



Darwin Initiative Annual Report



Department
for Environment
Food & Rural Affairs

Important note: *To be completed with reference to the Reporting Guidance Notes for Project Leaders: it is expected that this report will be about 10 pages in length, excluding annexes*
Submission Deadline: 30 April

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 institutions	Herencia, Cobija, Bolivia; Museo de Historia Natural Noel Kempf Mercado (MHNNKM), Santa Cruz, Bolivia; Universidad Amazónica de Pando (UAP), Cobija, Bolivia; Freeworld Trading, Edinburgh, U.K.
Darwin Grant Value	£ 220,063
Start/end dates of project	October 1 st 2013 – September 30 th 2016
Reporting period (eg Apr 2013 – Mar 2014) and number (eg Annual Report 1, 2, 3)	October 2013 – March 2014, Annual Report 1 [6 months]
Project Leader name	Dr William Milliken
Project website	http://www.kew.org/science/tropamerica/pando/ http://museonoelkempff.org/museo/antecedentes/ Project blog http://tropicalbotany.wordpress.com
Report author(s) and date	

1. Project Rationale

Sixty-nine percent of the forest-dependent population of 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 threats demands sustainable practices that reduce forest conversion, coupled with skills and knowledge of forest values for addressing poverty. Based in Cobija and working with 'agroextractive' forest communities in the Department of Pando, the project aims to address these priorities in three principal ways:

1: It is expected that diversification and expansion of NTFP collection/marketing from Pando will see the number and quantity of traded plant species increased, with improved household incomes and financial stability for harvesters. Crucially this will make harvesters' livelihoods less vulnerable to market and productivity fluctuations and climate change. Information on NTFPs will be more accessible to the forest communities constituting 40% of Pando's population, helping harvesters react to market changes and opportunities.

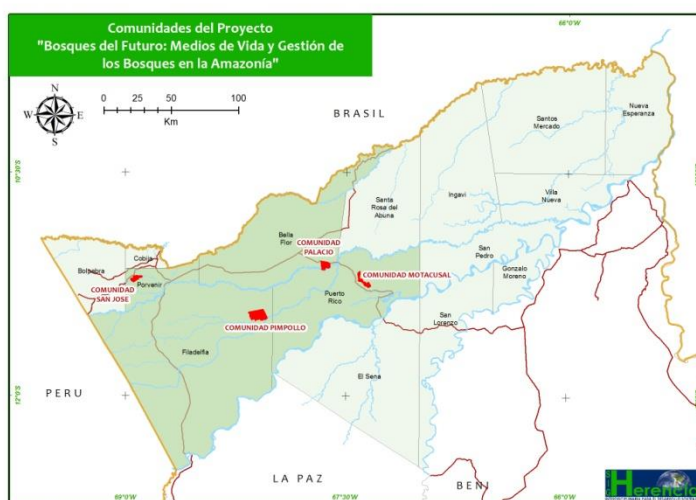
2: Adaptation of *Inga* agroforestry techniques, their promotion and adoption by four pilot communities, and subsequent outreach among the 220 forest communities in Pando, will increase capacity of the rural poor to meet their basic needs sustainably. This will result in reduction in forest conversion through slash-and-burn subsistence agriculture among participating communities, with increased agricultural productivity derived from agroforestry.

3: Awareness of biodiversity and ecosystem service values of natural forest (including carbon stock, forest products) will be raised amongst rural communities and policy-makers. In parallel with increased awareness of options for sustainable forest management and strategic engagement with regional programmes to ensure long-term impact, this will create incentives for reducing deforestation within the region.

2. Project Partnerships

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. Herencia's mission is to work with local communities and stakeholders to promote sustainable development in the Amazon. Development of the project was based on local demands identified by Herencia, which has been engaged in project development from the beginning and has developed the agroforestry, community engagement and schools components of the project.

Herencia has existing collaborative relationships with the other Bolivian partners MNHNKM and UAP, which the project is also working to strengthen. Our collaboration has commenced effectively, with practical solutions put in place to overcome initial logistical difficulties including Internet access and transport, and project staff successfully contracted.



The second partner, Museo de Historia Natural Noel Kempf Mercado (MHNNKM), is based in Santa Cruz. MHNNKM is a department under the Autonomous University, Gabriel Rene Moreno in Santa Cruz, and one of Bolivia's leading biodiversity research institutes with experience in delivering applied projects and environmental education. MHNNKM has substantial experience working on the establishment/survey of forest plots in the Bolivian Amazon (RAINFOR), undertook a scoping visit jointly with Kew staff in 2010 and prepared the framework for the forest survey component. MHNNKM is the lead in-country partner for the forest inventory component, and has made positive progress during the first six months of the project. The principal challenges faced by this partnership reflect changes in University regulations and procedures, including a new requirement for 10% administrative costs on all project expenditure,¹ and contractual changes for part-time staff. We are working to overcome these difficulties in order to ensure effective delivery of this component. We have also faced delays in obtaining research permits, partly due to changes in protocol and the applied nature of the project (including economically important plants), which has meant that UK botanical staff have not been able to collect specimens. This has not proved a major obstacle to date since MHNNKM staff do not require such permits, and we renewed our application in March 2014.

Freeworld Trading is a UK-based commodities trading company specialising in food products. It has extensive experience of forest product development in the Bolivian Amazon, is currently Europe's largest Brazil nut trader, and is committed to promoting sustainable crop production and livelihoods in the region. Freeworld Trading identified the need/opportunity for NTFP diversification in the region independently, and its role in the project is to undertake NTFP inventory, market identification and analysis, and to establish market supply chains for NTFP ensuring that products conform with EU and UK legislation e.g. the Novel Foods Act. Development of this partnership and associated activities has been hindered by staff changes within the company, but we are working to identify solutions that will allow us to develop this element of the project effectively during Year 2.

Universidad Amazónica de Pando (UAP) in Cobija is part of Bolivia's national network of higher education and is committed to research and economic and social development in the Amazon region. Its School of Forestry has extensive knowledge and experience of applied forest management. After initial meetings with the Director of CIPA (the Center for the Investigation and Preservation of the Amazon - also part of UAP) two students are currently carrying out their Licenciado theses projects using project data. Engagement of UAP in the agroforestry component has been discussed positively, and we hope to develop this over the coming months. The curator of the University Herbarium, Lic., Audevan N. Ferreira, provided transport for field work in November 2013, helping to address the initial problems with Herencia's vehicles.

Positive working relationships have been developed with the four 'target' forest communities, with enthusiastic participation in project activities. An additional community has also asked to participate on the project and the logistics of this is being evaluated. In addition we have begun working with one farm and two cattle ranches to evaluate whether planting Inga in degraded cattle pasture and farmland will add value to these marginal systems. The above have been greatly facilitated by Herencia's existing relationships with these communities, demonstrating the importance of engaging with appropriate local organisations in order to develop community involvement and understanding within a relatively short project timeframe.

3. Project Progress

3.1 Progress in carrying out project activities

Output 1 – Increased diversity of traded, sustainably harvested NTFPs.

The principal activity scheduled for this component of the project in Year 1 was a review of market opportunities for NTFPs. Due to delays with effective engagement of Freeworld Trading with the project this work has not been fully completed. However, we have undertaken preliminary

¹ This will result in at least one field trip having to be cut from the schedule in 2014-15, and at least one fewer forest plot installed.

investigations among participating communities, listing potential products for research and development, and have begun exploring opportunities for development of native rubber and wild cacao. In December 2013 we held preliminary discussions with Floriano Pastore from the Chemistry Department of the Universidad de Brasilia and Sarah Hutchinson from the WWF about the logistics and market for artisanal latex production from wild rubber in the Pando. Floriano has developed a technique for producing artisanal latex in the Brazilian Amazon and there is a market for this product in Brazil. We have also been in contact with another UK based commodity trading company, [Twin Trading](#) about the potential of trading wild cacao. Both opportunities would require resources not currently available to the project as this component of was planned to be undertaken by Freeworld Trading under their own operating budget.

Output 2 – Community agroforestry. Agreements, infrastructure and pipelines for seed acquisition and propagation were established in a timely fashion (Activity 2.1). By March 2014 a total of 13,000 seeds were sourced and sown, and 12,490 seedlings planted (Appendices 1, 2). To-date a total of eight hectares have been planted with *Inga* agroforestry - one hectare in each of two target communities (Motacusal and San Jose) accompanied by training in relevant techniques, and six hectares as rehabilitation of pastures by two local ranch owners. Flooding has prevented planting in the Palacios community and also disrupted plans in San Jose. Similarly, access and communication with the Andean migrant community, Pimpollo, have been very challenging partly due to the flooding, and planting has also been delayed here. Alex Monro gave a presentation of the methodology to UAP, who have expressed interest in establishing a demonstration plot and growth trials (to be further explored in Year 2).

Output 3 – Biodiversity and Ecosystem Services (BES). The reviews of Pando plant species diversity (Appendix 3 – Activity 3.1) was carried out using key herbarium databases, and the review of carbon stock and wood density data is under way. The project decided to adopt the forest survey protocol developed by the Bolivian partner Alejandro Araujo-Murakami (Appendix 4) as applied by the Amazon-wide forest plot programme RAINFOR. The reviews were invaluable for planning the protocols and workflows for activity 3.2. The BES team was employed and ready to begin working by October 1st 2013. By the end of November the team had established two permanent hectare plots, tagged 1,175 trees with diameter of 10 cm or larger, collected vouchers and photographed tagged trees (Appendix 5), together with data on life form, crown type and state of decomposition etc. By March 2014 the plot and voucher data were entered into a custom-built Access database and the vouchers identified using the local Bolivian Herbarium (Appendix 6). The next step will be to verify these identifications against the Herbarium collections at the RBG, Kew once the research permit situation has been resolved (see above) and voucher collections sent. Two Licenciado students from UAP, Mr Ruperto Parada Arias and Miss Sahiury Vargas Lucinto, have begun thesis studies with the project.

- NB Pando has been subjected to abnormal levels of flooding in the Nov. 2013 – April 2014, which has slowed down field work for the BES team and planting for the *Inga*-agroforestry team. If access to Pimpollo does not improve, the team may alter the location for the one hectare plot installation.

Output 4 – Awareness of BES values increased. By October 2013 a project blog was started (tropicalbotany.wordpress.com) which had received 1,916 visits by March 2014. The blog is reblogged on the project websites at the RBG, Kew (kew.org/science/tropamerica/pando/news.htm) and the MNNK (museoelkempff.org/museo/noticias-y-actualizaciones-del-proyecto/), and on team members' Twitter accounts and/or Facebook pages. HERENCIA similarly adds project updates to their website (e.g. herencia.org.bo/index.php?q=noticias_novedades&nid=313 - see Appendix 7 for total project web stats). During his last visit to Pando, Alex Monro was interviewed about the agroforestry project by the TV channel *Bolivia TV* (www.boliviavt.com). The interview was shown on April 11th 2014 on prime time Bolivian television.

In the four pilot communities, a total of 42 adults and 39 children have participated in the sowing and planting of the *Inga*-agroforestry plots, learning valuable lessons for the next planting season (Appendix

8, 9). A questionnaire was developed with the aim to record the baseline knowledge of forest tree species in one hectare of forest among children aged 6-13 in the pilot communities. The results from the communities Palacios and Motacusal are presented in Appendices 10 and 11. In Palacios the nine children taking part in the survey knew between two and twelve species by their common names. In Motacusal, 14 children took part and knew 11 tree species between them; the highest scoring individual knew seven. The survey still need to be undertaken with the children of the communities San Jose and Pimpollo; this will coincide with the BES team visiting these communities to install the one hectare plots still pending due to the bad weather conditions in the zone. See comments on activity 4.4 in Section 6 (monitoring, evaluation and lessons).

Planning has begun to deliver the schools programme within the context of the Bosque de los Niños programme in the four pilot communities and in an additional three urban schools in Cobija, already engaged by Herencia. Since the beginning of February 2014 this component has suffered from the departure of Jazmin Daza, our 'Extension officer and community coordinator' who has been a central figure representing Herencia and the Bosque de los Niños programme. Herencia has advertised the post but it is difficult to obtain these skills in rural Bolivia and it will be a challenge to replace Jazmin who was well-respected and trusted by the communities.

3.2 Progress towards project outputs

Output 1 – Increased diversity of traded, sustainably harvested NTFPs. See Section 3.1 for details.

Output 2 – Community agroforestry. It is still early days but so far the project is on target to achieve the output indicators set out for this component. The biggest challenge so far has been the weather conditions. The fact that we after only six months already have two ranch owners involved in the project (this was not originally envisaged) demonstrates growing demand amongst the farmers to improve their livelihoods. Ongoing success will be dependent on further identification of sites with guaranteed long-term availability and access, coupled with low risk of impacts of exceptional climatic (e.g. flooding) events.

Output 3 – Biodiversity and Ecosystem Services (BES). As mentioned above, the BES component has faced start-up challenges, but we believe that the output will be achieved by close of the project. However, due to lack of access to sites and time constraints we will have to lower the number of installed hectare plots from eight to six. This may have a minor impact on the biodiversity and ecosystem services evaluations. By end of March MHNKM and Kew have established project websites; and the protocols and work flows are well-established for the next plots. The plots have so far been installed in "Bosque de Niños" forest which is protected by community law, with agreements signed with the communities. This will minimize the chance of the sites being cleared prior to closure of the project. The team is planning four field trips in the 2nd yr (April 2014-March 2015), which is sufficient to collect the data needed for the forest ecosystem services evaluations, providing information for incorporation into the awareness-building and education programmes (below). However, for a peer-reviewed publication it is necessary to verify the species identifications against the Kew Herbarium. We therefore assume that it will be possible to export the collected material in the near future when the project has been authorised by the Bolivian authorities.

Output 4 – Awareness of BES values increased. Progress has already been made as 1) baseline data has been collected about knowledge of BES values among 23 children living in forest communities; 2) forty two adults and 39 children have received capacity building in Inga agroforestry techniques; 3) 200 attendees participated in Alex Monro's lecture at UAP; and 4) ten adult male community members and two Licenciado students have received capacity building in forest plot installation techniques and plant identification.

NB Risk of further delay to project activities resulting from transport difficulties has been reduced by the purchase of a project vehicle with non-Darwin funds.

3.3 Progress towards the project Purpose/Outcome

Sustainable forest management developed and practised in four pilot communities in Pando, Bolivia including: 1) diversification of NTFP resource collection 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. The project is so far on track for delivering its stated outcomes. Significant progress has been made in item 2 and preparatory progress towards the delivery of item 3. Purpose-level assumptions remain broadly valid; the main challenge lies with assumption 2 – that options and market demand are in place for sustainable forest products (item 1). Options do exist and there is market demand, but there are challenges in making the connection between the two. We intend to address this by broadening the engagement of partners in this element of the project, including Bolivian governmental organisations.

3.4 Goal/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. Impacts on biodiversity impact and poverty alleviation are long-term goals of the project. After six months of operation it is much too early to demonstrate impact at this level (success will necessarily depend on effective demonstration of economic incentives and opportunities), but the project is on track to deliver impacts on both livelihoods and biodiversity once the agroforestry systems become productive and begin to be taken up beyond the project target communities, NTFP trade has diversified and awareness of biodiversity and ecosystem service values have increased in the region. We are not aware of risk changes that threaten the validity of the project design and logic in this regard.

4. Project support to the Conventions (CBD, CMS and/or CITES)

The project will assist Bolivia in meeting its obligations under the CBD by addressing articles: 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. Principal Cross-Cutting Issues addressed by the project include: Biodiversity for Development; Communication, Education and Public Awareness; Ecosystem Approach; and Sustainable Use of Biodiversity. The current Bolivian Government has incorporated sustainable use of natural resources within the country's constitution and developed a new strategy to implement the CBD which was presented at COP 11. This consists of the Integrated Forest Management (IFM) concept that was legislated for within Bolivia in 2012 through the Mother Earth Law. This project is working to provide knowledge (NTFPs, agroforestry techniques, agroforestry species, restoration techniques, forest ecosystem services value, forest biodiversity value), skills (agroforestry techniques) and alternative incomes (NTFPs) that will directly support this strategy.

We initially contacted the CBD focal point in Bolivia: Sra Dedy Gonzalez Herrera at the Bolivian Ministry of the Environment and Water (DGB), to ensure that the project maximises its contribution to the CBD goals currently prioritised within the country. We have since made direct contact with the UK Ambassador to Bolivia (meeting in La Paz), who has expressed interest in visiting the project together with local governmental authorities.

5. Project support to poverty alleviation

Tools, skills and knowledge to alleviate poverty sustainably are developed and applied in the Bolivian Amazon, improving livelihoods and reducing deforestation

This project has been designed to contribute directly towards poverty alleviation within forest communities in Pando. It is expected that diversification and expansion of NTFP collection/marketing from Pando will see the number and quantity of traded species increased, with improved household incomes and financial stability for harvesters. Crucially this will make harvesters' livelihoods less vulnerable to market and productivity fluctuations and climate change. Information on NTFPs will be more accessible to the forest communities constituting 40% of Pando's population, helping harvesters react to market changes and opportunities.

Adaptation of *Inga* agroforestry techniques, their promotion and adoption by four pilot communities, and subsequent outreach among the 220 forest communities in Pando, will increase capacity of the rural poor to meet their basic needs sustainably. This will result in reduction in forest conversion through slash-and-burn subsistence agriculture among participating communities, with increased agricultural productivity derived from agroforestry. After only six months a total of eight hectares have already been planted with *Inga* agroforest and the idea is gaining momentum both in the communities and among Pando ranchers.

6. Monitoring, evaluation and lessons

A project GANTT chart was developed to gain an overview of progress. This includes activities, milestones and work plan/progress which is reviewed to track progress. The mechanism for participatory M&E and associated methodology, including measures of evaluation prepared and translated into Spanish, has been developed collaboratively. Simple forms to monitor project progress relevant to the report period were developed in collaboration with partners in Bolivia in November 2013, where activities and indicators were adjusted and identified by Bolivia project staff to reflect reality on the ground. This includes the monitoring of progress against each of the activities, specific milestones, outputs relevant to the reporting period, including the person responsible for reporting progress according to agreed schedule (every three months). The planned activities were budgeted with our partners; the budget is also being used to follow progress and adjust activities.

Protocols to assess effectiveness of participatory monitoring were devised to gather data such as level of satisfaction, change in values and knowledge among the beneficiaries and to identify positive/negative experiences across the project (where problems arose, and how participants think these might be remedied) and to gather information on where participants see the future opportunities of similar projects to monitor impact.

Over the first six months the project has made significant progress towards achieving sustainable forest management practise in Pando. Direct community experience in the setting up of community nurseries and hands-on training in the different stages of seed collection, sowing and planting of *Inga* species, supported by specialist technical input, is providing members in the four communities with skills and know-how in agroforest systems and building a better understanding of the benefits this system can bring to the community. Of particular relevance in this context was Carmen Ibaguary's experience in Palacios who quickly picked up on what she learnt and came up with the idea of planting seedlings on the banks of the community plot (orillas de la cancha de la comunidad) and on her own farm (chaco) so as to compare where the seedlings would grow better. Also Román Changaray from Palacios has grown 1000 seedlings to be moved to his farm. This we feel also illustrates the level of satisfaction observed among members of the communities as new opportunities and ideas emerge in the community.

Significant milestones towards the uptake of the agroforestry system is reflected in the adoption of *Inga* based agroforest for the rehabilitation of degraded pasture land to restore soil fertility both in San Antonio and Las Palmas – areas outside the community. Following this, further offers of degraded pasture saw extra hectares of *Inga* agroforestry planted in three local ranchers' land near San José and Porvenir. Further planting is planned in these properties later in the year (see indicators below). This is particularly relevant to meeting Year 3 project outcome to generate increased uptake of agroforestry system to improve livelihoods of burgeoning forest-based communities and support biodiversity.

Central to the project's goals is to explore the potential of education to raise awareness of the value of the local forest and its biodiversity among the younger generation and to highlight their socio-economic benefits to other communities in the Pando region and to those who are influencing the uses and management of these forests. This work is underway in Palacios and Motacusal where children began to learn about productive systems and functioning of ecosystem services provided by the forest as well as tree identification skills, and why it is important to maintain and conserve the forest (see indicators below). In the same context, the project is building capacity in plant survey and identification skills, generating a body of scientific data and understanding (see indicators below) of this relatively poorly researched ecosystem of the Amazon. The data has begun to be disseminated through project websites, blogs, and lectures.

The following indicators are monitored:

Training and capacity building of local people in the Pando region and awareness of the social-economic value of an Agroforestry system for sustainable livelihood and health woodland

- *Number of communities in which nurseries and bank facilities implemented.* Four nursery facilities established in four communities: San José, Motacusal, Pimpollo and Palacios. Nurseries were established in June 2013 (10/14 days each plot) and monitored with an average of 2,000 seedlings planted per day on the four sites. Regular visits every two weeks to the communities by project staff to monitor set up of nurseries and maintenance/weeding of plots by the community. Two visits by specialist consultants from UK (Terry Pennington) and Peru (Jaime Leon) June 2013 and February 2014.
- *Number of people/families trained in seed collecting/planting and establishment of nurseries.* Motacusal: 13 (6 women); Palacios 14 (5 women); San José 15 (4 women) and Pimpollo (4 men and 4 women). Training effectiveness and satisfaction were observed in the field and recorded in project diary, staff reports. This was monitored informally as part of the activities through interactions with specialists and technical staff and interaction between the groups.
- *Number of seeds/seedlings established in nurseries.* 14,593 seeds sourced and sown and 12,490 seedlings planted in San José, Motacusal, Pimpollo and Palacios. Information about Inga species names, data of germination, date of sowing, % of mortality and growth based on sampling protocol were annotated in the field and registered as part of the monitoring. These data have been entered into an Excel document, copies of which are kept at Herencia and Kew.
- *Number of Inga agroforestry plots implemented in the four communities in Pando.* Two hectares of Inga agroforests planted in Motacusal (1 ha) and San José (1 ha). Two extra plots outside the communities at Hacienda San Antonio and Finca Las Palmas. This was set up under the guidance of the UK and Peru specialists, Terry Pennington and Jaime Leon, and monitored by technical staff and the communities through participatory activities and training activities. These have been established with the aim of demonstrating the value Inga to rehabilitate degraded cattle pasture and farmland.
- *Increased opportunities, activities and projects as a result of increased understanding of the benefit provided by the agroforestry system.* Six hectares as rehabilitation of pasture in two local farms owned by Itamar Sutil (San Antonio ranch, 4 ha) and Snr Velarde (Las Palmas, 2 ha). An additional site is planned with Ruben Burgos (5 ha).
- *Number of participants in the exchange visit to Peru.* Due to delays in planting caused by flooding and the optimal time for visiting the Peru sites this activity has been moved to the second year/period of the project (see summary finance below).

Value of biodiversity and ecosystem services increased among teachers, urban and rural schools and scientific community.

Biodiversity inventories

- *Number of area of plots fully tagged/measured and collected.* Two 1 hectare plots, in Palacios and Motacusal. Three weeks spent by Bolivia/UK team in the field and progress monitored through project team monitoring report. Capacity building of thesis students Ruperto Parada Arias and Sahiury Vargas Lucinto of the School of Biological Sciences, UAP, and 10 adult community members in forest plot installation techniques and plant identification.
- *Number of trees tagged and collected.* 1,193 trees measured and coded and in the two plots. Approx. 450 specimens with at least two duplicates: 50 general collections and approximately 400 plot vouchers. First tranche of fieldwork completed in Palacios and Motacusal and report submitted. 90% of specimens identified to family, 75% to genus and 65% to species in the two plots. 100% of specimens housed at the MHNK herbarium collection, of which 100% processed and entered in a database.
- *Number of photographs of species.* 2,400 photographs taken from the specimens; over 50% photography of species and 10% in database.
- *% specimens at Kew.* No progress, please see comments above.

Educational activities

- *Number of children/questionnaire implemented until end of December 2013.* 23 children (6-12 years of age) and 4 teachers. This has been measured by assessing the number of people and effectiveness of the participants taking part in the survey, including the ability of the community extension worker to carry out the survey. Data generated from the survey analysed and report submitted.
- *Number of people/questionnaire implemented until end of February 2014.* No progress. See change made in M&E below.
- *Number of school children in agroforestry education activity.* 39 children: Palacios (12 of which 6 girls); San José (14 of which 7 girls); Motacusal (13 of which 6 girls). Report and through observation of practical exercises in productive system (sowing and planting of the Inga-agroforestry plots) and functioning of ecosystem services resulting in 54 seedlings planted with only 10 seedlings dead - 44 plants were named/baptised by the children.
- *Increased value and knowledge of biodiversity and ecosystem services among school children and teachers in the four communities.* 30 children (19 girls) knowledge of plants characters, concept of species and numbers and carbon sequestration value increased. Baseline: in Palacios the nine children knew between two and twelve species by their common name. In Motacusal, 14 children took part and knew 11 trees species among themselves. The highest individual score knew seven species. Knowledge accessed through conversations and informal interaction among the groups and with biodiversity team, community extensionist, small focus-group discussions and individual interviews and later through analysis of the survey and report.
- *Number of children and teachers from rural schools in education activities.* No development, but planning in place to start in Year 2 of the project

Value of biodiversity and ecosystem services increased among wider audience through the dissemination of project results to a wider audience

- *Number of videos in U-Tube and Blog.* Measure: (<http://tropicalbotany.wordpress.com>) which had received 1,916 visits by March 2014. The blog is reblogged on the project websites at RBG, Kew.
- *Number of people accessing Boni link and partners' webpages*
 - (<http://www.kew.org/science/tropamerica/pando>). 606 page views February-April 2014, 57% from Bolivia. Kew's webpage is being revamped with improved visibility to Science area with should improve visit to Forest Future Project pages.
 - (<http://museonoelkempff.org/museo/noticias-y-actualizaciones-del-proyecto/>)
 - (http://www.herencia.org.bo/index.php?q=noticias_novedades&nid=313) 822 page views in March
 - *Partners' Twitter accounts and/or Facebook pages:* 207 visits to Herencia Facebook project announcement
- *Number of radio/TV or media interviews.* Interview given by Alex Monro about the agroforestry component of the project to the main TV channel in Bolivia at prime time on April 11th (www.boliviavt.bo).
- *Number of articles published in media.* No progress as yet.
- *Number of seminars/meetings.* Lecture to ca 200 students at the Universidade Amazonica del Pando on the use of Inga to rehabilitate degraded land and support permaculture; a meeting with the UK Ambassador in Bolivia and a presentation to the community in Pimpollo on the use of Inga to rehabilitate degraded land and support permaculture and the soils of the Amazon.

Plans to capture baseline data initially planned for November/December 2013 were delayed, and later suffered setbacks due to flooding which made access to the communities difficult. The new work schedule for February 2014 also suffered from the imminent departure of our community extension worker, Jazmin Daza, due to personal circumstances. Herencia is now addressing this problem and is in the process of recruiting a replacement.

In discussion with the team in Bolivia, we adjusted some outputs and indicators in the logframe including:

- *12 local radio features/interviews*: According to local sources radio is not effective means of communication with rural populations in the region, and television, the web and other substitutes will be used as substitutes.
- *Experimental growth trials*: Following expert advice from technical consultants, we are unlikely to obtain significant data that cannot be achieved through monitoring of species growth in community-based trials. We have incorporated a mixture of *Inga* species in these trials, and will be monitoring accordingly.
- *Results cited and incorporated in Amazonian Millennium Development Plan and conservation plans*: The Bolivian Millennium Development Plan and conservation plan is nearly completed and will be printed before year 3 of project. Indicator now reads: Poverty and environmental sustainability indicators incorporated into the new Sustainable Development Objectives (ODS) which replaces the ODM (see also change to logframe Annex 2). Herencia is now part of a network for Sustainable Development Solution for the Amazon and recently participated in a meeting to discuss the new objectives of ODS with other partners (ONU, PNUMA and PNUD). Herencia's participation in this network and discussions will facilitate input into the definition of these objectives, and communication of project findings to other Amazonian institutions.

Lessons learned

M&E can be time consuming as constant/daily communication is needed with partners via email/Skype to follow up progress. This is complicated by the very poor web infrastructure in Cobija. This is particularly true of overseas projects where frequent face-face meetings are possible only during field visits, making it challenging to use logframe as an adaptive management tool and monitor unintended consequences. Also the unfamiliarity of some of the monitoring methodology (culture disparity) does not allow project staff and beneficiaries to identify easily with the concept of participatory monitoring as feedback and with project lifecycle to track progress and readily adapt changes into future project activities. In order to address this, and following discussions with the Darwin Committee, adjustments were made to the allocation of Kew staff time in order to strengthen the monitoring and evaluation component.

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

8. Other comments on progress not covered elsewhere

9. Sustainability

During the 1st six months the project team has promoted the project through a dedicated project blog, a project website in English on the RBG, Kew portal and in Spanish on the MHNNKM portal. The team has been interviewed by Bolivian TV and promoted the project in presentations to the communities and UAP. As described above, the project is also working through Herencia to strengthen engagement with government policies and development goals.

The exit strategy of the project is to achieve sustainable outcomes but not all components will have stable end points. Development of management practices and market supply chains for NTFPs, and adaptation, demonstration and uptake of agroforestry systems, are intrinsically long-term processes. The project is working to integrate research, technology transfer and stakeholder participation through engagement with existing initiatives continuing beyond the life of the project. Adaptive management, training is built into all aspects, and increasing interest and capacity for biodiversity in the region are intrinsic to the project design.

10. Darwin Identity

The Darwin initiative logo is featured on the project's English and Spanish-language websites, and Darwin Initiative funding clearly communicated in external communications. The team is planning to place the logo on the newly purchased project vehicle once it arrives in Cobija. Despite the fact that the project will continue to raise funds and build partnerships to extend its activities beyond its initial three years, it is clearly recognised by all partners that this project is developed with Darwin Initiative funding, and forms part of the 'family' of Darwin Initiative projects in Bolivia. Since its beginning Bolivia has been

the recipient of 16 projects funded by the Darwin Initiative. The project partner MNNKM in Santa Cruz has experience from two previous projects, and the Bolivian authorities are familiar with research applications from these projects.

11. Project Expenditure

Table 1 project expenditure during the reporting period (1 April 2013 – 31 March 2014)

Project spend since last annual report	2013/14 Grant (£)	2013/14 Total actual Darwin Costs (£)	Variance %	Comments (please explain significant variances)
Staff costs (see below)			10.50	Field technician assigned by Herencia on higher salary
Consultancy costs			84.11	Planned consultancy trip in the second year moved to end of first year due to the need to plant the Inga seedlings in February 2014
Overhead Costs			18.78	MHNNKM policy change now requiring 10% overhead/ administration costs
Travel and subsistence			-30.36	International travel exchange visit postponed to year two of the project – this activity will be covered by matching funds in year 2
Operating Costs			-17.83	Initiation workshop costs reduced through community-based meetings
Capital items (see below)			-17.14	Pruning equipment provided by Kew
Others (see below)			-2.00	
TOTAL				

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

Within six months of operation, the project has already successfully engaged with landowners (cattle farmers) outside the foreseen scope of its first year activities, and established pasture enrichment trials using Inga. We have been able to capitalise on unexpected interest and demand, and adapt our work plan flexibly in order to accommodate their needs and broaden the potential impact of the project.

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



Annex 1: Report of progress and achievements against Logical Framework for Financial Year 2013-2014

Darwin Initiative Annual Report



Department
for Environment
Food & Rural Affairs

Project summary	Measurable Indicators	Progress and Achievements April 2013 - March 2014	Actions required/planned for next period
<p>Goal/Impact</p> <p>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</p>		<p>Progress towards development and implementation of sustainable land use practices contributing towards poverty alleviation and biodiversity conservation</p>	
<p>Purpose/Outcome</p> <p>Sustainable forest management developed and practised in four pilot communities in Pando, Bolivia including:</p> <ol style="list-style-type: none"> 1) diversification of NTFP resource collection 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. 	<ol style="list-style-type: none"> 1. Collection and trade in NTFPs through at least two cooperatives and involving at least 160 households increased from one to at least three products by year 3. 2. Household income derived from sustainable forest products increased by 10% among 160 NTFP harvester households by year 3, monitored through cooperatives. 3. 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 3 among 100 households. 4. Annual forest clearance reduced by 10% in four pilot communities by year 3. 5. Awareness of forest ecosystem services values and sustainable forest management opportunities and 	<p>Initiation of review of potential non-timber forest products; engagement with local and international organisations</p> <p>Four pilot communities and additional landowners engaged in pioneer agroforestry programme, with trials planted</p> <p>Biodiversity and ecosystem service data collection begun; baseline knowledge surveys partially completed;</p>	<p><i>Further NTFP research and engagement with market opportunities; finalisation of species/product selection for marketing trials and initiation</i></p> <p><i>Ongoing development and monitoring of agroforestry demos supported by community capacity-building; development of additional planting supported by research</i></p> <p><i>Completion of establishment of forest plots; synthesis of biodiversity and ecosystem data; development of education/communication programme</i></p>

	incentives increased at, community, school, NTFP harvester and regional decision-making levels by year 3.		
Output 1. Increased diversity of traded, sustainably harvested non-timber forest products (NTFPs) in Pando, supported by locally adapted information resources and delivery mechanisms, promoting sustainable forest management practice.	<ol style="list-style-type: none"> Two NTFPs not currently traded from the Pando have been traded in the UK for one year (Yr 3). Awareness of ecosystem and biodiversity values of local Amazonian forest increased among local farming and NTFP harvesting households, school children and local decision makers. 	Initial progress towards NTFP identification and analysis of market opportunities	
Activity 1.1. Identification & resource inventory of potential NTFPs incorporating field, desk-based and market components.	Meetings and discussions on potential NTFPs held with a wide range of potential partners: University of Brasilia (Floriano Pastore) use of wild rubber in artesanal latex production; handicrafts from Jibre (Cobija); Tahuamanu Brazil nut Craft factory. The UK partner Free World Trading was unable to support this component during Year 1, leaving a need to reformulate the activities in this part of the project.		
Activity 1.2. Market-testing, marketing, promotion and production pipeline of two selected NTFPs.			
Activity 1.3. Monitor diversity & economic value of NTFPs harvested and sold against a baseline.			
Activity 1.4. Disseminate findings through Brazil experience exchange, workshop and production of 'One-stop guide' to sustainable forest products.			
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.	<ol style="list-style-type: none"> Number of local livelihoods incorporating <i>Inga</i> agroforestry strategies on their land increases from 0 to 100. (Yr 3) Area of agroforestry in pilot communities increased from 0ha to 20ha by Yr 3 and the number of participating communities increase from 4 to 16 during the course of the project (Yr 3) 	Twenty-two livelihoods in two communities with a total of 20 livelihoods (San Jose and Motacusal), and two ranches are actively engaged in Inga-agroforestry. Two communities with a total of 22 livelihoods (Palacio and Pimpollo) are actively engaged in seed sowing and nursery maintenance, but planting still to be done, as soon as weather permits it. A fifth community, Irak, is interested in joining the project in yr 2. Two hectares were planted as Inga-agroforestry in the communities and six as rehabilitation of pastures by the two local ranch owners.	

	<p>3. Surface area of <i>Inga</i> agroforestry in Bolivian Pando increases from current area of 0ha to 80ha. (Yr 3)</p> <p>4. Agroforestry system successfully adapted and at least six families in each of four communities trained in management and monitoring. (Yr 2)</p>	
<p>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.</p>		<p>Agreements and seed nurseries were established with four pilot communities, an additional two ranch owners joined the project. About 14,600 seeds were sourced and sown, and 12,490 seedlings planted.</p> <p>Total of 42 adults and 39 children were trained in seed collecting, sowing and planting, and nursery management and maintenance, learning valuable lessons for the next sowing and planting season to take place in yr 2.</p>
<p>Activity 2.2. Establish four community and one university <i>Inga</i> agroforestry demo plots and experimental growth trials including native <i>Inga</i> species and requisite agreements (prior informed consent, ABS etc).</p>		<p>Two hectare <i>Inga</i>-agroforestry plots established in Motacusal and San Jose under the guidance of British and Peruvian specialists.</p> <p>Two additional plots to be established (Pimpollo and Palacios) once weather permits it.</p>
<p>Activity 2.3. Experience exchanges with Peruvian <i>Inga</i> agroforestry programme (yr 1, yr 2).</p>		<p>Brazil/Peru exchange visit planned for end of yr 2.</p>
<p>Activity 2.4. Analyse data from experimental trials, combine with experiences in Honduras and Peru to produce agroforestry guide for Amazonian Bolivia.</p>		<p>Data from demo plots to be analysed and fed back to the community demo plots by yr 2.</p> <p>Agroforestry guide published, distributed, and used in community agroforestry workshops and visits to plots by end of yr 2.</p>
<p>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 <i>Inga</i> agroforestry techniques.</p>		<p>Training in seed collecting, seeds sourced and sown and planting provided.</p> <p>Protocol to evaluate training to be implemented in 2014 (see 6. M&E)</p> <p>Training and capacity building provided for primary school teachers/facilitators and school children in field study skills, plot sowing and maintenance, harvest value of biodiversity, interpretation, participatory E&M and project management throughout yr 2 (see 6. M&E)</p>

<p>Activity 2.6. Monitor uptake of agroforestry practices by local farmer community and increase in forest cover against an initial baseline.</p>	<p>Mapping and quantification of agroforestry cover updated to quantify uptake and practice against baseline throughout yr 2.</p>
<p>Output 3. Knowledge of ecosystem services, biodiversity and associated values in Pando forests increased through eight permanent survey plots, including species diversity, carbon stocks and provisioning services (useful and marketable plants).</p>	<p>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 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)</p>
<p>Activity 3.1. Desk based review of ecosystem services (carbon stock related to wood density, wood density related to species, biodiversity value, NTFPs etc).</p>	<p>The reviews of Pando plant species diversity (Appendix 3 – Activity 3.1) was carried out using key herbarium databases, and the review of carbon stock and wood density data is under way.</p>
<p>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).</p>	<p>Two of six (see 3.1 for comment) planned permanent hectare plots were installed in forest belonging to the Bosque de los niños programme securing permanency of the plots: 1175 trees with diameter larger than 10 cm tagged, measured and recorded in two one-hectare permanent plots; 100% of specimens housed at the MHNNKM herbarium collection; 100% processed and databased; 90% of specimens identified to family, 75% to genus and 65% to species. Ten adult male community members and two Bolivian undergraduate biology students have received capacity building in forest plot installation techniques and plant identification.</p> <p>Four additional permanent hectare plots to be installed in 2014. Biodiversity, forest composition, structure and biomass data collected in six plots by March 2015. An additional ten male community members will receive training in forest plot installation techniques, and the two Bolivian undergraduate biology students and one British MSc student will undertake their theses project with the team.</p>

<p>Activity 3.3. Dissemination of above information tailored to project audiences: local communities, local policy makers, scientific community.</p>	<p>During the project initiation workshop in November 2013 plans (with timeline) were made for delivering the result of this component to all the project stakeholders from primary school pupils to local governmental decision makers in terms of workshops, customized booklets, and presentations.</p> <p>Workshop and booklet planned for local authorities and press about local biodiversity and ecosystem services values to be taking place and published by 2015.</p>
<p>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.</p>	<p>1. Output 3 results cited and incorporated into updated Bolivian Amazon Millennium Development Plan and conservation plans (Yr 3)</p> <p>2. Educational programmes promoting understanding of ecosystem service and biodiversity value of natural forest included in school activities. (Yr 2, 3)</p> <p>3. Annual forest clearance in Pando reduced by 10% from current level of in four pilot communities. (Yr 3)</p> <p>Indicator 1. This indicator has been changed to: “Poverty and environmental sustainability indicators incorporated into the new Sustainable Development Objectives (ODS)” See 6. M&E for an explanation.</p> <p>Indicator 2. During the project initiation workshop in November 2013 plans (with timeline) were made to deliver the schools programme within the context of the Bosque de los Niños programme in the four pilot communities and in an additional three urban schools in Cobija, already engaged by HERENCIA. Since January 2014, this component has suffered from the departure of Jazmin Daza who has been a central figure representing HERENCIA and the Bosque de los Niños programme. HERENCIA has advertised the post, but it is a challenge to replace somebody with Jazmin’s skill and to ensure that they establish similar levels of respect and trust by adults, children, and teachers in the communities.</p> <p>Indicator 3. Herencia collects data on land use change and heat maps on a regular basis. These data will be will used to calculate deforestation rates.</p>
<p>Activity 4.1. Publicity & dissemination through YouTube, Twitter, other social media, website and local media (print & radio), national press releases, and conference participations.</p>	<p>A project blog was developed and reblogged on the project websites at the RBG, Kew, MHNNKM, and team members’ Facebook pages. By March 2013 the blog received 1916 visits worldwide. Project websites were developed at the RBG, Kew (in English) and MHNNKM (in Spanish and completed in March 2013). Project-relevant news items on Herencia’s website and Facebook-page receiving 822 and 207 visits, respectively.</p> <p>One interview on Bolivia national TV about Inga-agroforestry (www.boliviavt.bo)</p> <p>Presentation to the leader of the Israelite community and presented Israelite conference in Cochabamba</p>

	<p>One Lecture to students and lecturers at the Universidad Amazonica del Pando (UAP)</p> <p>Visit to the UK Embassy in La Paz, Bolivia</p>
Activity 4.2. Annual press review; independent stakeholder review; radio audience rating.	Programmed for Year 2
Activity 4.3. Workshops and capacity building of farmers, local government officials, published guides, talks	<p>Informal workshops during participation of communities in agroforestry and forest plot establishment</p> <p>Visit by key local decision makers planned in 2014</p>
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.	<p>Initiation workshop in November 2013: M&E developed (see 6. M&E) budget and finance reporting planned</p> <p>Baseline data survey with adults currently being implemented (see 5. M&E) Baseline data analysed 2014 and baseline for total household income calculated by Herencia 2014. Second survey with children and adults in 2015.</p>
Activity 4.5. Development and delivery of schools programme and educational materials.	<p>Report baseline data Baseline with 23 children (6-12 years of age) and 2 teachers completed and analysed in two communities. Similar survey with children in the two remaining communities to be implemented in 2014.</p> <p>-30 children (19 girls) learnt concepts of species and carbon sequestration taught in the field. (see M&E)</p> <p>-Knowledge of plant characters, concept of species and carbon sequestration value increased among 30 children.</p> <p>-children learnt practical tasks in sowing and planting and functioning of ecosystem services. 54 seedlings planted (only 10 seedlings dead) and 44 plants were named/baptised by the children</p> <p>-Activities based on results of survey to be planned and implemented in 2014.</p> <p>-Environmental education three rural schools planned in 2014</p>

Annex 2 Project's full current logframe

Project summary	Measurable Indicators	Means of verification	Important Assumptions
<p>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.</p>			
<p>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</p>			
<p>Purpose/OUTCOME Sustainable forest management developed and practised in four pilot communities in Pando, Bolivia including: 1) diversification of NTFP resource collection 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.</p>	<ol style="list-style-type: none"> 1. Collection and trade in NTFPs through at least two cooperatives and involving at least 160 households increased from one to at least three products by year 3. 2. Household income derived from sustainable forest products increased by 10% among 160 NTFP harvester households by year 3, monitored through cooperatives. 3. 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 3 among 100 households. 4. Annual forest clearance reduced by 10% in four pilot communities by year 3. 5. Awareness of forest 	<ol style="list-style-type: none"> 1. Annual cooperative trade figures; pilot community annual collection and trade records. Baseline data on agricultural output submitted as part of first Half Year Report. 2. Annual household economic surveys, focus group reports and records of sales through cooperatives and Freeworld Trading monitoring programme. 3. 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. 4. Mapping and remote sensing/GIS data indicate leverage of agroforestry cover of 3:1 with 	<ol style="list-style-type: none"> 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. 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

	ecosystem services values and sustainable forest management opportunities and incentives increased at, community, school, NTFP harvester and regional decision-making levels by year 3.	respect to the four community plots; focus group reports 5. Baseline data and results of annual monitoring of awareness of ecosystem value of forest collected through value/culture surveys of communities and their leaders, schools and regional decision-makers.	makers throughout the project will help minimize this risk.
Outputs (add or delete rows as necessary) 1: Increased diversity of traded, sustainably harvested non-timber forest products (NTFPs) 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 traded in the UK for one year (Yr 3). 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.	1.1. Baseline data on collectors' income from NTFPs submitted with first Half Year Report, annual monitoring data submitted with Annual and Final Reports. 1.2. NTFP trade figures by product for NTFPs from Pando compiled by project partner Freeworld Trading and submitted in Annual and Final Reports. 1.3. Two new (for Pando) NTFPs available from a retailer in Bolivia and or the EU. Samples sent with Final Report. 1.4 'One-stop guide' to sustainable forest products. Sample sent with Final Report.	1. Of the potential species selected for initial market testing (<i>Plukenetia volubilis</i> , <i>Bertholletia excelsa</i> shells, wild <i>Euterpe sp</i> , wild <i>Theobroma cacao</i>) 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 local livelihoods incorporating <i>Inga</i> agroforestry strategies on their land increases from 0 to 100. (Yr 3) 2 Area of agroforestry in pilot communities increased from 0ha to 20ha by Yr 3 and the number of participating communities increase from 4 to 16 during the course of the project (Yr 3) 3. Surface area of <i>Inga</i>	2.1. Annual yield from demonstration <i>Inga</i> agroforestry plots documented and submitted as part of Annual and Final Reports. 2.2. Mapping and quantification of <i>Inga</i> agroforestry, non-productive disturbed vegetation (e.g. degraded pasture) and natural forest using remote sensed data. Documented in a peer-reviewed	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.

	<p>agroforestry in Bolivian Pando increases from current area of 0ha to 80ha. (Yr 3)</p> <p>4. Agroforestry system successfully adapted and at least six families in each of four communities trained in management and monitoring. (Yr 2)</p>	<p>publication, Annual Reports, local workshops and schools programme by Year 3.</p> <p>2.3. Number of families adopting <i>Inga</i> agroforestry techniques recorded as part of annual surveys.</p> <p>2.4. Field training/work attendance records by participating groups.</p> <p>2.5. Observation of practical field work, recordings in diaries, scrap books in projects activities and feedback from participating groups.</p> <p>2.6. Control trial (agroforestry and native <i>Inga</i>) experimental reports.</p> <p>2.6. Community Focus Group reports document awareness, understanding and motivation to adopt agroforestry techniques by Year 2.</p> <p>2.7. Biodiversity value of agroforestry systems documented and disseminated in a peer-reviewed publication, local workshops and schools programme by Year 3.</p> <p>2.8. <i>Inga</i> agroforestry booklet. Sample sent with Year 2 report.</p>	
<p>3: Knowledge of ecosystem services, biodiversity and associated values in Pando forests increased through eight six permanent survey plots, including species diversity, carbon stocks and provisioning services (useful and marketable plants).</p>	<p>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 3)</p>	<p>3.1. Press releases, project websites and blog, social media, online clips, radio and face to face activities documented and included in Annual and Half Year Reports.</p> <p>3.2. Ecosystem and biodiversity value of natural forests</p>	<p>1. Sites remain available for establishment of forest plots.</p> <p>1. Natural forest carbon stocks can be realistically estimated from data on species composition, associated wood anatomy and biomass.</p> <p>2. NTFP and timber value can be realistically estimated from species</p>

	<p>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)</p>	<p>documented in peer-reviewed publication. 3.3. Forest biodiversity and ecosystem services booklet. Sample sent with Year 3 report.</p>	<p>composition and biomass. 3. Research and specimen export regulations allow Kew to support species diversity, sampling and mapping component.</p>
<p>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.</p>	<p>1. Output 3 results cited and incorporated into updated Bolivian Amazon Millennium Development Plan and conservation plans—Poverty and environmental sustainability indicators incorporated into the new Sustainable Development Objectives (ODS) which replaces the ODM (Yr 3) 2. Educational programmes promoting understanding of ecosystem service and biodiversity value of natural forest included in school activities. (Yr 2, 3) 3. Annual forest clearance in Pando reduced by 10% from current level of in four pilot communities. (Yr 3)</p>	<p>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; radio audience rating. 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. Updated draft of ‘Millennium Development Goals for the Bolivian Amazon’ published Poverty and environmental sustainability indicators incorporated into the new Sustainable Development Objectives (ODS) which replaces the ODM submitted as annex to the Final Report.</p>	<p>1. The “<i>El Bosque de los Niños</i>” 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.</p>

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. Market-testing, marketing, promotion and production pipeline of two selected NTFPs.
- 1.3. Monitor diversity & economic value of NTFPs harvested and sold against a baseline.
- 1.4. Disseminate findings through Brazil experience exchange, workshop and production of 'One-stop guide' to sustainable forest products.

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 1, yr 2).
- 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 increase in forest cover against an initial baseline.

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 etc).
- 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 & radio), national press releases, and conference participations.
- 4.2. Annual press review; independent stakeholder review; radio audience rating.
- 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 3 Standard Measures

Table 1 Project Standard Output Measures

Code No.	Description	Year 1 Total	Year 2 Total	Year 3 Total	Year 4 Total	Total to date	Number planned for reporting period	Total planned during the project
2	British MSc student to analyse the collected data for her MSc thesis					0	0	1
4 A	Capacity building of Bolivian UAP undergraduate students	2				2	0	4
4B	Training in plot survey and plant identification skills of UAP students	6				6	0	30
4C	British MSc student to receive training					0	0	1
4D	Training in data analysis methods of forest plot data for BES evaluation					0	0	1
5	Training of project technical staff (agroforestry, plot surveys)	6				6	6	6
6 A	Number of trainees in agroforestry techniques, forest plot installation, plant identification, biodiversity and ecosystem services evaluation	114				114	100	500
6 B	Training weeks as above	342				342	300	1500
7	Training materials produced	1				1	1	3
8	Weeks spent by project staff in host country	19				19	20	82
10	NTFP booklet, Agroforestry booklet, BES booklet,	0				0	0	3
11A 11B	Inga-agroforest methodology, BES evaluation, and Illustrated checklist of wood plant species of Pando	0				0	0	3
12A	Specimen and plot databases established in Bolivia	2				2	2	2
12 B	Specimen databases enhanced in Bolivia	3				3	3	3
13 B	Bolivian species reference collections enhanced (botanical collections)	3				3	3	3
14A	Conferences/seminars/workshops organised to disseminate findings	3				3	1	6
14B	Conferences/seminars attended to disseminate findings	1				1	1	8
15 A & 15 C	National press releases in Bolivia and UK	2				0	2	8
16 A 16 B 16 C	Newsletters (including web-based blog posts, and website news items)	12				12	2	50
18 A & 18 B	National TV programmes Bolivia and UK, including YouTube video clips)	1				1	1	4
19A, 19B & 19C	National and local radio programmes Bolivia and national radio programmes UK							

20	Estimated value (£'s) of physical assets to be handed over to host country	3,500				3500	3500	3,500
22	Permanent field plots established NB BES AND Agroforestry	2				2	4	6
23	Value of resources raised from other sources in £'s:							
	The Kew Foundation	40,000				40,000	40,000	40,000
	The Bentham Moxon Trust	1,630				1,630	1500	6,130
	Bolivian partners	10,984				10984	20,507	65,167

In Table 2, provide full details of all publications and material produced over the last year that can be publicly accessed, e.g. title, name of publisher, contact details, cost. Mark (*) all publications and other material that you have included with this report.

Table 2 Publications

Type (eg journals, manual, CDs)	Detail (title, author, year)	Publishers (name, city)	Available from (eg contact address, website)	Cost £
N/A	N/A	N/A	N/A	N/A

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

Appendix 1. Seed from four *Inga* species sourced, sown, germinated and planted in four pilot communities.

Appendix 2. Agroforest Planting Summary to March 31 2014

Appendix 3. Checklist of Pando flowering plant species diversity

Appendix 4. Protocolo para la instalación de parcelas permanentes de monitoreo, inventarios de carbono y colectas botánicas para el proyecto Investigación botánica para el futuro de los bosques by Alejandro Araujo Murakami.

Appendix 5. Summary of plot data.

Appendix 6. Custom-built Access database for forest plot and voucher data.

Appendix 7. Summary of project web-statistics by March 2014.

Appendix 8. Names of community members participating in *Inga*-agroforestry capacity building sessions.

Appendix 9. Capacity-building in *Inga*-agroforestry techniques.

Appendix 10. Results of baseline knowledge survey with school children in the Palacios community.

Appendix 11. Results of baseline knowledge survey with school children in the Motacusal community.

Checklist for submission

	Check
Is the report less than 10MB? If so, please email to Darwin-Projects@ltsi.co.uk putting the project number in the Subject line.	Yes
Is your report more than 10MB? If so, please discuss with Darwin-Projects@ltsi.co.uk about the best way to deliver the report, putting the project number in the Subject line.	No
Have you included means of verification? You need not submit every project document, but the main outputs and a selection of the others would strengthen the report.	Yes
Do you have hard copies of material you want to submit with the report? If so, please make this clear in the covering email and ensure all material is marked with the project number.	No
Have you involved your partners in preparation of the report and named the main contributors	Yes
Have you completed the Project Expenditure table fully?	Yes
Do not include claim forms or other communications with this report.	