

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 2015-March 2016 Annual Report 2
Project Leader name	Nigel Asquith
Project website/blog/Twitter	www.naturabolivia.org
Report author(s) and date	Nigel Asquith May 12 th 2016

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) in the Municipalities of Huacaya, Machareti, Villa Vaca Guzman, Cuevo, Huacareta, Camiri, Boyuibe and Monteagudo. These MWCF have been 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 start the schemes.

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 have a three way agreements Huacareta, the municipal governments has contributed, as *ad hoc* support, grants for compensation payments—showing a 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. Unfortunately, in 2015 this institution was wracked with severe internal political strife (a by product of President Evo Morale decreeing the legality of oil and gas production in protected areas, a decision that seriously divided the Guarani). As a result we have held off deepening our relationship with the Assembly.

3. Project Progress

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	Building on our advances in the last reporting period, in Monteagudo we extended our two separate agreements with the Water Company and the Municipality to formalize the creation of the three-way MWCF on September 14 th . In Huacareta, in discussions with the Mayor, we determined that the water company is still too institutionally weak to be part of a three-way agreement, so rather than sign one we will simply continue with the two-way agreement we signed with the municipality in 2013, and work together to strengthen the water company. We signed a three-party agreement in Camiri in October. Unfortunately we are still struggling in Huacaya where the Guarani communities want us to start work, as do municipal council members, but the mayor is opposed. Even though only one person is opposed, he is the mayor, so it is difficult to advance.
	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 throughout the year. Because this was an election year, advances have been slow, but we have kept the project ticking over in all municipalities. Our greatest advance has been in Camiri, where after three years of trying, we finally created the MWCF. Crucial in this advance was a change in municipal authorities, upon which we capitalised with a series of marketing events and a media campaign to create what is now our largest Water Fund (by downstream user number). As mentioned above—despite a series of meetings—there have been no advances in Huacaya (note that we have conserved forest in Huacaya, in a Natura-community deal without funds from government).
Output 2: 20,000 ha of forest	Activity 2.1. Collect baseline biodiversity and water quality data	No activities. We will collect end line data next year.

conserved through conservation contracts or municipal decrees	Activity 2.2. Present project concept to upstream landowner, offer compensation packages, and sign contracts	In 2015 we put 65,779 ha under conservation in five municipalities (Huacareta, Villa Vaca Guzman, Monteagudo, Cuevo and Huacaya). These were standard RWA, agreed upon between landowners, Natura and the water providers and/or municipal governments.
Output 3. 500 families have signed conservation contracts, and received compensation packages	Activity 3.1. Collect socioeconomic data	No activities. We will collect end line data next year.
	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	We signed 654 contracts this year. Since the start of the project 917 contracts have been signed, and 917 compensation packages have been delivered. This is almost 200% of our final target. The compensation packages comprised barbed wire and grass seeds for cattle management, citrus tree seedlings and irrigation systems. In one example, in the community of Huaraca in the Municipality of Cuevo, we helped implement 2 ha of drip irrigation, which has allowed 67 Guarani families to cultivate corn, tomatoes, squash and various other vegetables in return for the conservation of 1475 ha of primary forest.
Output 4. 10,000 downstream water users contribute to Water funds	Activity 4.1. Undertake, and then present to users, hydrological data collection and modelling	With counterpart funding we have built two more stream flow measurement weirs (we now have a total of six). Yurani Manco from the National University of Colombia (Medellin) completed two field data collection campaigns
	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	A total of £34,645 was invested in the project by the municipal governments of Cuevo (£1,000), Villa Vaca Guzman (£8,225), Huacareta (£2,544), Monteagudo (£6,960), Huacaya (£8,956) and Camiri (£6,960). Only one water cooperative contributed during this reporting period—Villa Vaca Guzman (£6,960)—but this is not problem as most cooperatives made their 2015 contributions prior to this reporting period and we are confident all will contribute later in 2016.
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	137 (87 of whom are new) families have been trained in honey production
	Activity 5.2. Train up to 200 families in improved cattle management and drip irrigation techniques	We are measuring “hectares under improved management” in three separate ways. The most basic measure is that 69,098 ha are under private conservation agreements. An additional 103,274 ha have been decreed as new protected areas. In order to leverage more direct improvements, we have worked with project beneficiaries to enhance their ability to more effectively use their compensation “payments” to improve their livelihoods. For example in the community of Akae we have helped 72 community members use their compensation packages to rehabilitate a drip irrigation system on 2 ha so that they can now irrigation corn, watermelon, squash and tomatoes. Meanwhile, in the community of Tacuarembó we have helped 46 families build chicken coops, to provide them with an alternative income sources to the extensive cattle grazing that was previously widespread. The number of hectares that will be under improved management because of these investments has still to be precisely calculated, but we initiated the improvement process during this reporting period.

3.2 Progress towards project outputs

	<i>Base line</i>	<i>Change recorded by 2016</i>	<i>Source of evidence</i>
Output 1: 8 Water Conservation Funds with statutes, legal status, gender balance			
<i>Indicator 1.1a</i> Number of MWCF created	2	7	See example of Camiri fund creation document
<i>Indicator 1.1a</i> Number of MWCF consolidated	0	7	See example of Monteagudo agreement three-party agreement, photo of training meetings in Camiri
<i>Indicator 1.2</i> Number of women on MWCF board	10%	10%	No systemic advances so far
Output 2: 20,000 ha of forest conserved through conservation contracts ordecrees			
<i>Indicator 2.1</i> Hectares conserved under RWA	0	69,472 ha	See example of individual contract with Alberto Lopez
<i>Indicator 2.2</i> Number of municipal decrees	0	1	See Decree creating the Serrania de los Milagros protected area
Output 3: 500 families have signed conservation contracts, and received compensation			
<i>Indicator 3.1</i> Number of contracts signed	0	917	See example of community contract with village of Laguna
<i>Indicator 3.2</i> Number of families with compensation packages	0	917	See individual and community example contracts
Output 4: 10,000 downstream water users contribute to Municipal (MWCF) funds			
<i>Indicator 4.1</i> Number of resolutions of water providers to either charge downstream users or to use a percentage of general funds for upstream conservation	0	7	See example of Camiri fund creation document and the Monteagudo strengthening document both of which stipulate the amount contributed by the water provider and/or individuals.
<i>Indicator 4.2</i> Number of users contributing	0	5000	Calculated from number of members of water cooperatives and/or number of connections
<i>Indicator 4.3</i> Annual bank transfers from water providers to MWCF accounts	0	0	Only one municipality (Villa Vaca Guzman) invested funds during the current reporting period and this was made in direct purchases.
Output 5: 5,000 ha under improved cattle management, honey production/fruticulture			
<i>Indicator 5.1</i> Number of hectares under improved management	0	~3000	This is an estimate, as we have not defined specifically what activities count and how this number is measured. See individual and community example contracts for examples

3.3 Progress towards the project Outcome

Outcome: Conservation of 20,000 hectares of forest that supply water to 10,000 Bolivians, through bottom up contributions for environmental service provision to 500 poor upstream farmers				Comments (if necessary)
	Baseline	Change in 2015	Source of evidence	
Indicator 1: Hectares under conservation (<i>expected project-end total of 20,000 ha</i>)	0	65,779	Signed contracts	Evidence of outcomes can be verified in the contracts and agreements with local authorities and individual landowners. Please see attached documents as examples, in addition we can provide scans of all these documents if required
Indicator 2a: Upstream landowners compensated (<i>expected project-end total of 500 landowners</i>)	0	654	Signed contracts	
Indicator 2b: Water users contributing to compensation payments (<i>expected project-end total 10,000</i>)	0	5000	Agreements with Water Cooperatives	
Indicator 3: Water cooperatives strengthened, facilitating creation and consolidation of water funds (<i>expected project-end eight</i>)	0	7	List and minutes of meetings	
Indicator 4: Families trained and equipped to adopt conservation-based management practices (<i>expected project-end 500</i>)	0	255	Signed contracts and lists of meeting attendance	

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 them in 2016. Only in one municipality, Huacaya, have we had problems with the fourth assumption, in the sense that the local mayor is not willing to contribute to environmental service provision. Indeed this mayor is not willing to allow the project to function in Huacaya unless we fulfil conditions such as the hiring of a technician of his choosing. This we refuse to do, so the project is on hold in that municipality.

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

In 2015, **654 families received compensation packages worth more than £35,000** from local sources, in exchange for committing to the **protection of 65,779 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. We cannot yet assess the impact of these projects on poverty reduction, but the involved families have had a clear positive increase in their physical capital assets.

In addition to land put under conservation through our standard reciprocal watershed agreement model, we introduced a new modality to the project. We were pleasantly surprised to find extremely high demand from local authorities for the creation of new protected areas. We therefore decided to devote Darwin resources to this highly cost-effective way of protecting biodiversity. In 2015, the Municipality of Huacareta finalized the creation of the new 103,274 ha Water Sanctuary, the Serrania de los Milagros. As part of this process we put 22,008 ha under reciprocal watershed agreements, pending final, park zoning decisions.

In 2015 we obtained counterpart funds from Nature and Culture International (NCI) to create a new protected area in Machareti to protect water sources of 13 communities including the municipal capital. The local Guarani have named this new 91,700 ha water sanctuary Ivimaraei. We expect that in 2016 we will use Darwin funds to support the NCI-funded park declaration by creating some RWA conservation areas to border the sanctuary. We have also been asked to help create two more municipal protected areas in Huacareta (Yajopampa, 43,161 ha) and Machareti (268,415 ha). In 2016 we will undertake the studies required for PA creation with funds from NCI, and will use Darwin funds to make the first RWA payments to communities to incentivize the creation of the areas. We thus expect that by project end, Darwin funds will have played a role in creating almost 500,000 hectares of protected areas, over and above the areas will put directly under reciprocal watershed agreements. These new large protected areas will clearly have a positive impact on biodiversity in the Chaco.

4. Contribution to SDGs

The SDGs relevant to our project are 6, 13, and 15. Our project is designed to help meet these goals, and specifically the SDG targets of:

- **Goal 6 target:** “protect water-related ecosystems including mountains, forests (and rivers); and “strengthen participation of local communities in water management”
- **Goal 13 target:** “strengthen ... adaptive capacity to climate-related hazards...”
- **Goal 15 target:** “...ensure the conservation and ... sustainable use of terrestrial and inland freshwater ecosystems and their services, in particular forests (and) mountains”, and “promote ... sustainable management of all types of forests, halt deforestation, restore degraded forests and substantially increase ... reforestation”.

5. Project support to the Conventions, Treaties or Agreements)

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. Our major contact with the Bolivian government in 2015 has not been with the convention focal points. Rather we have discussed the Chaco project with government officials high up within the Vice Ministry of Economic Planning. We recently received a no-objection letter from the government to extend and scale up the Darwin project to seven municipalities in the Chaco Tarijeno, on Bolivia’s southern border with Argentina. This government approval unlocks for us a \$1.3 million donation from the Inter American Development to build upon our Darwin results and extend the model further.

6. 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 2015, 496 families received compensation packages. In a new modality the compensation is increasing including training in biodiversity-friendly development tools. For example we helped 72 members of the community of Akae rehabilitate a drip irrigation system to irrigation corn, watermelon, squash and tomatoes, while in the community of Tacuarembó 46 families were helped to build chicken coops as an alternative income sources to the extensive cattle grazing that was previously widespread.

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 will be collecting data on outcomes in 2016, so there no noticeable achievements this year.

7. Project support to Gender equity issues

As we wrote in our last report, traditional development activities in the Chaco, which 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. However, there have been no noticeable achievements this year.

8. Monitoring and evaluation

We designed the project to have a very simple series of four outcome indicators. In 2015:

1. **65,779 ha** (of expected project-end total of 20,000 ha) were put under conservation.
2. **654 new upstream landowners were compensated** (of expected project-end total of 500) for the forest conservation activities, and an additional **5,000 water users** (of an expected project-end total of 10,000 users) are newly contributing to payments
3. **2 water cooperatives** (out of an expected project-end total of eight) have been newly strengthened, facilitating the consolidation of two municipal water funds
4. **205 new 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. The Project Coordinator writes a monthly report to the institution's Technical Director, who then passes it to the Executive Director. The coordinator also presents his report to the institution's management team the first week every month. We also request from our field teams short, bi-weekly updates to make sure things are on track.

9. Lessons learnt

What worked well, and what didn't work well: In general the project is advancing more efficiently than expected. However, one monitoring item we have not yet resolved is how to define for output 5, what constitutes "improved cattle management, honey production/fruticulture". Areas put under fruticulture are easy to measure (as are areas newly put under irrigation), but we have not yet identified an accurate and fair way to measure ha under improved cattle management and honey production. We will work on a definition, and a way to monitor advances in 2016.

Perhaps the most unfortunate occurrence in the last year is the antipathy that the Mayor of Huacaya has towards the project. His attitude is not that we should stop the project, rather that we should do 10 times more for him. This we are unable to do, so even though we successfully signed contracts in Huacaya this year, the mayor has put the initiative on hold in his municipality until we start investing a lot more. We hope to resolve this in further discussions and if not, we will simply wait until this Mayor leaves, as he must, after the next elections.

What we should have done differently: We continue with our investments in Protected Area creation. In retrospect we might have budgeted project funds to his activity, given the huge potential opportunities in the Chaco. At the time we designed the project, though, we didn't know about this potential. Fortunately however, we have accessed other funds to support protected area creation, from Nature and Culture International (NCI). We plan to use Darwin funds to create RWA around these new areas to strengthened them: in other words during 2016 the protected areas created with NCI funds will serve as a geographic focus for Darwin-funded RWA. This unexpected opportunity is allowing us to refine the location of where we actually work with the Darwin project: this is fine, it has just required the project team to be a little more flexible than we would have expected originally.

Recommendations for others doing similar projects: It has been advantageous to have had the ability to be flexible about where we implement the project. This has allowed us to be opportunistic about linking our Darwin project to the creation of new protected areas within the project area. One of the reasons we can be so flexible is that because our institution has focused for more than 10 years on developing one specific tool (RWA), we now know that we can apply in many diverse situations. This constant refinement and focusing of the tool and our turning RWA into a generalizable model has given us the ability to be flexible about where we apply it, and hence given the potential for rapid take-up and scale-up. We would suggest to others that the might usefully search for similar generalizable tools.

How we will build this learning into the project and future plans: We continue to try to improve and adapt the RWA model. We are becoming aware—and last year's reviewer helped us with this—that we can profitably add to the RWA model by increasing our level of follow-up support, and helping beneficiaries with marketing, business planning etc. We have successfully applied for funding from the Inter American Development Bank to add this new component to this work in our future.

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

Last year's review asked us to "explain whether you are planning on or have carried out any feasibility/marketing/business studies for the farmers that are switching to growing fruit tree crops and starting honey-production enterprises". We took this comment very seriously: we are increasingly suspecting that this lack of technical support may be a fundamental flaw in the RWA. The reviewer's comments thus gave us another data point to suggest we should do something about this. Unfortunately though, there is no space in the Darwin budget to add such activities. Over the last year we have therefore negotiated follow-up funding to the Darwin project from the Multi lateral investment Fund (MIF) of the Inter American Development Bank (IADB). This new \$1.3 million project, due to start in late 2016, has up-front and centre exactly the activities suggested by the reviewer i.e. feasibility/marketing/business studies, and a "new" of RWA that integrates the productive inputs with more intensive support on how to use them.

The marketing studies and business plans will not be focused on individual farmers but instead tailored for specific communities. We expect that the results of these studies, and the new plans and activities they catalyze, will be applicable to the municipalities of the Darwin project.

In terms of the other action item, the Darwin logo is now prominently displayed in our annual report and in other general publications and on our website. However, in none of these media do we mention the “project” per se, nor do we mention any of our other “projects”. Rather we present Natura’s work as a coherent whole, and the Darwin Initiative is recognized as a major contributor to that whole.

11. Other comments on progress not covered elsewhere: No comments

12. 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 expected increases in water tariffs, can fully kick in within 2 years”*.

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 £35,000 in 2015.

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.

13. Darwin Identity

We have ensured that the Darwin logo appears on our website (www.naturabolivia.org). The Darwin Initiative funding is recognised as part of our larger Chaco programme (co-financed previously by USAID, currently by Nature and Culture International and starting in 2016 the Inter American Development Bank). All of our publicity is thus currently about the larger Chaco RWA program, and indeed is often about the entire RWA model and its general applicability. We display the Darwin logo whenever we present the institution and our advances in the project area so local mayors, other authorities and community members are likely familiar with the role of the Darwin Initiative in our work.

14. Project Expenditure

Table 1 Project expenditure during the reporting period (1 April 2015 – 31 March 2016)

Project spend (indicative) since last annual report	2015/16 Grant (£)	2015/16 Total Darwin Costs (£)	Variance %	Comments (please explain significant variances)
Staff costs (see below)			+0.4%	
Consultancy costs				
Overhead Costs			-2%	
Travel and subsistence			-2%	
Operating Costs			+2%	
TOTAL				

Annex 1: Report of progress and achievements against Logical Framework for Financial Year 2015-2016

Project summary	Measurable Indicators	Progress and Achievements April 2015 - March 2016	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: 654 families received compensation packages worth more than £35,000 from local sources—In exchange for committing to the protection of 65,779 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: 65,779 have been put under conservation</p> <p>2: 654 upstream landowners have been compensated for the forest conservation activities, and 5000 water users have contributed to make the compensation payments</p> <p>3: 7 water cooperatives have been strengthened, facilitating the creation and consolidation of five municipal water funds</p> <p>4: 205 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 Machareti and Huacareta, condition these agreements on the creation of a 300,000 ha of new protected areas.</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, Monteagudo, 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 (prior to project 10%, after –project 35%)</p>	<p>We finally signed the three-party MWCF agreement in Camiri on October 19th 2015, so there are now 7 Water Funds up and running.</p> <p>We have yet to advance on increasing the number of women on Water Fund Board, this is a priority for 2016.</p>	

<p>Activity 1.1 Design eight cooperative-managed Watershed Conservation Funds to facilitate and channel investments by water users in upstream conservation</p>	<p>Building on our advances in the last reporting period, in Monteagudo we extended our two separate agreements with the Water Company and the Municipality to formalize the creation of the three- way MWCF on September 14th. In Huacareta, in discussions with the Mayor, we determined that the water company is still too institutionally weak to be part of a three-way agreement, so rather than sign one we will simply continue with the two-way agreement we signed with the municipality in 2013, and work together to strengthen the water company. We finally signed the three-party MWCF agreement in Camiri on October 19th 2015. Unfortunately we are still struggling in Huacaya where the Guarani communities want us to start work, as do municipal council members, but the mayor is opposed. Even though only one person is opposed, he is the mayor, and with him opposed, it is difficult to move forward.</p>	
<p>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</p>	<p>We have held meetings in all eight municipalities throughout the year. Because this was an election year, advances have been slow, but we have kept the project ticking over in all municipalities. Our greatest advance has been in Camiri, where after three years of trying, we finally created the MWCF. Crucial in this advance was a change in municipal authorities, upon which we capitalised with a series of marketing events and a media campaign to creat what is now our institution's largest Water Fund (by downstream population size). As mentioned above—and despite a series of meetings—there have been no advances in Huacaya (note that we have conserved forest in Huacaya, in a Natura-community deal but without an investment form the local government).</p>	
<p>Output 2: 20,000 ha of forest conserved through conservation contracts or municipal decrees</p>	<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>In 2015 we put 65,779 ha under RWA conservation in five municipalities (Huacareta [4,112 ha], Villa Vaca Guzman [34,328 ha], Monteagudo [14,697 ha], Cuevo [1,475 ha] and Huacaya [11,167 ha]).</p> <p>The municipality of Huacareta decreed the creation of the new 103,274 ha Serrania de los Milagros Water Sanctuary</p>
<p>Activity 2.1. Collect baseline biodiversity and water quality data</p>	<p>No activities. We will collect end line data next year.</p>	
<p>Activity 2.2. Present project concept to upstream landowner, offer compensation packages, and sign contracts</p>	<p>We have measured plots, mapped them, and put 65,779 under conservation in five municipalities. These were standard RWA, agreed upon between landowners, Natura and the water providers and/or municipal governments.</p>	
<p>Output 3. 500 families have signed conservation contracts, and received compensation packages</p>	<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>In 2015, 654 families received compensation packages worth more than £35,000 from local sources. These compensation packages comprised of alternative development project such as improving cattle management, fruit tree husbandry and honey production. We cannot yet assess the impact of these projects on poverty reduction, but the involved families have had a clear positive increase in their physical capital assets.</p>
<p>Activity 3.1. Undertake socioeconomic data collection</p>	<p>No activities. We will collect end line data next year.</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>We signed 654 contracts with upstream families this year. Since the start of the project 917 contracts have been signed, and 917 compensation packages have been delivered. This is almost 200% of our final target. The compensation packages comprised barbed wire and grass seeds for cattle management, citrus tree seedlings and irrigation systems</p>	

<p>Output 4. 10,000 downstream water users contribute to Municipal (MWCF) funds</p>	<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>A total of £34,645 was invested in the project by the municipal governments of Cuevo (£1,000), Villa Vaca Guzman (£8,225), Huacareta (£2,544), Monteagudo (£6,960), Huacaya (£8,956) and Camiri (£6,960). Only one water cooperative contributed during this reporting period—Villa Vaca Guzman (£6,960)—but this is not problem as most cooperatives made their 2015 contributions prior to this reporting period and we are confident all will contribute their 2016 commitments later in the year.</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 two more stream flow measurement weirs (we now have a total of six). Yurani Manco from the National University of Colombia (Medellin) completed two field data collection campaigns</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>The Municipal governments and water companies in Boyuibe, Cuevo, Villa Vaca Guzman, Machareti, Huacareta. Monteagudo and Camiri made transfers to the water funds. One Water Cooperative also made a transfer to the Fund (Villa Vaca Guzman)</p>	
<p>Output 5. 5,000 ha under improved cattle management, honey production and fruticulture</p>	<p>Number of hectares under improved management (prior to project 0, after project 5,000)</p>	<p>We estimate that 3000 ha are now better managed, but as we have not defined specifically what activities count and how this number is measured, this number is our best guess</p>
<p>Activity 5.1. Train and equip up to 200 families in honey production</p>	<p>137 (87 of whom are new this year) 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>We are measuring “hectares under improved management” in three separate ways. The most basic measure is that 65,779 ha are newly under private conservation agreements. An additional 103,274 ha have been decreed as new protected areas. In order to leverage more direct improvements, we have worked with project beneficiaries to enhance their ability to more effectively use their compensation “payments” to improve their livelihoods. For example in the community of Akae we have helped 72 community members use their compensation packages to rehabilitate a drip irrigation system on 2 ha so that they can now irrigate corn, watermelon, squash and tomatoes. Meanwhile, in the community of Tacuarembó we have helped 46 families build chicken coops, to provide them with an alternative income sources to the extensive cattle grazing that was previously widespread. The number of hectares that will be under improved management because of these investments has still to be precisely calculated, but we initiated the process of improving land management during this reporting period.</p>	

Annex 2 Project's full current logframe as presented in the application form (unless changes have been agreed)

Project summary	Measurable Indicators	Means of verification	Important Assumptions
Impact: 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, as well as related targets set by countries rich in biodiversity but constrained in resources.			
Outcome: Conservation of 20,000 hectares of forest that supply water to 10,000 Bolivians, through bottom up contributions for environmental service provision to 500 poor upstream farmers.			<ul style="list-style-type: none"> 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 relation 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 cover their losses
Outputs: 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	
	1.2 Number of women on MWCF board (prior to project 10%, after –project 35%)		
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	
	2.2 Number of municipal decrees (prior to project 0, after project 3)		
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	
	3.2 Number of families with compensation packages (prior to project 0, after project 500)		
4: 10,000 downstream water users contribute to Municipal (MWCF) funds	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)	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	
	4.2 Number of users contributing (prior to project 0, after project 10,000)		
	4.3 Annual bank transfers from water providers to MWCF accounts (prior to project 0, after project 8)		
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	
1.1 Design eight cooperative-managed Watershed Conservation Funds to facilitate and channel investments by water users in upstream conservation			

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
2.1 Undertake baseline biodiversity and water quality data collection prior to project and collect follow up data at project end
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
3.1 Undertake socioeconomic data collection prior to project and collect follow up data at project end
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
4.1 Undertake, and then present to users, hydrological data collection and modeling to better quantify impact of upstream deforestation on water availability, flooding and droughts
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
5.1 Train and equip up to 200 families in organic honey production and commercialization
5.2 Train up to 200 families in improved cattle management and drip irrigation techniques

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	10K (25K)	35K	40K	55K	110K

Publications: None