



## Darwin Initiative: Final Report

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

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

### Darwin Project Information

Project reference	26-009
Project title	Enhancing wetland resilience for improved biodiversity and livelihoods in Cambodia
Country(ies)	Cambodia
Lead organisation	Wildfowl & Wetlands Trust (WWT)
Partner institution(s)	BirdLife International, Cambodia Programme Cambodian Rural Development Team Department of Freshwater Wetland Conservation, Cambodian Ministry of Environment NatureLife Cambodia
Darwin grant value	£320,472
Start/end dates of project	1 April 2019 – 31 March 2022
Project leader’s name	Bena Smith
Project website/blog/social media	-
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## 1 Project Summary

More than 30% of Cambodia is covered by wetlands. The Cambodian Lower Mekong Delta (CLMD) supports the livelihoods of 3 million people and is within a global biodiversity hotspot. Rapid unsustainable development has led to the loss of over 60% of the region’s wetlands, causing habitat fragmentation and leaving those most dependent on natural resources, who are also the poorest (1.5M are classified as poor), worse off than ever.

Anlung Pring and Boeung Prek Lapouv Protected Landscapes are two of the last remaining seasonally-inundated grasslands in the CLMD. These Key Biodiversity Areas host numerous globally threatened species, including the Critically Endangered Bengal florican and 70% of the Southeast Asian population of the Vulnerable sarus crane, the tallest flying bird and flagship species of Cambodia’s wetlands. They also provide ecosystem services supporting the livelihoods of 6,800 people, predominantly based on fishing and rice farming.

Recent changes to Protected Area (PA) management systems have temporarily prohibited natural resource management groups from using AP and BPL until new zonation models are agreed. This has weakened patrolling and government legal enforcement, leaving the sites

vulnerable to increasing pressures from agricultural conversion and unregulated resource use. Wetland degradation in the Lower Mekong Delta is threatening local livelihoods, health and food security, and having a devastating impact on biodiversity.

This project helped conserve two internationally important PAs in the CLMD, and enhanced their connectivity to a healthier wider wetland landscape. We promoted resilient sustainable livelihoods, restored wildlife habitat and established multiple-use zoning schemes in one PA (drafted in the second PA), safeguarding endangered species and improving livelihood security and wellbeing for 6,800 people. We also enhanced understanding of the surrounding seasonally inundated wetland system and promoted more effective and harmonised wetland management across the region.

The project was implemented in the CLMD in the south-eastern provinces of Kampot, Takeo, Kandal, Kep, and Prey Veng. The focal conservation action sites are Boeung Prek Lapouv Protected Landscape in Takeo province and Anlung Pring Protected Landscape in Kampot province.



## 2 Project Partnerships

The partnership between the communities around Anlung Pring (AP) and Boeung Prek Lapouv (BPL), local and national government, WWT, and NatureLife Cambodia has been forged over 12 years of collaborative working, which has resulted in the protection and community-based management of both sites. Wider landscape work over the CLMD has been inspired by the desire to replicate our local wetland wide-use approach across the region, identifying key sites for community-based action. In addition to our existing partnership, and at the request of local communities around AP, this Darwin project has also introduced a specialist sustainable agriculture partner, the Cambodian Rural Development Team (CRDT). The sustainable rice element of this project was co-designed with local community groups, including a selection of farmers, choice of seed types, and percentage of each farmer’s land on which to trial new approaches. The monitoring and evaluation of the impact of the project on livelihoods (through farmer diaries) and on the wetland (through community-led water quality monitoring) is integral to the design of this project.

The partnership is overseen by a formal Project Steering Group, with scheduled quarterly meetings between partners, and two Liaison Panels, one for AP and one for BPL, which met annually to review progress (barring the Y2 meetings which were not possible due to Covid-19 meeting restrictions). Project partnership staff also met regularly in Phnom Penh, AP and BPL to discuss work programmes, and official village representatives joined workshops, events and training at our sites, including participation in the sustainable rice scheme at AP, and guiding community consultations for zonation at BPL.

The last three years has brought unprecedented challenges for us, with one of the worst droughts in decades accompanying restrictions brought about by the Covid-19 pandemic. We have only been able to deliver this project by listening and adapting to the needs and challenges faced by the communities and our partners. It is important to take this opportunity to thank the Darwin Initiative for the additional support that we were able to secure for our community groups through the Covid-19 emergency response grant entitled ‘Sustaining and enhancing Anlung Pring Ecotourism through Covid-19 and beyond’. This has helped to further build trust between the project and local people.

The challenges facing this project have also led us to submit a number of Change Requests, all of which have been drafted together as a partnership, and have helped us to adapt as needed over the three years. We have worked closely with the Department of Freshwater Wetland Conservation (DFWC) within the Ministry of Environment in the design and fieldwork for the CLMD assessment, and the designation of Tuolporn Taley Boeung Sne Multiple Use Area, a key result of our collaborative CLMD work. The DFWC have also toiled to achieve the draft zonation of BPL, the reasonable result of which very much depended on support from this project to complete comprehensive community consultation and review land tenure claims. The consultation process for zonation and management planning is described in more detail in Section 3 (Output 2). Resultant potential future community-led initiatives are also explored in Section 3, and we appreciate previous reviewer feedback to explore this in more detail.

We have grown our relationship with the British Embassy in Phnom Penh throughout the project, with a visit from the British Ambassador to our field site in Anlung Pring (Annex 7.80 & 7.81) during the project period. We have also contributed to a series of British Embassy videos ( <https://mtouch.facebook.com/watch/?v=345097916964972&rdr> ) as part of the 6 month countdown to COP26.

This partnership will continue into the long-term, with this project helping to mobilise further and future funding through the Critical Ecosystem Partnership Fund, Woodspring Trust, Mandai Nature, and the (pending) Prince Albert II of Monaco Foundation.

All partners have inputted to, and provided evidence for, this report.

### **3 Project Achievements**

#### **3.1 Outputs**

##### **Output 1: AP, BPL and the wider CLMD wetland landscape are better understood and showcasing best practice local adoption of Ramsar recommendations and tools.**

The process to produce the CLMD Wetlands Report (Indicator 1.2; Activity 1.4) included land-use mapping, desk-top research, site visits, biodiversity assessments and ecosystem service assessments. Through this, WWT staff, our in-country partners, regional partners (e.g. IUCN, EAAFP), Cambodia NGOs, and government departments, all gained a deeper understanding of the CLMD wetland landscape. The initial spatial analysis of the region identified priority wetlands for conservation and raised awareness of and interest in those sites. One of these sites, Boeung Sne, for which the CLMD assessment provided ecosystem services data and biodiversity data (information that was not previously available), went on to achieve Protected Area status (see section 3.4).

After some initial trials with Rapid Assessments of Ecosystem Services (RAWES) at AP, attended by staff from the Department of Freshwater Wetland Conservation of the Cambodian

Ministry of Environment, the WWT team went on to conduct RAWES at 8 priority sites (Activity 1.2); Boeung Prek Lapouv, Bassac Marshes, Boeung Kdei, Tonle Bati, Boeung Veal Samnap, Kampong Trach, Boeung Sne, and Phnom Teuk. The surveys involved a small team of staff visiting each site and engaging (through interviews) with local communities to understand the ecosystem services they provide. These assessments now serve as baselines for each site. Desktop research highlighted the lack of biodiversity data for these sites, most only having bird records from brief visits 20 years ago as part of the country-wide IBA assessments. Through this project, waterbird and fish (eDNA) data was collected, and habitats broadly mapped significantly raising our knowledge of the remaining wetlands in the CLMD and their connectivity.

Through a detailed land-use change assessment (Activity 1.2), historical changes to the CLMD are now documented and understood, and we have a much clearer understanding of the factors that contributed to the decline of wetland condition and extent; also the factors that allowed relatively better preservation of natural areas in Cambodia compared to those of the Vietnamese Mekong Delta (VMD). Analysis of Landsat 5 images from 1989/90 suggest that in the last 30 years, approximately 1,600 km<sup>2</sup> of wetland vegetation have been lost from the CLMD (Annex 7.5). With 858 km<sup>2</sup> of wetland vegetation remaining in 2020, this equates to a loss of 65% over 30 years. Comparisons with the VMD provide decision-makers in Cambodia with a stark warning of the potential implications of poor land use management. Despite high levels of wetland loss in the Cambodian section of the delta, the enhanced irrigation that goes with intensive agriculture in the VMD has led to a substantial decline in average flood heights, and this is not yet apparent in the CLMD.

Agriculture in the CLMD is far less intensive than in the VMD. Single-crop, rain fed rice is the dominant form of agriculture, accounting for 51% of land area. Double cropped rice accounts for just over 10% and there is hardly any triple-cropped rice. This contrasts with the VMD, where triple-cropped rice is dominant, at 50% of land area. 30 years ago, all rice agriculture in both CLMD and VMD was single cropped. We estimate that 10% of the CLMD is covered by natural wetland vegetation, in contrast to just 2% of the VMD. A map taken from the CLMD report showing rice agriculture is shown in Annex 7.5.

Due to the report only being finalised at the end of Y3, we have not been able to influence district plans. But we have secured funding (from the Woodspring Trust) to promote and raise awareness of the more important wetlands identified in the CLMD report in late 2022. The funding allows for workshops with relevant government departments and drafting recommendations for submission to MoE.

Optimal ecohydrological states (Indicator 1.1) are now agreed by NGO, academic and government stakeholders for both AP and BPL. For AP, an expert working group created by this project held an initial workshop in June 2020 (Annex 7.6), which led to the production of a research plan for the site which is now being implemented (see Section 3.1; Output 1). For BPL, a working group was established to give guidance on the ecohydrological elements of the site, identify knowledge gaps and agree research/monitoring actions.

However there are still a number of knowledge gaps being addressed through the long-term research programmes now in place for the sites (see Section 3.1; Output 1 and Annex 7.8 for details and an example). Monitoring plans (with protocols for waterflow, water quality, evaporation and rainfall) have been established for both sites, with review mechanisms by the expert / working groups built in. These will continue to generate site data that will help refine our understanding of their hydrology, ecology and the relationship between them.

R-METT and RAWES were the main Ramsar Tools promoted during the project. R-METT was translated into Khmer, and training provided to MoE staff on the use of RAWES. Both tools were implemented at AP and BPL, which was used as a training opportunity for DFWC staff. Due to travel restrictions we were unfortunately unable to implement them at sites in Vietnam.

A presentation on land-use mapping and RAWES was delivered at the IBRRI Annual meeting in February 2020 ( <https://www.iucn.org/news/asia/202003/fostering-regional-cooperation-strengthen-wetlands-conservation-indo-burma-region> ), introducing the concepts and applications to a range of potential users in the region.

Climate Change Vulnerability Assessments (CCVA) are not currently recognised as a Ramsar Tool, but nevertheless generate important information for sites to plan mitigation and adaptation measures. Through the CCVA assessments at AP and BPL, we were able to train local rangers and Field Monitoring Team staff in their usage. We also shared our findings at IBRRI Annual meetings.

**Output 2: Protected Area Management Plans informed by a participatory zoning process are developed, endorsed by government, and implemented at AP and BPL, with local communities understanding and adhering to their regulations.**

A Management Plan for BPL was produced (Indicator 2.1; Annex 7.29), which builds on the Climate Change mitigation plan that followed the CCVA at the site. In the early stages of this Darwin project, a visioning workshop with community members set the main direction of travel and identified broad objectives. Consultation was difficult during the Covid pandemic, however virtual meetings and email communications were employed to develop the Plan. We are now waiting for final zonation to be agreed (see below) before publishing, as minor adjustments will need to be made to account for this.

Our Partner Birdlife, working closely with WWT's Government Liaison Officer, has been heavily involved in the government-led zonation process. Together we submitted site information including vulnerability assessments, ecosystem services data, a mitigation plan, hydrology and biodiversity data, also pursued court action (see below). It has been confirmed BPL will be split into a core protection zone, sustainable natural resource use zones (Community Protected Areas – CPAs) and so-called 'Community Zones' which allow activities such as sustainable agriculture. In the last few months the government announced it would no longer accept any land claims and set the boundary of the community zone.

A Management Brief was produced for AP (Indicator 2.1; Annex 7.30). This incorporated the fieldwork and stakeholder consultations completed for the CCVA at AP (Activity 2.2, Annex 7.13). The Plan is now guiding the activities of WWT and its partners at the site.

Despite disruptions from Covid, the project was able to adapt and push forward with activities to raise awareness about regulation changes. Events, courses and awareness signs and posters promoted rules and regulations at both sites.

Fortunately at AP the rules did not change significantly following zonation because AP was designated as a single Community Protected Area zone, and project partners worked with the livelihood department of the Ministry of Environment to agree sustainable use of the site. The simple zonation model with the whole Protected Area designated as one zone, allows sustainable community use of natural resources. The site is small, and therefore all parties agreed that this model was suitable.

At BPL the situation was more complex. Because zonation was not completed, we kept our awareness campaigns relatively generic and did not erect clear signs and demarcation. Pre-Covid this involved special events to raise awareness and environmental film displays (Activity 2.7). During Covid we had to use audio messaging through mobile broadcasts. The zonation itself was a very participatory process, so we know the vast majority of local people understand the process and potential consequences. This has laid a good foundation for a relatively simple, yet intense campaign beyond this project once zonation is agreed.

Communities at AP and BPL were heavily engaged with projects through activities such as zonation, vulnerability assessments, RAWES and R-METT, awareness campaigns, and additional support provided by a Darwin Covid-19 emergency grant.

Awareness of rules appears to be high. This is supported by a social survey conducted at the end of Y3 at BPL, which revealed a high percentage of local people (Output 2.2) are aware of laws concerning destructive activities such as electrofishing, hunting, and land encroachment. The same survey noted a lack of knowledge among local people on the exact boundary of BPL.

In direct response to the illegal land encroachment cases that happened at the beginning of Y3, a small team was set up to raise awareness among local and provincial government staff (Activity 2.7). From this, the district governor and deputy governors of Borey Chulsa promised

to collaborate with the site management team to stop illegal activities, and as the focal department of the Takeo provincial government on Protected Area management, Takeo Provincial DoE expressed its strong commitment to continuously collaborate to ensure site effective management.

The environmental education programme delivered well in Y1 with education books updated and a curriculum developed, but was heavily impacted by Covid when schools closed.

During this period, due to the three target schools being located in a remote area with poor internet connection and mobile network coverage, online teaching could not be organized for the students as advised by the government. The priority therefore changed to training teachers and in July 2021, an online training event for 14 teachers from the three schools was delivered. The training improved teachers' knowledge on (1), Biodiversity and Ecosystem, (2), Sarus crane and its habitats, (3), Wetland protected landscape, and (4), Threats including environmental pollution and climate change. Afterwards, teachers felt more confident to deliver environmental education topics in the following school season.

At the end of the project, 1,265 primary school kids from grades 4 to 6 of the three target schools had joined this school education programme. Several teacher capacity training events attended by 14 teachers from 3 schools were organised in Y3 as the pandemic eased (Annex 7.33).

During the pandemic, our Partner NatureLife devised alternative methods to deliver education messages such as the Crane studio and education centre at AP (Activity 2.14; Annex 7.38).

Illegal fishing activities decreased by 75% (Indicator 2.3) which is a great result. Following training in the efficiency of patrolling, rangers have now fully adopted SMART monitoring at both sites (Activity 2.8) and record community use and illegal activities. Although this has undoubtedly improved patrolling within the project period, it is noted that drought conditions likely contributed to the observed decrease in illegal activities. Incidences of illegal fishing occurred at BPL, not AP. Possibly the fact that the BPL CFi cannot manage their fishery due to the lack of zoning, is a factor.

At BPL the most serious threat came from land encroachment, which continued to be a major challenge. It is not clear if the final zonation will halt new encroachment, but it will provide the national government with more power to hold local government to account. A number of wealthy people from outside of the community used the delay as an opportunity to stake a claim on land, hoping that land ploughed/used before the final zonation sign-off will be written off and permissions granted to continue farming. The government made it very clear that this will not be the case, and any encroachment into the Protected Area will be prosecuted and not be considered for tenure.

In addition, the Takeo court issued a 'No 011' letter on 11 February 2022 to conclude on the case of land encroachment in BPL in 2017 and 2018. The nine defendants were sentenced to five years in prison on bail by Takeo provincial court.

WWT and its partners are supporting the BPL Rangers and Takeo Provincial DoE to request support from the Takeo Provincial governor and MoE at the national level to stop illegal cases. As a result, 10 villagers received warning contracts and 13 hectares of land inside BPL was confiscated.

A provincial decree (Deyka) is seen as a critical tool to give the Zonation Board authority to proceed the land claims and zone the site, and for DoE to take back land encroached in 2021. This document has been drafted with input from partners and awaiting approval from the Takeo governor.

### **Output 3: 1700 local people in AP and BPL are directly profiting from sustainable livelihood ventures that also reduce wetland degradation.**

The main livelihood ventures contributing to Output 3 were sustainable agriculture and community recycling businesses. The effective operation of CFIs is also regarded as beneficial to local people.



Through this Darwin project, 224 members (142 of whom were women) from farming associations were engaged (Indicator 3.1; Annexes 7.40 to 7.56). They were initially identified through water inflow modelling as farms having the highest polluting impact on AP. These areas are Kosh Chamka village, Chres village and Kosh Tnoat village. Farmers received targeted training and representative members of these associations visited similar sustainable farming projects at BPL.

As reported at the end of Y1 the agricultural elements of this project were significantly impacted by the worst drought in the Lower Mekong Delta in decades, alongside Covid-related travel and activity restrictions in Cambodia. Farmers trialled the Tro-Nong rice variety following a recommendation in the 'Rice Market Value Chain and Link to Key Private Sector' report produced in Y1 that it was high value in accessible local markets, and is close to full Sustainable Rice Platform standards. However the drought led to substantial crop loss (of the 130ha planted, 46.5 hectares (35.70%) failed), which was exacerbated by our local partner, CRDT, not being able to offer additional on-site support at that time due to Covid travel restrictions, like techniques to help irrigate the crops. Although the rice variety resulted in a significant decrease in chemical inputs, farmers requested alternative support.

In agreement with Darwin, following a recommendation from Amru Rice trading company, and adhering to the fundamental principle of the project i.e. to support local communities to transition away from rice agriculture that relies on high chemical inputs, the activities shifted emphasis onto other rice varieties (red jasmine and black/brown sticky rice) and broadening crop varieties by introducing mung beans. Mung beans are not only a cash crop, but as a legume, they also improve soil quality and can be grown in April then harvested in July before planting rice.

Amru Rice trading company agreed to sign purchasing agreements with farmers (greater security) on the provision that they meet certain standards. The Amru Rice Company provided seed and CRDT had the necessary skills to train farmers in these new varieties and ensure standards compliance.

Technical training was delivered on sustainable farming methods (Activity 3.4) and pre-post evaluations conducted by CRDT to assess the knowledge increase of participants showed an average 53% increase in the knowledge (37% pre-training to 90% post-training) (Annex 7.47).

Farmers' profits increased during the project (Indicator 3.1), which provides real evidence to farmers that a transition to sustainable agriculture is in their interest.

A significant factor contributing to the increased profit margins is a lower usage of pesticides and fertiliser. Pesticide use per hectare per rice life cycle was substantially reduced (Indicator 3.2), and eliminated for medium duration rice (including Jasmine rice). The comparison data is provided in Annex 7.54. The impact of this on water quality is discussed in Section 3.2.

In order to improve the competence of CFI members (Indicator 3.3), community fishery training was delivered to existing groups, and members were engaged in the zonation process so that they understood the implications of operating as a Community Protected Area group and could influence decisions around the zonation process.

The delayed zonation has meant that the Community Fishery group in BPL was not able to formally register as a Community Protected Area (CPA) group. This meant that business plans based on community-based natural resource management could not be implemented. We therefore provided training to the groups on financial and administrative management (Activity 3.9) and discussed business options. At the request of local people to help manage local resources, WWT (with CEPF co-funding) build a CFI station (Annex 7.84).

The project partners have long-term plans for this site, so we will start the related business activities beyond Darwin.

Three community business were established and are now operational (Indicator 3.4). The businesses either collect and/or use waste (recycled plastic handicraft scheme sponsored by a local arts centre) or naturally harvestable materials (e.g. water hyacinth) to create sellable products, including grass bags and recycled plastic handicrafts. The 'community recycling group' was set up by the AP CPA group and in Y3 returned a net profit of \$135.83. Grass bags (handicrafts) are now being marketed locally and internationally, and the business is already

profitable. The other two businesses are starting to show potential to become fully profitable thanks to project investments.

#### **Output 4: The extent and quality of biodiversity habitat and productivity of natural resources are increased at AP and BPL through community-based wetland restoration in core protection and sustainable use zones.**

Through this Darwin project, a total of 231.1 ha of priority habitat was restored following protocols agreed with expert groups, local communities and partners, approved by government, and implemented by local community members.

A major objective was to restore *Eleocharis* grassland (seasonally inundated grassland), an important habitat for sarus crane. Early in the project an existing 16 ha water management plot containing grassland habitat was selected for experimental treatment, manipulating water levels to test *Eleocharis* community responses to differing periods of inundation. We also conducted desk-top research on *Eleocharis dulcis* to better understand its optimum growth conditions, which then led to a protocol being drafted (with input from partners) for restoration methods and priority locations. The latter was decided from a habitat mapping exercise which revealed 487.3 ha of rank (degraded or poor quality) grassland at BPL and 508.3 ha at AP.

Site visits were then conducted and consultations held with rangers, community heads and village representatives to agree specific locations that could be restored without impacting livelihood activities or access routes for local people to reach their farms.

With a focus on restoring illegally encroached land at BPL (a request from MoE), a variety of techniques (ground lowering, ploughing, and ditch blocking) 46.6ha of grassland i.e. 9.6% of the degraded or poor quality grassland (Outcome 0.2) was restored. All work was approved by MoE, and WWT carried out awareness raising activities within local communities prior to construction work, including putting up posters at community information points and meeting village representatives.

WWT successfully applied to the Critical Ecosystem Partnership Fund (CEPF) for a major upscaling of *Eleocharis* restoration, therefore restoration efforts and monitoring will continue long after the Darwin project.

In Y1 a protocol was drafted to guide the restoration of flooded forest habitat. This involved consultation with Conservation International who advised on tree and shrub species and composition appropriate for BPL.

Project staff worked with local community members to establish a permanent tree nursery (Activity 4.3; Annex 7.77), not only for this project but also for future planting schemes. Community members collected 1,600 seedlings of six different native inundated forest species and grew them in the nursery. Not all the desired species could be found in the Protected Area, therefore 1,200 trees and shrubs were sourced from the Tonle Sap Lake, where large areas of flooded forest are found.

A 3ha area was planted by CFi members and local community contractors in the first phase, and a further 2ha in the second phase. Despite visual checks suggesting a high survival rate, monitoring recorded 40%, then 28% survival. The main cause of this was drought conditions. We have since replaced most of the dead seedlings, carried out removal of aggressive nearby plants, cut a firebreak and allocated greater resource to watering newly planted seedlings until flood inundation by annual rains.

Across the 3 project years, 182.15 hectares was cleared of invasive non-native species (INNS) (Activity 4.2); comprising 72 hectares of *Mimosa pigra* clearance, 110ha of *Ipomoea rubens* clearance and a 0.15 hectare plot for a trial to control *Eichhornia crassipes* (water hyacinth). The area cleared of *Mimosa pigra* is mostly former grassland habitat.

To guide this work, early in the project a monitoring protocol was developed by the Birdlife Partner which included methodologies to remove the INNS, and through a mapping exercise, prioritised key clearance areas. Clearance work was undertaken by 11 labourers whom were from Deillerk village, next to the core zone in BPL.



Monitoring showed that 12.47% of *Ipomoea rubens* cut stems regrew, but there was also some recorded growth from seeds and roots. It also showed that about 2% of *Mimosa pigra* main stems regrew. These regrowth percentages meet the requirement of Indicator 4.1.

Waterbirds are an indicator of habitat quality at the two sites as they rely on them for feeding, foraging, roosting and breeding.

During the project record numbers of black-tailed godwit were recorded at AP, with 39,000 present in 2022. An average 1,520% increase (Indicator 4.4) was reported against the pre-project baseline of 1,433 individuals (3-year average of max count).

Painted stork numbers reached a healthy 1,400 at BPL in Y1, the highest in 6 years, followed by 1,100 in Y2, then a return to more normal levels. An average 74% increase (Indicator 4.4) was reported against the pre-project baseline of 293 (3-year average of max count).

Although not indicator species for this project, the Field Monitoring Team recorded 2,186 Asian Openbill nests at BPL, the first time mass nesting has occurred at the site in 15 years. To protect these birds from egg collection, patrols were conducted at random times during the day and at night. 5,563 Critically Endangered yellow-breasted bunting were also recorded at the site and other species of global conservation concern (Black-head Ibis, Oriental Darter, Painted stork, Spot-billed pelican, Asian Golden Weaver) continue to be recorded regularly. These results indicate that the sites remain vitally important for waterbirds in the region.

### 3.2 Outcome

Good progress was made towards the intended outcome. Significant achievements include securing access for local people to wetland resources at AP through zonation and establishment as a CPA, restoration of habitats (Indicator 0.2) and ecosystems through improved water quality (Indicator 0.3) and habitat intervention (Indicators 4.1, 4.2 and 4.3), site management plans (Indicator 2.1), continuing to support the only populations of sarus crane in the CLMD, and both sites (AP and BPL) acting as examples of good practice for other wetlands in the CLMD.

Both sites continued to support sarus crane, despite the precarious situation of the regional population which has been in decline since 2014. Against the backdrop of this population decline, the proportion at AP increased by 26.6%, whilst the proportion at BPL declined by 4.4%. Both sites clearly remain strongholds for the species which will hopefully recover once the root cause of the decline is rectified (believed to be a problem on the breeding ground at Tonle Sap). Strong recordings of other bird species, namely Oriental darter, black-headed ibis, black-tailed godwit, Asian open-bill and yellow-breasted bunting suggest that the sites are well protected and providing good and vital refuge and feeding grounds.

Grassland habitats have been targeted for restoration within the Darwin project because of their importance to sarus crane, and being a rapidly declining habitat type in the region. Direct habitat intervention i.e. excavation and landscaping, attempted to restore 46.6 hectares of degraded grassland habitat (Outcome 0.2; Activity 4.4). Ongoing monitoring is expected to evaluate the success of this in the next few years, but early visual evidence is encouraging.

The experience and knowledge learnt from this type of restoration work encouraged WWT to apply for (and successfully obtain) a large grant from CEPF to scale up restoration efforts beyond the Darwin grant.

Through the agricultural and waste management interventions, there has been a significant improvement in Ammoniacal Nitrogen (NH<sub>4</sub>-N) levels, such that only trace levels were present in the final year of the project. Unfortunately a comparison of BOD could not be made, but DO levels (and those of other parameters) in the final project year indicate the water quality has improved at AP. This is supported by the opinion of rangers and rice farmers who verbally reported improvements (pers. comm. WWT Research Officer). As such, the wetland ecosystem is expected to recover.

The improved water quality is most likely a combination of the reduced amounts of chemicals being used by farmers participating in the sustainable rice scheme (Indicator 3.2), and the lower intensity of shrimp farming close to AP compared to 5 years ago.

Ensuring that 5,100 people have legally secured access to wetland resources managed through plans agreed by multi-stakeholder Liaison Panels is reliant upon an efficient zonation process. This has been achieved at AP, but not BPL although the zonation process is in its latter stage and a management plan is in place.

At BPL, community engagement in the zonation process has been good, but Covid stalled the process. Zonation mapping was proposed, including areas dedicated to sustainable natural resource management and conversion of existing agricultural land to sustainable farming initiatives. Project partners completed their technical contributions to the process and are now mainly lobbying the government for a fair and timely process, and supporting a provincial decree (Indicator 2.4). Vulnerability Assessments were completed for both sites, with the BPL Management Plan and the AP Management Brief drafted (Indicator 2.1). These plans integrated the resilience measures identified through the VA process.

Overall, the project was expected to reduce the percentage of people classified as poor around AP through improvements in sustainable livelihoods. Measuring this has been a challenge for the project and led to a Change Request to include a measureable indicator of poverty reduction, the Cambodian Government's ID Poor index ( <https://www.idpoor.gov.kh> ) to assess changes brought about by the project.

The ID Poor Index revealed a 15.8% increase in the number of households registered as poor, however the methodology used in the Index does not allow for households who previously registered as poor to change their status. Thus the percentage is misleading. In light of the hardships brought about by the Covid pandemic, two drought years and community fisheries at BPL being unable to proceed, an increase is likely. Within the sustainable livelihood schemes we managed to directly engage 224 farmers, local people in handicraft production and recycle schemes, and had expected to engage many more through fisheries.

The protection, management and operation of AP and BPL are improving and both are on a trajectory to become model sites in the CLMD. The many projects to improve sustainable livelihoods, research to build the evidence base of important species and habitats, and the positive relationships between local communities, stakeholders, partners and governments, are all building a case for these wetlands to become centres of excellence from which to share knowledge and support the need to protect other wetlands in the CLMD.

### **3.3 Monitoring of assumptions**

*Assumption 1: Project partners' relationship with the Department of Freshwater Wetland Conservation (DFWC) in the Ministry of Environment (MoE) remains strong.*

Comments: WWTs relationship, and that of our delivery partners, remained strong throughout the project. DFWC staff joined the CLMD field assessments and worked closely with project partners for Zonation and Management Planning. WWT successfully registered as in iNGO in Cambodia with support of the MoE. MoE proactively pushed forward zonation of BPL (but delayed due to Covid) thanks to a Ministerial decree mandating all Provincial Governments to prioritise this task.

*Assumption 2: Regional population of cranes does not experience massive fluctuations due to external factors (e.g. weather events) and the increase in proportion of cranes at AP and BPL is not due to the collapse of another individual site.*

Comments: The regional population of sarus crane declined over the project period. The decline is significant and without rectification could lead to extirpation in a decade or so. A Regional Sarus Crane Action Plan was agreed and published in March 2020 which set out a process to gain a better understanding of reasons of the decline; believed by avian experts to be related to issues at the breeding grounds in northern Cambodia. Monitoring continues and

suggests the proportion of the population using AP and BPL remains relatively consistent whilst populations at other sites are declining. In the last two winters, the number of individuals at AP stabilised.

*Assumption 3: Local farmers and communities will engage with the project*

Comments: Early in the project a study tour to BPL showcased successes in rice growing; this stimulated interest from AP farmers. Consequently 224 farmers signed-up to the programme and remained engaged, participating in each year of the project despite facing significant challenges in Y2 and a switch to new rice varieties in Y3. Our partner CRDT worked closely with local farmers, providing training and advice throughout. Local communities engaged through the many education and awareness events held at both sites. Communities also engaged through the 3 businesses set up.

*Assumption 4: Local community members engage with the project and support assessments & Assumption 9: Community belief in the value of the process remains strong.*

Comments: The project received full community support throughout, especially at AP. The only challenge was from a number of farm owners who saw the zonation process as an opportunity to claim additional land within BPL Protected Landscape. This was anticipated and factored into the transparent zonation process devised alongside government.

An additional challenge originated from pressures by external business-people (not local to the area) who sought to create frictions around the zonation process in attempts to claim more land. Attempted narrative is to promote themselves as creating jobs (which is rarely true) whilst downplaying importance of ecosystem services. Undoubtedly this contributed to the illegal encroachments.

Overall, belief in the value of the process remained strong, but there were frustrations about delays and people would like to have resolution on zonation.

*Assumption 5: MoE has sufficient resource and capacity to participate in this work and provide a timely response*

Comments: MoE resources remained steady throughout the project and we received good support. The only problem encountered was gaining permission for the grassland restoration work at BPL in Y2 which took over 4 months to receive causing delays to that activity. In Y3 permission for similar work was gained within 1 month.

*Assumption 6: Civil society groups in Vietnam engage with the project*

Comments: We engaged WWF Vietnam through the expert working group and maintained dialogue with Phu My and Tram Chim. WWF presented at the 2021 and 2022 IBRRI annual meetings, attended by several Vietnamese CSOs.

*Assumption 7: There are no Ministerial level changes to the management of wetland protected areas and we continue to have the support of regional and national government representatives*

Comments: In Y2 a new Director of the Department of Wetland Conservation took office, and a new Deputy Director General of the General Directorate of Natural Protected Area was appointed. We had previously worked with both persons and did not encounter any challenges.

*Assumption 8: No major increase in the number of commercial Vietnamese fishing vessels*

Comments: No major increases reported by Ranger teams in any of the 3 project years.

*Assumption 10: Farmers transitioning to sustainable rice are able to achieve 30%-15% profit increases*

Comments: Following a change request, new rice varieties were introduced together with a cash crop (Mung Bean). Within the project there has only been one growing season (May 21 to October 21) which was a pilot year. This was a risky time for participating farmers, but data has shown good profit is achievable (Indicator 3.1).

*Assumption 11: The market for Sustainable Rice remains strong*

Comments: Farmers entered purchasing agreements so this assumption did not generate challenges.

*Assumption 12: CFI financial sustainability is achievable within the project period*

Comments: This assumption proved to be incorrect. The government-led zonation process was not completed within the project timeframe, hence the community fisheries still do not have secure access to BPL Protected Landscape.

*Assumption 13: There is an ongoing demand for recyclable materials in the area*

Comments: Demand was challenging to identify, and the scheme widened to invasive species as another 'waste/unwanted' material. Our project partner carried out trials to compost invasive species and use the materials as fertiliser on rice fields.

*Assumption 14: External threats to habitat can be managed and controlled by good transboundary cooperation and effective ranger teams.*

Comments: The main external threat was illegal land encroachment at BPL. The protracted zonation process and Covid situation was seized upon by corrupt people as an opportunity to encroach. This created a much more challenging environment than we originally anticipated

*Assumption 15: INNS removal activities are factored into Management Plans and maintained as part of routine management activities.*

Comments: Assumption remained relevant throughout. These activities were successfully incorporated into the BPL Management Plan and AP Management Brief.

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

**Impact: A network of wetlands within the Cambodian Lower Mekong Delta (CLMD) is providing connected habitat for biodiversity and resilient ecosystem services for local people**

This 3-year project has made a very positive contribution towards achieving the impact, and in doing so established clear direction for future work to create the network of wetlands.

The CLMD Report with its identification of 8 priority wetland sites, documented land-use changes, assessment of ecosystem services and biodiversity, is now a foundation document for this network providing evidence-based justification for the protection of wetlands in the CLMD. The report and its findings have already been presented to partners, IBRRI members, IUCN staff, and high level government staff in DFWC. Further dissemination is scheduled in 2022.

We engaged DFWC staff throughout the whole process of the CLMD assessment, from design to completion, with DFWC staff involved in field work and data write-up. Because of this, it

became an iterative process, where the findings and the results being generated fed into decisions being made by government. An example, and a major achievement within this project, has been the designation of the 3,557 ha Toulpontalei – Boeung Sne (Boeung Sne) in Prey Veng Province as a Multiple Use Area affording it protected status. WWT carried out site visits (Annex 7.83) and collected ecosystem service data that helped highlight the importance of the site and fed into the PA consultation process. This increases the number of Protected Areas in the CLMD to three, all of which are involved in this project. The site is home to many waterbird species, including a large colony of Asian openbill (*Anastomus oscitans*), the Endangered greater adjutant (*Leptoptilos dubius*), and the Vulnerable lesser adjutant (*Leptoptilos javanicus*) and it creates recognition and protection for the ecosystem services, including water provisioning for agricultural and household use for 14 communes. This is the first major achievement coming from our CLMD assessment and we will continue to support the government there. Furthermore, Phnom Teuk (a site in the CLMD assessment) has been added to the candidate list for protection, and WWT has secured funding to promote 2 more CLMD priority wetlands for protection in 2022.

Achievements at AP and BPL, the wetlands at the core of this Darwin project, now mean there are 2 relatively well managed and experienced wetlands within the network. It is our hope these wetlands will become centres demonstrating good practices (and sharing lessons) to create resilient ecosystems for local people and habitat for wildlife.

Poverty alleviation is addressed under Section 4.3. The project had a localised direct improvement on people's income, especially farmers engaged in the sustainable rice scheme at AP. Gains were expected at BPL, but the delayed zonation meant fisheries could not be managed to benefit fisher folk. The designation of Boeung Sne has benefited many thousands of people who now have more secured access to natural resources.

We regard this work done through this project as the start of a process to lay a foundation, where better management planning, greater protection, improved access, fair and reasonable zonation, will eventually raise the standard of living among the AP and BPL communities.

## **4 Contribution to Darwin Initiative Programme Objectives**

### **4.1 Contribution to Global Goals for Sustainable Development (SDGs)**

**SDG 1 (1.4, 1.5).** *Improving the livelihoods and food security of vulnerable wetland-dependent households by conserving valued ecosystem services (e.g. fish populations, water regulation/soil fertility for rice farming), and building their resilience to climate-related events.*

- *Number of farmers benefiting from increased profitability of climate resilient rice programme (should provide data on seed drought/heat/salt tolerance if possible)*

**SDG 2 (2.3, 2.4).** *Restoring fish stocks through habitat restoration, establishing secure and equitable access to natural resources through zonation, and promoting climate-resilient agricultural technologies.*

- *Inundated forest restoration over 5 hectares has been designed in line with Conservation International standards at Tonle Sap to improve fish nursery habitat at BPL.*
- *Restoration of 46.6 hectares of inundated grassland, identified through community zoning plans and implemented by WWT aim to boost sarus crane numbers and restore parts of the ecosystem*
- *110ha of Ipomoea rubens has been cleared from fish nursery habitats by community groups.*

**SDG 3 (3.9).** *Improving water quality through reduced pollution.*

- *Reduction in of fertilizer usage by 22.2% for short-duration rice and 39.8% for medium duration rice over 169.7 hectares of the upstream AP catchment has led to a nearly*

*100% reduction in NH4-N within AP wetland (compared to 2017 baseline), and the project pilot has led to new funding to upscale this project.*

- *Findings of the CLMD report have led to a new transboundary dialogue project with the IUCN to link Cambodian government, civil society and research institutions to Vietnamese colleagues. This aims to discuss changing agricultural landscapes and the implications on natural habitat Mekong Delta, and share lessons from recent Vietnamese policy and practice that aims to restore the ecosystem functions of the flood plain.*

**SDG 5 (5.5).** *Supporting women’s full and effective participation in decision-making through community natural resource groups (e.g. community fisheries).*

- *Covered by Section 4.4. on Gender.*

**SDG 6 (6.3, 6.6).** *Reducing pollution through sustainable agriculture and improved waste disposal methods, and promoting recycling through community-based waste recycling schemes. Protecting and restoring water-related ecosystems by reducing anthropogenic threats, enhancing understanding of the optimal ecohydrological conditions to inform management strategies, and strengthening capacity for wetland management.*

- *Two of the three micro-businesses supported within this project are built around the collection and re-use of otherwise discarded materials.*
- *Additional bins have been installed for the disposal of agricultural waste (e.g. pesticide containers).*
- *Optimal ecohydrological conditions determined for two wetlands.*

**SDG 13 (13.1).** *Conserving wetlands, which mitigate flooding, prevent droughts and store carbon, and promoting climate-resilient agricultural technologies.*

- *The CLMD Assessment has highlighted remaining natural wetlands in the region, their current conservation status, importance to local people, and their vulnerability to current threats. Vulnerability Assessments and associated mitigation plans at two Protected Landscapes provide a template for climate change preparedness for these remaining natural wetlands throughout the delta. Site protection at Boeung Sne as a multiple use area is the first step in working with communities to develop plans that support resilient habitats and livelihoods.*
- *Improved research foundations at AP and BPL now provide improved data on ground water, hydrology, precipitation and water quality, allowing more informed long-term decision-making around water security.*

*This project has also made wider contributions to **SDG 15 (15.1, 15.5, 15.8, 15.9)**, through the conservation, restoration and sustainable use of inland freshwater wetland ecosystems (e.g. through habitat restoration work, patrolling etc.).*

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

The project was co-designed alongside the Ramsar National Focal Point (NFP), who is the head of the Department of Freshwater Wetland Conservation, and oversees zonation, permissions for habitat restoration, and designation of new protected sites. The NFP also reviewed the CLMD report and will be supporting the upcoming transboundary dialogue (September 2022), which has been made possible as a result of this project.

The Ramsar National CEPA NGO focal point, Bou Vorsak, leads NatureLife, and is directly involved in this project to support all education and awareness work.

WWT have worked with the Climate Change Policy Officer at the British Embassy in Phnom Penh to promote wetland natural capital and nature-based solutions for climate change



mitigation and adaptation, which contributes to the UK government's support of the implementation of the UNFCCC in Cambodia, especially linked to promoting the inclusion of wetlands in Cambodia's Nationally Determined Contributions (NDCs). This included hosting a trip from the British Ambassador to highlight the approaches of this project.

The CLMD report has been shared with the Ministry of Environment to help improve knowledge of land-use and habitat distributions in the CLMD. This helps to inform national planning, including the designation of a new Protected Area within the CLMD, contributing to Aichi Target 2.

Habitat restoration and invasive non-native species clearance across a total of 228.8 hectares (Section 3; Output 4) contributes to the CBD's Inland Waters Biodiversity thematic programme and Strategic Goals 1 and 2 of the Ramsar Strategic Plan. Enhanced ecohydrological and biodiversity research (Section 3.1; Output 1) and protection of waterbird habitat through patrolling (Activity 2.9), which is yielding increases in a number of indicator species, also contribute to these areas.

As evidenced and discussed under Section 3.2 agricultural inputs from over 200 farmers have on average decreased, helping to manage excess polluting nutrients (Aichi Target 8).

### **4.3 Project support to poverty alleviation**

This project aims to support local communities out of poverty through direct support for sustainable agriculture, and enhanced representative access to improved, more secure, and more resilient ecosystem services.

As described in Section 3.1; Output 3 and shown by Indicator 3.1, farmers increased their average income from a pre-project baseline of \$9/ha for early duration rice to \$182/ha, and from \$92/ha for medium maturity rice to \$154/ha in Y3. Y3 was the first year that Red Jasmine Rice was used, so CRDT are looking at ways to increase profitability further in follow-on projects over future years, especially through increasing access to markets linked to producing higher volumes

This project provided data inputs and advocacy for the designation of Toulpontalei – Boeung Sne Multiple Use Area, one of the key sites within the CLMD assessment. This lake, with no formal community access rights, supports 14 communes with water for agriculture, and is a locally important, but degrading fishery. WWT are now working with the DFWC to identify the next steps for livelihood support at the site.

Although still not yet fully completed, the draft zonation and management planning processes for AP and BPL do allow for comprehensive access to natural resources, including fish, water plants, and rats. Prior to this process, there was no formal rights for community members to access these resources, and no framework for community-based natural resource management groups (e.g. the Community Fisheries) to manage and improve natural resources. Although early, this project has made the first steps to restore inundated forest, a key nursery.

### **4.4 Gender equality**

Gender and wider societal representation was a key component of the AP Vulnerability Assessment and WWT-supported BPL zonation process. Examples include gender segregated workshops to understand how men and women use and value different ecosystem services, and the mechanisms they are likely to employ when faced with increased drought periods, salt water intrusion and extreme flooding (Annex 7.13).

Although work on the BPL Community Fishery was limited by slow progress on zonation, community fishery group members were employed for inundated forest restoration, 58% of whom were women.

Of a total of 224 farmers engaged in the sustainable agriculture project at Anlung Pring, 142 were women. These women received training on improved and more environmentally friendly farming techniques.

100% members of the handicraft businesses being set up by NatureLife are women. NatureLife Cambodia work closely with teachers at the local schools to ensure that there are equal opportunities for girls and boys to engage with the sarus crane and environmental education programme. For example, in 2020 and 2021 alone, a total of 370 students benefiting from the programmes (pre-Covid) (Activity 2.13), 157 of whom were girls. Of the 192 children visiting the small education centre in 2022, 95 were girls.

Awareness campaigns are targeted at families during celebrations and weekly events (e.g. visits to the temple) to avoid focusing on specific livelihood activities which are often dominated by one or other genders. The majority of people employed through the invasive clearance and habitat restoration programmes have been local women.

During the Vulnerability Assessment fieldwork at Anlung Pring in Y2, WWT's Technical Officer, Ms Srun Bunthary led community participation, and it was important to breakdown results between sexes. For example, when assessing the ten most important resources mentioned by participants from the villages, the results were split for men and women to understand how different group utilise the landscape. To look at how local people currently cope, and how they are likely to cope in the future, to extreme weather events, the WWT team assessed men and women's responses separately.

During the Y3 training in financial management and conflict management (Activity 3.9) 39 of the 73 participants were female.

#### 4.5 Programme indicators

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

Yes, the project supported community land tenure reviews and input into zonation plans, which will determine what resources can be used, where and by who.

- **Were any management plans for biodiversity developed and were these formally accepted**

Yes, Management Plans were drafted for BPL and AP. Formal government acceptance is dependent upon the finalised zonation plans at BPL, but the restoration zones identified by the community, WWT and project partners were approved so work could start. The Management Plan for AP is going through the government approval process, but has been signed off by community leaders.

- **Were they participatory in nature or were they 'top-down'? How well represented are the local poor including women, in any proposed management structures?**

Both Management Plans were developed in response to community requests, and build upon Climate Change Vulnerability Assessments.

- **How did the project positively influence household (HH) income and how many HHs saw an increase**

The main direct income beneficiaries of this project were 224 HHs engaged in the sustainable agriculture programme at Anlung Pring. Data on indirect beneficiaries (e.g. fishery groups) was not collected.

- **How much did their HH income increase (e.g. x% above baseline, x% above national average)? How was this measured?**

In Y3, 224 HHs received an average increased income from farming activities of 1,822% in for early duration rice, and 65% for medium duration rice through transitions to new rice varieties. This figure was compared to a pre-project baseline.

## 4.6 Transfer of knowledge

The assessment of Wetlands in the CLMD was designed to build a strong knowledge base and political support for greater and improved conservation action in the region. This helped build the case for the formal protection of Boueng Sne, and laid the foundation for a transboundary dialogue between Vietnam and Cambodia to share lessons from their approaches to land-use and conservation management. Fieldwork for the CLMD assessment was conducted alongside colleagues from the Department of Freshwater Wetland Conservation of the Ministry of Environment, to share assessment techniques and apply learning from various project and non-project training workshops.

The project has led to several blog posts (e.g. <https://www.wwt.org.uk/news-and-stories/blog/the-wetlands-protecting-cambodia-in-times-of-crisis/>), shared through our social media platforms to promote the value of the CLMD and our integrated community-based conservation approaches.

## 4.7 Capacity building

The Department of Freshwater Wetland Conservation (DFWC) of the Cambodian Ministry of Environment (MoE) is a listed partner in this project, and building the profile and capacity of this department's work within the MoE forms a part of this project. As described in Section 4.6, the CLMD assessment fieldwork was completed alongside MoE staff, and further training was provided to government and civil society through Indo-Burma Ramsar Regional Initiative meetings in Y2 and Y3 of the project, which MoE staff helped to facilitate alongside WWT colleagues.

Within this project period, Dr. Srey Sunleang was promoted from Director of Freshwater Wetlands Conservation to Deputy General of General Directorate of Nature Conservation and Protection (GDANCP). He remains the country's Ramsar Focal Point.

The first Rapid Assessment of Wetland Ecosystem Services was completed alongside students from the University of Paññāsāstra (6 female and 3 male), who were paid to support the fieldwork and write-ups during the holiday periods, and these contributed to their university assignments.

WWT's Technical Officer (female) gave a presentation and participated in a panel discussion at the UNFCCC CoP26, where she discussed the importance of community engagement in vulnerability assessments and mitigation planning for wetlands in the Mekong Delta.

## 5 Sustainability and Legacy

As outlined in Section 4.6 above, the CLMD assessments are leading to new cooperation between relevant ministries in Cambodia and Vietnam in wetland conservation, and landscape level approaches to address unsustainable agriculture. The rapid intensification of agriculture across the Mekong Delta has led to substantial habitat loss and pollution. Although we have only recorded one successful year growing Red Jasmine wildlife friendly rice, if it continues to have the desired impact on livelihoods and pollution reduction, then there is clearly potential to use successful pilots to help address the issues highlighted in the CLMD report and being investigated through the new transboundary dialogues.

Formal designation of Tuolporn Taley Boeung Sne Multiple Use Area creates a third protected area in the CLMD, and Phnom Teuk has also been added to the candidate list for protection.

Improved management planning at AP and BPL, informed by community-based climate change mitigation planning and fairer land use zoning provides a platform for project partners to explore improved environmentally sustainable and resilient livelihood opportunities.

The project partnership will continue, and we have already secured additional funding from, amongst others, the Critical Ecosystem Partnership Fund for upscaling habitat restoration, Mandai Nature and the Conservation Food and Health Foundation for continuing sustainable agriculture work, and the Woodspring Trust and IUCN for work building on the CLMD assessments.

## **6 Lessons learned**

The extraordinary challenges associated with running a project of this nature during the fear and restrictions of the pandemic have taught us a lot about the value of strong partnerships, communication and adaptability. The drought in Y2 of the project was a stark warning of the challenges facing these sites and communities in a changing climate, and with increased pressure from damming projects higher up the Mekong.

On reflection, our initial selection of rice seeds was not brave enough. We selected a variety well known in the local area, but not one that gave the communities a clear advantage when faced with the drought in Y2. Fortunately, strong relationships with these farmers from our long-term work at the site, and our success in securing a Darwin Covid-19 emergency grant, had built up the trust needed for farmers to remain engaged in this project, which is now yielding successes.

Our approach to co-develop and run the CLMD assessments alongside the DFWC of the MoE paid major dividends, as government staff were able to see the challenges and opportunities throughout the three year assessments, and could feed this into planning throughout the project, rather than just reviewing the completed report at the end of the project. This has enabled technical input into designation, and candidate designation of protected sites.

The project relied on external processes and data too much in some areas. Project partners were able to input and influence the zonation process at BPL, but we were not able to dictate the pace, and continual delays, some due to Covid, but others due to political pressures, meant that we couldn't complete some of the follow-on activities that we have planned (e.g. erecting demarcation points and conducting training on new zones and local regulations and opportunities).

### **6.1 Monitoring and evaluation**

Several changes were made to the original log frame, and our M&E framework has been adapted accordingly. These have mainly been necessary due to delays caused by restrictions during the pandemic, including delays to the zonation of BPL, but one Outcome indicator (0.5) was also deemed inappropriate for the context of the project so was also changed.

The main changes have related to:

- Adapting the rice variety, and accepting a year of lost progress in Y2 due to drought and pandemic restrictions resulted in changes to Output Indicators 3.1 and 3.2.
- Outcome indicator 0.5 used a Multidimensional Poverty Index, which we found was not appropriate for the context of our project as it addressed poverty changes over a long-term, so we were able to find a nationally used poverty index where data was collected at a local level.
- Indicators for the restoration of grassland and inundated forest habitats were adjusted from evidence of successful establishment, to more coarse indicators of area restored. We have secured a new grant from CEPF so that we can continue to monitor habitat establishment and the effectiveness of our restoration approaches.
- Indicators associated with zonation were edited to adapt to the delay in the process.

Project partners met once every quarter to discuss M&E, which informed our Change Requests. Creating a greater sense of Output ownership for project partners, rather than a focus on Activity delivery, is recommended for future projects.

## **6.2 Actions taken in response to annual report reviews**

Our Y2 Annual Report received some feedback on the perceived top-down approach that the project had taken during a year of restrictions as a result of the Covid-19 pandemic. The reviewer also expressed concern that community consultation and engagement wasn't well evidenced within the report. This was useful insight for the project, and within this report we have tried to highlight our long-term community-based approach at both AP and BPL, and our well-established connections with community groups and local governance structures, as this clearly didn't come through in the Y2 report. As restrictions were lifted in Y3, we have been able to resume a much greater engagement, including for example;

- Host engagement and awareness events, such as the Wetland day and Crane Festival at BPL (Annex 7.35).
- Awareness raising activities in villages and communes concerning illegal encroachment (Annex 7.20, 7.21 & 7.22)
- Support much greater inclusion through the zonation process, including community reviews of draft zonation maps, which were adapted as a result.
- Host workshops and consultations on the development of the AP management plan, and co-design future strategies for sustainable agriculture around the site, including the transition to Red Jasmine Rice and the development of a Sarus Crane Rice brand. Habitat restoration zones at BPL have been adjusted several times through a community consultation process.

One further review comment to address was a recommendation that the project seeks to incentivise rather than punish local "offenders" if poverty or a lack of land tenure is causing people to risk infringement of law on protected areas. This is a pertinent point, and one we are very aware of and sensitive to. Land encroachment at BPL is a complex matter. Encroachment is rarely led by local people, but instead instigated by relatively wealthy businessmen from outside of the area, often with strong connections to provincial government. There is local encroachment, but it is typically small scale expansion on existing farmland, rather than large scale habitat clearance. From our long-term knowledge of working at the site, local people have neither the resources, nor the political connections required for successful encroachment at scale. The concerning large-scale encroachment has been enabled by uncertainties around land tenure creating loopholes for spurious, and politically connected claims to land which are then rapidly, and illegally, cleared for farming with little consequence. The eventual conclusion of the land tenure review, and the finalised zonation will close this loophole and make it much more difficult for illegal encroachment to go unprosecuted. This will also give us authorisation to develop incentive schemes for locals to benefit from more environmentally sensitive livelihoods. A sustainable agriculture scheme was being piloted prior to zonation, but this had to be stopped when the zonation process started (prior to this project).

## **7 Darwin identity**

The Darwin logo has been included on signage and posters (Annex 7.65 for example), official report documents such as the CLMD report (see Annex 7.4) and presentations (e.g. to the Indo-Burma Ramsar Regional Initiative - IBRRI). There is an acknowledgement to the Darwin Initiative on WWT's Cambodia project webpage and in our blogs and Social Media (see Annex 7.82 for example). NatureLife Cambodia and the Birdlife International Cambodia Programme regularly post on their Facebook Pages and acknowledge the Darwin Initiative on relevant posts in English and Khmer (see Annex 7.80 for example). As mentioned in Section 2, we are

also working closely with the British Embassy in Cambodia to promote Darwin through national platform events. The Darwin Initiative is well known within Cambodia due to the number and range of projects in the country.

## 8 Impact of COVID-19 on project delivery

Impacts:

- Delay to zonation at BPL which affected many activities and respective outputs. We were content with the delays as a rushed zonation would have missed community consultation, and that is essential for the long-term success of the site.
- Habitat restoration started a year later than we had hoped, so we weren't able to effectively monitor Indicator 4.1 on the ecological success of the restoration work. We have a long-term commitment to the site so will continue our monitoring programme here.
- Public meetings were largely banned for large parts of this project. It was essential to us to ensure community consultation was strong throughout, so we preferred to delay full publication of management plans until we were able to fully consult. Some resultant actions were successful – like habitat restoration.
- Government restrictions were severe, so health and safety was not such an issue, but we followed WHO guidance etc.
- Securing ecosystem services at the site does create resilience for communities. We saw that many people returned to their family homes from the cities when their jobs were affected by lockdown closures.
- Some transboundary work was not possible, but we are still going ahead with plans for some of this work, albeit through a new project.
- The pandemic forced the cancellation of all awareness-raising activities and stopped delivery of the education programme at 3 target schools.
- Most of the BPL and AP field teams had to quarantine during this reporting period after learning a close contact had caught Covid. Partner staff (who deliver site activities) and Rangers became infected with Covid which caused delays.
- The district government and provincial government used lockdown and travel restrictions as an opportunity to delay intervening to stop illegal land encroachment.
- Cases of illegal land encroachment increased during lockdown because of law enforcement being restricted.
- Cancellation of all consultation meetings related to the process of developing the BPL zoning plan during the main period of Covid.

## 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)	██████	██████	-9.4	Staff costs in the final year were slightly less than budgeted, due to staff changes and interim posts temporarily covering project roles.
Consultancy costs	██████	██████	693.2	Less was spent on Consultancy costs than anticipated in previous years, this spend was instead made in the final year



				– over the lifetime of the project the variance is within 10%
Overhead Costs			-13.5	Overheads for the final year for the project were lower than budget, however over the whole project variance is less than 2%
Travel and subsistence			-6.4	Due to some ongoing Covid-19 restrictions, spend on T&S was slightly below budget
Operating Costs			3.8	-
Capital items (see below)			21.5	Due to CRDT having to set up a temporary office at the field site to better coordinate the rice programme and higher machinery repair costs than anticipated, however over the lifetime of the project the variance is within 10%
Others (see below)			27.7	Underspend from Y1 of the project on Water Quality Analysis was instead completed in Y3 – over the lifetime of the project the variance is within 10%
Audit costs			0	-
<b>TOTAL</b>	103,547	104,092		

<b>Staff employed (Name and position)</b>	<b>Cost (£)</b>
Bena Smith – Project Lead - WWT	
Bena Smith – Interim Country Coordinator - WWT	
Saber Masoomi – Country Coordinator - WWT	
Srun Bunthary – Technical Officer - WWT	
Net Norint – Research Officer - WWT	
Meas Viphou - Livelihood Program Manager - CRDT	
Sat Virak - Agriculture Specialist (Rice) - CRDT	
Srey Raksmeay - Project Assistant 1 - CRDT	
Song Lon - Project Assistant 1 - CRDT	
Vorsak Bou - National Advisor - BirdLife	
Vorsak Bou – Acting Education Lead - NatureLife	
Ly Samphors - Education Officer - NatureLife	
Or Channy - CRDT Project Lead - CRDT	
Ly Samphors - Field Technician - BirdLife	
Ly Samphors – Technical Officer (Zoning and biodiversity) – BirdLife	

<b>TOTAL</b>	
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<b>Capital items – description</b>	<b>Capital items – cost (£)</b>
Equipment repair/maintenance (e.g. motorbikes)	
Farming equipment	
Field office furniture and supplies	
<b>TOTAL</b>	

<b>Other items – description</b>	<b>Other items – cost (£)</b>
Consumables	
Printing	
Water Quality Analysis	
Environmental education materials	
Signage and demarcation	
Staff capacity building & recruitment	
Staff insurance	
<b>TOTAL</b>	

## 9.2 Additional funds or in-kind contributions secured

<b>Source of funding for project lifetime</b>	<b>Total (£)</b>
European Outdoor Conservation Association	
Matrix Causes Fund	
Lindeth Charitable Trust	
Woodspring Trust	
Disney Conservation Fund	
Keidanren Nature Conservation Fund	
IUCN MekongWET	
Critical Ecosystem Partnership Fund (CEPF)	
Nagao Wetland Fund (NWF)	
Ramsar Regional Centre – East Asia (RRC-EA)	
WWT in kind support (staff time and overheads)	
<b>TOTAL</b>	

<b>Source of funding for additional work after project lifetime</b>	<b>Total (£)</b>
Critical Ecosystem Partnership Fund CEPF	

Woodspring Trust		████████
Mandai Nature		████████
WWT In-kind staff time and overheads		████████
<b>TOTAL</b>		████████

### 9.3 Value for Money

This project has supported a large number of community-based projects, bringing livelihood benefits to local people, and has helped secure the conservation of habitats and natural resources at Anlung Pring and Boeung Prek Lapouv. Many project costs have been the catalyst for greater action, and have been an investment into the long-term sustainability of the programme.

Some of the field staff working on this project have been recruited from the local community, helping to forge close links with villagers and also investing in local capacity development. In addition, the project has supported local community monitoring groups (FMT), helping community associations to experience first-hand the results of improved wetland management and providing funding for direct employment.

Darwin funding towards the project helped us to leverage in excess of £████████ additional funding. This created cost-savings and efficiencies and enabling a more comprehensive programme of activities to take place in parallel with Darwin-funded work.

Throughout the project we have tried to work with local partners and contractors to ensure we provide good value for money, while also stimulating the local economy. Wherever possible we have utilised in house expertise.

For the larger elements of habitat restoration and consultancy projects (e.g. hydrological study) we acquired multiple quotes for work, and then after assessing them based on quality, cost and reputation awarded the contracts to the contractors we believed would provide best value for money. This ensured funding was used in the best possible way and achieved the most for conservation and people.

## 10 OPTIONAL: Outstanding achievements of your project during the (300-400 words maximum). This section may be used for publicity purposes

I agree for the Darwin Secretariat to publish the content of this section (please leave this line in to indicate your agreement to use any material you provide here)