

Darwin Initiative Main Annual Report

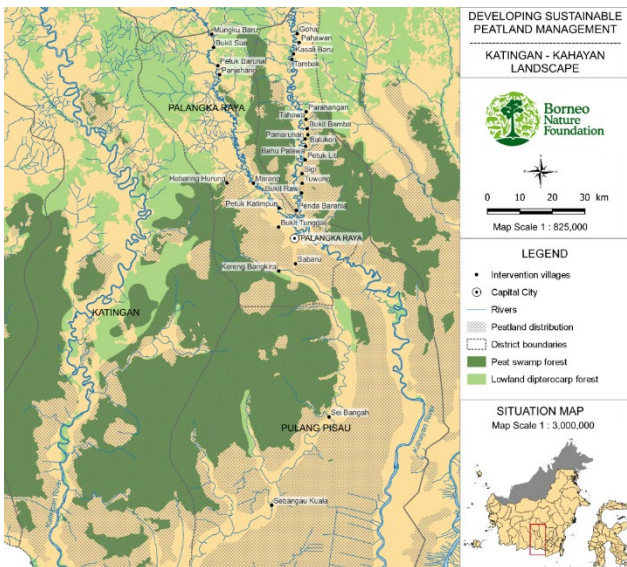
Darwin Initiative Project Information

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
Darwin grant value	£536,096
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Project Leader name	Prof Frank van Veen
Project website/blog/social media	UoE Darwin Initiative project Website (soon to go live) BNF Website ; BNF Facebook ; BNF Twitter ; BNF Instagram
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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 (Rol, 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.

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 Palangkaraya (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 a 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.

A project stakeholder analysis was conducted in the first half-year of this project to identify key stakeholders, their influence, and expected involvement in the project implementation. 27 Indonesian stakeholders were identified and mapped, which has helped to establish appropriate levels of communication and participation, identify baseline predispositions for stakeholders of high importance to the project, develop the engagement strategy, and define the expectation of change. Please find the stakeholder analysis in Annex 4 section C (Confidential). During the first year of this project strategic meetings were held with key stakeholders of high importance to the project, who can influence its success. Crucial collaborative framework agreements and workplans have been developed/ revised and signed, including with the regional Government of Palangkaraya City, Pulang Pisau and Gunung Mas Districts, the Sebangau National Park Authority, the Kahayan Tengah Forest Management Unit, the University of Palangkaraya’s Centre for International Cooperation in Sustainable Management of Tropical Peatlands (UPR LIG CIMTROP), the University of Muhammadiyah Palangkaraya (UMP) and the Central Kalimantan Education Agency. BNF also expanded collaborative agreements with many community groups including 15 firefighting teams, 15 seedling nurseries, 18 Village Forest Management Groups (LPHD), as well as local public schools. A specific long-term partnership has been established with a major Ecosystem Restoration Concession located in the south of the landscape, which is responsible for management of 23,613ha. Biodiversity assessments have been conducted and recommendations for sustainable biodiversity management plans have been made to promote sustainable management and restoration of the remaining forest cover.

During the first year of this project, we have strengthened partnerships with regional and national government agencies in Indonesia that 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).

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

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.

All the project stakeholders have been mapped, contacted and specific collaborative agreements developed in the context of the project work-frame. The development of Multi-Stakeholder Forums at the regional level successfully evolved in 2022, creating information and resource sharing networks for specific intervention areas. Initial technical support and training opportunities have been provided through these forums reaching the expected output of four meetings/year, but further work in Y2 and Y3 will be required to ensure independent and sustainable management.

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 found in 5 villages, the Sebangau NP, the Watershed Management and Forest Rehabilitation (BPDAS) with a total of 114 members.

Initial one-to-one discussions related to the Integrated Fire Management Network development and its management scheme have started, involving the Sebangau National Park, the Climate Change & Forest Management Agency (PPI Kalteng) and the Disaster Management Agency (BPBPK). To date, a total of 15 Community Fire-fighting Teams spread over 14 villages received 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 was delivered on the 22nd of August 2022 in partnership with the Sebangau NP Agency, a total of 12 community representatives and four NP staff members were involved; these efforts will continue through Y2. Drainage channels discharging into four major rivers within the Katingan - Sebangau Peat Hydrological Unit have been identified and targeted for blocking. During 2022 a total of 33 dams were built in four secondary canals of the Koran River (northern boundary of the Sebangau NP), the canal blocking was conducted in two phases (1st to 26th September, 18 dams and 28th November to 16th December, 15 dams). During Y1 of this project 50% of the planned capacity-building activities and 66% of the yearly targets have been achieved.

[\[Peat rewetting and training delivered to BTNS evidence is provided in Annex 4 Section D\]](#)

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 to measure water discharge rates and groundwater tables (GWT). Monitoring conducted during Y1 included:

- Regular monthly surveys implemented 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 seven canals, for canals surveyed during year 1, with a total of 46 water flow locations.

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 2, 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 been socialised in two new sub-districts (Bukit Tinggi and Marang) found in the northern boundary of the Sebangau NP, increasing the network of community restoration groups up to five villages and 15 nurseries. In Y1 we have facilitated the establishment of five new community groups, one in each of the following villages, Bukit Tinggi, Marang, Habaring Hurung, Kereng Bangkirai and Sabaru, spreading the network of community groups across the northern boundary of the NP. The BNF Habitat Restoration team conducted two capacity building/training sessions on seedlings stock and nursery management in for the new community group established, with a total attendance of 30 community members.

[\[Community Nursery programme development evidence is provided in Annex 4 Section D\]](#)

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 2022 were purchased from 10 Community Seedling Nurseries, respectively in April and October, representing a total of 175,939 seedlings purchased from community groups.

The seedlings were planted in three different reforestation sites within the Sebangau NP:

- Site 1: Ruslan - Block F: 40,909 seedlings planted, 49ha reforested.
- Site 2: Hiu Putih: 41,706 seedlings planted, 37.5ha reforested.
- Site 3: Km53: 93,324 seedlings planted, 84ha reforested.

A subset of all these seedlings will be monitored for a five-year period. Monitoring of planted seedlings condition will start in year 2. To date a total of 180,000 seedling stock are available in 13 CN for 2023 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) started its development during the first year of the project by developing series of documents defining terms of reference, the SAB responsibilities, the internal coordination mechanisms, and considering potential candidates from partner Universities to join. An Indonesian Scientist joined BNF, adding value to the current scientific team composed of 3 Research Directors and 2 Indonesian scientists.

[\[Scientific Advisory Board development evidence provided in Annex 4 Section D\]](#)

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. A document with the Journal guidelines, scope, objectives, topics covered, the tentative Board of Editors and the instructions for authors has been completed.

[\[Evidence for the relaunch of the Journal of Journal of Tropical Peatlands available in Annex 4 Section D\]](#)

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 Y1 several SOP, Guidelines/Protocols and scientific manuscripts have been published by BNF and in partnership with key stakeholders. Further information on the specific outputs Section 3.2 Progress towards project Outputs.

[\[M&E Protocols, SOP and published manuscripts evidence provided in Annex 3 and Annex 4 Section D\]](#)

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 started during the first year of the project, smallholders of seven initial target villages received information on the project, need-based training has been provided to community groups and ongoing support for the implementation of peat-friendly practices. Monitoring and Evaluation systems have been developed by BNF.

[\[Farming and agroforestry socialisation, training activities and monitoring evidence provided in Annex 4 Section E\]](#)

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.

Initial experiences and successful practices are being developed and evaluated by BNF together with agroforestry community groups so can be used in Y2 and Y3 to amplify the project impact. The Habitat restoration team and the Community Development team are developing specific permaculture and aquaculture trials to be developed in the Community Seedling Nurseries' available land, ensuring sources of income diversification and using the existing network to recruit additional smallholders.

[\[Farming and agroforestry socialisation, training activities and monitoring evidence provided in Annex 4 Section E\]](#)

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 the first year of this initiative, the BNF Integrated Fire Management team started initial discussions with key stakeholders to integrate perspectives and agree on the common denominators for the Free-fire alliance development, socialise the IFM yearly cycle approach (prevention, preparedness and recovery) and identify the key steps for its creation. Specific meetings have been held during the first semester of 2023 with the Sebangau NP and the Central Kalimantan Agency for Disaster Management and Fire Fighting (BPNB-PK) to discuss the contingency plan for forest and land fires mitigation.

[\[Free-fire alliance development and coordination meetings evidence provided in Annex 4 Section F\]](#)

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 (since 2016 till 2022) on fish species composition and water quality (pH, NO₃, NO₂ and P) for the Sebangau river/canals will be used as an indicator to verify the positive impacts on hydrology and peat restoration activities. A new study design will be implemented in Y2 to validate the BNF hydrology restoration strategies in the Sebangau NP.

During the first year on this 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 the 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 are working on a Mercury Use Mitigation Action Plan, which includes a series of regulations and recommendations.

[\[Evidence on fish research and recommendations, including published reports and Action Plans provided in Annex 4 Section G\]](#)

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 on the 14th of December 2022 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 committed to implement series of socialisation events in the Rungan river communities during 2023 in partnership with BNF to present the report results on the high levels of mercury found in water and fish samples; to raise awareness on the potential health impacts and to socialise the new governmental regulations and Action Plans; with the hope to reduce the illegal mining activities and the use of mercury to extract gold.

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. Yearly Workplans have been aligned with the Darwin initiative's expected outcomes and priority capacity building and resources needs identified.

Specific collaborations have been 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).

[\[FMU engaged and training resources needed evidence provided in Annex 4 Section G\]](#)

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.

Several training sessions, collaborative events and contributions have been led by BNF related to the development of management plans, regulations to improve sustainable management of peatlands. Amongst others, training capacity on Integrated Firefighting, Hydrology restoration and Biodiversity management have been implemented by for Sebangau NP staff and project partners. Technical sessions have been held to work on the revision of the recently expired Ecosystem Recovery Management Plan (RPE) for Sebangau NP 2023-2028.

Specific research initiatives led by Indonesian university academician and BNF on for the revision of governmental policies on Social Forestry, Mercury reduction and, elimination and Environmental Education have been developed in partnership at the province level.

Conservation Outreach and Environmental Education events, podcasts and Festivals have been led by the Comms and Environmental education team in partnership with local partners.

[\[Contribution provided to conservation and M&E activities evidence provided in Annex 4 Section G\]](#)

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 Y1 the BNF Social Forestry team identified, supported and built community capacity for the implementation of 5 protected areas proposals, the process included the development of Free Prior Informed Consents, leading participatory mapping in the Indicative Areas for Social Forestry (PIAPS) and biodiversity assessments in partnership with Community Management Units (LPHD). On top of the 5 new issued decrees, four new proposals for Village Forest designation have been started.

[\[Village Forest Designation evidence provided in Annex 4 Section G\]](#)

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.

Socialisation and informative sessions for the development of Free Prior Informed Consents (FPIC), workplans and proposals have been developed by the BNF Social Forestry team. Community representatives have been trained on area assessments mapping and data used to complete their application.

[\[Village Forest Socialisations and FPIC process provided in Annex 4 Section G\]](#)

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 ComDev and Social Forestry Divisions supported the development of Village Forest Management Plans for 6 villages that already received Village Forest Management Decree (SK) from the Ministry of Forestry and Environment, which included several activities, amongst others, the development of LPHD Management Plan, the Dissemination of the issued Social Forestry Permits, the identification of Potential exploitation and sustainable management schemes, development of Social Forestry Business Groups (KUPS), the development of strategic partnerships and strengthening the managerial capacity by providing specific training (ie. products market access, financial management, etc.)

[\[Village Forest Management plans development evidence provided in Annex 4 Section G\]](#)

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 have been identified for several stakeholders (ie. Sebangau NP, Education Agency, Forest Management Units, Village Forest Management Groups, etc.); training plans and assistance needed have been agreed. Training sessions and *Capacity building needs* have been added in the specific partnership technical documents (ie. 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.

Training and capacity-building sessions for key stakeholders have started during Y1 and will continue evolving in extended in Y2 and Y3.

[\[Stakeholder training sessions implemented evidence provided in Annex 4 Section G\]](#)

3.2 Progress towards project Outputs

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

- **Baseline condition:** Base-line data available. No existing MSFs related to peatland restoration and sustainable peatlands management.
- **Change recorded to date:**
 - o One Social Forestry Forum (*ForkomPerSos*) created integrating 33 Social Forestry Management Groups
 - o Ongoing development of a Peatlands Restoration Network integrating 19 Community Seedling Nurseries and Key Stakeholders
 - o Started discussions and developed conceptual approaches with the Sebangau NP, the Central Kalimantan Disaster Management Agency (BPBPK) related to the Integrated Fire Management Network/Forum. To date 21 stakeholders have been engaged with the 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:** one Peat-rewetting training implemented in Partnership with BTNS; 4 canals blocked (38 dams built); and Hydrology Monitoring plan designed and ongoing monthly data collection.
- **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:** five groups received training sessions and resources have been provided to the new community nurseries created in 3 new villages; 39 new families engaged in Y1.
- **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:** a Long-term M&E Plan for the Peatlands Restoration initiatives has been produced, a M&E protocol for habitat restoration and an SOP for the development of Community Seedlings nurseries has been drafted. Two Indonesian scientist-led papers have been published and two revegetation publications on peat rewetting and revegetation have been published ([See Annex 3 Table 2](#))
- **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 89 new members in 6 additional villages; equitable gender composition (42% men : 58% 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:** 3 new fire-fighting teams have been created in 3 new villages (46 community members involved), ongoing development of a regional network of Community Patrol and Fire-fighting teams and started discussions with key stakeholders to define the Fire-Free Alliance concept and management.
- **Source of evidence available:** Fire-fighting teams list for the target areas, team composition, records of number of local community members and meetings held.

[\[Evidence on the regional firefighting network in Annex 4 Section F\]](#)

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.
- **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. New private sector partnership established with a 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.
- **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.

[\[Long-term Management Plans evidence in Annex 4 Section G\]](#)

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:** Five newly established Village Forests (totaling 3,607 ha and 296 households) and another four under development. To date BNF is supporting a total of 20 Village Forests Groups in the target area, with 522 households involved, representing 17,091 ha of community managed land in peatland areas. (See [Summary map](#) provided)
- **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, 39 training sessions with a total of 455 participants (from 42 independent Stakeholders), technical workshops and peatlands sustainable management capacity implemented in Y1.
- **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

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 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 Catalog) 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- 2020

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 and Y1.

[\[Fire occurrence evidence in Annex 4 Section H\]](#)

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) 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)

Evidence Presented:

- Map of the peatland burned due to fires in the target area (baseline data) on a yearly basis.
- Peatland burned for the target area on a yearly basis (baseline and Y1) 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 (ie. similar ENSO index and rainfall)

Progress: Baseline 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 (ie. Elevation Model produced)
- Monthly GWT and water-flow hydrology monitoring (48 locations manual and automatic data-loggers)
- 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 and Y1 average Ground Water Tables for stations located in the Sebangau forested and non-forested areas
- VTOL drone Orthophoto-composition for aerial mapping of a reforestation planting site

- Reforestation species planted composition in the Y1 planting sites.
- Pictures of the BNF Habitat restoration monitoring team compiling GPS locations for each seedling planted
- DEM and water sub-catchment delineation maps

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)

Progress: 8,850 ha of degraded peatland restored in Y1 by blocking 4 canals (38 dams) and planting 175,939 seedlings (170.65 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 – 2021

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

Yearly tree size increase (2003-2022): from BNF Forestry plots (2.4 ha; trees >20 cm DBH)

Orangutan population density estimates (1997 to 2022): from BNF monthly nest surveys across seven transects.

Gibbon population density estimates (2006 – 2022): BNF yearly data from gibbon triangulation surveys in 3 habitat types

Forest organic matter/ litter-fall: from litterfall traps (2017-2022): from 16 x 1 m² traps, data collected monthly along two transects.

Fauna species presence and abundance (2015-2022): BNF Camera traps monthly surveys: 30 camera traps (Y1)

* 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 2022): from BNF monthly nest surveys across six transects.

Fauna species presence and abundance (2016-2022): 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

- Tukung 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): nest surveys across six transects.

Evidence Presented:

- Tree size increase in BNF historical Forestry plots (2003 – 2022, 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 2022) 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/km² 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 2015-2022 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: 2017-2022 data set, processed analysis for litterfall leaves (kg/ha).
- Forest loss map for the target area (from Hansen *et al.* 2022); period 2015 – 2021

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), and the first year of monitoring data 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 will be used 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:

- NESP Study Design and Methodological Approach
- Table for all the project target groups and villages selection criteria.
- Table presenting the selected villages and questionnaire sample sizes for each community beneficiaries.
- Screenshot of the NESP questionnaire

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: 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 will be implemented in Y2 in 5 target villages, with a total of 172 project beneficiaries and 172 community members (control group)

[\[Poverty reduction and subjective well-being indicators evidence in Annex 4 Section H\]](#)

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 33](#) and [Figure 36](#) 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 65 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 42](#) Annex 4)

Means of verification/adequacy of indicators: The indicators are considered to be reliable; further work will be required in Y2 and 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) 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 monitoring on forest structure and biodiversity variables have been collected. Assumption to be re-assessed in Y2.

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: Ongoing development of NESP surveys and 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, further work to be with community members implemented in Y2 to assess the assumption suitability.

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 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 true. Several Indonesian scientists and local universities developed collaborative agreements with BNF and supported the project development. Further re-evaluation of the assumption in Y2 and Y3 will be required once the SAB will be formalised and integrated into MSFs.

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: the assumption couldn't be assessed in Y1 as the output hasn't been achieved/developed yet.

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: the assumption couldn't be assessed in Y1 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.

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:

- 1) 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

[\[Positive impact in biodiversity evidence provided in Annex 4 Figure 82\]](#)

- 2) Potential emission savings of 27-66 tCO₂/ha/yr from peat rewetting and 101-455 tCO₂e for each hectare prevented from burning.

[\[Positive impact on emissions savings from rewetting and burning evidence provided in Annex 4 Figure 70\]](#)

- 3) Reduced haze pollution and associated negative health impacts experienced by the ~500,000 people living in the landscape.

[\[Reduced haze pollution evidence provided in Annex 4 Figure 87\]](#)

- 4) 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.
[\[Proof of concept development of more peat-friendly approaches evidence provided in Annex 4 Figure 33\]](#)
- 5) 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 19](#), [Figure 33](#) and [Figure 43](#)]
- 6) 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.
[\[Villages obtain management rights evidence provided in Annex 4 Section G\]](#)
- 7) 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:

- (i) 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 (ie. Community Fire Fighting Teams, Community Seedling Nurseries, Hydrology Restoration Units, etc.).
- (ii) 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 toward this is to get women evenly included in our conservation outreach sessions, environmental education sessions, reforestation project (community nurseries) and Integrated Fire Management (during Y1 BNF has supported the first Community Patrol Team 90% composed by women in the Marang village)

Goal 6: Clean water – To be achieved by protecting and restoring important water-related ecosystems (peat-swamp forest) to maintain and enhance local water quality, by reducing pollutants (i.e., Mercury) and drivers' mitigation. Our main activities towards this goal are fire prevention; community outreach and sustainable management of peat-swamp forests, including the development of local policies and regulations to mitigate the environmental issues that contribute to water pollution and ecosystem degradation. All these activities have been initiated, including a specific assessment the mercury levels in the Rungan River and the development of a Province-based Action Plan for mercury elimination.

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:

- (i) 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.
- (ii) 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. Our contribution towards these goals for peat-rewetting, revegetation, fire-fighting, forest protection patrols and education.

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 set 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 its 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.

BNF supported back in 2019 the preparation of a proposal for the National Park Authority for the designation of Sebangau National Park as a Ramsar site, which was never submitted by the Indonesian Ramsar Focal point. During the first year of this project follow-up discussions related to the Ramsar Site designation have started with the Sebangau NP authorities and has been included as a priority target in the BNF - Sebangau NP Project workplan; with the aim that Sebangau NP will be acknowledged as a wetland site designated to be of international importance under the Ramsar Convention.

5. Project support to poverty reduction

This project is implementing several initiatives to support poverty alleviation, with the overarching approach being to directly support and develop community groups to access and engage in more financially and ecologically sustainable livelihood practices, encouraging a shift towards full self-sufficiency to generate sufficient and stable household income via these means. Beneficiaries of the project include 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.

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, 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.
- ✓ Village Forest Management Groups in 10 villages are receiving training 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). See [Section 6](#) for detail of the women-led firefighting team established and supported by this project.
- ✓ 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

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, is committed to promote gender equality. We strongly believe the leading by example and inspiring other people/projects is also an 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. 2 women : 1 man); with a total of 139 women of 201 people. [\[Gender equality evidence for Sustainable livelihood groups presented in Output 2.1 Figure 33\]](#)

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. [\[Gender equality evidence for capacity building and training events presented in Figure 65\]](#)

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. This year, the project supported the establishment of Central Kalimantan's first women-led firefighting team. The Marang Fire Care Community (*MPA Marang*) is the first firefighting team in Central Kalimantan to consist primarily of women and will join the regional network of seven other community firefighting teams supported by the project in order to strengthen fire prevention efforts throughout the area. [\[Gender equality evidence for Community Fire-fighting team presented in Output 2.2 Figure 49\]](#)

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 done during Y1 to achieve gender balance and 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 members are man dominated.

Please quantify the proportion of women on the Project Board	UoE – BNF – UPR Project Board (N= 15; 8 Women :7 Men) 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 ¹	BNF 58% Women (Board of Management)

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 [Annex 4 Section A](#)).

The following baseline 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; our monitoring and evaluation will continue for the next two years.

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 ([SiPongi+ Karhutla Monitoring Sistem](#); 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*)

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

Degraded peatland rewetting and revegetation baseline and 2022 data has been collected by the BNF Habitat Restoration team, using several data sources and methods; including: VTOL drone aerial mapping, monthly GWT and water-flow hydrology monitoring (40 locations manual and automatic data-loggers), 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 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 yearly and litter-fall monthly).

Rungan Forest - Forest condition: Baseline 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 data (2016-2022) 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 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)

¹ 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.

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 design includes a total of 6 villages across the target area, including 334 respondents from BNF intervention and control groups. The villages and intervention groups selection have been defined following specific criteria. Further information and evidence in Annex 4 Outcome 0.5.

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.

Y1 evaluation meetings have been conducted at the end of 2022 with key stakeholders and project partners in order to review project progress and assess the current collaborative agreements, workplans in place and yearly targets agreed. The following project partners and stakeholders included: BNF; UPT LIG CIMTROP; Sebangau NP, Central Kahayan FMU and several Village Forest management groups.

8. Lessons learnt

During Y1 of this project important learning and adaptive management have been required; 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 SOP developed and agreed with Community groups have been required and will need further attention so the principles for the partnership development are clear and transparent for all the community groups within each village.
- Expectations related to the Development of Management Plans and improving Forest regulations: 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 has invested a huge amount of time and energy in developing work plans with many regional governmental agencies during Y1; few organisations have the influence and capacity to intercede as decision-makers for the development of Forest Management Plans as BNF; but it's important to balance the project-associated time/funds and committed support with the expectations and new requests emerging from the governmental officials.
- 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 for 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.

9. Risk Management

A detailed assessment related to the project-related potential Risk issues has been done in Y1 including associated contextual, fiduciary and reputational risks; all of them have been added to the Risk Management Framework document, reviewing and updating it as needed as the project evolved. Specific responses and mitigation measures have been taken into account to address the identified issues and/or to manage accordingly if this occurs.

No major adaptations to the Project Design have been made, but specific measures and protocols, and new revised agreements at the community-groups level have been developed. Several existing policies and procedures have been revised and a few developed in Y1 (highlighted in blue)

Policies

- BNF - Child Protection Policy
- BNF - Equal Opportunities Policy
- BNF - Harassment and Bullying Policy and Procedures
- BNF - Cultural awareness, safety and Social Conduct Policy
- [BNF - Scientific Misconduct Policy](#)
- BNF - General Data Protection Regulation (GDPR) Policy
- BNF – Confidentiality Policy
- BNF – Coronavirus Prevention and Management Policy
- BNF – Social media Policy

Standard Operational Procedures

- [BNF – BTNS SOP on Communication and production of written/visual outputs \(NEW\)](#)
- BNF – Guidelines on Pastoral Support and Anti-Oppression SOP
- BNF – Welfare Officer Guidelines
- BNF – Recruitment protocol SOP
- [BNF – Financial management, Anti-fraud and Anti-bribery SOP](#)
- [BNF – Financial conflict of interest SOP \(NEW\)](#)

10. Sustainability and legacy

Project achievements that will endure include the establishment of grassroots peatland-fire prevention and habitat restoration networks and activities as a business-as-usual conservation strategy in this region and connecting these with

regional and national strategies. The ongoing development of strategic partnerships and collaborations with government agencies and the ongoing work to strengthen partners' organisational capacity and develop/review Long Term Management Plans to effectively manage the peatland forest blocks will continue the legacy of this project.

In coming years, we expect the restoration, education, outreach and capacity-building initiatives to scale up across the landscape; with improved technical methods and volume of outputs leading to reduced fire impacts in the landscape.

11. Darwin identity

BNF displayed the Darwin Initiative logo prominently on its website, on posters and banners at workshops and meetings in Kalimantan that we organised when possible. Support from the Darwin Initiative is part of a larger programme, with other supporters acknowledged alongside. Support was also acknowledged on several of BNF's online stories and social media concerning activities undertaken as part of this project, as well as communicated to journalists covering our work including in social media. [Figure 98](#) and [Figure 100](#) of Annex 4 summarises BNF's communication and increasing trends in the number of followers. UoE has developed and designed a [Darwin Initiative new 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. The Darwin Initiative is still little known in Kalimantan but the involvement of policy-makers and academics as project partners has raised its profile, and all partners are aware this is UK Government funding supporting their efforts.

12. Safeguarding

The UoE and the main project partner (BNF) have and developed specific Safeguarding policies and SOPs in place, ensuring equal opportunities, investigation procedures, code of conduct and internal control process to protect vulnerable people, ensure that project ethics are preserved and assure that high standards of internal management is fulfilled; 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 investigated in the past 12 months		No
Does your project have a Safeguarding focal point?	Yes [If yes, please provide their name and email] Frank van Veen – [REDACTED]	
Has the focal point attended any formal training in the last 12 months?	No [If yes, please provide date and details of training]	
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? Please ensure no sensitive data is included within responses. Among our team, there is a lack of formal training specifically focussed 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 we 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		

13. Project expenditure

Table 1: Project expenditure during the reporting period (1 April 2022 – 31 March 2023)

Project spend (indicative) since last Annual Report	2022/23 Grant (£)	2022/23 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)				
Monitoring & Evaluation (M&E)				
Others (see below)				
TOTAL	155,837.00	155,129.96		

Table 2: Project mobilising of matched funding during the reporting period (1 April 2022 – 31 March 2023)

	Matched funding secured to date	Total matched funding expected by end of project
Matched funding leveraged by the partners to deliver the project.		
Total additional finance mobilised by new activities building on evidence, best practices and project (£)		




14. 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 Secretariat to publish the content of this section

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 Y1 significant outstanding achievements have been completed, which include advancements and positive support towards Darwin Initiative Programme Objectives, including, amongst others:

- ✓ A total of 824 people 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 522 Indigenous People and Local Community members received strengthened capacity and support for tenure rights designation. During Y1 a total of 3,607 ha of Community-managed areas received designation, and complementary 10,455 ha are under development.
- ✓ A total of 9,029 ha of degraded peatland has been subjected to rewetting and revegetation initiatives, reducing Carbon emissions due to peatlands' subsidence, increasing ABG, and supporting its natural succession and crucial biodiversity recovery.
- ✓ The project is fostering gender equality and strong women representation in its sustainable livelihood activities, to date, the community groups engaged present a ratio of (ratio approx. 2 women:1 man); with a total of 139 women out of 201 people. The project encouraged women to participate in male-dominated activities, breaking gender barriers; in Y1 a women-led firefighting team has been established in the Marang Village, which will join the network of seven other community firefighting teams supported by the project.
- ✓ The Darwin proposed project is also contributing towards nine specific targets defined within three strategic Convention on Biological Diversity (CBD) 2030 Action targets; including Biodiversity threats reduction, sustainable land use and benefit-sharing, and providing tools and solutions by integrating biodiversity values and environmental assessment impacts into policies, regulations, and management plans.

File Type	File Name or File Location	Caption, country and credit	Online accounts to be tagged	Consent of subjects received
Image		Indonesia Credit: <i>Dam Building Yohanes Prahara Sebanqau NP-BNF 2022</i>	UoE; BNF	Yes

Image		Indonesia Credit: <i>Women Group weaving Organic Pots_Yohanes Prahara-BNF 2022</i>	UoE; BNF	Yes
Image		Indonesia Credit: <i>Reforestation Yohanes Prahara Sebangau NP-BNF 2022</i>	UoE; BNF	Yes
Image		Indonesia Credit: <i>Permaculture Garden in Buklit Sua Yohanes Prahara BNF 2022</i>	UoE; BNF	

Annex 1: Report of progress and achievements against logframe for Financial Year 2022-2023

Project summary	SMART Indicators	Progress and Achievements April 2022 - March 2023	Actions required/planned for next period
<p>Impact</p> <p>Effective local conservation leadership and management of peat-swamp forests, for the benefit of biodiversity, human health and local economies.</p>		<p>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.</p>	
<p>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.</p>	<p>0.1 Number of fires in the target area reduced to 25% of baseline value by Y3, compared to climatologically comparable pre-project years.</p> <p>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.</p> <p>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).</p> <p>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</p>	<p>0.1 Baseline figures for number of fires in the target area have been established for previous pre-project years and Y1.</p> <p>0.2 Baseline data compiled and processed.</p> <p>0.3 8,850 ha of degraded peatland restored in Y1 by blocking 4 canals (38 dams) and planting 175,939 seedlings (170.65 ha). GWT and water drawdown monitoring implemented in control and intervention canals and revegetation data collected.</p> <p>0.4 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 year of monitoring data have been collected, compiled and analysed.).</p>	<p>0.1 Continue data compilation on MODIS Hotspots and weather variables and carry out GIS analysis.</p> <p>0.2 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".</p> <p>0.3 Measure the areas restored by BNF's restoration activities during year 2 and its impacts.</p> <p>0.4 Continue with the forest condition and key forest fauna populations monitoring and analysis, comparing it against the baseline produced.</p>

	<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.</p> <p>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.</p>	<p>0.5 The conceptual model and study design has been developed and defined based on series of technical criteria; a Terms of Reference document has been produced and interviews will be implemented in Y2 in 5 target villages, with a total of 172 project beneficiaries and 172 community members (control group)</p> <p>0.6 Activities monitoring spreadsheets have been designed and quantitative information added for each community group where peat-friendly interventions have been implemented.</p>	<p>0.5 Implementation of NESP survey in five villages and analysis and interpretation of the results.</p> <p>0.6 Continue with the monitoring and quantification of community members involved in peat-friendly livelihoods.</p>
<p>Output 1. Local capacity developed to implement, improve and encourage replication of peatland restoration efforts throughout the target landscape.</p>	<p>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,</p> <p>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.</p> <p>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.</p> <p>1.4 By Y3, good-practice guidelines for tropical peat rewetting and revegetation including M&E protocols, published; minimum two Indonesian scientist-led</p>	<p>1.1 One Social Forestry Forum (<i>ForkomPerSos</i>) created integrating 33 Social Forestry Management Groups. Ongoing development of a Peatlands Restoration Network integrating 19 Community Seedling Nurseries and Key Stakeholders. Started discussions and developed conceptual approaches with the Sebangau NP, the Central Kalimantan Disaster Management Agency (BPBPK) related to the Integrated Fire Management Network/Forum. To date 21 stakeholders have been engaged with the initiative.</p> <p>[MSFs establishment indicators evidence provided in Annex 4 Section D]</p> <p>1.2 One Peat-rewetting training implemented in Partnership with BTNS; 4 canals blocked (38 dams built); and Hydrology Monitoring plan designed and ongoing monthly data collection.</p> <p>[Training sessions and peat rewetting indicators evidence provided in Annex 4 Section D]</p> <p>1.3 Five groups received training sessions and resources have been provided to the new community nurseries created in 3 new villages; 39 new families engaged in Y1.</p> <p>[Training sessions and community nursery indicators evidence provided in Annex 4 Section D]</p> <p>1.4 A Long-term M&E Plan for the Peatlands Restoration initiatives has been produced, a M&E protocol for habitat restoration and an SOP for the development of Community Seedlings nurseries has been drafted. Two Indonesian scientist-led papers have been published and two revegetation publications on peat rewetting and revegetation have been published (See Annex 3 Table 2)</p>	

	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.	[Evidence on guidelines and papers published in Annex 4 Section D]	
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.		<p>1.1 All the project stakeholders have been mapped, contacted and specific collaborative agreements developed in the context of the project work-frame. The development of Multi-Stakeholder Forums at the regional level successfully evolved in 2022, creating information and resource-sharing networks for specific intervention areas. Initial technical support and training opportunities have been provided through these forums reaching the expected output of four meetings/year.</p> <p>Multi-Stakeholder Forums established:</p> <ul style="list-style-type: none"> - Social Forestry Communication Forum (<i>ForkomPerSos</i>): 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 (<i>Community Seedling Nurseries</i>) to support the peatland ecosystems restoration efforts led by BNF: 15 Community Nurseries (from five villages), the Sebangau NP and the Watershed Management and Forest Rehabilitation Agency (BPDAS). - Integrated Fire Management Network - Initial one-to-one discussions related to its development and management scheme: the Sebangau NP, the Climate Change & Forest Management Agency (PPI Kalteng) and the Disaster Management Agency (BPBPK). To date, a total of 15 Community Fire-fighting Teams spread over 14 villages received technical capacity building and resources support from BNF. <p>[Multi-Stakeholders Forums establishment and capacity development evidence is provided in Annex 4 Section D]</p>	<p>1.1 Work with relevant stakeholders towards the consolidation and effective establishment of the IFM Network. Increase the number of firefighting teams in the network to have a wider impact on the landscape.</p> <p>Establishment of new community nurseries in key villages for the expansion and development of BNF's restoration activities.</p>
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.		<p>1.2a One peat rewetting training was delivered on the 22nd of August 2022 in partnership with the Sebangau NP Agency, a total of 12 community representatives and four NP staff members were involved.</p> <p>Four major rivers within the Katingan - Sebangau Peat Hydrological Unit have been identified and targeted for blocking. During 2022 a total of 33 dams were built in four secondary canals of the Koran River (northern boundary of the Sebangau NP), the canal blocking was conducted in two phases (1st to 26th September, 18 dams and 28th November to 16th December, 15 dams).</p> <p>During Y1 of this project 50% of the planned capacity-building activities and 66% of the yearly targets have been achieved.</p> <p>[Peat rewetting and training delivered to BTNS evidence is provided in Annex 4 Section D]</p>	<p>1.2a Survey of two un-surveyed areas.</p> <p>Build dams in the three canals surveyed in Simpang Kanan River and in canals in the newly surveyed area of Simpang Kiri River.</p> <p>Deliver peat rewetting related trainings to BTNS and community members.</p>
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.		<p>1.2b Hydrology monitoring surveys and base-line data collection has been undertaken to measure water discharge rates and groundwater tables (GWT). Monitoring conducted during Y1 included: a) Regular monthly surveys implemented 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. b) 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. c) Pre-dam building data collected in seven canals, for canals surveyed during year 1, with a total of 46 water flow locations.</p>	<p>1.2b Further manual and automatic monitoring stations will be set up during year 2, after surveying other areas.</p>

	[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.	<p>1.3a The Community Nursery (CN) programme has been socialised in two new sub-districts (Bukit Tunggul and Marang) found in the northern boundary of the Sebangau NP, increasing the network of community restoration groups up to five villages and 15 nurseries.</p> <p>In Y1 we have facilitated the establishment of five new community groups, one in each of the following villages, Bukit Tunggul, Marang, Habaring Hurung, Kereng Bangkirai and Sabaru, spreading the network of community groups across the northern boundary of the NP.</p> <p>The BNF Habitat Restoration team conducted two capacity building/training sessions on seedlings stock and nursery management in for the new community group established, with a total attendance of 30 community members.</p> <p>[Community Nursery programme development evidence is provided in Annex 4 Section D]</p>	1.3a Further socialisation events, new community nurseries will be established, and initial trainings delivered.
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.	<p>1.3b The seedlings planted in the 3rd and 4th quarter of 2022 were purchased from 10 Community Seedling Nurseries, respectively in April and October, representing a total of 175,939 seedling purchased to community groups.</p> <p>The seedlings were planted in three different reforestation sites within the Sebangau NP: a) Site 1: Ruslan - Block F: 40,909 seedlings planted, 49ha reforested. b) Site 2: Hiu Putih: 41,706 seedlings planted, 37.5ha reforested. c) Site 3: Km53: 93,324 seedlings planted, 84ha reforested.</p> <p>A subset of all these seedlings will be monitored for a five-year period. Monitoring of planted seedlings condition will start in year 2. To date a total of 180,000 seedling stock are available in 13 CN for 2023 planting.</p> <p>[Seedlings purchased and planted evidence is provided in Annex 4 Section D]</p>	<p>1.3b Planting 225,000 seedlings in peatland degraded areas. Seedlings will be purchased from community nurseries.</p> <p>Monitoring of year 1 planting sites and seedlings, following our new SOP.</p>
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.	<p>1.4a The Scientific Advisory Board (SAB) started its development during the first year of the project by developing series of documents defining terms of reference, the SAB responsibilities, the internal coordination mechanisms, and considering potential candidates from partner Universities to join. An Indonesian Scientist joined BNF, adding value to the current scientific team composed of 3 Research Directors and 2 Indonesian scientists.</p> <p>[Scientific Advisory Board development evidence provided in Annex 4 Section D]</p>	1.4a Strengthening scientific foundations for the SAB by including new Indonesian scientist, formalise the coordination mechanisms with BNF, UPR and UoE. Support the production and revision of SOP, manuscripts and GPG.
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.	<p>1.4b Initial discussions have been held with the new head of UPT LLG CIMTROP and the University of Palangkaraya but no specific development on this area. A document with the Journal guidelines, scope, objectives, topics covered, the tentative Board of Editors and the instructions for authors has been completed.</p> <p>[Evidence for the relaunch of the Journal of Journal of Tropical Peatlands available in Annex 4 Section D]</p>	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.
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.	<p>1.4c During Y1 several SOP, Guidelines/Protocols and scientific manuscripts have been published by BNF and in partnership with key stakeholders. Further information on the specific outputs Section 3.2 Progress towards project Outputs.</p>	1.4c Finalisation of Community Nursery SOP and draft SOPs for Hydrology Restoration and Reforestation.

		[M&E Protocols, SOP and published manuscripts evidence provided in Annex 3 and Annex 4 Section D]	
<p>Output 2. Communities develop more 'peat-friendly' agriculture and livelihoods in peatland areas and are empowered to tackle peatland fire and degradation impacts.</p>	<p>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.</p> <p>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.</p> <p>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.</p>	<p>2.1 New peat-friendly practices introduced to 89 new members in 6 additional villages; equitable gender composition (42% men : 58% women)</p> <p>[Evidence on peat-friendly practices introduction in Annex 4 Section E]</p> <p>2.2 Three new fire-fighting teams have been created in three new villages (46 community members involved), ongoing development of a regional network of Community Patrol and Fire-fighting teams and started discussions with key stakeholders to define the Fire-Free Alliance concept and management.</p> <p>[Evidence on the regional firefighting network in Annex 4 Section F]</p> <p>2.3 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.</p> <p>[Evidence on sustainable fisheries in Annex 4 Section G]</p>	
<p>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</p>		<p>2.1a Activities related to farming and agroforestry systems have started during the first year of the project, smallholders of seven initially target villages received information on the project, need-based training has been provided to community groups and ongoing support for the implementation of peat-friendly practices. Monitoring and Evaluation systems have been developed by BNF.</p> <p>[Farming and agroforestry socialisation, training activities and monitoring evidence provided in Annex 4 Section E]</p>	<p>2.1a Paludiculture introduced to five new villages and further groups established and community members trained.</p>
<p>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.</p>		<p>2.1b Initial experiences and successful practices are being developed and evaluated by BNF together with agroforestry community groups so can be used in Y2 and Y3 to amplify the project impact. The Habitat restoration team and the Community Development team are developing specific permaculture and aquaculture trials to be developed in the Community Seedling Nurseries' available land, ensuring sources of income diversification and using the existing network to recruit additional smallholders.</p> <p>[Farming and agroforestry socialisation, training activities and monitoring evidence provided in Annex 4 Section E]</p>	<p>2.1b Monitor results from groups established during year 1 and report success after one year.</p>
<p>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.</p>		<p>2.2 During the first year of this initiative, the BNF Integrated Fire Management team started initial discussions with key stakeholders to integrate perspectives and agree on the common denominators for the Free-fire alliance development, socialise the IFM yearly cycle approach (prevention, preparedness and recovery) and identify the</p>	<p>2.2 Follow up on the development of a "Forest and land fires Mitigation Contingency Plan" and work towards the establishment and recognition of the Fire Free Alliance in</p>

	<p>key steps for its creation. Specific meetings have been held during the first semester of 2023 with the Sebangau NP and the Central Kalimantan Agency for Disaster Management and Fire Fighting (BPNB-PK) to discuss the contingency plan for forest and land fires mitigation.</p> <p>[Free-fire alliance development and coordination meetings evidence provided in Annex 4 Section F]</p>	<p>partnership with key governmental agencies.</p>
<p>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).</p>	<p>2.3a Existing base-line data (since 2016 till 2022) on fish species composition and water quality (pH, NO3, NO2 and P) for the Sebangau river/canals will be used as an indicator to verify the positive impacts on hydrology and peat restoration activities. A new study design will be implemented in Y2 to validate the BNF hydrology restoration strategies in the Sebangau NP.</p> <p>During the first year on this 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 the 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 are working on a Mercury Use Mitigation Action Plan, which includes a series of regulations and recommendations.</p> <p>[Evidence on fish research and recommendations, including published reports and Action Plans provided in Annex 4 Section G]</p>	<p>2.3a Creation and launch of the recommendations to ensure net positive impacts of peat restoration activities on fish populations and water pollution mitigation.</p>
<p>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.</p>	<p>2.3b The results of the mercury pollution research were presented on the 14th of December 2022 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.</p> <p>The Central Kalimantan Environmental Agency committed to implement series of socialisation events in the Rungan river communities during 2023 in partnership with BNF to present the report results on the high levels of mercury found in water and fish samples; to raise awareness on the potential health impacts and to socialise the new governmental regulations and Action Plans; with the hope to reduce the illegal mining activities and the use of mercury to extract gold.</p>	<p>2.3b Socialisation of recommendations planned for Y3.</p>
<p>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.</p>	<p>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.</p>	<p>3.1 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. New private sector partnership established with a 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.</p> <p>[Long-term Management Plans evidence in Annex 4 Section G]</p>

	<p>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.</p> <p>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)</p>	<p>3.2 Five newly established Village Forests (totalling 3,607 ha and 296 households) and another four under development. To date BNF is supporting a total of 20 Village Forests Groups in the target area, with 522 households involved, representing 17,091 ha of community managed land in peatland areas. Ongoing sustainable livelihoods programmes developed in X villages (See Summary map provided)</p> <p>[Village Forest establishment indicators evidence in Annex 4 Section G]</p> <p>3.3 Management Units capacity building needs identified and formally agreed with Land Managers/Governmental Agencies Work Plans, 39 training sessions with a total of 455 participants (from 42 independent Stakeholders), technical workshops and peatlands sustainable management capacity implemented in Y1.</p> <p>[Capacity building to improve land management evidence in Annex 4 Section G]</p> <p>[Stakeholder training sessions implemented evidence provided in Annex 4 Section G]</p>
<p>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 forest. Plans co-created where do not already exist.</p>		<p>3.1a 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. Yearly Workplans have been aligned with the Darwin initiative's expected outcomes and priority capacity building and resources needs identified.</p> <p>Specific collaborations have been 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).</p> <p>[FMU engaged and training resources needed evidence provided in Annex 4 Section G]</p>
<p>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</p>		<p>3.1b Several training sessions, collaborative events and contributions have been led by BNF related to the development of management plans, regulations to improve sustainable management of peatlands. Amongst others, training capacity on Integrated Firefighting, Hydrology restoration and Biodiversity management have been implemented by for Sebangau NP staff and project partners. Technical sessions have been held to work on the revision of the recently expired Ecosystem Recovery Management Plan (RPE) for Sebangau NP 2023-2028.</p> <p>Specific research initiatives led by Indonesian university academician and BNF on for the revision of governmental policies on Social Forestry, Mercury reduction and, elimination and Environmental Education have been developed in partnership at the province level.</p> <p>Conservation Outreach and Environmental Education events, podcasts and Festivals have been led by the Comms and Environmental education team in partnership with local partners.</p>

	[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.	3.2a During Y1 the BNF Social Forestry team identified, supported and built community capacity for the implementation of 5 protected areas proposals, the process included the development of Free Prior Informed Consents, leading participatory mapping in the Indicative Areas for Social Forestry (PIAPS) and biodiversity assessments in partnership with Community Management Units (LPHD). On top of the five new issued decrees, four new proposals for Village Forest designation have been started. [Village Forest Designation evidence provided 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.
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.	3.2b Socialisation and informative sessions for the development of Free Prior Informed Consents (FPIC), workplans and proposals have been developed by the BNF Social Forestry team. [Village Forest Socialisations and FPIC process provided in Annex 4 Section G]	3.2b Continue the efforts on Village Forest designation by socialising, engaging and developing new proposals to secure customary land for community benefit.
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.	3.2c BNF ComDev and Social Forestry Divisions supported the development of Village Forest Management Plans for six villages that already received Village Forest Management Decree (SK) from the Ministry of Forestry and Environment, which included several activities, amongst others, the development of LPHD Management Plan, the Dissemination of the issued Social Forestry Permits, the identification of Potential exploitation and sustainable management schemes, development of Social Forestry Business Groups (KUPS), the development of strategic partnerships and strengthening the managerial capacity by providing specific training (ie. products market access, financial management, etc.) [Village Forest Management plans development evidence provided in Annex 4 Section G]	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.
Activity 3.3a Stakeholder training needs identified and bespoke training plans created in Y1, and relevant external assistance acquired to cover specialist topics.	3.3a Training needs and technical capacity building have been identified for several stakeholders (ie. Sebangau NP, Education Agency, Forest Management Units, Village Forest Management Groups, etc.); training plans and assistance needed have been agreed. Training sessions and <i>Capacity building needs</i> have been added in the specific partnership technical documents (ie. Annual Workplan -RKT and/or the Project Work Plan – RKP). [Stakeholder training needs and training plans 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.
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.	3.3b Training and capacity-building sessions for key stakeholders have started during Y1 and will continue evolving in extended in Y2 and Y3. [Stakeholder training sessions implemented evidence provided in Annex 4 Section G]	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

Project Summary	Measurable 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.	<p>0.1 Number of fires in the target area reduced to 25% of baseline value by Y3, compared to climatologically comparable pre-project years.</p> <p>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.</p> <p>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).</p> <p>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</p>	<p>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.</p> <p>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.</p> <p>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.</p> <p>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</p>	<p>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.</p> <p>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).</p> <p>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.</p>

	<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.</p> <p>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.</p>	<p>baseline and against projected no-project scenario.</p> <p>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 <i>et al.</i> (2007) and employed previously by BNF in Rungan.</p> <p>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.</p>	<p>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.</p> <p>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).</p>
<p>Outputs:</p> <p>1. Local capacity developed to implement, improve and encourage replication of peatland restoration efforts throughout the target landscape.</p>	<p>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,</p> <p>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.</p>	<p>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.</p> <p>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.</p>	<p>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.</p> <p>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.</p> <p>1.3 As above for #1.2.</p>

	<p>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.</p> <p>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.</p>	<p>1.3 Training sessions, resource provision and impact assessment as for #1.2 above.</p> <p>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.</p>	<p>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.</p>
<p>2. Communities develop more 'peat-friendly' agriculture and livelihoods in peatland areas and are empowered to tackle peatland fire and degradation impacts.</p>	<p>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.</p> <p>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.</p> <p>2.3 Recommendations on sustainable fisheries and mitigation of impacts identified from restoration projects to fishers and</p>	<p>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 surveys of agricultural practices, crop types and yields, income levels and sources, and wellbeing indicators tracked and disaggregated by gender; verified through field checks.</p> <p>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 hotspots detected through MODIS satellites on individuals' land and field checks.</p> <p>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</p>	<p>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.</p> <p>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.</p> <p>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.</p>

	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.	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.	
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.	<p>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.</p> <p>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.</p> <p>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)</p>	<p>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.</p> <p>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.</p> <p>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.</p>	<p>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.</p> <p>3.2 National and local support for social forestry continues. Local communities are supportive, and willing to contribute efforts to establishment of Village Forests.</p> <p>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.</p>
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. VillageForest 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

Group A: Capability and Capacity

DI Indicator number	Name of indicator using original wording	Name of Indicator after adjusting wording to align with DI Standard Indicators	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)	48 :52			48 :52	50: 50
				Environmental Education	369			369	600
				Paludiculture & aquaculture	199			199	400
				Patrol and Integrated Fire Management	87			87	250
				Habitat Restoration	51			51	100
				Sustainable Forest Management	118			118	300
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	19			19	50
				Paludiculture & aquaculture	5.9			5.9	15
				Patrol and Integrated Fire Management	0.9			0.9	2
				Habitat Restoration	0.4			0.4	3.6
				Sustainable Forest Management	1.7			1.7	5
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)	8			10	15
				Village Forest Management Unit	10			10	20

DI Indicator number	Name of indicator using original wording	Name of Indicator after adjusting wording to align with DI Standard Indicators	Units	Disaggregation	Year 1 Total	Year 2 Total	Year 3 Total	Total to date	Total planned during the project
				Universities	1			1	2
				Community Groups	15			15	20
				Community Patrol and Firefighting	8			8	20

Group B: Policies, Practices and Management

DI Indicator number	Name of indicator using original wording	Name of Indicator after adjusting wording to align with DI Standard Indicators	Units	Disaggregation	Year 1 Total	Year 2 Total	Year 3 Total	Total to date	Total planned during the project
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			1 draft	1
				Sebangau NP Ecosystem Restoration Plan					1
				Others					4
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				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 Forest Management Units	522			1,645	2,000
				Total Ha New Supported Development	3,607 ha 13,474 ha 10,455 ha			3,607 ha 37,537 ha 10,455ha	20,000 ha

Group C: Evidence and Best Practices

DI Indicator number	Name of indicator using original wording	Name of Indicator after adjusting wording to align with DI Standard Indicators	Units	Disaggregation	Year 1 Total	Year 2 Total	Year 3 Total	Total to date	Total planned during the project
DI-C01	Good-practice guidelines for tropical peat rewetting and revegetation including M&E protocols, published;	Number of best practice guides and knowledge products published and endorsed	Number	Bioprospection Study Sebangau Hydrology Restoration SOP Habitat Restoration M&E Plan Paludiculture Development SOP	1 1 Draft 2 1 Draft			1 1 2 1 Draft	5-10 total
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	7				15

Group D: Sustainable Benefits to People, Biodiversity and Climate

DI Indicator number	Name of indicator using original wording	Name of Indicator after adjusting wording to align with DI Standard Indicators	Units	Disaggregation	Year 1 Total	Year 2 Total	Year 3 Total	Total to date	Total planned during the project
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 Orangutan and gibbon density <i>(*) Base line available and ongoing monitoring for further analysis in Y2-Y3</i>	0 % 0%			0% 0%	5% increase in tree AGB and forest litterfall Increased or at minimum stable populations of key forest fauna <i>(*)10% increase in orangutan and gibbon density</i>
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			To be developed	25% C emissions reduction

DI Indicator number	Name of indicator using original wording	Name of Indicator after adjusting wording to align with DI Standard Indicators	Units	Disaggregation	Year 1 Total	Year 2 Total	Year 3 Total	Total to date	Total planned during the project
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 Area of peatland burned in Y1	Baseline available N/A			To be developed	25% area reduction
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			9,029 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 Y1	122 89				

Group E: Impact on Biodiversity and People

DI Indicator number	Name of indicator using original wording	Name of Indicator after adjusting wording to align with DI Standard Indicators	Units	Disaggregation	Year 1 Total	Year 2 Total	Year 3 Total	Total to date	Total planned during the project
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 <i>(*) including climatologically comparable pre-project years</i>	Data compiled 1				25% hotspots reduction

Table 2 Publications

Title	Type	Detail (authors, year)	Gender of Lead Author	Nationality of Lead Author	Publishers	Available from
Kajian Bioprospeksi Taman Nasional Sebangau	Book	Peniwidiyanti, Asih Perwita, Dewi, Muhammad Rifqi Hariri, Fatkurrahman, Muhammad Irham, Andi Muhammad Kadhafi, Suyoko, Adhy Maruly (2022)	Male	Indonesian	<i>Sebangau National Park (BTNS), KLHK</i>	Link
Application of Palaeoecological and Geochemical Proxies in the Context of Tropical Peatland Degradation and Restoration: A Review for Southeast Asia	Journal	Ramdzan K. N. M., Moss P. T., Heijnisb H., Harrison M. E. and Yulianti N. (2022)	Male	Australia	<i>Wetlands</i> , Springer	Link
Odonata (Insecta) Communities in a Lowland Mixed Mosaic Forest in Central Kalimantan, Indonesia	Journal	Hendriks J. A., Mariaty, Maimunah S., Anirudh N. B., Holly B., Erkens R. H. J. and Harrison M. E. (2023)	Male	Netherlands	<i>Ecologies</i> , MDPI	Link
Assessing the impact of forest structure disturbances on the arboreal movement and energetics of orangutans—An agent-based modeling approach	Journal	Widyastuti K., Reuillon R., Chapron P., Abdussalam W., Nasir D., Harrison M. E.‡, Morrogh-Bernard H., Imron M. A. and Berger U. (2022)	Female	Indonesian	<i>Frontiers in Ecology and Evolution</i> , Frontiers	Link
Multi-scale, multivariate community models improve designation of biodiversity hotspots in the Sunda Islands	Journal	Chiaverini, L., D. W. Macdonald, H. M. Bothwell, A. J. Hearn, S. M. Cheyne, I. Haidir, L. T. B. Hunter, Ž. Kaszta, E. A. Macdonald, J. Ross and S. A. Cushman (2022)	Male	Italian	<i>Animal Conservation</i> , ZSL	Link
Professional development in conservation: an effectiveness framework	Journal	Loffeld, T. A. C., T. Humle, S. M. Cheyne and S. A. Black (2022)	Female	British	<i>Oryx</i> , Cambridge University Press	Link
Implications of large-scale infrastructure development for biodiversity in Indonesian Borneo	Journal	Spencer, K. L., N. J. Deere, M. Aini, R. Avriandy, G. Campbell-Smith, S. M. Cheyne, D. L. A. Gaveau, T. Humle, J. Hutabarat, B. Loken, D. W. Macdonald, A. J. Marshall, C. Morgans, Y. Rayadin, K. L. Sanchez, S. Spehar, Suanto, J. Sugardjito, H. U. Wittmer, J. Supriatna and M. J. Struebig (2023)	Female	British	<i>Science of The Total Environment</i> , Science Direct	Link
Primate conservation in shared landscapes. In: McKinney T., Waters S. and Rodrigues M. (eds) Primates in Anthropogenic Landscapes: Exploring Primate Behavioral Ecology Across Human Contexts.	Book chapter	Bersacola E., Hockings K. J., Harrison M. E., Imron M. A., Bessa J., Ramon M., de Barros A. R., Jaló M., Sanhá A., Ruiz-Miranda C. R., Ferraz L. P., Talebi M. and McLennan M. R. (2023)	Female	British	<i>Springer</i>	Link
Tree species that ‘live slow, die older’ enhance tropical peat swamp restoration: Evidence from a systematic review	Journal	Smith, Stuart, et al (2022)	Male	British	<i>Journal of Applied Ecology</i>	Link

Checklist for submission

	Check
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?	✓
Is the report less than 10MB? If so, please email to BCF-Reports@niras.com putting the project number in the Subject line.	
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.	✓
Have you included means of verification? You should not submit every project document, but the main outputs and a selection of the others would strengthen the report.	✓
Do you have hard copies of material you need to submit with the report? If so, please make this clear in the covering email and ensure all material is marked with the project number. However, we would expect that most material will now be electronic.	
If you are submitting photos for publicity purposes, do these meet the outlined requirements (see section 16)?	
Have you involved your partners in preparation of the report and named the main contributors	✓
Have you completed the Project Expenditure table fully?	✓
Do not include claim forms or other communications with this report.	