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3th Quarter report

Natura Chaco Program

Period	April, May and June 2012
Project	AID-511-A-11-00003
Project Full Name	Increased agricultural productivity in the Chaco through watershed management and income diversification
COTR/AOTR	Galindo, Eduardo
TEC	\$1,680,000.00
Start Date	09/30/2011
End Date	09/30/2016
Implementor	Fundación Natura Bolivia

This document aims to report all the activities achieved up to June 2012, according to the approved 2012 work plan and PMP for the Natura Chaco Program.

Background information

The “Chaco” is one of the driest areas in Bolivia, and thus would benefit greatly from increased water supply. Despite the natural water scarcity in eastern Bolivia’s semi-arid valleys and lowlands, one of the most innovative recent developments in water management is the concept of “Areglos reciprocos para Agua (ARA)”—or Reciprocal Watershed Agreements (RWA). The RWA already implemented by the Municipalities of Comarapa, Pampagrande, Pucara, Moro Moro, Mairana, Vallegrande and various others (all related to Amboró National Park and Integrated Management Natural Area Río Grande – Valles Cruceños - ANMI RG-VC) ensure that downstream water users collaborate with upstream providers to compensate them for part of the opportunity cost of leaving natural vegetation intact and enhancing the hydrological cycle. Unlike the conceptually similar “payments for environmental services” (PES) a successful RWA scheme does not require extensive studies, analyses or “valuation” of water, but instead is based on the locally-perceived precautionary principle that:

“It is better for us all to collaborate on protecting our water: let’s work together to develop the institutions by which we can provide development for poor upstreamers, and at the same time ensure water for agriculture downstream”

Noel Rojas Cespedes, ex-Mayor of Comarapa Municipality

This project’s assumption is that the most important first step for improving agricultural productivity in the Chaco is to protect the forests that provide the region’s major towns with their water, and pumps more than 3,000,000 m³ of water into the aquifer every year. Experience also tells us that in order to guarantee long-term results, we need to simultaneously develop the institutions that can make watershed management and forest protection locally self-sustainable.

The strength of the RWA concept, unlike other forms of watershed management used globally is the focus on the collective development of solid and sustainable institutions that promote the active participation of local stakeholders, including:

- **Municipalities.** - The closest level of government to citizens that has legal responsibility for natural resource management and services.
- **Water Cooperatives.**- Responsible for distributing water to towns and villages, often led by a board elected by cooperative members, who represent the **downstream communities**, which will make additional payments for upstream conservation, and
- **Upstream communities**, who will receive compensation for their provision of watershed services, which translate into economic opportunities for activities that are non-extractive and benefits the hydrological cycle.

Operationally, an RWA scheme starts when the Municipal government, the water cooperative and Natura create a Local Fund, which is capitalized with support from each actor and voluntary increases in downstream water rates. The incomes from the rate increase, plus the other funds enter to a separate bank account, and are managed by the water cooperative. Funds are used only

for conservation and income diversification in the communities that live upstream. The Municipality, the Water Cooperative and Natura independently pay running costs such as salaries, per diems and fuel, from their existing budgets.

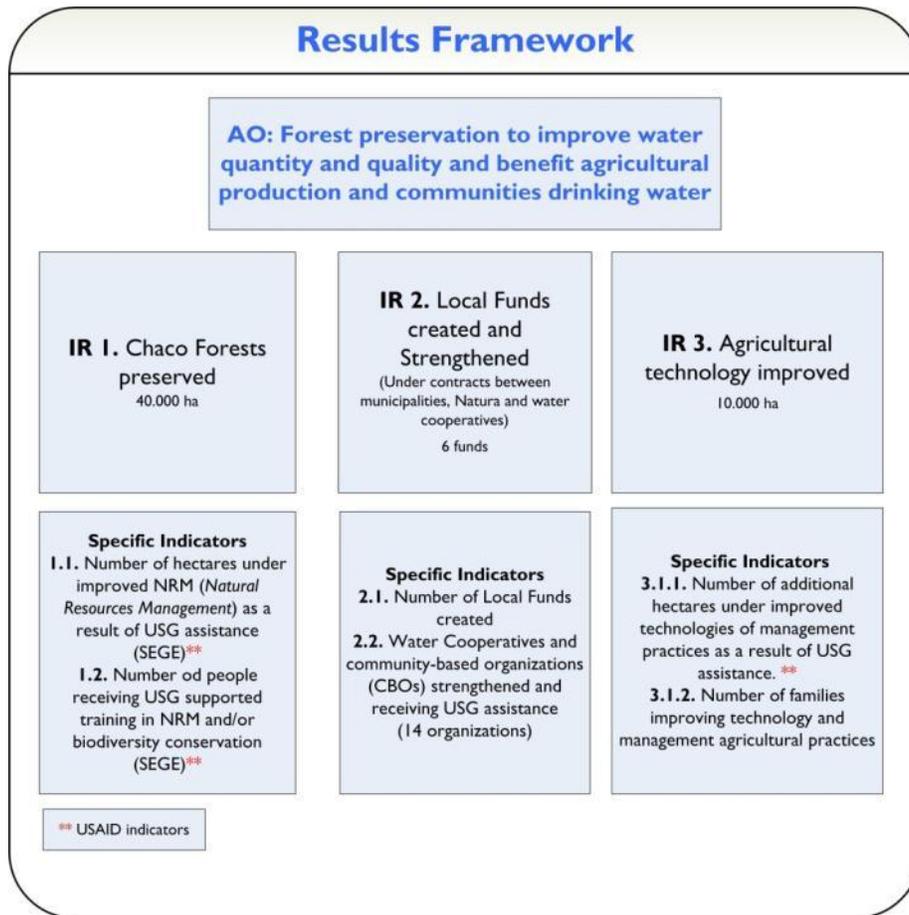
Natura raised interest in the Chaco region due the geographical relation between Amboró National Park and Integral Management Natural Area Río Grande – Valles Cruceños (ANMI RG-VC) and the area called “Codo de los Andes”, known as a biodiversity hot spot that is also very important for water supply.

This Chaco project is replicating and expanding Natura’s experiences developing municipal water funds in the “water factories” for Santa Cruz de la Sierra (Amboró, Parabanó and ANMI RG-VC) into the Chaco region. We expect to improve the quality and quantity of water available so that Chaco families can increase their productivity and diversify their incomes. In order to achieve this, we will help protect the forests that generate more than 3 million cubic meters of water and that provide drinking water to the Chaco’s larger communities. In addition to the actual conservation activities, Natura’s experience also indicates that in order to guarantee long term results, we must strengthen the local institutions that are responsible for watershed management and forest protection.



Matching relation between Natura’s preview workspaces with “Codo de los Andes” and the Bolivian Chaco. Amboró National Protected Area and ANMI (green), Parabanó Municipal Protected area (yellow), and Integrated Management Natural Area Río Grande – Valles Cruceños (ANMI RG-VC) (blue).

Results



Annual goals

2012	2013	2014	2015	2016
<p>1.1. 0 hectares under improved NRM as a result of USG assistance</p> <p>1.2. 0 people receiving USG supported training in NRM and/or biodiversity conservation</p> <p>2.1. 6 Local Funds created</p> <p>2.2. 0 Water Cooperatives and community-based organizations (CBO's) strengthened and receiving USG assistance</p> <p>3.1. 0 additional hectares under improved technologies of management practices as a result of USG assistance</p> <p>3.2. 0 families improving technology and management agricultural practices</p>	<p>1.1. 10,000 hectares under improved NRM as a result of USG assistance</p> <p>1.2. 125 people receiving USG supported training in NRM and/or biodiversity conservation</p> <p>2.1. 0 additional Local Funds created</p> <p>2.2. 0 Water Cooperatives and community-based organizations (CBO's) strengthened and receiving USG assistance</p> <p>3.1. 0 additional hectares under improved technologies of management practices as a result of USG assistance</p> <p>3.2. 0 families improving technology and management agricultural practices</p>	<p>1.1. 10,000 hectares under improved NRM as a result of USG assistance</p> <p>1.2. 125 people receiving USG supported training in NRM and/or biodiversity conservation</p> <p>2.1. 0 additional Local Funds created</p> <p>2.2. 4 Water Cooperatives and community-based organizations (CBO's) strengthened and receiving USG assistance</p> <p>3.1. 3,000 additional hectares under improved technologies of management practices as a result of USG assistance</p> <p>3.2. 150 families improving technology and management agricultural practices</p>	<p>1.1. 10,000 hectares under improved NRM as a result of USG assistance</p> <p>1.2. 125 people receiving USG supported training in NRM and/or biodiversity conservation</p> <p>2.1. 0 additional Local Funds created</p> <p>2.2. 5 Water Cooperatives and community-based organizations (CBO's) strengthened and receiving USG assistance</p> <p>3.1. 4,000 additional hectares under improved technologies of management practices as a result of USG assistance</p> <p>3.2. 200 families improving technology and management agricultural practices</p>	<p>1.1. 10,000 hectares under improved NRM as a result of USG assistance</p> <p>1.2. 125 people receiving USG supported training in NRM and/or biodiversity conservation</p> <p>2.1. 0 additional Local Funds created</p> <p>2.2. 5 Water Cooperatives and community-based organizations (CBO's) strengthened and receiving USG assistance</p> <p>3.1. 3,000 additional hectares under improved technologies of management practices as a result of USG assistance</p> <p>3.2. 150 families improving technology and management agricultural practices</p>

IR 1. Chaco forests preserved

In order to identify the most important forests for water supply in the Chaco region, Natura prioritized the municipalities and watersheds where the project team will focus efforts.

Several Chaco municipalities asked Natura's support to implement RWA schemes in the past, and due to this demand Natura started the work in 2011 approaching to 11 municipalities in the Chaco region. Even though the project's goal is to create at least 6 funds, we approached to 11 municipalities because of the possibility that due to some political, social or economic reasons, some of these would start with the project but stop sometime along the process.



Chaco Municipalities that relate to the “Codo de los Andes” and water factories (purple). Municipal protected areas (yellow) and national protected areas (green)

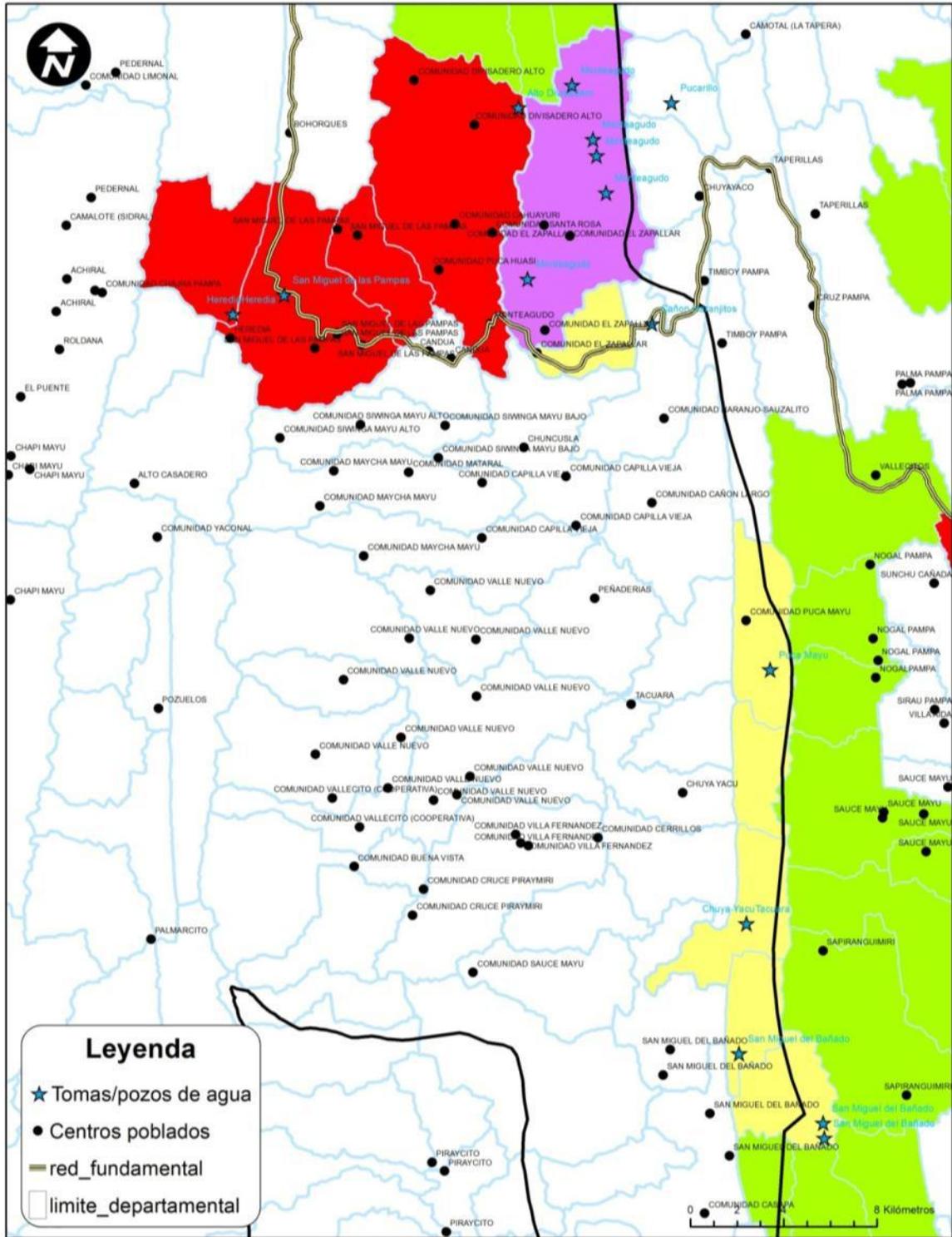
The 11 municipalities that started with the project are: Cabezas, Gutierrez (municipalities where Natura began operating in 2010 and are part of ANMI RG-VC), Camiri Cuevo and Boyuibe in the department of Santa Cruz, Monteagudo, Muyupampa and Macharetí in the department of Chuquisaca, and Caraparí, Villamontes and Yacuiba in the department of Tarija

To achieve Chaco municipal and sectional government commitment to forest preservation, Natura facilitated 3 experience exchanges, where Chaco authorities visit stakeholders in the municipalities where the RWA scheme has been implemented for several years.



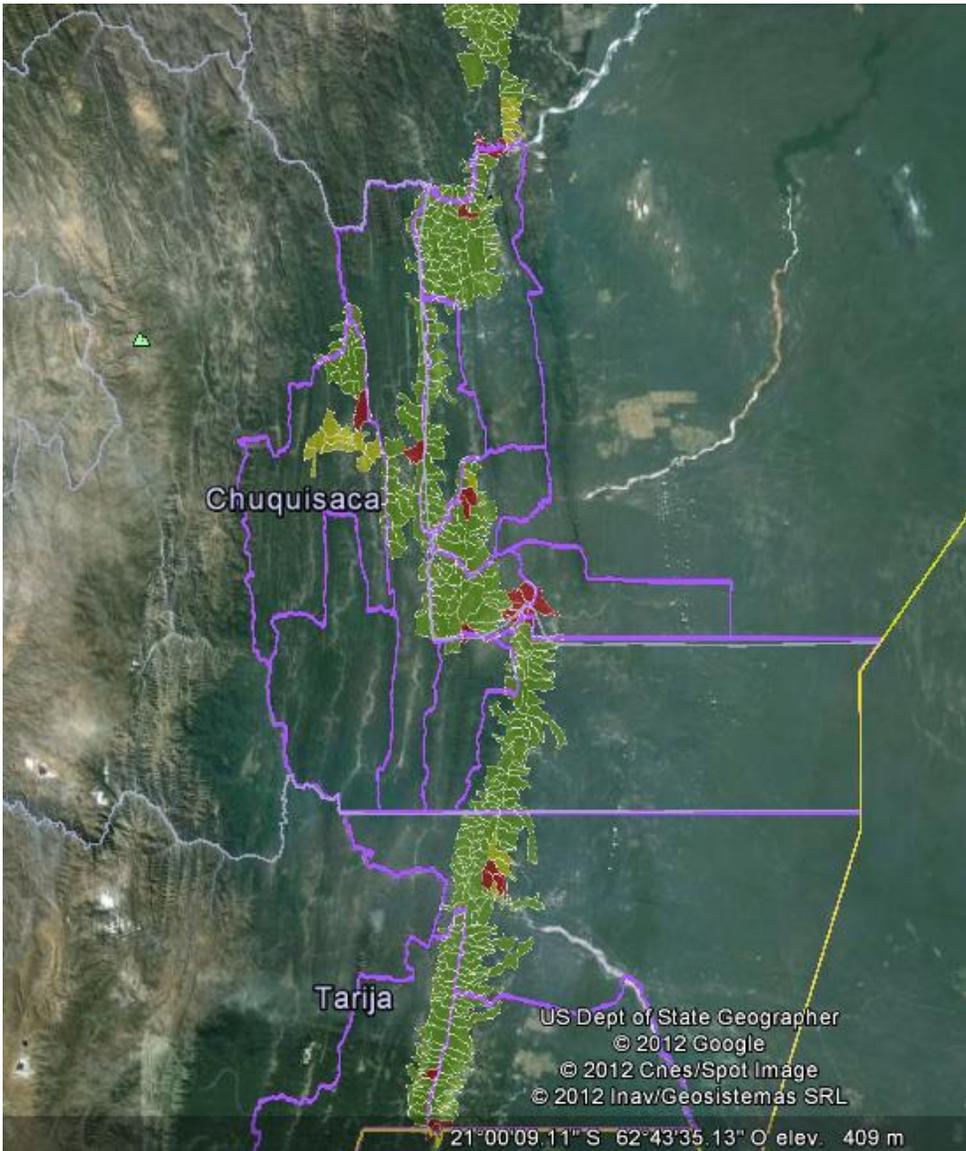
Quirusillas Mayor in a presentation about RWA schemes for municipalities and governorates from Caraparí, Villamontes and Yacuiba

Once Chaco authorities were convinced about the need of preserving forests to assure water supply, Natura collected all water intakes of each municipality, and using the criteria from Robert Muller (2009) regarding prioritization of watersheds, we ran a geo-mode system with IDRISI software ([Clark Labs](#)) to identify the most important areas for water supply and infiltration. The software allows using satellite imagery and topographic information, to digitally drop a "drop" of water in each pixel, and identify the water factories on a map. Thus, we identified three levels of priority for the first two years of project implementation. **Priority 1:** Important water sources for high populated towns, **Priority 2:** Important alternative water sources to be used in the future, and water sources for less populated towns, and **Priority 3:** important areas for water supply and related to protected areas (municipal, local or national). According to the progress of the project, Natura will prioritize more detailed areas that will also involve poverty maps, fires, floods and others.



Priority 1 in red & purple, priority 2 in yellow, and priority 3 in Green – Monteagudo municipality example

Prioritized water source areas for 11 municipalities



Priority 1 in red, priority 2 in yellow, and priority 3 in Green – Monteagudo municipality example

IR 2. Local funds created and strengthened

Natura approached to 11 municipalities to create local funds in order to ensure the project's goal to create at least 6 local funds in the Bolivian Chaco for RWA implementation. But fundraising actions must be done in order to work with more than 6 municipalities.

Up to June 2012, 4 agreements with municipalities and water cooperatives were signed (Cabezas, Gutierrez, Cuevo and Boyuibe). All agreements involve 10 year of financial resources commitment from the 3 parties for the local fund (Municipality, water cooperative, and Natura)

IR. 2.1. Cabezas local fund (Santa Cruz)

The tripartite agreement was signed in 2010 during the implementation of the ANMI RG-VC project, but all actions stopped until Chaco project was funded in 2011. This year actions were focused on strengthening the water cooperative and support the institution to solve several legal paperwork required in order to open a bank account for managing the local fund.

Natura has presented to the municipal advisors (Consejo Municipal) and mayor, all the prioritized areas and as soon as the local fund is created, first compensations will be made ideally this year.

On the other hand, Natura has an agenda with the water cooperative and the municipality, to socialize the contribution to the local fund; activities with schools, fairs and media focused on behavior change are planned for next quarter. The initial commitment for the local fund contributions that are established in the agreement are: 10.000 Bs for the Cabezas Municipality 7.000 Bs from Natura, and initially 7.000 Bs from the cooperative. The contribution from the Water Cooperative will increase in the following years with the contribution of water users, whom will be sensitized and consulted to apply the contribution and include it in the official receipt.

IR.2.2. Gutiérrez local fund (Santa Cruz)

Natura's work in Gutierrez started in 2010, and during the first semester of 2012, the agreement was signed between the Municipality and Natura because Gutierrez does not have a water cooperative, and the distribution system of this resource is performed by the municipality. Thus, the agreement states that during the next two years, the municipality will have to create a decentralized entity to be responsible for managing and executing all aspects of the distribution of water in Gutierrez. The initial contributions to local environmental fund are: Natura 7.000Bs, and 20,000 Bs for the municipality.

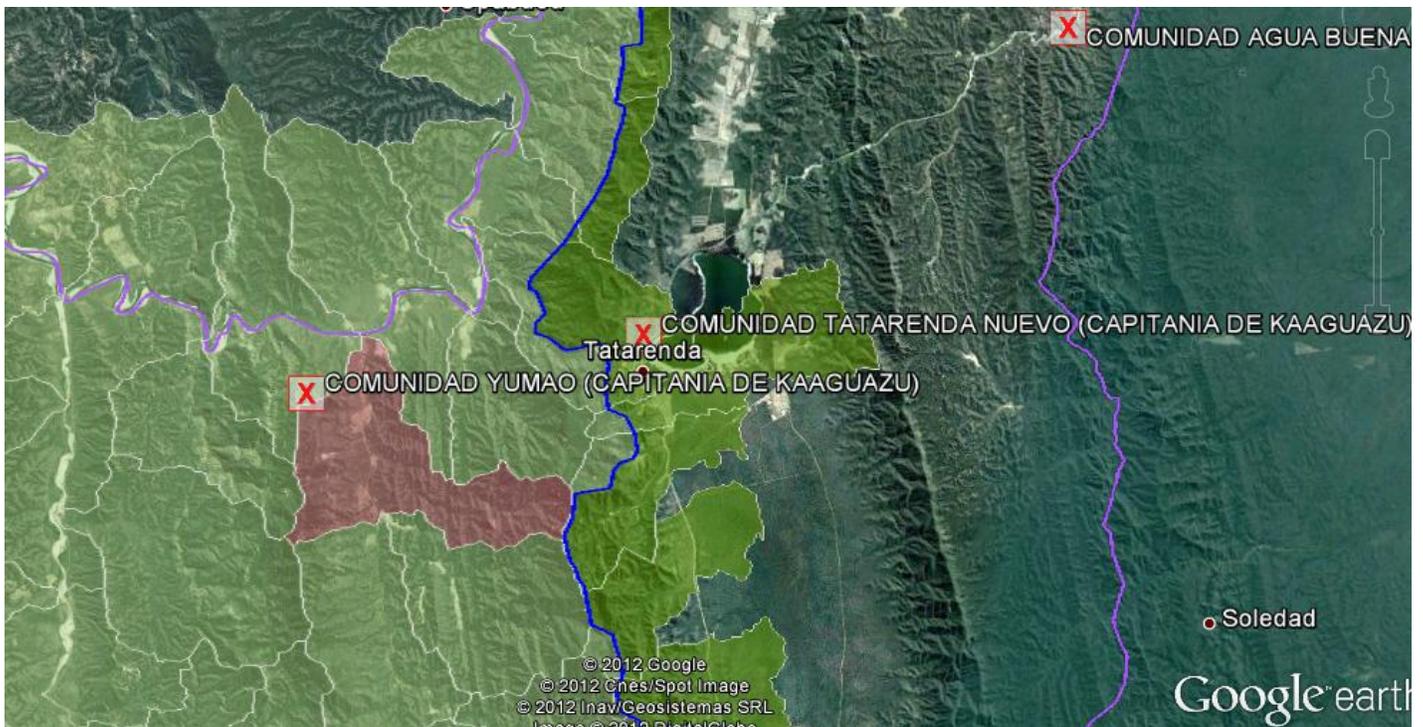
The first community to receive support from the local fund is Yumao, one of the poorest communities in Bolivia (INE, 2001) and with a critical demand of water. Yumao people survive with corn production and fishing.



Yumao families gathering drinking water from the Rio Grande

Natura works closely with the Gutierrez municipality, looking for alternative water supplies for Yumao community. Until now, we have 3 alternatives to solve the water supply problem: Ram pumps, oil/electricity pumps to get water from the river and sanitize it and organize people and authorities to complete an existent water infrastructure that would at least benefit 10% of the community.

Due Yumao limits north with the Rio Grande, the community receive large number of sport fishers, and commercial fishers. Natura works with the community supporting them in this matter as part of the compensation to protect forests. This scenario also helped to open a window to start with a new scheme: Reciprocal Agreements for Tourism (ARA - Tourism). Natura will learn from this initiative greatly.



In red, the water factory for Yumao, in green all the prioritized areas related to protected areas (ANMI RG-VC)

IR2.3. Camiri local fund (Santa Cruz)

The current municipal and political context in Camiri, didn't allow us to start the RWA scheme implementation. Signing the agreement is the first step, but the mayor is facing administrative processes and the Water Cooperative COOPAGAL Camiri, is in a transition to establish itself as a decentralized EPSA from the EPSA Manchaco Social. All legal actions and administrative pendants will probably be solved by the end of the year.

Although there is a political will to implement RWA schemes, our institutional work is paused until the situation of the municipality and cooperative, are overcome.

IR. 2.4. Cuevo local fund (Santa Cruz)

The tripartite agreement between the municipality, the water cooperative and Natura, was signed successfully during this quarter. The total amount of local environmental fund for the first year, has the contribution of 2 Bs for each cooperative member per month from July 2012 (500 members/associates), 20,000 Bs from the municipality, and 7.000 Bs from Natura.

Natura has already to develop a diagnostic of the local institution need for strengthening. The agenda that we have with the cooperative, involves support in helping them to improve collecting systems, search for financial support to purchase proper equipment to measure the water consumed, support to find better infrastructure alternatives to improve water quality and preserve water factories.

Natura's work in the area, are similar in Boyuibe and Gutierrez, due the presence of Indigenous Guarani Captains, which are actively participating in the RWA schemes and had shown great interest in the project.



Cuevo cooperative president, Cuevo mayor, and Natura's RWA coordinator

IR.2.5. Boyuibe local fund (Santa Cruz)

The tripartite agreement between the municipality of Boyuibe, the water cooperative and Natura, was signed successfully this quarter. The contributions to the local fund involves: 10.000 Bs from the municipality, 7,000 Bs from the Boyuibe water EPSA, and a contribution of 1 Bs by each member per month from July 2012, finally the local fund has 7.000 Bs as contribution from Natura for 2012.

The agenda of Natura with the authorities, involves the implementation of the RWA schemes to preserve water resources, and support the municipality in the analysis of alternative water sources, and technical support in the reactivation of existing wells in the area and that are in use. Furthermore, Natura will support institutional strengthening to the Cooperative Water of Boyuibe, that currently don't have automatic systems to measure water consumption, has a flat monthly fee per member, low collection system and a poor water distribution.

IR. 2.6. Monteagudo Local fund (Chuquisaca)

The tripartite agreement between the municipality of Monteagudo, the water cooperative and Natura, was not yet signed. Ideally, the document will be signed in July 2012. While pushing the agreement to be signed, Natura's efforts focus on gather information for the baseline. At the same time, Natura institutional strengthened actions involve support for the "carta orgánica" for the municipality, in the environmental component.

IR. 2.7. Muyupampa Local fund (Chuquisaca)

The tripartite agreement between the municipality of Muyupampa, the water cooperative and Natura, was not yet signed. Ideally, the document will be signed in July 2012. While pushing the agreement to be signed, Natura's efforts focus on gather information for the baseline.

IR. 2.8. Machareti local fund (Chuquisaca)

The tripartite agreement between the municipality of Machareti the water cooperative and Natura, was not yet signed. Ideally, the document will be signed in July 2012. While pushing the agreement to be signed, Natura's efforts focus on gather information for the baseline.

IR. 2.9. Caraparí local fund (Chuquisaca)

The tripartite agreement between, the municipality and Natura, still remains unsigned. Caraparí does not have a water cooperative yet, and part of the institutional strengthening actions from Natura, involve support (not financial) for the creation of this important institution. At the same time, Natura is working closely with the sectional government who keens to implement conservation actions in the Aguarague national protected area, and build water distribution infrastructure for Caraparí.

While the agreement signed is being perused, Natura has being implementing some awareness-raising actions through campaigns for students and general public about the importance of preserving water sources, and the importance to contribute to the local fund.



Natura's participation in the Environment Carraparí Fair - June 2012

IR. 2.10. Villamontes local fund (Tarija)

Villamontes hosts the headquarters of the Social Manchaco EPSA SAM, an institution that holds and represents several companies that provide water and sewer service in Monteagudo, Muyupampa, Lagunillas (Chuquisaca), Boyuibe and Camiri (Santa Cruz), and Villamontes (Tarija).

In order to sign the agreements in the municipalities mentioned above, (except Lagunillas), it was imperative to sign an agreement with this institution first. This agreement was signed in June 2012.



EPSA Manchaco MAM president, and Natura's RWA coordinator signing the agreement that opens the opportunity to sign tripartite agreements with EPSAs in the municipalities

The tripartite agreement is very close to be signed between EPSA Villamontes, Municipality of Villamontes and Natura. We are also working close to the Villamontes sectional government that keen to be involved into the agreement, and implement actions to preserve water resources and protection of the Aguarague National Protected Area.

Natura has also made some awareness-raising actions in order to support the implementation of the RWA schemes.



Water day celebration in Villamontes, March 2012

IR. 2.11. Yacuiba Local fund (Tarija)

The agreement is pendent to be signed, and it is likely to include the Yacuiba sectional government as well.

Natura is now looking for the best alternatives to include sectional governments from the Gran Chaco Region (Yacuiba, Villamontes and Caraparí), who show considerable interest in Natura's RWA scheme. However in some cases, regional governments don't have great relations with some municipalities. The internal consensus approach so far, is to formalize a joint working agenda between Natura and 3 governorates sectional Gran Chaco Region (Tarija), for the preservation of the priority water factories Priority 3, corresponding to the Aguarague National Protected Area, and improve their protection. Additionally, these authorities had invited Natura to participate in the creation of the Autonomous Gran Chaco Region Statutes that involves the 3 sectional governments. This is a great opportunity to include RWA schemes, and perhaps try to implement cash compensations from these governments.

Even though Natura approached to 11 municipalities, the project's budget will be enough to work with just 7 of them. Considering that some municipalities might not continue with the project in the future, we would still need to fundraise ~400.000 USD to work with at least 9 municipalities.

Socioeconomic, biophysical and biodiversity baseline surveys

We aim to complete socioeconomic, biophysical and biodiversity baselines in 2012 for the 11 municipalities. All the methodology for this process is detailed in the WP-2012.

Iván Pérez Hurtado

Technical Director

Natura Chaco Project

ivanperez@naturabolivia.org