

Darwin Initiative Main Project Annual Report

Darwin Project Information

Project Reference	21-008
Project Title	Reciprocal Watershed Agreements: conserving Bolivia's Chaco through improved livelihoods
Host Country/ies	Bolivia
Contract Holder Institution	Fundación Natura Bolivia
Partner institutions	Municipal governments of Huacaya, Machareti, Villa Vaca Guzman, Cuevo, Huacareta, Camiri, Boyuibe. Monteagudo, Assembly of the Upper Parapeti Guarani Indigenous Groups
Darwin Grant Value	£262,600
Funder (DFID/Defra)	DFID
Start/end dates of project	April 1 2014 / March 31 2017
Reporting period	April 2014-March 2015 Annual Report 1
Project Leader name	Nigel Asquith
Project website/blog/Twitter	www.naturabolivia.org
Report author(s) and date	Nigel Asquith April 30 th 2015

1. Project Rationale

Bolivia's Gran Chaco encompasses swamps, salt flats, scrublands, and the largest virgin dry forest on earth. Although the region offers high soil fertility, it receives minimal rainfall. Most of the economic activity in Chaco requires water, so there is an urgent need to increase water efficiency and, most importantly, ensure that the water even arrives in the lowlands. The Chaco is home to more than 3,400 plant species, of which 400 are endemic, and 150 mammal species, (12 of which are endemic) including eight different types of armadillo. Nevertheless, upper watershed farmers often have no economic alternative other than to deforest their land for agriculture. Forests are destroyed and cows enter streambeds to drink, forage, urinate and defecate. The subsistence agriculture of upper watershed farmers is unproductive, while downstream water sources are contaminated, children miss school with diarrhoea, and waterholes dry up.

Our Darwin project was designed to create/consolidate eight Municipal Water Conservation Funds (MWCF). These MWCF are designed to catalyze local investment in upstream "Water Factories" and thereby simultaneously 1) mitigate climate change (conserve old growth forests), 2) adapt to climate change (maintain water sources), 3) increase food security (maintain quantity of irrigation water and diversify upstream production systems) and 4) improve human health (enhance water quality). Based on our previous experiences the MWCF are designed as follows: Three parties sign a 10-year agreement: the downstream water provider opens a separate bank account, into which revenues from a new "environmental services" tariff are channelled, local government purchases beehives, fruit tree seedlings, irrigation pipes or other development tools, to be given in compensation for upstream forest conservation, and Natura provides technical support to get the schemes up and running.

2. Project Partnerships

We have two main partner groups, the most important of which is the Municipal governments of Huacaya, Machareti, Villa Vaca Guzman, Cuevo, Huacareta, Camiri, Boyuibe and Monteagudo.

The creation of the MWCFs is by decree or a signed partnership agreement between Natura, the municipal governments and the water providers. In some cases it was possible to sign three-way agreements immediately (Cuevo, Boyuibe). In other cases, it takes longer (Villa Vaca Guzman), and sometimes, as a first step it makes sense to sign a two-way agreement with the municipality to get things started (Machareti, Monteagudo). In yet other cases, things take longer than we had hoped (Camiri, Huacaya, Huacareta), usually because of personal issues or political posturing. However, although we are behind on signing some of these official partnership agreements, we have no doubt that things are moving positively. For example even though we do not yet have formal MWCF agreements in Huacaya and Huacareta, both municipal governments have contributed, as *ad hoc* support, grants for compensation payments—showing their strong commitment to the project.

Our second primary partner is the Assembly of the Upper Parapeti Guarani Indigenous Groups. The Assembly is more of a political partner, which will support project diffusion and communication. We therefore have not yet undertaken any major activities with this partner, other than a series of planning and updating meetings.

3. Project Progress

The project has proceeded as planned in 2014. Some activities have taken longer than others—for example we have not yet gained traction in the municipality of Camiri. However, such delays are to be expected in the initial stages of the project when we are building the political will to develop a long-term joint program with municipal authorities. In general it is fair to say that all activities have been carried out in the manner and time planned, and that we are progressing as proposed.

3.1 Progress in carrying out project activities

Output 1. 8 Municipal Water Conservation Funds (MWCFs) with statutes, legal status, and board gender balance	Activity 1.1 Design eight cooperative-managed Watershed Conservation Funds to facilitate and channel investments by water users in upstream conservation	We have made advances in all eight municipalities. In Cuevo, Boyuibe, and Villa Vaca Guzman the MWCF are now up and running, and have received local funding of £1000, £1350 and £7650 respectively. In Monteagudo and Machareti the design of the funds is completed, the Municipal governments have signed on, but we are still negotiating with the water providers. We will start work to set up the MWCFs in Huacaya, Huacareta and Camiri in 2015. There are no new activities planned for the next period, we will simply continue with the same activities and expand them to other municipalities.
	Activity 1.2, Hold a series of meetings to develop and/or improve statutes, legal status of water cooperatives, promote gender balance on boards, and develop Water Fund rules and regulations in 8 municipalities	We have held meetings in all eight municipalities throughout the year. Advances have varied by municipality: some are slower some are quicker. However, we are confident that all is proceeding well in all municipalities.

Output 2: 20,000 ha of forest conserved through conservation contracts or municipal decrees	Activity 2.1. Undertake baseline biodiversity and water quality data collection prior to project and collect follow up data at project end	We undertook bird and amphibian surveys at four representative sites, recording 2301 individuals of 121 bird species, 17 species of amphibians and 16 species of reptiles. We undertook water quality surveys at 150 sample points in 92 communities across the Chaco, measuring turbidity, temperature, fecal coliform loads and aquatic macro invertebrate abundance and diversity. (see attached document “ <i>Chaco Water Quality Baseline</i> ”)
	Activity 2.2. Present project concept to upstream landowner, offer compensation packages, and sign contracts	We offered the project to families in Machareti, Huacaya, Huacareta, Boyuibe, and Villa Vaca Guzman municipalities and 263 signed up to receive compensation payments.
Output 3. 500 families have signed conservation contracts, and received compensation packages	Activity 3.1. Undertake socioeconomic data collection prior to project and collect follow up data at project end	We interviewed 3087 families in 138 communities in the Municipalities of Huacareta (1186 families, 43 communities), Villa Vaca Guzman (836 families, 47 communities), and Monteagudo (1067 families, 48 communities). See attached (Socioeconomic data municipality of Monteagudo) for an example of the reports that we used to return the results to municipal authorities.
	Activity 3.2. Negotiate and then provide compensation to 500 upstream landowners, including beehives for honey production, fruit tree seedlings, and grass seeds/barbed wire for cattle management	263 contracts were signed, and compensation packages were delivered comprising barbed wire and grass seeds for cattle management, citrus tree seedlings and one drip irrigation system.
Output 4. 10,000 downstream water users contribute to Municipal (MWCF) funds	Activity 4.1. Undertake, and then present to users, hydrological data collection and modeling to better quantify impact of upstream deforestation on water availability, flooding and droughts	With counterpart funding we have built four stream flow measurement weirs, set up four meteorological stations and installed a network of rain gauges. Conrado Tobon and Yurani Manco from the National University of Colombia (Medellin) have started analyzing the data, and we have presented preliminary results in Santa Cruz and the town of Vallegrande.
	Activity 4.2. Finalize negotiation and continue annual lobbying for at least a 1:8 match for project funds with resources from municipal water users and irrigators, ensure that at least 10,000 water users are contributing to watershed protection	We have initiated negotiations with each downstream water user associations and municipal governments. Local contributions to the project were ~£10,000, with ~1500 people indirectly contributing through their local water provider.
Output 5. 5,000 ha under improved cattle management, honey production and fruticulture	Activity 5.1. Train and equip up to 200 families in honey production	50 families have been trained in honey production
	Activity 5.2. Train up to 200 families in improved cattle management and drip irrigation techniques	100 families have been trained in improved cattle management, and 1 family in drip irrigation techniques

3.2 Progress towards project outputs

Output	Output indicator	Advances 2014
8 Municipal Water Conservation Funds (MWCFs) with statutes, legal status, and board gender balance	<p>Number of MWCF created (prior to project 2, after project 8) and consolidated (prior to project 0, after project 8)</p> <p>Number of women on MWCF board (prior to project 10%, after – project 35%)</p>	<p>In Cuevo and Boyuibe the three-party MWCF existed prior to the Darwin project. In these municipalities we have therefore focused on working with the parties to strengthen and consolidate the funds. In Machareti and Villa Vaca Guzman, we have had advanced, with signed agreements with the Municipal authorities, but we are still waiting for each municipality's water companies to join the program. In Monteagudo, the creation of the three-party MWCF was finalised on June 16th 2014 with the signature of the Water Company. In Huacaya, Huacareta and Camiri we have held a series of meetings with the authorities, but have not yet made concrete advances with MWCF creation. There are now two women on the board of the Villa Vaca Guzman water cooperative, but this advance is probably not a direct result of the project.</p>
20,000 ha of forest conserved through conservation contracts or municipal decrees	<p>Hectares conserved under RWA (prior to project 0, after project 20,000)</p> <p>Number of municipal decrees (prior to project 0, after project 3)</p>	<p>The project has put 3693 under conservation in four municipalities Machareti (764 ha,) Huacaya (1995 ha), Boyuibe (1081 ha), and Villa Vaca Guzman (1848 ha). These were standard RWA, agreed upon between landowners, Natura and the water providers. Also, the Huacareta municipal government published a decree that initiated the process of setting up a new protected area, the 103,274 ha Serrania de los Milagros Water Sanctuary. As part of this process, which we expect to complete in 2015, Natura will put 18,557 ha under short-term conservation agreements pending the final approval of the new protected area.</p>
500 families have signed conservation contracts, and received compensation packages	<p>Number of contracts signed (prior to project 0, after project 500)</p> <p>Number of families with compensation packages (prior to project 0, after project 500)</p>	<p>263 contracts have been signed, and 263 compensation packages have been delivered.</p>
10,000 downstream water users contribute to Municipal (MWCF) funds	<p>Number of resolutions of water providers to either charge downstream users or to use a percentage of general funds for upstream conservation (prior to project 0, after project 8)</p> <p>Number of users contributing (prior to project 0, after project 10,000)</p> <p>Annual bank transfers from water providers to MWCF accounts (prior to project 0, after project 8)</p>	<p>Of the three water providers that have agreed to support upstream conservation (in Cuevo, Boyuibe and Villa Vaca Guzman) each have decided that rather than have a line itemed tariff increase, for now they prefer to make their contributions out of general funds (£1350, £1000 and £7650 respectively). While this is not the ideal modality for engendering sustainability, we seen these investments themselves as an important first step. Thus the three resolutions signed so far have been for one-off investments, rather than creation of the long-term institutional structures. Nevertheless, approximately 1500 families are contributing, albeit through these block payments rather than individual contributions to tariff increases.</p> <p>5 bank transfers were made in 2014 from the Cuevo and Boyuibe water funds and from the Villa Vaca Guzman municipal government, and</p>

		also from the Huacareta municipal government (£6700) to help compensate landowners for the creation of the new Serrania de los Milagros Water Sanctuary, and the Huacaya Municipal Government (£4000) to compensate 94 families for the conservation of 1944 hectares.
5,000 ha under improved cattle management, honey production and fruticulture	Number of hectares under improved management (prior to project 0, after project 5,000)	In Villa Vaca Guzman, we have improved management of 30 hectares, though enhanced grazing forage, and in Monteagudo we have put 1 ha under drip irrigation.

3.3 Progress towards the project Outcome

Our project is expected to have one outcome “*Conservation of 20,000 hectares of forest that supply water to 10,000 Bolivians, through bottom up contributions for environmental service provision (Reciprocal Watershed Agreements, or RWA) to 500 poor upstream farmers*”. We have advanced significantly towards achieving each of the four outcome indicators:

1. **3693 hectares** (out of an expected project-end total of 20,000 ha) **have been put under conservation** in four municipalities Machareti (764 ha,) Huacaya (1995 hectares), Boyuibe (1081 ha), and Villa Vaca Guzman (1848 ha).
2. **263 upstream landowners have been compensated** (out of an expected project-end total of 500 landowners) for the forest conservation activities, and **1,500 water users** (out of an expected project-end total of 10,000 users) **have contributed** to make the compensation payments
3. **5 water cooperatives** (out of an expected project-end total of eight) **have been strengthened**, facilitating the creation and consolidation of five municipal water funds
4. **100 families** (out of an expected project-end total of 500) **have been trained** and equipped to adopt conservation-based management practices

The indicators appear adequate for measuring our progress to achieving our outcome, and we fully expect to achieve the project outcome by the end of funding.

3.4 Monitoring of assumptions

We initiated the project with four major assumptions, that:

- *Farmers will rationally respond to a change in incentive structures. Currently, it is in the economic interest of forest owners to mine their resource. We believe that by changing incentive structures—making reciprocity contributions to give intact forests value and so decrease the opportunity cost of conservation—we can change landowner behaviour.*
- *There is a forest cover-water quality relationship.*
- *If we provide general institutional strengthening, including, for example, increasing the number of women on the boards of water funds and cooperatives, that management will improve and interest in conservation will increase, and that stronger upstream institutions will increase the interest of downstream users in contributing*
- *The downstream willingness to contribute for environmental service provision is more than the willingness of upstream landowners to accept payments for conservation and that initial donor investments will catalyze local similar action, rather than resulting in the moral hazard of downstream users concluding that donors will continue to cover their losses*

As far as we can see, each of these assumptions still hold true, but we will continue to monitor all of these assumptions in 2015.

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

In 2014, **263 families received compensation packages worth more than £20,000**—including £10,000 from local sources—in exchange for committing to the **protection of 3693 ha of their water producing forests**. These compensation packages comprised of alternative development project such as improving cattle management, fruit tree husbandry and honey production. While we cannot yet assess the impact of these projects on poverty reduction, the involved families have had a clear positive increase in their physical capital assets.

The formal protection of 3693 ha of forests is likely to have clear biodiversity benefits in an area that supports more than 120 bird species, and is part of the Andean foothills, known for their globally important biodiversity.

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

Although a CBD signatory, Bolivia is opposed to the current direction of negotiations. The country believes that there is too much of a focus in the CBD on the “mercantilization” of nature, and on markets as a primary solution. At Rio + 20, at the UNFCCC, and at the CBD, Bolivia’s Chief Negotiator, Rene Orellana, and the Forests Negotiator, Diego Pacheco, have developed concrete proposals for non-market alternatives that link the conventions: and in Durban, the Ad Hoc Working Group on Long-term Cooperative Action recommended “*non market based approaches, such as joint mitigation and adaptation approaches for the integral and sustainable management of forests as a non-market alternative that supports and strengthens governance, ... could be developed*”.

We are working very closely with the Bolivian national government to promote the RWA model as a mechanism for mitigation and adaptation to climate change and protection of biodiversity. In April 2014 Nigel Asquith and Natura co-sponsored a meeting with Rene Orellana at Harvard University (<http://reneorellanahalkyer.blogspot.com/>) and just prior to initiating the Darwin project we presented the project at a IUCN-sponsored meeting of Latin American CBD focal points in La Paz, Bolivia. We have discussed the Darwin project and its predecessors many times with Diego Pacheco, who was until 2014 Bolivia’s CBD focal point, but Diego’s role changed with the 2014 Presidential elections (he is now Vice Minister for Economic Planning), and so the focal point role has now been taken up by Juan Carlos Alurralde. We will be restarting our conversations with Juan Carlos as soon as the post-election political situation has returned to normal.

5. Project support to poverty alleviation

The short-term direct way that this project will benefit poor people is through financial transfers from richer downstream water users to the relatively poorer upstream landowners. In exchange for protecting their forests, these upstream farmers are receiving development tools and projects, which will diversify their income sources away from climate susceptible annual crops, to more resilient perennial crops, such as fruit trees, and other drought-resistant livelihood strategies such as honey production. In 2014, **263 families received compensation packages worth more than £20,000**—including £10,000 from local sources—in exchange for committing to the **protection of 3693 ha of their water producing forests**.

The second, indirect, livelihood impact on both upstream and downstream community members will come from increased quality and quantity of water. With more water in the dry season, agricultural productivity will increase, especially if this is linked to compensation projects, such as drip irrigation that improve the efficiency of water use. Increased water quality, and reduced fecal coliform load will have a beneficial impact on health, especially children’s health, with concomitant improvements on school attendance. We have no data from 2014 to assess whether this effect is happening or not.

In 2014 we implemented a 250 question socioeconomic survey that we developed with colleagues from MIT and Harvard. Specifically, **we interviewed 3087 families in 138**

communities in the Municipalities of Huacareta (1186 families, 43 communities), Villa Vaca Guzman (836 families, 47 communities), and Monteagudo (1067 families, 48 communities). See attached (*Socioeconomic data municipality of Monteagudo*) for an example of the reports that we used to return the results to municipal authorities. This survey assessed, in general terms, the socioeconomic and attitudinal situation of potential project beneficiaries. We expect to collect similar data at the end of the project, which will provide evidence about our impact.

6. Project support to Gender equity issues

We are addressing gender equality in three specific ways. Traditional development activities, that focus on improving crop yields and productivity invariably benefit men. RWA, as a form of incentive-based conservation provides an innovative option, because 1) Women landowners can benefit from compensation payments directly: land itself, becomes a revenue-generating asset, and 2) RWA can target compensation forms that benefit women. For example, honey production is traditionally a female activity in the Andean foothills, so having beehives as compensation increases income-generating opportunities for women. RWA can thus transform forests into cash without the need for hard (often male) labour. Finally, we have as a specific project goal an increase of female representation on the board of the water providers from 10% to 35%. We try and lead by example, many of our institution's leaders are female, and we discuss this issue at appropriate times with each of our partners. There are now two women on the board of the Villa Vaca Guzman water cooperative, but how much of this change can be credited to the project remains to be seen.

7. Monitoring and evaluation

We designed the project to have a very simple series of four outcome indicators. Monitoring of our progress is thus very straightforward.

1. **3693 hectares** (*out of an expected project-end total of 20,000 ha*) **have been put under conservation** in four municipalities Machareti (764 ha,) Huacaya (1995 hectares), Boyuibe (1081 ha), and Villa Vaca Guzman (1848 ha).
2. **263 upstream landowners have been compensated** (*out of an expected project-end total of 500 landowners*) for the forest conservation activities, and **1,500 water users** (*out of an expected project-end total of 10,000 users*) **have contributed** to make the compensation payments
3. **5 water cooperatives** (*out of an expected project-end total of eight*) **have been strengthened**, facilitating the creation and consolidation of five municipal water funds
4. **100 families** (*out of an expected project-end total of 500*) **have been trained** and equipped to adopt conservation-based management practices

We believe that there is a very clear link between outputs, activities and outcomes. Internal reporting on these outcomes is undertaken every month, and we have had no need to make changes to our M&E plan (although we are now asking our field teams for short, bi-weekly updates to make sure things are on track).

8. Lessons learnt

What worked well, and what didn't work well: In general, the project has advanced as we expected. Some activities, especially the institution building, have taken longer than was hoped, but this is par for the course, especially in a year when Bolivia was gearing up for national and then municipal elections. Prior to starting this project we had not explored the potential for using RWA as a strategy for protected area creation. One great success is that in 2014 we have seen unexpected demand from municipalities for protected area creation—in Huacareta, Monteagudo and Machareti—so we are now using RWA as a short-term carrot to catalyze discussions about new protected areas. Thus model has great potential for putting far more hectares under conservation than we expected at the start of the project.

What we should have done differently: At the end of 2014 the field team alerted us to the opportunity of creating a new 103,000 ha protected area in Huacareta municipality. We decided that this was too good an opportunity to miss, so we engaged with the Huacareta government. The good news is that this is advancing, and that the government has bought into the RWA concept. We have therefore set in motion a process by which we will put 18,557 ha under short-term conservation agreements pending the final approval of the new protected area. Again, this is a great advance: the only problem is that we negotiated poorly with the Municipal government, and so did not arrive at the hoped for ratio between what Natura and its donors will invest, and what the Municipal government invests (*N.B. Note that Darwin funds will not be used for any compensation payments, rather we will use additional counterpart funds*). Our field team were so excited about the potential for the new protected area, that they agreed to a deal without taking enough time to negotiate the details. We and our donors will thus end up investing the lion's share of the compensation payments in this municipality, and so will have to be especially careful about the deals we negotiate elsewhere.

Recommendations for others doing similar projects: Getting buy-in from local authorities is actually very easy: most mayors are happy to sign cooperative agreements when they see that a project will bring benefits at little cost to them. More difficult, is to negotiate deals in which the local authorities invest more than the donor. The RWA model strives to, and usually achieves this balance, but sometimes we fail, as in Huacareta. Nevertheless, encouraging significant local investment is critical for long-term project financial sustainability.

How we will build this learning into the project and future plans: We do not intend to make the same negotiating mistake again. However, one positive aspect of what will be our big 2015 investment in Huacareta is that 113 families have expressed their interest in conserving their forests in return for compensation. This puts us in a very strong position with the mayor as we have proof that the project works, and his constituents want to join, and so we have good argument that next year, the municipal government needs to invest more like its fair share!

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

This is our first report, so this section is not applicable

10. Other comments on progress not covered elsewhere

The project remains on track. The only change we made from the initial proposal was to switch some of the municipalities. This was because when we initially proposed the project we committed to setting up, from zero, the MWCFs in six municipalities. In between submitting the proposal and receiving funding, we actually managed to set up such funds in Gutierrez and Cabaezas (as well as those previously set up in Cuevo and Boyuibe), so we replaced these municipalities in our Darwin project with Huacaya and Huacareta, where we indeed have worked from zero. This means that the Darwin project will indeed create 6 new MCWFs over its lifetime. Thus, all activities, outputs and outcomes remain the same.

11. Sustainability and legacy

As we mentioned in our original proposal "This effort is designed to be self-sustainable. We expect that the seed funds provided by the Darwin initiative will "prime the pump" that will get the schemes off and running so that local resources, primarily the block grants from the municipal governments, and the expected increases in water tariffs, can fully kick in within 2 years, and provide long term financial sustainability for upstream conservation. As an institution, Natura has designed this project with a gradual exit strategy within 5 years, leaving behind eight self-sustaining locally run systems"

The design of each MWCF commits Natura to 10 years of support, but at decreasing levels of financial contributions over time. The Darwin project is subsidizing the first phase—high levels of support—with the expectation that support will decline after these funds are used. Therefore right from our initial meeting with municipal governments, we have made it clear that it is the

local authorities that must support the program in the long term. This focus has already resulted in significant co-financing investment from local sources: approximately £10,000 in 2014.

In addition, local governments are gradually developing the internal capacity to run and fund the program on their own, as witnessed by the three-way institutional agreements that have been signed. We thus believe our exit strategy is still valid.

12. Darwin Identity

We have ensured that the Darwin logo appears on the project website (www.naturabolivia.org) and on brochures we have distributed about the project. However our institutional philosophy is not to promote and discuss what we are doing before it is completed: thus we have made few efforts to publicise the project so far. Rather, we expect that once we have solid sustainable results, we will run our publicity and diffusion campaigns. We are therefore planning significant presentations at international conferences and symposia in the third year of the project, approximately 14 months from now.

There is however, significant awareness within Bolivia—and across the Andes—about Natura’s work on Reciprocal Watershed Agreements, given that we have been developing the model for over 10 years. The Darwin project fits squarely within this larger programme, so we will be using the success of the projects we initiated 10 years ago to help explain and promote the advances of the Darwin project.

13. Project Expenditure

Table 1 Project expenditure during the reporting period (1 April 2014 – 31 March 2015)

Project spend (indicative) since last annual report	2014/15 Grant (£)	2014/15 Total Darwin Costs (£)	Variance %	Comments (please explain significant variances)
Staff costs (see below)				
Consultancy costs				
Overhead Costs				
Travel and subsistence				
Operating Costs				
Capital items (see below)				
Others (see below)				
TOTAL			0	94,200 No significant variances

Annex 1: Report of progress and achievements against Logical Framework for Financial Year 2014-2015

Project summary	Measurable Indicators	Progress and Achievements April 2014 - March 2015	Actions required/planned for next period
<p>Impact: <i>Enhanced agricultural productivity in the Bolivian Chaco through incentive based watershed management that contributes to income diversification for local farmers and indigenous groups</i></p>		<p>It is too early to expect an impact of the project biodiversity and watershed conservation. Nor, after only one year of activities, can we yet expect reductions in poverty. Nevertheless, we are satisfied that we advancing: 263 families received compensation packages worth more than £20,000— including £10,000 from local sources— In exchange for committing to the protection of 3693 ha of their water producing forests.</p>	
<p>Outcome: Conservation of 20,000 hectares of forest that supply water to 10,000 Bolivians, through bottom up contributions for environmental service provision (Reciprocal Watershed Agreements, or RWA) to 500 poor upstream farmers.</p>	<p>1: 20,000 ha of forests conserved along the major rivers that provide agricultural water for the Chaco</p> <p>2: 500 upstream landowners compensated for the forest conservation activities that better secure dry season water supplies for 10,000 users</p> <p>3: 8 water cooperatives and community-based organizations strengthened /developed to better manage their water resources</p> <p>4: 500 farmers trained and equipped to adopt conservation-based management practices</p>	<p>1: 3693 have been put under conservation in four municipalities Machareti (764 ha,) Huacaya (1995 hectares), Boyuibe (1081 ha), and Villa Vaca Guzman (1848 ha).</p> <p>2: 263 upstream landowners have been compensated for the forest conservation activities, and 1,500 water users have contributed to make the compensation payments</p> <p>3: 5 water cooperatives have been strengthened, facilitating the creation and consolidation of five municipal water funds</p> <p>4: 100 families have been trained and equipped to adopt conservation-based management practices</p>	<p>1: We will continue efforts to sign more conservation agreements, and in Huacareta, condition these agreements on the creation of a new 103,000 ha protected area.</p> <p>2: We will continue to compensate more families for their conservation activities, and to encourage downstream users to contribute.</p> <p>3: We will consolidate our efforts in Cuevo, Boyuibe, Machareti, Villa Vaca Guzman, and Monteagudo, and initiate activities to create MWCF in Huacaya, Huacareta and Camiri.</p> <p>4: We will train more families in conservation-based management practices</p>
<p>Output 1. 8 Municipal Water Conservation Funds (MWCFs) with statutes, legal status, and board gender balance</p>	<p>Number of MWCF created (prior to project 2, after project 8) and consolidated (prior to project 0, after project 8)</p> <p>Number of women on MWCF board</p>	<p>In Cuevo and Boyuibe the three-party MWCF existed prior to the Darwin project. In these municipalities we have therefore focused on working with the parties to strengthen and consolidate the funds. In Machareti and Villa Vaca Guzman, we have had advanced, with signed agreements with the Municipal authorities, but we are still waiting for each municipality's water companies to join the program. In Monteagudo, the creation of the three-party MWCF was finalised on June 16th</p>	

	(prior to project 10%, after –project 35%)	2014 with the signature of the Water Company. In Huacaya, Huacareta and Camiri we have held a series of meetings with the authorities, but have not yet made concrete advances with MWCF creation. There are now two women on the board of the Villa Vaca Guzman water cooperative, but this advance is probably not a direct result of the project.
Activity 1.1 Design eight cooperative-managed Watershed Conservation Funds to facilitate and channel investments by water users in upstream conservation		We have made advances in all eight municipalities. In Cuevo, Boyuibe, and Villa Vaca Guzman the MWCF are now up and running, and have received local funding of £1000, £1350 and £7650 respectively. In Monteagudo and Machareti the design of the funds is completed , the Municipal governments have signed on, but we are still negotiating with the water providers. We will start work to set up the MWCFs in Huacaya, Huacareta and Camiri in 2015. There are no new activities planned for the next period, we will simply continue with the same activities and expand them to other municipalities.
Activity 1.2, Hold a series of meetings to develop and/or improve statutes, legal status of water cooperatives, promote gender balance on boards, and develop Water Fund rules and regulations in 8 municipalities		We have held meetings in all eight municipalities throughout the year. Advances have varied by municipality: some are slower some are quicker. However, we are confident that all is proceeding well in all municipalities.
Output 2: 20,000 ha of forest conserved through conservation contracts or municipal decrees	Hectares conserved under RWA (prior to project 0, after project 20,000) Number of municipal decrees (prior to project 0, after project 3)	The project has put 3693 under conservation in four municipalities Machareti (764 ha,) Huacaya (1995 ha), Boyuibe (1081 ha), and Villa Vaca Guzman (1848 ha). These were standard RWA, agreed upon between landowners, Natura and the water providers. Also, the Huacareta municipal government published a decree that initiated the process of setting up a new protected area, the 103,274 ha Serrania de los Milagros Water Sanctuary. As part of this process, which we expect to complete in 2015, Natura will put 18,557 ha under short-term conservation agreements pending the final approval of the new protected area.
Activity 2.1. Undertake baseline biodiversity and water quality data collection prior to project and collect follow up data at project end		We undertook bird and amphibian surveys at four representative sites , recording 2301 individuals of 121 bird species, 17 species of amphibians and 16 species of reptiles. We undertook water quality surveys at 150 sample points in 92 communities across the Chaco, measuring turbidity, temperature, fecal coliform loads and aquatic macro invertebrate abundance and diversity. (see attached document “ <i>Chaco Water Quality Baseline</i> ”)
Activity 2.2. Present project concept to upstream landowner, offer compensation packages, and sign contracts		We offered the project to families in Machareti, Huacaya, Huacareta, Boyuibe, and Villa Vaca Guzman municipalities and 263 signed up to receive compensation payments.
Output 3. 500 families have signed conservation contracts, and received compensation packages	Number of contracts signed (prior to project 0, after project 500) Number of families with compensation packages (prior to project 0, after project 500)	263 contracts have been signed, and 263 compensation packages have been delivered.

<p>Activity 3.1. Undertake socioeconomic data collection prior to project and collect follow up data at project end</p>	<p>We interviewed 3087 families in 138 communities in the Municipalities of Huacareta (1186 families, 43 communities), Villa Vaca Guzman (836 families, 47 communities), and Monteagudo (1067 families, 48 communities). See attached (<i>Socioeconomic data municipality of Monteagudo</i>) for an example of the reports that we used to return the results to municipal authorities.</p>				
<p>Activity 3.2. Negotiate and then provide compensation to 500 upstream landowners, including beehives for honey production, fruit tree seedlings, and grass seeds/barbed wire for cattle management</p>	<p>263 contracts were signed, and compensation packages were delivered comprising barbed wire and grass seeds for cattle management, citrus tree seedlings and one drip irrigation system.</p>				
<p>Output 4. 10,000 downstream water users contribute to Municipal (MWCF) funds</p>	<table border="1"> <tr> <td data-bbox="604 395 1086 563"> <p>Number of resolutions of water providers to either charge downstream users or to use a percentage of general funds for upstream conservation (prior to project 0, after project 8)</p> </td> <td data-bbox="1086 395 2078 922" rowspan="3"> <p>Of the three water providers that have agreed to support upstream conservation (in Cuevo, Boyuibe and Villa Vaca Guzman) each have decided that rather than have a line itemed tariff increase, for now they prefer to make their contributions out of general funds (£1350, £1000 and £7650 respectively). While this is not the ideal modality for engendering sustainability, we seen these investments themselves as an important first step. Thus the three resolutions signed so far have been for one-off investments, rather than creation of the long-term institutional structures. Nevertheless, approximately 1500 families are contributing, albeit through these block payments rather than individual contributions to tariff increases.</p> <p>5 bank transfers were made in 2014 from the Cuevo and Boyuibe water funds and from the Villa Vaca Guzman municipal government, and also from the Huacareta municipal government (£6700) to help compensate landowners for the creation of the new Serrania de los Milagros Water Sanctuary, and the Huacaya Municipal Government (£4000) to compensate 94 families for the conservation of 1944 hectares.</p> </td> </tr> <tr> <td data-bbox="604 563 1086 643"> <p>Number of users contributing (prior to project 0, after project 10,000)</p> </td> </tr> <tr> <td data-bbox="604 643 1086 922"> <p>Annual bank transfers from water providers to MWCF accounts (prior to project 0, after project 8)</p> </td> </tr> </table>	<p>Number of resolutions of water providers to either charge downstream users or to use a percentage of general funds for upstream conservation (prior to project 0, after project 8)</p>	<p>Of the three water providers that have agreed to support upstream conservation (in Cuevo, Boyuibe and Villa Vaca Guzman) each have decided that rather than have a line itemed tariff increase, for now they prefer to make their contributions out of general funds (£1350, £1000 and £7650 respectively). While this is not the ideal modality for engendering sustainability, we seen these investments themselves as an important first step. Thus the three resolutions signed so far have been for one-off investments, rather than creation of the long-term institutional structures. Nevertheless, approximately 1500 families are contributing, albeit through these block payments rather than individual contributions to tariff increases.</p> <p>5 bank transfers were made in 2014 from the Cuevo and Boyuibe water funds and from the Villa Vaca Guzman municipal government, and also from the Huacareta municipal government (£6700) to help compensate landowners for the creation of the new Serrania de los Milagros Water Sanctuary, and the Huacaya Municipal Government (£4000) to compensate 94 families for the conservation of 1944 hectares.</p>	<p>Number of users contributing (prior to project 0, after project 10,000)</p>	<p>Annual bank transfers from water providers to MWCF accounts (prior to project 0, after project 8)</p>
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<p>Number of users contributing (prior to project 0, after project 10,000)</p>					
<p>Annual bank transfers from water providers to MWCF accounts (prior to project 0, after project 8)</p>					
<p>Activity 4.1. Undertake, and then present to users, hydrological data collection and modeling to better quantify impact of upstream deforestation on water availability, flooding and droughts</p>	<p>With counterpart funding we have built four stream flow measurement weirs, set up four meteorological stations and installed a network of rain gauges. Conrado Tobon and Yurani Manco from the National University of Colombia (Medellin) have started analyzing the data, and we have presented preliminary results in Santa Cruz and the town of Vallegrande.</p>				
<p>Activity 4.2. Finalize negotiation and continue annual lobbying for at least a 1:8 match for project funds with resources from municipal water users and irrigators, ensure that at least 10,000 water users are contributing to watershed protection</p>	<p>We have initiated negotiations with each downstream water user associations and municipal governments. Local contributions to the project were ~£10,000, with ~1500 people indirectly contributing through their local water provider.</p>				
<p>Output 5. 5,000 ha under improved cattle management, honey production and fruticulture</p>	<table border="1"> <tr> <td data-bbox="604 1201 1086 1313"> <p>Number of hectares under improved management (prior to project 0, after project 5,000)</p> </td> <td data-bbox="1086 1201 2078 1313"> <p>In Villa Vaca Guzman, we have improved management of 30 hectares, though enhance grazing forage, and in Monteagudo we have put 1 ha under drip irrigation.</p> </td> </tr> </table>	<p>Number of hectares under improved management (prior to project 0, after project 5,000)</p>	<p>In Villa Vaca Guzman, we have improved management of 30 hectares, though enhance grazing forage, and in Monteagudo we have put 1 ha under drip irrigation.</p>		
<p>Number of hectares under improved management (prior to project 0, after project 5,000)</p>	<p>In Villa Vaca Guzman, we have improved management of 30 hectares, though enhance grazing forage, and in Monteagudo we have put 1 ha under drip irrigation.</p>				
<p>Activity 5.1. Train and equip up to 200 families in honey production</p>	<p>50 families have been trained in honey production</p>				
<p>Activity 5.2. Train up to 200 families in improved cattle management and drip irrigation techniques</p>	<p>100 families have been trained in improved cattle management, and 1 family in drip irrigation techniques</p>				

Annex 2 Project's full current logframe

Outcome	Outcome indicators	Outputs	Output indicator	Verifying outputs	Activities
Conservation of 20,000 hectares of forest that supply water to 10,000 Bolivians, through bottom up contributions for environmental service provision (Reciprocal Watershed Agreements, or RWA) to 500 poor upstream farmers.	8 water cooperatives and community-based organizations strengthened /developed to better manage their water resources (<i>before 0, after 8</i>) <i>Verification: Articles of association, minutes of meetings and records of training events</i>	1: 8 Municipal Water Conservation Funds (MWCF) with statutes, legal status, and board gender balance	1.1 Number of MWCF created (prior to project 2, after project 8) and consolidated (prior to project 0, after project 8)	MWCF articles of creation and statutes, resolutions naming board members	1.1 Design eight cooperative-managed Watershed Conservation Funds to facilitate and channel investments by water users in upstream conservation
			1.2 Number of women on MWCF board (prior to project 10%, after –project 35%)		1.2 Hold a series of meetings to develop and/or improve statutes, legal status of water cooperatives, promote gender balance on boards, and develop Water Fund rules and regulations in eight municipalities
	20,000 ha of forests conserved along the major rivers that provide agricultural water for the Chaco, including the Rios Parapeti and Pilcomayo (<i>before intervention 0 ha, after 20,000 ha</i>) <i>Verification: Rapid eye satellite imagery 5 m resolution</i>	2: 20,000 ha of forest conserved through conservation contracts or municipal decrees	2.1 Hectares conserved under RWA (prior to project 0, after project 20,000)	Rapideye satellite imagery based maps, signed contracts with GPS locations, municipal decrees	2.1 Undertake baseline biodiversity and water quality data collection prior to project and collect follow up data at project end
			2.2 Number of municipal decrees (prior to project 0, after project 3)		2.2 Present project concept to upstream landowner, offer compensation packages, and sign contracts
					2.3 Fence and/or exclude cattle from, and conserve 20,000 ha of downstream riverine forest to support infiltration and aquifer recharge, and provide pollen for foraging bees
	500 upstream landowners compensated for the forest conservation activities that better secure dry season water supplies for 10,000 users (<i>before 0, after direct— 500; indirect— 10,000</i>). <i>Verification: Conservation contracts, water cooperative records</i>	3: 500 families have signed conservation contracts, and received compensation packages	3.1 Number of contracts signed (prior to project 0, after project 500)	Signed contracts with compensation packages described, photos of package delivery	3.1 Undertake socioeconomic data collection prior to project and collect follow up data at project end
3.2 Number of families with compensation packages (prior to project 0, after project 500)			3.2 Negotiate and then provide compensation packages to 500 upstream landowners, including beehives for honey production, fruit tree seedlings, and grass seeds and barbed wire for cattle management		

		4: 10,000 downstream water users contribute to Municipal (MWCF) funds	<p>4.1 Number of resolutions of water providers to either charge downstream users or to use a percentage of general funds for upstream conservation (prior to project 0, after project 8)</p> <p>4.2 Number of users contributing (prior to project 0, after project 10,000)</p> <p>4.3 Annual bank transfers from water providers to MWCF accounts (prior to project 0, after project 8)</p>	Water provider records of the number of users/connections, resolution of water providers to either charge downstream users or to use a percentage of general funds for upstream conservation, bank transfers from water providers to MWCF accounts	<p>4.1 Undertake, and then present to users, hydrological data collection and modeling to better quantify impact of upstream deforestation on water availability, flooding and droughts</p> <p>4.2 Finalize negotiation and continue annual lobbying for at least a 1:8 match for project funds with resources from municipal water users and irrigators, ensure that at least 10,000 water users are contributing to watershed protection</p>
	500 farmers trained and equipped to adopt conservation-based management practices (before 0, after 1,000 farmers) <i>Verification: Meeting minutes</i>	5: 5,000 ha under improved cattle management, honey production and fruticulture	5.1 Number of hectares under improved management (prior to project 0, after project 5,000)	Rapideye satellite imagery based maps, signed contracts with GPS locations, interviews with beneficiaries	<p>5.1 Train and equip up to 200 families in organic honey production and commercialization</p> <p>5.2 Train up to 200 families in improved cattle management and drip irrigation techniques</p>

Annex 3 Standard Measures

Table 1 Project Standard Output Measures

Code No.	Description	Gender of people	Nationality of people (if relevant)	Year 1 Total	Year 2 Total	Year 3 Total	Total to date	Total planned during the project
9	Protected Area Management Plans be produced for Municipal Governments	n/a	n/a	0	1	1	1	2
12A	Socioeconomic and biodiversity database established and handed over to the host country	n/a	n/a	1	0	0	1	1
14A	Number of conferences /seminars/ workshops to be organised to disseminate findings	n/a	n/a	0	0	1	0	1
14B	Number of conferences /seminars/ workshops attended at which findings from Darwin project work will be disseminated.	n/a	n/a	0	0	1	0	1
23	Value of resources raised from Municipal Governments (and other donors)	n/a	n/a					110K

Table 2 Publications: none

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

Please see attached documents