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	20-021
Project Title	Forest Futures: Livelihoods and sustainable forest management in Bolivian Amazon
Host country(ies)	Bolivia
Contract Holder Institution	Royal Botanic Gardens, Kew (RBG Kew)
Partner Institution(s)	Herencia, Cobíja, Bolivia; Museo de História Natural Noel Kempf Mercado (MHNNKM), Santa Cruz, Bolivia; Universidad Amazónica de Pando (UAP), Cobíja, Bolivia
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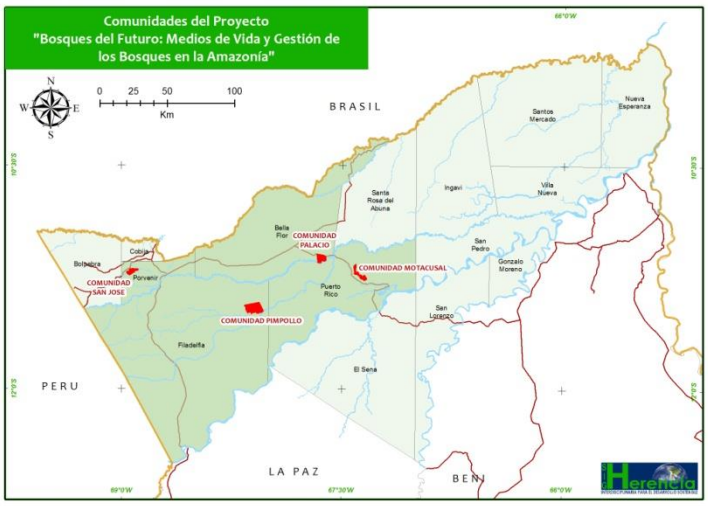
1 Project Rationale

Sixty-nine percent of the forest-dependent population of Bolivia's Pando Department are unable to satisfy their basic needs and 34% live in extreme poverty. The Millennium Development Goals (MDG) for Bolivia and the Bolivian Amazon aim to reduce extreme poverty to 24% by 2015. Immigration to Amazonia, driven by economic, political and environmental factors, has placed increasing pressure on forests (an issue identified through



consultation with community organisations and governmental/ NGO bodies in Bolivia). Pando forests support a large forest-dependent population (40% of the total), are important for biodiversity and ecosystem services and constitute important buffers for the eastern Andean catchments from predicted impacts of climate-change. Forest loss will reduce Bolivia's ability to meet its CBD/MDB obligations and increase vulnerability to climate change among the poor.

Mitigating these challenges, which were identified through consultation with project partners but are also recognised by the Bolivian government demands sustainable practices that reduce forest conversion, coupled with skills and knowledge of forest values for addressing poverty. Based in Cobíja and working with 'agroextractive' forest communities in the Department of Pando, the project aimed to address these priorities in three principal ways:

1: Supporting diversification and expansion of forest product production, aiming to see the number and quantity of traded plant species increased, with improved household incomes and financial stability for harvesters in the long term.

2: Adapting and promoting *Inga* agroforestry techniques, with adoption by four pilot communities and subsequent outreach among forest communities in Pando, to increase capacity of the rural poor to meet their basic needs sustainably. In the long term this is expected to result in reduction in forest conversion through slash-and-burn subsistence agriculture among participating communities, with increased agricultural productivity derived from agroforestry.

3: Raising awareness of biodiversity and ecosystem service values of natural forest (including carbon stock, forest products) amongst rural communities and policy-makers, in parallel with increased awareness of options for sustainable forest management and strategic engagement with regional programmes, aiming to create incentives for reducing deforestation within the region.

2 Project Achievements

2.1 Outcome

Outcome 1, originally focused on developing non-timber forest products, was adapted (in line with community agroforest priorities) to support diversification and production of fruit trees (alteration agreed see Annex 25). This change also reflected the fact that the key partner in this component, Freeworld Trading (responsible for developing new forest products and connecting with the international market), withdrew from the project at an early stage due to strategic/staff changes. To overcome this difficulty, additional funds (innocent foundation) were captured in support of the fruit tree programme, which will run until September 2017. Fruit tree nurseries have been established, and skills built, in six communities, and these are already supplying planting requirements in the agroforest context. As surplus plants becomes available it is hoped that these will generate income through sales, alongside income from fruit sales (e.g. pulp). By virtue of its longer-term land productivity in comparison with slash-and-burn agriculture, this supports the project's overarching sustainable forest management outcome. Alongside this we have continued to explore options for NTFP development (including evaluating the potential of three products), drawing on matching funds secured from the WA Cadbury Charitable Trust, and are working towards a market trial (additional to revised logframe outputs) of wild cacao in 2017 (see Annex 20).

Outcome 2 has been largely achieved: the Inga agroforest system has been successfully adapted for application in the region and agroforest pilot plots have been established in six communities (with an additional fruit tree agroforest plot set up in collaboration with a private

landowner) – see Annex 24. Whilst it was originally expected, on the basis of experience in Peru, that these could become productive by the end of the project, this was not possible due to delays caused by various factors outside of the project's control (drought, flooding, staff illness, and absence of community members at critical points due to Brazil nut harvest), coupled with a community-driven shift towards using the agroforest plots for fruit tree production which takes longer to mature. However, it is expected that the systems will become productive over 2017, and will begin to meet the projected outcome targets for household food production as well as income. Our success in capturing funds to continue operating in the area for another year will help to support this process.

Uptake by the communities has been variable. In one (San José – the closest to the city of Cobíja), the site made available for the plot was heavily compacted, with very poor soil. Whilst this was good for establishing the tolerance of agroforest systems in the region it resulted in slow growth of the Inga trees, and the developing socio-economic context of the community has weighed against engagement (see Annex 16 – summary report) with community members seeking employment in the nearby town. At Motacusal the community has very successfully established in a 1 hectare plot, and despite current diversion of the community adults into employment on road construction which has been making engagement and follow-up challenging (though crops were planted in October), once the road-building programme is complete the plots fruit trees should be reaching maturity. Palacios, which is subject to periodic flooding, has also managed to establish and maintain a very successful agroforest plot and the other three communities which came on board mid-way through the project are making good progress. Continued commitment by the communities was identified as an assumption in the logframe and it is probably the project's greatest success that this was maintained at a time of great socioeconomic change, floods and drought in the Pando. We recognise that wider uptake of the system will require demonstrable, tangible benefits for the communities, and that this is a long-term process that requires nurturing. Our partner Herencia is currently fund-raising for a follow-on programme.

Outcome 3 (awareness of incentives for sustainable forest management and ecosystem services) has been achieved through a combination of research, educational activities and communication, including engagement with regional and national/trans-border policy initiatives. However, we have only been able to measure the uptake quantitatively within the forest communities with whom we have been working (see Annex 8), and this process has not been straightforward due to staff retention issues which not only precipitated delays but also raised methodological problems on account of the sampling strategies used.

Outcome: Sustainable forest management developed and practised in four pilot communities in Pando, Bolivia including: 1) diversification of forest products; 2) agroforestry adapted to regional socio-economic context, contributing directly to poverty alleviation and biodiversity conservation; 3) understanding of economic incentives for sustainable forest management and maintenance of ecosystem service values increased at a range of decision-making levels from community to governmental.

	Baseline	Change by 2016	Source of evidence	Comments
0.1. Diversity of forest products in production, and capacity for production, increased in six forest communities by year 3.	Forest communities harvesting Brazil nuts	Capacity for fruit tree production increased in six communities. Capacity for wild chocolate production increased in one community.	Annex 17-21	Desk and field studies conducted; fruit tree production developed; cacao market trial under development
0.2. Enhanced agricultural output in 4 pilot communities using Inga agroforestry systems adapted to the region, with proportion of basic food needs met by agroforestry increasing to 15% (from nil) by year 4 among 48 households.	0	Capacity for agroforest output increased in six communities through agroforest plots; however none of these plots have yet become productive and contributing to basic food needs.	Annex 13-16, Annex 23-24	8ha pilot agroforest established in 6 communities with capacity building and methods manual Baseline data for income and food production captured and monitored (Annex 8)
0.3. Awareness of forest ecosystem services values and sustainable forest management opportunities and incentives increased at, community, school, NTFP harvester and regional decision-making levels by y3.	See notes	Awareness has been increased through educational and project activities, publications and workshops including regional decision-makers.	Annex 7, Annex 9, Annex 11, Annex 12, Annex 22, Annex 23	We have experienced difficulties with the M&E of awareness (baseline) due to staff changes at Herencia

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

Locally viable sustainable forest management systems are adopted by the expanding rural population of the northern Bolivian Amazon contributing to poverty alleviation, maintenance of forest ecosystem services and biodiversity conservation

The project has made significant progress towards adapting and securing the adoption of viable, sustainable forest management in the communities with which it has worked. At present there is no measurable evidence that this has yet had a wider impact (uptake beyond the target communities) but, as explained above, agroforest systems and fruit trees take time to reach full productivity. The relatively small scale of the community pilot projects, coupled with this time-lag, means that the project has not yet achieved measurable impact on poverty, maintenance of forest ecosystem services, or biodiversity conservation. However, this was explicitly recognised as a long-term process in the proposal and we believe that it will do so in the future, and that the project represent a valuable investment in a much wider process of achieving these aims.

2.3 Outputs

Whilst we have delivered all outputs successfully, there have been inevitable challenges along the way. These are discussed in more detail in Section 5.

Output 1:	Increased diversity of forest products in Pando, supported by locally adapted information resources and delivery mechanisms, promoting sustainable forest management practice.			
Indicator	**Baseline**	**Change recorded by 2016**	**Source of evidence**	**Comment**
1.1 Two NTFPs not currently traded from the Pando have been tested for viability (Yr 4).	0	One NTFP (wild cacao) surveyed, tested and proceeding to market trial. Desk viability studies conducted for wild rubber and asaí.	Annex 20-21	
1.2. Awareness of ecosystem and biodiversity values of local Amazonian forest increased among local farming and NTFP harvesting households, school children and local decision makers.	0 communities	Awareness has been raised in pilot 3 communities through educational activities, and more widely though published outputs, workshops, talks.	Educational activity reports (Annex 9), monitoring survey results (Annex 8)	Difficulties with the M&E process have made it hard to assess change in awareness accurately.
1.3. Capacity for production of Amazonian fruit trees for integration in agroforestry and trade increased in six forest communities.	0 communities	6 communities with nurseries and capacity building exercised	Community planning and engagement reports & surveys (Annex 7), nursery and training reports (Annex 18-19), interviews (Annex 16); manual (Annex 23)	
Output 2:	Four community agroforestry pilot projects established, supported by technical research, generating increased uptake and agricultural output from locally appropriate systems promoting livelihoods and biodiversity.		Output 2 indicators are met on the revised logframe. Monitoring forest cover was curtailed because of staff cuts at partner Herencia.	
Indicator	**Baseline**	**Change recorded by 2016**	**Source of evidence**	**Comment**
2.1: Number of families incorporating *Inga* agroforestry	0 families	Currently work with 65 participating	Community planning and engagement	.

strategies on their land increases from 0 to 48 (Yr 3)		families / households.	reports & surveys (Annex 7-8)	
2.2: Area of agroforestry in pilot communities increased from 0ha to 8ha by Yr 3 and the number of participating communities increase from 4 to 6 during the course of the project (Yr 3)	0 ha, 0 communities	We currently have 8ha of agroforest plots and a commitment for an additional 3 ha. We have signed agreements with six communities.	Community planning and engagement reports & surveys (Annex 7); consultant report (Annex 16)	
2.3: Surface area of *Inga* agroforestry in Bolivian Pando increases from current area of 0 ha to 8ha. (Yr 3).	0 ha	We have increased to 8ha.	Community planning and engagement reports & surveys (Annex 7-8)	
2.4: Agroforestry system successfully adapted and at least 6 families in each of 4 communities trained in management and monitoring. (Yr 2)	0 families	Currently we are working with 65 families. All communities have received training in management and monitoring.	Community planning and engagement reports & surveys (Annex 7-8); training reports (Annex 15); videos (Annex 14)	
Output 3:	3: Knowledge of ecosystem services, biodiversity and associated values in Pando forests increased through six permanent survey plots, including species diversity, carbon stocks and provisioning services (useful and marketable plants).			
Indicator	**Baseline**	**Change recorded by 2016**	**Source of evidence**	**Comment**
3.1 Value of forest ecosystem services (carbon, NTFP, timber) from plot survey and appropriate metric communicated to Local Government, local families, schools, NGOs and media through printed, online and oral media. (Yr 4)	0 plots survey plots established = no evidence	Data from six 1 ha permanent survey plots have been analysed and disseminated, with scientific collections/data lodged in Bolivian institutions	Data and reports (Annex 10); Peer reviewed publications, posters, presentations (Annex 11); online media and publications (Annex 12, Annex 23); education activities (Annex 9); Cobíja workshop (Annex 26)	Data from NTFP survey in publication process

3.2. Value of biodiversity of local forests to regional and global conservation plans communicated to Local Government, local families, schools, NGOs and media through printed, online and oral media as appropriate. (Yr 2, 3)		Knowledge, drawing on results from 3.1, available through a range of media and activities.	See Activity 3.1	
Output 4:	Awareness of ecosystem and biodiversity values of local Amazonian forest increased among local farming and NTFP harvesting households, school children and local decision makers.			
Indicator	**Baseline**	**Change recorded by 2016**	**Source of evidence**	**Comment**
4.1 Poverty and environmental sustainability indicators incorporated into the new Sustainable Development Objectives (ODS) which replaces the ODM (Yr 4)	In development	Juan Fernando Reyes ongoing participation through MAP	Annex 22	
4.2. Educational programmes promoting understanding of ecosystem service and biodiversity value of natural forest included in school activities. (Yr 2, 3)	Herencia's BONI programme was working with environmental education with schools	BONI educational programme strengthened by specific activities delivered by project	Annex 9	BONI (Bosque de Los Niños) engages children in forest management and learning

3 Project Partnerships

All partners were engaged in the original project planning and decision-making. The principal Bolivian partner, Herencia, is a Bolivian NGO with a strong track record delivering sustainable development projects in Amazonian Bolivia and Peru since 1997. Development of the project was based on local demands identified by Herencia, which was responsible for delivering the agroforestry, community engagement, livelihoods and schools components of the project. Herencia had existing collaborative relationships with the other Bolivian partners MNHNKM and UAP, which the project worked to strengthen.

Our collaboration has functioned effectively on the whole, although there have been substantial delays in delivery of activities and outputs, partly due to staff changes at Herencia and the need to recruit new individuals. This was particularly the case for the environmental education and monitoring components, which saw three staff changes during the project. When the project was established Herencia employed over 30 staff with several projects but a political crackdown on NGOs in Bolivia has made access to funds progressively more difficult, and by the middle of our project, Forest Futures was Herencia's only ongoing initiative (it now employs only five staff). This has had a negative impact on the partnership, reducing support facilities and, increasing the focus on seeking new funding sources, distracting resources from the day-to day management of project staff and supervision of outcomes.

The role of Museo de História Natural Noel Kempf Mercado (MHNNKM) was principally to undertake the biodiversity and carbon research in collaboration with Kew staff, although they later took a leading role in production of the text for the fruit tree manual. MHNNKM has substantial experience working on the establishment/survey of forest plots in the Bolivian Amazon (RAINFOR); RBG Kew took the initiative to propose the Forest Futures project but the idea of a joint project in the Bolivian Amazon stems from priorities identified by MHNNKM during a scoping visit with Kew staff in 2010. The partnership worked successfully, though it did face challenges of regular changes in University regulations and procedures, including a new requirement for 10% administrative costs on all project expenditure, and yearly contractual changes for contract staff. Throughout the project we were faced with the challenge that staff were only employed on one year contracts, and that contracts took four months be renewed every year despite the fact the funds were in the budget for all three years. This meant that Bolivian project staff were only paid in May for work carried out from January until April. We also faced delays in obtaining research permits, partly due to changes in protocol, which meant that UK botanical staff were not able to collect specimens until the beginning of 2014.

Freeworld Trading is a UK-based commodities trading company specialising in food products. This partner was primarily responsible for the forest product component of the project. However, following staff changes which meant the loss of the individual assigned to the project, FWT withdrew from the project. This created substantial difficulties, particularly since FWT's input was all in-kind, so there were no resources to reallocate. These problems were reported to the Darwin Commission, and we worked hard to resolve them through development of complementary funded activities to fill the gap.

Universidad Amazónica de Pando (UAP) was expected, based on commitments prior to the project launch, to collaborate principally on agroforest trials. We decided not to pursue this partnership further after repeated attempts to develop collaborative research at the university field site outside Cobíja failed to result in action. The partner did, however, provide two thesis students for the Biodiversity and Ecosystem Services component, and the Herbarium at UAP received a duplicate set of collections made by the project. However, regular contact was established with the environmental course at UAP and Herencia. This resulted in a lecture about the project given at the University; and in August 2014 Herencia hosted a joint two-day

workshop themed “the importance of the Amazon for the equilibrium of Earth” in the Palacios community, in which 60 UAP students and university teachers participated.

We are continuing to work with Herencia on the delivery of the final year of our fruit tree programme. We are now engaged with MHNNKM in other projects and project proposals; this project has strengthened our working relationship.

4 Contribution to Darwin Initiative Programme Outputs

4.1 Contribution to SDGs

The project was relevant to, and contributed to, Bolivia’s progress towards the following SDGs:

Goal 1: End poverty in all its forms everywhere

The project has supported the development of production systems with the potential to increase household income among poor forest communities in Pando.

Goal 2: End hunger, achieve food security and improved nutrition and promote sustainable agriculture

The project has supported the development of sustainable agriculture (agroforest) systems in Pando with the potential to increase food security.

Goal 15: Sustainably manage forests, combat desertification, halt and reverse land degradation, halt biodiversity loss

The project has supported the development of sustainable forest management practice in Pando with the potential to reduce biodiversity loss caused by forest conversion.

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

The project was relevant to, and contributed to, Bolivia’s progress towards the following CBD objectives: 8. **In-situ Conservation** [promoting non-destructive forest management systems]; 10. **Sustainable Use of Biodiversity** [promoting sustainable forest product development]; 12. **Research and Training** [building knowledge of forest biodiversity and ecosystem services, and in-country research capacity]; 13. **Public Education and Awareness** [developing education and outreach programmes], 16. **Access to and Transfer of technology** [emerging agroforestry systems]; 17. **Exchange of Information** and 18. **Technical and Scientific cooperation.**

4.3 Project support to poverty alleviation

The project contributed to human development at a range of scales through its education, training and capacity building activities (e.g. community members, students), and by establishing relevant technologies (e.g. agroforest systems, fruit tree production, cacao processing) that strengthen the capacity of forest communities (currently 48 families) to improve household income, food security and sustainable forest management. These advances are expected to begin to yield tangible poverty benefits within the near future. In the longer term the benefits from these technologies are expected to expand to other communities in the region. The project was designed to ensure that benefits are shared by men, women and children.

4.4 Gender equality

The project, while not specifically addressing gender issues, actively engaged women in all training and outreach activities. In the context of the community agroforest component we worked with a total of 78 households (65 remaining active at the time of this report)

comprising 201 men and 198 women. We monitored gender-balance on our training courses and workshops. 38% of the 73 participants in our fruit tree propagation training course were women, 50% of the 39 participants in our agroforest workshop were women, and 50% of the six participants in the 2016 Peru exchange visit were women (see Annex 15).

Participants in the project

Community	Families	Men	Women
Motacusal	12	37	26
Palacio	10	24	18
San José	13	32	32
Jericó	13	30	34
Remanzo	15	38	49
Monte Sinaí	15	40	39
TOTALS	**78**	**201**	**198**

4.5 Programme indicators

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

  The project worked with communities who already have responsibility for management of the biodiversity in their land allocations. Our community planning exercises, and resultant management plans, strengthened this process.

- *Were any management plans for biodiversity developed?*

  Management plans were developed for all the communities integrated by the project (see Annex 7.

- *Were these formally accepted?*

  The plans were formally accepted. Plans for the three 'new' communities integrated by the project in 2015 were signed during the agroforest training workshop held in early October 2016 (Annex 24 photos).

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

  These plans were developed through a participatory process that included women.

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

  No measurable increase in household income can yet be attributed directly to the project. These are expected in the future.

4.6 Transfer of knowledge

The project has worked to transfer knowledge (including knowledge of agroforest techniques, biodiversity and ecosystem services generated in the course of the project) to practitioners through direct engagement (see Annex 15, 18), print and publications (see Annex 11, 23), and digital media (see Annex 12). We have also engaged with international programmes (see Annex 22) and local policy makers (see Annex 25) to transfer knowledge gained by the project in support of decision-making relating to forest management and poverty alleviation. In

September we presented outcomes of the project, including copies of the Inga agroforest, at the Ministry of the Environment and Water in La Paz.

- *How many people achieved formal qualifications?*

  One MSc student, two Lic. Biol. students gained formal qualifications.

- *Were they from developing countries or developed countries?*

  MSc student UK-based, Lic. Biol. students based at Universidad Amazónica de Pando in Cobíja, Bolivia.

- *What gender were they?*

  Two female and one male.

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?

One staff member of MHNNKM (Alejandro Araujo Murakami – responsible for the forest inventory component) was promoted to the post of Curator of the MHNNKM Herbarium during the course of the project.

ii. What gender were they?

Male

4.8 Sustainability and Legacy

The profile of the project has been promoted within Bolivia through a combination of media, meetings and events (see Annex 11, 12, 26)). We gained evidence of increasing local interest through the successful engagement of new communities in the programme, and through interest expressed by Autoridad Plurinacional Madre Terra (to whom we presented the project in early 2016). Also, we have been approached by NGO Arbolivia with regards to the possibility of implementing our approach elsewhere in the country.

We expect levels of interest to continue to gain momentum. The agroforest programme stands to endure, and to increase its impact progressively, so long as it can reach the stage where the benefits felt by the participating (and observing) communities can be shown to justify the investment of time and resources required to establish the system. However the level of interest shown in the system, and demand for the methodology manual (which itself represents an enduring legacy supporting this process) indicates that this has a strong chance of long-term impact.

The fact that not all components have stable endpoints was recognised in the original project proposal. Working to influence sustained change in land-use practices is a complex process that requires strong, convincing evidence coupled with positive engagement and sustained support. Our approach to achieving this in the communities with which we are working has been through integration of project activities within a structure (BONI) that is integrated into community statutes. However, this is a time-consuming process and the current lack of a clear future for the BONI programme through Herencia has not helped. Nevertheless, our investment in supporting community development planning within the three additional communities integrated into the project has helped to achieve sustainable outcomes. Meanwhile, thanks to counterpart funds captured by the project, we will be in a position to

provide ongoing support to project activities (for a further 12 months beyond the end of Darwin funding).

In the context of wild cacao production, if the trial proves positive we still hope to be able to leave a sustainable legacy of a direct trade connection between forest communities and a UK producer, which is in line with our original strategy prior to revising the logframe. Failing this, the fact that the increased capacity for fruit tree production (not originally envisaged) is directly linked with agroforest development has the potential to enhance the sustainability of both elements.

Herencia project staff have been retained for delivery of the fruit tree programme that runs until September 2017. After funds have been exhausted, this may require redundancy. This is entirely dependent on whether or not Herencia is able to capture further funding to continue to develop the agroforest programme. Funding applications have been submitted to do this, in tandem with the delivery of an expanded *Bosque de los Niños* programme, the results of which are pending.

5 Lessons learned

The rationale behind the project, and our analysis of the problems, was sound and remains valid. We found the clear allocation of different technical areas to partner organisations worked well, coupled with over-arching processes and communication addressing project planning and delivery jointly. Working through Herencia's established relationships with forest communities was an effective way to engage stakeholders rapidly and build confidence.

Nevertheless, many of the variables determining the success or otherwise of our project have not been under our control. For example, rural communities in the Pando are being buffeted by a number of socioeconomic forces: extensive oil exploration SINOPEC in the east of our study area and by a large road building programme in the centre. This has generated extensive paid employment for community members, taking them out of their communities and making them less dependent on subsistence farming. This has somewhat reduced the value of our project in their eyes, at least temporarily. This makes it all the more important that projects are closely integrated and connected to the communities that they work with: something that we have been able to do through our association with Herencia and the integration of our work plan into the community's development plans.

Being an NGO in Bolivia (and seen as a source of political dissent and foreign intervention) is increasingly difficult; USAID has been expelled and most national aid agencies (e.g. NORAID) have withdrawn from the country. In addition national NGOs have been targeted through aggressive bureaucratic requirements on registration and financial controls. The fact that Herencia has survived and was able to participate fully in the project should be seen as evidence of strong and committed partnership. When the project was first proposed in 2010 Herencia had over 40 staff and received funds from USAID and NORAID. Since that time both agencies have withdrawn or been expelled and few international donors are prepared to fund projects in Bolivia leading to the further isolation and vulnerability of national NGOs. The impact of this on Herencia has been severe, with only this project and the innocent foundation funds that we obtained supporting the NGO. This is not a healthy situation, and whether or not it could have been foreseen in 2012 is doubtful, although by 2013 it was becoming apparent.

We have learned the hazards of placing too much reliance on estimates of costs and in-kind contributions provided by project partners in the planning stage. For example, our partnership with Freeworld Trading (a private company), based entirely on in-kind inputs motivated by trade benefits, left no funds for reallocation to other partners following their withdrawal. This left us with two options: to abandon Output 1 or to seek creative solutions with additional

fundraising efforts. In retrospect, in spite of the considerable added value this collaboration appeared to offer, it might have been better to reduce our expectations and work only with the funds available from the Darwin Initiative.

Whilst we were successful in filling the gap, this was not without its own challenges as the project reviewer repeatedly requested greater clarity of the boundaries between Darwin-funded activities and those supported by matching funds. This is easily traceable financially, but operationally we had to consider them as a whole since the complementary (or supplementary) activities had specifically been designed to allow us to deliver the project outcome as originally defined, in the face of funding shortfalls. We believe that our success with the latter approach was made easier on account of the Darwin funding in place, and that similar efforts (ideally opportunity- rather than problem-driven) could be made with other projects, to the benefit of outcomes.

Also, whilst our estimates of partner costs were based on detailed discussion, in some cases (e.g. with MHNNKM administrative charges), where these proved to have been underestimated, budgetary challenges were created that could perhaps have been addressed by incorporating a contingency percentage into all such costs.

In the context of MHNNKM, it was not made clear to us at the outset that the staff to be engaged on the project were effectively on zero-hours contracts, which meant that it was difficult for them to remain engaged beyond their periods of employment through the Museum (e.g. for ongoing input into publications) when the work programme was delayed by illness. As a result we needed to extend contracts with matching funds to ensure delivery.

The project would have been easier and more effective to run if we had been able to employ a Kew staff-member full-time in Bolivia to oversee its delivery. However, wage differentials and budgeting constraints did not make this possible. The challenge was that local staff employed specifically for the project through Herencia were inevitably drawn into other institutional day-to-day activities once their other projects dried up (see Section 3). Ensuring effective and timely reporting from these staff, in between visits from UK staff, was challenging and time-consuming. We found that for the few months when we were able to engage a UK intern on-site in Bolivia, reporting directly on project progress and issues, management was considerably easier and more effective. This may be an approach to replicate.

We were able to employ appropriate expertise on the project, though we did meet challenges in maintaining staff at Herencia. This is a common problem with project developed in regions with limited availability of sufficiently well-trained technical staff, and limited infrastructure. There is a risk that well-qualified staff recruited from outside the region, and with little understanding of the reality of life in less developed parts of the country, become demotivated and return to whence they came. This emphasises the importance of incorporating capacity building for local staff into project activities which, for example, we arranged for the staff member employed by Herencia to manage the fruit tree component.

Timing of projects that depend on the growth of trees (even fast-growing ones such as *Inga edulis*) is critical within the 3-year Darwin project cycle. Disruptions to the project schedule (e.g. such as those we experienced with floods and drought) can have a significant knock-on effect on project outcomes. Thus, whilst theoretically the agroforest systems could have been delivering tangible livelihood benefits by the end of the project, this proved not to be possible. Our success in capturing funds that allow us to extend support for these activities for a further year has thus proved critical in helping to ensure those outcomes. Nevertheless, maintaining community interest and commitment in such a scheme (requiring long-term input before providing the expected benefits) is a challenging task requiring regular contact. We found that

the visits we arranged to Peru, where community representatives could see productive, mature agroforest systems, were tremendously important in this context.

5.1 Monitoring and evaluation

The only significant change to project design was the incorporation of fruit tree production as an output, and the removal of market trials for non-timber forest products following the withdrawal of Freeworld Trading from the project (see Annex 25 for Darwin change form). Also, towards the beginning of the project we received authorisation to adjust our Kew staff inputs (at no additional cost) to incorporate some part-time administrative/monitoring support for the project. This proved beneficial while it lasted, but was necessarily terminated at the end of 2014 due to a full science staff restructure at Kew. This restructure, with reallocated responsibilities and objectives for every staff member assigned to the project, brought wider challenges for project delivery over the following two years, again emphasising the potential benefit (where funds permit) of using contracted UK staff who are not subject to such disruption.

We had some difficulties with our community-focused M&E process due to staff turnover at Herencia, as a result of which we were not able to collect reliable baseline data in 2014. However, we were able to gather more reliable data in 2015 and 2016, and are in a stronger position to ensure that follow-up work (to September 2017) will continue to address community expectations effectively and fill identified knowledge gaps.

There has been no independent evaluation of the project during the lifetime of the project other than that provided by the Darwin Initiative. However, the M&E process administered by the Darwin Initiative has been a useful process that has helped to guide project development and support adaptive management.

5.2 Actions taken in response to annual report reviews

We responded to all issues raised in annual reports. With regards to outstanding issues, comments for the project leader from the last report (April 2016) included:

- *Overall this project is promising, and shows great potential to make a positive contribution to sustainable forest management development in four pilot communities in Pando Bolivia. The project should be commended for exceeding expectations within output 2. Further, it has already completed multiple activities under outputs 2 and 3. This being said… the project is behind on output 1 despite its best efforts to get the output back on track. These were largely factors beyond the projects control. The project might wish to consider demonstrating more SMART (specific, measureable, achievable, realistic, and timely) alternative indicators by which to gauge the project's success should the indicators currently being used in the logframe be rendered inappropriate.*

  We have managed to develop Output 1 in line with indicators in spite of impediments. In addition to establishing the fruit tree programme we are set to achieve one additional output (market testing of wild cacao/chocolate) which was dropped from the logframe when our key partner withdrew. We agree that, in the process of altering the logframe, we could have placed more focus on updating the SMART indicators, but following the above suggestion we did not consider it appropriate to make additional changes at such a late stage (with 6 months to run).

- *When presenting evidence within activities and outputs, it would be good if the project could clearly state where it thinks it has met the indicators associated to these in the text as well as the logframe.*

  We have addressed this in the current report.

- *Are you able to build in alternative indicators for the success of the project to run alongside those that formulate output 4? If the project is unable to judge its success on a measureable indicator, the reviewer*

cannot deem the output to have been fully met. This may have an impact on final review scores if not addressed.

We did not consider the indicators to require adjustment. Regarding Indicator 4.1, this is an ongoing process which our partners Herencia are engaged in through Amazon Solutions Lab http://www.sdsn-amazonia.org/en-solution-lab revising indicators 9, 15, 13 and 17. This year the programme has been focused on 15 and 12, with a meeting held in May http://www.sdsn-amazonia.org/single-post/2016/05/16/Grupo-de-Trabajo-SDSNAmazonia-inicia-sus-actividades. As an iterative, collaborative process this is not fully under the control of the project; it was originally expected that the programme would be complete by September 2016 but work is ongoing. Regarding Indicator 4.2, this work is evidenced in Annex 9 and Annex 23. The wider Bosques de Los Niños (BONI) programme within which context we were originally planning to develop these activities has been on hold due to funding issues (currently Herencia only has resources to work in the Palacios community), so we were obliged to deliver educational activities independently. Indicator 4.3 (reduced forest clearance) was, on agreement, dropped from the logframe as Herencia lost its GIS capacity.

- *In order to demonstrate a full understanding of risks presented (e.g. those surrounding output 1), potential mitigating actions and impacts on the project, a risk assessment could be included as evidence, detailing the projects decision process and actions taken to mitigate problem areas.*

Assumption	**Problem encountered**	**Adaptive solution**
1. Of the potential species selected for initial market testing (*Plukenetia volubilis*, *Bertholletia excelsa* shells, wild *Euterpe* sp., wild *Theobroma cacao*) two will be successful or substitutable by successful alternatives.	Key project partner withdrew, reducing capacity for analysis and market testing.	Additional funds raised and focus of this component realigned to fruit tree production. Wild cacao options and feasibility explored independently, and UK trading partner identified. Analysis of Euterpe undertaken through innocent foundation internship.
Functional trade links in the edible NTFP market are maintained between the EU market and Bolivian Amazon processors, wholesalers and cooperatives.	Whilst trading links remain feasible, our principal avenue for engagement (FWT) was lost).	Product trial established with Chocolution for wild cacao; direct engagement established with other Bolivian wild cacao trade organisation.

- *The project has been significantly hampered by turnover of staff at Herencia. Are there any key lessons that can be shared surrounding this point?*

  See above.

- *More information could be given surrounding stakeholders. Moreover, the project could highlight individual cases as evidence rather than just referencing 6 communities.*

  Detailed information on the stakeholder communities is provided in the monitoring reports (Annex 8) and in the community plans (Annex 7). Individual cases are highlighted in the interview summaries in Annex 17.

- *It would be useful for the project to give more guidance on when it believes outputs will be completed, and what proportion of outputs will not be completed by the end of its Darwin funding if any.*

  The outputs have been completed, though activities are continuing towards achievement of the project outcome.

- *The project has signed agreements and developed management plans with an additional three communities, Jerico, Monte Sinai and Remanzo bringing an additional three community partners into the project. It would be useful to elaborate on the implications of this, and where taking on these communities helps the project to meet activities and outputs, relating this to specific indicators. It would also be interesting to compare these to the communities already involved in the project, and discuss areas of similarities and differences, and areas in which communities can collaborate if any.*

  The additional three communities brought the total with whom we were working (following the withdrawal of one community early in the project due to leadership changes) from three to six, thus meeting (and exceeding) the Output 4 indicator of four engaged communities. The three 'new' communities expand the geographical spread on the project. However, we have brought representatives of all communities together (e.g. through training programmes) in order to build collaboration and interchange between them.

- *It would be useful for the project to reflect on the audiences they have been able to reach through publicity and dissemination, particularly if there have been any unexpected areas of strong or unexpected engagement.*

  Our audiences have primarily been local ones in Pando, where their impact is likely to be greatest until more measurable livelihood outcomes are available and can begin to influence policy and practice more widely. We have achieved unexpected levels of exposure, including of our technical outputs, through the Herencia Facebook page – much more so than through institutional web pages. For example (see Annex 12), between April and September 2016 there were over 16,000 page views, with almost 5,000 for the post on the fruit tree publication alone. Researchgate has also proved an effective tool for dissemination of project publications in the wider context, with 1,081 and 220 'reads' for the fruit tree and agroforest manuals respectively since October.

  We have discussed the reviews with our partners and collaborators throughout the project and used them for the purpose of six-monthly project planning.

6 Darwin identity

We have used the Darwin logo on all publications produced by the project as well as on websites and the project vehicle (see Annex 24). Darwin Initiative funding, attributed as UK government support, has been acknowledged wherever possible in all talks, events, workshops and media items. The project has been recognised as distinct, and whilst we have raised additional funds for specific initiatives (e.g. the fruit tree work supported by the innocent foundation), these have continued to be identified under the Darwin Forest Futures 'banner'. Beyond the organisations and communities we have interacted with through the project, who are now all aware of the programme, we cannot comment on the level of understanding of the Darwin Initiative within Bolivia. Our project blogs are tagged to the Darwin Initiative, and although we did not have a project Twitter account, tweets relating to project activities have been linked to the Darwin account and in several cases retweeted from there.

7 Finance and administration

7.1 Project expenditure

Project spend (indicative) since last annual report	2016/17 Grant (£)	2016/17 Total actual Darwin Costs (£)	Variance %	Comments (please explain significant variances)
Staff costs (see below)			-0.4	
Consultancy costs			51.5	Different consultant contracted in Bolivia
Overhead Costs			0	
Travel and subsistence			3.9	
Operating Costs			-9.9	
Capital items (see below)				
Others (see below)			0	
TOTAL	38970	38970		

Staff employed (Name and position)	Cost (£)
William Milliken (project director)	
Bente Klitgaard (component manager)	
Alex Monro (component manager)	
Curation Staff Band D naming	
Juan Fernando Reyes (Bolivia Director)	
Rolman Velarde (Agroforest Extension)	
Sissy Bello (Monitoring & Evaluation)	
Victor Soruco (Nursery Extension &)	
TOTAL	22458

Capital items – description	Capital items – cost (£)
TOTAL	0

Other items – description	Other items – cost (£)
Website maintenance (contracted Bolivia)	
TOTAL	200

7.2 Additional funds or in-kind contributions secured

Source of funding for project lifetime	Total (£)
innocent foundation	
WA Cadbury Charitable Trust	
Bentham Moxon Trust	
Kew Foundation (application stage)	
British Ecological Society	
Royal Botanic Gardens, Kew (including in-kind costs)	
TOTAL	**303,667**

Source of funding for additional work after project lifetime	Total (£)
innocent foundation	
TOTAL	**30,000**

7.3 Value for Money

The project has delivered value for money through implementation of prudent budgeting and careful financial control. We have sought to find cost-effective solutions to financial problems as they occur. For example, in the case of travel costs, when it became clear that Herencia's vehicle was not serviceable, and the only alternative was very expensive hire which would make a very large hole in the budget over the project lifetime, we purchased a vehicle for the project with part of Kew's matching funds.

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: Effective contribution in support of the implementation of the objectives of the Convention on Biological Diversity (CBD), the Convention on Trade in Endangered Species (CITES), and the Convention on the Conservation of Migratory Species (CMS), as well as related targets set by countries rich in biodiversity but constrained in resources.			
Sub-Goal/IMPACT: Locally viable sustainable forest management systems are adopted by the expanding rural population of the northern Bolivian Amazon contributing to poverty alleviation, maintenance of forest ecosystem services and biodiversity conservation			
Purpose/OUTCOME Sustainable forest management developed and practised in four pilot communities in Pando, Bolivia including: 1) diversification of forest products; 2) agroforestry adapted to regional socio-economic context, contributing directly to poverty alleviation and biodiversity conservation; 3) understanding of economic incentives for sustainable forest management and maintenance of ecosystem service values increased at a range of decision-making levels from community to governmental.	1. Diversity of forest products in production, and capacity for production, increased in six forest communities by year 3. 2. Enhanced agricultural output in 4 pilot communities using Inga agroforestry systems adapted to the region, with proportion of basic food needs met by agroforestry increasing to 15% (from nil) by year 4 among 48 households. 3. Awareness of forest ecosystem services values and sustainable forest management opportunities and incentives increased at, community, school, NTFP harvester and regional decision-making levels by year 3.	1. Pilot community annual collection and trade records. Baseline data on agricultural output submitted as part of first Half Year Report. 2. Annual yield records from pilot agroforestry plots maintained by agriculture extension workers, school children, teachers, men and women in the four pilot communities. Households interviewed to establish the proportion of basic food needs met by their community agroforestry plots. 3. Baseline data and results of annual monitoring of awareness of ecosystem value of forest collected through value/culture surveys of communities and their leaders,	1. Pilot communities remain committed to sustainable forest management; micro-level (community-based) results influence macro-level (municipal/regional) strategies and decision-making. Risk minimised by focus on short-term delivery of benefits within a long-term strategy supporting regional coordination and cooperation, and multi-stakeholder engagement throughout the project life cycle. 2. Options and market demand remain in place for available forest products; resources available in commercially viable quantities for sustainable management; products meet standards for local/international markets. Risk will be minimized through diversification of NTFP options.

		schools and regional decision-makers.	3. Land ownership system and political context continue to allow forest product extraction and agroforestry by communities. Maintaining an open dialogue with regional policy and decision makers throughout the project will help minimize this risk.
Outputs (add or delete rows as necessary) 1: Increased diversity of forest products in Pando, supported by locally adapted information resources and delivery mechanisms, promoting sustainable forest management practice.	1 Two NTFPs not currently traded from the Pando have been tested for viability (Yr 4). 2. Awareness of ecosystem and biodiversity values of local Amazonian forest increased among local farming and NTFP harvesting households, school children and local decision makers. 3. Capacity for production of Amazonian fruit trees for integration in agroforestry and trade increased in six forest communities.	1.1. Evaluation reports from trials and analyses submitted Y3 & final reports 1.2 'One-stop guide' to fruit trees (sample and distribution records sent with Final Report); community survey data (knowledge/ awareness). 1.3 Fruit tree nursery production figures; training & capacity building records; community survey data	1. Of the potential species selected for initial market testing (*Plukenetia volubilis*, *Bertholletia excelsa* shells*,* wild *Euterpe* sp*,* wild *Theobroma cacao*) two will be successful or substitutable by successful alternatives. 2. Functional trade links in the edible NTFP market are maintained between the EU market and Bolivian Amazon processors, wholesalers and cooperatives.
2: Four community agroforestry pilot projects established, supported by technical research, generating increased uptake and agricultural output from locally appropriate systems promoting livelihoods and biodiversity.	1 Number of families incorporating *Inga* agroforestry strategies on their land increases from 0 to 48. (Yr 3) 2 Area of agroforestry in pilot communities increased from 0ha to 8ha by Yr 3 and the number of participating communities increase from 4 to 6 during the course of the project (Yr 3) 3. Surface area of *Inga* agroforestry in Bolivian Pando increases from current area of 0ha to 8ha. (Yr 3)	2.1. Annual yield from demonstration *Inga* agroforestry plots documented and submitted as part of Annual and Final Reports. 2.2. Mapping and quantification of *Inga* agroforestry, non-productive disturbed vegetation (e.g. degraded pasture) and natural forest using remote sensed data. Documented in a peer-reviewed publication, Annual Reports, local workshops and schools programme by Year 3.	1. There remains a need/demand amongst farmers to improve livelihoods (Pando has amongst the highest proportion of people vulnerable to poverty in Bolivia). 2. Land remains available for agroforestry plots and trials, and agroforestry systems are not adversely affected by natural disasters.

	4. Agroforestry system successfully adapted and at least six families in each of four communities trained in management and monitoring. (Yr 2)	2.3. Number of families adopting *Inga* agroforestry techniques recorded as part of annual surveys. 2.4. Field training/work attendance records by participating groups. 2.5. Observation of practical field work, recordings in diaries, scrap books in projects activities and feedback from participating groups. 2.6. Control trial (agroforestry and native *Inga*) experimental reports. 2.6. Community Focus Group reports document awareness, understanding and motivation to adopt agroforestry techniques by Year 3. 2.7. Biodiversity value of agroforestry systems documented and disseminated in a peer-reviewed publication, local workshops and schools programme by Year 4. 2.8. *Inga* agroforestry booklet. Sample sent with Year 3 report.	
3: Knowledge of ecosystem services, biodiversity and associated values in Pando forests increased through six permanent survey plots, including species diversity, carbon stocks and provisioning services (useful and marketable plants).	1 Value of forest ecosystem services (carbon, NTFP, timber) from plot survey and appropriate metric communicated to Local Government, local families, schools, NGOs and media through printed, online and oral media. (Yr 4) 2. Value of biodiversity of local forests to regional and global conservation plans	3.1. Press releases, project websites and blog, social media, online clips, and face to face activities documented and included in Annual and Half Year Reports. 3.2. Ecosystem and biodiversity value of natural forests documented in peer-reviewed publication.	1. Sites remain available for establishment of forest plots. 1. Natural forest carbon stocks can be realistically estimated from data on species composition, associated wood anatomy and biomass. 2. NTFP and timber value can be realistically estimated from species composition and biomass. 3. Research and specimen export regulations allow Kew to support species

	communicated to Local Government, local families, schools, NGOs and media through printed, online and oral media as appropriate. (Yr 2, 3)	3.3. Forest biodiversity and ecosystem services booklet. Sample sent with Year 3 report.	diversity, sampling and mapping component.
4: Awareness of ecosystem and biodiversity values of local Amazonian forest increased among local farming and NTFP harvesting households, school children and local decision makers.	1. Poverty and environmental sustainability indicators incorporated into the new Sustainable Development Objectives (ODS) which replaces the ODM (Yr 4) 2. Educational programmes promoting understanding of ecosystem service and biodiversity value of natural forest included in school activities. (Yr 2, 3)	4.1. Pre-project and annual awareness and value/culture surveys with schools, community leaders and regional decision-makers. 4.2. Annual press review; independent stakeholder review. 4.3. Copy of education materials and activity timetables included in Annual and Final Reports. 4.4. Assessment of remote-sensed data published in peer-reviewed publication and included in Final Report. 4.5. Poverty and environmental sustainability indicators incorporated into the new Sustainable Development Objectives (ODS) which replaces the ODM submitted as annex to the Final Report.	1. The "*El Bosque de los Niños*" programme and participating communities remain active and in collaboration throughout the project; community members (male and female), school children and NTFP harvesters happy to pass on knowledge. [Risk minimised by engagement workshops to define/agree shared vision/priority/product and the implementation of an integrated participatory monitoring and evaluation techniques as a learning tool]. 2. Herencia's role in local community engagement and regional development strategy through Articulación Regional Amazonica (ARA) maintained (ARA is a transnational regional network of NGOs which seek to conserve Amazonian forests and ecosystems, biotic and cultural diversity, and the welfare of its inhabitants). 4. Deforestation in Pando is driven by poverty and lack of existing alternative forest-based incomes.

Activities (details in workplan)
Output 1
Increased diversity of traded, sustainably harvested non-timber forest products (NTFPs) in Pando, promoting sustainable forest management practice. 1.1. Identification & resource inventory of potential NTFPs incorporating field, desk-based and market components. 1.2. Production testing of two selected NTFPs. 1.3. Disseminate findings through Brazil experience exchange, workshop and production of 'One-stop guide' to fruit trees. 1.4. Establish nursery infrastructure for fruit tree production in six communities 1.5. Provide training and capacity building for fruit tree production in six communities
Output 2
Four community agroforestry pilot projects established, supported by technical research, generating increased understanding, uptake and increased agricultural output from locally appropriate systems promoting livelihoods and biodiversity. 2.1. Establish agreements, infrastructure and pipeline for the seed acquisition, propagation, and distribution of tree seedlings to supply demo plots and community uptake. 2.2. Establish four community and one university *Inga* agroforestry demo plots and experimental growth trials including native *Inga* species and requisite agreements (prior informed consent, ABS etc). 2.3. Experience exchanges with Peruvian *Inga* agroforestry programme (yr 3, yr 4). 2.4. Analyse data from experimental trials, combine with experiences in Honduras and Peru to produce agroforestry guide for Amazonian Bolivia. 2.5. Use the agroforestry plots to apply participatory monitoring and evaluation techniques and assess effectiveness of training activities to build local awareness, capacity and uptake in the use of *Inga* agroforestry techniques. 2.6. Monitor uptake of agroforestry practices by local farmer community and.
Output 3
Knowledge of local forest ecosystem services, biodiversity and associated values assessed through eight permanent survey plots, including species diversity, carbon stocks and provisioning services (useful and marketable plants). 3.1. Desk based review of ecosystem services (carbon stock related to wood density, wood density related to species, biodiversity value, NTFPs etc). 3.2. Quantitative forest surveys of forest species composition, structure and biomass (integrated with 3.1 to generate quantified values for carbon stock, NTFPs). 3.3. Dissemination of above information tailored to project audiences: local communities, local policy makers, scientific community.
Output 4
Awareness of ecosystem and biodiversity values of local Amazonian forest increased among local farming and NTFP harvesting households, school children and local decision makers. 4.1. Publicity & dissemination through YouTube, Twitter, other social media, website and local media (print), national press releases, and conference participations. 4.2. Annual press review; independent stakeholder review. 4.3. Workshops and capacity building of farmers, local government officials, published guides, talks. 4.4. Monitoring impact as awareness of environmental and economic value the forests of Pando amongst the project audiences: local communities, local policy makers, local scientific community. 4.5. Development and delivery of schools programme and educational materials.

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
Impact Locally viable sustainable forest management systems are adopted by the expanding rural population of the northern Bolivian Amazon contributing to poverty alleviation, maintenance of forest ecosystem services and biodiversity conservation		
Outcome Sustainable forest management developed and practised in four pilot communities in Pando, Bolivia including: 1) diversification of forest products and marketing; 2) agroforestry adapted to regional socio-economic context, contributing directly to poverty alleviation and biodiversity conservation; 3) understanding of economic incentives for sustainable forest management and maintenance of ecosystem service values increased at a range of decision-making levels from community to governmental.	1. Diversity of forest products in production, and capacity for production, increased in six forest communities by year 3. 2. Enhanced agricultural output in 4 pilot communities using Inga agroforestry systems adapted to the region, with proportion of basic food needs met by agroforestry increasing to 15% (from nil) by year 4 among 48 households. 3. Awareness of forest ecosystem services values and sustainable forest management opportunities and incentives increased at, community, school, NTFP harvester and regional decision-making levels by year 3.	**Indicator 1** Six communities have enhanced capacity for producing fruits and fruit trees with increased product diversity. One community has enhanced capacity for 'new' forest product from the area, wild cacao/chocolate, with potential for access to UK market. **Indicator 2** Inga agroforestry system successfully adapted and agroforest 'framework' established in 6 communities. Two communities have planted annual crops and fruit trees; others to be planted with crops in December. At least three communities have plans to expand the network of agroforest sites. No measurable impact on poverty or forest loss has been made to date although baseline data has been collected on basic food provision. This is for two reasons, indicator 2 is aimed at the year after the project end (crops have yet to be harvested) and the capacity of our partner to document forest loss has been lost during the course of the project. **Indicator 3** Awareness raised in three forest communities/schools and one urban school through education programme and applied project activities, as well as engagement of government stakeholders. Evidence limited by difficulties with baseline survey.

Output 1. Increased diversity of forest products in Pando, supported by locally adapted information resources and delivery mechanisms, promoting sustainable forest management practice.	1. Two NTFPs not currently traded from the Pando have been tested for viability (Yr 4). 2. Awareness of ecosystem and biodiversity values of local Amazonian forest increased among local farming and NTFP harvesting households, school children and local decision makers. 3. Capacity for production of Amazonian fruit trees for integration in agroforestry and trade increased in six forest communities.	**Indicator 1**: Quantitative survey data on wild cacao populations available from field survey (together with data on other important NTFPs), and cacao bean processing training provided in one community (Annex 20). Production trial undertaken with Chocolution (UK); high-quality chocolate sample produced and Chocolution now engaging with Herencia to attempt to set up small-scale commercial trial (with UK sales) in 2017. Viability of added-value (FSA) wild rubber and asaí production evaluated (desk studies – Annex 21). Review of market opportunities for tree fruits undertaken and incorporated in fruit tree manual (Annex 23). **Indicator 2**: This has been advanced in community schools through project input into the BONI programme and dissemination of education materials (e.g. poster Annex 23). Information on market potential of fruit tree products disseminated to communities through fruit tree manual and community workshops. Further information on ecosystem services and biodiversity disseminated through agroforest manual (Annex 23). Survey data (Annex 8) show fluctuating levels of awareness, but analysis hampered by delays in establishing reliable baseline. **Indicator 3**: Capacity for fruit tree production built in six communities through training and infrastructure development (Annex 18). Support will continue until September 2017, alongside continued monitoring/support for community agroforest development. No fruit trees traded as yet; project has focused on meeting demands for fruit trees in agroforest plots.
Activity 1.1. Identification & resource inventory of potential NTFPs incorporating field, desk-based and market components.		Information on community knowledge and perspectives on non-timber forest products collected through interview and field research (Annex 8). Quantitative field NTFP resource inventory conducted at Palacios, focusing on wild cacao and other important species identified through the 2015 research (results used as basis for feasibility study; also submitted as paper to *Acta Amazonica* (Annex 11) Resource/market analysis of asaí (*Euterpe* spp.) conducted through collaboration with innocent drinks (Annex 19).
Activity 1.2. Production testing of two selected NTFPs.		Cacao bean processing training provided in one community; simple processing manual produced. Production trial undertaken with Chocolution (UK); high-quality chocolate sample produced and Chocolution now engaging with Herencia to attempt to set up small-scale commercial trial (with UK sales) in 2017 (Annex 20).

Activity 1.3. Disseminate findings through Brazil experience exchange, workshop and production of 'One-stop guide' to fruit trees.		A guide (book) to promising fruit trees of Pando fruit trees has been printed and distributed at no cost (Annex 23). We attempted to set up a Brazil training and capacity building visit for wild FSA rubber production, but this did not prove possible due to unavailability of the Brazilian specialists with whom we were negotiating (Annex 21).
1.4. Establish nursery infrastructure for fruit tree production in six communities		Nursery infrastructure established in six communities and one in Cobíja. Infrastructure upgraded 2016 following trial period (Annex 18). The aim is to support communities in the production of resources that can: be integrated into agroforest; provide fruits and fruit pulp for market; provide seedlings for sale.
1.5. Provide training and capacity building for fruit tree production in six communities		Training in fruit tree production has been provided in six communities (Annex 18). Additional training (training the trainer) provided by contracted expert to Herencia staff in Cobíja. Community capacity building included training workshops delivered by a Kew horticulture expert (Carlos Magdalena) in grafting and cutting techniques in 2016, and two visits (2015, 2016) by nursery/agroforest Terry Pennington (who will make one further visit in 2017). A community workshop was also held on 7 October 2016 to reinforce techniques and provide a forum to discuss issues and challenges. Ongoing technical support provided to community members engaged in nursery management and propagation.
Output 2. Four community agroforestry pilot projects established, supported by technical research, generating increased uptake and agricultural output from locally appropriate systems promoting livelihoods and biodiversity.	1. Number of families incorporating *Inga* agroforestry strategies on their land increases from 0 to 48 (Yr 3) 2. Area of agroforestry in pilot communities increased from 0ha to 8ha by Yr 3 and the number of participating communities increase from 4 to 6 during the course of the project (Yr 3) 3. Surface area of *Inga* agroforestry in Bolivian Pando increases from current area of 0ha to 8ha. (Yr 3)	**Indicator 1**. Currently we are working with 65 families. **Indicator 2**. We currently have 8ha of agroforest plots (see Annex 23 and Annex 24 for images). We also have a commitment for an additional 3 ha after the project ends. This should bring the total to 11 ha. In the 2015/16 financial year we increased the number of participating communities from 3 to 6. **Indicator 3**. We currently have 8ha of agroforest plots. We also have a commitment for an additional 3 ha after the project ends. This should bring the total to 11 ha.
	4. Agroforestry system successfully adapted and at least six families in each of four communities trained in management and monitoring. (Yr 2)	**Indicator 4**. Currently we have circa eight families in each of the six communities with whom we work trained in the establishment of agroforest. From April the families in two of the communities and the farmer will be trained in the use and management of the agroforest system. The 65 community families with whom we work to date have actively been trained in all stages of the Inga seedling production and plot preparation and maintenance (Annex 15).

Activity 2.1. Establish agreements, infrastructure and pipeline for the seed acquisition, propagation, and distribution of tree seedlings to supply demo plots and community uptake.	We established signed agreements with six communities, established seven seedling nurseries and produced over 18,000 Inga seedlings. We also produced 11,540 seedlings of fruit trees for the agroforest plots (Annex 19).
Activity 2.2. Establish four community and one university *Inga* agroforestry demo plots and experimental growth trials including native *Inga* species and requisite agreements (prior informed consent, ABS etc).	Six community sites established successfully. University site not established. We had three meetings with the Agroforest Faculty of the Amazonian University of the Pando during which they expressed great enthusiasm in establishing a pilot plot. To this aim we tried to sign an MOU with Centro de Investigacion y Produccion de la Amazonia but they did not sign it and or give a reason. We also gave two presentations to the students of the biology faculty in 2013 and 2015 to generate and consolidate interest. We identified a potential site with them for the plot and provided them with 700 seedlings in January 2016. Returned twice to help set up the plot but the technical staff were not available. CIPA then changed the technician in charge, who did not establish the site.
Activity 2.3. Experience exchanges with Peruvian *Inga* agroforestry programme (Yr 3, Yr 4).	Two exchange visits were undertaken, in April 2015 and August 2016 (Annex 15). The visits went to plan and has been documented by our intern Lucy Dablin through a short film (Annex 14). These gave members of the participating communities a clearer view of the potential benefits of Inga agroforestry and most importantly to hear directly about the benefits, challenges and experience of *Inga* based agroforestry from their Peruvian peers. Feedback from participants and from the Peruvian hosts was very positive.
Activity 2.4. Analyse data from experimental trials, combine with experiences in Honduras and Peru to produce agroforestry guide for Amazonian Bolivia.	Soil monitoring undertaken, samples analysed by UTALAB in April 2016 (Annex 26). Second draft of agroforestry guide produced and 300 copies of the guide were printed in early September (Annex 23). The title, content and design of the guide were produced in consultation with Herencia staff. The aim was to produce something that would be accessible to both householders and NGO workers. The guide is available and has so far been distributed to 81 people in the Pando. Pdf versions of the guide are available online. The guide has been positively received by both Terry Pennington (RBG Kew Honorary Research Associate) and Mike Hands (Inga Foundation), both key players in the development of Inga-based agroforestry.
Activity 2.5. Use the agroforestry plots to apply participatory monitoring and evaluation techniques and assess effectiveness of training activities to build local awareness, capacity and uptake in the use of *Inga* agroforestry techniques.	Baseline data collected, digitised and analysed. Follow-up survey conducted in 2016 (Annex 8).

Activity 2.6. Monitor uptake of agroforestry practices by local farmer community.		See above (2, 2.2, 2.5)
Output 3. Knowledge of ecosystem services, biodiversity and associated values in Pando forests increased through six permanent survey plots, including species diversity, carbon stocks and provisioning services (useful and marketable plants).	1 Value of forest ecosystem services (carbon, NTFP, timber) from plot survey and appropriate metric communicated to Local Government, local families, schools, NGOs and media through printed, online and oral media. (Yr 4) 2. Value of biodiversity of local forests to regional and global conservation plans communicated to Local Government, local families, schools, NGOs and media through printed, online and oral media as appropriate. (Yr 3, 4)	**Indicator 1**. The results were communicated in an educational poster and online (Annex 23, Annex 12). Accessible information on ecosystem services of forest incorporated in agroforest manual (Annex 23) **Indicator 2**. Two peer-reviewed papers in Spanish were published in the Bolivian journal Kempffiana (Annex 11). Results were presented in three conference posters and one conference presentation. A third manuscript on the diversity and structure of the Pando forests will be submitted to the journal Acta Amazonica in early 2017; and a manuscript resulting from the MSc thesis titled "Investigating Ways of Improving Carbon Stock Calculations in the Amazon" is being prepared. See above for additional dissemination.
Activity 3.1. Desk based review of ecosystem services (carbon stock related to wood density, wood density related to species, biodiversity value, NTFPs etc).		The results from the desk-based reviews, draft text from the qualitative and quantitative forest surveys for peer-reviewed publications, and text on biodiversity and ecosystem services for the lay-person have been submitted for use in dissemination material to the project audiences: Local Government, local families, schools, NGOs and media (Annex 10).
Activity 3.2. Quantitative forest surveys of forest species composition, structure and biomass (integrated with 3.1 to generate quantified values for carbon stock, NTFPs etc).		Six one ha survey plots were established, data including herbarium vouchers were collected and analysed. In total 3,523 trees with diameter of 10 cm or larger were tagged, 1,470 voucher specimens collected and taken more than 15,000 photos taken, together with data on life form, crown type and state of decomposition etc. Inventories of biomass and necromass of roots were also conducted in the six permanent one-hectare plots, and a general collecting expedition contributed to the broader knowledge of plant diversity outside and within the plots. An Access database containing the plot and voucher data was established and populated, forming the basis for the analyses (Annex 10). All herbarium vouchers were identified using the two herbaria in Santa Cruz and Kew, and the data were initially analysed in Santa Cruz with further analysis and discussion between the Bolivian and UK members of the biodiversity and ecosystem services team.

		Once all the results from the project have been published, the plot data will be added to four international networks of plot data (ADTN, BIEN, RAINFOR, and TEAM) to maximise the use of the data. Three students successfully defended their theses as part of the project: two Lic. Biologia Universidad Amazonica de Pando: and one MSc Anglia Ruskin University: (title - Calculating Carbon Stocks in the Pando, Bolivian Amazon and Investigating Ways of Improving Methods of Calculation) – see Annex 11.
Activity 3.3. Dissemination of above information tailored to project audiences: local communities, local policy makers, scientific community.		The results have so far been communicated in educational posters (Annex 23) and materials for local schools (Annex 9); they were also communicated in a presentation to the local policy makers in Pando; they have been communicated in poster and presentation formats in three international and one Bolivian science congresses; and presented in two published peer-reviewed papers, a third paper which will be ready for submission to Acta Botanica in early 2017, and a fourth paper currently in preparation (Annex 11).
Output 4. Awareness of ecosystem and biodiversity values of local Amazonian forest increased among local farming and NTFP harvesting households, school children and local decision makers.	1. Poverty and environmental sustainability indicators incorporated into the new Sustainable Development Objectives (ODS) which replaces the ODM (Yr 4) 2. Educational programmes promoting understanding of ecosystem service and biodiversity value of natural forest included in school activities. (Yr 2, 3)	**Indicator 1.** Juan Fernando Reyes is part of a network called the Network of Sustainable Development Solutions for the Amazon. This consists of leaders from academia, NGOs and civil society organizations from 6 Amazonian countries and includes the "Amazon Solutions Lab" initiative that aims to review the indicators used to evaluate the Sustainable Development Goals (ODS) through a debate among experts based on best practice and success stories related to sustainable development. The result will be viable indicators for the ODS in the Amazon region. For 2016 the focus of work has been ODS # 15 "Protect, restore and promote the sustainable use of terrestrial ecosystems, sustainable management of forests, combating desertification, arrest and reverse land degradation and stop biodiversity loss", with a technical document of recommendations to the UN of indicators to measure this goal. They are now working with ODS # 12 relating to sustainable production. http://www.sdsn-amazonia.org/single-post/2016/05/16/Grupo-de-Trabajo-SDSNAmazonia-inicia-sus-actividades **Indicator 2**. Schools programme delivered successfully as planned in 2015, in collaboration with Herencia's BONI programme (Annex 9).
Activity 4.1. Publicity & dissemination through YouTube, Twitter, other social media, website and local media (print), national press releases, and conference participations.		Over the course of the project we have given four live interviews on regional and national television (breakfast television on Canal 15, BoliviaTV). The project was also covered by a report on the 'Amazonia del Dia' channel, and the 2016 Biodiversity, Ecosystem Services and Forest Management workshop in Cobíja

	received coverage from Canal 7 (national), Canal 45 (Pando), Canal 21 (University) and Canal 11 (UNITEL). There has also been coverage in newspapers (Frontera, El Progreso) and radio (4 radio channels covered the 2016 workshop). Intern Lucy Dablin produce a short film documenting the Peru exchange visit which is available on YouTube. There have been 55 blog posts (Spanish and English) on the project blog site in addition to posts on the Herencia Facebook page and the Kew website (including special coverage of cacao for the 2016 Easter Festival). Over 100 tweets distributed on project activities and outputs. Results of the project have been disseminated at four conferences. See Annex 12 for details.
Activity 4.2. Annual press review; independent stakeholder review.	We have reviewed coverage in the press (above) but have not been able to commission an independent stakeholder review.
Activity 4.3. Workshops and capacity building of farmers, local government officials, published guides, talks	Through our ongoing field programme we have trained representatives of all communities in how to propagate Inga trees, plant, pollard and mulch agroforest plots. Training of project staff in nursery construction/design and fruit tree seed germination and management has also been given (Annex 15, Annex 18). Local farmers were trained in survey plot installation techniques during the field surveys, while employed as casual workers (tree climbing, trail cutting, plot installation) on the BES team. School children in all communities were introduced to the plots and the useful species; some were taught how to calculate carbon content using wood samples, and explained the value of their forest. These ongoing training programmes have been complemented by training workshops in which we have brought representatives from each community together for training in specific activities (one in agroforest techniques, one in fruit tree propagation and management), as well as the two visits by groups of community representatives to Peru. In the course of all these training events, we have explained and emphasised the significance of biodiverse systems, soil fertility and associated ecosystem services as key concepts underpinning sustainable forest management. In addition, we have engaged a wider audience through media and online resources (see above), talks, and the final Cobíja workshop which was attended by representatives of local government (including the Mayor of Cobíja), academia, NGOs and forest communities (Annex 26). For example, In 2014 Herencia ran a two-part course for 60 students and lecturers from the Environmental Engineering programme of the Amazonian University of the

	Pando (UAP). The first part of the course provided an overview of the ecosystem services that the Amazon provides to the Pando but also at a regional and global level. The second part of the course took part at one of our partner communities, Palacio. This consisted of demonstrating sustainable agricultural practices: aquaculture and the restoration of soils to productivity using Inga agroforestry. A talk by the Director of Herencia was also given in 2014 on during a workshop entitled "Adaptation to Climate Change and Post Disaster" at UAP organized by the Plurinational Mother Earth Authority about alternative methods for reforestation and the sustainable production model that the Forest Futures Project is implementing with Inga species. In that event a platform (interagency working group) was formed to design a project at the departmental level (Pando) sustainable forest production. In 2015 the Director of Herencia participated in an event to propose the development of guidelines for a project entitled "Mechanism set of adaptation and mitigation to climate change for Pando" where he advocated the incorporation of Amazon fruits (see above) and highlighted the Inga species' successful growth in the four communities as an example of using Inga for productive systems. Alex Monro presented the project to the Governor of the Pando and developed links with the HM Ambassador to Bolivia, His Excellency Ross Denny during an invited visit to the project. We have published and distributed an educational poster, an agroforest manual and a fruit tree manual (Annex 23).
Activity 4.4. Monitoring impact as awareness of environmental and economic value the forests of Pando amongst the project audiences: local communities, local policy makers, local scientific community.	Following a baseline survey among communities in the beginning of the project, we developed a protocol to measure the impact of awareness level increase among the communities about the value of the local Pando forest. This was completed after some delays by Marianela Quisbert in December 2015. A subsequent survey was conducted by a contracted employee in 2016 after Marianela left Herencia. The survey results have been analysed and summarised (Annex 8), though there are some problems sue to methodological inconsistency arising from the change of project personnel.
Activity 4.5. Development and delivery of schools programme and educational materials.	Marianela Quisbert delivered the educational programme in participating communities during 2015, including schools workshops and an urban/rural school exchange visit (Annex 9). The original aim to feed outputs into Herencia's BONI programme over the full course of the project was not feasible, as direct funding for the programme was discontinued. We have printed and distributed an educational poster (Annex 23).

Annex 3 Standard Measures

Code	Description	Total	Nationality	Gender	Title or Focus	Language	Comments
Training Measures							
1a	Number of people to submit PhD thesis						
1b	Number of PhD qualifications obtained						
2	Number of Masters qualifications obtained	1	British	Female	Investigating Ways of Improving Carbon Stock Calculations in the Amazon	English	The student is currently preparing a manuscript to be submitted to a peer-review journal
3	Number of other qualifications obtained	2	Bolivian	Female/Male		Spanish	Undergraduate theses
4a	Number of undergraduate students receiving training	64	Bolivian	Female/Male	Forest survey techniques; agroforestry	Spanish	Includes orientation of 2 undergraduate theses, and short training of 64 UAP students in agroforestry
4b	Number of training weeks provided to undergraduate students	12	Bolivian	Female/Male	Plot installation and inventory methodology	Spanish	
4c	Number of postgraduate students receiving training (not 1-3 above)						
4d	Number of training weeks for postgraduate students						
5	Number of people receiving other forms of long-term (>1yr) training not leading to formal qualification(e.g., not categories 1-4 above)						

Code	Description	Total	Nationality	Gender	Title or Focus	Language	Comments
6a	Number of people receiving other forms of short-term education/training (e.g., not categories 1-5 above)	80	Bolivian	Female/Male	Training in plot survey and plant identification skills; agroforestry; fruit tree production	Spanish	Community members trained in survey (24); agroforestry (48); fruit tree propagation (73)
6b	Number of training weeks not leading to formal qualification	16	Bolivian	Female/Male	Training in plot survey and plant identification skills, agroforestry	Spanish	Community members trained in survey (9 wks); agroforestry techniques (7 wks)
7	Number of types of training materials produced for use by host country(s) (describe training materials)	1			Manual Agroforestería Inga	Spanish	82 pp, published 2016

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)	3	Bolivian		Community management/action plans		Participatory process
10	Number of formal documents produced to assist work related to species identification, classification and recording.						
11a	Number of papers published or accepted for publication in peer reviewed journals	2	Bolivian, British, Danish	Male, Female	Novedades floristicas para la flora de Bolivia	Spanish	There are two additional manuscripts in

					Biomasa y carbono en los bosques amazónicos de tierra firme e inundable (várzea) en el oeste de Pando		preparation in English
11b	Number of papers published or accepted for publication elsewhere						
12a	Number of computer-based databases established (containing species/generic information) and handed over to host country	3				Spanish	Collections databases, plot databases
12b	Number of computer-based databases enhanced (containing species/genetic information) and handed over to host country	3				Spanish	Herbarium collection catalogues
13a	Number of species reference collections established and handed over to host country(s)	3				Spanish	Collections handed over to 3 herbaria: Santa Cruz, Cochabamba, La Paz
13b	Number of species reference collections enhanced and handed over to host country(s)						

Dissemination Measures		**Total**	**Nationality**	**Gender**	**Theme**	**Language**	**Comments**
14a	Number of conferences/seminars/workshops organised to present/disseminate findings from Darwin project work	5	Bolivia x 3 Peru x 2	Female/Male	Biodiversity, ecosystem services & sustainable forest management in	Spanish	Cobíja workshop September 2016 (81 participants); Agroforest workshops (78 &

					Pando (1); Agroforestry workshops (4)		11); Peru agroforest workshops (6 & 6)
14b	Number of conferences/seminars/ workshops attended at which findings from Darwin project work will be presented/ disseminated.	4			Botany, Tropical ecology	Spanish/ English	Latin American Botanical Congress 2014 Systematics Association Congress 2015 Bolivian Botanical Congress 2015 Association of Tropical Biology Congress 2016

Physical Measures		**Total**	**Comments**
20	Estimated value (£s) of physical assets handed over to host country(s)		Computing equipment and other small hardware items
21	Number of permanent educational, training, research facilities or organisation established		
22	Number of permanent field plots established	13	6 x 1 ha forest plots. 7 x 1 ha demonstration agroforest plots divided into annual crops (ca 1/3) and fruit and timber production (2/3). 2015 baseline soil samples analysed.

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						

Annex 4 Aichi Targets

	Aichi Target	Tick if applicable to your project
1	People are aware of the values of biodiversity and the steps they can take to conserve and use it sustainably.	**X**
2	Biodiversity values have been integrated into national and local development and poverty reduction strategies and planning processes and are being incorporated into national accounting, as appropriate, and reporting systems.	
3	Incentives, including subsidies, harmful to biodiversity are eliminated, phased out or reformed in order to minimize or avoid negative impacts, and positive incentives for the conservation and sustainable use of biodiversity are developed and applied, consistent and in harmony with the Convention and other relevant international obligations, taking into account national socio economic conditions.	
4	Governments, business and stakeholders at all levels have taken steps to achieve or have implemented plans for sustainable production and consumption and have kept the impacts of use of natural resources well within safe ecological limits.	**X**
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.	**X**
8	Pollution, including from excess nutrients, has been brought to levels that are not detrimental to ecosystem function and biodiversity.	
9	Invasive alien species and pathways are identified and prioritized, priority species are controlled or eradicated, and measures are in place to manage pathways to prevent their introduction and establishment.	
10	The multiple anthropogenic pressures on coral reefs, and other vulnerable ecosystems impacted by climate change or ocean acidification are minimized, so as to maintain their integrity and functioning.	
11	At least 17 per cent of terrestrial and inland water, and 10 per cent of coastal and marine areas, especially areas of particular importance for biodiversity and ecosystem services, are conserved through effectively and equitably managed, ecologically representative and well connected systems of protected areas and other effective area-based conservation measures, and integrated into the wider landscapes and seascapes.	
12	The extinction of known threatened species has been prevented and their conservation status, particularly of those most in decline, has been improved and sustained.	
13	The genetic diversity of cultivated plants and farmed and domesticated animals and of wild relatives, including other socio-economically as well as culturally valuable species, is maintained, and strategies have been developed and implemented for minimizing genetic erosion and safeguarding their genetic diversity.	

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

Annex 5 Publications

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)
*Peer-reviewed Bolivian journal *Kempffiana*	Cuellar A.M.C., Martinez M.T., Zema E.V., Ajuacho K.A.F., Klitgård B.B., Milliken W., Araujo-Murakami A. 2015. Novedades floristicas para la flora de Bolivia. Kempffiana 11(2): 1-18. 14 species records.	Bolivian	Bolivian	Female	Museo de Historia Natural, Noel Kempff Mercado, Santa Cruz	See Annex 11. https://goo.gl/JJE2FX
*Peer-reviewed Bolivian journal *Kempffiana*	Araujo-Murakami, A., Milliken, W., Klitgård, B.B., Carrión-Cuellar, Vargas-Lucindo, S. & Parada-Arias, R. 2016. Biomass and Carbon in the Varzea and Terra firme Amazon Forest in western Pando. Kempffiana 12(1): 3-19.	Bolivian	Bolivian	Male	Museo de Historia Natural, Noel Kempff Mercado, Santa Cruz	See Annex 11. https://goo.gl/X8LUjz
Book	Monro, A.K., Velarde, R., Flores, R., Soruco, V., Reyes, J.F., Milliken*, W. Manual agroforesteria Inga. Royal Botanic Gardens, Kew. 82 pp.	British	British	Male	Royal Botanic Gardens, Kew	https://goo.gl/NqM5F9

Book	Araujo-Murakami, A., Reyes, J-F., Milliken*, W. Frutales silvestres y promisorios de Pando. Herencia/Museo de Historia Natural Noel Kempff Mercado, Bolivia. 96 pp.	Bolivian	Bolivian	Male	Herencia, Cobíja	https://goo.gl/PF7PJX
*Conference poster	Investigating ways of improving carbon stock calculations in the Amazon	British	British	Female	Royal Botanic Gardens, Kew; Museo de Historia Natural, Noel Kempff Mercado; Anglia Ruskin University	See Annex 11. Not available online.
*Conference poster	Medios de Vida y la Gestión Forestal Sostenible en Pando, la Amazonía Boliviana	Bolivian	Spanish	Male	Museo de Historia Natural, Noel Kempff Mercado; Anglia Ruskin University; Royal Botanic Gardens, Kew; Herencia	See Annex 11. Not available online.
*Conference poster	Forest Futures: Amazonian forest in Pando, Bolivia: floristic diversity and composition	Bolivian	English	Male	Museo de Historia Natural, Noel Kempff Mercado; Anglia Ruskin University; Royal Botanic Gardens, Kew; Herencia	See Annex 11. Not available online.
*Conference poster	Nuevos registros de plantas vasculares para la flora de Bolivia:	Bolivian	Spanish	Female	Museo de Historia Natural Noel Kempff Mercado, Universidad Autónoma Gabriel René Moreno	See Annex 11. Not available online.
Education poster	Los bosques de Pando… están en nuestras manos	Bolivian	Spanish	Male	Museo de Historia Natural Noel Kempff Mercado, Universidad Autónoma Gabriel René Moreno, Herencia, Royal Botanic Gardens, Kew	See Annex 23. Not available online.

Annex 6 Darwin Contacts

Ref No	20-021
Project Title	Forest Futures: Livelihoods and sustainable forest management in Bolivian Amazon
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Partner 2 etc.	
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Additional annexes