with local cooperatives and outreach via media and public events. Our contribution to this goal to date primarily comes from our education sessions for children and young adults, and our environmental education modules in local schools, which includes activities and resources about waste management, methods for recycling and responsible consumption.

Goal 13: Climate Action – To be achieved by:
Strengthening resilience and adaptive capacity to climate-related hazards such as forest fires; specifically, by developing measures to reduce forest loss, fire and carbon emissions and rehabilitating degraded peatlands.

Integrating climate change measures into national policies, strategies and planning; the project is supporting the improved local capacity and stakeholder coordination enabling effective implementation of climate change mitigation plans and strategies, such as the development of Integrated Fire Management strategies at the community level and developing a regional network of community-fire-fighting teams in partnership with local agencies.

Goal 15: Life on land – To be achieved by enhanced protection and restoration of terrestrial ecosystems (peat-swamp forest), sustainable management, restoration and protecting biodiversity and natural habitats, integrating biodiversity into government planning and enhancing Sebangau National Park and FMU staff capacity in biodiversity monitoring techniques. Our main

objectives include peat rewetting and revegetation, fire-fighting, forest protection patrols, training, education; outreach, biodiversity monitoring and stakeholder/SNP/government liaison.

4.2 Project support to the Conventions or Treaties

The Darwin project currently supports the new (post-Aichi targets 2011-2020) action targets of the Convention on Biological Diversity (CBD). The post-2020 global biodiversity framework builds on the Strategic Plan for Biodiversity 2011-2020 and sets out a plan to implement broad-based action to bring about a transformation in society's relationship with biodiversity and to ensure that, by 2050, the shared vision of living in harmony with nature is fulfilled.

The Darwin proposed project is contributing towards several of the targets defined in the *CBD 2030 Action targets*, including:

Action target 1 - Reducing threats to biodiversity

Targets 2, 3 and 8: By supporting the critical restoration of terrestrial ecosystems and it's effective and equitably management led by local communities; ensuring that protected areas and Other Effective area-based Conservation Measures (OECM) remain well connected and integrated into the wider landscapes. Project activities also contribute towards Target 8, by minimizing climate change impacts, its mitigation and adaptation through ecosystem-based approaches.

Action target 2 - Meeting people's needs through sustainable use and benefit-sharing

Targets 9, 10 and 11: By ensuring benefits such as food security, livelihoods development through sustainable land management and protecting customary areas of indigenous peoples and local communities. Ensure all areas under agriculture, aquaculture and forestry are managed sustainably and by enhancing and maintaining nature's contributions to regulation of air and water quality, preventing hazards to people and extreme events.

Action target 3 - Tools and solutions for implementation and mainstreaming

Targets 14, 20 and 21: By integrating biodiversity values and environmental assessment impacts into policies, regulations, planning, Workplans, development processes, and poverty reduction strategies. Ensuring that project activities implemented, and resources developed include traditional knowledge, innovations and practices of indigenous peoples and local communities with their free, prior, and informed consent; and by promoting awareness, education and research. By developing community forums, promoting indigenous people and local communities' participation for rights over lands, and territories and resources management.

5.   Project support for multidimensional poverty reduction

This project represents a multifaceted approach to poverty alleviation, recognizing the multi-dimensional nature of poverty. Our strategy focuses on empowering communities across various dimensions of their livelihoods, aiming to break the cycle of poverty comprehensively.

During Y2 we have implemented a multi-dimensional poverty alleviation assessment using the NESP - Nested Spheres of Poverty methodology (Gönner et al. 2007); running surveys across project beneficiaries and looking at different spheres of wellbeing, health, wealth and knowledge. (See section Annex 4 Outcome 5. [Poverty reduction and subjective wellbeing indicators evidence in Annex 4 Section H]), including members of community seedling nurseries, smallholders and sustainable agriculture community groups, village forest management units, business groups, women's initiatives, community patrol and firefighting teams, dam building teams and field research staff in villages bordering the Sebangau National Park, the Rungan River and the Kahayan River. Central to our approach is the direct support and development of community groups, enabling them to access and engage in financially and ecologically sustainable livelihood practices. By fostering self-reliance and stability in household incomes, we aim to facilitate a shift towards full self-sufficiency among these communities.

Indirect benefits towards poverty alleviation (See Section 3.5 of the narrative report) also include peat fires prevention in the region, protection of ecosystem services and the reduction of land/forest miss-management impacts. Find below a detailed list of the identified direct and indirect benefits towards poverty alleviation:

Direct benefits:

☐ Community seedling nursery members are receiving complementary financial income via the sale of seedlings that have reached sufficient planting height for reforestation purposes. Each nursery member is generating an additional £660 per year (Figure 27), equivalent to approximately one third of the average salary in the area.

☐ Smallholders are benefiting financially from enhanced land productivity by integrating permaculture approaches and receiving complementary financial income via the sale of fruit and vegetables crops, as well as increased income security through fish farming approaches instead of sourcing fish from declining and polluted populations in rivers (Figure 48).

☐ Village Forest Management Groups in 17 villages are receiving training (Figure 83) to effectively utilise community-managed forest areas, through which they can support their community's sustainable business groups that generate a more secure and environmentally-friendly income for community members.

☐ Women's groups are receiving complementary financial income from selling organic pots made from traditional *purun* grass to conservation projects and tourists and are actively participating in historically men-dominated activities (firefighting, patrolling, etc. ie. the Marang Female Fire-fighting team established in Y1 and active in Y2)

☐ Community members have access to green jobs opportunities through employment/contracting with BNF as field research staff, patrol and firefighting teams, canal blocking workforce, reforestation workforce, builders, and transport contractors.

Non-monetary poverty measures:

☐ The work of the project to reduce fires, forest and biodiversity loss and pollution will ensure the long-term preservation of ecosystem services to promote the alleviation of poverty in the region. The project is securing ecosystem provisioning services to ensure access to local foods, forest resources and clean water, regulating services to minimise disease risk and negative impacts on human health, and cultural services including tourism and recreation opportunities, alongside scientific initiatives. Other supporting services towards biodiversity and ecological preservations include carbon storage and sequestration, nutrient cycling, pollination and soil formation.

- □ The project is supporting the local youth to improve future job prospects by providing education opportunities with environmentally focussed messaging to allow them to access stable and secure green jobs.

- □ Reduction of health impacts due haze and toxic smoke.

- □ Reduction of direct economic loss in transportation, education and agriculture due to forest fires and land degradation.

6. Gender Equality and Social Inclusion (GESI)

Please quantify the proportion of women on the Project Board[1].	UoE – BNF – UPR Project Board (N= 15; 8 W : 7 M) 53% Women : 47% Men
Please quantify the proportion of project partners that are led by women, or which have a senior leadership team consisting of at least 50% women[2].	BNF 58% Women (Board of Management)

GESI Scale	Description	Put X where you think your project is on the scale
Not yet sensitive	The GESI context may have been considered but the project isn't quite meeting the requirements of a 'sensitive' approach	
Sensitive	The GESI context has been considered and project activities take this into account in their design and implementation. The project addresses basic needs and vulnerabilities of women and marginalised groups, and the project will not contribute to or create further inequalities.	
Empowering	The project has all the characteristics of a 'sensitive' approach whilst also increasing equal access to assets, resources and capabilities for women and marginalised groups	X
Transformative	The project has all the characteristics of an 'empowering' approach whilst also addressing unequal power relationships and seeking institutional and societal change	

Gender equality is an important aspect to this project. Indonesia has a traditionally patriarchal culture, which will require long-term awareness and perception changes and new generations to overcome this historical unbalance. BNF, as the primary implementation partner in Indonesia, has the commitment and develop principles to promote gender equality and social inclusion. The project hasn't been designed using the GESI toolkits, but historically BNF has developed initiatives and promoted gender rights and inclusion into our programmes. We strongly believe the leading by example and inspiring other people/projects is also as important way to support gender equality; BNF is currently a female-led organisation with 58% (N=9 within the Board of Management) of BNF's most senior positions represented in the Board of Management are filled by women and actively participating into decision making tables, leading scientific projects, attending meetings with stakeholders and representing the organisation as a whole.

The project fosters strong women representation in its sustainable livelihood activities (Output 2.1), to date, the community groups engaged present a ratio of (ratio approx. 3 women : 1 man); with a total of 264 women of 362 people. [Gender equality evidence for Sustainable livelihood groups presented in Output 2.1 Figure 41]

The intervention also aims to promote conservation-based income to 100 families in rural communities (Output 1.3), targeting equal participation by women; since the project started, an average of 50.3% of the training sessions' participants were women. [Gender equality evidence for capacity building and training events presented in Figure 83]

BNF empowers women to access professional careers and actively participate in decision-making platforms/spaces, whilst publicly promoting and celebrating the role of women in equal professional contexts at events such Kartini Day (a national holiday to honour women's rights). BNF encourages women to participate into male-dominated activities (firefighting, patrolling, field work, etc) and providing equal job opportunities to male/female community members.

During Y2, BNF continued to support and empower Central Kalimantan's first women-led firefighting team, with the delivery of training sessions specifically for them. The Marang Fire Care Community (MPA Marang) is the first firefighting team in Central Kalimantan to consist primarily of women and is part of the regional network of eight community firefighting teams supported by the project, with the aim of strengthening fire prevention and response efforts throughout the area.

We continued supporting a women's group, which makes organic planting bags and souvenirs. Through this, women have the freedom to establish sustainable business ideas and generate income independently of their spouses. BNF has an equal opportunities policy which is fully implemented in this project. We hope these initiatives will become an example for other women. Despite the efforts and good development undertaken during Y1 to achieve gender balance and social equality, several male-dominated activities will require further attention and work, for instance only 25% of new Community Seedling Nurseries groups members are women, and most of the Community Fire Fighting and Village Forest Management Groups are male dominated. We will continue reviewing and adopting GESI practices, identifying critical areas for gender and social including improvement, aiming for a GESI transformative project to address inequalities and promote and incorporate intersectionality.

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[1] A Project Board has overall authority for the project, is accountable for its success or failure, and supports the senior project manager to successfully deliver the project.

[2] Partners that have formal governance role in the project, and a formal relationship with the project that may involve staff costs and/or budget management responsibilities.

7. Monitoring and evaluation

The main outcome for this project is to ***Improve local capacity and stakeholder coordination enabling effective implementation and upscaling sustainable peatland forest management***. To monitor and evaluate our activities and the impacts of our achieved outcomes, we have collected baseline and activities monitoring data (presented in the Monitoring and Evaluation Plan <u>Annex 4 Section A</u>).

The following baseline, Y1 and Y2 data has been collected and monitoring implemented to report against the project outcomes, based on the following indicators:

0.1 Number of fires in the target area reduced to 25% of baseline value by Y3, compared to climatologically comparable pre-project years

Fire baseline and monitoring data has been taken from pre-project years after the 2015 forest fires. Data is based on the number of hotspots detected by MODIS (data source: *MODIS VIIRS catalogue*) for the project target area by year and has been compared to MODIS hotspot data for 2022 and 2023; our monitoring and evaluation will continue for year 3.

0.2 Area of peatland burned and resultant carbon emissions in target area reduced by 25% by Y3, compared to climatologically comparable pre-project years.

The areas of peatland burned, forest loss since 2017 and yearly carbon emissions has been collected from the new Forest Fires Monitoring platform (<u>SiPongi+ Karhutla Monitoring Sistem</u>; Indonesian Ministry of Forestry); further analysis will be produced in Y3 using satellite imagery (burnt ratio index - dNBRI) and comparing against other peer-reviewed spatial datasets (i.e., Tyukavina, A. et al. (2022) Global trends of forest loss due to fire, 2001-2019) and spatial datasets provided by the Indonesian Ministry of Forestry.

0.3 Additional 50,000 ha of degraded peatland subject to rewetting and revegetation initiatives.

Degraded peatland rewetting and revegetation baseline, 2022 and 2023 data has been collected by the BNF Habitat Restoration team, using several data sources and methods; including: VTOL drone aerial mapping, monthly water-flow (100 stations) and GWT (212 manual and 12 automatic stations) monitoring, GPS and Ground truthing data from the field (for both Canals and tree planting). These baseline figures have been collected before the canals were dammed and after when possible. Selected canals that remain undammed as a control canal, which will be monitored on a monthly basis and compared to discharge rates from dammed canals.

0.4 By Y3, Zero forest loss, improved forest condition (5% increase in tree above-ground biomass and forest litterfall, no increases in tree mortality), and increased or at minimum stable populations of key forest fauna (including target 10% increase in orangutan and gibbon density), improved river water quality and stable populations of economically important fish species), as compared to pre-project baselines

Sebangau National Park - Forest condition: Baseline, Y1 and Y2 data is based on tree size, tree mortality and litter-fall, from our already existing phenology plots (2.4 ha), using historical data from Sebangau NP, and re-measuring for comparison. (tree size monitored every two years and litter-fall monthly).

Rungan Forest - Forest condition: Baseline, Y1 and Y2 data for is based on tree size, DBH, and species composition for 3 sites (the KHDTK education Forest; 4,910ha; 36 plots 3.24ha; baseline 2018) the Bukit Bamba Village Forest (protected since 2019 - 1,216ha - 40 plots - baseline 2023) and Pamarunan Village Forest (protected since 2019 - 1,045ha - 40 plots - baseline 2023)

Sebangau Population of key forest species: Baseline, Y1 and Y2 data (2016-2023) on a select number of key forest species has been used. These includes nest surveys for estimating orang-utan (Pongo pygmaeus wurmbii) density and number of new nest per month (monthly data collected), and camera trap photos (monthly data collected), used for calculating Naïve Occupancy and Relative Abundance Indexes (RAI) including key species of the small cats (the clouded leopard (Neofelis nebulosa), leopard cat (Prionailurus bengalensis), Marbled cat (Pardofelis marmorata)) and other emblematic species such as the Storm's stork (Ciconia stormi), Pangolin (Manis javanica), Sun Bear (Helarctos malayanus) and Otter Civet (Cynogale bennettii).

River quality and important fish species: Base line data is available for the Sebangau River (period 2016-2022); including species composition, catch-per-unit-effort (CPUE) and water quality parameters (pH, NO2, NO3 and P).

0.5 Overall target 10% reduction in poverty indicators across multiple spheres (economic, natural, social and political), and subsequent 10% increase in subjective well-being scores among local community members in target villages by Y3, compared to pre-project (where available) or Y1 baseline.

Nested Spheres of Poverty (NESP) will be used as a quantitative tool to measure and monitor poverty with a multidimensional approach at the household level. The study has been carried out in 6 villages across the target area, including 314 respondents from BNF intervention (N=173) and control (N=141) groups. The villages and intervention groups selection have been defined following specific criteria. Further information and evidence in <u>Annex 4 Outcome 0.5</u>.

0.6 More "peat-friendly" livelihoods, following paludiculture principles, implemented by end Y3, indicated by increased number of local community members willingly engaged in these activities and improved peat hydrology in target intervention areas, compared to pre-project baseline.

Monitoring spreadsheets have been designed and quantitative information added for each community group where peat-friendly interventions have been implemented. Yearly monitoring will be conducted, and data compared against compiled base-line.

Annual evaluation meetings were conducted at the end of 2022 and 2023 with key stakeholders and project partners to review project progress, assess the current collaborative agreements and workplans in place and agree on yearly targets. Project partners and stakeholders included: BNF; UPT LLG CIMTROP; Sebangau NP, Central Kahayan FMU and several Village Forest management groups.

8.   Lessons learnt

Implementation of this important project has required learning and adaptative management, including core aspects and details related to the administration and management of this project; specifically, aspects related to partnerships liaison and development, the development of Management Plans and local forest management and land tenure regulations, and local communities' participation and improved community management plans.

- Partnerships development: Further and detailed SOPs developed and agreed with Community groups have been required and developed in Y2 for all the community groups within each village. The partnership development has been a crucial part of Y1 and Y2 strategic work, ensuring transparency and commitment from implementation partners.

- Political commitment for the Development of Management Plans, improving Forest regulations and partnerships development: Aligning project goals and governmental priorities is not always possible as governments may have their own political agenda, especially at certain periods of the mandate. BNF invested a huge amount of time and energy in developing work plans with many regional governmental agencies during Y1. During Y2 a level of uncertainty on political commitment and government plans has impacted the project due to the national elections held in February 2024. We hope that this uncertainly will not impact the expected poject deliverables.

- Communities' participation and land tenure conflicts: Several emerging conflicts related to land tenure and the development of Village Forest highlighted the importance of further socialisation events, conflict resolution sessions as well as re-defining the boundaries and size of the community managed areas when needed. Working with people requires patience and flexibility, to consider and embrace the many different hopes, fears and perceptions that exist within a community; so that a solid foundation can be built, and goals agreed by all. Community conflicts are not always predictable but will always occur; these can be minimised with open dialogue and sensible resolution of differing views.

- 2023 Forest fires: forest fires, haze, and deteriorating air quality significantly impeded the normal development of the project during the 4th quarter of 2023, re-shifting teams' priorities and prioritising efforts to tackle recurrent fires, mobilising resources and postponing activities when required. These environmental challenges not only demanded urgent attention but also forced us to reassess our strategies and adapt to the changing circumstances. Despite the setbacks confronting these issues we are proud to say that implementation partners and project collaborators demonstrated preparedness, resilience and effective response in overcoming this threat.

9.   Actions taken in response to previous reviews (if applicable)

In this section, we address key recommendations and feedback received from the review of last year's Annual Report, outlining our responses and actions taken. We provide specific insights into our strategies for ensuring project sustainability, evaluating impact, enhancing staff capacity, and exploring innovative financing mechanisms.

1. Prepare an exit strategy with proposals for ensuring financial, institutional and capacity sustainability post-project
The Borneo Nature Foundation strongly believes in long-term lasting benefits and sustainable development; the project implementation approach focuses on ensuring the sustainability of community-led projects, developing resilient and diversified community development practices that lead to successful exit strategies and outcomes. During the second year of the project the BNF Board of Management, together with the newly appointed CEO, started discussions on long-term financial and institutional capacity; amongst others the following actions have been agreed and moved forward during Y2 to support post-project sustainability: (i) Support Community-led projects to become integrated into Regional Development and Village Plans, so they can access funds and build managerial capacity and independence; (ii) Support and build capacity for the Social Forestry Business Groups to access yearly Governmental Funds by gaining certified accreditations, (iii) Identify long-term investors for the newly designated Community-managed Protected Areas, i.e. Carbon Fund (25 Years), compensation funds from private sector, REDD+ projects, etc. and (iv) Outline plans for institutional sustainability by strengthening partnerships with local organizations and government agencies to continue project initiatives (i.e. 10-year MoU with Sebangau National Park under development)

2. Evaluate and report on the impact of increased household income from livelihood activities upon poverty status.
During Y2, we have implemented the Nested Spheres of Poverty Model (NESP) to assess the impacts of our community-led approach and the impact of increased household income to mitigate structural poverty. The model comprises nested layers with subjective wellbeing in the centre surrounded by a core of health, wealth and knowledge, and a context that includes natural, economic, social and political spheres, as well as service and structural aspects. The model has been tested to control and project participants (317 community members). Preliminary results are presented in Annex 4 Outcome 5. [Poverty reduction and subjective wellbeing indicators evidence in Annex 4 Section H]

3. Prioritise training courses for project staff in social and environmental safeguards, and prepare an environment safeguard guideline
We acknowledge the importance of social and environmental safeguards in project implementation and further training needs on community engagement, conflict resolution, environmental impact assessment, and community advocacy on policy frameworks. We have been promoting internal capacity building for BNF staff and will continue with specific training in Y3. A priority will be the development of an Environment Safeguard Guideline that outlines protocols and best practices to ensure the sustainable and responsible management of conservation initiatives.

4. Explore the feasibility of establishing a revolving fund system where some income from sale of agroforestry, fishery or other commodities is invested in livelihood schemes.
During Y2 we have been looking at ways to establish and support community groups to receive accreditation and certifications to secure products coming from livelihoods schemes to access the local markets. There are specific local regulations depending on the product and we hope the project can support business groups to gain certifications, but these are product-specific and quite expensive. In any case agroforestry and fishery products from several groups have reached local markets, providing good income. Additionally, we have started looking at potential micro-finances management training opportunities for community groups to ensure that these have the understanding and skills for sustainable development. Further work will be required in Y3.

## 10.	Risk Management

A detailed assessment related to the project-related potential risks has been carried out, including associated contextual, fiduciary and reputational risks; all of these have been added to the Risk Management Framework document, which is reviewed and updated as needed. Specific responses and mitigation measures have been considered to address the identified issues and/or to manage accordingly if this occurs. No major adaptations to the project design have been made during Y2, but specific measures and protocols, and new revised agreements at community-group level have been developed. Policies and SOPs were reviewed during Y2, but no major changes were required; they will be reviewed on an annual basis in future.

## 11.	Sustainability and legacy

The project has achieved significant milestones, with enduring impacts expected in the establishment of grassroots peatland-fire prevention and habitat restoration networks. These activities are now ingrained as a business-as-usual conservation strategy in the region, strategically linked with both regional and national conservation agendas. Moreover, ongoing efforts to forge strategic partnerships with government agencies have been pivotal. These collaborations not only strengthen the project's organizational capacity but also facilitate the development and review of Long-Term Management Plans, essential for the effective management of peatland forest blocks.

In the coming years, we anticipate a scaling-up of restoration, education, outreach, and capacity-building initiatives across the landscape. With refined technical methods and enhanced outputs, we aim to significantly mitigate fire impacts, contributing to long-term environmental sustainability.

During Y2 concerted efforts have been made to elevate its profile within Indonesia and globally. Various outreach activities, including workshops, seminars, and media campaigns, have been undertaken to promote the project's work and gain support. These efforts have resulted in increasing interest and capacity among stakeholders, evidenced by growing participation and attendance in project-related activities.

We continued supporting the project's open access plan by disseminating the project findings through peer-reviewed publications, online platforms, and databases and resources shared with project partners and stakeholders, ensuring accessibility to a wide audience. During Y2, we believe that the project has gained considerable interest from governmental institutions and stakeholders, which resulted into new collaborative agreements and knowledge exchange, reflecting the relevance and impact of its objectives.

## 12.	Darwin Initiative identity

BNF displays the Darwin Initiative logo prominently on its website, on posters and banners at workshops and meetings in Kalimantan, when possible. Support from the Darwin Initiative is part of a larger programme, with other supporters acknowledged alongside. Support was also acknowledged in several of BNF's online stories and social media post concerning activities undertaken as part of this project, as well as communicated to journalists covering our work, including in social media. Figure 118 and Figure 120 of Annex 4 summarise BNF's communication and increasing trends in the number of followers. UoE has developed and designed a new Darwin Initiative website presenting the current project, the expected results and its impacts; the site includes a blog section on news and stories from the field that presents the project development and its stories of success.

## 13.	Safeguarding

The UoE and the main project partner (BNF) developed specific Safeguarding policies and SOPs, ensuring equal opportunities, investigation procedures, codes of conduct and internal control processes are in place. These protect vulnerable people, ensure that project ethics are preserved, and assure that high standards of internal management are achieved, and the right procedures are defined and followed in the case of an event.

Specific Child Protection, Equal Opportunities and Cultural awareness, Safety and Social Conduct policies are in place and all staff are inducted in these policies and have access to them for regular reminders.

Has your Safeguarding Policy been updated in the past 12 months?	No
Have any concerns been reported in the past 12 months	No
Does your project have a Safeguarding focal point?	Yes : Frank ███████ ███████████
Has the focal point attended any formal training in the last 12 months?	No
What proportion (and number) of project staff have received formal training on Safeguarding?	Past: 0% [0] Planned: 0% [0]
Has there been any lessons learnt or challenges on Safeguarding in the past 12 months? Among our team, there is a lack of formal training specifically focused on safeguarding in the context of sustainable development. While we have policies in place and all project staff are inducted on those policies, we recognise the need for formal training and are investigating opportunities for this.	
Does the project have any developments or activities planned around Safeguarding in the coming 12 months? If so please specify. Ongoing regular reminders of policies among project staff.	
Please describe any community sensitisation that has taken place over the past 12 months; include topics covered and number of participants. Community engagement events took place throughout Y2, raising awareness of issues directly affecting the communities, and empowering them to make well-informed decisions about their wellbeing. These included:	

- The Central Kalimantan Environmental Agency, in partnership with BNF, implemented a series of socialisation events in the Rungan river communities during 2023 to present the results of the report which discovered high levels of mercury in water and fish samples. Communities gained understanding of the impacts of illegal mining, the potential health impacts of the use of mercury.
- Socialisation events on alternative livelihoods and ecotourism (110 attendees)
- A socialisation event on increased fire risk and the impact of forest and land fires on the community (30 attendees)
- Ongoing social forestry socialisation events: five events for three villages.

Have there been any concerns around Health, Safety and Security of your project over the past year? If yes, please outline how this was resolved.

During the intense firefighting period between August and October 2023, one person required medical attention; this was a member of a firefighting team suffering from fatigue due to the strenuous work, and this was not a serious medical issue. Firefighting work, by its very nature, is high risk and has associated health and safety implications. We work to minimise the risks as much as possible by preparing teams in advance with safety clothing and equipment, first aid supplies and training on safe working practices. Training for our firefighting teams, to minimise any future health and safety risks, will continue throughout the project.

14. Project expenditure

Table 1: Project expenditure during the reporting period (1 April 2023 – 31 March 2024)

Project spend (indicative) since last Annual Report	2023/24 Grant (£)	2023/24 Total Darwin Costs (£)	Variance %	Comments (please explain significant variances)
Staff costs (see below)				
Consultancy costs				
Overhead Costs				
Travel and subsistence				
Operating Costs				
Capital items (see below)				
Others (see below)				Reduced costs
TOTAL	187,449.00			

Table 2: Project mobilised or matched funding during the reporting period (1 April 2023 – 31 March 2024)

	Secured to date	Expected by end of project	Sources
Matched funding leveraged by the partners to deliver the project (£)			University of Exeter, The Orangutan Project, Danish Civil Society Fund, Re:Wild, Arcus Foundation
Total additional finance mobilised for new activities occurring outside of the project, building on evidence, best practices and the project (£)			

15. Other comments on progress not covered elsewhere

The El Nino climatic conditions during 2023 exacerbated a lengthy dry season and increased the fire risk. The fires which burned between the months of July and October had an impact on several aspects of the project, including causing delays to the planting and dam building schedule, and creating challenging conditions for food-growing smallholders and for community seedling nurseries. The poor air quality due to the presence of smoke haze from the fires also led to the cancellation of several planned outdoor environmental education activities during this period. Once the rains came, teams worked extremely hard to make up for the delays caused by these events.

16. OPTIONAL: Outstanding achievements or progress of your project so far (300-400 words maximum). This section may be used for publicity purposes.

I agree for the Biodiversity Challenge Funds to edit and use the following for various promotional purposes (please leave this line in to indicate your agreement to use any material you provide here).

The Current Darwin Initiative project is working for and contributing towards enhanced firefighting capacity, greater area of land under active rehabilitation and community protection and promoting changes in fire use and peatlands drainage. The Borneo Nature Foundation and the University of Palangkaraya (Project Partners) are supporting these initiatives by building local stakeholders' and Land Manager's capacity to be sustained and combined with scaled-up habitat restoration initiatives, developing practical alternative livelihood opportunities, and strengthened land management structures, including the

designation and effective management of high biodiversity protected areas. During the first two years of this grant, significant outstanding achievements have been completed, which include advancements and positive support towards Darwin Initiative Programme Objectives, including, amongst others:

☐ A **total of 1,559 people** (Y2: 988, Y1: 824) from **42 local stakeholders** (including FMU, Governmental Agencies and Community Groups/Units) participated and received specific training; improving local and stakeholders' capacity for effective and upscaling sustainable forest management.

☐ A total of **1,275** (Y1: 432, Y2: 606) **Indigenous People and Local Community members received strengthened capacity** and support for tenure rights designation. In total, 10,799 ha of community-managed areas has now received designation, with a further 10,111 ha under development.

☐ A total **of 9,398 ha of degraded peatland has been subject to rewetting** and revegetation initiatives, reducing carbon emissions due to peatland subsidence, increasing ABG, and supporting its natural succession and crucial biodiversity recovery.

☐ The project is **fostering gender equality** and strong female representation in its sustainable livelihood activities; to date, the community groups engaged present a ratio of approx. 3 women:1 man, with a total of 264 women out of 362 people. The project encourages women to participate in male-dominated activities, breaking gender barriers, particularly with the women-led firefighting team in the Marang Village.

File Type (Image/Video/ Graphic)	File Name or File Location	Caption including description, country and credit	Social media accounts and websites to be tagged	Consent of subjects received
Image	Permaculture Training_BNF	Indonesia Credit: *Women Group Permaculture training_Yuliana Nona-BNF 2023*	UoE; BNF	Yes
Image	Seedling Nursery member_BNF	Indonesia Credit: *Community Seedling Nursery member_Yohanes Prahara Sebangau NP-BNF 2023*	UoE; BNF	Yes
Image	Reforestation_BNF	Indonesia Credit: *Reforestation_Yohanes Prahara Sebangau NP-BNF 2023*	UoE; BNF	Yes
Image	Firefighting_BNF	Indonesia Credit: *Fire Fighting in action_Yohanes Prahara Sebangau NP-BNF 2023*	UoE; BNF	Yes
Image	Community Team_BNF	Indonesia Credit: *Community FireFighting Team_Yohanes Prahara Sebangau NP-BNF 2023*	UoE; BNF	Yes
Image	Education_BNF	Indonesia Credit: *Environmental Education_Yohanes Prahara Sebangau NP-BNF 2023*	UoE; BNF	Yes

Annex 1: Report of progress and achievements against logframe for Financial Year 2023-2024

Project summary	Progress and Achievements April 2023 - March 2024	Actions required/planned for next period
Impact ⇒ Effective local conservation leadership and management of peat-swamp forests, for the benefit of biodiversity, human health and local economies.	The Project is working and contributing towards enhanced firefighting capacity, greater area of land under active rehabilitation and community protection, plus promoting changes in fire use and drainage in surrounding communities. Project partners are supporting these practices to be sustained and combined with scaled-up habitat restoration initiatives, development of practical alternative livelihood opportunities and strengthened land management structures, including the designation and effective management of high biodiversity protected areas.	
Outcome Improved local capacity and stakeholder coordination enables effective implementation and upscaling of sustainable peatland/forest management, reducing forest loss, fire and carbon emissions, rehabilitating degraded peatland and improving livelihoods and wellbeing.		
Outcome indicator 0.1 Number of fires in the target area reduced to 25% of baseline value by Y3, compared to climatologically comparable pre-project years.	Baseline figures for number of fires in the target area have been established for previous pre-project years. Figures for Y1 (1 hotspot) and Y2 (1,481 hotspots) have been compiled on MODIS hotspots and weather variables and GIS analysis has been carried out. [Fire occurrence evidence in Annex 4 Section H]	Continue data compilation on MODIS Hotspots and weather variables and carry out GIS analysis.
Outcome indicator 0.2 Area of peatland burned and resultant carbon emissions in target area reduced by 25% by Y3, compared to climatologically comparable pre-project years.	Baseline data compiled and processed. Data for Y1 and Y2 compiled and carbon emissions savings to date have been calculated following the Darwin document "ICF KPI 6: Net Change in Greenhouse Gas Emissions (tCO2e) - tonnes of GHG emissions reduced or avoided" [Peatland area burned and resulting Carbon emissions evidence in Annex 4 Section H]	Monitor and calculate Carbon emissions savings following Darwin's document *"ICF KPI 6: Net Change in Greenhouse Gas Emissions (tCO2e) – tonnes of GHG emissions reduced or avoided"*.
Outcome indicator 0.3 Additional 50,000 ha of degraded peatland subject to rewetting and revegetation initiatives, with positive impacts on peat hydrology (increase in water table depth and decrease in dry-season drawdown) and vegetation (increases in seedling density and vegetation cover).	A total of 9,398ha of degraded peatland restored to date. In Y2 BNF blocked additional 2 canals (48 dams) and planted 161,380 seedlings. GWT and water drawdown monitoring implemented in control and intervention canals and revegetation data collected. Dry season drawdown rates are showing significant reductions, and water table depth is already showing increases in dammed areas. [Impacts of rewetting and revegetation initiatives evidence in Annex 4 Section H]	A further 24,650 ha is planned for restoration in Y3. Measure the areas restored by BNF's restoration activities during year 3 and its impacts. Assess overall positive impacts on peat hydrology and vegetation.
Outcome indicator 0.4 By Y3, Zero forest loss, improved forest condition (5% increase in tree above-ground biomass and forest litterfall, no increases in tree mortality), and increased or at minimum stable populations of key forest fauna (including target 10% increase in orangutan and gibbon density), improved river water quality and stable	Baseline data for indicators that will demonstrate forest condition improvement have been collated for several peat-swamp forest blocks and managed areas (including the Sebangau NP Research Area, PT PUM Ecosystem Restoration Concession, Education Forest (KHDTK) and Village Forests Managed Areas), and the first two years of monitoring data have	Continue with the forest condition and key forest fauna populations monitoring and analysis, comparing it against the baseline produced.

populations of economically important fish species), as compared to pre-project baselines	been collected, compiled and analysed. Data shows zero forest loss and increase in forest condition. [Impact on forest condition and key fauna populations evidence in Annex 4 Section H]	
Outcome indicator 0.5 Overall target 10% reduction in poverty indicators across multiple spheres (economic, natural, social and political), and subsequent 10% increase in subjective well-being scores among local community members in target villages by Y3, compared to pre-project (where available) or Y1 baseline.	The conceptual model and study design has been developed and defined based on a series of technical criteria; a Terms of Reference document has been produced and interviews were be implemented in Y2 in 6 target villages, with a total of 173 project beneficiaries and 141 community members (control group). [Poverty reduction and subjective well-being indicators evidence in Annex 4 Section H]	Analysis and interpretation of the results of the survey.
Outcome indicator 0.6 More "peat-friendly" livelihoods, following paludiculture principles, implemented by end Y3, indicated by increased number of local community members willingly engaged in these activities and improved peat hydrology in target intervention areas, compared to pre-project baseline.	Activities monitoring spreadsheets have been designed and quantitative information added for each community group where peat-friendly interventions have been implemented. Monitoring of community members involved in peat-friendly livelihoods took place across Y2 and results show a 223% increase so far in the number of people involved. [Community members engagement in "peat-friendly livelihoods" evidence in Annex 4 Section H]	Continue with the monitoring and quantification of community members involved in peat-friendly livelihoods.
Output 1 Local capacity developed to implement, improve and encourage replication of peatland restoration efforts throughout the target landscape.		
Output indicator 1.1 Multi-stakeholder forum (MSF) established by end Y1 to ensure coordination and communication between different stakeholders active in peatland restoration, share resources including creation of data management system to map and monitor progress, and ensure integration with national strategy,	One Social Forestry Forum (*ForkomPerSos*) created, integrating 37 Social Forestry Management Groups. Ongoing development of a Peatlands Restoration Network, integrating 19 Community Seedling Nurseries and Key Stakeholders. Integrated Fire Management Network/Forum started, integrating 24 stakeholders to date, including the Sebangau NP and the Central Kalimantan Disaster Management Agency (BPBPK). [MSFs establishment indicators evidence provided in Annex 4 Section D]	Work with relevant stakeholders towards the consolidation of the IFM Network. Increase the number of firefighting teams in the network to have a wider impact on the landscape. Establishment of new community nurseries in key villages for the expansion and development of BNF's restoration activities.
Output indicator 1.2 10 training sessions held (20% in Y1, 50% Y2, 30% Y3) and resources provided to implement peat rewetting activities with Sebangau NP (target 350 dams built by end Y3), slowing annual average water-table drawdown by up to 70% compared to pre-project baselines.	One peat-rewetting training session implemented in Y2; 2 canals blocked (48 dams built); and Hydrology Monitoring plan implemented, with ongoing monthly data collection. To date in the project, two training sessions have been held, and 86 dams have been constructed, on 6 canals. [Training sessions and peat rewetting indicators evidence provided in Annex 4 Section D]	1.2a Survey of two un-surveyed areas. Build dams in the three canals surveyed in Simpang Kanan River and in canals in the newly surveyed area of Simpang Kiri River. Deliver peat rewetting related trainings to BTNS and community members.

		1.2b Further manual and automatic monitoring stations will be set up during year 3, after surveying other areas.
Output indicator 1.3 15 training sessions held (20% in Y1, 50% Y2, 30% Y3) and resources provided to upscale community nursery programme into 5 additional villages, providing conservation-based income to 100 families in rural communities and targeting equal participation by women.	Regular visits to support each community nursery have taken place in Y2, and within the existing 15 community nurseries there are now 114 community members involved in the programme. Planning has begun to upscale the programme to 5 additional villages by the end of 2024. [Training sessions and community nursery indicators evidence provided in Annex 4 Section D]	1.3a Community nurseries trainings delivered. 1.3b Planting 250,000 seedlings in peatland degraded areas. Seedlings will be purchased from community nurseries. Monitoring of year 1 and 2 planting sites and seedlings, following our new SOP.
Output indicator 1.4 By Y3, good-practice guidelines for tropical peat rewetting and revegetation including M&E protocols, published; minimum two Indonesian scientist-led papers published in international indexed scientific journals and 10 Indonesian students supported; target min. 15 papers published in newly re-established Journal of Tropical Peatlands; and feedback provided to MSFs with uptake evident by Y3.	The following guidelines have been produced: A Long-term M&E Plan for the Peatlands Restoration initiatives, a M&E protocol for habitat restoration and an SOP for Reforestation and Hydrology Restoration. An SOP for the development of Community Seedlings nurseries, an SOP for Integrated Fire Management and Coordination, and a Forest and Land Firefighting Contingency Plan for Central Kalimantan. (See Annex 3 Table 2) [Evidence on guidelines and papers published in Annex 4 Section D]	1.4a Strengthening scientific foundations for the SAB by including new Indonesian scientist, formalise the coordination mechanisms with BNF, UPR and UoE. Suport the production and revision of SOPs, manuscripts and GPG. 1.4b Continue the discussions between BNF and UPR re. the Journal of Tropical Peatlands re-launch; formalise the agreement and open a call for papers. 1.4c Finalisation of Community Nursery SOP and SOPs for Hydrology Restoration and Reforestation.
Output 2. Communities develop more 'peat-friendly' agriculture and livelihoods in peatland areas and are empowered to tackle peatland fire and degradation impacts.		
Output indicator 2.1 Peat-friendly agriculture and agroforestry practices (paludiculture) introduced to smallholders in target area, aiming for minimum 40% take-up by Y2 and increased number of participants up to 400 individuals by end Y3. Target equitable participation by women in sustainable livelihoods activities.	The number of smallholders has steadily increased; new peat-friendly practices introduced to 161 new members from 9 community groups in 5 additional villages; equitable gender composition (27% men : 73% women). From the data we have gathered, we can calculate that, on average, participants are able to boost their incomes by 35% (based on a local minimum wage rate). [Evidence on peat-friendly practices introduction in Annex 4 Section E]	2.1a Paludiculture introduced to five new villages and further groups established and community members trained. 2.1b Monitor results from groups established during years 1 and 2 and report success after two years. Additional smallholders recruited during Y3.

Output indicator 2.2. A regional network of community-fire-fighting teams and government agencies, alongside, NGO and private stakeholders forms a fire-free alliance to tackle fires, encourage paradigm shift and behaviour change.	During Year 2, BNF's Integrated Fire Management approach gathered momentum, as BNF worked with stakeholders including the Sebangau NP, the Central Kalimantan Agency for Disaster Managment and Fire Fighting (BPNB-PK), CIMTROP, the Peatland and Mangrove Restoration Agency, and others in a fire-free alliance to ensure all possible preparations were in place, as El Nino climatic conditions were predicted. In preparation for the fires, BNF delivered several technical training sessions to build capacity and ensure the 15 firefighting and patrol teams were prepared as well as possible. During the period when the fires were burning (July to October) a team of over 200 people mobilised, fighting over 100 fires successfully, in the borders of the Seb NP. After the fire, stakeholders assessed damage and evaluated the success of the effort, reviewing actions to identify improvements and build strategies for future fire mitigation. At this time the Contingency Plan for Forest and Land Firefighting and Disasters Management was finalised, alongside an SOP for Effective Firefighting Coordination. [Evidence on the regional firefighting network in Annex 4 Section F]	2.2 Work towards the recognition and operational development of the Fire Free Alliance in partnership with key governmental agencies.
Output indicator 2.3. Recommendations on sustainable fisheries and mitigation of impacts identified from restoration projects to fishers and restoration projects to protect fishing livelihoods by end Y2; and engaging with 30-40 local fishers regarding implementing these recommendations and positive feedback from these fishers received by end Y3, demonstrating upscaling potential.	BNF is planning a workshop on peatland restoration designed for fishermen to discuss the impact of their current practices, particularly around fires, and to share information on alternative practices. [Evidence on sustainable fisheries in Annex 4 Section G]	2.3a Creation and launch of the recommendations to ensure net positive impacts of peat restoration activities on fish populations and water pollution mitigation. 2.3b Socialisation of recommendations planned for Y3.
Output 3. Enhancing long-term sustainable management of peatlands by local government and community stakeholders, by expanding community forest management, supporting implementation of long-term management plans and capacity building		
Output indicator 3.1 For each Forest Management Units (FMU) within the landscape, by end Y3: successful review, update and implementation of Long-term Management Plan activities which benefit biodiversity. Training and resource needs identified and provided via training workshops leading to quantified skill improvements.	During Y2, collaborative partnerships between Central Kahayan FMU and Sebangau NP were strengthened with ongoing discussions and agreements including workplans. BNF worked with the Ministry of Forestry and Environment (KLHK) to further extend the collaborative agreement for the next five years between BNF and the Sebangau National Park Office (BTNS). Ongoing capacity building took place with stakeholders including Education Agency and the three District Governments, with training and resource needs identified. Private sector partnership continued with an Ecosystem Restoration Concession (PT PUM, 23,613ha) to support and provide technical capacity for the development of biodiversity surveys, ecosystem restoration and sustainable management of peatlands.	3.1a Continue on the key FMU collaborative partnerships development for the implementation of management plans. Draft and complete the *Sebangau National Park Ecosystem Recovery Plan 2023-2028, d*evelop a PT PUM biodiversity Management plan, and Forest Village Management Plans for newly designate areas. 3.1b Continue developing Forest Management Units capacity and Monitoring the skills developed so

		Management Plans can be effectively implemented
Output indicator 3.2 Support creation and management of community-managed 'Village Forest' areas in peatland through expansion of national social forestry scheme to cover 20,000 ha benefiting >2,000 households in the target landscape, identifying sustainable livelihoods programmes and providing associated management and M&E tools and training to communities by end Y3.	3.2 Three newly established Village Forests (totalling 6,774 ha and 606 households) and one just waiting for the official decree. To date BNF is supporting a total of 22 Village Forests Groups in the target area, with 1,275 households involved, representing 24,532 ha of community managed land in peatland areas. Ongoing sustainable livelihoods programmes developed in 14 villages. (See Summary map provided) [Village Forest establishment indicators evidence in Annex 4 Section G]	3.2a Complete, process and request the technical verification (to KLHK) the four new proposals for Village Forest designation started on Y1. 3.2b Continue the efforts on Village Forest designation by socialising, engaging and developing new proposals to secure customary land for community benefit. 3.2c Build capacity to FMU and Village Forest Management Units for the development of Village Forest Management Plans. , M&E tools and training provided to its successful implementation.
Output indicator 3.3 Development and implementation of targeted capacity building programme for land managers (Forest Management Units; Sebangau NP, Communities) to include Best Management Practices, GIS/Remote Sensing, Fire-fighting, SMART Monitoring and Patrolling, with each stakeholder receiving specific relevant training on the above aspects by end Y3 (30% delivered in Y1, 50% Y2, 20% Y3)	Management Units capacity building needs identified and formally agreed with Land Managers/Governmental Agencies Work Plans, 46 training sessions with a total of 749 participants (from 37 independent Stakeholders), technical workshops and peatlands sustainable management capacity implemented in Y2. [Capacity building to improve land management evidence in Annex 4 Section G] [Stakeholder training sessions implemented evidence provided in Annex 4 Section G]	3.3a Monitoring, assess and review training and technical capacity building needs in Y2; so further assistance can be provided in Y3 3.3b Continue developing the capacity building sessions defined and agreed on the training plans. Strengthen the MSFs capacity as platform for resource and knowledge sharing

Annex 2: Project's full current logframe as presented in the application form (unless changes have been agreed)

Project summary	SMART Indicators	Means of verification	Important Assumptions
Impact:			
Effective local conservation leadership and management of peat-swamp forests, for the benefit of biodiversity, human health and local economies.			

Outcome Improved local capacity and stakeholder coordination enables effective implementation and upscaling of sustainable peatland/forest management, reducing forest loss, fire and carbon emissions, rehabilitating degraded peatland and improving livelihoods and wellbeing.	0.1 Number of fires in the target area reduced to 25% of baseline value by Y3, compared to climatologically comparable pre-project years.	0.1 Spatio-temporal analysis of MODIS hotspot distribution across landscape, supported by drone flights, and TSA patrol and local community reports in target intervention areas. Data compared to previous years with a similar El Niño Southern Oscillation (ENSO) index.	0.1 & 0.2 Fire incidence and severity is directly linked to peat drainage (i.e. peat water levels). Fire hotspots and burn scars can be effectively detected and distinguished by remote and drone imagery, and on-the-ground observations. While rainfall has a mediating impact on total fire incidence and severity in a given year, more drained areas will remain more vulnerable across years. Above assumptions all supported by peer-reviewed studies.
	0.2 Area of peatland burned and resultant carbon emissions in target area reduced by 25% by Y3, compared to climatologically comparable pre-project years.	0.2 Analysis of annual pre/post-fire season LandSat imagery, and on-the-ground and drone monitoring of burned areas. Carbon emissions estimated using above information and published formulae. Data compared to previous years with similar ENSO index.	
	0.3 Additional 50,000 ha of degraded peatland subject to rewetting and revegetation initiatives, with positive impacts on peat hydrology (increase in water table depth and decrease in dry-season drawdown) and vegetation (increases in seedling density and vegetation cover).	0.3 Shapefiles and maps of additional rewetting and revegetation intervention areas, supported by ground and drone verification. Monthly monitoring of trends in peat water levels at 100 locations (min. 20/intervention area). Annual monitoring of seedling survival and growth, and vegetation cover, in min. 5% of replanting plot area in each replanting intervention location.	0.3 Target rewetting and replanting areas can be accurately mapped. Peat water levels show detectable changes within project period. Rewetting and revegetation monitoring sub-sets are indicative of wider intervention area (to be guarded against through selection of random sampling locations).
	0.4 By Y3, Zero forest loss, improved forest condition (5% increase in tree above-ground biomass and forest litterfall, no increases in tree mortality), and increased or at minimum stable populations of key forest fauna (including target 10% increase in orangutan and gibbon density), improved river water quality and stable populations of economically important fish species), as compared to pre-project baselines	0.4 Regular monitoring of trends in (i) tree size, biomass, mortality and consequently carbon sequestration in 2.4 ha of forest plots; (ii) orangutan population density and abundance through nest surveys; (iii) gibbon population abundance through call triangulation surveys (iv) catch-rates of economically important fish and measures of water quality (inc. temperature, pH, dissolved oxygen and turbidity) and (v) habitat cover and habitat loss within target landscapes through remote sensing. Data collected during project compared to pre-project baseline and against projected no-project scenario.	0.4 Forest structure, biomass and biodiversity variables show detectable responses within the project period to changes in conservation management interventions. Forest-loss projections are reasonable and evidence-based.
	0.5 Overall target 10% reduction in poverty indicators across multiple spheres (economic, natural, social and political), and subsequent 10% increase in subjective well-being scores among local community members in target villages by Y3, compared to pre-project (where available) or Y1 baseline.	0.5 Annual monitoring of subjective well-being derived from assessment of indicators of poverty across economic, natural, social and political spheres among target 10% of key village community members using the Nested Spheres of Poverty approach developed by Gönner *et al.* (2007) and employed previously by BNF in Rungan.	0.5 Local community members are willing to engage within, and reply truthfully and openly to NESP surveys. Changes in poverty and subjective well-being indicators can be reasonably attributed to changes in local factors arising from/relating to project activities.

	0.6 More "peat-friendly" livelihoods, following paludiculture principles, implemented by end Y3, indicated by increased number of local community members willingly engaged in these activities and improved peat hydrology in target intervention areas, compared to pre-project baseline.	0.6 Annual surveys of fishers and farmers in target intervention areas, including self-reporting of economic activities conducted and income levels from these (categorised as peat un/friendly based on reported practices used, including peat drainage levels established through hydrological monitoring; e.g. drainage-based palm oil vs. non-drainage based illipe nut production), plus fire use/incidence in their farming/fishing area, conducted with at least 75% of respondents (randomly selected) in each target village. Data matched with M&E data from other parts of project to verify "peat friendliness" of reported activities in terms of expected impacts on peat hydrological condition and fire incidence.	0.6 Fisher and farmer survey respondents self-report accurately and truthfully (guarded against by introducing checks, and employing separate survey and intervention implementation teams, and for fire incidence by checking against MODIS satellite hotspot data), and are representative of the wider fisher and farmer population in the target intervention area (guarded against through random respondent selection). Pre-project baseline exists (if not, we will establish in Y1).

Output 1			
Local capacity developed to implement, improve and encourage replication of peatland restoration efforts throughout the target landscape.	1.1 Multi-stakeholder forum (MSF) established by end Y1 to ensure coordination and communication between different stakeholders active in peatland restoration, share resources including creation of data management system to map and monitor progress, and ensure integration with national strategy,	1.1 MSF establishment documents, meeting minutes, and internal and external reports, verified by BNF team attendance at MSF meetings and correspondence with MSF members. Electronic data management system files review and cross-checking of MSF strategies against those at the national level.	1.1 MSF keeps good, formal written documentation of establishment, forum members, meetings held, etc., and are willing to implement electronic data management systems. MSFs are willing to share these records for verification (while ensuring data confidentiality is maintained). Guarded against through training delivered by project.
	1.2 10 training sessions held (20% in Y1, 50% Y2, 30% Y3) and resources provided to implement peat rewetting activities with Sebangau NP (target 350 dams built by end Y3), slowing annual average water-table drawdown by up to 70% compared to pre-project baselines.	1.2 Training session materials and session records, including attendance lists disaggregated by gender. Written reports from field teams, photos and field checks of dams constructed. Training impacts assessed through before-and-after surveys of a randomly selected sub-set of participants.	1.2 Training materials produced are kept and documented; accurate records of training sessions delivered, resources provided and dams built are kept. Guarded against through training delivered by project. Surveyees respond truthfully during before-and-after training assessments.
	1.3 15 training sessions held (20% in Y1, 50% Y2, 30% Y3) and resources provided to upscale community nursery programme into 5 additional villages, providing conservation-based income to 100 families in rural communities and targeting equal participation by women.	1.3 Training sessions, resource provision and impact assessment as for #1.2 above.	1.3 As above for #1.2.
	1.4 By Y3, good-practice guidelines for tropical peat rewetting and revegetation including M&E protocols, published; minimum two Indonesian scientist-led papers published in international indexed scientific journals and 10 Indonesian students supported; target min. 15 papers published in newly re-established Journal of Tropical Peatlands; and feedback provided to MSFs with uptake evident by Y3.	1.4 Publication of open access protocols and GPGs; number of journal papers submitted/published and nationality of lead author, number of students directly supported, number of open-access papers published on Journal of Tropical Peatlands website, evaluation reports produced and minutes from MSF research feedback/socialisation meetings.	1.4 Suitably qualified scientists accept positions on BNF Scientific Advisory Board and as scientific staff within new BNF Research Division. Scientific stakeholders remain committed and continue to engage post-establishment. Guarded against by collaborative development and decision making from the outset. Journal of Tropical Peatland hosts (University of Palangka Raya) remain committed to journal establishment (expected, given their partnership in the project). MSFs are open to receiving feedback and implementing scientific recommendations. Guarded against through continual dialogue. Our recommendations are of relevance to external partners. Expected by project grounding in national and international conservation, climate and SDG policy.
Output 2			
Communities develop more 'peat-friendly' agriculture and livelihoods in peatland areas and	2.1 Peat-friendly agriculture and agroforestry practices (paludiculture) introduced to smallholders in target area, aiming for minimum 40% take-up by Y2 and increased number of	2.1 Interviews, questionnaires and focus-group discussions with smallholders indicate willingness to engage with and commitment to adopt peat-friendly practices. Number of participants, annual	2.1 A significant number of members of local community are willing to engage in peat-friendly livelihoods activities, believed to be true based on existing communication and feedback, Survey

are empowered to tackle peatland fire and degradation impacts.	participants up to 400 individuals by end Y3. Target equitable participation by women in sustainable livelihoods activities.	surveys of agricultural practices, crop types and yields, income levels and sources, and wellbeing indicators tracked and disaggregated by gender; verified through field checks.	respondents self-report accurately and truthfully and are representative of the wider sector in the target intervention area.
	2.2 A regional network of community-fire-fighting teams and government agencies, alongside, NGO and private stakeholders forms a fire-free alliance to tackle fires, encourage paradigm shift and behaviour change.	2.2 Official creation and announcement of a fire-fighting network. Records of number of local community members, groups, smallholders and companies actively supporting fire-free alliance, evidenced by public commitments made, and adherence to these, also determined via detection of fire hotpots detected through MODIS satellites on individuals' land and field checks.	2.2 Individuals are willing to make public commitments to join alliance. Alliance is launched and continuously promoted by MSF members, community is aware of alliance, alliance commitments are simple, clear and verifiable.
	2.3 Recommendations on sustainable fisheries and mitigation of impacts identified from restoration projects to fishers and restoration projects to protect fishing livelihoods by end Y2; and engaging with 30-40 local fishers regarding implementing these recommendations and positive feedback from these fishers received by end Y3, demonstrating upscaling potential.	2.3 Completion of research and publication journal articles describing impacts of restoration activities on fish and fish-based livelihoods. Recommendation provision evidenced through production of guidance documents and records of their distribution, inclusion in MSF meeting minutes, and records of meetings held with local fishers/fishing groups. Uptake of recommendations by these evidenced through self-reporting during annual surveys and field checks, with these led by separate M&E team members.	2.3 Impacts are detectable and can be reliably attributed (or not) to changes in management activities. MSFs and local fishers self-report accurately and truthfully, and are open to engaging with the project and implementing recommendations.
Output 3 Enhancing long-term sustainable management of peatlands by local government and community stakeholders, by expanding community forest management, supporting implementation of long-term management plans and capacity building.	3.1 For each Forest Management Units (FMU) within the landscape, by end Y3: successful review, update and implementation of Long-term Management Plan activities which benefit biodiversity. Training and resource needs identified and provided via training workshops leading to quantified skill improvements.	3.1 Evidence of FMU Long-Term Management Plan implementation derived from FMU proposals, reports and minute meetings, including reference to and incorporating recommendations arising from the project, plus field checks. Evidence for training sessions derived from above plus training records, including participant lists, and before-and-after assessments of skill levels among randomly selected participants.	3.1 FMUs remain accepting of project' engagement and involvement in plan development, and in sharing information with the project. Guarded against through continual dialogue during project period.
	3.2 Support creation and management of community-managed 'Village Forest' areas in peatland through expansion of national social forestry scheme to cover 20,000 ha benefiting >2,000 households in the target landscape, identifying sustainable livelihoods programmes and providing associated management and M&E tools and training to communities by end Y3.	3.2 Formal documents and maps of Village Forest establishment and coverage. Records of training and management tools provided as for #1.2 and 1.3 above. Livelihood development identification indicated through management reports, photos and field checks of activities, and minute meetings, plus surveys and feedback from community members.	3.2 National and local support for social forestry continues. Local communities are supportive, and willing to contribute efforts to establishment of Village Forests.

	3.3 Development and implementation of targeted capacity building programme for land managers (Forest Management Units; Sebangau NP, Communities) to include Best Management Practices, GIS/Remote Sensing, Fire-fighting, SMART Monitoring and Patrolling, with each stakeholder receiving specific relevant training on the above aspects by end Y3 (30% delivered in Y1, 50% Y2, 20% Y3)	3.3 Records of capacity building activity/training session implementation as for #1.2 and 1.3 above. Training impacts assessed through before-and-after surveys of randomly selected participants for a sub-set of sessions delivered across the different themes, with data disaggregated by gender.	3.3 Training materials produced are kept and documented; accurate records of training sessions delivered and resources provided are kept. Guarded against through training delivered by project. Surveyees respond truthfully during before-and-after training assessments.

Activities (each activity is numbered according to the output that it will contribute towards, for example 1.1, 1.2 and 1.3 are contributing to Output 1)

1.1 MSFs established comprising community, industry and government stakeholders from each FMU. Information sharing platforms established, technical support provided, and regular planning, feedback and evaluation meetings held.

1.2a Peat rewetting training delivered to BTNS, relevant resources (damming materials, monitoring equipment) provided and dams built to close drainage canals and rewet the peat.

1.2b Hydrological monitoring training conducted, equipment installed, stations established, and data collected, including pre-damming baseline data for comparison, to monitor impacts on peat hydrology.

1.3a Community Nursery Program socialised to additional families invited to participate with up to 15 new nursery collectives created. BNF's expert reforestation staff will train each new group, helping them build the required infrastructure and providing necessary technical skills and resources to source, plant and raise seedlings of target species to minimum planting heights.

1.3b Once planting size reached, we will buy seedlings back from community nurseries, thus generating income and replant degraded areas, followed by ongoing monitoring and protection of reforestation area.

1.4a Establish Scientific Advisory Board of international and Indonesian experts, working alongside new Research Division within BNF, strengthening scientific foundations, produce Indonesian-led scientific publications, support local student development, produce good-practice guidelines and technical feedback/input to MSFs, and advise local peatland restoration efforts.

1.4b UPR supported to relaunch their Journal of Tropical Peatlands, serving as an open access repository of peer-reviewed research on all aspects of tropical peatland socio-ecology and sustainable management.

1.4c Rewetting and revegetation GPGs and M&E protocols, plus Indonesian-led journal papers produced, peer reviewed, translated, published OA, promoted through media and networks, and directly disseminated via MSFs.

2.1a Paludiculture introduced to smallholders, including socialisations and site visits to discuss suitable options. Training provided, with new crops, land rehabilitation and harvesting methods trialled, and M&E systems introduced.

2.1b M&E of success indicators collected and evaluated in Y2 with initial participating smallholders, with expected success helping recruit additional smallholders in Y3.

2.2 Fire-free alliance created via MSF, encouraging project participants and other local stakeholders to commit to reduced burning. Recognition system agreed with MSF. Work to increase concept awareness and drive acceptance as standard.

2.3a Evidence compiled from literature, expert/fisher interviews and our fish data collection (Y1). Recommendations to ensure net positive impacts of peat restoration activities on fish and fishing livelihoods created (Y2).

2.3b Above recommendations socialised with peat restoration projects and fishers (including through MSFs) in Y3. Participating local fishers engaged regarding recommendation implementation and feedback compiled to demonstrate upscaling potential.

3.1a Forest Management Units engaged to identify training and resource needs, and other barriers to effectively implement management plans which benefit biodiversity within remaining forests. Plans co-created where do not already exist.

3.1b Contributions (training, implementation, collaboration, etc.) provided to conservation and M&E activities in existing management plans (e.g. 2007-2026 Sebangau NP management plan), and appropriate additional activities proposed.

3.2a Village Forest designation facilitated in unprotected areas under Indonesia's social forestry scheme. Village Forest designation provides legal rights to villages to manage and sustainably use customary land for community benefit.

3.2b BNF's experienced social forestry team will socialise with communities, train village representatives in requirements and procedures, and support them to collect required data, complete and submit their community forest application.

3.2c Management plans describing administration and sustainable-use prepared for each Village Forest, facilitated by BNF, coordinating with FMU. Necessary management, M&E tools and training provided, including regarding sustainable livelihood and financing options.

3.3a Stakeholder r training needs identified and bespoke training plans created in Y1, and relevant external assistance acquired to cover specialist topics.

3.3b Training initiated in Y2 and extended into Y3, with coordination through the MSFs, and M&E of knowledge gain and training success assessed.

Annex 3: Standard Indicators

Table 1   Project Standard Indicators

DI Indicator number	Name of indicator	Units	Disaggregation	Year 1 Total	Year 2 Total	Year 3 Total	Total to date	Total planned during the project	
DI-A01	Training and resource needs identified and provided via training workshops leading to quantified skill improvements.	Number of people from key national and local stakeholders completing structured and relevant training	People	Gender Disaggregation (% Male : Female) Environmental Education Paludiculture & aquaculture Patrol and Integrated Fire Management Habitat Restoration Sustainable Forest Management	48 : 52 369 199 87 51 118	40 : 60 542 174 18 44 210			44 : 56 734 364 95 95 271	
DI-A01	Training and resource needs identified and provided via training workshops leading to quantified skill improvements.	Number of training weeks to be provided	Number	Environmental Education Paludiculture & aquaculture Patrol and Integrated Fire Management Habitat Restoration Sustainable Forest Management	19 5.9 0.9 0.4 1.7	24.9 7.7 0.2 0.6 5.9			43.9 5.9 0.9 0.4 1.7	
DI-A03	Development and implementation of targeted capacity building programme for land managers	Number of local/national organisations with improved capability and capacity as a result of project.	Number	Governmental (FMU, NP, Agencies) Village Forest Management Unit Universities	8 10 1 15	5 11 2 18			10 17 2 25	

DI Indicator number	Name of indicator	Units	Disaggregation	Year 1 Total	Year 2 Total	Year 3 Total	Total to date	Total planned during the project	
				Community Groups Community Patrol and Firefighting — 8	1			8	
DI-B01	For Forest Management Units (FMU) within the landscape, by end Y3: successful review, update and implementation of Long-term Management Plan	Number of new/improved habitat management plans available and endorsed	People	Mercury Reduction Action Plan — 1 draft	-			1 draft	6-8 total 1
				Social Forestry Management and Development Plan — 1 draft	8			8	1
				Sebangau NP Ecosystem Restoration Plan — -	Published			1	1
				Sebangau NP Community Empowerment Plan — -	Published			1	1
				Palangka Raya District Strategic Environmental Long Term Development Plan — -	Published			1	1
DI-B03	Support creation and management of community-managed 'Village Forest' areas providing associated management and M&E tools	Number of new/improved community management plans available and endorsed	Number	Village Forest Management Plan — 6	3			9	10
DI-B06	Support creation and management of community-managed 'Village Forest' areas in peatland through expansion of national social forestry scheme to cover 20,000 ha benefiting >2,000 households	Number of Indigenous Peoples and Local Communities (people) with strengthened (recognised/clarified) tenure and/or rights.	People/ Total area (Ha)	Total People involved in Village FMUs Baseline — 237 Current Year — 432 Total Ha New — 4,025 ha Supported — 13,474 ha Development — 10,455 ha		606 6,774 ha 13,733 ha 10,111 ha		1,275 10,799 ha	2,000 20,000 ha
DI-C01	Good-practice guidelines for tropical peat rewetting and revegetation including M&E protocols, published;	Number of best practice guides and knowledge	Number	Bioprospection Study Sebangau — 1	-			1	5-10 total

DI Indicator number	Name of indicator	Units	Disaggregation	Year 1 Total	Year 2 Total	Year 3 Total	Total to date	Total planned during the project	
		products published and endorsed		Hydrology Restoration SOP	1 draft	-		1	
				Reforestation of degraded peatlands SOP	-	1 draft		1	
				Habitat Restoration M&E Plan	2	-		2	
				Paludiculture Development SOP	1 draft	-		1 draft	
DI-C17	Minimum two Indonesian scientist-led papers published in international indexed scientific journals	Number of unique papers published in peer reviewed journals	Number	-	7	4		11	15
DI-D04	Improved forest condition (5% increase in tree above-ground biomass and forest litterfall, no increases in tree mortality), and increased or at minimum stable populations of key forest fauna (including target 10% increase in orangutan and gibbon density),	Stabilised/ improved species population (relative abundance/ distribution) within the project area.	% Increase	Tree AGB and forest litterfall	Baseline	6,79 %		6,79 %	5% increase in tree AGB and forest litterfall
				Orangutan density	Baseline	6,4 %		6,4 %	Increased or at minimum stable populations of key forest fauna
				Gibbon density	Baseline	No data		*Gibbon density data to be compiled in yr3*	*(*)10% increase in orangutan and gibbon density*
DI-D06	Area of peatland burned and resultant carbon emissions in target area reduced by 25%	Net change in greenhouse gas emissions – tonnes of GHG emissions reduced or avoided as a result of the project	Tonnes of CO_2 equivalent	Tonnes of Co_2 e based on the forest related emission savings	N/A	N/A		*To be developed by year 3*	25% C emissions reduction
DI-D09	Area of peatland burned and resultant carbon emissions in target area reduced by 25%	Number of hectares where deforestation has been avoided through project support	Area (hectares)	Area of peatland burned	Baseline available	N/A		*To be developed by year 3*	25% area reduction

DI Indicator number	Name of indicator	Units	Disaggregation	Year 1 Total	Year 2 Total	Year 3 Total	Total to date	Total planned during the project	
DI-D12	Additional 50,000 ha of degraded peatland subject to rewetting and revegetation initiatives	Area of degraded or converted ecosystems that are under active restoration	Area (hectares)	Hydrology Restoration Reforestation	8,850 ha 170 ha	227 ha 151 ha		9,398 ha	Total of 50,000 ha under restoration
DI-D16	More "peat-friendly" livelihoods, following paludiculture principles, implemented by end Y3, indicated by increased number of local community members willingly engaged in these activities	Number of households reporting improved livelihoods	Households	Baseline Year	112 89	161		362	400
DI-E01	Number of fires in the target area reduced to 25% of baseline value by Y3, compared to climatologically comparable pre-project years.	Ecosystem Degradation Avoided (ha)	Number of Hotspots	Landscape Baseline (*) Reporting period *(*) including climatologically comparable pre-project years*	Data compiled 1	1,481		1,482	25% hotspots reduction

Table 2   Publications

Title	Type (e.g. journals, best practice manual, blog post, online videos, podcasts, CDs)	Detail (authors, year)	Gender of Lead Author	Nationality of Lead Author	Publishers (name, city)	Available from (e.g. weblink or publisher if not available online)
Reforestation for primates? Tree species for orangutans and tropical peatland revegetation on Borneo	Book	Harrison M. E., Smith S. W., Morrogh-Bernard H. C., Nasir D., Salahuddin, Azis A., Maruly A., Katoppo D. R., Brugues Sintes P. and van Veen F. (2023)	Male	British	Primate eye	N/A yet
Accounting for cumulative seedling performance from nursery to outplanting when	Journal	Harrison M. E., Brugues Sintes P., Kusin K., Katoppo D. R., Marchant N. C., Morrogh-	Male	British	Restoration Ecology	Link

Title	Type (e.g. journals, best practice manual, blog post, online videos, podcasts, CDs)	Detail (authors, year)	Gender of Lead Author	Nationality of Lead Author	Publishers (name, city)	Available from (e.g. weblink or publisher if not available online)
reforesting degraded tropical peatlands		Bernard H. C., Nasir D., Ripoll Capilla B., Salahudin, Suppan L., van Veen F. J. F. and Smith S. W. (2023)				
People and Plants of Sebangau	Book	Badri S., Kulu I. P., Hendri, Krisyoyo, Santiano, Adul, Iwan, Ripoll Capilla B., Jeffers K. A. and Harrison M. E. (2022)	Male	India	Sebangau National Park	Link Link
Impacts of fire and prospects for recovery in a tropical peat forest ecosystem.	Journal	Harrison, M. E., N. J. Deere, M. A. Imron, D. Nasir, Adul, H. A. Asti, J. Aragay Soler, N. C. Boyd, S. M. Cheyne, S. A. Collins, L. J. D'Arcy, W. M. Erb, H. Green, W. Healy, Hendri, B. Holly, P. R. Houlihan, S. J. Husson, Iwan, K. A. Jeffers, I. P. Kulu, K. Kusin, N. C. Marchant, H. C. Morrogh-Bernard, S. E. Page, A. Purwanto, B. Ripoll Capilla, O. R. de Rivera Ortega, Santiano, K. L. Spencer, J. Sugardjito, J. Supriatna, S. A. Thornton, F. J. F. v. Veen, Yulintine and M. J. Struebig (2024).	Male	British	Proceedings of the National Academy of Sciences	Link
Tropical field stations yield high conservation return on investment	Journal	Eppley, T. M. et al. (including S. M. Cheyne) (2024)	Male	US	Conservation Letters	Link
The power of gibbon songs: Going beyond the research to inform conservation actions	Journal	Cheyne, S. M., C. Thompson, A. Martin, A. A. K. Aulia, H. Birot, E. Cahyaningrum, J. Aragay, P. A. Hutasoit and J. Sugardjito (2024)	Female	British	American Journal of Primatology	Link

Checklist for submission

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Different reporting templates have different questions, and it is important you use the correct one. Have you checked you have used the **correct template** (checking fund, type of report (i.e. Annual or Final), and year) and **deleted the blue guidance text** before submission?	✓
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Is your report more than 10MB? If so, please discuss with BCF-Reports@niras.com about the best way to deliver the report, putting the project number in the Subject line.	✓
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Have you completed the Project Expenditure table fully?	
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