Darwin Initiative Main Annual Report

To be completed with reference to the "Writing a Darwin/IWT Report" Information Note: (https://www.darwininitiative.org.uk/resources-for-projects/reporting-forms-change-request-forms-and-terms-and-conditions/).

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

Submission Deadline: 30th April 2021

Darwin Project Information

Project reference	27-015
Project title	Farms and Forests: Boosting biodiversity and livelihoods in Northern Cambodia
Country/ies	Cambodia
Lead organisation	Botanic Gardens Conservation International (BGCI)
Partner institution(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)
Darwin grant value	£ 265,650
Start/end dates of project	October 1st, 2020 / March 31st, 2023
Reporting period (e.g. Apr 2020 – Mar 2021) and number (e.g. Annual Report 1, 2, 3)	Oct 2020 – Mar 2021 Annual Report 1
Project Leader name	Joachim Gratzfeld
Project website/blog/social medi	BGCI website: https://www.bgci.org/our-work/projects-and-case-studies/farms-and-forests/ ICRAF website: https://worldagroforestry.org/project/farms-and-forests-boosting-biodiversity-and-livelihoods-northern-cambodia
Report author(s) and date	Joachim Gratzfeld, Greetha Arumugam and Nicole Lee (BGCI) Eang Hourt Khou (NAPV) Nguyen Quang Tan, Rachmat Mulia, Aulia Perdana, Pham Thanh Van and Duc Thanh Pham (ICRAF) April 30th, 2021

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 is comprised of 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.

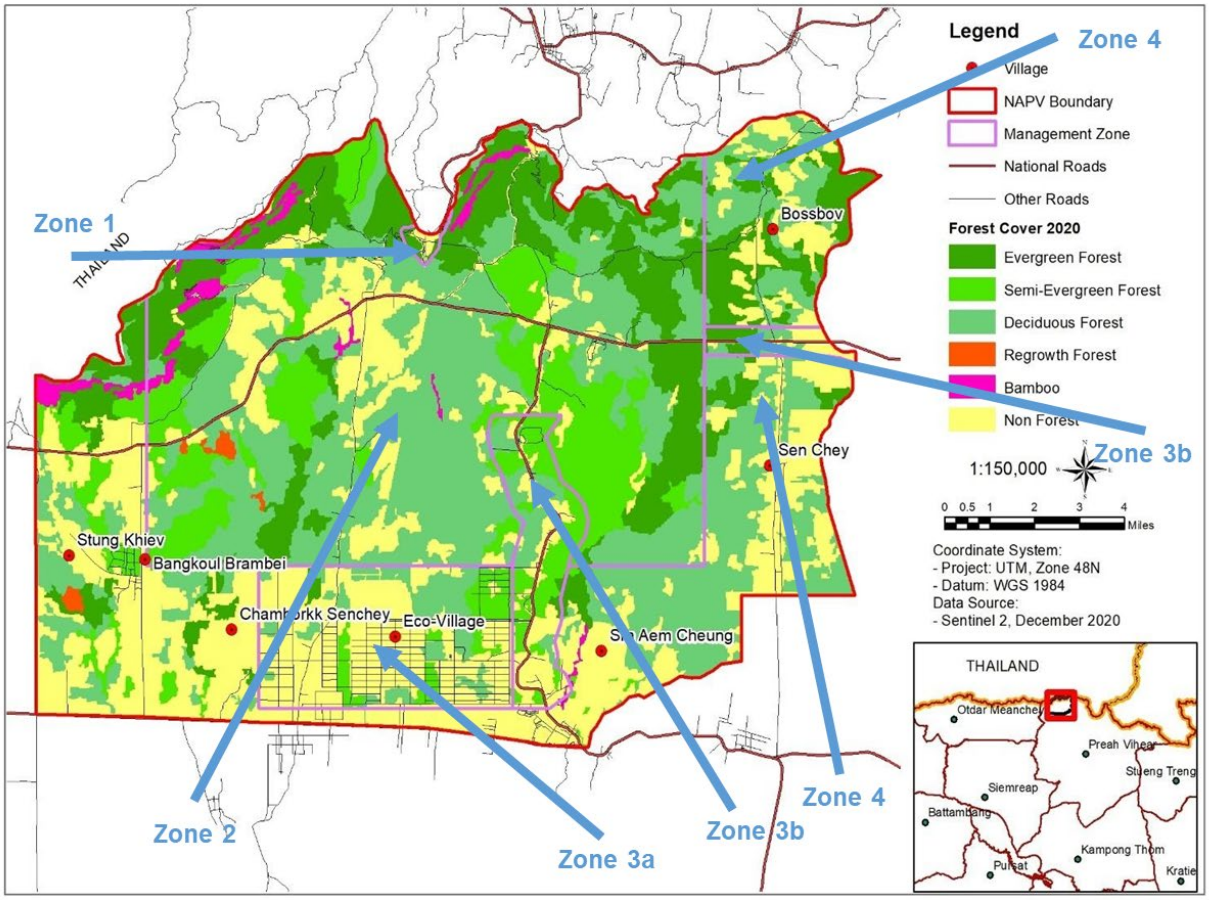


Figure 1: Preah Vihear Heritage Site (PVHS) in Choam Ksant district of Preah Vihear province showing the land use zones (blue arrows) and the four project target villages Techo Bos Sbov, Sen Chey, Sra Aem Khang Cheung and Thomacheat Samdech Techo Hun Sen (Eco-Village)

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 addresses 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 are identified and developed, which are expected to 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.

Whilst the pandemic led to a deferral of the project start by three months to October 2020, the challenging situation posed by the travel and face-to-face meeting restrictions, did not diminish involvement of all project partners in planning and decision-making to realign activities with the new project schedule and ensure implementation. Regular exchange between the project partners via online conferences – on average at least twice a month – has ensured a coordinated approach and agreement on needed project changes **(Annex 4.1)**. In addition, BGCI, ICRAF and NAPV have been in close exchange and discussion with regard to the implementation of project activities in the reporting period, including the organization of on-line training of enumerators for surveys, and coaching of consultants. By the same token, NAPV remained in close contact with the village leaders of the Sra-aem commune to plan the face-to-face project inception event, which had to be postponed to March 2021 due to the pandemic flaring up anew in Cambodia at the beginning of the new year **(Annex 4.2)**. A project Steering Committee composed of representatives from NAPV, ICRAF and BGCI was established and met twice, as a formal mechanism to monitor and evaluate project progress, and decide on change management (see Activity 0.1 under 3.1 and Section 8 for further details).

Moreover, this Project includes several technical consultancies such as on ecological restoration and environmental education. To deploy local expertise and in turn allow further exposure to an international partnership initiative, this project purposely hired Cambodian technical consultants for this work **(Annex 4.3 A – E)**.

During the project year, preliminary contacts with the Cambodian office of the Wildlife Conservation Society (WCS) (https://cambodia.wcs.org/) have been made and will be consolidated in the 2nd and 3rd year to discuss work complementarities and explore collaborative activities. Closer contact will also be established in the 2nd year 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). In the same vein, the Embassy to the United Kingdom in Phnom Penh will be contacted to inform about the project and explore areas of joint interest the project could assist with. Similarly, the Food and Agriculture Organization of the United Nations (FAO), the Regional Community Forestry Training Center for Asia and the Pacific (RECOFTC) have been contacted about the project to build synergy between the project and the work of FAO and RECOFTC in Cambodia.

3. Project progress

3.1 Progress in carrying out project Activities

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.

Activity 0.1 Establish project steering committee to guide project activities, monitor progress and adaptively manage project.

The steering committee was established at the beginning of the project 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). Aimed to review progress, address issues, and adapt activities if required and as appropriate, steering committee meetings are scheduled at regular intervals at least every six months.

In Year 1, two meetings of the project steering committee were held. The kick-off meeting in December 2020 was convened to introduce members of the committee to the project. The second meeting in March 2021 was valuable to review the project progress in Year 1 in preparation for the establishment of the annual report, as well as to plan the project continuation in the first quarter of Year 2. Due to the COVID-19 pandemic related travel restrictions, meeting in person was not possible and both meetings were held on-line **(Annex 4.4)**.

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).

This activity was generally undertaken as planned. In Year 1, the household baseline survey was conducted, covering data on socio-economic and livelihood systems, farming systems, forest and wild plant use of 221 households in the four project villages. Survey data were computerized and a baseline database was established in MS Excel format **(Annex 4.5)**.

Originally, this activity was planned to be undertaken by NAPV with on-site training and backstopping from the ICRAF team. However, the COVID-19 pandemic and international travel restrictions did not allow ICRAF staff from Viet Nam and Indonesia to take a trip to the project site in Cambodia. Consequently, the ICRAF team collaborated with NAPV and BGCI via on-line media to prepare and conduct the baseline survey data gathering.

After review of Cambodia-related socio-economic literature and data, the ICRAF team developed a draft survey tool shared with NAPV and BGCI for further improvement. An on-line, three half-day training for six enumerators from NAPV was then provided by ICRAF in December 2020. The

training also served as an opportunity to further enhance the survey tool based on the comments and inputs from the enumerators **(Annex 4.6)**.

The survey tool was tested in the field by the enumerators, following which the final version was established and used to carry out the baseline survey in the four project villages in December 2020. The selection of households for survey and the sampling size were based on stratified random sampling (Agresti 1990[1]; Vogt 2005[2]) with the sampling size proportional to the population of farm households in the villages. Altogether, 221 households, representing 9.3% of the total population in four project villages, were surveyed, of whom 24% are female headed.

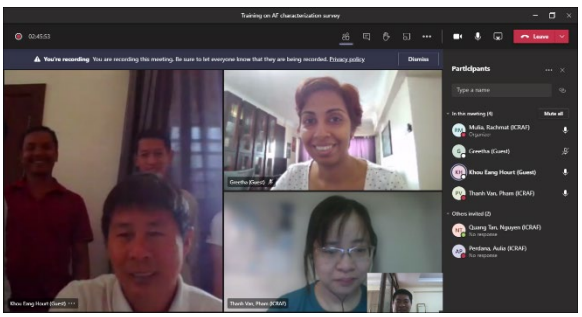
To make sure that vulnerable groups are not left behind, the household survey included female-headed, farm-dependent, and economically poor households. We consider these households more vulnerable to both economic and environmental shock including climate change and to whom the project should pay a special attention and introduce interventions.

Surveyed data were entered into the computer database prepared by NAPV in January 2021 and then shared with ICRAF team for analysis.

Preliminary analysis of the household survey data **(Annex 4.5)** shows that majority of households in the selected villages have relied on farm activities and collection of forest products for livelihoods, especially the Kuoy indigenous people of Sra-aem Cheung village. 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 price of farm products. At the same time, local people have clearly noticed that overexploitation of forest products have led to serious forest degradation. Promoting more 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.

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.

Based on literature review and the findings from the baseline survey (Activity 1.1), the project team developed a further survey on key agroforestry practices. An on-line training of the enumerators from NAPV was conducted by ICRAF in February 2021. As with the training on carrying out the household survey, this also served as an opportunity to improve the questionnaire, to discuss how to adapt the survey tools and conduct the survey in the local context. Based on the experiences made in carrying out the household survey, the on-line training on the agroforestry characterization survey was more effective and needed less time (i.e. two instead of three half-days).



Following the training, the enumerators conducted the agroforestry characterization survey in February 2021 in 55 representative agroforestry plots of the four project villages **(Annex 4.7)**. The survey also covered agroforestry plots with native species like Thnong (*Pterocarpus macrocarpus*) and Kranhoung (*Dalbergia cochinchinensis*). Data were entered into the database maintained by NAPV in March 2021 and shared with ICRAF team for analysis.

On-line training for enumerators on how to carry the agroforestry characterization survey

[1] Agresti A. (1990) Categorical Data Analysis. John Wiley and Sons, New York.
[2] Vogt, W.P. (2005). Dictionary of Statistics & Methodology: A Nontechnical Guide for the Social Sciences. SAGE.

Findings from the characterization survey indicate that local people have been aware of the benefits of agroforestry as a more sustainable farming practice mainly because of the ability of this system to generate diverse products and incomes. However, challenges in procuring quality seedlings and lack of information on appropriate design and suitable plot management options for agroforestry have restricted agroforestry development in the Sra-aem commune. 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.

Agroforestry characterisation survey in the Sra-aem commune

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.

The land suitability analysis aims to assess suitable areas for agroforestry cultivation and development in the Choam Ksant district.

In Year 1, a review of literature, data and maps provided by NAPV was carried out. This was followed by a participatory mapping to validate the existing land use/cover and soil map for the district, involving relevant authorities at commune and village levels. For wider impact, the project team decided that the land suitability analysis was to be carried out at district rather than commune level, with Choam Ksant district comprising eight communes including the Sra-aem commune **(Annex 4.8)**.

Participatory mapping in Sra-aem commune

In addition, soil sampling was also necessary to capitalise on refined information on soil physical and chemical properties. The locations of soil sampling were determined using the existing soil map for the district that describes different types of soils, information from the participatory mapping in which the relevant authorities identified different types of soil and different levels of soil fertility, complemented with knowledge from NAPV staff. For the soil sampling, areas with different types of soils and different levels of soil fertility were selected. In total, 24 different locations across the district were sampled generating some 96 soil samples that are being analysed in a soil laboratory of the Royal University of Cambodia in Phnom Penh. The participatory mapping was conducted from March 5th to 15th, 2021 and the soil sampling from March 21st to 23rd, 2021.

The ICRAF team had planned to carry out the preparatory work with NAPV staff on-site. However, as with the household and agroforestry characterisation surveys, due to COVID-19 travel restrictions, a technical consultant based in Cambodia had to be recruited to conduct the mapping with NAPV staff under the remote guidance from ICRAF. The consultant was identified in February 2021 **(Annex 4.9)** and joined ICRAF and NAPV in the preparatory work for the participatory mapping, including discussion on methodology and scope of the mapping.

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.

Work under this activity started in October 2020 with review of existing data and literature, and preparation of questions to be integrated in the household baseline survey (Activity 1.1). As with the other surveys, ICRAF had planned originally to conduct the field survey on the market opportunities and value chain jointly with the NAPV team. With travel restriction in place, a technical consultant was recruited in Cambodia to work with NAPV under remote support from ICRAF. The consultant was identified in February 2021 and joined ICRAF and NAPV in the preparations for the field survey, including discussions on tasks and expected results, and development of survey tools **(Annex 4.10)**.

The market opportunities and value chain survey was carried out in March 2021, focusing on major crops such as cashew nut, mango, cassava, rice, and vegetables. The survey took into account findings from the household baseline survey, such as crops currently grown as well as crops farmers wishing to plant in the future. The survey identified market dynamics, root causes, opportunities, advantages, and threats, as well as expectations along the chain. It also identified the gender roles and support functions of the various parties that support the commodity value chain, including business enablers; and potential private sector partners to be involved. During the survey, linkages with private sector actors, such as local processors and exporters were initiated. For example, the market survey consultant visited a number of export traders for cashew and cassava during the survey, including Sandana – a cashew nut processing factory in Rovieng district, Preah Vihear province. He briefly introduced plans for this project to open access to market, including value adding opportunities for cashews produced in the four targeted villages.

To be socially inclusive, the survey included inquiries on the roles of female and male farmers and market players to identify and map the workings of the value chain. The results will be beneficial to identify the stakeholders' further capacity building needs.

Preliminary findings from the value chain assessment show that farmers are selling their farm products individually to local collectors. The market survey also shows that mango and cashew cultivated by smallholder farmers have high market demand but require further effort to add value at farm or regional levels. As most farmers grow these organically and sell the products individually in small batches, they are not able to fulfil larger demand. These farmers are facing direct competition from larger farms that have more financial capital to reach economies of scale in production and delivery. Markets of the larger farms include Vietnam and China. The survey findings also indicate the need to establish collective marketing units at village level to facilitate sales and add bargaining power. Business models will be recommended and examined following the detailed analysis of markets and value chains.

Activity 1.5 Develop recommended agroforestry models for trials, including benefit-cost analysis.

This work is scheduled to be initiated in the second year and will include the following activities:

- Comprehensive assessment of the agroforestry characterisation survey data to develop new agroforestry trials, including cost and benefit analysis (Apr-May 2021);
- Consultation workshop with representatives of the Sra-aem commune (May-Jun 2021) to present findings of the analysis and identify households interested in trialling new agroforestry trials;
- Initiate agroforestry trials by the end of Jun 2021.

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.

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.

The component on training the trainers and pilot farmers under this project will capitalise on two main sources, 1) training materials developed by ICRAF that describe basic principles of agroforestry practices and how to appropriately design agroforestry for optimal resource uses, and 2) the agroforestry module/curriculum developed through the Life and Nature project coordinated by the Food and Agriculture Organization of the United Nations (FAO) that describes

suitable ways to develop agroforestry and provides recommended agroforestry models adapted to the Cambodian biophysical and socio-economic context.

Preparatory work for training of trainers and pilot farmers on small-scale market system and business development was initiated through the compilation of materials for the establishment of a training manual. It includes an initial understanding of market systems and its interactions, and will be further developed to reflect the findings of the agroforestry characterisation survey.

Some specific references for this activity are in **Annex 4.11 A-E**.

Activity 2.2 Design market-based conservation farming and agroforestry on-farm trials/ demonstration plots for training.

Findings from the surveys conducted under Output 1 confirm the need to promote more sustainable and climate-adapted farming systems that at the same time create opportunities for better market access and enhanced capacity of local people to undertake small-scale business activities. Based on the findings from the surveys under Output 1, the ICRAF team have been working in collaboration with NAPV to identify the combination of trees and crops for the on-farm trials. Potential business models for local smallholder are also being examined.

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.

As per the Change Request made by the project team in January 2021 **(Annex 4.1)** and approved by the Darwin Initiative in February, the start of this activity had to be deferred due to COVID-19 to the second year, as this is sought to be carried out as a face-to-face training with representatives from the local communities. However, initial preparations for the training have been made including a review of training design materials **(Annex 4.11 A-B)**.

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.

No activity under 2.4 was planned and carried out in the reporting period.

Activity 2.5 Provide on-going support for market linkages and small business development for pilot households throughout year 1 and 3.

Linkage with private sector actors, including local processors and exporters, has been initiated, including for example Sandana - a cashew nut processing factory in Rovieng district, Preah Vihear province.

Activity 2.6 Policy recommendations on agroforestry and small-scale business developed and published by end of year 3.

No activity under 2.6 was planned and carried out in the reporting period.

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.

Activity 3.1 Two nurseries built with 20,000 seedling capacity with required supplies by end of year 2.

In addition to NAPV's existing nursery facilities (572m^2), a further, 710m^2 nursery has been established in Year 1 alongside infrastructure for water tanks installation. The new nursery's roof is yet to be equipped with shade netting as well as irrigation pipes to make it fully operational. This work will be completed in Year 2 together with the establishment of a further, 400m^2 nursery.

Activity 3.2 Employees recruited and contracts signed with NAPV for managers and staff of nurseries by end of year 1.

A total of seven nursery staff have been employed (one men, six women), including a nursery team leader. Their tasks include a wide range of horticultural activities and overall nursery facility maintenance. During Year 1, an additional 6,000 seedlings have been raised in the existing nursery (Activity 3.1), bringing the total of seedlings of native tree species, fruit trees and other crops currently grown to 17,665, including 8,050 seedlings of threatened species **(Annex 4.12)**.

Activity 3.3 Contract for restoration consultant developed and signed in year 1.

A technical restoration consultant was recruited and contracted to establish an eco-geographical analysis of the project area, set up growth monitoring plots to study survival and development rates of planted seedlings, and develop a restoration plan for the project area **(Annex 4.3 A and Annex 4.13)**.

Activity 3.4 Workshops to develop and implement restoration plan for NAPV with guidance of consultant and BGCI in years 1, 2 and 3.

Consultative workshops were held with the village chiefs and community members to discuss the elements of the development of a participatory Forest Restoration Action Plan (FRAP) **(Annex 4.3 C)**. The FRAP will include i) forest restoration work in the Zone 2 (Conservation zone) and ii) tree diversity enhancement (native species and fruit trees) in the four villages on public land and on the farmers' small land holdings, linking with Activities 1.2 and 1.3 under Output 1 to trial new agroforestry models. Over the duration of the project, the FRAP foresees a total of 50,000 seedlings grown in the NAPV nurseries to be distributed to farmers in the four villages to further promote agroforestry.

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.

As part of the FRAP, a total of seven restoration monitoring plots were identified and established (10m x 10m) in Zone 2 in Year 1 aimed at baseline study of species diversity, population density, and growth development (see Output 3 Indicator 3.5).

Activity 3.6 Plant 15,000 trees over years 1, 2 and 3, and implement aftercare.

To date, tree enrichment planting with some 8,430 seedlings of 12 species **(Annex 4.14)** has been carried out over 40 hectares as part of the FRAP (Activity 3.4), on average 1,000 seedlings per hectare. The establishment of a fire break and the erection of a signboard panel to discourage the use of fire and explain the restoration benefits, alongside the early start of the rainy season in 2021 have meant that the seedlings have well-established over more than 90% of the planted area. A total of 29 villagers participated in the tree planting (49% women).

Enrichment planting with native trees at Ko Muoy, Sra-aem commune

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.

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 has been drafted and will be further refined in Year 2 **(Annex 4.3 D-E)**. In addition, sketches for the production of public outreach posters have been developed in Year 1 and are being drawn by a graphic designer in Year 2 which will provide information of various themes related to the project including native species diversity, drivers of change of the dry forest ecosystem, benefits of agroforestry, etc.

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 four villages in Year 1, and a participatory Forest Restoration Action Plan (FRAP) has been drafted and will be finalized in Year 2 (Activity 3.4).

Activity 4.3 Monitor fire events and forest use practices over years 1, 2 and 3.

A map of forest fire incidence in the conservation zone was produced in Year 1 **(Annex 4.15)** and will be updated in the second and third year, supported by photographic evidence. A method is being developed to record the occurrence and frequency of forest fire within and adjacent to the restoration monitoring plots (Activity 3.5).

3.2 Progress towards project 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 has been 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) has been assessed through various surveys. Baseline data from 221 households (about 25% of the total population of farm-based households) in the four project villages have been collected and analysed **(Annex 4.5)**. Data on biophysical characteristics of main agroforestry practices in these villages have also been collected and analysed for use in the design of potential agroforestry practices to be established at the farm and demonstration plot levels. A study on market opportunities and value chain for key agroforestry and NTFP products has been conducted **(Annex 4.11 C-E)** and a report is being prepared.

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.

Key achievement: Baseline survey data on socio-economic and livelihood systems, farming systems, forest and wild plant use in PVHS communities collected in Dec 2020 and have been used for agroforestry and agribusiness assessment and planning.

- 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).

Key achievement: Preparatory work has been completed namely desktop review, participatory mapping, and soil sampling carried out in March 2021 in eight communes of Choam Ksant district to produce key inputs for the land suitability analysis.

- 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).

Key achievement: Baseline data on market opportunities and value chain for key agroforestry and NTFP products from the region has been collected **(Annex 4.11 C-E)**. The report is in preparation.

- 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).

Key achievement: A market and value chain survey has been conducted **(Annex 4.11 C-E)**. The findings will inform the design of agroforestry models and guidance documents.

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.

Limited progress has been made in the reporting period with regard to the achievement of this Output as key work is planned for the second and third year in the project. In addition, due to COVID-19 travel restrictions, the first train-the-trainer session which was planned for March 2021 had to be moved to financial year 2021/2022 **(Annex 4.1)**.

Use of Indicators to support progress towards the Output:

- Indicator 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).No achievement has been made with regard to this Indicator in this reporting period as this work has been deferred to Year 2.
- 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).The process of training material preparation has started but no achievement has been made with regard to this Indicator in this reporting period.
- 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).

Key achievement: baseline data on household production and income from crops and trees in 2020 has collected and entered into database **(Annex 4.5)**. Key market players have been identified and linkage to potential market has been initiated.

- 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. No achievement has been made with regard to this Indicator in this reporting period.

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.

Significant accomplishment towards Output 3 have been made in Year 1. These include the establishment of a nursery of 710m^2, equipped with a supporter for a water tank; propagation of over 6,000 seedlings, majority of which are native threatened species **(Annex 4.12)**; restoration of 40 hectares of degraded forest area through planting of 8,430 seedlings; development of a participatory Forest Restoration Action Plan (FRAP); and establishment of seven monitoring plots to study the survival and mortality rate of both, planted seedlings and natural regeneration. A total of 6 signboards on forest fire precaution were erected in the restoration area, whilst the incidence of forest fire is being monitored regularly. To date, the restoration area has not been affected by fire due to the development of a fire break.

Use of Indicators to support progress towards the Output:

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

Key achievement: One of two new nurseries has been constructed and is nearly completed (85%). It will be fully operational in Year 2 when the roof and irrigation system installation will be completed. The second nursery will be established in Year 2. The two nurseries are expected to have a much higher capacity than sought for in Indicator 3.1, being able to hold approximately 60,000 seedlings.

- 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).

Key achievement: A three-year Forest Restoration Action Plan (FRAP) has been drafted based on an eco-geographical survey and consultation with the local community by the ecological restoration consultant **(Annex 4.3 C)**. It will be reviewed by the project team, and presented to the local community to validate data and generate a final plan in Year 2. The restoration action plan has been developed to align with the National REDD+ strategy (http://cambodia-redd.org/technical-report.html). It will encompass capacity building to technical staff, restoration

activities, agroforestry promotion by integrating native threatened tree species with fruit trees and non-woody crops, and strengthening cooperation in the Sra-aem commune. In summary, the FRAP will include 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).

Key achievement: Seven community members have been employed at the nursery, of whom six are female. Five nursery workers were employed for two months (Feb and Mar 2021) to help with propagation and other associated nursery activities. Two workers will be permanently hired throughout the project duration, acting as mentors for other community members who wish to learn various propagation techniques. In order to achieve the Output as well as project Outcome in nursery leadership, the project plans to invite community members interested in enhancing their horticultural knowledge and knowhow to the nursery in Year 2 to learn more about soil mixture, seed treatment, propagation and seedling maintenance.

- 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).

Key achievement: A total of four community members (one woman) from the Eco-village have been permanently employed in forest restoration activities, and 29 community members (41% women) were involved in a tree planting event. More community members from the four villages will be employed in tree planting 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%.

Key achievement: A total of seven monitoring plots have been set up in Zone 2, three with varying management schemes including enrichment planting and assisted natural regeneration, two with assisted natural regeneration, and two without assisted regeneration **(Annex 4.3 C and Annex 4.14)**. The plots are monitored two times (dry season and rainy season) every year. Findings from the monitoring plots will be 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).

Key achievement: A total of 8,430 seedlings have been planted over an area of 40 hectares of degraded forest. This includes five threatened species included on the IUCN Red List (*Dalbergia cochinchinensis*, *D. oliveri*, *Pterocarpus macrocarpus*, *Afzelia xylocarpa*, *Dipterocarpus alatus*), accomplishing Indicator 3.6 by 56.2% in Year 1 **(Annex 4.14)**.

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.

Some progress has been made against Output 4, inter alia, preparation of a conceptual framework for public outreach **(Annex 4.3 D-E)**; development of posters for promoting awareness on agroforestry, the values of the forest ecosystem and participation in restoration; as well as a draft participatory Forest Restoration Action Plan (Indicator 3.2) as a result of consultation with community members and the village chiefs of the four villages.

Use of Indicators to support progress towards the Output:

- Indicator 4.1 80% of respondents report increased perceptions of the importance of conserving forest following education programmes by project end (2023). Building on the survey results of the 221 households under Output 1, this Output will be will be measured in Year 2 and Year 3 to assess changes in perception of the value of forest conservation efforts as implemented by the project.

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

Key achievement: A participatory Forest Restoration Action Plan (FRAP) **(Annex 4.3 C)** has been drafted (Indicator 3.2). The development of the FRAP was led by the village chiefs of four villages, guided by the ecological restoration consultant. This action plan will be reviewed and finalized in Year 2.

- 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.

Key achievement: A map of forest fire incidence in Zone 2 was produced in Year 1 **(Annex 4.15)** and will be updated in the second and third year. A method is being developed to record the occurrence and frequency of forest fire within and adjacent to the restoration plots.

- Indicator 4.4 150 households are reporting 20% reduction in days spent in NTFP collection between year 1 and year 3 (2023). As with Indicator 4.1, building on the survey results of the 221 households under Output 1 **(Annex 4.5)**, this Output will be will be measured in Year 2 and Year 3 to assess changes in NTFP collection as a result of the project.

3.3 Progress towards the project Outcome

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

Despite the outbreak of COVID-19 pandemic and the related travel restrictions which caused delay in the implementation of some of the planned activities (in particular Output 2, Activity 2.3), progress toward the achievement of the expected project Outcome has generally been on track. In Year 1, a better understanding of forest ecosystem and its role for livelihoods, especially Non Timber Forest Products (NTFPs) such as mushrooms, bamboo shoots, edible leaves and shoots, wild fruits, yams, insects, etc. as well as the opportunities for marketing and value chain development of key agricultural products in the PVHS have been acquired the survey work. These studies shows that NTFPs remain a key commodity for subsistent households. Local communities still have limited access to a variety of crops due to remoteness of the area where they live, market barriers, and imperfect knowledge and knowhow of cultivation of different crops. Based on the survey results, local ecological and market conditions for implementation of agroforestry practices are being developed.

Summary key progress towards achieving 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).

Key achievement: Data on production and income have been collected in 221 households, to serve as the baseline (2020) for measuring the change from of project start and end (2023).

- 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.

Key achievement: To date, 11 community members who belong to subsistence households have been employed of whom seven were women. More poor and near-poor households are identified for employment in forest restoration, and other community members who are interested in enhancing their horticultural knowledge will be trained at the NAPV nursery. Such training will be conducted in Year 2 and Year 3.

- 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.

Key achievement: Data on collection of wild plants and associated labour days have been collected in 221 households, to serve as the baseline (2020) for measuring the change from of project start and end (2023). The data of 2020 shows that 99 out of 221 households spent an average of 11.7 days per year to collect forest products, ranging from 2 to 180 days. The remainder 122 households did not spend any labour day on forest products. For subsistence purpose, farmers in Sra-Aem Cheung village who have collected forest products spent more days per year than those in other villages. For income purpose, however, farmers in Eco-

Village had the highest average number of days spent on collecting forest products **(Annex 4.5)**.

- 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.

Key achievement: A map of forest fire incidence in Zone 2 was produced in Year 1 **(Annex 4.15)** and will be updated in the second and third year, supported by photographic evidence. A method is being developed to record the occurrence and frequency of forest fire within and adjacent to the restoration plots.

In summary, although good progress has been made towards the Outcome in Year 1 and the Indicators are deemed adequate to measure project advancement, the team feels it is too early to reasonably gauge whether changes are required for ultimately achieving the project's Outcome.

3.4 Monitoring of assumptions

Overall, the original assumptions are still valid.

Outcome Assumption 1: 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)

The main challenges of local farmers are access to seedlings, technical horticultural knowledge and market access. The project is striving to address these challenges by enhancing horticultural capacity and providing propagules and seedlings, and exploring and developing new market opportunities in collaboration with the target communities. These efforts serve as major incentives for the local community and authority to engage in the project.

Outcome Assumption 2: 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).

The Preah Vihear Heritage Site is home to many native threatened tree species, and some mother trees in healthy state have been recorded and mapped for phenology monitoring to anticipate and plan the optimal seed collection time. The project also supports the establishment of two new nurseries with an ultimate capacity of holding approximately 60,000 seedlings, which will provide an important and secure stock of plants including native trees, fruit trees, non woody crops and ornamental species to supply agroforestry, home garden and restoration activities **(Annex 4.12)**.

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

The socio-economic and agroforestry characterization surveys have shown the scope and potential to improve and expand agroforestry in the project area **(Annex 4.5)**. As this project seeks to diversify agroforestry practices including the use of native species and help develop new markets for crops sought after, the communities are engaging in the project work.

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 4.8)**, 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 will be equipped with net roofs which help shade seedlings. Outplanting is 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) is 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 Year 1 in the development of the Forest Restoration Action Plan (FRAP) as elaborated under Output 3 Indicator 3.2. suggesting they value the development of the FRAP.

In the context of the COVID-19 pandemic and based on the understanding gained from the implementation of Output 1, the following assumptions are considered be added at the Outcome level for Year 2 and 3:

1. COVID-19 pandemic will not cause long-lasting lock-down in the project area.
2. Institutional support from local authorities is in place for marketing of key agricultural products and NTFP.

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

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

A key impact of the project is to expand opportunities for short-term community benefits to longer term impact by upscaling sustainable agroforestry models and creating new markets. In parallel, dry forest ecological restoration including assisted regeneration using native, rare and threatened trees species is expected to establish the foundations for restoring and enhancing forest ecosystem services including climate regulation. Ultimately, this will increase the number of people benefiting from the work initiated under this project, providing new employment opportunities and more secure livelihoods that contribute to reducing poverty in the long run.

The initial research and baseline information has been established through the various surveys carried out in Year 1 including disaggregated analysis by socio-economic activities and gender. **(Annex 4.5)**. This will enable benefits to be quantified at the end of the project based on project involvement and gender within communities, showing the higher level wider impact of the project on wellbeing.

The project is also 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 the dipterocarps *Dipterocarpus alatus* (Vulnerable)*, Dipterocarpus intricatus* (Endangered), *Shorea roxburghii* (Vulnerable), *Anisoptera costata* (Endangered) and *Hopea ferrea* (Endangered) **(Annex 4.12)**. The horticultural needs of many of these species are not well established, let alone many have not been brought into scalable propagation. As some of these species are also native to the neighbouring countries including Thailand, Laos and Viet Nam, the knowledge generated by the project will be of wider regional relevance for use in other initiatives that link forest conservation and poverty alleviation.

4. Contribution to the Global Goals for Sustainable Development (SDGs)

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 developing market opportunities in the second and third year, prospects for diversified and sustainable subsistence and farming income will be trialled.

SDG 5 (gender equality): Gender equality is an underlying principle of the project, which will promote equivalent participation in activities and distribution of project benefits among women and men. The baseline surveys carried out under this project specifically include 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 **(Annex 4.5, Annex 4.6, Annex 4.7)**. An overview of the number of women included in the project in Year 1 is in Section 6.

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, more than 8,000 seedlings of threatened tree species have been established and planted in the conservation zone of PVHS, and on public land in the villages as well as in farms of individual households. These efforts will help offset carbon emissions whilst contributing to the recovery and sustainable use of degraded forest habitat. Through further threatened tree planting and forest management activities in the second and third year, the project will contribute to the improved connectivity of dry deciduous forests and in the project area and further carbon offsetting.

SDG 17 (partnerships for the goals): This project itself presents 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.

5. Project support to the Conventions, Treaties or Agreements

This project is helping 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, are raising 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* are being developed (Output 3). In the second and third year, specialised training for local community members in agroforestry and sustainable horticulture, soil improvement and water management practices will contribute to knowledge sharing and cooperation for biodiversity conservation.

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 **(Annex 4.12 and 4.14)** has been initiated (dry forest keystone tree species and species of socio-economic importance). These taxa will be used in 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.

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, will advance sustainable farming methods in PVHS .

This project also contributes 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 of this project initiated in Year 1 and consolidated in the second and third year will contribute to these goals, thereby also supporting Cambodia's commitment to the Paris Agreement under the UNFCCC.

Contact with the CBD focal point in Phnom Penh had been established in 2019 at the time of the development of the Darwin Partnership Project (DARPP199) to discuss the development of an integrated conservation and agroforestry project in northern Cambodia. Closer interaction with the CBD focal point and the National Council for Sustainable Development, Ministry of Environment will be established in the second year.

6. Project support to poverty alleviation

The beneficiaries of this project are forest resource-reliant and agricultural-based households whose livelihoods are subsistent. They mainly practice monoculture and rely on only 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 supports poverty alleviation through a number of ways by responding to the above challenges, including:

- Change the traditional practice of monoculture and dependence on a few crops to agroforestry which helps diversify products for income generation, food security, soil conservation and adapting to climate change;
- Provide community farming knowledge and applying new agroforestry techniques through training and knowledge exchange;
- Provide new enterprise development options and value chain knowledge through training;
- Enhance nursery capacity to produce fruit trees and other crops of socio-economic importance as well as threatened native forest trees to support agroforestry and restoration.

Notable achievements made in Year 1 that will help poverty alleviation in the long-run include:

- Baseline data on socio-economic development including a household and agroforestry characterisation survey have been collected and analysed (Indicator 1.1);
- The market and value chain of agricultural crops has been studied and potential crops have been identified for agroforestry implementation (Indicator 1.3);
- Soil mapping, climate risk and natural disaster assessment affecting crop and a crop calendar have been established (Indicator 1.2);
- Soil samples have been collected for lap test (Indicator 1.2);
- A 710 square m nursery has been established and an additional 6,000 seedlings have been raised in the existing nursery bringing the total of seedlings of native tree species, fruit trees and other crops currently grown to 17,665, including 8,050 seedlings of threatened species (Indicator 3.1);
- Tree enrichment planting with some 8,430 seedlings of native 12 species has been carried out over 40 hectares (Indicator 3.6).

7. Consideration of gender equality issues

The project takes gender equality into account through various project components. For instance, both male and female nursery staff have been employed, and men and women have also been involved in forest restoration (Table 1).

Activity	Total of men and women participating	Total of female	Percentage of female participation
Consultative meeting on participatory forest restoration in the four villages	36	23	63.89
Forest restoration	4	1	25.00
Nursery worker	7	6	85.71
Socio-economic survey	221	164	74.21
Agroforestry characterization survey in the four villages	51	19	37.25

Market and value chain survey in the four villages	33	15	45.45
Participatory mapping in the eight communes of Choam Ksant district	89	39	43.82
Inception workshop	16	3	18.75
Total	**457**	**270**	**59.08**

Table 1: Overview of participation in project activities disaggregated by gender (women)

8. Monitoring and evaluation

A project Steering Committee (SC) was established at the beginning of the project to lead monitoring and evaluation of project progress. The SC is 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 meetings are scheduled at regular intervals at least every six months. In Year 1, two meetings of the project steering committee were held. The kick-off meeting in December 2020 was convened to introduce members of the committee to the project. The second meeting in March 2021 was valuable to review the project progress in Year 1 in preparation for the establishment of the annual report, as well as to plan the project continuation in the first quarter of Year 2. Due to the COVID-19 pandemic related travel restrictions, meeting in person was not possible and both meetings were held on-line **(Annex 4.4)**. This approach has proved very valuable and will be drawn on also in the second and third year to track and evaluate progress against each project Activity and Output.

9. Lessons learnt

Whilst English is the language used to communicate jointly among all the team members, it is not the mother tongue of any of the project partners, including the project lead in the UK. Whilst communication and information exchange among all the team members has been working extremely well throughout the year given the regular and convivial interaction, language issues may have occasionally led to misunderstanding of technical or administrative aspects. In addition, most of the communications at the local level in Cambodia are made in Khmer, posing a further challenge for the Cambodian project partner who has to ensure that the information is properly translated. Consistent use of terminology related to any of the technical components in the project is therefore very important to minimise misinterpretation. It would be useful, early onwards in a new project to establish a glossary stile list of terms and concepts frequently used by project and encourage all partners to use and refer to these consistently in any written communications.

The planning of project activities needs to take into account of the daily work and routine of local communities involved in project. For instance, smallholders in the Sra-aem commune by and large are busy with farming work during the day; in addition, the farms can be located far away from the village where they live requiring significant amount of time to commute. Hence, project work, such as household surveys 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 is important to avoid frequent schedule changes. Even then, as the work of local farmers is closely associated with weather conditions, planned meeting schedules can change unexpectedly.

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

Not applicable.

11. Other comments on progress not covered elsewhere

Drought and change in rainfall have been experienced at the project site as well as across Cambodia, alongside the occurrence of new pests. Although these events have remained at a small scale and have not significantly affected the project in Year 1, the project will need to be wary of such occurrences. These issues will be discussed in future meetings of the Steering Committee.

12. Sustainability and legacy

As a result of the pandemic, the project has had to deploy a number of adaptive change management techniques. Whilst this has come with additional challenges for all project partners, these adjustments were successfully implemented, demonstrate the high flexibility of the project team and are thought to have also a beneficial influence on the sustainability and legacy of the project as a result of reaching out to a wider group of stakeholders involved in the project. For instance, a key effort to promote this project in Cambodia was to realign the approach for undertaking the agroforestry characterisation baseline work. Originally planned to be carried out by ICRAF staff from Viet Nam and Indonesia on-site, the method was realigned through online training in socio-economic survey techniques provided to seven further, local enumerators, in addition to the five enumerators already included in the project. Besides knowledge transfer and capacity building in agroforestry and conservation techniques, the project also makes substantial contributions to the development and provision of infrastructure and equipment, including two new nurseries, a composting facility and a micro-hydraulic structure. All these components support the efforts by the National Authority for Preah Vihear (NAPV) and lay the foundation for long-term impact of the project, e.g. by providing a continued source of plants for agroforestry and forest restoration, whilst offering further employment opportunities for the communities living in the area. Refining the elements of the exit strategy will be part of the discussions held among the project team and in the Steering Committee in Year 2.

13. Darwin identity

This Darwin Initiative project has been presented to the project staff at the start of the project, and to the local community at the inception workshop **(Annex 4.2)**. 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 **(e.g. Annexes 4.2; 4.3; 4.4)**. Whilst the merits and achievements made in this project are duly promoted, this project also feeds into the larger National Authority for Preah Vihear Commune Investment Plan aimed at improving local livelihoods, and forest ecosystem management and conservation. The contribution made by UK Government's fund through this project is therefore highly appreciated by the National Authority. Several Darwin Initiative projects have been or are being implemented in Cambodia, suggesting that the host country and relevant government agencies and non-governmental organisations including the Ministry of Environment, Ministry of Agriculture, Forestry and Fisheries, Forestry Administration, Conservation International, Birdlife International, Durrell Wildlife Conservation Trust, Wildfowl and Wetlands Trust, World Conservation Society, etc. are familiar with its objectives. Closer contacts with some of these will be sought in Year 2. By the same token, as efforts in Year 1 have focussed on establishing project baseline data, wider use of public outreach channels including links to the Darwin Initiative's social media will be (see also Section 2 Project Partnerships) established in Year 2.

14. Impact of COVID-19 on project delivery

Due to COVID-19, the project was delayed by three months, starting in Oct 2020 although at that time it was still impossible to foresee the impact of further waves of the pandemic. As it became apparent during the third quarter that international travel would not be possible in Year 1, project activities were realigned through a Change Request **(Annex 4.1)**. By and large, this included use of international travel budgets for alternative or add-on activities in Year 2 as well as deploying more local level expertise in Cambodia, substituting the originally planned on-site, survey work and face-to-face capacity building series provided by ICRAF through online coaching and training. Specifically, this concerned 1) all of BGCI's international travel budget to be reallocated to NAPV to enable them to enhance water supply in support of agroforestry promotion and development as well as to include added-value, practical forest restoration activities in Year 2; 2) moving some of ICRAF's international travel budget to Year 2 and shifting remaining ICRAF funds for international travel and subsistence to NAPV to enable the implementation of the majority of planned activities in Year 1 as per the originally agreed project proposal; as well as 3) moving some of NAPV's budget for training (Train-the-trainer groups) to Year 2. Making these changes has ensured most of the project is on track with exception of the community leaders' training component under Output 2. Although the project team has explored the possibility of holding a virtual, online training, it was felt that this is not a practical option, as many local community representatives

have no internet access. Moreover, it is important to the success of the training to be able to gather the groups in-person, allowing for interactive exchange, practical demonstrations and practice.

Despite the growing shift to more online project management including delivery of training, the face-to-face exchange component of any community-based conservation initiative, will always remain an important aspect of developing true partnership projects.

15. Safeguarding

Please tick this box if any safeguarding or human rights violations have occurred during this financial year. ☐

If you have ticked the box, please ensure these are reported to ODA.safeguarding@defra.gov.uk as indicated in the T&Cs.

BGCI employee handbook was updated in 2020 and contains principles, requirements and guidance on staff and contractor conduct within and outside of the office. This includes BGCI's policies on anti-bribery and corruption and anti-harassment and bullying, which are also shared with project partners to ensure that all involved in the project sign up to these principles. These will also be referred to in the partners' collaboration agreements for Year 2 and Year 3. A whistle-blowing policy is included in the handbook, which includes a procedure for raising concerns, including options for upscaling, if it is felt necessary, up to relevant government bodies (e.g. HM Revenue and Customs, The Environment Agency, The Charity Commission etc.). The handbook includes a Code of Conduct for staff which sets out expectations of behaviours inside and outside the work place and makes it clear what will happen in the event of non-compliance or breaches – i.e. disciplinary action up to and including dismissal as well as legal action by BGCI if it deems it necessary to do so. BGCI's policies are available here.

There have been no safeguarding incidents or concerns in Year 1 of the project.

16. Project expenditure

Table 1: Project expenditure during the reporting period (1 April 2020 – 31 March 2021)

Project spend (indicative) since last annual report	2020/21 Grant (£)	2020/21 Total Darwin Costs (£)	Variance %	Comments (please explain significant variances)
Staff costs (see below)	[redacted]			
Consultancy costs				
Overhead Costs				
Travel and subsistence				
Operating Costs				
Capital items (see below)				
Monitoring & Evaluation (M&E)				
Others (see below)				
TOTAL				

Annex 1: Report of progress and achievements against Logical Framework for Financial Year 2020-2021

Project summary	Measurable Indicators	Progress and Achievements April 2020 - March 2021	Actions required/planned for next period
Impact Community-based forest conservation is linked to sustainable farming practices and diverse income opportunities throughout Cambodian communes and elsewhere in the region.		Baseline data collected (household, agroforestry characterisation, native dry forest tree diversity, forest use values) and practical work initiated (long-term forest monitoring plots) as a foundation to develop sustainable farming practices.	[redacted]
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).	0.1 Data on production and income collected from 221 households, to serve as the baseline (2020) for measuring the change from of project start and end (2023).	Development of agroforestry pilot schemes.
	0.2 At least 30 PVHS community members are employed in nursery management, tree planting and restoration activities by end of the project 2023.	0.2 A total 11 community members employed at different periods of time.	Further community members, especially vulnerable people will be identified and employed in forest restoration work.
	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.	0.3 Data on collection of wild plants and associated labour days collected from 221 households, to serve as the baseline (2020) for measuring the change from of project start and end (2023).The data of 2020 shows that 99 out of 221 households spent an average of 11.7 days per year to collect forest products, ranging from 2 to 180 days. The remainder 122 housholds did not spend any labour day on forest products.	Development of agroforestry pilot schemes and further engagement in FRAP activities.
	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	0.4 Map of forest fire in the conservation zone produced.	Development of proforma to record occurrence and frequency of forest fire

	90% of threatened tree seedlings planted in restoration areas survive at end of project.		within and adjacent to the restoration plots.
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 and used for agroforestry and agribusiness assessment and planning. 1.2 Participatory mapping and soil sampling were conducted in March 2021 in eight communes of Choam Ksant district as preparatory step for land suitability analysis. 1.3 A report on market opportunities and value chain for key agroforestry and NTFP products from the region is under preparation. 1.4 Findings from market and value chain study are being used to inform the design of agroforestry models and guidance documents.	
Activity 0.1 Establish project steering committee to guide project activities, monitor progress and adaptively manage project.	0.1 Project Steering Committee established, with members from BGCI, ICRAF, NAPV, and local authorities. First meeting of Project Steering Committee held on 3rd December 2020. Second meeting of Project Steering Committee held on 12th March 2021.		Convening at least 2 meetings of the SC in Year 2.
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	1.1 Baseline survey conducted, covering 221 households in four villages: ▪ 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 first week of December 2020, with participation from BGCI. The training		Finalization of the baseline survey report (available by end of April).

typology of households for future intervention).	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 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).	
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 ▪ 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 computer database by NAPV (March 2021).	The 55 surveyed plots will be short-listed to provide inputs for recommending suitable agroforestry practices for the commune.
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 ▪ Review of data and maps. Recruitment ofa 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.	The outputs from the participatory mapping, including the soil sample analysis will be digitized and be used as inputs for land suitability analysis to be conducted at the district level in April-September 2021 to identify suitable areas for agroforestry and species selection at district scale.

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: ▪ 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 data from market survey: Conduct commodity market analyses, including market opportunities and value chain for key agroforestry products and NTFPs.
Activity 1.5 Develop recommended agroforestry models for trials, including benefit-cost analysis.	No Activity under 1.5 was carried out in the reporting period.		Assess survey data to identify options of agroforestry practices for trials, including cost and benefit analysis, for further discussion at a consultation workshop with local stakeholders in the commune (May-June 2021) Conduct consultation workshop to share key results from the project and discuss options of agroforestry practices for trials in the commune (end of June 2021). Collect feedback on project activities and options of agroforestry practices for trials for improvement (June 2021).
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 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).	Preparatory work has started but no key activities under Outcome 2 were undertaken in the reporting period.	

	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.	To make sure that there is buy-in from national and regional policy makers regarding the agroforestry trials, the project will keep relevant policy makers informed of the project activities and outputs, and collect their feedback from the very start of the field trials.	
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.		Compilation of the training materials based on existing sources started.	Prepare materials for ToT training on market, small-scale business development, conservation farming and agroforestry (May-June 2021).
Activity 2.2 Design market-based conservation farming and agroforestry on-farm trials/ demonstration plots for training.		Identification of species combination of trees and crops for the on-farm trials and examination of potential business models for local smallholder have been initiated.	Develop recommended agroforestry practices for trials and select suitable locations for the trials (July 2021).
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.		Compilation of training resources.	Conduct ToT training on market, small-scale business development, conservation farming and agroforestry (end of June 2021). Conduct on-site training for farmers on conservation farming and agroforestry (July 2021).
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.		No activity under 2.4 was carried out in Year 1.	Establish trials of recommended agroforestry and devise small-scale businesses with local households/stakeholders (July 2021). Provide on-going support for establishment and maintenance of on-farm trials for sustainable agroforestry (from July 2021).

Activity 2.5 Provide on-going support for market linkages and small business development for pilot households throughout year 1 and 3.		Contacts with private sector actors, such as local processors and exporters, have been initiated.	Provide on-going support for market linkages and small business development for pilot households (from July 2021).
Activity 2.6 Policy recommendations on agroforestry and small-scale business developed and published by end of year 3.		No activity under 2.6 was carried out in Year 1.	Inform policy makers at national and regional levels of the project demonstrations/ trials at relevant events.
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).	A nursery has been constructed and is nearly complete (85%). In addition to its completion, a further nursery will established, together having a holding capacity of some 60,000 seedlings. A three-year participative Forest Restoration Action Plan has been drafted in collaboration with the local community, and will be finalized in Year 2. A total of seven community members have been employed at the nursery, of whom six are female. Further local community members will be engaged at the nursery in following years. 20 community members involved in a tree planting event, and four additional community members were hired to plant and care seedlings at the restoration sites. Seven monitoring plots were set up and studied their survival and mortality status. Some 8,430 seedlings were planted in heavily degraded areas, including five threatened species (*Dalbergia. cochinchinensis*, *D. oliveri*, *Pterocarpus macrocarpus*, *D. alatus*).	
Activity 3.1 Two nurseries built with 20,000 seedling capacity with required supplies by end of year 2.		A nursery of 30 m by 20 m with extension of 5.5 m wide x 20 m long, and a supporter of water tank with size	New nursery to be equipped with net roof and irrigation pipes. In addition, a

	of 5.3 m long, 3.3 m wide and 4.5 m high has been constructed.	further nursery 20 m by 20 m will be established in Year 2. In Year 2, the project is aiming to propagate 20,000 seedlings of five threatened species, and generate 10,000 seedlings of fast growing, ornamental plant and fruit tree species. In addition, 20m^3 of dry compost and 500 liter of liquid compost is planned. The size of the nursery should allow to store abundant seedlings to supply forest restoration activities and for distribution to the local community. Restoration activities will support the regeneration of threatened species and improve overall biodiversity, including the re-establishment of remnant forest patches.
Activity 3.2 Employees recruited and contracts signed with NAPV for managers and staff of nurseries by end of year 1.	One nursery team leader and six nursery workers were contracted and employed at the nursery in Year 1 covering a range of horticultural tasks, soil potting, propagation, transplanting, root cutting, seed production, fertilizer production and seed collection. Currently, a total of 17,665 seedlings are at the nursery, including some 8,050 seedlings of species recorded on the IUCN Red List.	Additional nursery workers will be employed, especially for soil potting, and compost production.
Activity 3.3 Contract for restoration consultant developed and signed in year 1.	A restoration consultant has been contracted to study eco-geography and develop participatory Forest Restoration Action Plan (FRAP) in consultation with the local community of the four villiages.	The contract will be renewed in Year 2 and Year 3 to evaluate progress in the monitoring plots and finalize and promote the FRAP.
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 consultation workshop with the local community on participatory forest restoration in the four villages was carried out in Year 1 led by the ecological restoration consultant.	A second workshop will be organised in Year 2 to finalise the FRAP.

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.		As part of the FRAP, seven restoration monitoring plots were identified and established (10m x 10m) in Zone 2 in Year 1 aimed at baseline study of species diversity, population density, and growth development.	Monitoring and evaluation of the plots.
Activity 3.6 Plant 15,000 trees over years 1, 2 and 3, and implement aftercare.		Tree enrichment planting with some 8,430 seedlings of 12 species has been carried out over 40 hectares as part of the FRAP. The establishment of a fire break and the erection of a signboard panel to discourage the use of fire and explain the restoration benefits, alongside the early start of the rainy season in 2021 have meant that the seedlings have well-established over more than 90% of the planted area. A total of 29 villagers participated in the tree planting (49% women).	Planting several thousand further seedlings in Year 2.
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).	Building on the survey results of the 221 households under Output 1, this Output will be will be measured in Year 2 and Year 3 to assess changes in perception of the value of forest conservation efforts as implemented by the project. A participatory Forest Restoration Action Plan (FRAP) has been drafted (Indicator 3.2). The development of the FRAP was led by the village chiefs of four villages, guided by the ecological restoration consultant. This action plan will be reviewed and finalized in Year 2. A map of forest fire incidence in Zone 2 was produced in Year 1 and will be updated in the second and third year. A method is being developed to record the occurrence and frequency of forest fire within and adjacent to the restoration plots. As with Indicator 4.1, building on the survey results of the 221 households under Output 1, this Output will be will be measured in Year 2 and Year 3 to assess changes in NTFP collection as a result of the project.	
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 has been drafted. In addition, sketches for the production of public	Refining the public outreach conceptual framework and further consultation meetings with the local

	outreach posters have been developed in Year 1 which will provide information of various themes related to the project including native species diversity, drivers of change of the dry forest ecosystem, benefits of agroforestry, etc.	community; final design of the posters and development of other public outreach materials.
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 four villages in Year 1, and a participatory Forest Restoration Action Plan (FRAP) has been drafted (Activity 3.4).	Finalisation of the FRAP following a further consultation workshop with the local community.
Activity 4.3 Monitor fire events and forest use practices over years 1, 2 and 3.	A map of forest fire incidence in the Conservation zone was produced in Year 1.	Updating the map in the second and third year, supported by photographic evidence. Finalisation of a method to record the occurrence and frequency of forest fire within and adjacent to the restoration monitoring plots.

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

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	0.1 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) 0.2 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)
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.	**1.1a** 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	1.1 Community members are co-operative and receptive to new methodologies and approaches. 1.2 Spatial and other data is available and accurate for use in land-suitability analysis.

	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).	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.	
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 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	**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. **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.	2.1 Community members are co-operative and receptive to new methodologies and approaches. 2.2 Viable propagules are available for home gardens, agro-forestry and restoration activities (some species won't produce seed every year).

	produced and circulated to regional and national policy stakeholders.		
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** 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.	3.1 Extreme drought events will not occur or greatly impact nursery or planted trees. 3.2 Grazing pressure from released livestock will not impact planted trees. 3.3 Seed produced by mother trees is sufficient for seedling production.
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).	**4.1a** 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.	4.1 All communities will see the benefits of forest conservation and are willing to contribute to forest management plans.

	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).	**4.3** NAPV fire monitoring records. **4.4** Results of surveys on livelihood systems and forest use (Output 1).	

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.

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 3: Standard Measures

Table 1 Project Standard Output Measures

Code No.	Description	Gender of people (if relevant)	Nationality of people (if relevant)	Year 1 Total	Year 2 Total	Year 3 Total	Total to date	Total planned during the project
1A	A PhD student from Germany may be associated with the project after Year 1 (not on project funding)	Female	German	0	1	1	0	1
6A	Participants of training of enumerators (TOE)		Cambodian	10	0	6	12	18
6A	Participants of training of trainers (TOT)		Cambodian	0	40	40 (same people as in Y2)	0	40
6A	Participants of training of farmers (TOF)		Cambodian	0	200	200 (same people as in Y2)	0	200
6B	Number of TOE training week			2/3		1/3	2/3	1
6B	Number of TOT training weeks				3	1	0	4
6B	Number of TOF training weeks			0	6	6	0	12
10 Can we give some figures here?	Training materials on market, small-scale business development, conservation farming and agroforestry			0	2 (draft)	2 (same as Y2, revised and published)	0	2
11B	Number of papers to be submitted to peer reviewed journals			0	0	2	0	2
12A	Number of computer based databases to be established and handed over to the host country			1		1	1	2
14A	Number of conferences/sem			1	1	2	1	4

	inars/ workshops to be organised							
14B	Number of conferences/seminars/ workshops attended Can we aim here for more? Perhaps two for each org / year?				6	6	1	13
20	Estimated value (GBP) of physical assets			[redacted]	[redacted]	[redacted]		[redacted]
22	Number of permanent field plots and sites to be established during the project - forest restoration plots - agroforestry plots			7 0	24	24 (same as Y2)	0	7 24
23	Value of resources raised from other sources			[redacted]	[redacted]	[redacted]	[redacted]	[redacted]

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)

Annex 4 Onwards – supplementary material (optional but encouraged as evidence of project achievement)

Annex 4.1	Change Request January 14, 2021
Annex 4.2	Project Inception Workshop Minutes/Agenda
Annex 4.3 (A)	Technical Report on Eco-Geographical Representative in Chaom Ksant District, Preah Vihear Province
Annex 4.3 (B)	Consultation Report on Eco-Community based Forest Restoration Programme in Chaom Ksant District, Preah Vihear Province
Annex 4.3 (C)	Forest Restoration Action Plan in Nation Authority for Preah Vihear, Chaom Ksant District, Preah Vihear Province
Annex 4.3 (D)	Public Outreach Programme: Conceptual framework
Annex 4.3 (E)	Agroforestry Sketches for Outreach Program
Annex 4.4	Steering Committee Meeting Agenda and Minutes
Annex 4.5	Household Baseline Survey Report
Annex 4.6	Questionnaire for Household Survey
Annex 4.7	Questionnaire for Agroforestry Survey
Annex 4.8	Land Suitability Analysis/Participatory Mapping
Annex 4.9	ToR for Consultants: Participatory Soil Mapping Expert and Soil Sampling Expert
Annex 4.10	ToR for Consultant: Market opportunities and value chain
Annex 4.11 (A)	Survey questionnaire for collectors and traders
Annex 4.11 (B)	Survey questionnaire for farmer and farmer groups
Annex 4.11 (C)	Market Mapping Cashew Nut, Cassava and Mango
Annex 4.11 (D)	List of market players, stakeholder, and function for partnership
Annex 4.11 (E)	Market Survey Data from four selected villages
Annex 4.12	Database for seedlings/species list in the nursery
Annex 4.13	Contract for Ecological Restoration Consultant
Annex 4.14	Enrichment Planting/ Baseline Monitoring Plots
Annex 4.15	Map of Forest Fire Incidence

Checklist for submission

	Check
Is the report less than 10MB? If so, please email to Darwin-Projects@ltsi.co.uk putting the project number in the Subject line.	✓
Is your report more than 10MB? If so, please discuss with Darwin-Projects@ltsi.co.uk about the best way to deliver the report, putting the project number in the Subject line.	
Have you included means of verification? You should not submit every project document, but the main outputs and a selection of the others would strengthen the report.	✓
Do you have hard copies of material you need to submit with the report? If so, please make this clear in the covering email and ensure all material is marked with the project number. However, we would expect that most material will now be electronic.	
Have you involved your partners in preparation of the report and named the main contributors	✓
Have you completed the Project Expenditure table fully?	✓
Do not include claim forms or other communications with this report.	