Darwin Initiative Main: Final Report

To be completed with reference to the "Project Reporting Information Note":
(https://www.darwininitiative.org.uk/resources-for-projects/information-notes-learning-notes-briefing-papers-and-reviews/).

It is expected that this report will be a **maximum of 20 pages** in length, excluding annexes.

Submission Deadline: no later than 3 months after agreed end date.

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Darwin Initiative Project Information

Project reference	27-015
Project title	Farms and Forests: Boosting biodiversity and livelihoods in Northern Cambodia
Country(ies)	Cambodia
Lead Partner	Botanic Gardens Conservation International (BGCI)
Project partner(s)	Cambodia: National Authority of Preah Vihear (NAPV) Sra'aem Commune Council, Choam Ksant District Viet Nam: International Center for Research in Agroforestry (ICRAF) (World Agroforestry)
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Project Leader name	Joachim Gratzfeld, BGCI
Project website/blog/social media	BGCI website: https://www.bgci.org/our-work/projectsand-case-studies/farms-and-forests/ NAPV Facebook and website: https://m.facebook.com/preahvihearauthority/posts/14074854 62976918?locale2=en_GB https://napv.gov.kh/ ICRAF website: https://worldagroforestry.org/project/farms-and-forestsboosting-biodiversity-and-livelihoods-northerncambodia
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1 Project Summary

The Preah Vihear Heritage Site (PVHS), Preah Vihear Province, northern Cambodia, is located in the Indo-Burma biodiversity hotspot and is an area of exceptional natural and cultural significance. PVHS includes deciduous and semi-evergreen dry forest unique to northern Cambodia, hosting more than 400 native plant species. It is also the location of the ancient Preah Vihear temple which, together with its surrounding landscape, was inscribed on UNESCO's World Heritage List in 2008. PVHS comprises multiple use zones including core conservation areas and community development land supporting over 3,000 households in seven villages (Figure 1). At present, PVHS covers a total area of 48,018 hectares, and is organised into four management zones: Zone 1 (Property zone, surrounding the Preah Vihear temple), Zone 2 (Buffer zone or Conservation zone), Zones 3a and 3b (Community development zone including Eco-Village and part of Sra-aem Khang Cheung village), and Zone 4 (Community development zone including 6 villages of Stung Khiev Techo, Chambak Senchey, Bangkol Prambei, Sra-aem Khang Cheung, Sen Chey and Techo Bos Sbov). Zones 3a and 3b and Zone 4 denote areas for socio-economic development activities, with only small, isolated patches of natural forest remaining along streams. Zone 1 and Zone 2 denote areas for strict protection of the temple and other archaeological relicts, and conservation and management of natural landscapes, covering an area of 154 ha and 24,282 ha respectively and making up nearly 51% of the entire PVHS.
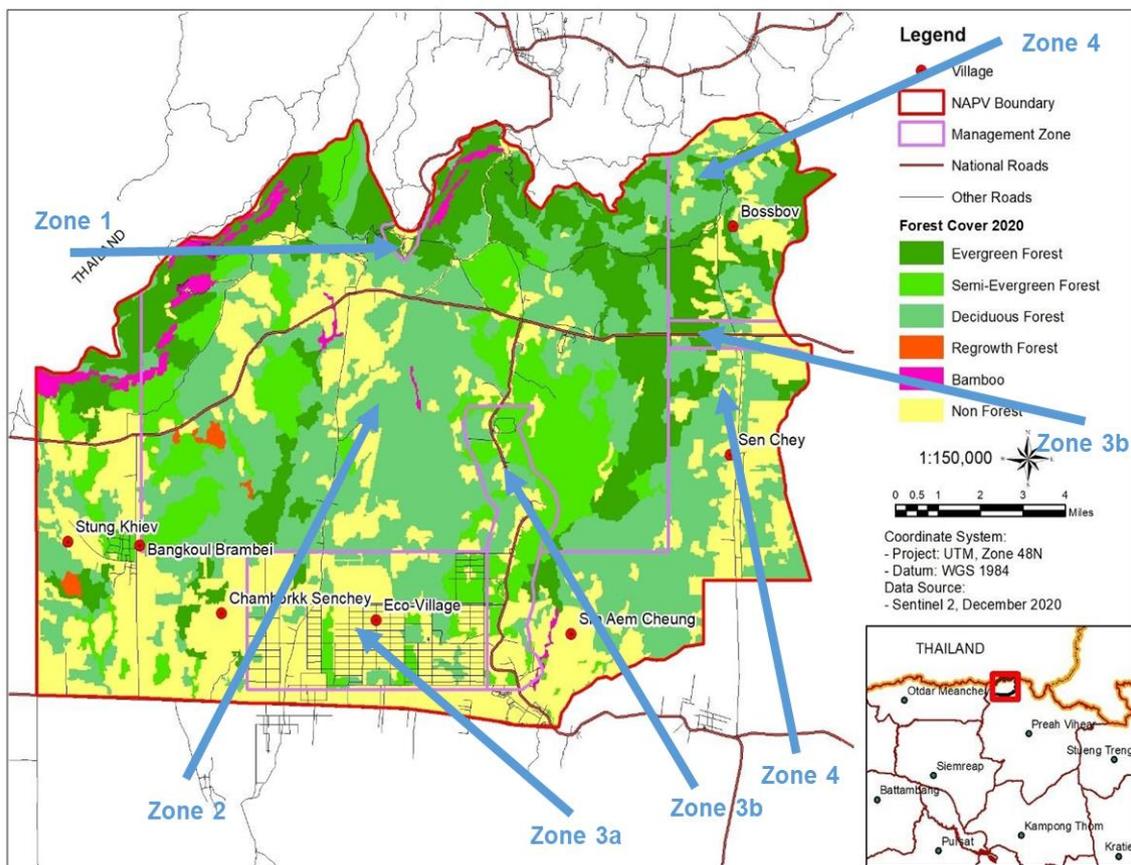

Figure 1: Preah Vihear Heritage Site (PVHS) in Choam Ksant district of Preah Vihear province showing the land use zones (blue arrows) and the four project target villages Techo Bos Sbov, Sen Chey, Sra Aem Khang Cheung and Thomacheat Samdech Techo Hun Sen (Eco-Village)

Forest fragmentation has intensified over the last decade due to increasing population and agricultural expansion. Communities rely on farming of few crop species, and the collection of wild forest resources in Zone 2. The use of fire to gain access to the forest threatens native plant species and overall biodiversity in PVHS. As climate patterns change and extreme weather events occur more frequently in the region, poor crop output, resultant higher reliance on wild collected species and clearance of the forest exert mounting pressure on native biodiversity. Various socio-economically valuable trees presenting keystone species of the dry forest habitat are threatened including rare legumes and rosewoods, such as *Afzelia xylocarpa* (Endangered), *Dalbergia cochinchinensis* (Vulnerable), *Dalbergia oliveri* (Endangered) *and Pterocarpus macrocarpus* (Endangered) as well as the dipterocarps *Dipterocarpus alatus* (Vulnerable), *Dipterocarpus intricatus* (Endangered), *Shorea roxburghii* (Vulnerable), *Anisoptera costata*

(Endangered) and *Hopea ferrea* (Endangered). In addition, all species belonging to *Dalbergia* spp. are subject to trade regulations under the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) to which Cambodia is a Party.

Key reasons for the intensifying drivers of change leading to food insecurity and biodiversity loss were identified in consultations with representatives from the Sra-aem commune in Choam Ksant district, in collaboration with the National Authority for Preah Vihear (NAPV) and the International Center for Research in Agroforestry (ICRAF) and Botanic Gardens Conservation International (BGCI) during the Darwin Partnership Project (DARPP199) in 2019 preceding this project: 1) lack of awareness about which native plant species can be domesticated and cultivated in home gardens and on farmlands; 2) limited technical capacity in horticulture, soil, and water management to augment food production; 3) poor business skills and knowledge of markets, value chains and high value products; 4) lack of knowledge and incentives for managing the forest sustainably.

This project has addressed the issues of food security and its impact on biodiversity for four selected communities (Figure 1) in the Sra-aem Commune (villages of Techo Bos Sbov, Sen Chey, Sra Aem Khang Cheung and Thomacheat Samdech Techo Hun Sen (or Eco-Village)), through training in, and diversification of home garden and agroforestry farming practices. In parallel, mechanisms for linking forest recovery and care with employment opportunities have been identified and developed, which generate new income and contribute to better protection of the forest in the long-term by reducing reliance on wild forest resources and unsustainable exploitation practices thereof.

2   Project Partnerships

Botanic Gardens Conservation International (BGCI) and conservation partners in Cambodia and Vietnam have a longstanding joint working relationship – one of the earliest dating back to 2009 when a community-based conservation project on the Critically Endangered *Aquilaria crassna* incense tree was initiated in Bokor National Park, southern Cambodia (https://www.speciesconservation.org/case-studies-projects/oud-agarwood-eaglewood-krassana-gaharu/394) with funding provided by the Mohamed bin Zayed Species Conservation Fund. Over the years, this collaborative association with conservation partners in these countries has been consolidated through the Southeast Asia Botanic Gardens Network facilitated by BGCI (https://www.facebook.com/SEABGNetwork/) as a means to provide a platform for information exchange, learning and best-practice in the field of conservation of the region's native plant diversity. As articulated in Cambodia's National Biodiversity Strategy and Action Plan (2016) (https://ncsd.moe.gov.kh/dbd/biodiversity-policies-and-plans), the country has identified in Themes 9 and 13 on Sustainable forestry and Sustainable agriculture respectively, priority areas of intervention to address the concern over the human impact on forest health and natural processes of forest growth and regeneration, and to promote measures to increase agricultural productivity and efficiency, while avoiding further conversion of forest habitat to agriculture. Against this backdrop and pressing need for support, this project was jointly developed by the project partners in the Preah Vihear Heritage Site (PVHS) in northern Cambodia – the National Authority for Preah Vihear (NAPV) and the Sra-aem commune in Preah Vihear province, the International Center for Research in Agroforestry (ICRAF) in Vietnam and Indonesia, and BGCI in the United Kingdom. The technical consultations made under the Darwin Partnership Project *Building capacity for plant conservation in Preah Vihear*, *Cambodia* (https://www.darwininitiative.org.uk/project/DARPP199/) did not only assist in identifying the key challenges and needs to address growing food insecurity and loss of forest biodiversity in PVHS, but had been immensely valuable in consolidating the partnership in the lead up to this Project.

Preliminary contacts made with the Cambodian office of the Wildlife Conservation Society (WCS) (https://cambodia.wcs.org/) made in the first year of the project continued during Year 2 to further discuss complementarities and explore collaborative activities. Further contacts were also made with the National Council for Sustainable Development (H.E. Somaly Chan, Deputy Secretary General, General Secretariat of the National Council for Sustainable Development/Ministry of Environment), to promote the project in support of Cambodia's commitments to the Convention on Biological Diversity, the Aichi Biodiversity Targets and the United Nations Framework Convention on Climate Change (see also Sections 4 and 5). As a result of these regular contacts, the project manager Khou Eang Hourt at NAPV, was invited to the Ministry in Phnom Penh on 17 December

2021 to present findings on natural resource management and biodiversity conservation. This has led to the project manager being invited to apply for a proposal on Integrated Natural Resource Management due in April 2022 and to become a member of the species conservation group tasked with updating the National Biodiversity Strategy and Action Plan (NBSAP).

During Year 2, further contacts were established with the British Embassy in Phnom Penh. On 19 January 2022, a project introduction was made to team members of the British Embassy, including the Climate Change Policy Officer, Alexandra Jones, via a virtual, online event which was very well received. Moreover, an invitation for a joint project visit was also extended to the team at the British Embassy, scheduled for late March 2022. Unfortunately, due to a new surge of COVID-19 infections, the project visit had to be cancelled at short notice, and the associated training event (see Activity 1.3 and 2.6 Section 3.1) was held online.

The project has also expanded to the Viet Nam Fruit and Vegetable Research Institute (FAVRI) and Thai Nguyen University of Agriculture and Forestry (TUAF) to draw on their expertise in low-emission fruit tree cultivation. The expert from TUAF visited the four villages and provided onsite coaching on fruit tree cultivation techniques from 22 to 26 March 2022.

In Year 2, the project communicated with the Swiss non-profit foundation HEKS, working in Cambodia to promote organic agriculture of small-holder farmers amongst others. As part of its programme, HEKS supports cashew nut processing with the local community in Kampong Thom province. HEKS has also been conducting a feasibility study to expand its mandate to other provinces, with Preah Vihear being one of the target locations for their future activities. Drawing on this opportunity, further meetings between the project manager, Khou Eang Hourt at NAPV and HEKS were arranged to identify opportunities for future cooperation.

In Year 3, new contacts were made, including with the FCDO programme CASA via the Strategic Initiatives team of TechnoServe (introduced to the team by Alexandra Jones of the British Embassy, Phnom Penh), and the Cambodia team of the French NGO Planète Urgence, latter seeking advice from the project team to establish an agroforestry network in Cambodia.

A major project closing event with some 70 attendees was organised in the Sra-Aem Commune on 9 March 2003 to celebrate achievements made and provide a venue to discuss next steps and focus areas for the future (**Annex 5.1; Figure 2-3**). In addition to the project partners (Sra-Aem Commune Council, NAPV, ICRAF and BGCI) introducing project accomplishments, interventions were also made by the British Embassy, Phnom Penh, the Swedish University of Agriculture, the University of Hohenheim, Germany, the World Conservaiton Society (WCS), Cambodia, and the Regional Community Forestry Training Centre for Asia and the Pacific (RECOFTC), Cambodia. The conference discussions, in particular the closing interactive discussion with community representatives, are facilitating the framing of a follow-on proposal presently in preparation by the project partners.

Figure 2: Participants of closing workshop organised in the Sra-Aem Commune on 9 March 2023
(https://napv.gov.kh/post-detail/175)

Figure 3: Agroforestry produce as generated by the project,on display during the project closing event on 9th March 2023

Throughout Years 1-3, the Steering Committee met five times online (Dec. 2020; Mar. 2021; Oct. 2021; Mar. 2022; Aug. 2022; and Nov 2022) and one time in-person in Mar. 2023. The meetings reviewed progress throughout the project, and identified adaptive strategies between 2020 to early 2022 when COVID-19 pandemic related policies and travel restrictions were still in place, requiring seven formal budget change requests (**Annex 5.2**).

3   Project Achievements

3.1   Outputs

Output 1. The value of the forest and forest products to local livelihoods in the PVHS are assessed and understood and local ecological and market conditions for implementation of agroforestry practices are established.

Major progress was made in Year 1 towards achieving Output 1. The value of the forest and forest products to local livelihoods in the PVHS at the start of the project (Oct 2020) was assessed through various surveys. Baseline data from 221 households (about 25% of the total population of farm-based households) in the four project villages were collected and analysed. Data on biophysical characteristics of main agroforestry practices in these villages were collected, and analysed. A study on market opportunities and value chain for key agroforestry and NTFP products was also conducted**.** In Year 2, the market study report was prepared and findings from the studies conducted in Year 1 used in the design of agroforestry practices established at the farm and demonstration plot levels. In Year 3, an endline survey was conducted to investigate possible improvement in smallholder income and reduction in time spent for collecting forest products, thanks to capacity development and support of planting materials from the project for agroforestry development in the four project villages.

Use of Indicators to support progress towards the Output:

- *Indicator 1.1 Surveys of socio-economic and livelihood systems, farming systems, forest and wild plant use in PVHS communities collected at baseline (2020) and end of project (2023) will be used to inform agroforestry and agribusiness planning and implementation.*

Achievement*: B*aseline survey data on socio-economic and livelihood systems, farming systems, forest and wild plant use in PVHS communities collected in December 2020, were used for agroforestry and agribusiness assessment and planning (**Annex 5.3 & 5.4**). Findings from the surveys have informed the project team and local community in the discussion on options of trees and crops for the on-farm trials and the design of market-based conservation farming and agroforestry. An end-line survey on socio-economic and livelihood systems, farming systems, forest and wild plant use in PVHS communities was conducted in January 2023 (Annex 5.5a & b) and used for assessing the project's impacts on household's income (see Indicator 2.3) and local dependence on forest resources (Indicator 0.3).

- *Indicator 1.2 Land-suitability analysis conducted for selected tree species and participatory mapping of vulnerable sites used to identify suitable sites for agroforestry development in year 1 (2020).*

Achievement*: P*articipatory mapping and soil sampling were carried out in 8 communes of Choam Ksant district to produce key inputs for the land suitability analysis. In Year 2, the assessment of 7 fruit tree species was conducted and the results were discussed with Sra-aem commune members on 16 March 2022 (**Annex 5.6**) and were presented in the project's closing workshop on 9 March 2023. A copy of the report describing methodology and key results of the land suitability assessment is available in (**Annex 5.7**).

- *Indicator 1.3 A report produced on market opportunities and value chain for key agroforestry and NTFP products from the region in year 1 (2020).*

Achievement*:* Market opportunities and value chain for key agroforestry and NTFP products from the region have been assessed and a report has been prepared **(Annex 5.8)**.

- *Indicator 1.4 Market opportunities created for at least 4 crop species by end of year 3 (2023), and agroforestry models developed, and guidance documents produced by project partners by end of year 1 (2020).*

Achievement**:** Market opportunities of 7 fruit tree species and 6 seasonal crops were tested at the end of Year 2 and 3. The species were part of agroforestry models introduced to the local communities. A guidance document on how to properly cultivate the 7 fruit tree species has been produced and distributed to participants of training on agroforestry **(Annex 5.9)**.

Output 2. Capacity of local communities to implement conservation farming and sustainable agroforestry systems and income derived from market-based, small-scale businesses is increased in local PVHS communities.

- *Indicator 2.1 At least 40 community leaders engaged in train-the-trainer mentorship group in years 1 and 2 (2020, 2021) and are facilitating further training sessions in years 2 and 3 (2021, 2022).*

Achievement*:* 22 ToT and commune council members, 55% of the total expected number, have been provided training during the project's duration. The pandemic in the first two years of the project made it very challenging to achieve a number closer in line with the indicator. The ToT members were involved in formal or informal knowledge exchange sessions with farmers in the commune (Annex 5.10).

- *Indicator 2.2 At least 200 people (40% women) are trained in sustainable agricultural practices for high-value crops and small business development by end of year 3 (2023).*

Achievement*:* A total of 245 people (56% women) participated in the series of training on agroforestry, fruit tree cultivation techniques, and farm business development by the end of Year 3.

- *Indicator 2.3 By end of project (2023) 100 households are reporting cultivation of at least one new high value crop and 150 households report at least 10% increase in monthly income from crops and trees compared to the start of the project (2020).*

Achievement*:* Based on the endline survey, 200 out of 221 (about 90%) surveyed households in the four villages cultivated at least one new high-value crop introduced by the project such as pea eggplant, chilli, galangal and ginger, and 117 out of 200 households (about 60%) reported an increase in income thanks to the newly introduced crops (Annex 5.5). Other households could not

successfully grow the high-value crops due to e.g., climate hazards (heavy rains and inundation within the farm). The 117 households had an average additional income of about 1082 USD per plot when comparing the income at the start (2020) and end (2023) of the project. Most households reported more than 10% increase in income.

- *Indicator 2.4 Regional recommendations on agroforestry practices and small scale business practices for buffer communities of protected areas are produced and circulated to regional and national policy stakeholders.*

Achievement*:* A consultation workshop to promote agroforestry with 8 communes of Choam Ksant district, of which 7 communes are located within protected areas under the jurisdiction of the Ministry of Environment was held on 15-16 March 2022. In addition, a short guideline on agroforestry design **(Annex 5.11)** was shared with the commune council. Each commune received 50 copies of the leaflet for dissemination to their community members. Two policy briefs, one on sub-national and national policies supporting development of agroforestry practices in Cambodia and one specifying policies supporting agroforestry's value chain, have been produced (**Annex 5.12**).

Output 3. Survival of threatened tree species through species recovery plantings, forest restoration activities and related forest management employment opportunities for local people are increased within the PVHS.

- *Indicator 3.1 Two new threatened tree nurseries are built with 20,000 seedling capacity total by the end of year 2 (2022).*

Achievement*:* 2 nurseries with a total size of 1,110 m^2 including irrigation system, were established, with a total holding capacity of some 60,000 seedlings (**Annex 5.13**). By the end of the project, the nurseries generated over 35,600 seedlings relating to 28 species. NAPV continues to maintain the nurseries now that the project has ended.

- *Indicator 3.2 Forest restoration plan developed by NAPV and BGCI to include natural regeneration and assisted regeneration activities by end of year 2 (2022).*

Achievement*:* A Forest Restoration Action Plan (FRAP) was finalised based on an eco-geographical survey and consultation with the local community (**Annex 5.14**). The restoration plan encompasses capacity building, restoration activities, promoting agroforestry such as by integrating native threatened tree species, fruit trees and non-woody crops, and strengthening cooperation in the Sra-aem commune. In summary, the FRAP includes three strategic objectives (SOs) and a number of key actions: SO1: practical forest restoration using different methods according to the eco-geographical site conditions (7 actions); SO2: capacity building on forest restoration techniques and agroforestry for NAPV staff and local communities (4 actions); SO3: opportunities and areas for medium and long-term cooperation between the government and NGOs, development partners, research institutions, and academia (4 actions).

- *Indicator 3.3 Ten community members employed in leadership positions in nurseries by end of project (2023).*

Achievement*:* 3 community members (2 women) were employed at the nursery throughout Year 2, acting as mentors for other community members wishing to learn propagation techniques. Another 16 community members (11 women) from Eco-village were occasionally hired to work at the nursery. Since the start of Year 3, 4 workers and one technical staff have been employed and they continue working at the nursery post-project.

Figure 4: Employees of the nursery

- Indicator 3.4 At least 20 community members are employed in tree planting and maintenance activities (500% increase compared to pre-project) by end of year 3 (2023).

Achievement*:* 25 community members (18 women) from Eco-village have been employed in forest restoration activities.

- *Indicator 3.5 Restoration plot studies of threatened tree species established in year 1 and re-surveyed in years 2 and 3 clarify requirements for species recovery, and survival of seedlings planted in restoration areas is 90%.*

Achievement*:* The 7 monitoring plots established in the first year have been monitored to gauge the levels of survival. The results indicate that naturally regenerating seedlings had a higher mortality rate than the planted seedlings **(Annex 5.15)**. The plots were monitored two times (dry season and rainy season) every year. Findings from the monitoring plots were documented and used for public engagement purposes on impact of forest fire.

- *Indicator 3.6 15,000 trees planted (130% increase compared to pre-project) including at least 5 threatened species by end of project (2023).*

Achievement*:* a total of 24,824 seedlings relating to 33 tree species grown in the nursery were planted by the end of Year 3 (8,430 seedlings in Year 1, 9,895 seedlings in Year 2 and 6,505 seedlings in Year 3) over 48 hectares. This includes 5 threatened species included on the IUCN Red List (*Dalbergia cochinchinensis, D. oliveri, Pterocarpus macrocarpus, Afzelia xylocarpa* and *Dipterocarpus alatus*) **(Annex 5.16)**. In addition, assisted natural regeneration and establishment of firebreaks were also carried out. By the end of the project, the number of seedlings being used for restoration has increased to 122%.

Output 4. Forest conservation and livelihood opportunities are linked through management plans, and perceptions of benefits of forest conservation to livelihoods is increased while harmful activities are decreased.

A conceptual framework for public outreach was developed as a roadmap for awareness raising **(Annex 5.17),** based on which posters relating to five themes were developed and published (Figure 5), including agroforestry systems, values of the forest ecosystem, community participation in forest restoration, impact of forest fire on forest ecosystems and sustainable vs unsustainable NTFP collection.In addition, a participatory Forest Restoration Action Plan (see Indicator 3.2) was developed based on the consultations with community members and the village chiefs of the four villages.

Figure 5: Poster showing forest fire and its impact on forest ecosystem

- *Indicator 4.1 80% of respondents report increased perceptions of the importance of conserving forest following education programmes by project end (2023).*

Achievement: According to the endline survey, from 88 households who received new knowledge on the importance of conserving forest through education programs, 83 (94%) claimed that the new knowledge has been useful in increasing their awareness of the values and benefits of forest restoration and conservation (**Annex 5.5b**).

- *Indicator 4.2 Participative forest management plans developed with management authorities in 4 villages by end of year 3 (2023).*

Achievement*:* A participatory Forest Restoration Action Plan (FRAP) **(Annex 5.14)** was finalised in Year 2. Whilst dry forest restoration efforts in the Preah Vihear heritage site continue to draw on the FRAP, farmers keep at growing threatened native tree species as introduced by the project on their land, through integration with other fruit trees. Moreover, based on the FRAP, local school and pagoda sites will continue planting native forest trees on their grounds.

- *Indicator 4.3 Number of fires reported by NAPV ranger staff in restoration areas decreased by 20% by project end (2023) compared to pre project baseline levels.*

Achievement*:* The map of forest fire incidence in Zone 2 produced in 2020 was updated in Year 2. A method has been developed to record the occurrence and frequency of forest fire within and adjacent to the restoration plots. Based on ground truthing, none of the managed monitoring plots were found to be burned in 2021 and 2022. Forest fire in year 3 was more extensive than year 2 because of the long drought and extreme heat. Around 15 percent of the restoration area supported by the project was affected (**Annex 5.18**).

- *Indicator 4.4 150 households are reporting 20% reduction in days spent in NTFP collection between year 1 and year 3 (2023).*

Achievement: Based on the endline survey, 98 out of 221 households reported a 20% or more than 20% reduction in days spent in NTFP collection for income, between Year 1 and Year 3 (**Annex 5.5**).

3.2   Outcome

Summary of key achievements related to the Outcome using the Outcome Indicators:

- Indicator 0.1: 100 households are reporting cultivation of at least one new high value crop and 150 households report at least 10% increase in monthly income between start of project (2020) and end (2023).

Achievement*:* Refer to Indicator 2.3 above.

- Indicator 0.2: At least 30 PVHS community members are employed in nursery management, tree planting and restoration activities by end of the project 2023.

Achievement: In Year 2, 3 community members who belong to subsistence households have been employed at the nursery, and another 3 community members were employed for restoration work, whereas another 16 community members were employed periodically for both nursery and forest restoration activities.

- Indicator 0.3: The number of days annually spent collecting wild plant species for subsistence and income generation reported by community members decrease by 20% between start of project 2020 and end 2023.

Achievement: In 2020, 99 out of 221 households spent an average of 2.3 days per year to collect NTFP (to include wild plants) for subsistence and 5.3 days per year to collect NTFP for income. The remaining 122 households did not spend any labour day on forest products. For subsistence purposes, farmers in Sra-aem Cheung village who have collected forest products, spent more days per year than those in other villages. For income purposes, however, farmers in Eco-village had the highest average number of days spent on collecting forest products **(Annex 5.3)**. Agroforestry trials established by the project include both long-term (e.g. fruit trees) and immediate income generation (e.g. annual crops) opportunities. The income generated from nurseries, restoration activities and agroforestry trials established by the project was expected to address the needs of wild plant species conservation and income generation from forest products. Based on the endline survey, while there has been no change in the number of days spent in collecting NTFP for subsistence, there was a 38% reduction in terms of time spent in collecting NTFP for income (**Annex 5.5**).

- Indicator 0.4: The number of fires observed and reported in protected forest areas is reduced by 20% between pre-project numbers and end of project (2023) and 90% of threatened tree seedlings planted in restoration areas survive at end of project.

Achievement: The map of forest fire incidence in Zone 2 produced in the first year, was updated during Year 2. A method has been developed to record the occurrence and frequency of forest fire within and adjacent to the restoration plots. Based on monitoring, there was no fire occurrence at the restoration plots in Year 2. In year 3, around 15 percent of the restoration area supported by the project was affected (**Annex 5.18**).

3.3 Monitoring of assumptions

Output 1 Assumption 1: Community members are co-operative and receptive to new methodologies and approaches.

Community members, both smallholder farmers and commune councils, men or women, attended the technical workshops and capacity development activities organised by the project. This confirms that they were keen on and receptive to trial new methodologies and approaches introduced by the project such as agroforestry farming techniques and development of small-scale agribusiness.

Output 1 Assumption 2: Spatial and other data is available and accurate for use in land-suitability analysis.

Existing data based on a review of literature has been enriched and validated through the participatory mapping and soil analysis under this project (**Annex 5.7**), as highlighted under Activity 1.3.

Output 2 Assumption 1: Community members are co-operative and receptive to new methodologies and approaches.

See comment under Output 1 Assumption 1.

Output 2 Assumption 2: Viable propagules are available for home gardens, agro-forestry and restoration activities (some species won't produce seed every year).

See comment Outcome Assumption 2.

Output 3 Assumption 1: Extreme drought events will not occur or greatly impact nursery or planted trees.

The nurseries have been equipped with net roofs which help shade seedlings. Outplanting was timed with the onset of the rainy season.

Output 3 Assumption 2: Grazing pressure from released livestock will not impact planted trees.

The grazing pressure in Zone 2 (Conservation zone) was not significant with livestock generally remaining within Zones 3 and 4.

Output 3 Assumption 3: Seed produced by mother trees is sufficient for seedling production.

See comment under Outcome Assumption 2.

Output 4 Assumption 1: All communities will see the benefits of forest conservation and are willing to contribute to forest management plans.

The communities participated in the development of the Forest Restoration Action Plan (FRAP) as elaborated under Outputs 3 and 4, Indicators 3.2. and 4.2 confirming they value the development of and continue to draw on the FRAP for ecological restoration and planting of native forest trees through agroforestry on their farms.

In the context of the COVID-19 pandemic and based on the understanding gained from the implementation of Output 1, the following assumptions had been added at the Outcome level at the end of the first year:

- COVID-19 pandemic will not cause long-lasting lock-down in the project area.

The COVID-19 pandemic continued during Year 2, resulting in frequent locked-down in the project area, and not allowing people to travel between the villages. The effects however were effectively managed as articulated in the change requests approved by the Darwin Initiative, with no major impact on project delivery. The travel restriction and social distancing rules were lifted in Year 3 enabling the international team from ICRAF and BGCI to visit the project sites, provide on-site coaching, and organise a project closing workshop on 9 March 2023, attended by local communities and government authorities, research and development organisations, as well as representatives from the British Embassy, Phnom Penh (see 2 Project Partnerships).

- Institutional support from local authorities is in place for marketing of key agricultural products and NTFP.

NAPV and commune councils have been working together with local traders to create new market channels for key agroforestry products such as ginger and chili with export potential (e.g. Thailand). In addition, the commune councils greatly supported the training on fruit products' processing which assists to diversify market channels of local fruit products.

In summary, based on the above explanations, the team is confident that the pathway to change holds true. The project has set in motion reduction of dry forest biodiversity degradation through the initiation of improved and diversified livelihood opportunities in the Preah Vihear Heritage Site which will continue to evolve beyond the project, providing benefits for both, biodiversity conservation and local communities.

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

Impact: Community-based forest conservation is linked to sustainable farming practices and diverse income opportunities throughout Cambodian communes and elsewhere in the region.

As mentioned above (see Indicator 2.3), based on the endline survey, 200 out of 221 (about 90%) surveyed households in the four project's villages now cultivate at least one new high-value crop introduced by the project such as pea eggplant, chilli, galangal and ginger, and 117 out of 200 households (about 60%) report an increase in income thanks to the newly introduced crops. The 117 households had an average additional income of about 1082 USD per plot when comparing the income at the start (2020) and end (2023) of the project. Most households reported more than 10% increase in income. Furthermore (see Indicator 4.1), according to the endline survey, from 88 households who received new knowledge on the importance of conserving forest through education programs, 83 (94%) affirm that the new knowledge has been useful in increasing their awareness of the values and benefits of forest restoration and conservation.

The project has also paved the way to making a major long-term contribution to the development of horticultural knowledge and knowhow for the propagation of threatened trees presenting keystone species of the dry forest habitat including rare legumes and rosewoods, such *as Afzelia xylocarpa* (Endangered), *Dalbergia cochinchinensis* (Vulnerable), *Dalbergia oliveri* (Endangered) and *Pterocarpus macrocarpus* (Endangered) as well as *Dipterocarpus alatus* (Vulnerable), *Dipterocarpus intricatus* (Endangered), *Shorea roxburghii* (Vulnerable), *Anisoptera costata* (Endangered) and *Hopea ferrea* (Endangered). The horticultural needs of many of these species were not well establishe at the start of the project, let alone many have not been brought into scalable propagation (see Indicator 3.6 above).Through training and employment at the nursery (see Indicators 3.3 and 3.4 above), the workers have become knowledgeable in propagation and nursery maintenance techniques and are now able to guide other local community members in all aspects of nursery management. Moreover, local communities and authorities continue to draw on the Forest Restoration Action Plan for ecological restoration and agroforestry (see Indicators 3.2 and 4.2 above). In addition, as the project target species are also occurring in the neighbouring countries including Thailand, Laos and Viet Nam, the knowledge generated by the project (see Indicator 4.1) is of wider regional relevance for use in other initiatives that link forest conservation and poverty alleviation.

4 Contribution to Darwin Initiative Programme Objectives

4.1 Project support to the Conventions or Treaties (e.g. CBD, Nagoya Protocol, ITPGRFA, CITES, Ramsar, CMS, UNFCCC)

Sustainable Development Goals:

SDG 1 (no poverty), SDG 2 (zero hunger) and SDG 8 (sustainable economic growth / productive employment): The baseline for measuring the contribution to these SDGs has been established through the household and agroforestry characterisation surveys that were carried out in Year 1. By providing training and assistance to establish agroforestry models and developing market opportunities, the project contributed to create diversified and sustainable subsistence and farming income for 117 participating households (see Indicator 2.3 above). Refer to DI-D16; DI-B10

SDG 5 (gender equality): Gender equality is an underlying principle of the project. The project promoted equivalent participation in activities and distribution of project benefits among women and men. The baseline surveys carried out under this project specifically included female-headed households. Around 24% of the households covered in the survey are female-headed. We also included inquiries on the roles of female and male farmers and market players in the value chain assessments to identify and map the governance of the value chain as reported on in the annual report of the first year. An overview of the number of women included in the project in Year 2 is in Section 6. In Year 3, 24 training and knowledge sharing events as well as other technical workshops were organised, with participation of 574 local community and authorities, of whom women made up of about 61%.

SDG 13 (combating climate change) and SDG 15 (life on land): As outlined above on progress made in the implementation of activities under Output 3, 24,824 seedlings of threatened and economically valuable wild tree species were generated and planted in the conservation zone of PVHS and on public land in the villages as well as in farms of individual households between 2020 and 2023. Morevoer, the number of naturally growing seedlings being assisted by the project through mulching, silviculture and firebreak construction within the restoration areas is between two and three times the order of planted seedlings. These efforts help offset carbon emissions whilst contributing to the recovery and sustainable use of degraded forest habitat., In addition, the project has contributed to the improved connectivity of dry deciduous forests contributing further benefits for carbon offsetting. Refer to DI-D02; DI-D07; DI-D11

SDG 17 (partnerships for the goals): This project has itself presented a multidisciplinary partnership working at the interface between conservation and livelihood enhancement, and promoting North-South and South-South cooperation through its partners located in Cambodia, Viet Nam, Indonesia and the United Kingdom.

This project has helped Cambodia to meet its obligations to the Convention on Biological Diversity (CBD) by addressing the following Aichi Biodiversity Targets and the targets of the Global Strategy for Plant Conservation (GSPC):

Aichi T1 and GSPC T14 (Raising awareness): Public outreach components of the project, in particular activities under Output 4, have raised awareness of the need for biodiversity conservation and sustainable use for livelihood security.

Aichi T19 and GSPC T3 (knowledge enhancement and transfer, and methods/best-practice): Propagation techniques and horticultural needs for threatened trees and other species of socio-economic importance such as *Dalbergia cochinchinensis* (VU), *D. oliveri* (EN)*, Pterocarpus macrocarpus* (EN), *Sindora siamensis* (LC), *Peltophorum dasyrachis* and *Afzelia xylocarpa* (EN), *Syzygium cumini* (LC), *Phyllanthus emblica*, *Dialium cochinchinensis* and *Kaempferia galangal* have been developed (Output 3). Specialised training for local community members in agroforestry and sustainable horticulture, soil improvement and water management practices contributed to knowledge sharing, and cooperation for biodiversity conservation was provided during Years 2 and 3. Refer to DI-A03; DI-E03

Aichi Ts5, 12, 14 and 15; and GSPC Ts4, 7, 8 (habitat and species conservation and ecosystem services recovery): The selection and propagation of project target species was initiated (dry forest keystone tree species and species of socio-economic importance) in Years 1 and 2. These taxa have been used in the development of sustainable management practices of the dry forest habitat, contributing to the restoration of degraded land and reconnecting forest fragments. In addition, species and habitat recovery activities provide watershed protection and improved soil health in and surrounding the PVHS. Refer to DI-D01; DI-E03

Aichi T7 and GSPC T6 (sustainable management of forests and agriculture, promoting biodiversity): The knowledge gained through the surveys and scientific study of site and market conditions and opportunities carried out in Year 1, as well as the implementation of the agroforestry trials (Output 2) and forest restoration activities (Output 3) in Years 2 and 3 have contributed to advancing sustainable farming methods in PVHS. Refer to DI-A03; DI-E03

This project has also contributed to the objectives of the United Nations Framework Convention on Climate Change (UNFCCC): Art. 2 and Art. 7 (stabilising and reducing greenhouse gas concentrations in the atmosphere / enhancing adaptive capacity, strengthening resilience and reducing vulnerability to climate change): Forest restoration activities under Output 3 have contributed to these goals, thereby also supporting Cambodia's commitment to the Paris Agreement under the UNFCCC. Refer to DI-D02; DI-D07; DI-D11

Regular contact with the CBD focal point and the National Council for Sustainable Development (NCSD), Ministry of Environment in Phnom Penh initiated since the development of the Darwin Partnership Project (DARPP199) in 2019, has been maintained during the project and beyond. As a result of these contacts, a project manager was invited by the NCSD to attend a workshop to disseminate findings concerning natural resource management and biodiversity conservation in northern Cambodia (17 December 2021), and encouraged to apply for a Natural Resource Management (INRM) grant. The British embassy has had communication with Chhin Neth, the director of the Department of Biodiversity, of the General Secretariat of the National Council for Sustainable Development (GSSD), alongside Khou Eang Hourt, the project manager. This paves the way for the project to continue communication with GSSD/NCSD to explore future funding opportunities.

4.2   Project support to poverty reduction

The beneficiaries of this project are forest resource-reliant and agricultural-based households whose livelihoods are subsistent. They mainly practise monoculture and rely on only a few main cash crops (cassava, cashew nut and mangos) for their livelihoods, leading to a number of issues including soil degradation, wild forest resources overexploitation and insecure livelihoods. This project has supported poverty alleviation by responding to the above challenges through a number of ways, including:

- Changing the traditional practice of monoculture and dependence on a few crops to agroforestry which helps diversify products for income generation, improve food security, conserve soil fertility and adapt to climate change. For instance, as a result of the project, community members are now cultivating a diverse range of trees and crops on their farms. At least 7 fruit tree species of guava, custard apple, papaya, jujube, pomelo, jackfruit and longan (Annex 5.9 Guide to cultivation of 7 fruit tree species, and Annex 5.7 Land suitability Assessment) suitable to the local conditions have been introduced. In addition, coconut and avocado ftrees are also suitable to the

target villages, especially Bos Sbov village. The endline survey shows that 200 out of 221 surveyed households in the four project's villages are cultivating at least one new high-value crop introduced by the project and 117 households have now increased their income at least 10% compared to initial income levels in 2020.

- Capacity building and knowledge exchange delivered by the project is now providing farming knowledge foundations to apply new agroforestry techniques. ToT members and farmers of the 4 target villages were provided a series of vocational training on different farming related methods such as grafting, branch pruning, cultivation, soil improvement, water management (swale and irrigation system to cope with extreme rain and drought), composting and pest management in order for them to produce high yield with good quality while sustain soil fertility, biodiversity and environment. In addition, they will bring this knowledge to bear by developing their own high quality fruit tree seedlings in the future. The project also facilitated spreading of knowledge beyond current beneficiaries. Workshops to introduce agroforestry techniques have been held in the 8 communes of Choam Ksant district, concerned agencies in Preah Vihear province as well as national level stakeholders (Indicator 2.4). It is thus expected that t the impacts can be expanded beyond the current beneficiaries.
- Training has also provided new enterprise development options and value chain knowledge. Based on the discussions during the training sessions, market linkages of agriproducts have been identified and developed, in particular with a focus on shortening long market chains.
- Enhancing nursery capacity has importantly contributed to the production of fruit trees and other crops of socio-economic importance as well as threatened native forest trees which support agroforestry and restoration. Saplings generated via seed and vegetative propagation carried out at the nurseries established by the project, are providing for diversification of the agricultural practices by the local community. A total of 52,271 seedlings have been produced within the project life, over 24,000 of which have been used for enrichment planting, contributing to the restoration of 50ha of forest. Furthermore, 6,240 seedlings have been produced after the end of the project (since the end of March 2023 to-date), of which over 1,800 seedlings have now been requested for planting at schools, pagoda and private land.

4.3 Gender equality and social inclusion

The project has been taking gender equality into account through various project components. Attention to include women was given during the initial surveys of the project to make sure women's voice and expectations were heard. Project training and workshops also included a high proportion of female participants. Overall, of the 1,315 community members who participated in project activities and events during the project lifetime, 707 (53.8%) were female. Furthermore, one out of two commune councils engaging in the project was a woman.

Please quantify the proportion of women on the Project Board[1].	30% (BGCI: 2; ICRAF: 1; NAPV: 0; PhD Assoc.:1)
Please quantify the proportion of project partners that are led by women, or which have a senior leadership team consisting of at least 50% women[2].	1 of 3 (BGCI)

4.4 Transfer of knowledge

Knowledge transfer to local communities and other stakeholders was realised through various means:

- For community members within the Sra-aem commune, knowledge transfer was realised via the ToT group, consisting of community members from the 4 target villages and

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

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

commune council. Sra-aem commune council members were also invited to participate in all events organised by the project in order to disseminate knowledge generated by the project to other villages.

- For other communes in Choam Ksant district, the project organised knowledge sharing workshops to introduce agroforestry techniques in the 8 communes of Choam Ksant district. In these workshops, knowledge on agroforestry design and its socio-economic and environmental benefits were presented and discussed. Members of commune councils were also invited to visit agroforestry demonstration plots. They were also provided with copies of posters and leaflets on agroforestry for further dissemination.

- For provincial departments of agriculture and environment, district office as well as concerned NGOs based in Preah Vihear province and nearby provinces, field visits were organised to agroforestry demonstration and agroforestry trial plots. Workshops were also held to introduce agroforestry techniques to concerned agencies in Preah Vihear province as well as national level stakeholders. Informal sharing of knowledge on agroforestry, challenges and solutions was also realised with key decision-makers at the national level.

- Furthermore, for the general public, different designs of agroforestry and applications concerning sustainable farming were posted in local networks, and at the national level through group telegram, facebook page, and website.

4.5   Capacity building

With the capacity built in the course of the project, two staff from NAPV have been promoted to the higher positions as follows:

- Mr. Khou Eang Hourt, the project manager from NAPV, was promoted from department director of Environment, Forestry and Water to Deputy Director General of NAPV.

- Mr. Pisal Chheang, project officer, was promoted to Deputy Department Director of Environment, Forestry and Water of NAPV.

5   Monitoring and evaluation

A project Steering Committee (SC) was established at the beginning of the project to lead the monitoring and evaluation of the project. The SC was composed of eight members: three from the National Authority for Preah Vihear (NAPV), one from the Department of Environment of Preah Vihear Province, two from the International Center for Research in Agroforestry (ICRAF), and two from Botanic Gardens Conservation International (BGCI). SC met at an interval of around six months. As COVID-19 occurred through most of the project's lifetime, SC meetings were only possible on-line. SC meetings were found very useful to review project progress, and to devise directions for the project to move forward in the midst of the pandemic.

Apart from the Steering Committee meetings, the project has also developed a Telegram group with local farmers, especially those participating in the training-of-trainer activities. This online platform was very useful, particularly during the pandemic as local farmers could freely share experiences related to best-practice, innovations and bottlenecks, for example agroforestry farming techniques and development of small-scale agribusinesses.

6   Actions taken in response to Annual Report reviews

Review feedback on the First Year Annual Report was responded to in the Second Year Half-year Report. Review feedback on the Second Year Annual Report was responded to in the Third Year Half-year Report.

7   Lessons learnt

Maintaining a glossary of technical terms: Whilst English was the language used to communicate jointly among all the project partners, most of the communications at the local level in Cambodia were made in Khmer. This posed a challenge for the Cambodian project partner who had to ensure that the information being communicated in Khmer was consistent with that in English. Consistent use of terminology related to any of the technical components in the project was therefore very important to minimise misinterpretation. It is recommended that new projects

establish a glossary of technical key terms and project partners agree to use and refer to these consistently in project reporting, publications and any other written communications.

The planning of project activities needs to take into account the daily work and routine of local communities. Smallholders in the Sra-aem commune are usually busy with farming work during the day. Their farms are far away from the village where they live, requiring a significant amount of time to commute. Hence, meetings with farmers need to be carefully planned and scheduled (e.g. after 17:00 pm) to allow for maximum availability. Consultation with local communities including consideration of their crop calendar prior to establishing the work plans for the project has proved important to avoid frequent schedule changes.

Careful preparation for all events: the COVID-19 pandemic occurred throughout most of the project lifetime, requiring project events, particularly training workshops to be held online in order to keep project implementation on track. However, limited internet signal presented a disruption occasionally as did sporadic electricity cuts. Drawing on these experiences, preparation of handouts in Khmer, and recorded audio presentations were very helpful to avoid long interruptions during the training.

Hybrid events: Organising hybrid events has also been an effective approach to ensure the project's implementation and participation of a larger group and a broader array of partners and stakeholders. As the pandemic allowed ICRAF and BGCI teams to visit the project sites in person only by the end of the second year, hybrid meetings were very useful to allow all project partners to join group discussions, trainings, workshops, and interviews facilitated by NAPV or national consultants. These adaptive actions were highly successful and are recommended to be utilised as and when needed.

Work closely with the commune council: Engaging the commune council as guardian of the local community from the outset of the project drew their strong support and active participation. This was particularly useful at the time of the pandemic when travel restrictions did not allow project teams, even NAPV staff, to visit the communities. In addition, the commune council has also helped in disseminating agroforestry principles and approaches to other villages within the target commune. Design agroforestry pilots based on scientific data and consultation with local partners: The agroforestry models introduced by the project proved to fit the local conditions and effectively contributed to improve local income. This was largely based on thorough analysis of scientific data collected through studies of the socio-economy, agriculture characteristics, land use and soil, and market at the onset of the project; and continuous discussions with project stakeholders, particularly local communities.

Cascading approach in capacity building and demonstration: Starting with a training of trainers (ToT) group to build capacity and establishment of agroforestry demonstrations has proved to be a good strategy for leveraging agroforestry as ToT members have been recognised as model farmers for emulating by other villagers. Furthermore, the nursery supported by the project has also played a significant role in demonstrating how to produce seedlings of wild species for forest restoration, and fruit trees and crops for promotion of agroforestry.

Short project lifetime does is a limiting factor for agroforestry and restoration: Three years are considered short for the development of agroforestry that yields returns at scale. Scientific design and establishment of agroforestry demonstration plots and capacity building present long term undertakings. Although the project has been able to achieve the intended outcome, a longer project duration (e.g. five years) would have allowed for a stronger demonstration of the impacts on the ground. For example, agribusiness development mainly commenced in Year 3, limiting tangible accomplishments by the end of the project. Two more years of project implementation would have contributed to demonstrate visible impacts at the farm level.

Potential for scaling up in the second phase: Both ToT members and farmers are aware of the value of agroforestry systems integrating high value fruit trees and crops, but they do not have enough resources to buy these for growing on their farms. The support from the project targeted pilot farmers. There is high potential however for scaling up the results of the project if a second phase could be launched. Seedlings of high value crops will then be propagated at scale at the NAPV's nursery established by the project as well as on farmers' land via grafting.

8   Risk Management

The Sra-Aem commune received unexpectedly high rainfalls towards the end of 2022 whilst extreme drought and high temperatures at the beginning of 2023 delayed new cultivation of high-value crops

to generate income. As a management measure, the project suggested local farmers build water drainage (swale and irrigation systems) inside the farms to avoid inundation. It also provided financial support to build 3 micro weirs and 5 ponds which can store water during the rainy season for provision during the dry season. Since this is likely to occur more frequently in future, the irrigation system and measures to cope with extreme rain will need to be taken into account for future project design.

In the last year of the project, an unexpected fruit fly incursion occurred. Fruit flies damage fruits at a young developmental stage. The project drew on knowledge and experience of a farmer pioneering effective fruit fly management methods and shared this expertise with other farmers.

9   Sustainability and Legacy

The project started novel social media engagement activities, such as using a Telegram group for dissemination of short videos taken by the community representatives to promote their work and allow technical exchanges. This approach was further enhanced in the third year given its popularity within the community. The project also organised a 'village cinema' showing short videos of innovative farming techniques and allowing knowledge exchange between experts and farmers or among farmers. The village cinema attracted attention especially from women and youth.

As mentioned in Section 3.4, the project has been implemented in close coordination with the Sra-aem commune council, the 4 village authorities and the local community, all of whom fully supported this work. This has also attracted the interest of other communes in Choam Ksant district, which is an excellent indication that the project has managed to reach out to a wider community beyond the actual area of the project.

Representatives from all agencies, especially from the Wildlife Conservation Society (WCS), participating in the project closing workshop (see section 2 Project Partnerships) expressed interest in the agroforestry models introduced by the project and are considering to adopt agroforestry in their respective areas. A representative from the World Wide Fund for Nature (WWF) also expressed interest in applying agroforestry to other protected areas in the southeast of Cambodia. He also proposed to visit the agroforestry demonstration plots in September 2023. The current ADB-led project working on community-based tourism also expressed interest in agroforestry and is planning to promote this farming system in ADB project sites in the future.

The role of NAPV as a local organisation and authority is crucial to ensure good exit strategies. For example, thanks to the project funding, NAPV has established a learning centre which produces quality planting materials, demonstrates agroforestry as a more sustainable farming practice. NAPV, will continue also to provide training on fruit processing techniques in the future. In addition, during the project's closing workshop, the participants discussed the availability of further guidance on agroforestry techniques and markets to help continue maintaining the pilot farms or to establish new ones, and NAPV and the other project partners are delighted to provide such further guidance. The commune councils will also receive funding, albeit relatively small, from the government to further promote agroforestry practices in their respective locations.

10 Darwin Initiative identity

As mentioned throughout this report, major efforts have been made to publicise this project, using a mix of conventional approaches (e.g. project website, public outreach materials such as posters, leaflets and signboards) and innovative ways through social media (e.g. using facebook group of a community Telegram group to promote agroforestry trials via video clips). For example, a post on a training organised by the project is available at https://www.facebook.com/groups/ICRAFVietnam/posts/1464473073935498/

The logo of the Darwin Initiative alongside the logos of the project partners appears on all materials, presentations, and in meetings, etc. related to the project. Moreover, contacts were consolidated with the UK representation in Phnom Penh as highlighted in Section 2 who has been referring to the project partners when being approached by other organisations with interest in agroforestry and ecological forest restoration (e.g. Strategic Initiatives team of TechnoServe and the Cambodian Development Resource Institute (CDRI).

The achievements made by this project have been presented to the International Coordination Committee for Preah Vihear (ICC-PV), and were recognized by all participants of ICC-PV. Moreover, local authorities, sub-national and national government institutions, especially provincial departments of environment and agriculture, as well as conservation and development NGOs like WCS, WWF, USAID-funded projects, RECOFTC, NTFP-EP, local NGOs and consulting firms (e.g. Sevea) are well-aware of the work and accomplishments of the project.
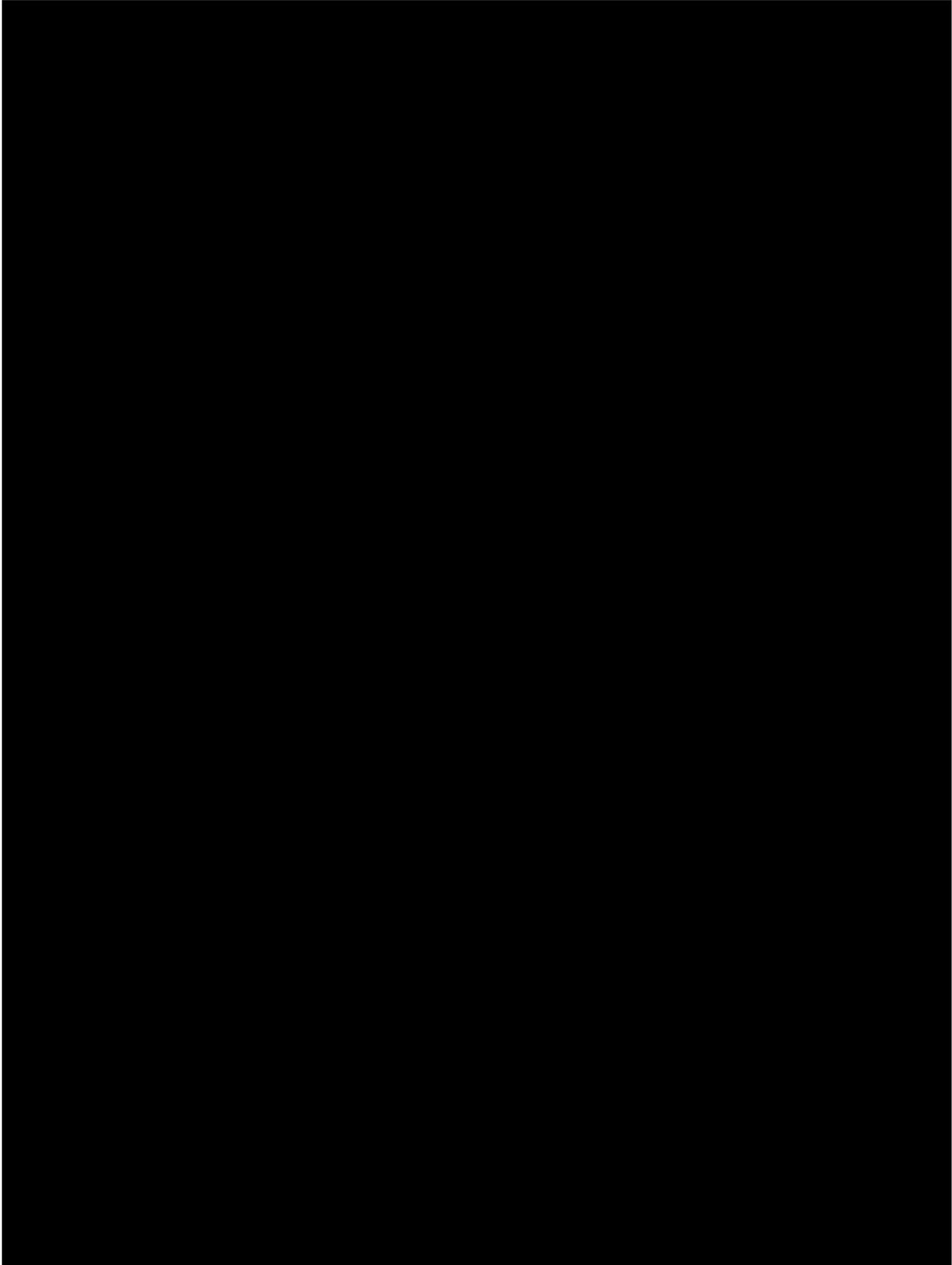
11 Safeguarding

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?	No
Has the focal point attended any formal training in the last 12 months?	No
What proportion (and number) of project staff have received formal training on Safeguarding?	Past: % [and number - 4 from ICRAF] Planned: % [and number - 4 from ICRAF]
Has there been any lessons learnt or challenges on Safeguarding in the past 12 months? Please ensure no sensitive data is included within responses. There were no safeguarding issues throughout the project. Although there has been no formal safeguard training for the project team, all BGCI and ICRAF staff participating in the project received safeguard training in their respective organisations.	

12 Finance and administration

12.1 Project expenditure

Project spend (indicative) since last Annual Report	2022/23 Grant (£)	2022/23 Total actual Darwin Costs (£)	Variance %	Comments (please explain significant variances)
Staff costs (see below)				
Consultancy costs				
Overhead Costs				
Travel and subsistence				
Operating Costs				
Capital items (see below)				
Others (see below)				

Audit costs				
TOTAL	94,967.00	93,566.75		

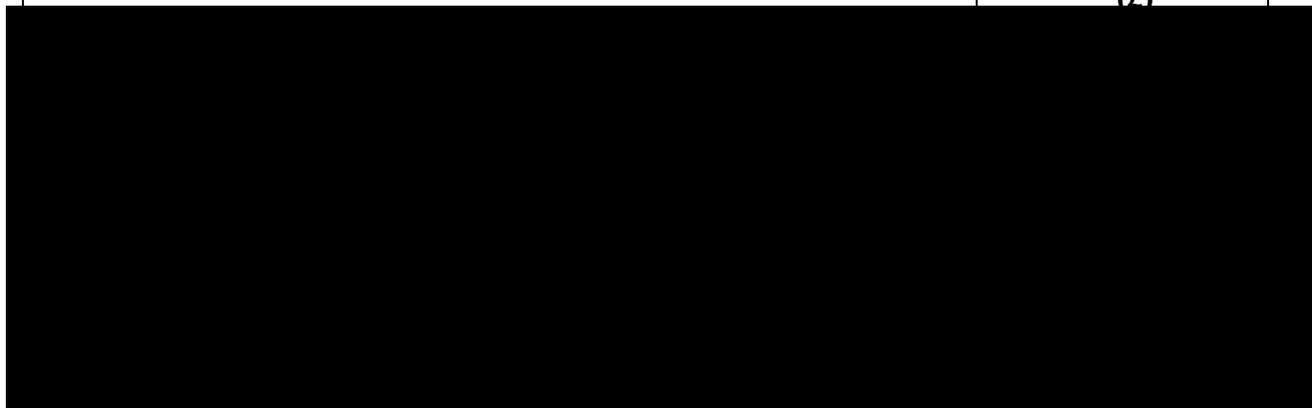| TOTAL	4,051

12.2 Additional funds or in-kind contributions secured

Source of funding for project lifetime	Total (£)
██	██████
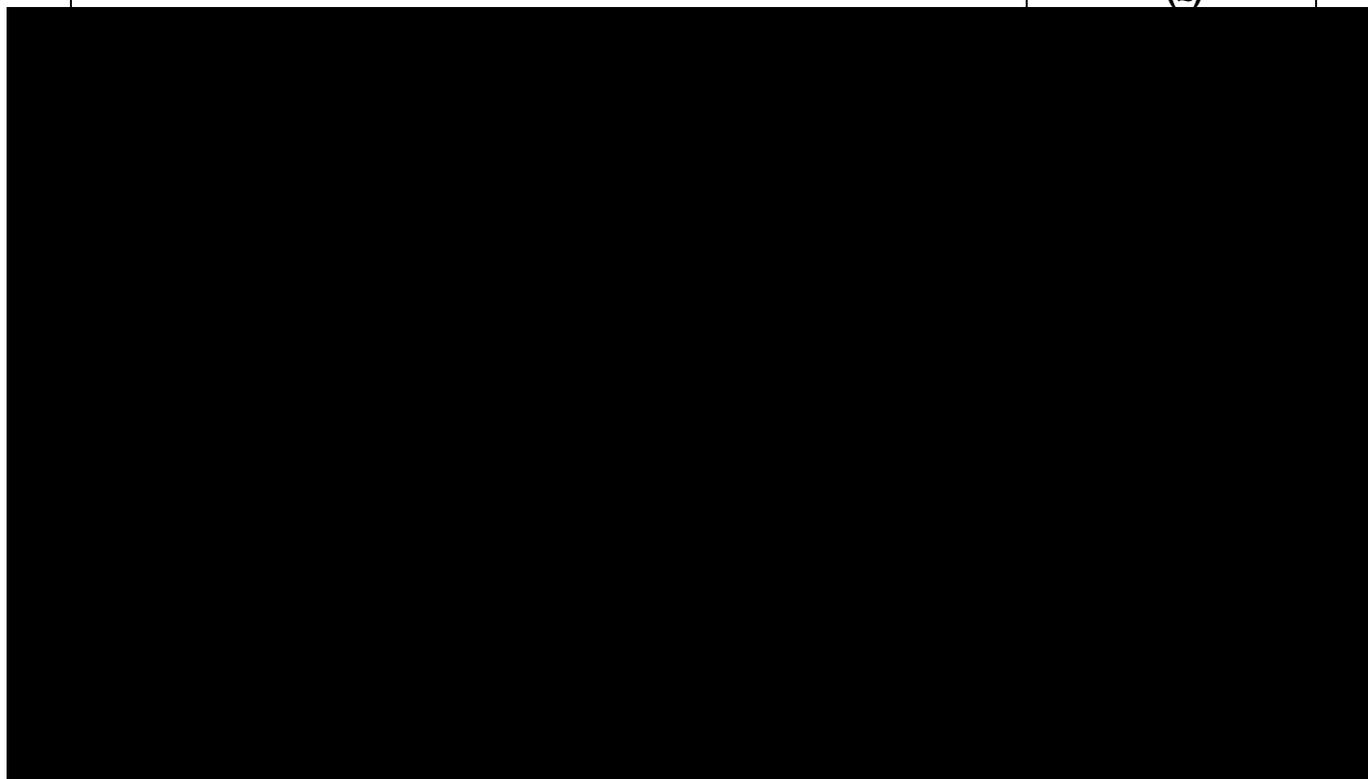
Source of funding for additional work after project lifetime	Total (£)
██	████

12.3 Value for Money

This project is fundamentally significant for both community development and forest ecosystem restoration within the Preah Vihear Heritage site. The project took time to undertake a series of surveys in Year 1, but these studies were fundamental to design agroforestry models that fit the local context and respond to the expectations of local communities.

Agroforestry and forest restoration are very new concepts for the majority of local communities in the target villages, and part of the government policy-makers. The project spent a significant amount of time and resources to raise awareness and build capacity of relevant actors, to establish agroforestry and forest restoration demonstration trials, and to organise knowledge sharing events among farmers. Thanks to these efforts, farmers have started to understand the importance of agroforestry for their food security, income diversification and ecosystem

improvement within their farms. All ToT members have started to integrate seasonal crops on their existing fruit tree farms. Other ToT members have started agroforestry farms on new land. In addition, introducing high value crops and high market demand varieties of fruit trees together coupled with grafting and planting knowledge provided to farmers at the target villages offer new opportunities for expansion in future. Markets of key local products have been developed - a local trader and village collectors' network to link products from farms to market has been formulated, as well as a Telegram-based network for information exchange was set up.

Forest restoration activities have also demonstrated the linkage between restoration of threatened species and local livelihoods. The planning for forest restoration, which was undertaken in consultation with the local community, was a useful planning experience for all involved.

Furthermore, the nurseries established by the project are important for forest restoration in the degraded areas, and for tree-planting in farmland and home gardens. For instance, within the three years of the project, a total of 1,840 seedlings of 28 species have been requested by different agencies and individuals for planting i, and more seedlings have been requested after the end of the project to date. The two nurseries together with a total size of 1,000m2 can produce around 70,000 seedlings. Seedlings produced at the nursery include wild species, as well as socio-economically important species, incluidng fruit trees and ornamental plants. Furthermore, the nurseries serving as a showcase, reaching outto the local community and school students. Local school students were invited to the nurseries where they were shown aspects of nursery management, such as soil mixtures, seedling treatment, sowing, and potting. In addition, students who participated in the awareness raising campaigns started to know local tree species and understand why nursery is necessary.

Last but not least, the investment in irrigation systems including micro weir construction and pond excavation is fundamental to assuring water supply for agriculture year-round; as result, local communities can shift their monoculture cultivation habits to agroforestry.

13 OPTIONAL: Outstanding achievements of your project (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 (please leave this line in to indicate your agreement to use any material you provide here).

File Type (Image / Video / Graphic)	File Name or File Location	Caption, country and credit	Online accounts to be tagged (leave blank if none)	Consent of subjects received (delete as necessary)
na	Na	na	Na	Yes / No
na	Na	na	Na	Yes / No
				Yes / No
				Yes / No
				Yes / No

Agroforestry presents a new approach for farmers in the Sra-aem commune to address climate change, food security and income diversification.Knowledge of agroforestry is delivered through lectures, discussions, leaflets and posters, and onsite agroforestry demonstration trials by local farmers. Nine high value fruit trees and nine crops suitable to local soil and climate, and with high market demand have been promoted in the project site. Currently, there are over 20 agroforestry plots owned by local farmers across the four villages. In particular, high quality varieties of jackfruit, pomelo, guava, jujube, coconut, longan, pine apple, ginger and galangal are becoming important sources of seedling production in Sra-aem commune as well as nearby communes in the future.

Besides agroforestry design, this project provided intensive knowledge to local farmers in applying sustainable farming practices. This knowledge includes methods to produce high quality fruit trees through grafting, generate compost and organic pesticides, improve soil fertility using legume species, manage pests, take care of swale and irrigation systems, or apply seed balls for sowing on agroforestry farms. In the future, trained farmers, especially Training-of-Trainers (ToT) members, will become resource farmers to disseminate and share knowledge of agroforestry to other farmers from their villages and beyond. Agroforestry demonstrations in the four villages established under this project together with the new established agroforestry plot and nursery of NAPV will become a center to disseminate knowledge to farmers from other regions in the countries in future.

Annex 1 Project's original (or most recently approved) logframe, including indicators, means of verification and assumptions.

Note: Insert your full logframe. If your logframe was changed since your Stage 2 application and was approved by a Change Request the newest approved version should be inserted here, otherwise insert the Stage 2 logframe.

Project summary	Measurable Indicators	Means of verification	Important Assumptions
Impact: Community-based forest conservation is linked to sustainable farming practices and diverse income opportunities throughout Cambodian communes and elsewhere in the region.			
Outcome: Forest degradation and threats to native plant diversity are decreased through improved and diversified livelihoods linked to forest conservation for local communities of the Preah Vihear Heritage Site	**0.1** 100 households are reporting cultivation of at least one new high value crop and 150 households report at least 10% increase in monthly income between start of project (2020) and end (2023).

0.2 At least 30 PVHS community members are employed in nursery management, tree planting and restoration activities by end of the project 2023.

0.3 The number of days annually spent collecting wild plant species for subsistence and income generation reported by community members decrease by 20% between start of project 2020 and end 2023.

0.4 The number of fires observed and reported in protected forest areas is reduced by 20% between pre-project numbers and end of project (2023) and 90% of threatened tree seedlings planted in restoration areas survive at end of project. | **0.1** Socio-economic survey reports for 2020 and 2023

0.1b Agroforestry and Agribusiness training course attendance records; reports and evaluation forms

0.2 Nursery employment and production records

0.3 Land use characterization baseline and end project reports

0.4a NAPV fire records

0.4b Implementation of Forest Restoration Plan; field tree planting and survival records; restoration plot survey monitoring | Local communities and authorities open to participation in project activities and training opportunities (The Sra'aem Commune Council and community leaders are a project partner and have indicated their willingness to participate)

Mother trees of quality planting materials and viable propagules are available and identified for home gardens, agro-forestry and restoration activities (some species don't produce seed every year) |

Project summary	Measurable Indicators	Means of verification	Important Assumptions
Outputs: **1**. The value of the forest and forest products to local livelihoods in the PVHS are assessed and understood and local ecological and market conditions for implementation of agroforestry practices are established.	**1.1** Surveys of socio-economic and livelihood systems, farming systems, forest and wild plant use in PVHS communities collected at baseline (2020) and end of project (2023) will be used to inform agroforestry and agribusiness planning and implementation. **1.2** Land-suitability analysis conducted for selected tree species and participatory mapping of vulnerable sites used to identify suitable sites for agroforestry development in year 1 (2020). **1.3** A report produced on market opportunities and value chain for key agroforestry and NTFP products from the region in year 1 (2020). **1.4** Market opportunities created for at least 4 crop species by end of year 3 (2023), and agroforestry models developed and guidance documents produced by project partners by end of year 1 (2020).	**1.1a** Baseline and end of project socio-economic survey reports in 2020 and 2023. **1.1b** Income reports and employment records. **1.2** Results of participatory mapping of vulnerable areas within the four sample villages; characterization of preferred perennial and annual crops species by farmers and local stakeholders; characterization of successful agroforestry practices within the sample villages as options for recommendation; and land suitability analysis for selected tree species. **1.3** Results of analysis of market opportunities and value chain of selected products. **1.4** Adopted market guidance and agroforestry models by community members.	Community members are co-operative and receptive to new methodologies and approaches. Spatial and other data is available and accurate for use in land-suitability analysis.
2. Capacity of local communities to implement conservation farming and sustainable agroforestry systems and income derived from market-based, small scale businesses is increased in local PVHS communities.	**2.1** At least 40 community leaders from engaged in train-the-trainer mentorship group in years 1 and 2 (2020, 2021) and are facilitating further training sessions in years 2 and 3 (2021, 2022). **2.2** At least 200 people (40% women) are trained in sustainable agricultural practices for high-value crops and small	**2.1&2** Training materials adopted by NAPV/agriculture extension officers and community members. **2.3a** Established agroforestry plots and plans for small scale business initiatives.	

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Project summary	Measurable Indicators	Means of verification	Important Assumptions
	business development by end of year 3 (2023). **2.3** By end of project (2023) 100 households are reporting cultivation of at least one new high value crop and 150 households report at least 10% increase in monthly income from crops and trees compared to the start of the project (2020). **2.4** Regional recommendations on agroforestry practices and small scale business practices for buffer communities of protected areas are produced and circulated to regional and national policy stakeholders.	**2.3b** Propagation protocols; published trial results; report on market opportunities for selected products. **2.3c** Socio economic survey results (see Output 1). **2.3d** Cultivation records. **2.4** Regional level recommendations accessible to policy stakeholders.	
3. Survival of threatened tree species through species recovery plantings, forest restoration activities and related forest management employment opportunities for local people are increased within the PVHS.	**3.1** Two new threatened tree nurseries are built with 20,000 seedling capacity total by the end of year 2 (2022). **3.2** Forest restoration plan developed by NAPV and BGCI to include natural regeneration and assisted regeneration activities by end of year 2 (2022). **3.3** Ten community members employed in leadership positions in nurseries by end of project (2023). **3.4** At least 20 community members are employed in tree planting and maintenance activities (500% increase compared to pre-project) by end of year 3 (2023). **3.5** Restoration plot studies of threatened tree species established in	**3.1** Nursery production records. **3.2** Endorsed Forest Restoration Plan by NAPV management. **3.3** NAPV employment records. **3.4** Employment records; tree planting and survival records. **3.5** Restoration survey records. **3.6** Tree planting and survival records.	Extreme drought events will not occur or greatly impact nursery or planted trees. Grazing pressure from released livestock will not impact planted trees. Seed produced by mother trees is sufficient for seedling production.

Project summary	Measurable Indicators	Means of verification	Important Assumptions
	year 1 and re-surveyed in years 2 and 3 clarify requirements for species recovery, and survival of seedlings planted in restoration areas is 90%. **3.6** 15,000 trees planted (130% increase compared to pre-project) including at least 5 threatened species by end of project (2023).		
4. Forest conservation and livelihood opportunities are linked through management plans, and perceptions of benefits of forest conservation to livelihoods is increased while harmful activities are decreased.	4.1 80% of respondents report increased perceptions of the importance of conserving forest following education programmes by project end (2023). 4.2 Participative forest management plans developed with management authorities in 4 villages by end of year 3(2023). 4.3 Number of fires reported by NAPV ranger staff in restoration areas decreased by 20% by project end (2023) compared to pre project baseline levels. 4.4 150 households are reporting 20% reduction in days spent in NTFP collection between year 1 and year 3 (2023).	4.1a Education materials shared with communities. 4.1b Results of surveys on livelihood systems and forest use (Output 1). 4.2 Endorsed forest restoration and management plans by NAPV and communities. 4.3 NAPV fire monitoring records. 4.4 Results of surveys on livelihood systems and forest use (Output 1).	All communities will see the benefits of forest conservation and are willing to contribute to forest management plans.

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)

Activity 0.1 Establish project steering committee to guide project activities, monitor progress and adaptively manage project.
Activity 1.1 Design and conduct surveys in year 1 (baseline) and in year 3 to characterize and measure the impacts of project on socio-economic and livelihood systems, farming systems, forest and wild plant use of local households (including typology of households for future intervention).
Activity 1.2 Characterize successful local agroforestry practices in the four sample villages with relatively similar biophysical and climatic condition, as options for agroforestry models for interventions.
Activity 1.3 Conduct land suitability analysis for selected tree species combined with the participatory maps of vulnerability level, to identify suitable area for agroforestry development.
Activity 1.4 Design and conduct study on market opportunities and value chain for key agroforestry and NTFP products from the region in year 1.
Activity 1.5 Develop recommended agroforestry models for trials, including benefit-cost analysis.

Project summary	Measurable Indicators	Means of verification	Important Assumptions
Activity 2.1 Develop training materials and programs (on agroforestry system development, rural market system development, small-scale business development) for training of trainers and pilot farmers. **Activity 2.2** Design market-based conservation farming and agroforestry on-farm trials/ demonstration plots for training. **Activity 2.3** Provide TOT trainings for villages leaders/ local officials (40 participants) and on-site trainings for 200 community members on market, small-scale business development, conservation farming and agroforestry. **Activity 2.4** Provide on-going support for establishment and maintenance of on-farm trials for sustainable agroforestry in pilot households through year 2 and 3. **Activity 2.5** Provide on-going support for market linkages and small business development for pilot households throughout year 1 and 3. **Activity 2.6** Policy recommendations on agroforestry and small-scale business developed and published by end of year 3. **Activity 3.1** Two nurseries built with 20,000 seedling capacity with required supplies by end of year 2. **Activity 3.2** Employees recruited and contracts signed with NAPV for managers and staff of nurseries by end of year 1. **Activity 3.3** Contract for restoration consultant developed and signed in year 1. **Activity 3.4** Workshops to develop and implement restoration plan for NAPV with guidance of consultant and BGCI in years 1, 2 and 3. **Activity 3.5** Restoration surveys designed and carried out in year 1 and species survival plots established in year 1 and monitored in years 2 and 3. **Activity 3.6** Plant 15,000 trees over years 1, 2 and 3, and implement aftercare. **Activity 4.1** Run a public outreach campaign to strengthen links between forest conservation and livelihood opportunities in years 1, 2 and 3. **Activity 4.2** Hold forest management plan meetings between NAPV and community members held and plan developed by end of year 3. **Activity 4.3** Monitor fire events and forest use practices over years 1, 2 and 3.			

Annex 2 Report of progress and achievements against final project logframe for the life of the project

Project summary	Measurable Indicators	Progress and Achievements
Impact: Community-based forest conservation is linked to sustainable farming practices and diverse income opportunities throughout Cambodian communes and elsewhere in the region.		Farmers in the four target villages have integrated threatened tree species (rose wood trees) and NTFPs (Neem and galangal) in their farms. In addition, species used for forest restoration, beside threatened tree species, a number of NTFP species like *Syzygium cumini*, *Phyllantus emblica*, *Azadirachta india*, *Albizia lebbeck*, etc. were used for forest restoration so that they can provide diverse products to community. In addition, there are plenty of NTFPs of wild mushroom, species of Zingiberaceae, wild yam (Dioscorea), bamboo shoot, edible wild leaves and wild fruits are commonly collected along the margin of their farmlands, remnant forest with community development zone and conservation zone of the Preah Vihear Heritage Site. Based on data validation process participatory restoration planning, community members also planted *Senna siamea* and *Sesbania grandiflora* for either food or soil enrichment.
Outcome Forest degradation and threats to native plant diversity are decreased through improved and diversified livelihoods linked to forest conservation for local communities of the Preah Vihear Heritage Site.	**0.1** 100 households are reporting cultivation of at least one new high value crop and 150 households report at least 10% increase in monthly income between start of project (2020) and end (2023). **0.2** At least 30 PVHS community members are employed in nursery management, tree planting and restoration activities by end of the project 2023. **0.3** The number of days annually spent collecting wild plant species for subsistence and income generation reported by community members decrease by 20% between start of project 2020 and end 2023. **0.4** The number of fires observed and reported in protected forest areas is reduced by 20% between pre-project numbers and end of project (2023) and 90% of threatened tree seedlings	0.1 Based on the endline survey, 200 out of 221 (about 90%) surveyed households in the four project's villages cultivated at least one new high-value crop introduced by the project such as pea eggplant, chilli, galangal and ginger. 117 out of 200 households (about 60%) reported an increase in income thanks to the newly introduced crops. Other households could not successfully grow the high-value crops due to e.g., climate hazards (heavy rains and inundation within the farm). The 117 households had an average additional income of about 1082 USD per plot when comparing the income at the start (2020) and end (2023) of the project. 0.2 In Year 2, 3 community members who belong to subsistence households have been employed at the nursery, and another 3 community members were employed for restoration work, whereas another 16 community members were employed periodically for both nursery and forest restoration activities. 0.3 In 2020, 99 out of 221 households spent an average of 2.3 days per year to collect NTFP (to include wild plants) for subsistence and 5.3 days per year to collect NTFP for income. The remaining 122 households did not spend any labour day on forest products. For subsistence purposes, farmers in Sra-aem Cheung village who have collected forest products spent more days per year than those in other villages. For income purposes, however, farmers in Eco-village had the highest average number of days spent on collecting forest products (Annex 5.3). Agroforestry trials established by the project include both long-term (e.g. fruit trees) and immediate income generation (e.g. annual crops) opportunities. The income generated from nurseries, restoration activities and agroforestry trials established by the project was expected to address the needs of wild plant species

Project summary	Measurable Indicators	Progress and Achievements
	planted in restoration areas survive at end of project.	conservation and income generation from forest products. Based on the endline survey, while there has been relatively no change in the number of days spent in collecting NTFP for subsistence, there was a 38% reduction in terms of time spent in collecting NTFP for income (Annex 5.5). 0.4 The map of forest fire incidence in Zone 2 produced in the first year was updated during Year 2. A method has been developed to record the occurrence and frequency of forest fire within and adjacent to the restoration plots. Based on monitoring, there was no fire occurrence at the restoration plots in Year 2. Forest fire in year 3 was more extensive than year 2 because of the long drought and extreme heat. Around 15 percent of the restoration area supported by the project was affected. Based on tree monitoring records, 90% of threatened tree seedlings planted in restoration areas survive at the end of the project.
Output 1. The value of the forest and forest products to local livelihoods in the PVHS are assessed and understood and local ecological and market conditions for implementation of agroforestry practices are established.	**1.1** Surveys of socio-economic and livelihood systems, farming systems, forest and wild plant use in PVHS communities collected at baseline (2020) and end of project (2023) will be used to inform agroforestry and agribusiness planning and implementation. **1.2** Land-suitability analysis conducted for selected tree species and participatory mapping of vulnerable sites used to identify suitable sites for agroforestry development in year 1 (2020). **1.3** A report produced on market opportunities and value chain for key agroforestry and NTFP products from the region in year 1 (2020). **1.4** Market opportunities created for at least 4 crop species by end of year 3 (2023), and agroforestry models developed and guidance documents produced by project partners by end of year 1 (2020).	1.1 Baseline survey data on socio-economic and livelihood systems, farming systems, forest and wild plant use in PVHS communities collected in December 2020, were used for agroforestry and agribusiness assessment and planning. Findings from the surveys informed the project team and local community in the discussion on options of trees and crops for the on-farm trials and the design of market-based conservation farming and agroforestry. An end-line survey on socio-economic and livelihood systems, farming systems, forest and wild plant use in PVHS communities was conducted in January 2023 and used for assessing the project's impacts on household's income (see Indicator 2.3) and local dependence on forest resources (Indicator 0.3) 1.2 Participatory mapping and soil sampling were carried out in 8 communes of Choam Ksant district to produce key inputs for the land suitability analysis. In Year 2, the assessment of 7 fruit tree species was conducted and the results were discussed with Sra-Aem commune members on 16 March 2022 and were presented in the project's closing workshop on 9 March 2023. A copy of the report describing methodology and key results of the land suitability assessment is available in the Annex 5.7. 1.3 Market opportunities and value chain for key agroforestry and NTFP products from the region have been assessed and a report has been prepared (Annex 5.8). 1.4 Market opportunities of 7 fruit tree species and 6 seasonal crops were tested at the end of Year 2 and 3. The species were part of agroforestry models introduced to the local communities. A guidance document on how to properly cultivate the 7 fruit tree species has been produced and distributed to participants of training on agroforestry.

Project summary	Measurable Indicators	Progress and Achievements
Activity 0.1 Establish project steering committee to guide project activities, monitor progress and adaptively manage project.		0.1 Project Steering Committee (SC) established, with members from BGCI, ICRAF, NAPV, and a representative from local authorities and ToT members. Throughout Year 1-3, the Steering Committee met five times online (Dec. 2020; Mar. 2021; Oct. 2021; Mar. 2022; Aug. 2022; and Nov 2022) and one time in-person in Mar. 2023. The meetings reviewed progress throughout the project, and identified adaptive strategies between 2020 to early 2022 when COVID-19 pandemic related policies and travel restrictions were still in place, requiring five formal budget change requests.
Activity 1.1 Design and conduct surveys in year 1 (baseline) and in year 3 to characterize and measure the impacts of the project on socio-economic and livelihood systems, farming systems, forest and wild plant use of local households (including typology of households for future intervention).		1.1 Baseline survey conducted, covering 221 households in four villages (Annex 5.3): - Review existing data and literature, and development of survey tools by ICRAF, with comments and inputs from NAPV and BGCI, completed in Oct-Nov 2020. - Online training of enumerators from NAPV conducted by ICRAF staff in the first week of December 2020, with participation from BGCI. The training also served as an opportunity to improve the questionnaire, to discuss how to adapt the survey tools, and conduct the survey in the local contexts. - Implementation of the surveys in four villages (December 2020), covering 221 households with different economic status (poor and better-off households) and types of household head (female- or male-headed). Information on existing households in the villages provided by the village leaders and the surveyed households were selected based on a stratified random sampling approach and sampling size proportional to population of farm households in the villages. - Surveyed data were entered into computer database by NAPV (Jan 2021). - Data analysis and reporting was conducted by ICRAF (March 2021). - Findings from the survey show that the majority of households in the selected villages have relied on farm activities and collection of forest products for livelihoods. However, several factors such as unfertile soils, pest and diseases, and extreme climate especially drought have strongly restricted crop production. Financial limitation and lack of information on more sustainable and climate resilient farming systems have been two major obstacles for local people to apply measures to overcome the biophysical and climate challenges. In addition, limited market access and a strong reliance on middle-men have resulted in low and volatile prices of farm products. Local people also notice that overexploitation of forest products have led to serious forest degradation. Promoting more

Project summary	Measurable Indicators	Progress and Achievements
		sustainable and climate-smart farming systems that integrate diverse products for sources of income and improvement of micro-climate, as well as creating opportunities for better market access and enhanced capacity of local people to undertake small-scale business, are keys to improve local livelihood whilst contributing to forest protection and rehabilitation • End line survey was designed and conducted in Year 3 (1-31 January 2023) (Annex 5.5)
Activity 1.2 Characterize successful local agroforestry practices in the four sample villages with relatively similar biophysical and climatic condition, as options for agroforestry models for interventions.		1.2 Conduct characterization of successful local agroforestry practices in four villages (Annex 5.4) • Review existing data and literature, and preparation of the survey by ICRAF, with comments and inputs from NAPV and BGCI (Oct 2020-Jan 2021) • Online training of enumerators from NAPV conducted by ICRAF staff in Feb 2021, with participation from BGCI. The training also served as opportunity to improve the questionnaire, to discuss how to adapt the survey tools, and conduct the survey in the local contexts. • Implementation of the survey in 55 representative, agroforestry plots of four villages, including those with native species like Thnong (*Pterocarpus macrocarpus*) and Kranhoung (*Dalbergia cochinchinensis*) (February 2021). The plots were selected based on the results of the household survey. • Surveyed data were entered into the computer database by NAPV (March 2021). • Findings show that local people have been aware of the benefits of agroforestry as a more sustainable farming practice. However, there are challenges in procuring quality seedlings and lack of information on appropriate design and suitable plot management options for agroforestry. The local communities prefer several commercial tree species such as cashew, mango, coconut or longan for income generation, and native species such as *Pterocarpus macrocarpus*, *Dalbergia cochinchinensis*, *Shorea obtusa* or *Dipterocarpus crispalatus* for maintaining soil fertility. These native species can likely provide a significant contribution to soil enrichment through the trees' litterfall. The local preferences create an excellent opportunity of introducing diversified systems with commercial and native tree species, and annual crops such as cassava or lemon grass as intercrops.

Project summary	Measurable Indicators	Progress and Achievements
Activity 1.3 Conduct land suitability analysis for selected tree species combined with the participatory maps of vulnerability level, to identify suitable area for agroforestry development.		1.3 Conduct land suitability analysis and participatory mapping (Annex 5.7) ● Review of data and maps. Recruitment of a national consultant to conduct the mapping with NAPV staff (Jan-Feb 2021). ● Preparation for the participatory mapping, including discussion on methodology and locations of soil samplings (Feb 2021). ● Implementation of participatory mapping and soil sampling in eight communes of Choam Khsant district (March 2021). ● Soil samples were sent to Phnom Penh for analysis. ● Conduct assessment of 7 fruit tree species (Custard apple, Papaya, Jujube, Guava, Jackfruit, Longan and Pomelo) and present the results online to Sra-aem commune members in a workshop in March 2022 (Annex 5.9).
Activity 1.4 Design and conduct study on market opportunities and value chain for key agroforestry and NTFP products from the region in year 1.		1.4. Design and conduct study on market opportunities and value chain for key agroforestry and NTFP products (Annex 5.8): ● Review of literature, discussions on tasks and expected outputs, recruitment of a national consultant, and development of survey tools. ● Integration of market and value chain questions in the household survey (see Activity 1.1). ● Market and value chain survey: Accommodating household survey findings, such as existing crops (e.g. mango, cashew) and crops farmers wish to plant; identifying market dynamics, root causes, opportunities, advantages, and threats, as well as expectations along the chain; identifying the support functions of the various parties that support the commodity value chain, including business enablers; and identifying potential private sector partners to be involved. ● Analyze the data and prepare a market study report.
Activity 1.5 Develop recommended agroforestry models for trials, including benefit-cost analysis.		Three agroforestry model have been developed for local community, of which ● Simple model with intercropping between main component of fruit trees and seasonal/annual/perennial crops ● Intercropping with integration of soil improvement plants, especially nitrogen-fixing tree species ● Complex intercropping in the form of home garden

Project summary	Measurable Indicators	Progress and Achievements
		• Onsite AF trials were developed at the existing fruit tree farms and new farms of the ToT members. establish onsite agroforestry design at ToT members farmland and other community members (Annex 5.20)
Output 2. Capacity of local communities to implement conservation farming and sustainable agroforestry systems and income derived from market-based, small scale businesses is increased in local PVHS communities	**2.1** At least 40 community leaders from engaged in the train-the-trainer mentorship group in years 1 and 2 (2020, 2021) and are facilitating further training sessions in years 2 and 3 (2021, 2022). **2.2** At least 200 people (40% women) are trained in sustainable agricultural practices for high-value crops and small business development by end of year 3 (2023). **2.3** By end of project (2023) 100 households are reporting cultivation of at least one new high value crop and 150 households report at least 10% increase in monthly income from crops and trees compared to the start of the project (2020). **2.4** Regional recommendations on agroforestry practices and small scale business practices for buffer communities of protected areas are produced and circulated to regional and national policy stakeholders.	2.1 22 ToT and commune council members, 55% of the total expected number, have been provided training during the project's duration. The pandemic in the first two years of the project made it very challenging to achieve a number closer in line with the indicator. The ToT members were involved in formal or informal knowledge exchange sessions with farmers in the commune. 2.2 A total of 245 people (56% women) participated in the series of training on agroforestry, fruit tree cultivation techniques, and farm business development by the end of year 3. 2.3 Refer to achievements under Indicator 0.1 2.4 A consultation workshop to promote agroforestry with 8 communes of Choam Ksant district, of which 7 communes are located within protected areas under the jurisdiction of the Ministry of Environment was held on 15-16 March 2022. In addition, a short guideline on agroforestry design (Annex 5.11) was shared with the commune council. Each commune received 50 copies of the leaflet for dissemination to their community members. Two policy briefs (drafts): one on sub-national and national policies supporting development of agroforestry practices in Cambodia and the other specifying on policies supporting agroforestry's value chain, have been produced to support policy advocacy (Annex 5.12)
Activity 2.1 Develop training materials and programs (on agroforestry system development, rural market system development, small-scale business development) for training of trainers and pilot farmers.		A number of materials in Khmer have been developed for distribution to ToT members: • Manual on agroforestry models • Manual on organic fertiliser and pesticide production and application • Manual on cultivation techniques of 7 fruit tree species • Leaflet and poster on agroforestry designs
Activity 2.2 Design market-based conservation farming and agroforestry on-farm trials/ demonstration plots for training.		Intercropping agroforestry has been identified as a suitable farming system for local farmers in adapting to climate change, food security and income diversification. A

Project summary	Measurable Indicators	Progress and Achievements
		total 13 agroforestry trial plots were developed by enriching seasonal and biennial crops into the existing fruit tree orchards (Annex 5.20). These agroforestry plots are now providing significant income to farmers. Even though there is a capital challenge, more agroforestry systems have been expanded. The assurance of good variety of fruit tree and access to market agri-product will be the priority in promoting it.
Activity 2.3 Provide TOT trainings for villages leaders/ local officials (40 participants) and on-site trainings for 200 community members on market, small-scale business development, conservation farming and agroforestry.		In year 2, a total of 7 training and exchange visits were held for 23 ToT members. The training covered agroforestry systems and design, cultivation techniques, organic fertiliser and pesticide production, grafting techniques and video production. In addition, a total of 157 farmers of the 4 villages were provided training on agroforestry concept and its value to the economy and environment. The followings are training activities belong delivered to ToTs and farmers in the four villages: • Agroforestry training • Fruit tree cultivation • Coaching fruit tree cultivation • Market training • Grafting, fertiliser (25 ToT members and others) • Farmer-to-farmer teaching (video, filming) • Exchange visit • Informal training, onsite training In year 3, there were 489 participants attending the 22 training events, of whom there were 300 female participants (Annex 5.10). The followings are training events to farmers in the four villages: • Dissemination at the four villages on cultivation of high value crops with particular focus on pea eggplant, chilli, ginger and galangal and how to integration with fruit tree farms; • Onsite trainings on agroforestry and crop maintenance along with discussion on farming-related issues at the four villages; • Training workshop on agroforestry, crop maintenance, identification of farm-related issues, and solution; • Onsite trainings at the four villages on method to mitigate/eliminate mealy bug and fruit fly through Video, discussion and demonstration; • Onsite training/Dissemination at the four villages on soil fertility improvement in agroforestry system through Video, discussion and demonstration; • Meeting to share experiences on agroforestry, issues occurring on the farms and solution • Meeting to discuss about local business set up and management with ToT members

Project summary	Measurable Indicators	Progress and Achievements
		● Vocational training on food processing at the National Vocation Training Institute, Battambang province
Activity 2.4 Provide on-going support for establishment and maintenance of on-farm trials for sustainable agroforestry in pilot households through year 2 and 3.		A total of 11 ToT members have started their agroforestry farm trial in 2021 and 2022 by applying knowledge acquired from the training. Discussion on issues and solutions was made in years 3. A total of 16 fruit tree species (incl. 8 main fruit trees), and 16 crop species (incl. 11 main crops) were distributed to ToTs and farmers in the four villages (Annex 5.21).

The project also supported the construction of 3 weirs and 5 ponds which is fundamental for change of their farming practice from monoculture to agroforestry (Annex 5.19). |
| **Activity 2.5** Provide on-going support for market linkages and small business development for pilot households throughout year 1 and 3. | | A market network including a local trader, village consolidators and farmers of agriproducts were developed in year two, with particular focus on pea eggplant and chilli for export to Thailand. This network was enriched in year 3 through a meeting to discuss a trade chain so as for access of the products to the market. A document of the market network was developed for use as a roadmap in order for each player in the market sector to be aware of their roles and future expansion (See annex 5.22).

Other fruit trees and crops (ginger, galangal, pine apple) are potential at local markets, thus producers can bring them to the markets or a tourism center to be completed in 2023 by the National Authority for Preah Vihear by themselves.

In addition, with kind and generous approval of DI, the project supported 3 ToT members, 2 farmers and 1 NAPV contracted staff to attend the vocational training course at the National Vocation Institute of Battambang. The training contained 4 main subjects, including jam making, dry fruits/nuts with deep fry processing method, pickle vegetable and chicken leg, and soft drink made of fruits. Raw materials for producing these products are fruits and vegetables cultivated in the project area. The trainees documented all lessons acquired at the training and made a technical book in Khmer version for training to other farmers in the target villages in future. A room of a wooden house has been reserved as a processing centre so that all these trained people work together in product processing (See annex 5.23). |
| **Activity 2.6** Policy recommendations on agroforestry and small-scale business developed and published by end of year 3. | | A workshop to disseminate agroforestry to commune councils, and key stakeholders at district and provincial levels was held. All of them expressed their satisfaction and showed their willingness to disseminate the information to their community. Project approach and progress was periodically reported to the UK embassy and NCSD.

A policy brief was written for dissemination to policy makers (Annex 5.12) |

Project summary	Measurable Indicators	Progress and Achievements
Output 3. Survival of threatened tree species through species recovery plantings, forest restoration activities and related forest management employment opportunities for local people are increased within the PVHS	**3.1** Two new threatened tree nurseries are built with 20,000 seedling capacity total by the end of year 2 (2022). **3.2** Forest restoration plan developed by NAPV and BGCI to include natural regeneration and assisted regeneration activities by end of year 2 (2022). **3.3** Ten community members employed in leadership positions in nurseries by end of project (2023). **3.4** At least 20 community members are employed in tree planting and maintenance activities (500% increase compared to pre-project) by end of year 3 (2023). **3.5** Restoration plot studies of threatened tree species established in year 1 and re-surveyed in years 2 and 3 clarify requirements for species recovery, and survival of seedlings planted in restoration areas is 90%. **3.6** 15,000 trees planted (130% increase compared to pre-project) including at least 5 threatened species by end of project (2023).	3.1 2 nurseries with a total size of 1,110 m2 including irrigation system, were established. The two nurseries have a total holding capacity of some 60,000 seedlings. By the end of the project, the two nurseries could produce over 35,600 seedlings of 28 different species. The NAPV will continue to maintain the nurseries after the end of the project. 3.2 A Forest Restoration Action Plan (FRAP) was finalised based on an eco-geographical survey and consultation with the local community. The restoration plan encompasses capacity building, restoration activities, promoting agroforestry such as by integrating native threatened tree species, fruit trees and non-woody crops, and strengthening cooperation in the Sra-aem commune. In summary, the FRAP has included three strategic objectives (SOs) and a number of key actions: SO1: practical forest restoration using different methods according to the eco-geographical site conditions (7 actions); SO2: capacity building on forest restoration techniques and agroforestry for NAPV staff and local communities (4 actions); SO3: opportunities and areas for medium and long-term cooperation between the government and NGOs, development partners, research institutions, and academia (4 actions). 3.3 Three community members (2 women) have been employed to work at the nursery throughout Year 2, acting as mentors for other community members who wish to learn various propagation techniques. Another 16 community members (11 women) from Eco-village were occasionally hired to work at the nursery. Since the start of year 3, a total of 4 workers and one technical staff have been employed and they will still continue working for the nursery after the end of the project thanks to another funding support identified by the NAPV. 3.4 25 community members (18 women) from Eco-village have been employed in forest restoration activities. 3.5 The 7 monitoring plots established in the first year have been monitored to gauge the levels of survival. The results indicate that naturally regenerating seedlings had a higher mortality rate than the planted seedlings. The plots were monitored two times (dry season and rainy season) every year. Findings from the monitoring plots were documented and used for public engagement purposes on impact of forest fire. 3.6 A total of 24,824 seedlings relating to 33 tree species grown in the nursery have been planted by the end of year 3 (8,430 seedlings in year 1, 9,895 seedlings in Year 2 and 6,505 seedlings in year 3) over 48 hectares. This includes 5 threatened species included on the IUCN Red List (*Dalbergia cochinchinensis*, D. oliveri, *Pterocarpus macrocarpus*, *Afzelia xylocarpa* and *Dipterocarpus alatus*). In addition,

Project summary	Measurable Indicators	Progress and Achievements
		assisted natural regeneration and establishment of firebreaks were also carried out. The number of seedlings being used for restoration has increased to 122%.
Activity 3.1 Two nurseries built with 20,000 seedling capacity with required supplies by end of year 2.		Refer to indicator 3.1
Activity 3.2 Employees recruited and contracts signed with NAPV for managers and staff of nurseries by end of year 1.		Refer to indicator 3.3
Activity 3.3 Contract for restoration consultant developed and signed in year 1.		A Forest Restoration Action Plan (FRAP) has been finalised in consultation with the local community from the 4 villages (5.14).
Activity 3.4 Workshops to develop and implement restoration plan for NAPV with guidance of consultant and BGCI in years 1, 2 and 3.		A restoration plan was finalized and presented to key people in each village.
Activity 3.5 Restoration surveys designed and carried out in year 1 and species survival plots established in year 1 and monitored in years 2 and 3.		7 restoration monitoring plots which were established (10m x 10m) in Zone 2 in the first year were monitored as regards mortality rates and growth conditions of both planted and natural seedlings (See indicator 3.5).
Activity 3.6 Plant 15,000 trees over years 1, 2 and 3, and implement aftercare.		Refer to indicator 3.6
Output 4. Forest conservation and livelihood opportunities are linked through management plans, and perceptions of benefits of forest conservation to livelihoods is increased while harmful activities are decreased.	**4.1** 80% of respondents report increased perceptions of the importance of conserving forest following education programmes by project end (2023). **4.2** Participative forest management plans developed with management authorities in 4 villages by end of year 3(2023). **4.3** Number of fires reported by NAPV ranger staff in restoration areas decreased by 20% by project end (2023) compared to pre-project baseline levels. **4.4** 150 households are reporting 20% reduction in days spent in NTFP collection between year 1 and year 3 (2023).	4.1. 80% of respondents report increased perceptions of the importance of conserving forest following education programmes by project end (2023). Achievement: According to the endline survey, from 88 households who received new knowledge on the importance of conserving forest through education programs, 83 (94%) claimed that the new knowledge has been useful in increasing their awareness on forest restoration and conservation 4.2. A participatory Forest Restoration Action Plan (FRAP) was finalised in Year 2. 4.3. The map of forest fire incidence in Zone 2 produced in 2020 was updated in Year 2. A method has been developed to record the occurrence and frequency of forest fire within and adjacent to the restoration plots. Based on ground truthing, none of the managed monitoring plots were found to be burned in 2021 and 2022. Forest fire in year 3 was more extensive than year 2 because of the long drought and extreme heat. Around 15 percent of the restoration area supported by the project was affected. 4.4. Based on the endline survey, 98 out of 221 households reported a 20% or more than 20% reduction in days spent in NTFP collection for income, between year 1 and year 3.
Activity 4.1 Run a public outreach campaign to strengthen links between forest conservation and livelihood opportunities in years 1, 2 and 3.		A conceptual framework on public outreach was completed and used as a guide for the development of outreach activities.

Project summary	Measurable Indicators	Progress and Achievements
		A total of 5 themes of posters were completed and distributed to the local community and key stakeholders. Other outreach tools including project website, facebook, Telegram, video and TV were used for promotion of agroforestry.
Activity 4.2 Hold forest management plan meetings between NAPV and community members held and plan developed by end of year 3.		Consultation meetings on forest restoration were held with members of the local community from the 4 villages and a participatory Forest Restoration Action Plan (FRAP) has been finalised.
Activity 4.3 Monitor fire events and forest use practices over years 1, 2 and 3.		Ground truthing regarding forest fire occurrence was conducted, and a map of forest fire incidence in the conservation zone was produced in year 1, year 2 and year 3. It was notable that the forest fire incident in year 3 was higher than in year 2 because of the long drought and high temperature. About 15% of restoration area, especially ANR-applied area was affected by fire, but saplings with their height up to 2 m to 3 m high and low grasses on the ground floor were not killed by fire. Beside monitoring on the ground, maps of forest fire were also produced within 3 years of project implementation (see annex for map of forest fire in year 3). Based on a forest fire map in year 3, it showed that forest fire was mainly in low intensity and followed by moderate intensity, which means that the impact of forest fire on forest ecosystems as a whole was not a major problem.

Annex 3 Standard Indicators

Table 1 Project Standard Indicators

Indicator number	Darwin Initiative Standard Indicator	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
Eg. DI-A01	Eg. Number of people from key national and local stakeholders completing structured and relevant training	E.g. Number of officials from national Department of Environment who attended training on CBD Reporting Standards	People	Women	20			20	60
E.g. DI-C17	E.g. Articles published by members of the project team	E.g. Number of unique papers published in peer reviewed journals	Number	None	1			1	4
		A PhD student from Germany may be associated with the project after Year 1 (not on project funding)	Female	German	0	1	1	1	1
DI-A03; DI-A04	Participants of training of enumerators (TOE)		People	Cambodian	10	0	6	12	18
DI-A03; DI-A04; DI-A05	Participants of training of trainers (TOT)		People	Cambodian	0	40	40 (same people as in Y2)	22	22
DI-A03; DI-A04	Participants of training of farmers (TOF)		People	Cambodian	0	200	200 (same people as in Y2)	245	245
DI-A03; DI-A04	Number of TOE training week		Number	Week	2/3	0	1/3	2/3	1
DI-A03; DI-A04; DI-A05	Number of TOT training weeks		Number	week	0	3	1	0	4
DI-A03; DI-A04	Number of TOF training weeks		Number	week	0	6	6	0	12

Indicator number	Darwin Initiative Standard Indicator	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-A07	Number of training material produced	Training materials on market, small-scale business development, conservation farming and agroforestry	Number		0	2 (draft)	2 (same as Y2, revised and published)	0	2
DI-C17	Number of papers to be submitted to peer reviewed journals	draft papers available (1:diversity of agroforestry practices, achievements and challenges 2: Moving forward with Community Participation in Managing Forest Resources in Temple of Preah Vihear World Heritage Site)	Number		0	0	2	2	2
	Number of computer based databases to be established and handed over to the host country	(base and end line survey; agroforestry characterisation survey; soil analysis)	Number		1	0	1	2	2
	Number of conferences/seminars/ workshops to be organised	(Mar 21 kick-off; Mar 22 dissemination; Oct/Nov? 22 dissemination of cultivation of high-value crops; Mar 23 final closing w'shop)	number		1	1	2	4	4
	Number of conferences/seminars/ workshops attended	(May 23 CIFOR/ICRAF Science Week;ICC f Preah Vihear conf in 21 and 22; Agroforestry road map within community forestry; (scheduled but beyond	Number		0	6	6	13	13

Indicator number	Darwin Initiative Standard Indicator	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
		reporting period: Sep 23 Agri4D, Resilient food systems)							
		Estimated value (GBP) of physical assets	Number	GBP	GBP Year 1 value GBP 3,890	GBP Year 2 value GBP 4,890	GBP Year 3 value GBP 8,765.71		Total GBP 8,780 (dam, nursery; irrigation system)
DI-B01	Number of permanent field plots and sites to be established during the project		Field Plots	Forest restoration Agroforestry	7 0	0 24	0 24 (same as Y2)	29	29
	Value of resources raised from other sources	review of all project staff's time at NAPV, ICRAF and BGCI, other contributions, e.g. NAPV's contribution to the nurseries, etc. value of IT equipment, office space,	Number	GBP	In-kind staff time (ICRAF, NAPV,BGCI) GBP 9,259	In-kind staff time (ICRAF, NAPV,BGCI) GBP 7,083	In-kind staff time (ICRAF, NAPV,BGCI) GBP 7,765	GBP 9,259	GBP 24,107 rent; NAPV vehicles

Table 2   Publications

Title	Type (e.g. journals, manual, CDs)	Detail (authors, year)	Gender of Lead Author	Nationality of Lead Author	Publishers (name, city)	Available from (e.g. weblink or publisher if not available online)
Agroforestry practices in Sra-Aem commune, northern Cambodia: selected practices from four villages within the commune*	Technical report	Rachmat Mulia, Khou Eang Hourt, Pisal Chheang, Nguyen Quang Tan, Aulia Perdana, and Pham Thanh Van, 2022	Male	Indonesian (affiliated with ICRAF Vietnam)	World Agroforestry (Hanoi, Vietnam)	Link to access the report will be available soon Report published (results will be used to develop the paper)
Guidance on low-emission cultivation of pomelo, longan, and jackfruit*	Training manual	The original version in Vietnamese was developed by Vu Viet Hung, an expert from Viet Nam's Fruit and Vegetable Research Institute (FAVRI)	Male	Vietnamese	The English version is published by World Agroforestry (Hanoi, Vietnam)	Link to access the report will be available soon Report published
Guidance on low-emission cultivation of guava, jujube, custard apple, and papaya*	Training manual	The original version in Vietnamese was developed by Tran Thi Thu Ha, an expert from Thai Nguyen University of Agriculture and Forestry (TUAF)	Female	Vietnamese	The English version is published by World Agroforestry (Hanoi, Vietnam)	Link to access the report will be available soon Report published
Guidance on low-emission cultivation of 7 fruit trees (Pomelo, longan,, jackfruit, jujube, custard apple and papaya in Khmer language	Training material	This guidance was developed by two Vietnamese experts in English version, and translated into Khmer version. The two guidances are bound into one guidance in Khmer version	Male	Cambodia, project team	Farms and Forests project, Preah Vihear	Facebook page of the project. Its link to NAPV website will be made available
Leaflet on agroforestry design	Training material	This leaflet was developed by a	Male	Cambodia	Farms and Forests project, Preah Viher	Facebook page of the project. Its link to NAPV

Title	Type (e.g. journals, manual, CDs)	Detail (authors, year)	Gender of Lead Author	Nationality of Lead Author	Publishers (name, city)	Available from (e.g. weblink or publisher if not available online)
		consultant and the project team				website will be made available
Awareness raising materials in poster	Poster	The awareness raising materials are composed of 5 themes, developed by the project team and a Cambodian consultant (artist)	Male	Cambodia, Project staff	Farms and Forests project, Preah Vihear	Facebook page of the project
Diversity of agroforestry practices, achievements and challenges	Agroforestry trial in photos with captions	The agroforestry trials illustrated the accomplishment being achieved by the project. This illustration include photos along with caption in English language, explaining components on the agroforestry.	Male	Farms and Forests project	Farms and Forests project, Preah Vihear	It is posted in project's facebook page
Technical guidance on agroforestry technique, soil improvement and problem solving	Video	Lilian	Female	Germany	Lilian, Preah Vihear	In youtube
Moving forward with Community Participation in Managing Forest Resources in Temple of Preah Vihear World Heritage Site	Occasionalpaper	Nguyen Quang Tan, Eanghourt Khou, Joachim Gratzfeld,	Male	Vietnamese	The paper will be published by World Agroforestry (Hanoi, Vietnam)	Link to access the report will be available soon

- **Checklist for submission**

	Check
Is the report less than 10MB? If so, please email to BCF-Reports@niras.com putting the project number in the Subject line.	Yes
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.	
If you are submitting photos for publicity purposes, **do these meet the outlined requirements (see section 10)?**	N.A.
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.	Yes
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.	No
Have you involved your partners in preparation of the report and named the main contributors	Yes
Have you completed the Project Expenditure table fully?	Yes
Do not include claim forms or other communications with this report.	