Department for Environment Food & Rural Affairs

DARWIN INITIATIVE

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Darwin Initiative
Final Report

*To be completed with reference to the Reporting Guidance Notes for Project Leaders (http://darwin.defra.gov.uk/resources/) it is expected that this report will be a **maximum** of 20 pages in length, excluding annexes)*

Darwin project information

Project Reference	20-014
Project Title	Conserving biodiversity and reducing poverty through wildlife-friendly farming in Cambodia
Host country(ies)	Cambodia
Contract Holder Institution	Wildlife Conservation Society (WCS)
Partner Institution(s)	Sansom Mlup Prey (SMP), Imperial College London, Ministry of Environment (MoE), Ministry of Agriculture, Forestry and Fisheries (MAFF)
Darwin Grant Value	**£249,951**
Funder (DFID/Defra)	Defra
Start/End dates of Project	**Start date:**1 April 2013 **End date:** 31 March 2016
Project Leader's Name	Dr. Ross Sinclair
Project Website/blog/twitter	www.wcscambodia.org & https://www.facebook.com/wcscambodia.fb/?ref=aymt_homepage_panel
Report Author(s) and date	Simon Mahood, Alistair Mould, Ashish John, Stefan Harrison, Nicholas Spencer; 30th June 2016

1 Project Rationale

The forests and wetlands of northern Cambodia and the Tonle Sap Biosphere Reserve are of exceptional importance for biodiversity conservation, lying within the Indo-Burma Biodiversity Hotspot and including two of the Global 200 Ecoregions. The region supports over 30 Globally Threatened species, including 8 listed as Critically Endangered. The remaining populations of these species are found almost entirely within a complex of protected areas that cover the range of forested and wetland habitat types. These protected areas are heavily threatened by over-hunting and conversion to agriculture, driven by the local resident human population from existing villages (which pre-date the parks) and agro-industrial concessions. The local people are amongst the poorest in Cambodia, and are dependent upon the forest and land resources of the parks for their livelihoods. Cambodia's Poverty Reduction Strategy Paper particularly prioritises these people who are stuck in a cycle of poverty owing to remoteness of location, limited market access and insecure land tenure. Reconciling the development needs of local people whilst meeting national and global objectives for biodiversity conservation is therefore a critical question in Cambodia. This project was identified based upon WCS's long-term work on-the-ground at the sites and our research programme with Imperial College.

Through this project, WCS and partners implemented an innovative payment for environmental services scheme that linked poverty reduction to successful conservation of forests and critically endangered species through conditional agreements. Our goals were to reduce deforestation rates across 300,000 hectares of three protected areas in Cambodia by 25-50%, protect globally significant populations of highly threatened species, support the livelihoods of up to 10,000 local residents through greater land security and greater incomes, increase understanding regarding how to integrate poverty reduction and conservation, and build the capacity of local partners to sustain the project outcomes.

We focused specifically on three protected areas – Preah Vihear Protected Forest (PVPF), Kulen Promtep Wildlife Sanctuary (KPWS) and Bengal Florican Conservation Areas (BFCAs) – that total over 450,000 hectares of forest and wetland. This area supports 20,000 people and over 30 globally threatened species, including Asian elephant and six Critically Endangered birds (e.g. Giant Ibis and Bengal Florican).

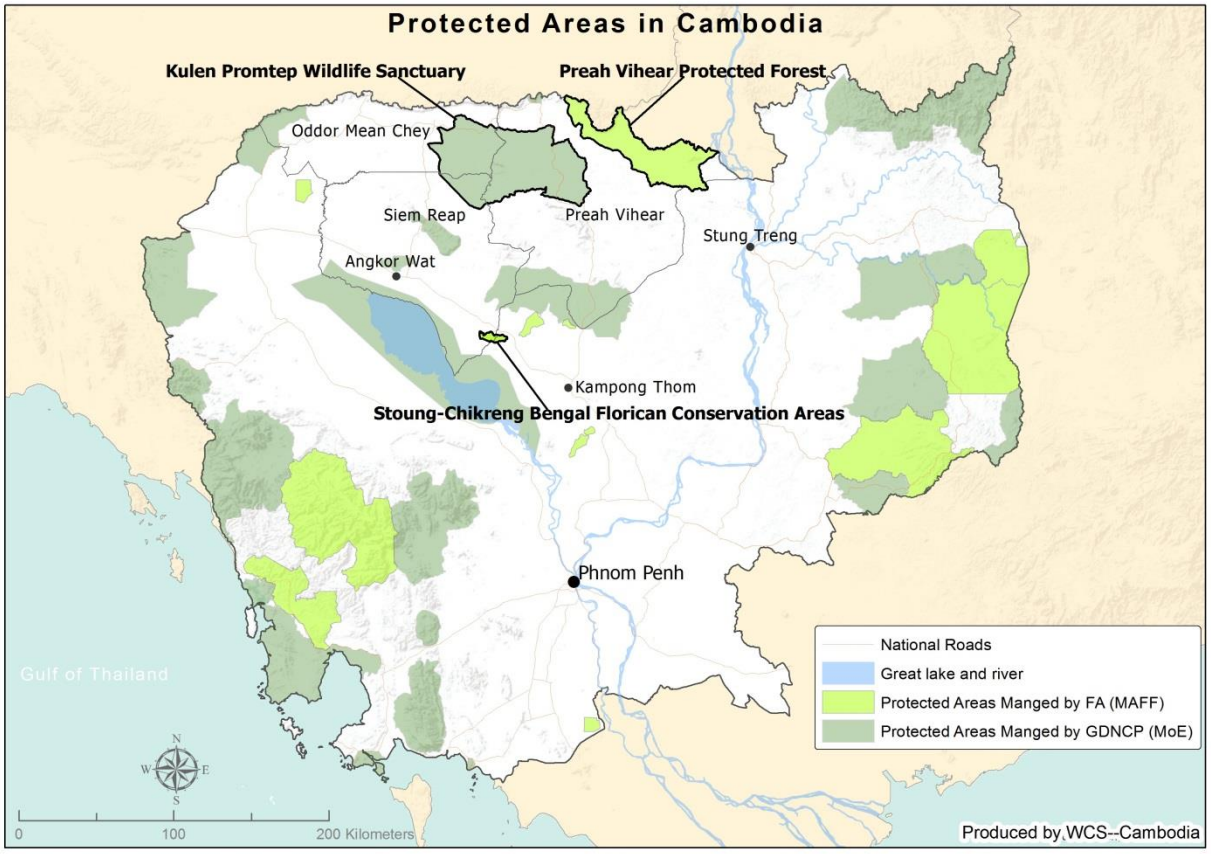

Figure 1: Project Sites

2 Project Achievements

2.1 Outcome

Outcome:	The outcome of the project will be to reduce deforestation rates across 300,000 hectares of three protected areas in Cambodia by 25-50%, protect globally significant populations of highly threatened species, support the livelihoods of up to 10,000 local residents through greater land security and greater incomes, increase understanding regarding how to integrate poverty reduction and conservation, and build the capacity of local partners to sustain the project outcomes. This will be		**Comments (if necessary)**

	achieved through the implementation of an innovative, payment for environmental services scheme that links poverty reduction to successful conservation of forests and critically endangered species through conditional agreements.			
	Baseline	**Change by 2016**	**Source of evidence**	
Indicator 1 Improvements in the poverty status of participating households by 10-25%, against the 2011 baseline	Annual income of $330 per participating household (2011)	Annual income of $598 per participating household as a direct result of increased income through the project	Household poverty surveys conducted by Imperial College and WCS, SMP records, data contained in Annex 2 and Section 2.1 of the report	
Indicator 2 The number of villages inside or adjacent to protected areas with signed land-use plans and conservation agreements increased to 15	6 (2011)	35	Signed land-use plans and conservation agreements detailed in Annex 2 and Section 2.1 of the report	
Indicator 3 The number of people taking part in the Wildlife Friendly™ Ibis Rice scheme increased to 10,000	750 individuals (2011)	6,150 individuals (2015)	Village Marketing Network (VMN) membership rosters reported in Annex 2 and Section 2.1 of the report	
Indicator 4 The number of tonnes of Wildlife Friendly™ produce bought annually by SMP increased to at least 600 tonnes	141 tonnes (2011)	568 tonnes	Receipts for rice purchase and SMP ledger records reported in Annex 2 and Section 2.1 of the report	
Indicator 5 The population of birds of conservation concern increased by 10% from baseline	274 nests 532 chicks	160 nests 327 chicks	Monitoring reports by WCS and community rangers reported in Annex 2 and Section 2.1 of the report	
Indicator 6 25% reduction in incidences of illegal land clearance and hunting around participating villages from a baseline	65 illegal incidences (2011)	72 illegal incidents (2015)	Monitoring reports from WCS rangers and satellite images reported in Annex 2 and Section 2.1 of the report	
Indicator 7 Capacity of SMP increased from a baseline as	53 (March 2012)	72 (March 2016)	Civil Society Tracker Tool reported in Annex	

measured using the Civil Society Tracker Tool			2 and Section 2.1 of the report	

The project has partially achieved its outcome, exceeding some Indicator targets but not entirely meeting others (detailed below). It has met its poverty alleviation goals through the expansion of Ibis Rice and by securing land tenure and legalised access to vital forest resources for the rural poor across a greater area than anticipated. Although it is more difficult to quantify, the project has established institutions that are beginning to bring about change in the way that decisions are made around land-use and natural resource use at the community level, and strengthened the agencies responsible for forest protection.

The project achieved better than anticipated improvements to the poverty status of participating households against the 2011 baseline (*Indicator 1*), as demonstrated through household surveys conducted by WCS and Imperial College London between July and December 2015, covering 1,130 households across 20 villages, of which 50% were control villages where Ibis Rice is not implemented. There are also multiple immediate benefits to the communities taking part in the Ibis Rice scheme. The total premium paid to participating farmers over the course of the project was $81,424, increasing year on year to $39,850 in 2015/16. After controlling for other factors, households involved in the Ibis Rice programme improved their economic status (0.70, P <0.1) (Beauchamp *et al.* in prep). The other economic benefits to participating families are less easily quantified. SMP uses unbiased scales so weight of paddy is recorded more accurately than by traders. Local people report that traders' scales are typically biased by up to 30%. Secondly, the Village Marketing Network (VMN) provides free seeds to new members and technical assistance to all participating farmers, which increases yields, studies showed that agricultural productivity of participating farmers grew faster than non-participants between 2008 and 2014 (5.12, P <0.05). All farmers that participate in the Ibis Rice scheme, even those who leave part-way through the process, grow the same variety, high-value fragrant rice (*Malis*), which is worth more in the marketplace. Finally, all farmers in Ibis Rice villages benefit from the scheme because SMP creates competition with the middlemen who tend to raise their prices to compete.

The project also significantly improved land tenure and legal access to vital forest resources for a far greater number of villages than anticipated, by achieving approved land-use plans for 35 villages (*Indicator 2*). These outcomes were achieved through the rapid expansion of Ibis Rice. In 2015/16, Sansom Mlup Prey (SMP) purchased 568 tons of rice from participating farmers. This is slightly lower than the target, which is a reflection of improvements in monitoring protocols relating to land clearance, and a tougher stance on individuals who broke the regulations. As a consequence, the number of incidents of reported illegal land clearance or hunting around target villages increased slightly (*Indicator 6*). However, SMP provided enhanced rewards to farmers who kept conservation regulations. This represents a more intelligent approach to expansion and impacts on conservation than simply focussing on maximising the number of people involved. In this respect it is not surprising that the capacity of SMP was judged to have improved significantly, based on the Civil Society Tracking Tool (*Indicator 7*).

Due to factors outside of our control, the project coincided with a period of unprecedented expansion of economic and social land concessions in the project area, with associated in-migration, opportunities for illegality and disruption of social structures within villages. This was the motivation behind the decision taken in Year 2 of the project to expand Ibis Rice more slowly than originally planned in our proposal, in order to focus on improving levels of compliance of participating farmers through establishing a dedicated Compliance Unit. This meant that the scheme was not expanded as rapidly as originally anticipated, and the project benefitted just over 5,000 individuals, against a target of 10,000 people (*Indicator 3*). In the final year of the project the number of incidents of illegal land clearance around target villages increased to 72 considerably higher than the target in Indicator 6, but significantly lower than the number of incidents around other villages (108). Although rates of land clearance in the project area as a whole increased during the project to 5.05% in 2015, within the community-managed areas around Ibis Rice villages the rate of illegal land clearance was only 0.97%, within the target of <1%. Unfortunately, land clearance and illegal logging impacted negatively on nesting birds, which led to a significant reduction in the number of threatened bird nests

found and protected over the life of the project (*Indicator 5*). These main threats contradict Assumption 3, that the main limiting factor to nesting numbers is egg collection. The threat of habitat destruction by ELCs was not assumed to be a threat to protected areas (Assumption 5) at the time of conception and undoubtedly, if this had indeed been the case, we would have expected this outcome to be considerably more positive. Nonetheless, trends in species that nest exclusively within community zones showed annual increases, validating the idea that although populations may decrease in the short term they will rebound within areas that are suitably managed in the mid- to long term. Due to the project's short time span, these future rebounds have not been realised, but large areas of suitable habitat remain within the protected areas and we expect that populations will recover.

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

Impact statement from logframe: Ensuring the long-term conservation of biodiversity and maintenance of ecosystem services in Cambodia's protected areas, whilst contributing to the reduction of poverty in rural Cambodia with a focus on the hundreds of thousands of protected area residents. The project will contribute towards this by building on pre-existing linkages between natural and human systems in remote, forest dependent communities. It will secure land tenure for vulnerable communities and guarantee access to essential forest resources. Through payment mechanisms community incomes are increased, patterns of sustainable resource use are established and threatened species protected.

The project has made a substantial contribution to biodiversity conservation in the target area, which has been achieved while tangibly improving household income of the rural poor. During the last year of the project, monitoring within KPWS and PVPF indicates that household compliance with the Ibis Rice regulations was 86%, representing enhanced forest protection in community-managed areas. By integrating Ibis Rice regulations into EU and USDA Organic regulations (organic certification was achieved in early 2016), the level of monitoring and compliance with regulations was enhanced. The project has also maintained populations of threatened species within Stoung-Chikraeng, where the population of Bengal Floricans has remained stable at approximately 35-40 displaying males during the project's lifetime.

The project has demonstrated that Ibis Rice lowers deforestation rates around participating villages, and that threatened species receive better protection around those villages. It has demonstrated a rights-based approach to local planning by securing land-tenure for local communities within protected areas. The size of the Ibis Rice scheme has more than trebled during the project, helping a greater number of people than ever before to achieve their development aspirations, and incentivising sustainable resource-use across three protected areas. Ibis Rice achieved organic certification, which will allow it to access lucrative export markets, and is therefore very close to financial sustainability. In this context, SMP is well placed to continue expanding Ibis Rice and improving compliance rates of existing farmers. It has a vision to implement Ibis Rice in all suitable villages in the Northern Plains, and from there, expand to all suitable villages throughout forested areas of Cambodia. In doing so it will ensure that the impacts of the project are sustained and enhanced into the future.

As discussed previously, the project significantly increased income for participating farmers in the project area. Average additional income per household as a result of Ibis Rice was $268 in 2015/16, bringing annual household income up from $330 to $598. Imperial College researchers also looked at defining the impacts of the programme on a wider set of wellbeing indicators, including perceptions of security of access to land and forest resource, fairness of the interventions; and trust in local institutions such as the Village Marketing Network and the Community Protected Area committee. In an aggregated measure of wellbeing, participating farmers scored higher than those outside of the Ibis Rice scheme.

2.3 Outputs

Output 1:	**2,000 households (10,000 people) receive payments for environmental services as a result**	

	of taking part in the Ibis Rice initiative.		
	Baseline	**Change recorded by 2016**	**Source of evidence**
Indicator 1.1: The number of signed conditional agreements linked to agreed land-use plans between SMP, Village Marketing Networks and participating households: target: 2,000 households.	707 households	The number of VMN members who had signed conditional conservation agreements increased to 1,230 households by the end of the project	SMP records and Annex 2 and Section 2.3 of the report
Indicator 1.2: Receipts and SMP ledger records of purchase of Ibis Rice from participating households: target: 2,000 households.	140 households	304	SMP ledger receipts and Annex 2 and Section 2.3 of the report
Indicator 1.3: Number of functioning VMNs: target: 15	4	The number of functioning VMNs had increased to 18 by the end of the project	WCS records including minutes of meetings and Annex 2 and Section 2.3 of the report
Output 2:	**Land-use planning conducted in 9 additional villages, thereby securing land tenure, legalising access to forest resources and reducing additional habitat loss**		
	Baseline	**Change recorded by 2016**	**Source of evidence**
Indicator 2.1: The number of land-use plans developed and agreed: target: 15 villages.	6 villages	The number of land-use plans developed and agreed increased to 35 villages by the end of the project	Annex 2 and Section 2.3 of the report
Indicator 2.2: Area of land under agreed contracts: target: 100,000 hectares.	21,153 Ha	The area of land under agreed contracts increased to 88,046 by the end of the project	WCS records, government records, Annex 2 and Section 2.3 of the report
Indicator 2.3: At least one protected area is zoned	Zoning not started	Zoning in KPWS completed, awaiting approval from government	Annex 2 and Section 2.3 of the report
Output 3:	**Implementation of land-use plans by Government agencies (FA and MoE)**		
	Baseline	**Change recorded by 2016**	**Source of evidence**
Indicator 3.1: Rate of reduction in illegal land clearance and hunting around target villages from baseline: expected: <30.	2007: 166 incidences of land clearance; 2008: 138; 2009: 74; 2010: 61; 2011: 65	The number of incidences of illegal hunting and land clearance around target villages increased to 72 per annum in 2015	Compliance Unit Database, SMART database, Annex 2 and Section 2.3 of the report
Indicator 3.2: Deforestation rates	1.3% (2006-2010)	Deforestation rates around the target	Compliance Unit Database, SMART

around target villages reduced. Target: (2012-2015): 0.65-1%.		villages decreased to 0.97% in 2012-2015	database, Annex 2 and Section 2.3 of the report
Output 4:	**Threatened bird populations increase**		
	Baseline	**Change recorded by 2016**	**Source of evidence**
Indicator 4.1: Number of birds' nests protected increase to 401 (10% increase per annum) (note that the target has been revised from that stated in the project document to account for the error in the stated baseline).	274 (note that the baseline stated in the project document (408) was an error)	The number of threatened birds nests found and protected decreased to 160 in 2015	WCS records, and Annex 2 and Section 2.3 of the report
Indicator 4.2: Number of chicks fledged successfully from protected birds nests increase to 708 (10% increase per annum) (note that the target has been revised from that stated in the project document to account for the error in the stated baseline).	532 (note that the baseline stated in the project document (865) was an error)	The number of chicks fledged successfully decrease to 327 in 2015	WCS records, and Annex 2 and Section 2.3 of the report
Output 5:	**Ibis Rice PES programme is self-financing and sustainable**		
	Baseline	**Change recorded by 2016**	**Source of evidence**
Indicator 5.1: Following the Ibis Rice business plan, Ibis Rice will be financially sustainable when it reaches 600 ton purchased per annum (expected by 2015/16).	141 tons Ibis Rice was purchased by SMP in 2011/12	568 tons Ibis Rice paddy was purchased by SMP in 2015/16	SMP ledger receipts
Output 6:	**Impacts of the Ibis Rice PES programme on poverty, land-use trends and threatened species monitored and documented.**		
	Baseline	Change recorded by 2016	Source of evidence
Indicator 6.1: Two peer-reviewed journal articles published in academic journals by WCS, Imperial and RUPP researchers.	0	Three peer-reviewed journal articles published in academic journals during the project	Annex 2 and Section 2.3 of the report

The project has accomplished all tasks and activities on time, making considerable progress towards achieving stated outputs (see table above and details below).

Output 1: 2,000 households from 15 villages engaged in Ibis Rice
VMN membership has grown from 707 households in 2012 to 1,230 households by the end of the project (Indicator 1.1). This represents a substantial increase from 2008, when only 264 households were participating. The rate of increase is slower than that predicted at the start of

the project as it has reached just over half of its target of 2,000 households. In the final year of the project a total of 304 households (Indicator 1.2) from 18 participating villages adhered to conservation agreements and sold 568 tons of fragrant paddy rice to SMP. This is a significant increase over the duration of the project, although it is slightly short of the target (600 tons). The proportion of participating households selling rice into the scheme is relatively low. There are two reasons for this. Firstly, the level of compliance with conservation agreements has declined as the project has grown, due to socio-economic changes in the operating environment that have increased opportunities for illegal activity (described under Output 3, below). In recognition of this, a strategic decision was taken to reduce the rate of expansion of Ibis Rice, focussing instead on increasing compliance of existing VMN members in order to increase conservation gains, and to create social change towards a society that broadly values sustainable resource use. As a part of the process, the project established a dedicated Compliance Unit to monitor compliance to conservation regulations more accurately. As such, Indicator 1.1 is not an accurate measure of the conservation benefits of the Ibis Rice scheme, although it remains a useful metric for gauging its scale. Therefore the project has not met its target of 2,000 households under Indicator 1.1, or its target under Indicator 1.2, which is to a large extent dependent on the scale of Indicator 1.1.

A total of 18 villages currently have functioning VMNs (Indicator 1.3), which is greater than our target goal of 15 villages. On top of the four that existed at the start of the project, we added five functioning VMNs during the first year of the project and an additional seven during the second year. The VMNs are the institutions through which the project delivers a change in attitudes towards natural resource use. This process has been slower than anticipated because the project team must work with each VMN individually at a pace that their members are comfortable with, to develop the land-use plans and regulations that form the basis for the Ibis Rice conditional agreements. For this reason no new VMNs were added in year three, with the focus instead on improving capacity of existing VMNs and compliance of their members.

Output 2: Land-use plans completed in 9 additional villages
A total of 35 villages have now completed land-use plans that have been approved by District-level government, far exceeding the target (Indicator 2.1). This indicator provides a good measure of the geographic spread of the Ibis Rice scheme, and therefore demonstrates that the project is impacting forest conversion across a greater geographic area than anticipated. It also means that land-tenure has been secured for communities across a greater geographic area than anticipated, and more communities have legal access to vital forest resources. The area of land under agreed contracts currently totals 68,385 ha (Indicator 2.2). In addition to this process, Community Protected Areas (CPAs) in five additional villages were mapped and agreed upon by commune councils and relevant government authorities awaiting final approval from national-level authorities (total of 19,661 ha) (Indicator 2.2). Combined this represents a total of 88,046 ha under community management contracts once the approval from national authorities is finalised. This is slightly less than the target of 100,000 ha, although zonation is ongoing in Preah Vihear Protected Forest, and will continue after the Darwin-funded project ends. The zonation of Kulen Promtep Wildlife Sanctuary is complete (Indicator 2.3), although we are still awaiting national government approval, which is anticipated by the end of 2017.

Output 3: Implementation of land-use plans
Since the project began there has been a rapid increase in illegal activities in the wider project area. New roads and Economic Land Concessions (large scale rubber and sugar plantations) have brought a wave of migrant workers to the region and opened up routes for timber and wildlife traders, all of which create potentially lucrative illegal means of obtaining income. To enable protected area staff to respond adequately to enhanced threats, we introduced the SMART conservation software (http://www.smartconservationsoftware.org/). The SMART software allows protected area managers and law enforcement team leaders to accurately plan patrol strategies that directly target threats. It provides a platform for recording and mapping illegal incidents, and analysing the effectiveness of patrol plans. This has led to an immediate improvement in patrolling efficiency and coverage, and facilitated adaptive management of law-enforcement responses to threats. The increase in reporting of illegal activities, owing to SMART, has significantly impacted Indicator 3.1, because a greater proportion of the illegal activities that are detected are now recorded. The social situation within villages in the project

areas has not yet returned to where it was in the years prior to the project due to ongoing in-migration, and the rates of illegal incidents across the landscape as a whole remain high despite our efforts. This is especially true in in PVPF as a result of an increase in migrant worker communities (not participating in this project's incentive scheme) to economic land concessions located along its southern border. However, within areas managed by communities (created under Output 2), the rates of habitat loss have been significantly lower because economic land concessions have been prevented from clearing land within community zones. This provides a strong indication that providing land-tenure to local communities, and ensuring that land-use plans are respected, is an effective means of reducing encroachment. During the final year of the project forest loss within community zones has taken place at a rate of 0.97%, compared with 5.05% across KPWS and PVPF as a whole (Indicator 3.2); there were 72 incidences of forest clearance or hunting during the final year (Indicator 3.1).

Output 4: Threatened bird populations increase
Overall the number of threatened bird nests found annually declined during the project from 274 to 160 (2015). There are two main reasons for the lack of increase in number of nests found and protected. Firstly, there is a reduction in the number of nests reported due to the increase in other (often illegal) livelihood opportunities (such as logging) for community members who would otherwise find, report and protect nests. Secondly, some nest trees have been lost owing to illegal logging, as the larger trees that birds often choose to nest are also targeted by loggers. Numbers were significantly reduced by the felling of all the trees in a Lesser Adjutant colony (more than 100 nests). Of the nests that were reported and protected, the rate of fledging success has remained constant over the last five years. Despite the overall decline in number of nests caused by the loss of nesting trees, some Critically Endangered species that nest only within community-managed areas where rates of nest reporting are high, such as White-shouldered Ibis, showed an increase during the project.

Output 5: Ibis Rice is self-financing and sustainable.
During the project, SMP employed a new business manager with extensive sales and business management experience. SMP adopted a much more strategic approach to sales of rice, and put in place better financial, administrative and operational procedures; as such it scored higher on the Management Effectiveness Tracking Tool, reflecting its maturity as an organisation. After assessing historical financial performances and forecasting potential future performances, it was shown that the financial sustainability of Ibis Rice is contingent upon successful execution of the milling and organic strategies contained in the newly developed Ibis Rice business strategy 2015-2019. Following the revised Ibis Rice business plan, Ibis Rice will be financially sustainable when it reaches 700 tonnes purchased per annum (with at least 40% organic), a goal that is expected to be achieved by 2016/17. Ibis Rice is on-track to attain this goal, even though it reached slightly less than 600 tons purchased in 2015/16 (Indicator 6.1), because it achieved EU and US organic certification in early 2016.

Output 6: Impacts of Ibis Rice PES programme are assessed and documented
Research has been conducted by Imperial College London throughout the project in order to assess and document the impacts of the Ibis Rice scheme on livelihoods and well-being. Three peer-reviewed journal papers have been published as follows:

- Clements, T., Seng Suon, Wilkie, D. S. & Milner-Gulland, E. J. (2014) Impacts of Protected Areas on Local Livelihoods in Cambodia. *World Development* 64: S125–S134.
- Clements, T. & Milner-Gulland, E. J. (2015) Impact of payments for environmental services and protected areas on local livelihoods and forest conservation in northern Cambodia. *Conservation Biology* 29: 78–87.
- Woodhouse, E., Homewood, K. M., Beauchamp, E., Clements, T., McCabe, J. T., Wilkie, D. & Milner-Gulland, E. J. (2015) Guiding principles for evaluating the impacts of conservation interventions on human well-being. *Philosophical Transactions of the Royal Society B.* DOI: 10.1098/rstb.2015.0103

3 Project Partnerships

WCS has worked in partnership with the Forestry Administration (FA) of the Ministry of Agriculture, Forestry and Fisheries (MAFF) and the Ministry of Environment (MOE), under our MoU, to conserve the project sites since 1999. These partnerships have continued through the Darwin project, with FA and MOE counterpart staff playing an active role in the management of the target protected areas. With support and oversight from WCS, the staff from each ministry are responsible for implementation of protected area management activities in areas under their jurisdiction. Within these areas they are responsible for protecting the forest, ensuring that land-use plans are adhered to and that the rights of local people to access resources within appropriate zones are respected. MOE reviewed a draft of this report.

Through the life of the project, WCS addressed challenges expressed by FA and MOE counterpart staff in conducting and managing project activities in the context of increased pressure on natural resources resulting from in-migration of people. For instance, an increase in illegal activities was addressed through training government partners in SMART and providing logistical and financial support to land-use planning and law enforcement skills.

The project management structure was designed appropriately based on the situations where WCS, SMP and the government partners were at the beginning of the project. At that time, it was appropriate for WCS to lead to project, coordinate inputs from SMP as needed, and work with government partners to create an appropriate operating environment for a scheme such as Ibis Rice to operate. At the beginning of the project, SMP did not have the staff or experience necessary to lead a project of this scale. As a result of project activities, SMP are now best placed to lead future Ibis Rice projects, with WCS providing monitoring support and some limited technical advise to maximise conservation benefits. SMP played an integral role in the writing of this report.

Imperial College London (ICL) has partnered with WCS to design and implement high-quality research on the impacts of environment and development programmes in Cambodia since 2008. The international standard research design and data collection skills have been put to use in the field with counterparts from the Royal University of Cambodia (RUPP) accompanying ICL students. ICL students contributed significantly to the writing of this report.

4 Contribution to Darwin Initiative Programme Outputs

4.1 Contribution to SDGs

The project directly contributed to SDGs 1, 2 and 3, which taken together aim to (1) end poverty, (2) end hunger, achieve food security and improved nutrition and promote sustainable agriculture, and (3) promote well-being. It directly increased the income of remote rural communities by connecting them to lucrative markets, and demonstrably improved food security and well-being of participants. SMP has also promoted improved agricultural techniques among participating farmers and this has increased the sustainability of agriculture within the project area.

4.2 Project support to the Conventions or Treaties (CBD, CMS, CITES, Nagoya Protocol, ITPGRFA))

The project has assisted the Government of Cambodia to fulfil its obligations under the CBD. It has implemented a mechanism to ensure that agricultural areas within a forested landscape are managed sustainably, for the benefit of biodiversity (Aichi Target 7). Because these areas are within protected sites, this also contributes to Aichi Target 11, as the project has improved the management of protected areas through training and increased patrolling. These two factors together mean that the conservation status of some of Cambodia's most threatened species, such as White-shouldered Ibis, has been improved (Aichi Target 12). A core theme in the project is land-use planning and the transferral to Ibis Rice customers of the monetary value of ecosystem services provided by the forest to the local people, therefore the project is also contributing to Aichi Target 14 by safeguarding access to essential resources for indigenous and remote rural communities and the poor and vulnerable, especially women.

4.3 Project support to poverty alleviation

The project reduced poverty within the target villages in both the short term and the medium-long term. It worked directly with indigenous communities and remote people who have limited access to markets. Direct economic benefits to community members directly participating in the project totalled $81,424 over the lifetime of the project, which in the last year of the project represented a 60% increase in annual income for participating farmers over non-participating households. Research by Imperial College (ICL) students demonstrated that after controlling for other factors, households involved in the Ibis Rice programme improved their economic status (0.70, P <0.1) and their agricultural productivity (5.12, P <0.05) faster than non-participants as a result of the project. Local people participating in the project had higher economic status as a result of the project, compared to those that did not participate. Benefits to participants increased over the duration of the project.

While poverty indicators are one of the key measures used to assess social development in impact evaluations, it is recognized that economic proxies do not often reflect all of people's priorities (Stiglitz et al. 2009). ICL therefore looked at the effect of conservation interventions on two further objective social indicators: agricultural productivity and food security. Households involved in the Ibis Rice programme overall improved their agricultural productivity, and food security as a result, at a higher rate than non-participants in the same villages. Because of this, more participating families owned mini-tractors than non-participating families, and they they owned more livestock on average. Non-participants were generally more likely to practice shifting agriculture and sell labour.

Beyond the monetary benefits, the project set up village-level institutions, VMNs, which provide a forum for discussion of natural resource management issues. Ibis Rice and the associated land-use plans and regulations created a "discussion space" around which issues of sustainable use can be discussed. Because Ibis Rice incentivises wise use of natural resources, it creates the conditions in which social change can occur. By the end of the project, 1,230 people were directly involved in these decision-making processes through VMNs. In two villages this constitutes more than half of the households who live in the village.

4.4 Gender equality

The project addressed inherent gender inequality within target villages through encouraging mixed gender representation within all institutions, committees, trainings and meetings conducted at all stages of project implementation. For instance, during 2014, of 830 participating VMN members, 438 were women (52%). While gender inequality within the current village, commune and district institutions is still apparent, the indirect impacts of this project are already evident, with local commune councils opting to schedule village meeting at times and places that encourage women to attend, in line with Ibis Rice Policy. Analysis indicated that female-headed households increased their economic status slower than other types of households during the project, although it is unclear why this might be so, and the result might have been impacted by the small number of female-headed households available for analysis. However, there was no significant difference in their rate of increase in food productivity and food security.

4.5 Programme indicators

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

Yes. Through the project, local level institutions (VMNs, Community Protected Area (CPA) committees and the Community Management Committee (CMC) in Stoung-Chikraeng BFCA) were established, trained and supported. These institutions are recognised by government and play an important role in the management of protected areas (CMCs) or zones within protected areas (VMNs and CPA committees).

- Were any management plans for biodiversity developed?

Resource use plans for the community zones (totalling 68,385 ha) were developed. These will form the basis of a management plan for KPWS that will be developed over the next two years. In addition, a new management plan for Preah Vihear Protected Forest was developed during the project, which incorporated the management structures established under the project.

- Were these formally accepted?

Yes. All plans were approved by the relevant levels of government.

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

All plans relating to land-use planning and natural resource use in community zones and CPAs that were developed under the project used a bottom-up approach that made use of a range of participatory techniques. Consultation meetings were held at times and places that encouraged the participation of women, which was reflected in the meeting statistics that demonstrate that women were well represented at meetings (making up more than half of the participants).

- Were there any positive gains in household (HH) income as a result of this project?

Yes. Income gains per household were calculated at $98 per annum by the end of the project.

- How many HHs saw an increase in their HH income?

Over the course of the project, at least 1,230 households experienced an increase in income as a direct result of the project, through participating in the Ibis Rice scheme (members of VMNs). Households that were compliant with Ibis Rice regulations, and therefore able to sell their rice to SMP, experienced much greater increases in income; in the last year of the project these households numbered 304. Households not participating in the scheme, but located in villages where the scheme was operating, also benefitted financially because competition between the middleman and the SMP rice buyer led to an increase in the price that rice was purchased from all farmers (typically by approximately 10%).

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

During the last year of the project, household income for families who adhered to conservation agreements and sold Ibis Rice to SMP had increased by 60% relative to what it had been prior to the project. This was calculated as follows: average annual income prior to project = $330; average conditional payment (i.e. payment on top of normal farm gate paddy price) to Ibis Rice farmer = $198; annual income for Ibis Rice farmer = $330+$198= $528.

4.6 Transfer of knowledge

Did the project result in any formal qualifications?

i. How many people achieved formal qualifications?
ii. Were they from developing countries or developed countries?
iii. What gender were they?

One female student from a developed country (Canada) is close to achieving a PhD as a direct result of the project. Similarly, two Cambodian students achieved MSc degrees through the project.

4.7 Capacity building

i. Did any staff from developing country partners see an increase in their status nationally, regionally or internationally? For example, have they been invited to participate in any national expert committees, expert panels, have they had a promotion at work?
ii. What gender were they?

SMP staff (male and female) have presented on Ibis Rice at the Society of Conservation Biology (SCB) and Association for Tropical Biology and Conservation (ATBC) regional conferences during Year 2, and Ibis Rice was featured at a number of green products trade fairs in Phnom Penh during the project. MoE staff (male) who were directly involved in the project have had promotions within the organisation, in part because of their involvement in the best-practice land-use planning and pro-poor activities of the project.

4.8 Sustainability and Legacy

A new business plan for Ibis Rice was developed that will guide the product to financial sustainability by 2016/7. It adopts new measures to achieve financial sustainability, primarily: (1) Stabilisation of existing operations, which reduces Cost Of Goods Sold (COGS) per kg from $0.85 to $0.71, and (2) Growth through organic certification, which will increase the margin on sales from 33% to 48%. Ibis Rice has achieved certification and is on track to be financially self-sustaining by 2016/17. The VMNs and SMP have taken over much of the management and expansion of Ibis Rice, and made a number of exciting decisions, which will increase compliance and lead to improved conservation outcomes.

WCS is committed to working with the Cambodian government ministries to protect Cambodia's biodiversity, whose staff are project managers for the target protected areas and whose capacities are growing and expanding under WCS's guidance, for as long as is necessary. They and the other local partner, SMP are committed to helping reduce poverty and linking that to conservation outputs. The expansion of Ibis Rice is in line with the revised business plan and we anticipate that the revenue from the sale of Ibis Rice will sustain biodiversity conservation and poverty alleviation efforts in the landscape over the long term. All staff have been retained after completion of the project.

5 Lessons learned

Although the project was planned well based on an in-depth understanding of the project area, major changes occurred early on in the project that led to a massive increase in threats from logging and illegal land clearance. These were not considered major risks when the project was being designed, and it was a critical assumption of the project that the threats to the project area would not change during project implementation. With the benefit of hindsight this assumption is seen to have been made in error, and we have learned that where it is not possible to anticipate which changes might take place, it is at least prudent to anticipate that some changes to risk factors might occur during the project lifetime.

In the context of an unforeseen escalation of threats, the project made a strategic decision to expand Ibis Rice more slowly, focussing on increasing compliance of participating families instead of on rapid growth. We did this because we believed that it would both increase the level of economic benefits to participating farmers and lead to greater conservation gains overall. While we had planned for rapid growth of operations to reach a certain scale necessary for financial sustainability within the project lifetime, we ultimately realized there is a balance between achieving conservation and livelihood objectives and growing to a scale at which financial sustainability is possible.

The project benefitted significantly from expert input from Imperial College London students and alumni, in particular Dr. Henry Travers, who visited the project area to advise on means of measuring and improving compliance of participating farmers. This was extremely valuable. However, not enough time of budget was allocated for this kind of higher level technical support, and the project would ideally have allowed for follow-up visits to refine progress made towards these aims.

5.1 Monitoring and evaluation

There were no approved changes to the logframe or indicators despite our realization during the second year of the project that we would not reach certain targets, which resulted from our decision to slow expansion of Ibis Rice in order to improve the conservation and livelihood impacts of the project. The M&E system was practical and easy to apply. It helped the project team to focus on the key metrics of the project, to ensure that it achieved its Outcome.

The quality of monitoring methods and the quantity of monitoring data generated both increased during the life of the project. Under the project, a Compliance Unit was established to collate and in some cases collect data from a range of sources (e.g. enforcement staff, SMART data, Participatory Land Use Planning (PLUP) teams, organic assessments) in order to monitor compliance of individual farmers with conservation regulations. This led to a massive increase

in reporting of illegal activities, and helped the project team to target support where it was most needed. It also ensured that only compliant farmers were able to sell paddy to SMP as Ibis Rice. Ibis Rice achieved organic certification during the project and integrated the wildlife-friendly regulations into the organic regulations so that a farmer cannot sell their rice as organic unless they also meet the wildlife-friendly regulations.

Dr. Henry Travers (ICL) conducted an independent analysis of economic benefits of Ibis Rice to local people, as well as the conservation benefits (in terms of reduced deforestation), in 2012. The report drew on a range of data sources to demonstrate that compliance to conservation agreements was low, and consequently deforestation around participating villages was little different to that around villages that were not participating in the scheme. Dr. Travers made a range of recommendations, central to which was creating and staffing a dedicated Compliance Unit, and improving the benefits, and the timing of benefits, to farmers who kept the rules. During the project, all of the recommendations made by Dr. Travers were implemented, which had the consequence of reducing the speed at which Ibis Rice could expand, but rapidly decreasing deforestation rates around participating villages whilst increasing the benefits that participants experienced.

5.2 Actions taken in response to annual report reviews

All reviewers comments have been discussed with our partners and addressed. Below we detail how the comments from the year 2 report were addressed.

During the final year of the project, what actions can be undertaken to emphasise the effect that developments in other sectors (roads etc.) and their influence on internal migration have on the PES system need to be tackled through more joined-up strategic planning between sectors. Can output 6 be strengthened away from research-oriented papers to policy influencing?

During the final year of the project we have documented through photographs, maps and reports to government the impacts of planned and unplanned development have had, and are having on the project area. We have used this evidence to influence the development of Cambodia's Environment Code – a high level policy instrument that WCS is assisting the Ministry of Environment to develop.

The SMART methodology appears to have had significant impact. Is this fully documented and can this be internalised within government planning and monitoring systems (for patrolling) including outside the project area?

WCS have supported a number of national level SMART workshops within Cambodia to institutionalise SMART into the government protected area management systems. There has been positive signs of uptake, but this is very much the beginning of a process. At this stage it is not practical to expand staff to areas outside of protected areas, since there are no government staff assigned to protect those areas.

Can further information be given on the marketing aspects for Ibis Rice e.g. can future sustainability (beyond the project period) be strengthened by private sector investment into the scheme? Note that the business plan may already do this – a synthesis of this would be valuable.

The business plan for Ibis Rice is three-pronged. Core costs are covered by bulk export of organic jasmine rice; there is a global deficiency of organic jasmine rice so prices are high and little marketing is needed (note that farmers cannot produce rice that is organic without also adhering to the wildlife-friendly regulations, because they have been integrated into the organic agreements). Domestic sales of re-branded organic wildlife-friendly jasmine rice are anticipated to grow slowly. If buyers can be found, branded organic wildlife-friendly jasmine rice will be sold internationally. At the same time a range of rice products with add value to broken grains (organic and wildlife-friendly), such as puffed rice cereals and puffed rice snacks are under testing.

A suggestion was made in the AR to revise the outcome target downwards (from 10,000 households to 5,000). This is not recommended at this stage. In response to this feedback, we have kept the outcome target at 10,000 households.
Noted. Progress against this outcome target is reported above.

If possible, the ongoing research being conducted by ICL should provide evidence of project impacts on the wider multi-dimensional aspects of poverty (rather than solely income) and also evidence of to whom benefits accrue i.e. disaggregated poverty impacts.
This research has been completed and analysis is ongoing. Some preliminary results are presented in this report. Results, disaggregated and detailing not only income but well-being, will be published by Emilie Beauchamp, currently in the final year of a PhD at Imperial College London.

Improve the visibility of the Darwin identity e.g. by references and show linked logos on the WCS Cambodia website and post some recent project related information.
Visibility of the Darwin identify has been improved in general (see following section), and the project has been featured in the Darwin newsletter.

What support actions will be provided to ensure that Ibis Rice scheme becomes fully self-sustaining one year after the end of the Darwin funding in 2016?
WCS has worked with SMP to leverage additional funding to ensure that SMP becomes financially sustainable in 2016/17. We are working together to research the potential of soil conservation techniques and climate-change resilient rice varieties in order to ensure that farmers can continue growing Ibis Rice under a changing climate.

6 Darwin identity

The profile of Ibis Rice and the Darwin Initiative project has been raised through exposure within the MoE and at national and international conferences and events. Within MoE, Ibis Rice, branded in presentations with the Darwin Initiative logo, is discussed at national, provincial, district and commune levels and is recognised as a major funder of economic and social development. The Darwin project and Ibis Rice was presented by WCS at a regional social enterprise meeting in Singapore, the World Parks Conference in Sydney and at regional ATBC and SCB conferences. Links to the Darwin Initiative have also been featured on the WCS Cambodia website and Facebook page.

7 Finance and administration

7.1 Project expenditure

Project spend (indicative) since last annual report	2015/16 Grant (£)	2015/16 Total actual Darwin Costs (£)	Variance %	Comments (please explain significant variances)
Staff costs (see below)			.52	
Consultancy costs			0	
Overhead Costs			-4.91	
Travel and subsistence			-3.36	
Operating Costs			8.49	
Capital items (see below)				
Others (see below)	2022	2046.60	-1.20	The total grant budget line variance less than 10%

TOTAL	81769	81862.63		

Staff employed (Name and position)	**Cost (£)**
Ross Sinclair	
Simon Mahood	
Catherine Walker	
Henry Travers	
Son Virak	
Och Vichet	
Nhoeb Ngoeun	
Ashish Johnn	
Sous Touch	
Nicholas Spencer	
Hong Chamnan	
Meas Tho	
Nay Sonsak	
Mao Vanna	
Peou Bun Thoeun	
Lucy Graham	
Tan Sophan	
Tem Hoeung	
Sok Sony	
Prom Vorn	
Chhit Ret	
Pen Leam	
Dong Ri	
Hoeum Kou	
Song Det	
Narnn Boam	
Chhay Kiroth	
Thoeung Thieng	
Samean Samy	
Robert van Zalinge	
TOTAL (must match Staff Costs total in Section 6)	35,811.99

Capital items – description	Capital items – cost (£)
Adj.34020-34033 2 motor honda dream 125c	
Garmin Monterra	
Garmin Monterra	
TOTAL (Must match Capital items total in Section 6)	**-98.65**

Other items – description	Other items – cost (£)
Paid copy ,book binding ,PVH	
Paid ICE hard disk 2T for PV	
Reim. Henry visa Cambodia	
FED EX JUNE 2015	
Insurance 1 motor FY16,ATT	
Insurance 7 motor FY16 KTH	
Clr.Chamnan,FY16/118(Motor fix)	
Clr.Chamnan,FY16/254(Car wash)	
Clr.Chamnan,FY16/254(Motor fix)	
Clr.Chamnan,FY16/401,Car fix	
Clr.Chamnan,FY16/401(Motor fix)	
Paid install photocopy machine	
Clr.Chamnan,FY16/118(Supply)	
Clr.Chamnan,FY16/254(Statinary)	
Clr.Chamnan,FY16/401,Clean mater	
Clr.Chamnan,FY16/118(Battery)	
Clr.Chamnan,FY16/118(Battery)	
Clr.Chamnan,FY16/118(Battery)	
Clr.Chamnan,FY16/254(Battery)	
Clr.Chamnan,FY16/254(Battery)	
Clr.Chamnan,FY16/254(Battery)	
Clr.Chamnan,FY16/401(Battery)	
Clr.Chamnan,FY16/401(Material)	

Bank fee transfer salary Aug'15	
Bank fee transfer salary Sep'15	
Bank fee transfer Salary Oct'15	
Insurance 1 motor FY16,PVH	
Bank transfer salary Nov'15	
Clr.Chamnan,FY16/0627(Motor fix)	
Paid ext. hard drive 1TB,Chamnan	
Clr.Chamnan,FY16/0627,Battery,m	
Clr.Chamnan,FY16/627(Truck fix)	
Clr.Chamnan,FY16/627(Motor fix)	
Clr.Chamnan,FY16/627(Motor fix)	
Clr.Chamnan,FY16/0627(Motor fix)	
Clr.Chamnan,FY16/627,Clean mat	
Clr.Chamnan,FY16/627,Battery	
Clr.Chamnan,FY16/627(Bed)	
Clr.Chamnan,FY16/627(Battery)	
Clr.Chamnan,FY16/0627,Battery	
Bank fee transfer salary Dec'15	
Clr.Kong.NPFY16/238,Motor fix	
Clr.Kong NPFY16/269,Maint.Takeng	
Clr. Kong.NPFY16/238,Stationary	
Clr. Kong.NPFY16/238,Clean mater	
Clr. Sunkong.NPFY16/253(Battery)	
Paid refill ink copies for OP	
Bank fee transfer salary Jan'16	
Clr.Sunkong.NPFY16/317,Motor fix	
Clr.Skong.NPFY16/317,stationary	

Clr.Sunkong.NPFY16/317,Materials	
TOTAL (Must match Others total in Section 6)	2,046.60

7.2 Additional funds or in-kind contributions secured

Source of funding for project lifetime	Total (£)
Margaret A. Cargill Foundation	
MacArthur Foundation	
Critical Ecosystem Partnership Fund	
TOTAL	**250,000**

Source of funding for additional work after project lifetime	Total (£)
Margaret A. Cargill Foundation	
MacArthur Foundation	
Critical Ecosystem Partnership Fund	
Fundacion Ensemble	
TOTAL	**350,000**

7.3 Value for Money

Given the level of economic and social benefits delivered to remote communities, and the conservation gain attained during the project, it represents extremely good value for money. The project reached more than 5,000 people across 400,000 ha of remote Cambodia. Within 18 villages local people benefitted directly from the Darwin project. Over the lifetime of the project, local people gained an additional $81,424 in direct conservation payments, which was leveraged through sales of Ibis Rice.

Staff were chosen carefully because their costs make up the most significant portion of the budget, and to ensure that the community consultations over the land-use plans and household contracts are undertaken appropriately, and with respect to local peoples' rights and cultural sensitivities. Attention was given to building the capacity of SMP to ensure that they would be able to manage a project of this size in the future. Equipment purchased under the project was fit for purpose, rather than top end in terms of quality.

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

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

Project summary	Measurable Indicators	Means of verification	Important Assumptions
Goal: Ensuring the long-term conservation of biodiversity and maintenance of ecosystem services in Cambodia's protected areas, whilst contributing to the reduction of poverty in rural Cambodia with a focus on the hundreds of thousands of protected area residents. The project will contribute towards this by building on pre-existing linkages between natural and human systems in remote, forest dependent communities. It will secure land tenure for vulnerable communities and guarantee access to essential forest resources. Through payment mechanisms community incomes are increased, patterns of sustainable resource use are established and threatened species protected.			
Outcome: The outcome of the project will be to reduce deforestation rates across 300,000 hectares of three protected areas in Cambodia by 25-50%, protect globally significant populations of highly threatened species, support the livelihoods of up to 10,000 local residents through greater land security and greater incomes, increase understanding regarding how to integrate poverty reduction and conservation, and build the capacity of local partners to sustain the project outcomes. This will be achieved through the implementation of an innovative, payment for environmental services scheme that links poverty reduction to successful conservation of forests and critically endangered species through conditional agreements.	1. Improvements in the poverty status of participating households by 10-25%, against the 2011 baseline. 2. The number of villages inside or adjacent to protected areas with signed land-use plans and conservation agreements increased to 15 from a baseline of 6 in 2011 3. The number of people taking part in the Wildlife Friendly™ Ibis Rice scheme increased to 10,000 from a baseline of 750 in 2011 4. The number of tonnes of Wildlife Friendly™ produce bought annually by SMP increased to at least 600 tonnes from a baseline of 141 tonnes in 2011. 5. The population of birds of conservation concern increased by 10% from a baseline of 408 nests protected and 865 chicks fledged in 2011/2012 6. 25% reduction in incidences of illegal land clearance and hunting around participating villages from a baseline of 65 incidences in 2011. 7. Capacity of SMP increased from a baseline of 53 in March 2012, as measured using the Civil Society Tracker Tool (developed by the Critical	1. Household poverty surveys conducted by Imperial College and WCS 2. Signed land-use plans and conservation agreements 3. VMN membership rosters 4. Receipts for rice purchase and SMP ledger records 5. Monitoring reports by WCS and community rangers 6. Monitoring reports from WCS rangers and satellite images (e.g. LandSat) 7. Civil Society Tracker Tool (developed by the Critical Ecosystems Partnership Fund)	1. The primary assumption of the project is that local communities will be receptive to the wildlife-friendly farming initiative "Ibis Rice". Our field surveys have suggested the scheme is very popular and large numbers of people want to join. The local people understand that the programme will provide genuine benefits, in terms of increased incomes, stable land tenure and legal rights to sustainably harvest forest resources in protected areas. We are therefore confident that sufficient farmers will want to take part in the programme. 2. The success of the Ibis Rice initiative depends on people keeping to the terms of signed agreements. Research conducted during the development of the Ibis Rice concept has shown that most people keep to the agreements because of the strong incentives for them to do so, and due to the independent monitoring of compliance (Clements et al. 2010). One key factor for success is local involvement in management of the programme, which promotes self-enforcement. PES research conducted by Imperial and WCS in Cambodia has shown that people who break the agreements in the first year will then

	Ecosystems Partnership Fund).		apply to re-join the scheme and will keep to agreements in the following year after seeing the benefits that their neighbours received previously (Clements et al., unpublished). WCS and SMP will undertake specific capacity-building activities to ensure that local residents fully understand the PES programme. 3. The project assumes that the populations of threatened bird species can be increased through simple low cost conservation measures linked to conservation agreements. Previous research has shown that nest collection by local people is the primary factor limiting populations (Clements et al. 2013). Nest collection brings marginal economic gain (birds have little value as food or in trade) and existing experience suggests that with increased awareness and the provision of cash incentives it is possible to change local behaviour (Clements et al. 2013). 4. The project assumes that the local civil society partner SMP, government agencies, village authorities and local people responsible for implementing the project have the capacity to implement activities to a high standard. Project staff with experience in local level indigenous institutional analysis will select reliable staff, identify skills gaps and build their capacity where necessary. 5. Project target areas within the protected areas are not allocated for large-scale concessions for agro-industrial development. Significant portions of Cambodia's protected areas network (10-15% or higher) have been allocated as concessions for economic development since 2008. In May 2012, the Royal Government announced a

			moratorium on all future concessions, however it is unclear the extent to which this moratorium will be enforced. Nevertheless, the evidence suggests that empowered local villages are able to advocate for their rights and can persuade local politicians and national ministries not to allocate lands for development, if alternatives (such as opportunities provided by Ibis Rice) are available. Although significant areas of some of the target protected areas have been allocated for development in the last two years, the villages engaged in PES programmes developed by WCS have been able to successfully persuade decision-makers not to place concessions on the lands around their villages. Implementing the Ibis Rice concept and helping the target communities to safeguard their rights to land and natural resources (through land-use plans, land titling and determining the Community Zone of each of the protected areas) will therefore have a strong impact on reducing the likelihood of land concessions. Under the law, the Community Zone is the area of the protected areas allocated for local use, which prohibits large-scale economic development activities.
Outputs: 1. 2,000 households (10,000 people) receive payments for environmental services as a result of taking part in the Ibis Rice initiative.	1.1 The number of signed conditional agreements linked to agreed land-use plans between SMP, Village Marketing Networks and participating households: current: 707, expected: 2,000 households (10,000 people). 1.2 Receipts and SMP ledger records of purchase of Ibis Rice from participating households: current: 140, expected: 2,000 households (10,000 people). 1.3 Number of functioning VMNs: 2012:	Signed conditional agreements, receipts and ledger records documenting rice purchases from households, updated databases of participating households in each village. Improvements in the poverty status of participating households by 10-25%, against the 2011 baseline. The number of people taking part in the Wildlife Friendly™ Ibis Rice scheme increased to 10,000 from a baseline of	Villages value the premium paid for Ibis Rice paddy and it is sufficient to change villager behaviour. The primary assumption of the project is that local communities will be receptive to the wildlife-friendly farming initiative “Ibis Rice”. Our field surveys have suggested the scheme is very popular and large numbers of people want to join. The local people understand that the programme will provide genuine benefits,

	4; expected: 15	750 in 2011 Household poverty surveys conducted by Imperial College and WCS Receipts for rice purchase and SMP ledger records	in terms of increased incomes, stable land tenure and legal rights to sustainably harvest forest resources in protected areas. We are therefore confident that sufficient farmers will want to take part in the programme.
2. Land-use planning conducted in 9 additional villages, thereby securing land tenure, legalising access to forest resources and reducing additional habitat loss.	2.1 The number of land-use plans developed and agreed: current: 6 villages, expected: 15 villages. 2.2 Area of land under agreed contracts: 2012: 21,153 hectares; expected: 100,000 hectares. 2.3 At least one protected area is zoned.	Land-use plans, protected area zonations, community protected area or community conservation forest areas declared. The number of villages inside or adjacent to protected areas with signed land-use plans and conservation agreements increased to 15 from a baseline of 6 in 2011	The success of the Ibis Rice initiative depends on people keeping to the terms of signed agreements. Research conducted during the development of the Ibis Rice concept has shown that most people keep to the agreements because of the strong incentives for them to do so, and due to the independent monitoring of compliance (Clements et al. 2010). One key factor for success is local involvement in management of the programme, which promotes self-enforcement. PES research conducted by Imperial and WCS in Cambodia has shown that people who break the agreements in the first year will then apply to re-join the scheme and will keep to agreements in the following year after seeing the benefits that their neighbours received previously (Clements et al., unpublished). WCS and SMP will undertake specific capacity-building activities to ensure that local residents fully understand the PES programme.
3. Implementation of land-use plans by Government agencies (FA and MoE)	3.1 Rate of reduction in illegal land clearance and hunting around target villages from baseline: 2007: 166 incidences of land clearance; 2008: 138; 2009: 74; 2010: 61; 2011: 65; expected: <30. 3.2 Deforestation rates around target villages. Baseline (2006-2010): 1.3%; Expected (2012-2015): 0.65-1%.	Illegal activity reports, deforestation rate analyses based upon analysis of remote-sensing images. 25% reduction in incidences of illegal land clearance and hunting around participating villages from a baseline of 65 incidences in 2011. Monitoring reports by WCS and	Project target areas within the protected areas are not allocated for large-scale concessions for agro-industrial development. Significant portions of Cambodia's protected areas network (10-15% or higher) have been allocated as concessions for economic development since 2008. In May 2012, the Royal Government announced a moratorium on all future concessions, however it is unclear the extent to which this moratorium will be enforced.

		community rangers Monitoring reports from WCS rangers and satellite images (e.g. LandSat)	Nevertheless, the evidence suggests that empowered local villages are able to advocate for their rights and can persuade local politicians and national ministries not to allocate lands for development, if alternatives (such as opportunities provided by Ibis Rice) are available. Although significant areas of some of the target protected areas have been allocated for development in the last two years, the villages engaged in PES programmes developed by WCS have been able to successfully persuade decision-makers not to place concessions on the lands around their villages. Implementing the Ibis Rice concept and helping the target communities to safeguard their rights to land and natural resources (through land-use plans, land titling and determining the Community Zone of each of the protected areas) will therefore have a strong impact on reducing the likelihood of land concessions. Under the law, the Community Zone is the area of the protected areas allocated for local use, which prohibits large-scale economic development activities.
4. Threatened bird populations monitored by community members and WCS rangers.	4.1 Number of birds nests protected: 2012: 408; expected 543 (10% increase per annum). 4.2 Number of chicks fledged successfully from protected birds nests: 2012 865; expected 1,151 (10% increase per annum).	Nest protection reports and data records The population of birds of conservation concern increased by 10% from a baseline of 408 nests protected and 865 chicks fledged in 2011/2012	The project assumes that the populations of threatened bird species can be increased through simple low cost conservation measures linked to conservation agreements. Previous research has shown that nest collection by local people is the primary factor limiting populations (Clements et al. 2013). Nest collection brings marginal economic gain (birds have little value as food or in trade) and existing experience

			suggests that with increased awareness and the provision of cash incentives it is possible to change local behaviour (Clements et al. 2013).
5. Ibis Rice PES programme is self-financing and sustainable.	5.1 Following the Ibis Rice business plan, Ibis Rice will be financially sustainable when it reaches 600 tonnes purchased per annum (expected by 2015/16): 2011 rice purchase 141 tonnes.	SMP financial records, SMP annual reports, updated business plans Capacity of SMP increased from a baseline of 53 in March 2012, as measured using the Civil Society Tracker Tool (developed by the Critical Ecosystems Partnership Fund).	The market for Wildlife Friendly™ Ibis Rice grows and can absorb the increased volume. The project assumes that the local civil society partner SMP, government agencies, village authorities and local people responsible for implementing the project have the capacity to implement activities to a high standard. Project staff with experience in local level indigenous institutional analysis will select reliable staff, identify skills gaps and build their capacity where necessary.
6. Impacts of the Ibis Rice PES programme on poverty, land-use trends and threatened species populations are documented in at least two peer-reviewed papers published in scientific journals.	6.1 Two peer-reviewed journal articles published in academic journals by WCS, Imperial and RUPP researchers.	Data on changes in household poverty. Peer-reviewed journal publications resulting from the project.	Researchers from RUPP are sufficiently motivated to participate over the 3-year life of the project.
Activities (each activity is numbered according to the output that it will contribute towards, for example 1.1, 1.2 and 1.3 are contributing to Output 1) Activity 1.1 SMP inform target villages about Ibis Rice scheme Activity 1.2 Village Marketing Networks (VMNs) established in target villages Activity 1.3 Conditional agreements explained and new members join VMNs Activity 1.4 Training and seed provided to farmers as necessary Activity 1.5 VMNs identify eligible farmers with proper quality paddy			

Activity 1.6	VMNs sell Ibis Rice paddy to SMP
Activity 2.1	Participatory land-use planning conducted in target villages, including identification of community protected areas (community managed forest areas inside protected areas) and community conservation forests (community managed forest areas inside protected forests)
Activity 2.2	Land-use plans and zoning agreed by villagers
Activity 2.3	Land-use plans used to legalise Community Zones in protected areas, community protected areas, and community conservation forests
Activity 3.1	Consultations with government agencies and provincial authorities regarding land-use planning decisions, including allocation of lands for largescale economic development within conservation areas
Activity 3.2	Monitoring of forest cover and land-use change by WCS using satellite images
Activity 3.3	Monitoring reports used as the basis of further discussion and consultation regarding activities causing deforestation and land-use planning decisions
Activity 4.1	Community birds nest protectors are recruited through village consultation meetings
Activity 4.2	Community birds nest protectors protect nests of key species and report to birds nest protection coordinator
Activity 4.3	WCS Rangers monitor the results of nests protected by community members
Activity 5.1	Marketing activities conducted with potential retailers in Phnom Penh and Siem Reap
Activity 5.2	Ibis Rice is sold in more outlets (supermarkets, hotels and restaurants)
Activity 5.3	SMP business plans demonstrate that Ibis Rice has achieved financial sustainability
Activity 6.1	Data on poverty and land-use trends is collected from target villages and appropriate paired control villages, through analysis of satellite images and ground surveys
Activity 6.2	Data regularly synthesised and fed back to project team
Activity 6.3	At least two scientific papers written

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

Note: For projects that commenced after 2012 the terminology used for the logframe was changed to reflect DFID's terminology.

Project summary	Measurable Indicators	Progress and Achievements April 2014 - March 2015	Actions required/planned for next period
Goal/Impact Ensuring the long-term conservation of biodiversity and maintenance of ecosystem services in Cambodia's protected areas, whilst contributing to the reduction of poverty in rural Cambodia with a focus on the hundreds of thousands of protected area residents. The project will contribute towards this by building on pre-existing linkages between natural and human systems in remote, forest dependent communities. It will secure land tenure for vulnerable communities and guarantee access to essential forest resources. Through payment mechanisms community incomes are increased, patterns of sustainable resource use are established and threatened species protected.		The project has delivered increased incomes for over 6,150 people and provided them with secure land tenure, ensured that >90% of participants do not engage in new land clearance, and contributed towards the direct protection of 88,046 hectares of forest of global importance for biodiversity conservation.	[redacted]
Purpose/Outcome The outcome of the project will be to reduce deforestation rates across 300,000 hectares of three protected areas in Cambodia by 25-50%, protect globally significant populations of highly threatened species, support the livelihoods of up to 10,000 local residents through greater land security and greater incomes, increase understanding regarding how to integrate poverty reduction and conservation, and build the capacity of local partners to sustain the project outcomes. This will be achieved through the implementation of an innovative, payment for environmental services scheme that links poverty reduction to successful conservation of forests and critically endangered species through conditional agreements.	1. Improvements in the poverty status of participating households by 10-25%, against the 2011 baseline. 2. The number of villages inside or adjacent to protected areas with signed land-use plans and conservation agreements increased to 15 from a baseline of 6 in 2011. 3. The number of people taking part in the Wildlife Friendly™ Ibis Rice scheme increased to 10,000 from a baseline of 750 in 2011. 4. The number of tonnes of Wildlife Friendly™ produce bought annually by SMP increased to at least 600 tonnes from a baseline of 141 tonnes in 2011. 5. The population of birds of conservation concern increased by 10% from a baseline of 408 nests protected and 865 chicks fledged in 2011/2012. As stated in the Year 1 report the number of nests and chicks	1. Preliminary data indicate that the poverty status of participating households improved by 60% against the 2011 baseline, demonstrating results that have exceeded our expectations. 2. Number of villages with signed land-use plans and conservation agreements increased to 35, surpassing our overall goal of 15. 3. Number of people taking part increased to 1,230. 4. Number of tonnes of Wildlife Friendly™ produce bought increased to 568 in 2015/16. 5. The number of nests of birds of conservation concern declined to 160	1. This rate should prevail for the next procurement season. 2. Continue land-use planning in the protected areas. 3. Expand Ibis Rice to 4 new villages increasing the number of people taking part in Ibis Rice to at least 7,500. 4. 600 tonnes of Wildlife Friendly™ produce bought. 5. Nest protection scheme to be intensified and efficiently managed

	stated in the proposal was incorrect and should have been 274 and 532 respectively. 6. 25% reduction in incidences of illegal land clearance and hunting around participating villages from a baseline of 65 incidences in 2011. 7. Capacity of SMP increased from a baseline of 53 in March 2012, as measured using the Civil Society Tracker Tool (developed by the Critical Ecosystems Partnership Fund).	nests from which 327 chicks fledged. 6. 72 illegal land clearance incidents were registered in 2015, against a baseline of 65 in 2011. 7. SMP score has increased to 72.	using SMART. 6. Existing participants will be reminded of their commitments to the land-use plans during 2015 7. Indicator scheduled to be reassessed in year 3
Output 1. 2,000 households (10,000 people) receive payments for environmental services as a result of taking part in the Ibis Rice initiative.	1.1. The number of signed conditional agreements linked to agreed land-use plans between SMP, Village Marketing Networks and participating households: current: 707, expected: 2,000 households (10,000 people). 1.2. Receipts and SMP ledger records of purchase of Ibis Rice from participating households: current: 140, expected: 2,000 households (10,000 people). 1.3. Number of functioning VMNs: 2012: 4; expected: 15	1.1. Number of participating households in Year 3: 1,230. 1.2. Receipts for rice purchases in Year 3: 304. 1.3. Number of functioning VMNs in 2016: 18	
Activity 1.1. SMP inform target villages about Ibis Rice scheme		In 2016, a total of 18 villages were informed about the Ibis Rice scheme.	
Activity 1.2. Village Marketing Networks (VMNs) established in target villages		18 VMNs have been established in target villages.	
Activity 1.3. Conditional agreements explained and new members join VMNs		New members to the scheme during the project: 523 households	
Activity 1.4. Training and seed provided to farmers as necessary		Training took place in 18 villages. 1,287 (717 females) community members were trained on compliance, understanding rules and regulations, use of GPS to	

		measure paddy fields, rice quality, how to select seeds and clarifying roles and responsibilities for VMNs and local authorities. Over the course of the project 29,000 kg of pkha malis rice seed was distributed to 436 VMN members.
Activity 1.5. VMNs identify eligible farmers with proper quality paddy		This process took place in October 2015 and 304 households were identified.
Activity 1.6. VMNs sell Ibis Rice paddy to SMP		A total of 304 VMN members sold paddy to SMP
Output 2. Land-use planning conducted in 9 additional villages, thereby securing land tenure, legalising access to forest resources and reducing additional habitat loss.	2.1. The number of land-use plans developed and agreed: current: 6 villages, expected: 15 villages. 2.2. Area of land under agreed contracts: 2012: 21,153 hectares; expected: 100,000 hectares. 2.3. At least one protected area is zoned.	2.1. Number of land-use plans developed: 35, number of villages: 35 2.2. Area of land under agreed contracts in 2016: 88,046 hectares 2.3. The zoning of KPWS is completed, but awaiting national government approval.
Activity 2.1. Participatory land-use planning conducted in target villages, including identification of community protected areas (community managed forest areas inside protected areas) and community conservation forests (community managed forest areas inside protected forests).		Community Protected Areas (CPA's) in 8 villages were mapped and agreed upon by commune councils and relevant government authorities with a further 5 CPAs awaiting final approval from national level authorities (total of 19,661 ha). Those CPAs have been approved by provincial authorities.
Activity 2.2. Land-use plans and zoning agreed by villagers		Land use plans for 26 villages were finalized bringing the total to 35.
Activity 2.3. Land-use plans used to legalise Community Zones in protected areas, community protected areas, and community conservation forests.		The Provincial Community Zone Mapping Committee, appointed by the provincial governor, has verified all land use in KPWS.
Output 3. Implementation of land-use plans by Government agencies (FA and MoE).	3.1. Rate of reduction in illegal land clearance and hunting around target villages from baseline: 2007: 166 incidences of land clearance; 2008: 138; 2009: 74; 2010: 61; 2011: 65; expected: <30. 3.2. Deforestation rates around target villages. Baseline (2006-2010): 1.3%;	3.1. There were 72 incidences of illegal land clearance and hunting around target villages in 2015 (and 108 around non-target villages).

	Expected (2012-2015): 0.65-1%.	3.2. Deforestation rates around the target villages were 0.97% in 2012-2015.
Activity 3.1. Consultations with government agencies and provincial authorities regarding land-use planning decisions, including allocation of lands for largescale economic development within conservation areas.		The Provincial Community Zone Demarcation Committee of the FA have agreed to provisional zoning map produced by the project, a similar response has been obtained from the MoE.
Activity 3.2. Monitoring of forest cover and land-use change by WCS using satellite images.		A GIS unit has been set up and staff are monitoring is conducted quarterly.
Activity 3.3. Monitoring reports used as the basis of further discussion and consultation regarding activities causing deforestation and land-use planning decisions.		SMART reports are being used by managers to target patrols in protected areas.
Output 4. Threatened bird populations increase.	4.1. Number of birds nests protected: 2012: 408; expected 543 (10% increase per annum). 4.2. Number of chicks fledged successfully from protected birds nests: 2012 865; expected 1,151 (10% increase per annum).	4.1 The number of birds nests protected in 2015 was 160. The baseline given in the proposal was an error: as stated in end of Year 1 report, this should be revised to 274. 4.2 The number of chicks fledged in 2015 was 327. The baseline given in the proposal was an error: as stated in the end of Year 1 report the number of fledglings in 2012 was 532.
Activity 4.1. Community birds nest protectors are recruited through village consultation meetings.		65 community members were recruited and trained as birds nest protectors.
Activity 4.2. Community birds nest protectors protect nests of key species and report to birds nest protection coordinator.		The nests of ten Globally Threatened or Near Threatened species were protected by community members.
Activity 4.3. WCS Rangers monitor the results of nests protected by community members.		Two WCS Rangers and one Technical Advisor monitored the results of community nest protection throughout the year.
Output 5. Ibis Rice PES programme is self-financing and sustainable.	5.1. Following the Ibis Rice business plan, Ibis Rice will be financially sustainable when it reaches 600 tonnes purchased per annum (expected by 2015/16): 2011 rice purchase 141 tonnes.	Amount of Ibis Rice paddy purchased in 2015/16 harvest season: 568 tonnes, therefore Ibis Rice almost met the target of 600 tonnes per annum in 2015/16. However, projections now indicate that it will not reach financial sustainability until 700 tonnes per annum are purchased.
Activity 5.1. Marketing activities conducted with potential retailers in Phnom Penh and Siem Reap.		Marketing activities include one-on-one sales calls to hotels, restaurants and retail outlets in Phnom Penh and Siem Reap throughout the year, consultations with international rice buyers and export agencies, re-design of packaging and tasting tests at farmers markets in Phnom Penh.
Activity 5.2. Ibis Rice is sold in more outlets (supermarkets, hotels and restaurants).		The number of outlets for 2016 was 180, up from 157 by the end of 2014, and from 59 in 2013.

Activity 5.3. SMP business plans demonstrate that Ibis Rice has achieved financial sustainability.		A revised SMP business plan produced in 2015 indicates that Ibis Rice is on track to meet the updated schedule for achieving financial sustainability by 2016/17.
Output 6. Impacts of the Ibis Rice PES programme on poverty, land-use trends and threatened species monitored and documented.	6.1. Two peer-reviewed journal articles published in academic journals by WCS, Imperial and RUPP researchers.	Two peer-reviewed journal articles published in academic journals in Year 2.
Activity 6.1. Data on poverty and land-use trends is collected from target villages and appropriate paired control villages, through analysis of satellite images and ground surveys.		Data analysis is underway. Some preliminary results are presented in this report, full results expected in 2016/17.
Activity 6.2. Data regularly synthesised and fed back to project team.		All data collected is regularly synthesised and communicated to project teams.
Activity 6.3. At least two scientific papers written.		Three peer-reviewed journal articles published in academic journals.

Annex 3 Standard Measures

Code	Description	Total	Nationality	Gender	Title or Focus	Language	Comments
Training Measures							
1a	Number of people to submit PhD thesis	1	Canadian	Female	Impacts of Ibis Rice on communities	English	Expected completion 2016/17
1b	Number of PhD qualifications obtained	0					
2	Number of Masters qualifications obtained	2	Cambodian	Male	Impacts of conservation on communities	Khmer	Completed 2014
3	Number of other qualifications obtaine	0					
4a	Number of undergraduate students receiving training	0					
4b	Number of training weeks provided to undergraduate students	0					
4c	Number of postgraduate students receiving training (not 1-3 above)	0					
4d	Number of training weeks for postgraduate students	0					
5	Number of people receiving other forms of long-term (>1yr) training not leading to formal qualification(e.g., not categories 1-4 above)	0					
6a	Number of people receiving other forms of short-term education/training (e.g., not categories 1-5 above)	0					
6b	Number of training weeks not leading to formal qualification	8 students for 8 months	Cambodian	2F, 6M	Impacts of Ibis Rice on communities	English	
7	Number of types of training materials produced for use by	0					

Code	Description	Total	Nationality	Gender	Title or Focus	Language	Comments
	host country(s) (describe training materials)						

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)	8			Management regulations for CPAs	Khmer	Participatory process? YES
10	Number of formal documents produced to assist work related to species identification, classification and recording.	0					
11a	Number of papers published or accepted for publication in peer reviewed journals	3			See Annex 5	English	See Annex 5
11b	Number of papers published or accepted for publication elsewhere	0					Location?
12a	Number of computer-based databases established (containing species/generic information) and handed over to host country	1			SMART Database	English/Khmer	
12b	Number of computer-based databases enhanced (containing species/genetic information) and handed over to host country	0					
13a	Number of species reference collections established and handed over to host country(s)	0					
13b	Number of species reference collections enhanced and handed over to host country(s)	0					

Dissemination Measures	Total	Nationality	Gender	Theme	Language	Comments

14a	Number of conferences/seminars/workshops organised to present/disseminate findings from Darwin project work	0					
14b	Number of conferences/seminars/ workshops attended at which findings from Darwin project work will be presented/ disseminated.	5	Various		Conservation, PA management	English	

Physical Measures		**Total**	**Comments**
20	Estimated value (£s) of physical assets handed over to host country(s)	10,000	Motorbikes, GPS, cameras, etc. All still in use by project staff.
21	Number of permanent educational, training, research facilities or organisation established	0	
22	Number of permanent field plots established	0	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	GBP 600,000					Margaret A. Cargill Foundation, MacArthur Foundation, CEPF, Fundacion Ensemble

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.	
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.	
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.	
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.	
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.	□
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.	
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

Type * (e.g. journals, manual, CDs)	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)
Journal	Clements, T., Seng Suon, Wilkie, D. S. & Milner-Gulland, E. J. (2014) Impacts of Protected Areas on Local Livelihoods in Cambodia	English	English	Male	World Development	http://www.sciencedirect.com/science/article/pii/S0305750X14000746
Journal	Clements, T. & Milner-Gulland, E. J. (2015) Impact of payments for environmental services and protected areas on local livelihoods	English	English	Male	Conservation Biology	https://spiral.imperial.ac.uk/bitstream/10044/1/18451/2/Conservation%20Biology_2014.pdf

	and forest conservation in northern Cambodia.					
Journal	Woodhouse, E., Homewood, K. M., Beauchamp, E., Clements, T., McCabe, J. T., Wilkie, D. & Milner-Gulland, E. J. (2015) Guiding principles for evaluating the impacts of conservation interventions on human well-being.	English	English	Female	Philosophical Transactions of the Royal Society B	http://rstb.royalsocietypublishing.org/content/370/1681/20150103.full
Newsletter	Mould, A. (2015) Ibis Rice.	Scottish	USA	Male	Darwin Newsletter UK	http://www.darwininitiative.org.uk/assets/uploads/2014/05/Trade-and-Biodiveristy-Darwin-Newsletter-March-2015_Final-20th-March.pdf

Annex 6 Darwin Contacts

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