



Darwin Initiative: Final Report

Darwin Project Information

Project reference	Ref No: 24-023
Project title	Safeguarding a critical biodiversity conservation corridor in Cambodia's Eastern Plains
Country(ies)	Cambodia
Lead organisation	WWF Cambodia
Partner institution(s)	Provincial Department of Environment (PDoE)/ Ministry of Environment (MoE), Provincial Department of Agriculture Forestry and Fisheries (PDAFF), Cambodia Centre for Study and Development in Agriculture (CEDAC), and Wildlife Trust of India (WTI), Borneo Rhino Alliance (BORA)
Darwin grant value	£ 300,211
Start/end dates of project	1 April 2017 to 31 March 2020 (with extension of Output 3 until March 2021)
Project leader's name	Milou Groenenberg
Project website/blog/social media	http://www.wwf.org.kh/projects/darwin_project/
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**Please find a List of Acronyms in Annex 7.1*

1 Project Summary

Cambodia's Eastern Plains Landscape (EPL) covers 28,000 km² and hosts a network of six Protected Areas (PAs) forming the largest remaining relatively intact block of dry forest and one of the last biodiversity hotspots in Southeast Asia. The EPL is recognized as one of the 200 globally most valuable biodiversity eco-regions by WWF and other conservation organizations. This Key Biodiversity Area (KBA) has been experiencing rapid deforestation and is increasingly threatened by anthropogenic drivers including systemic poverty, unclear land rights, non-participatory land-use planning and weak governance. Within the heart of the EPL are two Wildlife Sanctuaries, Srepok Wildlife Sanctuary (SWS) and Phnom Prich Wildlife Sanctuary (PPWS) that provide critically important biodiversity conservation. Adjacent to these critically important sanctuaries are forested areas providing agriculture and Non Timber Forest Product (NTFP) based subsistence livelihoods to 30,000 individuals including 8,000 indigenous people. This mosaic forest landscape hosts populations of endangered and critically endangered species including Asian elephant, leopard, dhole, banteng, Siamese crocodile, Eld's deer, Giant ibis and three species of vultures. The ecological integrity of the PPWS/SWS complex is threatened by loss of connectivity between the Core zones¹ of the two PAs, affecting globally threatened species of wildlife and the livelihoods of local communities relying on the forest.

The target area of the project is the last potential wildlife corridor between these two Core zones of the two PAs (see figure 1). Although it connects the core zones of the two PAs, the wildlife corridor sits legally within the SWS boundaries, covers approximately 250 km², and is home to eight communities totalling 3,500 people (including 50% indigenous people). Loss of corridor integrity happens mainly through illegal forest clearing by communities for agricultural purposes and in the absence of an enforced SWS management plan. Forest encroachment drives potential Human Wildlife Conflict (HWC) and the loss of forest ecosystem goods and services such as NTFPs, water provision and climate regulation on which the communities

¹ Core zone is defined as: "management area(s) of high conservation values containing threatened and critically endangered species, and fragile ecosystems" in current Cambodian Protected Area law".

depend. This project is to ensure that the biodiversity corridor connecting the core zones of PPWS and SWS is maintained, by improving the livelihoods of vulnerable forest communities through sustainable and forest-friendly agricultural practices and by achieving legal protection of biodiversity corridors at national and provincial levels.

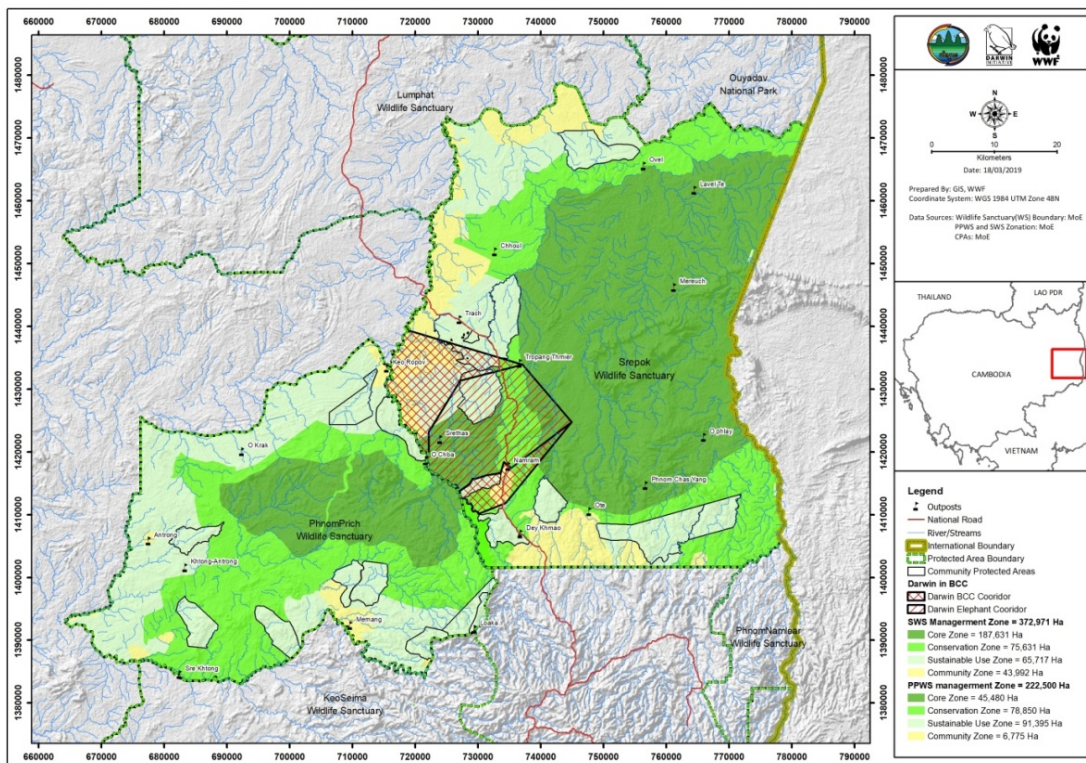


Figure 1: Map of the Srepok Wildlife Sanctuary and Phnom Prich Wildlife Sanctuary highlighting the Darwin biodiversity corridor and the Darwin elephant corridor connecting the core zones of the two PAs.

2 Project Partnerships

Key project partners are PDoe, MoE, PDAFF, and CEDAC, and the Pannastra University and Royal University of Agriculture in Phnom Penh. In addition, new collaborative partnerships were established and/or strengthened during this project with the WTI, BORA, and Phnom Tamao Wildlife Rescue Centre (PTWRC), and the Victoria University of Wellington.

Output 1, and activity 2.4 under output 2, were fully led by CEDAC and PDAFF under a formal sub-grant agreement signed in November 2018. The agreement preceded complex project and budget planning sessions between the three parties (including WWF). CEDAC took ownership over the activities and outcomes and utilised their specialist expertise on agricultural systems to select the most impactful interventions. CEDAC has a constructive and longstanding relationship with PDAFF, which helped to foster engagement and support of government staff. CEDAC was proactive in making links between the Darwin Initiative and other similar projects in the area, and conducted collaborative meetings with two local NGOs: (1) the Development and Partnership in Action (DPA) and (2) the Cambodian Rural Development Team (CRDT), who were working with communities near the target area to implement sustainable rice farming systems. Both organisations led projects that extended up to two years beyond life of this project, and CEDAC handed over key information to link Darwin beneficiaries related to the Internal Control Systems (ICS) (see section 3.1), thus the process of organic certification could continue post-Darwin with support from DPA and CRDT.

One significant challenge working with a grassroots organisation such as CEDAC, was the limited capacity in monitoring the impact of the work undertaken. It was a learning experience for both organisations that M&E expectations need to be clearly outlined and agreed upon prior to project commencement to ensure there is sufficient information collected pre-, post- and for the duration of the project. WWF supported CEDAC through strengthening their capacity in the areas of M&E, budget and work planning, and reporting through a series of meetings and feedback sessions. CEDAC team members co-authored this report, authored the mission and training reports (Annex 7.2,10), and WWF helped CEDAC and PDAFF to establish a monitoring

system to measure impacts for beneficiaries (Annex 7.4). The deficiencies in M&E standards were balanced by CEDAC's longstanding work in the project area, meaning there was significant trust and rapport already established with the farmers, thus enabling much faster progress with the target households than if WWF were to conduct this independently.

WWF used their network of educational institutions to source eight university students to assist in conducting the HWC interview surveys under Output 2. These students attended training, assisted with the pilot study developments and refinement of the questionnaires, and conducted the interview surveys throughout PPWS and SWS. They were provided capacity building opportunities, including the gaining of fieldwork experience contributing to professional development (Annex 7.5, and 7.18 p. 49). Since the interview surveys commenced, two of the nine students have found full time employment, including one within the MoE, and one with an International NGO. WWF continues to work with university students through various internships, thesis projects, and various forms of knowledge exchange.

This project was developed and implemented through a long-standing collaborative partnership between the MoE and WWF (see the recently renewed MoU in Annex 7.6). The MoE and PDoE are critical decision-makers with the mandate to support sustainable land use and spatial planning and effective PA management based on evidence gained through the project's research activities. The Ministry of Agriculture, Forestry, and Fisheries (MAFF) and PDAFF have a complementary mandate in the agricultural field and in the use of elephant movement data to inform agricultural land use and expansion and HWC/Human Elephant Conflict (HEC) management measures. Regular meetings were held with the PDoE and PDAFF during the planning and implementation stages of the project to ensure effective collaboration, information sharing, and mutual support. Under output 3, PDoE and PDAFF form an integral part of the Cambodian multi-institutional specialist elephant collaring team. A formal agreement with PDoE was established to clarify roles and responsibilities under this output (see Annex 7.7), and this institution also played critical roles overcoming obstacles encountered in regulatory and administrative processes that were undertaken to permit the importation of satellite collars, darting equipment and chemical immobilisation agents into Cambodia (Annex 7.8). All databases created over the course of the project (i.e. HWC and wildlife survey data) will remain available to the PDoE/MoE and PDAFF/MAFF. WWF continues to implement a comprehensive conservation programme in the EPL in close coordination with these two key government partners.

Under Output 4, the MoE, most notably, the General Directorate of Administration for Nature Conservation and Protection (GDANCP), led the development of the zonation and management plan for SWS under a formal sub-grant agreement with WWF signed in September 2017 (Annex 7.9). This governmental body was responsible for the planning, decision-making and monitoring and evaluation of the activities under this output through facilitating and managing participatory planning workshop, and joint mapping and zonation meetings involving WWF, and government and community stakeholders on both provincial and national levels. As all documentation is only available in Khmer, this has not been enclosed as evidence, however the SWS zonation and management plans and a report on dissemination can be found in Annex 7.10, 7.11, and 7.12 respectively. WWF provided critical technical support and data on biodiversity, distribution of endangered wildlife and key habitat features, socio-economic parameters, land-use and land-use change, and threat levels assessed by Spatial Monitoring and Reporting Tool (SMART) and Geographical Information System (GIS) data. Community representatives played a crucial role in this partnership through their contributions and endorsement of the zonation process. Similarly, MoE also leads the development of the ENRC, whilst receiving technical advice and comments from WWF via the Vishnu law firm under Output 5 (Annex 7.13).

As a result of new partnerships with PTWRC, WTI, and BORA, the first Cambodian specialist elephant collaring team has received the most suitable capacity development, on-the-ground support and best practices available regionally associated with elephant collaring, including darting and chemical immobilization (see Annex 7.14, and 7.15). WWF continues to work with institutions for wildlife rescue operations (PTWRC), and when specialist veterinarian advice is

required (WTI and BORA), for instance on the occasion where a sick elephant infant was encountered in PPWS in January 2020.

Although the initial Biodiversity Advisor involved in this project left her official role with WWF to commence her PhD with Victoria University of Wellington, she has continued to support the project in a consultancy role. The University connection provided a new opportunity for bringing in external advice on the scientific methodologies and analysis of the elephant monitoring activities, and in gaining formal approval from an Animal Ethics Committee (Annex 7.16) to conduct the collaring surveys. As the latter system does not yet exist in Cambodia, this was a major step in developing new systems that may be considered for future policies in Cambodia. The PhD is ongoing and will include components of elephant and HEC research related to this project.

3 Project Achievements

3.1 Outputs

Output 1. *Vulnerable farming households from 8 remote forest communities inside a Protected Area improve their livelihoods through the learning and implementation of innovative, sustainable and more efficient agricultural practices (crop selection and rotation, irrigation technics, natural fertilizer and pest killer, fire breaks, HWC mitigation tools)*

The project achieved the improvement of livelihoods of vulnerable farming households in 8 remote forest communities in the PPWS/SSWS BCC. Project partners CEDAC and PDAFF undertook a Rapid Rural Appraisal (RRA) and Commune Agroecosystem Analysis (CAEA) to collect information on agricultural production, economic activities, and the market for agricultural products for the target communities (Annex 7.2, p. 4-7). Subsequently, Farmer Learning Groups (FLGs) were established in each of the eight target communities, and a training needs assessment was conducted (Annex 7.2, p. 8). Data gathered during these initial stages assisted in designing appropriate training methods and materials, and in the informed development of a set of locally appropriate sustainable interventions including conservation-compatible Home Gardens (HGs) with both individual and community irrigation systems, and the System of Rice Intensification (SRI): a low-input (water/seeds) labour-intensive rice production system with proven higher yields. Training methods focussed on practical demonstration, exposure visits to exemplary sites with demonstrable outcomes, and follow-up coaching and assistance on a monthly basis to the beneficiaries, and thus helped to achieve the up-take an application of lessons learnt in the field (Annex 7.3). Of the total of 387 beneficiaries (322 women, ~83%) that participated in at least one sustainable agriculture capacity-building opportunity, a total of 236 beneficiaries (61%) subsequently engaged in sustainable practices taught through the project (Annex 7.4, table 1). Training material will remain available for these beneficiaries, and many more, through a Conservation-Based Agricultural Guidebook (CBAG) which was distributed to key stakeholders, partners, and the public (Annex 7.17).

For the conservation-compatible HGs, 118 households implemented knowledge and techniques acquired through the project, of which 63 households (53%) started new HGs after joining the project whilst others applied novel techniques to and/or expanded their HGs. The most common techniques applied by the farmers were mixed cropping (97%), solid compost (86%), and drip irrigation (71%). All surveyed participants saw a significant increase in yearly income following the implementation of taught HG techniques from an increased fruits and vegetables yield, with a total collective income increase from [REDACTED] KHR in one year, equating to 170%. A key constraint to agriculture productivity and profitability identified in the target area was dry season water shortage. For this reason, two types of irrigation systems were installed for target beneficiaries: a village irrigation system which serviced the entire community; and individual household irrigation systems. The irrigation systems provided 56 households with access to tap water for domestic use and farming, allowing them to reduce expenses from purchasing water and increase agricultural production. For example, in one target village (Srae Thom), 32 households are predicted to save 35 USD collectively, per day, as they no longer need to purchase water. Detailed evidence on HG and water systems can be found in Annex 7.4, table 1-4.

Although the uptake of SRI was far less compared to HG, the 18 farmers who implemented SRI techniques reduced rice seed use from 30-40kg to 10-15 kg per hectare (50-75% decrease),

and increased rice yield by 100-500kg per hectare compared to conventional practices (based on interviews with the 18 farmers that implemented SRI). The most common SRI practices being implemented were the selection of full grain rice (100%), and transplanting seedlings in a low-density pattern (89%). A limitation of SRI is the high labour intensity, and the most commonly cited reason for the low adoption rate of SRI techniques by the local farmers was a shortage in labour. To overcome this challenge, Producer Groups (PGs) were formed in four out of the eight target villages. The key objectives of the PGs were to facilitate community focused labor and skill exchanges, and to make the first step to access organic and/or wildlife-friendly markets as a sustainably certified cooperative. PG formation involved the training for 135 participants (74 females, ~55%), registration of 74 interested farmers in the ICS logbooks (a requirement of organic certification), and elections of PG committee members (chair, vice chair, and internal inspector). After evaluation, 66 farmers (89%) were deemed eligible to become certified organic produces. Detailed evidence on SRI and ICS can be found in Annex 7.4, table 5-6.

Output 2. Greater understanding of local communities' perception of Human Wildlife Conflict (HWC) in the PPWS/SWS complex

The project achieved a major increase in the understanding of HWC in the PPWS/SWS complex. It concluded the first extensive landscape-wide sociological study and compiled results from detailed questionnaires with 1,339 households across 45 administrative villages in and around PPWS/SWS into a comprehensive report (Annex 7.18) that was disseminated to key stakeholders. Prior to this project, no data on HWC existed, thus the study provides unique and novel information to aid the development of holistic evidence-based conservation strategies.

Research objectives of the study, as reflected in indicators 2.1 and 2.2, included to improve understanding of the quantity, nature, and location of HWC in the PPWS/SWS complex and the perceived tolerance levels towards wildlife, especially elephants. Results highlighted the importance of small holding farming, in particular rice monocropping, for community livelihoods. HWC is perceived as a serious concern by farmers, and various forms of negative interactions with wildlife are prevalent, most frequently pertaining to crop damage by wild pigs, peafowl, parakeets and primates, and to livestock predation, primarily of domestic avian species. A variety of active, passive, traditional and lethal mitigation measures were implemented by farmers to protect their crops and/or livestock, none of which were perceived to be fully effective. The study also exposed the vulnerability of local farming systems to changing climatic conditions and to diverse diseases. Overall, tolerance levels and attitudes towards wildlife species was high, albeit lower for the key species involved in crop damage (wild pig) and for large carnivore species, and the majority of interviewees indicated an interest to be involved in future conservation initiatives. Despite the fact that PPWS/SWS harbours Cambodia's largest elephant population, there was an absence of crop damage by this species, and tolerance levels were high and attitudes overwhelmingly positive.

Several maps were produced to visualize the geographical distribution of different HWC components, and an extensive database is available to all WWF staff containing further details for the different villages/communes. Training to key staff was provided to ensure the uptake of this database in support of current project implementation and future project development. Although it is impossible to describe the full extent of the information obtained through the study in this report, it can be concluded that the wealth of data obtained allowed the formulation of key recommendations on developing and improving holistic evidence-based conservation strategies that include conservation friendly agricultural practices and a comprehensive landscape wide multi-species mitigation.

This output did not encounter major problems. As a result of co-funding, the target area was significantly expanded and the number of households quadrupled. Consequently, the data collection, entry, and analysis took longer than originally anticipated.

Output 3. Better knowledge of Asian elephant movements across two critical protected areas in Cambodia

The project achieved a significant improvement in the scientific understanding of Asian elephant distribution and movements in the PPWS/SWS corridor, an area that had been underrepresented in previous research efforts. Throughout the project period (2017-2020) extensive elephant sign surveys and tracking missions in the target area led to a wealth of

georeferenced data that was used to inform key protection efforts, most notably the successful lobbying for maintaining intact habitat connectivity in the critical PPWS/SWS corridor at the highest possible level of legal protection (Annex 2, pp. 5-6).

The project also set out to assess the feasibility of GPS tracking elephants with satellite collars, a research method that has thus far never been applied successfully in Cambodia. Several experts assessed it as potentially, and highlighted the opportunity to provide unprecedented information to further elephant range protection and HEC prevention and mitigation. Through regular meetings with key government partners, a collaborative framework was established that provided the enabling conditions for successful collaring including all required documentation, permits, processes, and protocols. This was also the first occasion for WWF, and one of the first for WWF globally, to apply the newly developed 'Checklist on Translocation and Animal Handling in the WWF Network' that was put in place in 2019 by a task force of the Wildlife Practice Leadership team with the aim aid in achieving the best possible conservation outcomes for wildlife while ensuring the highest standards of animal welfare and minimizing operational and reputational risks (see Annex 7.19 for full details).

In addition, Cambodia's first multi-institutional specialist elephant collaring team was established, and continued to grow in size throughout the course of the project (from an initial 4 individuals to 18), comprising of PDoE, PDAFF, and WWF staff, and was supported by external veterinarian experts from partnering institutions. The project provided this team with in-depth theoretical and practical training sessions on elephant ecology, behaviour, and conservation, safely darting and chemically immobilising wild elephants, and using telemetry equipment. This training packages was delivered in 5 different sessions (between March 2019 and December 2019, and attended by 9-18 participants, see Annex 7.14). By mid-2019, the team was assessed to have all the required knowledge and skills to safely conduct elephant collaring with minimal hands on support from international veterinary experts, and three missions attempting to collar elephant ensued (in July-August 2019, January 2020, and March 2020, see Annex 7.15). After the onset of monsoon season, several herds were successfully located in suitable and safe locations. Unfortunately, the required veterinary support from WTI could not be provided promptly due to (1) major flooding in India which threatened various endangered species safety and which required WTI presence for rescues, and (2) the government of India had requested support of WTI staff to advise on the escalating levels of HEC across multiple sites in India. After a delayed start, the first field mission attempting to collar elephants was unsuccessful despite an intensive effort, and near-opportune encounters, due primarily to challenges related to habitat, and elephant behaviour and heavy monsoons rains, thus jeopardizing the safety of both people and elephants. A new collaboration was established with BORA and two more missions ensued in the first quarter of 2020. Due to the low density of elephants, the skittish behaviour of the resident populations, and the challenging habitat conditions, again no conditions were deemed safe enough for collaring following the decision making framework (see Annex 7.19, p.19). Additional planned missions had to be cancelled due to the impacts of COVID-19 on international travel (see section 8 for more detail). Despite the failure to collar elephants, this project has paved the way for future similar research to occur, and significant lessons were learnt that will undoubtedly improve the chances of success (see section 6 for more detailed). Finally, alternative research was conducted which ensured the output, as set out by its' indicator, was achieved.

Output 4: The revised management plan of SWS is approved and implemented by PDoE and local communities to preserve globally significant biodiversity while promoting and supporting appropriate and sustainable development to assist in alleviating poverty

By 2019, the approved SWS zonation plan specifically recognised the importance of the biodiversity PPWS/SWS corridor and applies strictly protected core and conservation zonations to maintain the connectivity between PPWS and SWS (See Annex 7.10 pp.5-6, and Annex 7.20). This zonation plan was developed through participatory engagement with local communities and other stakeholders, and incorporated scientific data on key biodiversity distribution and movement patterns, including the elephant distribution data obtained through this project. The total area of SWS protected under the designation of core zone boundaries is 187,631ha (50.3% of the total area), and the conservation zone is 75,631ha (20.3%). To ensure good governance and management of these zones, the SWS management plan was developed involving a detailed five-year implementation strategy for the period 2019-2023, This plan includes structures for joint governance and management by Community Protected Areas

(CPAs), and it promotes and supports appropriate and sustainable development to assist in alleviating poverty within the designated community zone boundaries of a total of 43,992 ha (11.8%), and sustainable use zone of 65,717 ha (17.6%). Establishing CPAs inside PAs provides local communities with the right to manage natural resources, improve economic gains whilst simultaneously preserving the country's biodiversity. To further evidence this, the HWC survey looked into attitudes towards PA management and PA law, and found that nearly three quarters of the interviewees indicated that the presence of wildlife sanctuaries was directly or indirectly beneficial to them or the surrounding community, and the majority of people desired to be involved in conservation initiatives. Nevertheless, the majority of people believed that the presence of PAs and associated laws, restricted their access to natural resources, in particular logging and hunting, but despite expressing these constraints, most people understood that these restrictions were in place for conservation or preservation purposes and remained supportive (Annex 7.18, pp. 158-160). A second major step taken by the MoE in recent years involved incorporating the concept of collaborative management into the draft versions of the ENRC.

The final SWS zonation plan was officially approved by the Prime Minister of Cambodia on the 1st of February 2019. This is the fourth-only zonation plan to ever be approved at the prime ministerial level in Cambodia and thus a major achievement. Several delays were incurred in the final stages of the technical revisions and the evaluation of its compliance to all relevant legislative frameworks as this is a relatively new and complex process in Cambodia. However, by April 2020, the final SWS management plan was approved and has since been implemented.

Output 5. The concept of biodiversity conservation corridor is nested in the Cambodian Environmental Policies

The Royal Government of Cambodia (RGC) is taking major steps towards improving legislative tools and policies that support the growth of sustainable development whilst simultaneously conserving biodiversity and ecosystem integrity. With support of this project, WWF was actively engaged in the process of developing the ENCR, and provided technical input and comments directly to the Vishnu law group whom MoE contracted to draft the code. In addition, WWF sat in the technical working group/expert group facilitated by the MoE to draft the specific articles to be incorporate into the code. Data driven recommendations on BCCs were included in these supplied comments. Partially due to these recommendations, the importance of Biodiversity Conservation Corridor (BCC) is recognised in five different articles of the newly developed Environment and Natural Resources Code (ENRC), including (1) Article 285 (p.84) of the final draft of the ENRC as a key component of the PA system in the Kingdom of Cambodia, (2) Article 294 (p. 89) provides a continuation of validity of the BCC concept, and outlines the responsibility of the MoE to conduct BCC assessments and develop BCC management plans, (3) Article 295 (pp. 89-90) refers to legal instruments with regards to BCC and other components of the national PA system, and also highlights the possibility to establish and manage transboundary BCCs, (4) Article 311 (p. 96) provides the possibility of incorporating cancelled Economic Land Concessions (ELCs) concessions inside BCCs as part of the PA system, and (5) Article 766 (p. 212) includes the provision of professional certificated by the National Environmental Education and Research Academy for BCC and natural PA staff. The page numbers referred to above apply to the semi-final tenth draft ENRC, and the most recent available version in English (Annex 7.21, pp.1-316).

One of the original indicators of this output was "by 2017, biodiversity conservation corridors have been designated by the Royal government of Cambodia". However, the RGC, already established a 'BCC of PA System" through a Royal sub decree dated in January 2017, thus prior to project commencement. As we cannot attribute this achievement directly to the project, this indicator was removed. However, it is noteworthy that WWF contributed technical advice and data that helped to secure the inclusion of PPWS/SWS into one out of the 3 BCCs included in this decree (the 'North East Biological Diversity Conservation Corridor System' covering a total of 754,661 ha).

3.2 Outcome

The intended outcome of the project was to improve the livelihoods of eight forest-dependent communities including women through enhanced agricultural practices and sustainable management and protection of the PPWS/SWS BCC in collaboration with authorities. The

project has largely achieved its intended outcome as evidenced by the four indicators listed in Annex 1 and 2.

The first outcome indicator was originally defined as: “No deforestation detection in the BCC each year from 2017 to 2020”. However, after internal evaluation and the first annual report review, this indicator was changed to: “In 2019, the annual forest cover loss in the PPWS/SWS BCC will be equal to or below the 2013-2017 average forest cover loss rate of 0.21%”. Key reasons for this change were that the indicator was not independent (i.e. a clear and legitimate link between project activities and stated result was lacking), nor achievable (i.e. not considered realistic to obtain desirable results within the timeframe of the project). Although the project activities tackled evidence-based drivers of deforestation in the PPWS/SWS BCC, it would not be possible to claim its’ full independent impact on zero deforestation as a complex mix of accelerating and decelerating factors contribute to deforestation. However, since this is the only current WWF project to specifically target this BCC area, and previously very minimal focus has been placed on research, conservation, and livelihood works in this area, it is still considered valid to attribute reductions in deforestation rates at least partially to the project activities’ as these were carefully designed to remove pressures on natural resources in this specific area. However, it was expected that the project activities would only start to have a positive impact (stabilisation or mild decreases) on deforestation rates after significant project achievements had been made (e.g. zonation and management plans approved and disseminated, improvements to sustainable livelihoods made), rather than immediately from the start of the project during the entire project period. At the time of indicator change, it was expected that major achievements were made by 2019, and thus this was set as the year for measuring change. In reality however, the SWS zonation plan was only formally approved in February 2019, most of the sustainable agriculture interventions only started to reap benefits late 2019-2020, and the SWS management plan was only approved and started to be implemented from April 2020 onward. Thus, among all four indicators this is the more tenuous one, and should continue to be measured over at least five more years post project (timeframe of management plan) to allow for more definitive conclusions. In the interim, we found that the overall proportional forest cover loss remained low throughout the project period, although the rate in 2019 (0.37%) was higher than the 2013-2017 average (0.21%), both 2018 (0.20%) and 2020 (0.21%) showed stable rates compared to the baseline. In addition, the forest cover loss in the core and conservation zones reduced from an average 0.25% between 2013-2017 to 0.16% in the project implementation period (2018-2020). In addition, no land concessions were granted inside the BCC. Thus, although the direct project impact on deforestation rates is not as clear-cut, it is promising that deforestation rates remained relatively low and stable throughout the project area, and that they appear to be declining in the strictly protected zones. With the achieved strengthened legal frameworks for protection of this BCC, as well as the officially approved plans, and resources in place to implement them with support from WWF, this project is expected to build a strong foundation for reduced pressures in the BCC and its’ replication and sustainability will hopefully lead to zero deforestation over the longer term.

All other indicators were fully achieved, and resulted in meaningful impact on livelihood improvements. No HEC incidents were detected throughout the life of this project (indicator 01) and an unprecedented knowledge increase on HEC and HWC in the EPL was achieved that will have meaningful longer-term impacts by providing the evidence for further inclusive development of holistic conservation strategies that include conservation friendly agricultural practices and a comprehensive landscape wide multi-species mitigation toolbox with the ultimate goal of promoting peaceful coexistence between people and wildlife (Annex 7.18). By 2020, a total of 387 beneficiaries (322 women, ~83%) participated in at least one sustainable agriculture capacity-building opportunity, and, as a result, a total of 236 farming households (157% of the target), including 20 female-led households, applied new knowledge to sustainable practices that improved their agricultural-based output and profitability with up to 170%. Further details that substantiate these achievements can be found under Output 1 in section 3.1, and in Annex 7.4. At least 120 women were included in consultations and decision-making processes related to the development of the SWS zonation/management plans.

3.3 Monitoring of assumptions

The outcome and output level assumptions as outlined in the project's logframe largely held true throughout the project. Minor exceptions included the "buy-in" outcome assumption which is related to output level assumptions (1) PDAFF willingness to support (output 1), and (2) government support on elephant collaring (output 3). Both government partners (PDAFF and PDoE) bought-in to the project and remained willing to collaborate and support throughout the life of this project. However, there have been several conflicting work schedules, particularly during the election period, which led to delays in work planning and activities. With regards to output 3, progress was slower than hoped, largely due to gaps in current legislations, procedures and protocols pertaining the novel activities of darting, immobilizing and collaring elephants. This led for example to a delay in obtaining collars from customs (as described in section 3.1). Through maintaining ongoing dialogue, regular meetings, and participatory planning, WWF achieved to keep momentum going as much as possible, and Annex 7.2, 10, and 11 provide evidence of the technical advice and engagements by PDAFF during project meetings, trainings, and exposure visits related to Output 1, and Annex 7.7 and 15 provide evidence of government administrative support and joint responsibilities related to Output 3.

The critical assumption of not having extended periods of drought or flooding, as monitored through weather data, was originally listed under Output 1 in the original logical framework. However, it turned out that adverse climate conditions had the most significant impact on the progress towards Output 3, including: (1) early torrential floods at the India training site in Assam resulting in delaying the exposure visit from May until November 2018, (2) severe drought and low levels of water availability throughout Cambodia from January-April 2019 heavily influenced elephant movements, with herds confined to habitat-terrain types unsafe for collaring, and (3) a delay in required veterinary support mid-2019 from WTI due largely to major flooding in India (see section 3.1), and a subsequent delayed start in the Cambodian collaring mission which then coincides with torrential rainfall causing unsafe collaring conditions (see Annex 7.15, pp. 2-10). Activities were either postponed (for impact 1,3) or adaptive strategies were designed and submitted to the Darwin Initiative (for impact 2, see Annex 7.22).

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

The impact as described in the original application form was: "Critical biodiversity corridors linking PAs in Cambodia are legally protected and safeguarded through the engagement of local communities benefiting from improved and sustainable livelihoods practices".

This project contributed to the higher-level impact on biodiversity conservation by providing resources that enabled the strengthening of the legal protection of the critical PPWS/SWS biodiversity corridor via two important legal instruments: (1) the SWS zonation plan and 5-year management plan, and (2) the newly developed national legislation: the ENRC and its' inclusion of BCC concepts, thus helping to secure the ecological integrity of this vital area. This project contributed to those instruments specifically through: (1) a sub-grant agreement with the GDANCP to draft zonation and management plans for SWS using inclusive participatory methods (Annex 7.9), (2) supporting two key staff positions (provincial government liaison coordinator and national policy coordinator) responsible for lobbying the maintenance of habitat connectivity in the PPWS/SWS BCC and for coordinating WWF's input and technical advice on both aforementioned instruments (Annex 7.13), (3) providing the main resources for conducting elephant surveys that provided invaluable knowledge on corridor use by globally threatened wildlife species including Asian elephants, thus providing the evidence required to effectively lobby for its' legal protection (Annex 7.23, 16).

This project contributed to the higher-level impact on human development and wellbeing in a three-pronged approach: (1) ensuring joint consultation workshops were held in 8 BCC communities aiming at reviewing and endorsing the official five-year SWS management plan using a participatory approach, whilst lobbying for community-inclusive governance structures, which were included as CPA systems (Annex 7.9, 25), (2) providing resources and capacity building in the 8 BCC communities promoting sustainable and wildlife friendly agricultural practises that led to increased yields and profitability (see section 3.1), and (3) conducting the first comprehensive HWC survey in the EPL, including in the PPWS/SWS BCC communities, and providing baseline data that is currently being incorporated into a holistic HWC mitigation approach that will help to reduce the impacts of HWC on community livelihoods (Annex 7.18). All three components in turn contribute to biodiversity conservation in the BCC as they address

key anthropogenic drivers of forest and biodiversity loss in this area including: systemic poverty, unclear land rights, non-participatory land-use planning and weak governance.

4 Contribution to Darwin Initiative Programme Objectives

4.1 Contribution to Global Goals for Sustainable Development (SDGs)

As functioning forest ecosystems provide food, clean water and energy, as well as various other goods and services essential for human well-being, and contribute to economic growth, poverty alleviation, and climate change mitigation and adaptation, the project significantly contributes to the achievements of Global Goals for Sustainable Development (SDG).

Output 1 contributed to improved agricultural practices and livelihoods, by conducting assessments of household economic, agricultural income and drivers of food insecurity and poverty that helped to inform subsequent training, exposure, and implementation of conservation-based agricultural practices with proven positive impact on eight communities in a critical BCC. In addition, Output 2 and 3 have provided an unprecedented knowledge base to reduce potential conflict and competition over resources between humans and wildlife, and Output 4 led to successful formalisation of the SWS zonation and management plans which secure the right of communities to sustainable use their land and natural resources inside the sustainable use and community zones. To avoid duplication, please refer to the evidence provided under section 3.1. Therefore, the achievement under these four outputs jointly contributed to SDG 1 “end poverty in all its forms everywhere”, SDG 2 “end hunger, achieve food security and improved nutrition and promote sustainable agriculture”, SDG 8 “Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all”, SDG 10 “reduced inequalities within and among countries” and SDG 12 “ensure sustainable consumption and production patterns”.

WWF commits to creating programmatic structures and procedures that incorporate a gender perspective into project development processes through the application of gender awareness and analysis in the project cycle, including design, implementation, monitoring and evaluation, thus contributing to SDG 5 “achieve gender equality and empower all women and girls”. The development of sex-disaggregated social and economic indicators and targets have been incorporated in the definition of the project’s outcome, outcome indicator 0.4, and output indicator 1.3 (see Annex 2). Output 1 also contributed to gender equality through well-designed improved agricultural practices led by women. The majority (~60%) of the beneficiaries under this output were female, including 20 of the most vulnerable women-led households (see Annex 7.4, table 1, 2, and 5). Under Output 2, fair and equitable representation of women in the wide-scale HWC survey was achieved: out of the 1,339 participants interviewed, 63% were female (Annex 7.18, figure 3.1.2). WWF mainstreams gender equality in the internal human resource policies, procedures and governance mechanisms (see a full gender policy statement in Annex 7.25), and when possible, actively pursue gender balance in employment decisions about recruiting, hiring, responsibilities, training and professional development, for example 55.6% of the Darwin project roles in WWF were female, under Output 1 the CEDAC/PDAFF team was composed of 62.5% female staff, under Output 2 the HWC survey team was 55.6% female, and finally all leads of the project and project outputs 1-3 were female.

Finally, the overall outcome (see section 3.2) and impact (see section 3.4) of the project and the formalised legal status of biodiversity corridors nationally, and those in the SWS/PPWS complex in particular, supports SDG 15 “Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss”.

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

Under the Convention on Biological Diversity (CBD), the project supports the RGC in achieving its commitments under articles 7 “Identification and Monitoring”, 8 “In-situ Conservation”, 10 “Sustainable Use of Components of Biological Diversity”, 12 “Research and Training”, 13 “Public Education and Awareness”, and in achieving the five Strategic Goals (SGs) A, B, C, D and E formulated in the Strategic Plan for Biodiversity 2011-2020. The main Aichi targets towards which this projects support the RGC, are 1, 5, 7, 14, and 19 (see Annex 4).

The formation and capacity building of the first in-country specialist elephant collaring team (Annex 7.14), as well as training of the student-led HWC survey team (Annex 7.5) contributed to CBD Article 12 and Aichi target 19. Subsequent monitoring of wildlife distribution, in particular of globally endangered Asian elephants (Annex 7.24, 7.17), and the completion of the first wide-scale HWC survey and its' dissemination that helped to inform mitigation strategies (Annex 7.18, and chapter 6 pp. 51-57 of Annex 7.17) contributed to Articles 7,8,12, and 13 and Aichi target 1 and 19.

Incorporating the concept of BCCs in the ENRC (Annex 7.21), and the assigning the highest level of legal protection to the PPWS/SWS BCC in the SWS zonation and management plans (Annex 7.10, 7.11), contributes to SG A “mainstreaming biodiversity across government and society” which in turns support SG B “reducing pressure on biodiversity and promote sustainable use” and SG C “safeguarding ecosystems and species”, and also contributes to Aichi targets 5 and 14. The participation of the local communities in the elaboration and consultations of the SWS zonation and management plan contributes to SG E “participatory planning and capacity-building” and Aichi targets 1, 5, 7, 14, and 19, and the dissemination of the zonation plans contributes to Article 13 (Annex 7.12).

Articles 7, 8, 10, SG B, SG C, as well as SG D “enhance biodiversity and ecosystem services to all” and Aichi target 7, are also supported by improved and sustainable agricultural practices (for example those introduced by CEDAC and PDAFF under Output 1, see Annex 7.2-7.4).

4.3 Project support to poverty alleviation

WWF Cambodia adopts a “pro-poor approach” and is committed to strive to find equitable solutions for people and the environment and to enable poor communities to achieve tangible benefits from the conservation and sustainable use of natural resources, thus leading to lasting and equitable conservation outcomes. WWF recognizes that there are strong linkages between conservation and poverty and important ways in which equitable conservation can be a means of addressing the causes of poverty. As highlighted in the Darwin Initiative’s learning note on poverty, money is not the sole focus of poverty. WWF definition of poverty is a broad one, encompassing not only physiological deprivation (non-fulfilment of basic needs, lack of income, ill-health etc.), but also social deprivation and vulnerability (lack of access to natural resources, discrimination, lack of voice and power, gender inequities, etc.) (Annex 7.26).

Elaborating on section 3.4, the project had the following key direct and indirect impacts on poverty alleviation:

- Output 1 provided direct income benefits and improved food security through a combination of enhanced knowledge, improved agricultural yield, added value and cost reduction from sustainable practices for a total of 387 beneficiaries of remote and vulnerable communities.
- Output 2, contributed to poverty alleviation by providing the knowledge to develop evidence-based HWC mitigation strategies that will reduce the costs of HWC to human wealth and wellbeing, this knowledge is representative of the 30,000 people from 45 administrative villages within or around the PPWS/SWS complex boundaries, both in terms of geographical spread, as well as in terms of representing all ethnic groups and indigenous communities.
- In Cambodia, land encroachment, destruction of natural resources and the deprivation of livelihoods of local communities, in particular poor and vulnerable groups, leading to high level of economic inequality, is evidenced to be linked to weak governance and legal frameworks and subsequent land grabbing^{2,3}. Output 4 provided a major contribution towards indirect poverty benefits as a consequence of inclusive decision-making and planning process of the SWS zonation and management plans. Improved governance was ensured through the representation of the poor’s views in management of resources, democracy, and gender equality through repeat field visits and consultations of all relevant stakeholders in the SWS communities. As per the definition of the zones, the sustainable

² Loehr, D., 2012. Land reforms and the tragedy of the anticommons—A case study from Cambodia. *Sustainability*, 4(4), pp.773-793.

³ Neef, A., Touch, S. and Chiengthong, J., 2013. The politics and ethics of land concessions in rural Cambodia. *Journal of Agricultural and Environmental Ethics*, 26(6), pp.1085-1103.
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livelihoods and socio-economic development of local communities, with particular emphasis on indigenous minorities, is carefully considered whilst protecting against large-scale commercial activities. In addition, the zonation will also help to prevent loss and degradation of essential ecosystem services on which local people rely, such as water security, food security, and climate regulation.

- Poverty alleviation in terms of addressing gender equality is an integral part of the project and is further expanded on in section 4.1.

4.4 Gender equality

Please refer to section 4.1 for a description of gender equality impacts under this project.

4.5 Programme indicators

- **Did the project lead to greater representation of local poor people in management structures of biodiversity?**

Yes, please refer to section 4.3 on inclusive governance and management plans for SWS.

- **Were any management plans for biodiversity developed and were these formally accepted? Were they participatory in nature or were they ‘top-down’? How well represented are the local poor including women, in any proposed management structures?**

The SWS Zonation plan was formally approved in February 2019 (Annex 02), and the SWS management plan was formally approved in April 2020 (Annex 7.11). Through direct support from the project, it could be ensured that the process of developing the SWS zonation and management plans was participatory in nature, and that management structures include the local poor and vulnerable communities (Annex 7.9, 25).

- **How did the project positively influence household (HH) income and how many HHs saw an increase? How much did their HH income increase (e.g. x% above baseline, x% above national average)? How was this measured?**

To avoid duplication please refer to section 3.1 under Output 1, to Annex 2 under Outcome and under Output 1, and to Annex 7.4.

4.6 Transfer of knowledge

Although no formal qualification has been obtained through the project (yet), significant transfer of knowledge occurred. Most notably, through the establishment and training of Cambodia’s first multi-institutional specialist elephant collaring team to a level where they are able to conduct the first collaring event with minimal hands on support from international veterinary experts (Annex 7.14, 17). Prior to this project, no such in-country capacity existed. In addition, new knowledge created by the Darwin project was applied to practitioners and policy makers to apply to practical conservation challenges, most notably: biodiversity data to inform the zonation process of SWS (Annex 7.23, 16), and the first HWC database to inform holistic Human Wildlife Co-existence strategy in the EPL (Annex 7.18). Finally, knowledge on sustainable agricultural practices was transferred to 8 vulnerable communities (Annex 7.2 and 10) and reached additional beneficiaries through the widespread dissemination of a CBAG (Annex 7.17) using multimedia (See Annex 2, Activity 1.6).

5 Sustainability and Legacy

Two key achievements related to policy and legal frameworks in the host country of this project were (1) the incorporation of the BCC concept into the ENRC (national-level), and (2) the formal approval of the SWS zonation and management plans (regional level). As part of these processes, the significance of the PPWS/SWS biodiversity corridor was identified and the key connectivity sections fall under the highest levels of protection by law (i.e. core and conservation zones), thus the longevity of this corridor will be preserved through strong legislative protection. In addition, the SWS zonation and zoning management received strong support from both the local government as well as the local communities, which is expected to be reflected in a long-term commitment to preserve the natural resources and ecosystem services on which the communities rely. As Mr Lamy, representative of the Krang Ropuk CPA, stated in his improvised and applauded speech during the dissemination workshop “it is time for us to stop pointing fingers and blaming others, we need to take the protection of our natural

resources, our water, our plants, the air we breathe, in to our own hands for the sake of our children and their children's children”.

The exit strategy as originally proposed, included an estimated five years of support needed to upscale and ensure sustainability. It particularly looked at upscaling the following three main components: (1) improved agriculture practices will be disseminated to farmers in and around SWS, training of trainers (ToT) workshops and a farmers' association will help develop a sustainable and profitable community-based enterprise value-chain contributing to poverty reduction for local communities and to avoided deforestation, (2) the clear demarcation and zoning of SWS will set the foundations of a well governed PA benefiting wildlife and communities through conservation-based agriculture and alternative livelihoods such as the promising ecotourism sector, (3) HWC analysis will be used to inform and influence both strategies above to prevent and mitigate HWC and its negative impacts on wildlife and people. Component (1) and (3) are very closely interlinked. Indeed, it is planned for holistic sustainable agricultural programmes that incorporate multi-species HWC mitigation strategies to play an increasingly central role in WWF landscape conservation approach. Under output 1, the agricultural techniques and drip irrigation systems that were introduced by the project, were chosen and designed so that the target beneficiaries could implement and maintain them independently, and continue post-project. The training materials and methods were also designed to ensure lasting benefits, for example through the illustrative CBAG as a lasting learning resource, and by having leaders of farmer learning groups and PGs playing a main role in disseminating knowledge on conservation compatible agricultural practices and acting as mentors for the wider farmer community. It is anticipated that the demonstrated positive impacts on livelihoods and poverty alleviation of these techniques (see section 3.1 under output 1, and section 3.4), will spread through word-of-mouth, and that additional farmers will take up the most effective measures.

The project also established a collaboration between CEDAC, CRDT and DPA, with the two latter organisations committed to continue supporting the PGs formed in the four target villages in their 1-2-year process towards organic certification and market access (see Annex 7.4, table 6). PDAFF also works closely with these three organisations, and will continue to support farmers in the target area through the Agriculture Services Program for Innovation, Resilience and Extension (ASPIRE) project. Furthermore, expansion beyond the original project area has also already commenced with additional WWF projects incorporating conservation compatible agriculture practices, for example the USAID funded activities developing agricultural cooperatives working towards organic standard certification for rice and vegetables for 120 households in 5 villages. The HWC analysis links to these current and future livelihood projects as it provided invaluable insight into the agricultural context, human wildlife interactions, and human perceptions and attitudes in the EPL. Through gathering such crucial data, livelihood and conservation strategies can be even better informed and improved, and thus more effective at alleviating conflicts over natural resources, reducing economic loss to HWC, and having an overall positive impact for the people and wildlife that exist across this multiuse landscape. Following on the internal result-sharing of the HWC results (see Annex 7.27), WWF community engagement teams planned inclusive result sharing and consultation meetings post-project. The aim of these meetings is to provide an opportunity for communities to be involved at the earliest project development stages so that each project facilitates strong community buy-in and is locally and culturally appropriate. Moreover, inclusive cost-benefit analyses as well as environmental assessments will also be conducted during the design stages so that ecological and social safeguards are embedded within each future project.

In addition to the above three components, WWF also remains at the forefront of elephant research and conservation. This project helped to leverage funding for the first transboundary elephant research project in another important BCC between SWS in Cambodia and Yok Don National Park (YDNP) in Viet Nam (see section 8). Additional funding proposals have incorporated elephant collaring activities to ensure the achievements made during this project are further built upon whilst applying lessons learnt (see section 6.)

It was anticipated that funding would come from a combination of commitments from: identified individual donors, multilateral and bilateral agencies, private sector Corporate Social Responsibility (CSR), and the RGC, most having complementary stakes in the umbrella program of reintroducing tigers in SWS by 2022. In addition, it was anticipated that by 2025, the sustainable management of SWS would be funded by MoE and by revenues from ecotourism

and private sector operating around SWS. However, given the intensity and complexity of threats in the landscape as well as the challenging operating environment and the vast scale of funding and resources required, it was concluded that the tight timeframe of the tiger reintroduction plan was too ambitious. Adaptive management strategies have re-aligned the programme and set key priorities on prey recovery, strengthened governance, conservation-compatible livelihood development, and sustainable financing strategies, whilst maintaining tiger reintroduction as long-term goal.

6 Lessons learned

More realistic timescales should be allocated to inclusive design of complex agreement procedures involving multiple parties. In the case of the agreement development between the Darwin Initiative, WWF Cambodia, CEDAC, and PDAFF, major delays were incurred and a re-budgeting exercise was required in Year 1 which led to a subsequent very narrow timescale for activity implementation. More frequent follow-up and regular meetings in Year 2 and 3 resulted in more effective work plans and improved activity progress. However, the realities of the low capacity of partners in planning, budget management and reporting remains a challenge as evidenced by low burn rates, therefore allocating sufficient time and ensuring capacity to support local NGOs should be considered in all future project designs. Having a partner liaison may be a suitable suggestion to ensure that all administrative tasks and key activities are implemented within the allocated timescales; this will also help with constant follow up and offering continuous support to partner organisations.

Human resources are arguably the most important component of a project, hence sufficient funding and support needs to be allocated towards keeping project staff retained throughout the whole life of the project. High staff turnover hinders ability and motivation of the team to properly implement the activities. Within WWF, recruitment difficulties led to the assignment of an in-country project manager as late as February 2019 (Year 2), this resulted in extra workloads per position as well as an initial lack of oversight. Future projects should account for realistic recruitment timescales and ideally have a dedicated on-site project manager from the start of each project. Human resource complexities are also a common theme when working with smaller local NGOs and other third party implementers, who are often spread thinly among numerous concurrent sub-grants. This was one of the challenges that was faced with CEDAC who had sparse human resources for field work. This problem was rectified by designating a WWF staff member to monitor CEDAC's activity implementation, to work through any issues, and to provide advice where appropriate. This became an exercise in ongoing capacity building, working directly with the CEDAC team to improve time management and resourcing, with the effect of this evident in the team's improved capabilities towards the end of the project.

With regards to Output 1, based on feedback from the beneficiaries involved in training on sustainable agriculture, the study tours turned out a particularly effective and inspiring training method. Observing practices in the field brings theoretical concepts to life and discussing the benefits with peers proved to be a powerful motivating tool.

In relation to Output 3, the establishment and capacity building of the country's first elephant collaring team and the wider discussions between WWF and the government raised awareness on the concern of the lack of trained wildlife veterinarians within the country. As a direct result discussions are being held to require at least one veterinarian within the PDoE of each province in Cambodia. Although these discussions are at their infancy, it can be considered an achievement that this project has raised the profile and need for more wildlife veterinarians throughout the country. A related key lesson learned was that the continuous presence of an experienced wildlife veterinarian is critically important for ongoing, on-the-ground coaching and capacity building of the elephant collaring team and to greatly improve chances of successful and safe elephant collaring. Thus building such longer-term positions within a project, rather than relying on short-term consultancies with partnering institutes, will enhance the changes of long-term sustainable impact.

In Year 1 and 2, significant delays were incurred in the procurement and import processes of collaring equipment and materials; these were largely due to the gaps in legislation, policies and frameworks. In Year 2, most administrative procedures were cleared and the

required permission letters obtained. However, this was a highly time-consuming process and dependent largely on the strong technical support from WWF as well as their established effective working relationship with relative government partners. Future/similar project should allocate more realistic timescales and assess the relevant administrative processes and potential gaps during the project planning phase, especially if a technical application is novel to the host-country.

With regards to Output 4, in Year 2 there were several delays in the social studies, consultations, and workshops conducted for the development of the SWS zonation and management plans which could have been avoided through a more collaborative work planning process and through sharing of historical knowledge of key constraints (e.g. timing of heavy rains, and agricultural calendars). The strengthening of capacity of project partners in work and budget planning and more regular monitoring resulted in more timely delivery of outputs towards the end of the project, and this should be continued in future projects. As the SWS zonation plan is only the fourth to be approved in country it was challenging to estimate appropriate timescales for the administrative channels of approval. However, knowledge gained in this process for the SWS has been shared with conservation partners and is currently applied to zonation/management plans of other PAs, for example those of the neighbouring Keo Seima Wildlife Sanctuary (KSWS) which is currently in progress.

6.1 Monitoring and evaluation

WWF conducts evidence-based work, with over fifteen years of comprehensive and scientifically rigorous monitoring and evaluation on our community livelihoods and biodiversity conservation works, including data analysis on current and future social and land-use changes at the landscape level. The project was developed and implemented based on the WWF Programme Standards: a set of best practices to help deliver conservation results. Developed with major international environmental NGOs, the Standards lend consistency to planning, implementing and monitoring effective conservation projects worldwide. All project work plans and indicators have been integrated and are being tracked through the WWF Action Plan Monitoring System (APMS) and Key Performance Indicator (KPI) with work progress updated quarterly for adaptive management.

Based on this adaptive management cycle, and on internal and external evaluation, as well on the previous annual report review, the project's M&E plan underwent several areas of improvements throughout Year 2 and 3, including for example: (1) a revision of indicators in the logical framework by WWF M&E officers and project management, incorporating comments from the previous annual report review (see Annex 1, and Annex 7.28), (2) increased frequency of M&E visits to monitor the quality and effectiveness of partner implementation and to support their capacity in standardized data collection and reporting, (3) towards the end of Year 3, the project seized the opportunity to take part in a large-scale evaluation program to determine efficacy of alternative livelihood and behavioural change projects in the EPL. After several years of implementing alternative livelihoods, WWF considered it timely to evaluate whether its' projects are in fact contributing to targeted behavioural changes. This was considered an important step towards WWF wanting to ensure maximum conservation impact while also supporting local communities. The Darwin project was one of the main projects to be evaluated under this program and input from Darwin project management and M&E officers contributed to the design of the survey, and the development of the survey methodology and tools (e.g. behavioural change survey, Most Significant Change (MSG) tools, Key Informant Interviews (KII), and Focal Group Discussion (FGD)). The review provided key recommendations on market niches and high value crop market chain, eco-tourism development, market network and development, forest management and biodiversity, community patrolling and law enforcement, and community patrolling and law enforcement. Although this study was implemented too late to improve and adaptively manage/implement the project in the short-term, the long-term benefit is in its' contribution towards developing more effective livelihoods and behavioural change programs building on the achievements of this project and ensuring sustainability and continuous contribution towards the intended impact.

Although the M&E framework was effective enough at measuring impact, several improvements had to be made throughout the course of the project. It would benefit future

projects to place more emphasis on the critical M&E activities in the project planning phase as well as the baseline data collection in Year 1. M&E should remain an integral component of the projects adaptive management cycle. Ensuring that M&E deliverables are included in sub-grantee contracts could ensure that adequate M&E is undertaken throughout the life of the project, and that the data collected is an accurate representation of the project's impact. Building the M&E capacity and working with the partnering organisations from the beginning to develop and monitor appropriate M&E frameworks to monitor their impact would be a good practice going forward.

6.2 Actions taken in response to annual report reviews

All issues raised in the reviews of our annual reports were responded to, a detailed response to the previous annual report reviews can be found in Annex 7.28. One key outstanding issue is the development of a sustainable financing plan which will help to support the implementation of the SWS management plan for a longer-term sustainable future (even reaching beyond the five-year management period covered in the plan). WWF support assures that current resources are sufficient to implement the SWS management plan at an adequate level, but it is acknowledged that additional resources could provide significant improvements in management effectiveness. WWF continues to support the MoE in obtaining these resources, and the development of a sustainable financing plan and the mobilisation of sustainable financing sources has been prioritised in several ongoing projects. Where relevant, the project reviews were discussed with project partners, and the following concrete actions were taken as a result of the recommendations with those partners (all of which are described in Annex 7.28).

7 Darwin identity

There is a clear understanding of the Darwin Initiative and the UK government's contribution to the project among the provincial and national government partners in the host country, most notably the MoE and the MAFF as they were involved and engaged in the project planning and design phases as well as the project's proposal development. In addition, at the start of the project, an inception workshop was held for WWF and government partners where the distinct project components supported by the Darwin Initiative were clearly identified. Thus, even though the Darwin Initiative project was embedded in and linked to an overall landscape conservation programme, its unique identity as a distinct project was clearly outlined.

Since the beginning of the project, the Darwin Initiative logo was incorporated in all communication materials produced by the project, including but not limited to: presentations, reports, manuals, maps, and dissemination materials. Examples of these can be found in the various annexes referred to throughout this report. During the joint PDoE/WWF monthly meetings on PA management, project progress updates and presentations were always treated as specific and distinct topics related to the Darwin Initiative. Presentations, meetings and progress updates to government partners and other stakeholders at the national level would usually cover multiple projects or the wider programme, but would consistently refer to the Darwin Initiative and use the logo whenever applicable. This project is also highlighted in internal and annual donor reports where joint funding has been utilised.

In Year 2, a designated webpage was developed for this Darwin Initiative project⁴ and a brochure was developed to raise the project's profile (Annex 7.29), this has been disseminated to all three country offices of WWF Cambodia and all partners, and is being used as a project communication tool. Some other key examples where opportunities were taken to publicize the Darwin Initiative logo (inter)nationally include (1) during the exposure visit to India when the Darwin Initiative logo was added to the participant shirts, (2) similarly the Darwin logo was printed on elephant research team uniforms, (3) during the high-profile PPWS and SWS Zonation and Zonation Management dissemination workshop, stakeholders of different sectors were provided with dissemination materials printed with the Darwin Initiative logo, and (4) the CBAG and large (1.5x2m) zonation billboards presenting the logo will have a long-lasting presence inside the SWS. Finally, the Darwin Initiative was acknowledged on social media

⁴ http://www.wwf.org.kh/projects/darwin_project/
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posts by WWF⁵, and of those of project partners, for example in a neat short video describing the project that was produced by CEDAC⁶. Although individual posts may reach a modest audience with a few hundred shares/likes, the WWF and CEDAC facebook pages have a significant number of followers (168,727 and 55,449 respectively). Social media accounts were not linked back to the Darwin social media accounts.

8 Impact of COVID-19 on project delivery

The COVID-19 pandemic reached Cambodia in January 2019, thus in the final quarter of project implementation (with the exception of certain activities under Output 3, which were granted an extension through approved change requests). Therefore, the impact of the pandemic on the project was relatively low, with the exception of a few cancelled meetings and community gatherings, for example for CBAG dissemination for which alternative dissemination measures were found. In addition, the number of COVID cases did not exceed a few hundred until February 2021, and no cases were detected in Monduliri province up until March 2021. Therefore, no major changes in work ways were adopted with the exception of precautionary PPE distribution and social distancing.

The only activity on which the COVID-19 pandemic did have a major (indirect) impact was the elephant collaring under Output 3. The presence of expert veterinarians, a capacity not available in-country is considered essential in our risk mitigation plan in terms of health and safety of both the elephant(s) as well as all staff involved. As COVID-19 restricted international travel, two formal change request were submitted. In February 2020, WTI cancelled planned trips of their veterinarians to support the Cambodian collaring team due to precautionary measures put in place by WTI. Rapidly adapting to this unforeseen challenge, WWF organised support from another partner institute: BORA in Malaysia. However, the cancelled WTI visit resulted in reduced time and opportunity to collar elephants within the life of the project, and therefore a small amount of funds and an extension of the life of the project was granted.

Unaware of the intensity and duration that the pandemic would turn out to take on, collaring attempts were assumed to resume in the period April-July 2020. However, from late March onward the RGC imposed increasingly stringent international travel restrictions including temporary travel bans from certain countries (including India and Malaysia), and a mandatory 2-week quarantine period for international arrivals. Further email communication between WWF and Darwin Projects/LTS ensued during which several extended deadlines and reporting schedules were agreed upon as adaptations to the unpredictable and unforeseen nature of the pandemic.

As time went by, there was increasingly less confidence in the feasibility of international travel by the veterinarian experts prior to the new deadline of March 2021. The team therefore started to explore alternative research methods to obtain information on elephant movements which were included in a final formal change request in October 2020. It was assessed that the field work and data collection under the Darwin Initiative provided critical information on potential elephant crossing locations in another important BCC: between SWS and YDNP, and had therefore set the team up with the appropriate knowledge to leverage research impact and expand its' scope. The revised methodology would compare individuals at the Cambodian and Viet Nam sides of the PA complex and assess if, when, and where transboundary movements take place. Habitat loss and fragmentation as a result of infrastructure development and expanding agricultural and extractive sectors had been identified as key threats to the persistence of this species in Southeast Asia, and in recent years rapid land use change and

⁵ Example of WWF-Cambodia social media posts about/mention Darwin Initiative:

- <https://web.facebook.com/WWFCambodia/posts/4117288441614947>
- <https://web.facebook.com/WWFCambodia/posts/4137181872958937>
- <https://web.facebook.com/WWFCambodia/posts/1925116624165484>
- <https://web.facebook.com/WWFCambodia/posts/4574123789264741? rdc=1& rdr>
- <https://www.youtube.com/watch?v=ss8oLc1MiUc>
- <https://www.youtube.com/watch?v=vl31K7TvcJM>

⁶ <https://www.youtube.com/watch?v=WlZ4es3THNc>
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infrastructure development, in particular at the YDNP-side, jeopardizes the integrity of the EPL, and pose risks to the connectivity in this landscape. Blocking transboundary elephant movement would impede genetic exchange and increase the inherent vulnerability of the remaining fragmented populations to local extinction due to stochastic hazards and loss of genetic diversity. Encroachment on elephant habitat may also result in HEC. As a research technique, faecal DNA sampling was selected for its' ability to individually identify elephants, for it being non-invasive, and for the in-house expertise and experience that exists within WWF and partners. Co-funding was successfully secured, training was swiftly implemented by November 2020 (Annex 7.30), and the field work was carried out in the period between December 2020 and April 2021. Genetic results are pending. We believe that this alternative approach to corridor/elephant research, co-funded by the Darwin Initiative through their flexibility in response to our change requests, adapted to the current "COVID19-reality" whilst having important future conservation impact.

9 Finance and administration

9.1 Project expenditure

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

Staff employed (Name and position)	Cost
Milou Groenenberg, Project Manager	
Walter Mark Drew, Project Advisor	
Moul Phath, Provincial Government Liaison coordinator	
Srun Bunthary, Community development officer	
Mang Tukla, Biodiversity monitoring assistant	
Kim Marin, Biodiversity monitoring assistant	
Peng Sopheap, Finance officer	
Chhay Kimheak, National policy coordinator	
Pov Hongmeng, Monitoring & Evaluation officer	
Samuel Hamy, Monitoring & Evaluation officer	

TOTAL	
Capital items – description	
HWC mitigation tools Agriculture equipment	
TOTAL	
Other items – description	
Coordination and field monitoring cost from CEDAC Consultant's fee	
TOTAL	

9.2 Additional funds or in-kind contributions secured

Source of funding for project lifetime	Total (US\$)	Total (£)
Federal Ministry for Economic Cooperation and Development (BMZ) - agricultural and NTFP based livelihoods improvement programs, information gathering, and HWC survey		
Humanscale – HWC survey and elephant collaring		
WWF-Belgium WWF- Priority Conservation Actions for Asian Elephants in the Greater Mekong – elephant research and conservation		
WWF-Belgium STRIPES programme		
USAID Wildlife Sanctuary Support Program – for establishing agriculture based conservation, development and certification requirement		
EU-ACCESS (European Union- Advancing CSOs' Capacity to Enhance Sustainability Solutions in the Eastern Plains Landscape of Cambodia fund) - the zonation dissemination workshop (in GBP)		
TOTAL		
<i>*Using Oanda exchange rate of 30-Mar-2020</i>		
Source of funding for additional work after project lifetime		
WWF-Belgium WWF- Priority Conservation Actions for Asian Elephants in the Greater Mekong – elephant research and conservation		
USAID Wildlife Sanctuary Support Program – for establishing agriculture based conservation, development and certification requirement		
WWF-Belgium STRIPES programme		
CAMPAS		
USFWS Asian Elephant Conservation Fund - elephant collaring DNA research, and HEC strategies – <i>submitted, not confirmed</i>		
TOTAL		
<i>*Using Oanda exchange rate of 30-Mar-2020</i>		

9.3 Value for Money

Excellent longstanding collaborative relationships with Cambodia's relevant authorities (since 1995), enable WWF to operate efficiently and effectively, which maximizes economic and conservation benefits. For example, when there was a need for team expansion to increase elephant search effort, the PDoE did not hesitate to allocate the time of up to 9 rangers to

support the team free-of-charge. And even though some of the administrative processes were not as quick as initially planned, it would have most likely been impossible to achieve the level of coordination and support for this project without prior established relations.

In addition, the project's value for money benefits from WWF's longstanding relationships with the local communities in and around the EPL, and the available networks of partnering organisations also helped to achieve results quicker and more cost-effectively, for example CEDAC and PDAFF staff are already integrated in the target villages where they had previously achieved positive results and thus gained trust and confidence from local farmer communities, facilitating the uptake of this project's activities.

Sound financial management and procedures are standard at WWF, our procurement policies strive to find the best balance between quality and cost and assess quotations and product details from numerous suppliers. Where it was considered beneficial for project effectiveness, sub-grant agreements were developed and involved participatory budget development.

In addition, care was taken to ensure long-term sustainability of project expenditures and to avoid spending resources on items or activities that have no lasting impact. For example, when working with farmers, it is generally much more impactful to share responsibility for activity implementation, as opposed to giving free-handouts. This was a lesson learned from previous projects, and CEDAC mitigated this during this project by providing irrigation equipment to farmers, contingent on their time commitment for preparation of land areas to cultivate HGs. In addition, CEDAC performed thorough socio-economic and training needs assessments to assess key constraint to current agricultural productivity and profit *prior* to proposing interventions in order to ensure that these are targeted, desired, and appropriate. Intensive agricultural practices that require significant investments, synthetic inputs, and technical expertise were avoided, so that these interventions can be replicated without project funding and to prevent the need for expensive repairs or maintenance which are unavailable to the local communities. For example, although originally a solar pumping mechanism was selected as a sustainable technology, further assessment of the local solar energy market led to the rejection of this option as the high capital and maintenance cost as well as the complications in obtaining the required parts/materials were considered too high risk for the sustainability. Instead, the option to use existing energy supply systems and reducing the fuel need to more efficient water use was the preferred solution. The drip-irrigation systems were developed from cheap locally available materials (e.g. PVC tubes, water tanks) and can be repaired and maintained independently.

One lesson learnt, as described in section 6, is that although collaborating with international institutes that have significant wildlife veterinarian expertise was certainly beneficial to the project and a lower-cost option, it may not have been the most cost-effective approach. This is because the partner veterinarians are bound to other commitments and constraints, and therefore only had relatively short time periods available for field trips. This limitation is thought to have severely restricted the chances of collaring elephants, and most importantly limited the time that the learning Cambodian team was exposed to, and can learn from, wildlife veterinary expertise. For future projects it is recommended that an in-house experienced wildlife veterinarian joins the team on a full-time basis with a key objective to scale-up in-country veterinary expertise.

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

Note: Although the outcomes and outputs have remained the same as in the Stage 2 application, the project indicators were re-assessed by a mixed team of M&E officers and project lead based on feedback provided on the first Annual Report. Some of these changes included an extended deadline as formally agreed through approved change requests.

Project summary	Measurable indicators	Means of verification	Important assumptions
<p>Impact: Critical biodiversity corridors linking Protected Areas in Cambodia are legally protected and safeguarded through the engagement of local communities benefiting from improved and sustainable livelihoods practices.</p>			
<p>Outcome: Eight forest-dependent communities including women improve their livelihoods through enhanced agricultural practices and sustainable management and protection of the PPWS/SWS Biodiversity Conservation Corridor in collaboration with authorities</p>	<p>0.1 In 2019, the annual level forest cover loss in the PPWS/SWS Biodiversity Conservation Corridor will be equal to or below the 2013-2017 average forest cover loss rate of 0.210%</p> <p>0.2 No Human-Elephant Conflict (HEC) in the Biodiversity Conservation Corridor each year from 2017 to 2020</p> <p>0.3 By 2020, at least 150 farming households (including 20 women-led households) increase their agricultural-based output and profitability by at least 20% through a combination of improved agricultural yield, added value and cost reduction through applying more sustainable practices</p> <p>0.4 By 2020, at least 120 women from farming households in the PPWS/SWS BCC report improved well-being either through increased self-reported food security, well-being and/or resilience rankings, or through</p>	<p>0.1 Maps and final report comparing forest cover change within the identified PPWS/SWS biodiversity conservation corridor</p> <p>0.2 The Final report will include Community Perception surveys</p> <p>0.3 The final report will highlight changes of both economic income and crop yield outputs from the identified farming households</p> <p>0.4 The final report will include women survey and a report on agro-ecosystem analysis</p>	<p>Engagement and “buy-in” at their respective levels of all relevant stakeholders including local communities, universities and government authorities (provincial and national MoE and MAFF)</p> <p>No civil unrest resulting from communes and national</p>

	increased agricultural cash income compared to the Year 2 baseline. At least 120 women have been involved in sustainable agriculture capacity building opportunities and included in consultations and decision-making processes related to the development of the SWS zonation/management plans.		
<p>Outputs:</p> <p>1. Vulnerable farming households from 8 remote forest communities inside a Protected Area improve their livelihoods through the learning and implementation of innovative, sustainable and more efficient agricultural practices (crop selection and rotation, irrigation technics, natural fertilizer and pest killer, fire breaks, HWC mitigation tools)</p>	<p>1.1 By 2018, at least 2 technical agricultural innovations are proposed to 150 farming households from eight communities</p> <p>1.2 By 2019, at least 150 farming households from eight communities are trained and start engaging in sustainable agriculture practices</p> <p>1.3 By 2020, at least 150 farming households (including 20 women-led households) increase their agricultural-based output and profitability by at least 20% through a combination of improved agricultural yield, added value and cost reduction through applying more sustainable practices</p>	<p>1.1 A baseline report on agro-ecosystem analysis and recommendations for improvement is produced</p> <p>1.2 Training module and report including attendance certificates</p> <p>1.3 The final report will highlight changes in both economic income and crop yield outputs from the identified farming households</p>	<p>Will to support from the Provincial Department of Agriculture, Forestry and Fisheries (PDAFF)</p> <p>Will to engage of the farmers</p> <p>No climate-related disaster (extended period of drought or flooding) affects the project area</p>
<p>2. Greater understanding of local communities' perception of Human Wildlife Conflict (HWC) in the PPWS/SWS complex</p>	<p>2.1 By 2019, the quantity, nature, and location of HWC in the PPWS/SWS complex and the perceived tolerance levels towards wildlife, especially elephants, measured through a perception scoring system, will be understood from at least 300 households from eighteen villages within and around the biodiversity corridor and will be integral in developing HWC mitigation tools under output 1</p>	<p>2.1 A summary baseline report on tolerance levels towards wildlife and HWC will be produced and shared with stakeholders. This report will include maps highlighting HWC hotspots and occurrences</p>	<p>Involvement of University students to conduct interview surveys</p>

	2.2 By 2020, communities' tolerance levels towards wildlife, especially elephants will remain stable or will have improved	2.2 Final report documenting perception and tolerance levels compared to the 2018 baseline.	
3. Better knowledge of Asian elephant movements across two critical protected areas in Cambodia	3.1 By 2019, elephant movements of at least one elephant group within the PPWS/SWS corridor are mapped	3.1 Report of seasonal movements of at least one elephant group is produced and disseminated to relevant stakeholders	Government support: delivering permits for collaring elephants and providing technical staff to conduct collaring surveys. If expertise is unavailable from within Cambodia, the government agrees to allow external experts and veterinarians to perform the darting and collaring of elephant while providing training to the relevant local staff
4. The revised management plan of SWS is approved and implemented by PDoE and local communities to preserve globally significant biodiversity while promoting and supporting appropriate and sustainable development to assist in alleviating poverty	4.1 By 2019, the approved SWS management plan specifically recognises the importance of the biodiversity corridor and applies core and conservation zonations to maintain the connectivity between PPWS and SWS	4.1 SWS management plan is endorsed by MoE, and a brief on dissemination of SWS management plan is shared to relevant stakeholders	Government and its PA management body, MoE pursues the current momentum towards biodiversity conservation and plans for eco-tourism expansion in Pas.
5. The concept of biodiversity conservation corridor is nested in the Cambodian Environmental Policies	5.1 By 2018, WWF Cambodia in collaboration with the Environmental Code Technical Working Group, have revised and provided technical input and comments on all draft versions of the EC that ensure the concept of Biodiversity Conservation Corridors is recognised and included in at least 1 chapter of the final draft of the Environmental Code submitted to the MoE	5.1 Either the "Protected Area management" or the "National Conservation Corridor" chapter of the Environmental Code	Government and its PA management body MoE pursues the current momentum towards biodiversity conservation
<p>Activities:</p> <p>1.1 Conduct an assessment of current agricultural patterns, productivity and market viability with the 8 communities living in the PPWS/SWS Biodiversity Conservation Corridor through Rapid Rural Appraisal (RRA) and Commune Agro-ecosystem Analysis(CAEA) models or similar</p> <p>1.2 Establish 8 conservation-based agriculture groups comprising 150 farming households, including 20 of the most vulnerable women-led households, within eight communities (forming one group of 15 to 20 farming households per community, each group represented by an elected farmer), to implement conservation-based agriculture models</p>			

- 1.3 Conduct an agricultural training needs assessment for the 150 farming households
- 1.4 Conduct training for the 150 farming households on efficient, innovative conservation-based and sustainable agricultural techniques (crop and seeds selection, crop rotation, irrigation techniques, fertilizer, pest killer, fire breaks, HWC mitigation tools) including provision of equipment and small-scale infrastructure for improved productivity
- 1.5 Conduct conservation-based agriculture study tour: organize 2 exposure visits (1 in Vietnam, 1 in Cambodia) for the eight farmer groups' team leaders to learn lessons from other conservation-based agriculture experimented techniques. (1 farmer leader per community, so 8 leaders in total with minimum 50% women)
- 1.6 Produce a manual with guidelines for conservation-based agriculture within a conservation corridor and disseminate to 32 communities and 36,000 local people living within and around PPWS and SWS

- 2.1 Design questionnaire on the perception of HWC by local communities and provide training to interviewers (timing based on rainy season)
- 2.2 Interview households from 18 communities in and around the PPWS/SWS complex, including 8 communities in the BCC, on their perception of HWC
- 2.3 Produce and disseminate report and maps to MoE and other stakeholders on the communities' perception of HWC
- 2.4 Develop HWC mitigation tools and disseminate to the 8 BCC-dwelling communities (dependent on HWC analysis)
- 2.5 Monitor and evaluate community's perception at end of project by repeating the Interview survey focusing on the target 8 communities
- 2.6 Analyse and compare baseline and current HWC perception levels, and present results to provincial and national government stakeholders

- 3.1 Conduct preparatory meetings with government partners and relevant stakeholders on seeking permissions, reviewing current legislation and assessing in-country capacity to collar elephants
- 3.2 Monitor elephant groups presence and identify individual(s) to collar within the biodiversity corridor
- 3.3 Provide training and build capacity of in-country personnel for collaring process with the support from Asian elephant experts
- 3.4 Collar individual(s) and monitor and analyse elephant movements in the PPWS/SWS complex
- 3.5 Produce reports and maps on elephant movements in the PPWS/SWS complex and disseminate information to relevant stakeholders

- 4.1 Conduct a series of consultation meetings and workshops led by MoE with all relevant stakeholders including the 8 communities to revise the Management Plan of SWS
- 4.2 Develop evidence-based documentation to support MoE in recognizing the critical role of the corridor in the management plan of SWS
- 4.3 Disseminate through workshops at commune level the approved SWS management plan to the relevant stakeholders: 16 local communities from 6 communes, including 8 communities from 2 communes in the corridor, local authorities, NGO Network, and private sector (pepper, rubber)

- 5.1 Pursue policy dialogue with MoE on the Cambodia Environmental Code to ensure that the chapters establishing and recognizing Biodiversity Conservation Corridor remain exist in environmental code.
- 5.2 Conduct a series of meeting with MoE for advocacy on the incorporation of the SWS-PPWS project target area, into the wider National Biodiversity Conservation Corridor System

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

Project summary	Measurable Indicators	Progress and Achievements
<p>Impact:</p> <p>Critical biodiversity corridors linking Protected Areas in Cambodia are legally protected and safeguarded through the engagement of local communities benefiting from improved and sustainable livelihoods practices.</p>		<p>This project contributed to the higher-level impact on biodiversity conservation by providing resources that enabled the strengthening of the legal protection of the critical PPWS/SWS biodiversity corridor through enabling development and implementation of local and national legal instruments. This project contributed to the higher-level impact on human development and wellbeing in a three-pronged approach including community-inclusive governance and management structures, supporting capacity building and uptake of profitable sustainable and wildlife friendly agricultural practises, and by enhancing knowledge on human wildlife interactions. Please refer to section 3.4 for more detail and evidence.</p>
<p>Outcome Eight forest-dependent communities including women improve their livelihoods through enhanced agricultural practices and sustainable management and protection of the PPWS/SWS Biodiversity Conservation Corridor in collaboration with authorities</p>	<p>0.1 In 2019, the annual forest cover loss in the PPWS/SWS Biodiversity Conservation Corridor will be equal to or below the 2013-2017 average forest cover loss rate of 0.21%</p> <p>0.2 No Human-Elephant Conflict (HEC) in the PPWS/SWS Biodiversity Conservation Corridor each year from 2017 to 2020</p> <p>0.3 By 2020, at least 150 farming households (including 20 women-led households) increase their agricultural-based output and profitability by at least 20% through a combination of improved agricultural yield, added value and cost reduction through applying more sustainable practices</p> <p>0.4 By 2020, at least 120 women from farming households in the PPWS/SWS BCC report improved well-being either through increased self-reported food security, well-being and/or resilience rankings, or through increased agricultural cash income compared to the Year 2 baseline. At least 120 women have been involved in sustainable agriculture capacity building</p>	<p>0.1 In 2019, the annual forest cover loss in the PPWS/SWS BCC was 0.37%, which is slightly higher than the 2013-2017 average forest cover loss rate of 0.21%. However, the forest cover loss rate in 2018 and 2020 were stable compared to the baseline (0.20% and 0.21% respectively). In addition, the forest cover loss in the core and conservation zones reduced from an average 0.25% between 2013-2017 to 0.16% in the project implementation period (2018-2020). In addition, the RGC did not grant any economic land concessions inside the PPWS/SWS BCC, and the formally approved SWS zonation plan assures connectivity between PPWS/SWS by assigning the highest levels of legal protection (core and conservation zones) to this area. The RGC has also formally recognised the significance of BCCs in the ENRC of Cambodia.</p> <p>Annex 7.31 provides a mapped time series of forest cover loss in the PPWS/SWS BCC as well as a table with annual rates and surfaces area of forest lost. Annex 7.10 provides the approved zonation plan for SWS, page 5 and 6 show maps on which the core and conservation zones connecting SWS and PPWS are visible. Finally, Annex 7.21 contains the 10th draft (most recent English version available) ENRC on which Article 285 (p.84), Article 294 (p. 89), Article 295 (pp. 89-90), Article 311 (p. 96), and Article 766 (p. 212) including protection measures for BCCs.</p> <p>0.2 No HEC was detected in the PPWS/SWS BCC each year from 2017 to 2020. In addition, a very significant increase in knowledge on HWC/HEC was achieved by the completion of the first wide scale sociological study across PPWS/SWS. Annex 7.18 provides the final report presenting the results, conclusions, and recommendations based of this study.</p> <p>0.3/0.4 By 2020, a total of 387 beneficiaries (322 women, ~83%) participated in at least one sustainable agriculture capacity-building opportunity. Detailed knowledge on sustainable agricultural practices will remain available in the compiled CBSG that was reached thousands of farmers through dissemination using various channels. As a result of the capacity building and other support, a total of 236 farming households (157% of the target), including 20 female-led households,</p>

Project summary	Measurable Indicators	Progress and Achievements
	opportunities and included in consultations and decision-making processes related to the development of the SWS zonation/management plans.	applied knowledge gained through the project to apply sustainable practices that improved their agricultural-based output and profitability. Further details that substantiate these achievements can be found under output 1 in this table, and in Annex 7.17, and 7.2-7.4.
<p>Output 1. Vulnerable farming households from 8 remote forest communities inside a Protected Area improve their livelihoods through the learning and implementation of innovative, sustainable and more efficient agricultural practices (crop selection and rotation, irrigation technics, natural fertilizer and pest killer, fire breaks, HWC mitigation tools)</p>	<p>1.1 By 2018, at least 2 technical agricultural innovations are proposed to 150 farming households from eight communities</p> <p>1.2 By 2019, at least 150 farming households from eight communities are trained and start engaging in sustainable agriculture practices</p> <p>1.3 By 2020, at least 150 farming households (including 20 women-led households) increase their agricultural-based output and profitability by at least 20% through a combination of improved agricultural yield, added value and cost reduction through applying more sustainable practices</p>	<p>1.1 By 2018, a series of conservation-friendly agricultural techniques and practices falling under three main categories (1) Improved rice production and markets, (2) HGs and high value crops, and (3) Water saving irrigation systems were proposed to 236 farming households of the established Farmer Learning Groups in eight communities (Annex 7.2, and Annex 7.4, table 1)</p> <p>1.2 By 2019, a total of 387 beneficiaries (322 women, ~83%) from 8 communities participated in at least one sustainable agriculture capacity-building opportunity, and a total of 236 beneficiaries subsequently engaged in applying their improved knowledge to implementing sustainable practices including in HG (n=118), SRI (18), ICS (74), and village water systems (56). (Annex 7.3, and Annex 7.4, table 1)</p> <p>1.3 By 2020, the 118 households (15 women-led) that applied HG sustainable practices increased their fruit and vegetable production, and income from these products, by 148% and 170% respectively (Annex 7.4, table 2-4). The 18 households applying SRI techniques reduced rice seed use by 50-75% and increased rice yield by 100-500kg per hectare compared to conventional practices (Annex 7.4, table 5). Improved food security and wellbeing was also achieved by installing individual and communal water systems (56 beneficiaries), distributing crop seeds (120 beneficiaries), and ICS (74 beneficiaries). (Annex 7.4, table 1,6).</p>
<p>Activity 1.1 Conduct an assessment of current agricultural patterns, productivity and market viability with the 8 communities living in the PPWS/SWS Biodiversity Conservation Corridor through Rapid Rural Appraisal (RRA) and Commune Agro-ecosystem Analysis (CAEA) models or similar</p>		<p>CEDAC undertook an RRA, surveying 108 households from the eight target villages which represents 5-6% of total households per village. The survey focused on agricultural production, main economic activities and the market for agricultural products for the target communities, and from there determined the most appropriate interventions (Annex 7.2, p. 4-7).</p>
<p>Activity 1.2 Establish 8 conservation-based agriculture groups comprising 150 farming households, including 20 of the most vulnerable women-led households, within eight communities (forming one group of 15 to 20 farming households per community, each group represented by an elected farmer), to implement conservation-based agriculture models</p>		<p>Farmer Learning Groups were established in all eight communities comprising 387 households, including 20 of the most vulnerable women-led households (Annex 7.2, p.7).</p> <p>Formal PGs with elected committee members were formed in four out of the eight target villages. Part of the PG formation involved a full day training session for 135 participants (74 females, ~55%) on organic agricultural principles and the registration of 74 interested farmers (54 females, 73%, incl. 5 female-led HH) in ICS logbooks, a necessary step towards organic certification and wildlife friendly production (Annex 7.4, table 1 and Annex 7.3, pp. 25-27).</p>

Project summary	Measurable Indicators	Progress and Achievements
Activity 1.3 Conduct an agricultural training needs assessment for the 150 farming households		A training needs assessment was conducted by CEDAC following the RRA, informing the development on appropriate training materials on the selected conservation-compatible agricultural practices (Annex 7.2, p. 8).
Activity 1.4 Conduct training for the 150 farming households on efficient, innovative conservation-based and sustainable agricultural techniques (crop and seeds selection, crop rotation, irrigation techniques, fertilizer, pest killer, fire breaks, HWC mitigation tools) including provision of equipment and small-scale infrastructure for improved productivity		One-day trainings on conservation-compatible HG were provided in all eight target villages and attended by 210 participants (162 females, ~77%, including 12 female-headed households). One-day trainings were also held on SRI and attended by 242 participants (213 females, ~88%, including 33 female-headed households). Crop seeds and village irrigation systems were provided, benefiting 120 and 56 participants respectively. All training reports are compiled in Annex 7.3, with HG on pp. 9-22, and SRI on pp. 23-24.
Activity 1.5 Conduct conservation-based agriculture study tour: organize 2 exposure visits (1 in Vietnam, 1 in Cambodia) for the eight farmer groups' team leaders to learn lessons from other conservation-based agriculture experimented techniques. (1 farmer leader per community, so 8 leaders in total with minimum 50% women)		Two conservation-based agriculture exposure visits were conducted in: (1) the Bos Knor Research Station of the Conservation Agriculture Service Centre (CASC) in Kampong Cham province, Cambodia in February 2019, and (2) in a series of upland conservation-agriculture model farms in Lamdong and Dac Lac provinces, Vietnam in March 2019. The former was attended by 15 farmer leaders (8 women, ~53%), and the latter by 8 farmer leaders (4 women, ~50%), all eight target villages were represented. Reports on the exposure visits can be found in Annex 7.3, pp. 2-5 (Cambodia), and pp. 6-8 (Viet Nam).
Activity 1.6 Produce a manual with guidelines for conservation-based agriculture within a conservation corridor and disseminate to 32 communities and 36,000 local people living within and around PPWS and SWS		The key topics addressed in the training sessions were condensed into a CBAG with illustrative and easy-to-understand instructions for implementing sustainable agriculture techniques. Over 500 copies were printed, with 386 distributed to stakeholders including farmers in the eight target villages, government stakeholders, the Food and Agricultural Organisation of the United Nations (FAO), and NGOs operating in the PPWS/SWS BCC and/or wider landscape. To reach an even wider audience, a video on sustainable agriculture was produced and uploaded to youtube , the CEDAC website, and facebook page (see links in section 7 of this report). The video was copied in a CD format (10 copies) and distributed to the eight target villages. The CBAG can be found in Annex 7.17.
Output 2. Greater understanding of local communities' perception of Human Wildlife Conflict (HWC) in the PPWS/SWS complex	2.1 By 2019, the quantity, nature, and location of HWC in the PPWS/SWS complex and the perceived tolerance levels towards wildlife, especially elephants, measured through a perception scoring system, will be understood from at least 300 households from eighteen villages within and around the biodiversity corridor and will be integral in developing HWC mitigation tools under output 1	By 2020, a very significant increase in the understanding of local communities' perception of HWC in the PPWS/SWS complex was achieved through the completion of the first wide scale sociological survey across PPWS and SWS (See Annex 7.18 for the full report). This survey incorporated interview data from 1,339 households (~446% of target) within 45 administrative village boundaries (~250% of target) and provides a baseline on the quantity, nature, and location of HWC in the PPWS/SWS complex and the perceived tolerance levels towards wildlife, including elephants. This survey revealed that the majority of interviewed households had a positive attitude and high tolerance level towards elephants, and that only 1 farmer (0.07%) reported crop damage due to elephants. In general, favourable community

Project summary	Measurable Indicators	Progress and Achievements
	2.2 By 2020, communities' tolerance levels towards wildlife, especially elephants will remain stable or will have improved	attitudes towards other wildlife species and PAs were prevalent, however negative interactions with and/or perceptions of certain species require further addressing. Several results and recommendations of the survey were integrated into the CBAG (See Annex 7.17, chapter 6 pp. 51-57) under output 1.
Activity 2.1 Design questionnaire on the perception of HWC by local communities and provide training to interviewers (timing based on rainy season)		The HWC study was designed with the overarching aim of gaining a greater understanding on: (1) the communities living within and adjacent to PPWS and SWS, (2) factors influencing crop and livestock losses, and (3) community perceptions towards wildlife, conservation and PA systems. To ensure all data were captured, a questionnaire was developed including four key sections: (1) Background, (2) Agriculture, (3) Livestock, and (4) Perception, and various closed and open questions were asked per section (Annex 7.18 on p. 50). Four theoretical and/or practical training sessions (2-6 days) were provided to the eight surveyors, independent University students, to ensure standardisation and uniformity in questioning techniques and to improve survey implementation. Training details can be found in the training report on HWC Questionnaire Training, Survey Design and Pilot Studies (Annex 7.5), and in the HWC report on p. 49 (Annex 7.18).
Activity 2.2 Interview households from 18 communities in and around the PPWS/SWS complex, including 8 communities in the BCC, on their perception of HWC		Overall, 1,369 HH's were interviewed from 59 settlements, located within 46 administrative villages between 2018 and 2019. After preliminary data checks and review, a small proportion of these interviews were omitted, resulting in the analysis of data representative of 1,339 households across 55 settlements located within 45 administrative village boundaries, including the 8 communities in the BCC. Full details of the interviewing selection process and community details can be found in the 'Methods' and 'Results' section of the full HWC report (Annex 7.18, p. 49 and p. 56-61 respectively).
Activity 2.3 Produce and disseminate report and maps to MoE and other stakeholders on the communities' perception of HWC		A comprehensive report including a diverse array of maps (Annex 7.18) was produced along with a summarised communications brief and shared with the MoE. As the sheer quantity of qualitative and novel information produced as part of this study is so vast, it was decided to hold a series of internal participatory workshops and meetings to improve the usability and application of the findings in the WWF-EPL conservation programme. Details can be found in the summarised minutes (Annex 7.27).
Activity 2.4 Develop HWC mitigation tools and disseminate to the 8 BCC-dwelling communities (dependent on HWC analysis)		Preliminary results and recommendations of the survey were integrated into the CBAG that was disseminated to the 8 target BBC-dwelling communities (See Annex 7.17, chapter 6, pp 51-57). However, the results of the survey made evident the complex nature of HWC in the EPL and demonstrated that there is no single quick solution to mitigating crop damage or other negative interactions caused by an array of different species. Therefore, it was concluded that a better approach

Project summary	Measurable Indicators	Progress and Achievements
		<p>would be to develop a comprehensive, multifaceted mitigation tool box that incorporates quantifiable feedback from communities on their level of willingness and interest in diverse tools, as well as inclusive cost-benefit analyses and social/environmental assessments. Although the latter fell outside of the scope of this project, the project helped to create the essential knowledge base and tools required for the next steps towards implementing a holistic Human Wildlife Co-existence strategy in the EPL.</p>
<p>Activity 2.5 Monitor and evaluate community's perception at end of project by repeating the Interview survey focusing on the target 8 communities</p>		<p>This activity was not undertaken for two key reasons: (1) it was decided that extending the scope and coverage of the HWC study to become the first comprehensive sociological study would provide more valuable knowledge to inform effective conservation strategies than would two small-scale repeat surveys, and (2) it was decided that a repeat survey, or preferably, a comprehensive monitoring and evaluation tool, would be more informative <i>after</i> a holistic Human Wildlife Co-existence strategy would be implemented in the target communities to measure short-term and long-term effectiveness and change.</p>
<p>Activity 2.6 Analyse and compare baseline and current HWC perception levels, and present results to provincial and national government stakeholders</p>		<p>See Activity 2.5</p>
<p>Output 3. Better knowledge of Asian elephant movements across two critical protected areas in Cambodia</p>	<p>3.1 By 2019, elephant movements of at least one elephant group within the PPWS/SWS corridor are mapped</p>	<p>Knowledge on Asian elephant herds' movements in the PPWS/SWS biodiversity corridor was improved and documented by a multi-institutional elephant collaring team. The project completed a feasibility study on elephant collaring and major achievement were made towards successful collaring including: (1) the establishment and capacity building of Cambodia's first multi-institutional specialist elephant collaring team where no such in-country capacity existed prior to this project (Annex 7.14 and Annex 7.15), and (2) an enabling environment has been created with the successful establishment of multiple partnerships with expert institutes and relevant governmental departments, with the expansion of the elephant darting team, and with all technical equipment in place (Annex 7.7 and Annex 7.8).</p> <p>Although the actual collaring of elephants was not yet achieved, the project has successfully set in place conditions and processes that will facilitate future collaring efforts. In addition, a wealth of knowledge on elephant distribution in the PPWS/SWS corridor was obtained (Annex 7.24 and Annex 7.32), and aided the lobbying for the official protection status of this location in the SWS zonation plan (Annex 7.10).</p>
<p>Activity 3.1 Conduct preparatory meetings with government partners and relevant stakeholders on seeking permissions, reviewing current legislation and assessing in-country capacity to collar elephants</p>		<p>Regular meetings have been held between WWF, PDoE and PDAFF throughout the project lifespan, ensuring buy-in and support for the activities and regulatory processes. Key outcomes of these meetings included:</p>

Project summary	Measurable Indicators	Progress and Achievements
		<ul style="list-style-type: none"> (1) An officially approved letter of agreement on roles and responsibilities regarding elephant collaring between the PDoE and WWF (approved agreement and translation are in Annex 7.7); (2) The official nomination of 3 PDoE rangers, and one PDAFF veterinarian as members of Cambodia's first specialist elephant collaring team (Annex 7.8, pp 2-5) (3) All governmental documentation and permits to import collaring equipment including two collars, dart gun, veterinary drugs, and all other specialist items (Annex 7.8, pp. 10-19); (4) Allocation of additional human resource support to assist in the elephant surveys during several occasions (Annex 7.15) (5) Identification of capacity and knowledge gaps that informed the development of a training schedule (Annex 7.14)
Activity 3.2 Monitor elephant groups presence and identify individual(s) to collar within the biodiversity corridor		<p>Between August 2017 and March 2020, joint surveys between research, law enforcement and community patrol groups have been undertaken. Based on these surveys, a comprehensive data set has been compiled on elephant (seasonal) presence, biodiversity, and illegal activities in the area (a series of maps visualising these data, can be found in Annex 7.24). It is likely that several separate elephant herds exist within the PPWS/SWS corridor, of which two appear to be resident herds, whilst others occur on a seasonal basis. Monitoring data helped to inform elephant tracking activities during field missions attempting to collar elephants (Annex 7.15). Between November 2020 and March 2021, the project contributed to data collection in another important biodiversity corridor: between SWS in Cambodia and YDNP in Viet Nam (Annex 7.32 provides a map demonstrating elephant presence in this transboundary corridor).</p>
Activity 3.3 Provide training and build capacity of in-country personnel for collaring process with the support from Asian elephant experts		<p>Five training courses have been held by a mix of Asian elephant experts and wildlife veterinarians in Cambodia and in India (a compilation of training reports can be found in Annex 7.14). These trainings, along with on-the-ground coaching and support resulted in the capacity building of Cambodia's first specialist elephant collaring team to a level where they are able to safely conduct elephant collaring with minimal hands on support from international veterinary experts.</p>
Activity 3.4 Collar individual(s) and monitor and analyse elephant movements in the PPWS/SWS complex		<p>Three missions were carried out between July 2019 and March 2020, accompanied by expert veterinarians from international partnering institutes, with the aim to collar elephants (details of each mission can be found in the compiled mission reports in Annex 7.15). However, a series of adverse environmental and logistical challenges, along with impacts of the global COVID-19 pandemic, impeded the successful collaring of elephants in the PPWS/SWS complex. Nevertheless, critical knowledge on elephant movements and distribution was obtained through the numerous surveys carried out across the project's lifespan (see activity 3.2).</p>

Project summary	Measurable Indicators	Progress and Achievements
Activity 3.5 Produce reports and maps on elephant movements in the PPWS/SWS complex and disseminate information to relevant stakeholders		The wealth of data obtained through this project has been compiled in a series of maps (Annex 7.24), and has been disseminated to relevant stakeholders through annual result-sharing meetings at the provincial and national level.
Output 4. The revised management plan of SWS is approved and implemented by PDoE and local communities to preserve globally significant biodiversity while promoting and supporting appropriate and sustainable development to assist in alleviating poverty	4.1 By 2019, the approved SWS management plan specifically recognises the importance of the biodiversity corridor and applies core and conservation zonations to maintain the connectivity between PPWS and SWS	<p>The final SWS zonation and management plans were developed through participatory processes and backed by scientific data on biodiversity. The SWS zonation plan was endorsed by the Minister of Environment in January 2019 and approved by the Prime Minister of Cambodia on the 1st of February 2019. The zonation plan maintains connectivity between the PPWS and SWS through strictly protected core and conservation zones. Annex 7.10 provides a copy of the approved and signed zonation plan, and Annex 7.20 highlights the location of the different zones with respect to the PPWS/SWS corridor.</p> <p>The SWS management plan has been endorsed by the PDoE and the GDANCP, and was officially approved by the Minister of Environment in April 2020. The management plan can be found in Annex 7.11 (currently only available in Khmer).</p>
Activity 4.1 Conduct a series of consultation meetings and workshops led by MoE with all relevant stakeholders including the 8 communities to revise the Management Plan of SWS		<p>In April 2018, a high level national consultation was held chaired by the Secretary of State, and attended by 60 stakeholders including community authorities as well as provincial and national authorities of all relevant ministries (Forestry Administration, Department of Public Works and Transport, Department of Rural Development, Department of Agriculture, District Governor Office, Ministry of Environment, Ministry of Land Management, Urban Planning and Construction, Ministry of Mine and Energy, Ministry of Women’s Affairs, Ministry of Agriculture, Forestry and Fishery, and Ministry of Tourism (Annex 7.33 provides the attendance list). Subsequently, a final series of consultations on the draft revisions of the SWS zonation plans were led by the MoE technical working group (consisting of two MoE Technical Officials, 1 representative of PDoE, commune councillors, 8 Community PA representatives) throughout Q1 and Q2 of Year 2. Therefore, the final drafts of zonation and management plans incorporate feedback obtained through a fully inclusive participatory approach and represents consensus on key strategy components including the definitions of the zones, their use and regulations, boundaries and relevant governance models. Final consultations at national level were completed by December 2018 after which the administrative procedures for endorsement and approval commenced.</p>
Activity 4.2 Develop evidence-based documentation to support MoE in recognizing the critical role of the corridor in the management plan of SWS		<p>WWF Cambodia was very actively engaged in the process of developing the zonation and management plans, particularly through the provision of technical support and advice. A series of documentation based on ten years of biodiversity research and law enforcement data was provided to MoE demonstrating the critical role of the SWS/PPWS corridor. These included data and maps of species presence, presentations (examples are provided in Annex 7.23), and a compiled collection of relevant scientific and grey literature.</p>

Project summary	Measurable Indicators	Progress and Achievements
<p>Activity 4.3 Disseminate through workshops at commune level the approved SWS management plan to the relevant stakeholders: 16 local communities from 6 communes, including 8 communities from 2 communes in the corridor, local authorities, NGO Network, and private sector (pepper, rubber)</p>		<p>A one-day dissemination workshop on the zoning and zoning management of the PPWS and SWS was conducted on the 3th of April 2019 in joint collaboration between WWF and the PDoE. In order to leverage resources and maximize the profile and impact of the workshop, it was decided to combine the workshop for both wildlife sanctuaries. This combined dissemination also provided the unique opportunity to highlight the critical role of connectivity between PPWS and SWS in the biodiversity corridor. This high-profile event was honoured by the presence of 125 participants (28 women, 22.4%), including key officials from all relevant government authorities on the provincial and national levels, as high as a Secretary of State of the MoE (H.E. Roth Virhak). All other relevant stakeholders were also represented, including leaders of local communities from 14 communes of 5 districts, 18 CPA committees, national and international NGOs, and the private sector (e.g. the large-scale pepper company Welt-Bio). The agenda and a short report containing the details of the workshop can be found in Annex 7.12. In addition to the workshop, dissemination materials were widely distributed among relevant communities, these included zonation billboards and sign posts placed inside the SWS (see for example Annex 7.34), as well as hand-out maps.</p>
<p>Output 5. The concept of biodiversity conservation corridor is nested in the Cambodian Environmental Policies</p>	<p>5.1 By 2018, WWF Cambodia in collaboration with the Environmental Code Technical Working Group, have revised and provided technical input and comments on all draft versions of the EC that ensure the concept of Biodiversity Conservation Corridors is recognised and included in at least 1 chapter of the final draft of the Environmental Code submitted to the MoE</p>	<p>By 2018, the final draft of the ENRC was submitted to the MoE after a series of revisions, consultations, and technical meetings by WWF independently, and jointly as part of the technical working group formed by a consortium of environmental NGOs (Annex 7.13 provides a sample of that input)</p> <p>Annex 7.21 provides the semi-final tenth draft as this is the latest version available in English, followed by the eleventh and final draft in Khmer. Partially due to the recommendations provided by WWF and others, the BCC has been acknowledged in five articles in two different chapters.</p>
<p>Activity 5.1 Pursue policy dialogue with MoE on the Cambodia Environmental Code to ensure that the chapters establishing and recognizing Biodiversity Conservation Corridor remain exist in environmental code.</p>		<p>The MoE contracted Vishnu law group to develop the ENRC drafts, and WWF was actively engaged in dialogue with this group through the provision of comments and technical advice both independently as well as part of a consortium of conservation NGOs. In addition, WWF directly engaged with the MoE at the provincial and national level, highlighting the importance of BCCs, in particular the PPWS/SWS corridor during annual results sharing meetings as well as other technical meetings where relevant (see Annex 7.23 for an example of corridor presentations and maps provided during such occasions).</p>
<p>Activity 5.2 Conduct a series of meeting with MoE for advocacy on the incorporation of the SWS-PPWS project target area, into the wider National Biodiversity Conservation Corridor System</p>		<p>The PPWS/SWS corridor was incorporated into the wider national BCC system under the Royal Decree on wider National Biodiversity Conservation Corridor System issues prior to project commencement. This activity was thus already completed, and did not form part of project implementation</p>

Annex 3 Standard Measures

Code	Description	Total	Nationality	Gender	Title or Focus	Language	Comments
Training Measures							
1a	Number of people to submit PhD thesis						
1b	Number of PhD qualifications obtained						
2	Number of Masters qualifications obtained						
3	Number of other qualifications obtained						
4a	Number of undergraduate students receiving training	8	Cambodian	4M;4F	Social survey methodologies, interview techniques and back ground into HWC	English and Khmer	
4b	Number of training weeks provided to undergraduate students	3	Cambodian	4M;4F	Social survey methodologies, interview techniques and back ground into HWC	English and Khmer	
4c	Number of postgraduate students receiving training (not 1-3 above)						
4d	Number of training weeks for postgraduate students						
5	Number of people receiving other forms of long-term (>1yr) training not leading to formal qualification (e.g., not categories 1-4 above)						
6a	Number of people receiving other forms of short-term education/training (e.g., not categories 1-5 above)	20	Cambodian	9M;11F	Exposure visit - Conservation Agriculture Service	Khmer	3 days

					Centre-Bos Khnor Research Station		
6a	Number of people receiving other forms of short-term education/training (e.g., not categories 1-5 above)	11	Cambodian	5M; 6F	Exposure visit - Conservation Agriculture Farms in Vietnam	Khmer and English	3 days
6a	Number of people receiving other forms of short-term education/training (e.g., not categories 1-5 above)	9	Cambodian (8), English (1)	8M;1F	Exposure Visit to Assam India on Chemical Capture of Asian	Khmer and English	6 days
6a	Number of people receiving other forms of short-term education/training (e.g., not categories 1-5 above)	10	Cambodian	10M;0F	Chemical immobilization and satellite collaring of Asian Elephants	Khmer and English	5 days
6a	Number of people receiving other forms of short-term education/training (e.g., not categories 1-5 above)	13	Cambodian	13M;0F	Introduction to capture and collaring Asian Elephants	Khmer and English	3 days
6a	Number of people receiving other forms of short-term education/training (e.g., not categories 1-5 above)	18	Cambodian	18M;0F	Introduction Asian Elephant Ecology and GPS Satellite		4 days

					collaring project		
6b	Number of training weeks not leading to formal qualification						
7	Number of types of training materials produced for use by host country(s) (describe training materials)	1	Khmer	NA	Conservation Based Agriculture Guidebook		
Research Measures		Total	Nationality	Gender	Title	Language	Comments/ Weblink if available
9	Number of species/habitat management plans (or action plans) produced for Governments, public authorities or other implementing agencies in the host country (ies)	2	Cambodian	NA	(1) SWS Zonation Plan and (2) SWS Management Plan	Khmer	Attached in Annex 7.10 and 7.11
10	Number of formal documents produced to assist work related to species identification, classification and recording.						
11a	Number of papers published or accepted for publication in peer reviewed journals						
11b	Number of papers published or accepted for publication elsewhere						
12a	Number of computer-based databases established (containing species/generic information) and handed over to host country	1	NA	NA	HWC Database EPL	English	
12b	Number of computer-based databases enhanced (containing species/genetic information) and handed over to host country						
13a	Number of species reference collections established and handed over to host country(s)						

13b	Number of species reference collections enhanced and handed over to host country(s)						
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Dissemination Measures		Total	Nationality	Gender	Theme	Language	Comments
14a	Number of conferences/seminars/workshops organised to present/disseminate findings from Darwin project work	1 (125 participants)	120 Cambodian (1 English, 2 South African, 1 Dutch, 1 American)	97M; 28F	PPWS & SWS Zonation and Zonation Management Dissemination Workshop	Khmer	
14b	Number of conferences/seminars/ workshops attended at which findings from Darwin project work will be presented/ disseminated.						

Physical Measures		Total	Comments
20	Estimated value (£s) of physical assets handed over to host country(s)	██████████	Zonation Dissemination billboards
21	Number of permanent educational, training, research facilities or organisation established		
22	Number of permanent field plots established		Please describe

Financial Measures		Total	Nationality	Gender	Theme	Language	Comments
23	Value of additional resources raised from other sources (e.g., in addition to Darwin funding) for project work (please note that the figure provided here should align with financial information provided in section 9.2)	£██████████	NA	NA	NA	NA	

Annex 4 Aichi Targets

	Aichi Target	Tick if applicable to your project
1	People are aware of the values of biodiversity and the steps they can take to conserve and use it sustainably.	X
2	Biodiversity values have been integrated into national and local development and poverty reduction strategies and planning processes and are being incorporated into national accounting, as appropriate, and reporting systems.	
3	Incentives, including subsidies, harmful to biodiversity are eliminated, phased out or reformed in order to minimize or avoid negative impacts, and positive incentives for the conservation and sustainable use of biodiversity are developed and applied, consistent and in harmony with the Convention and other relevant international obligations, taking into account national socio economic conditions.	
4	Governments, business and stakeholders at all levels have taken steps to achieve or have implemented plans for sustainable production and consumption and have kept the impacts of use of natural resources well within safe ecological limits.	
5	The rate of loss of all natural habitats, including forests, is at least halved and where feasible brought close to zero, and degradation and fragmentation is significantly reduced.	X
6	All fish and invertebrate stocks and aquatic plants are managed and harvested sustainably, legally and applying ecosystem based approaches, so that overfishing is avoided, recovery plans and measures are in place for all depleted species, fisheries have no significant adverse impacts on threatened species and vulnerable ecosystems and the impacts of fisheries on stocks, species and ecosystems are within safe ecological limits.	
7	Areas under agriculture, aquaculture and forestry are managed sustainably, ensuring conservation of biodiversity.	X
8	Pollution, including from excess nutrients, has been brought to levels that are not detrimental to ecosystem function and biodiversity.	
9	Invasive alien species and pathways are identified and prioritized, priority species are controlled or eradicated, and measures are in place to manage pathways to prevent their introduction and establishment.	
10	The multiple anthropogenic pressures on coral reefs, and other vulnerable ecosystems impacted by climate change or ocean acidification are minimized, so as to maintain their integrity and functioning.	
11	At least 17 per cent of terrestrial and inland water, and 10 per cent of coastal and marine areas, especially areas of particular importance for biodiversity and ecosystem services, are conserved through effectively and equitably managed, ecologically representative and well connected systems of protected areas and other effective area-based conservation measures, and integrated into the wider landscapes and seascapes.	X
12	The extinction of known threatened species has been prevented and their conservation status, particularly of those most in decline, has been improved and sustained.	
13	The genetic diversity of cultivated plants and farmed and domesticated animals and of wild relatives, including other socio-economically as well as culturally valuable species, is maintained, and strategies have been developed and implemented for minimizing genetic erosion and safeguarding their genetic diversity.	

14	Ecosystems that provide essential services, including services related to water, and contribute to health, livelihoods and well-being, are restored and safeguarded, taking into account the needs of women, indigenous and local communities, and the poor and vulnerable.	X
15	Ecosystem resilience and the contribution of biodiversity to carbon stocks has been enhanced, through conservation and restoration, including restoration of at least 15 per cent of degraded ecosystems, thereby contributing to climate change mitigation and adaptation and to combating desertification.	
16	The Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization is in force and operational, consistent with national legislation.	
17	Each Party has developed, adopted as a policy instrument, and has commenced implementing an effective, participatory and updated national biodiversity strategy and action plan.	
18	The traditional knowledge, innovations and practices of indigenous and local communities relevant for the conservation and sustainable use of biodiversity, and their customary use of biological resources, are respected, subject to national legislation and relevant international obligations, and fully integrated and reflected in the implementation of the Convention with the full and effective participation of indigenous and local communities, at all relevant levels.	
19	Knowledge, the science base and technologies relating to biodiversity, its values, functioning, status and trends, and the consequences of its loss, are improved, widely shared and transferred, and applied.	X
20	The mobilization of financial resources for effectively implementing the Strategic Plan for Biodiversity 2011-2020 from all sources, and in accordance with the consolidated and agreed process in the Strategy for Resource Mobilization should increase substantially from the current levels. This target will be subject to changes contingent to resource needs assessments to be developed and reported by Parties.	

Annex 5 Publications

Provide full details of all publications and material that can be publicly accessed, e.g. title, name of publisher, contact details. Mark (*) all publications and other material that you have included with this report

Type *	Detail (title, author, year)	Nationality of lead author	Nationality of institution of lead author	Gender of lead author	Publishers (name, city)	Available from (e.g. web link, contact address etc)
Government Plan*	SWS Zonation Plan	MoE, 2019	Male	Cambodian	MoE, Phnom Penh	https://www.facebook.com/sokla.yek/posts/566023203881244
Government Plan*	SWS Management Plan	MoE, 2020	Male	Cambodian	MoE, Phnom Penh	This plan is not online but can be accessed in hard copy or soft copy upon request to ministry.
Manual*	Conservation Based Agriculture Guidebook	CEDAC, 2020	?	Cambodian	CEDAC, Phnom Penh	https://cedac.org.kh/wp-content/uploads/2021/06/Final-WWF-Home-garden.pdf

Annex 7.5 Darwin Contacts

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