



Investindo nas populações rurais

Participatory Mapping



Dialogues and
agreements
between
actors

**ACCESS TO NATURAL RESOURCES IN THE TRINATIONAL CHACO
PARTICIPATORY MAPPINGS, DIALOGUES AND AGREEMENTS BETWEEN ACTORS
FOUR CASES OF LEARNING**

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GLOSSARY

ASA Articulação Semiárido Brasileiro
ASOCIANA Acompañamiento Social de la Iglesia Anglicana del Norte Argentino
CELS Centro de Estudios Legales y Sociales
CERDET Centro de Estudios Regionales para el Desarrollo de Tarija
CIDH Comisión Interamericana de Derechos Humanos
CIDOB Confederación de Pueblos Indígenas de Bolivia
CWS Church World Service
FUNDAPAZ Fundación para el Desarrollo en Justicia y Paz
ILC International Land Coalition
INRA Instituto Nacional de Reforma Agraria
INTA Instituto Nacional de Tecnología Agropecuaria
INTI Instituto Nacional de Tecnología Industrial
OFC Organización de Familias Criollas
ORCAWETA Organización de Capitanías Weenhayek de Tarija
PIT Programa Integrado Trinacional
PRODERI Programa para el Desarrollo Rural Incluyente
TCO Tierra Comunitaria de Origen
UCAR Unidad para el Cambio Rural
UEP Unidad Ejecutora Provincial

1. OBJECTIVES AND METHODOLOGY

FUNDAPAZ has developed a methodology to work with rural and indigenous communities for access to natural resources: land, water, and forests. This methodology involves a series of steps in the process framework, in which some strategies such as participatory mapping, dialogue among various actors, empowerment of organizations, contribution to public policies and agreements are essential to achieve the central objective that communities and families access natural resources.

The main objectives of this systematization are:

- **Validate a methodological process for resolving conflicts and generating agreements for access to natural resources by indigenous communities and rural families.**
- **Demonstrate the feasibility of a conflict resolution process, which uses participatory mapping, dialogue and agreements to contribute to public policies with effective solutions.**

The methodology used for access to natural resources

Designed to address the institutional task of collaborating with rural and indigenous organizations for the development and presentation of proposals related to their rights over natural resources, which enable their sustainable use and contribute to public policies that favor their interests.

Step A. Tracing a problem

The process begins by tracing a need, which may or may not present a context of conflict for natural resources, by a family, a group, or an organization, such as: (i) various external agents that threaten the land where families live or nearby forests; (ii) actions to expand the agricultural frontier (iii) lack of resources that are essential for life such as water; and (iv) claims for land and territories, water, forests, etc.

At this step the goal is to generate moments of meetings between the community or families, with their organization and their advisers. Two central issues must be defined at this step:

A.1 Trace clearly the actors interested in the natural resource in question and those who have or hold the property and have the power to grant it in a participatory process.

A.2 Trace and build a first demand of the community or families for the resource in question; land use areas, forest use or need for water for the group, among others

There are some key issues to consider in advance to determine that the process is truly participatory:

What is the problem to be solved?

What are the variables to map?

What is the existing information or traditional knowledge about the case?

How does the community participate in data collection, processing and analysis?

Who owns the maps?

Who benefits from the map and the whole process?

Who participates in the conflict resolution?

How are the agreements made and how are they met?

Step B. Participatory mapping: why map?

Mapping in a participatory manner enables defining and estimating the demand for natural resources of families and groups involved, through collective construction by those who have and those who want, based on their rights represented on a map.

- ✓ It enables organizations and their managers to visualize an issue in a broader strategy, with a vision of territory.
- ✓ It generates a fundamental knowledge built collectively, so concrete solutions can be proposed.
- ✓ It serves to characterize and estimate the situation of need and whether there is conflict in that situation, enables families or communities to define clearly the situation, they can describe it in detail and manage to estimate exactly the extent of their claim – whether amount of land, amount of forests or quantity of water.
- ✓ It raises awareness as to the situation and the claim by using a map that can be shown to others interested in the same resource. This leads to the start of dialogue with others actors – public and/or private – through a combination of traditional knowledge, technology and graphic communication related to the problem, conflict or need.

The participatory mapping is divided into substeps.

B.1 Ensure participation

It is essential that the construction of maps is participatory from the outset. The map built in a participatory way enables establishing dialogue with other public and private actors through a combination of close relationships between actors involved, analysis of regional contexts, dissemination and graphic communication related to the problem. Stakeholders should participate from the first definitions and formulation of objectives.

B.2 Define the objective(s) of the participatory mapping

After ensuring the participation of all stakeholders, it will be important to determine the objectives of the mapping. Usually the main goal of the mapping is to **define and estimate the demand** for the resource of all families involved. It involves a **collective view of what the community has and what it aims** to achieve in a process of political and/or technical scope.

B.3 Execution of the participatory mapping

The execution of the mapping begins with the training of leaders and families who will work as mappers, the definition of variables to map, data collection in the field, techniques of dialogue and negotiation, systematization of information into a GIS, preparation of various maps and analysis thereof. It involves conducting discussions with leaders and communities of the communities about the resulting information. In some cases different maps are made for different groups representing different interests, which enables presenting maps of different interests that lead to other maps of conflicts to be solved.

Execution of the mapping involves the conduct of the following activities:

1. Training the community and mappers to use mapping tools such as spreadsheets, GPS, camera, systematization into a GIS¹, analysis of maps, and negotiation techniques. These trainings occur not only in the mapping step, but throughout the whole process.
2. Survey of information. The mappers go around the area, survey data and information, using spreadsheets, GPS and cell phones with cameras.
3. Production of the first Map. With the mappers field data are processed into a GIS and the first map is produced.

¹ Geographic Information System

4. Feedback. The information (map) returns to the organizations and communities so they make corrections based on the use and objectives defined previously.
5. Demand Map. The proposed corrections are made and the final map is achieved to initiate dialogue with the other actors. In this dialogue the community or group demand map may be modified depending on the interests or possibilities of the other actors.

Step C. Dialogue and contribution

With the demand clearly characterized and the map in hand, indigenous and rural organizations establish dialogue with other parties involved, presenting the concrete demand for resources and initiating a negotiation process based on dialogue. Overall, the State is one of the actors in the dialogue. Participatory mapping generates knowledge and therefore increases the negotiation power of organizations, compared with other power groups participating in the dialogue; however, the State must ensure fairness throughout it.

This step is divided as follows:

C.1 Generation of space for dialogue. This involves finding and engaging various actors involved or that have power over the resources in question, to manage to gather them so they can dialogue. A Coordination Commission may or may not be formed. In some cases this formality generates more transparency in the process.

C.2 Dialogue between stakeholders. This dialogue will provide the possibility of reaching agreements. It focuses on listening and understanding each other's position, give up part of the original claims of each group because of the pursuit of consensus. With the demand clearly characterized in the participatory mapping step and with the map(s) in hand, indigenous and rural organizations have dialogue meetings with the other party (or parties) involved. Here the concrete claim for resources is presented to the other parties and a negotiation process is initiated, in which it is possible to overlap conflicting maps, which will be the basis to achieve a general agreement.

C.3 Participation of the State: Equity is fundamental in this dialogue; therefore, the role of the State is key in creating equal opportunities for both parties. In general, the presence of the State should be ensured, so it is essential that it is convened in due course. This step may also involve a process of contributing to public policies that support the claim of indigenous and rural people.

It is important to note that this step is characterized by continuous adjustment to different situations, which may require new mappings and analyses in a very active process. It may take several years and require the repetition of steps that feed each other, as the process is carried out.

Step D. Agreements for access to natural resources

When the previous step is concluded successfully, the indigenous and rural organizations achieve agreements that enable them to access the natural resources, based on the margins of negotiation or consensus reached among all stakeholders. In many cases this step involves definitions and policies by the State, either participating actively or ratifying agreements between third parties that resolve the situation. In addition, this often requires further legal and legislative adjustments, which involve processes of political contribution with concrete proposals.

Subsequently to the signing of the agreement, there is the execution. In all cases the ultimate success of the access to natural resources also depends on processes of state or private investment, on formulation and implementation of property management plans, and sustainable use of natural resources of each group involved, through a Management Plan for natural and productive resources.

This stage requires the conduct of the following steps:

D.1 Signing of agreements. It is very important that the agreements that are reached in the dialogue step are established in the signing of documents involving agreements, bailment, modification or implementation of legislation, among others.

D.2 Execution of the agreements. Through a process of planning and investment – productive, in infrastructure, or another – communities or rural and indigenous families will achieve access to the resources, taking possession, making effective occupation, using the forest and/or establishing production plans.

2. FOUR CASES of LEARNING

2.1 Description of the Region. The Trinational Chaco

The cases analyzed are located in Argentina and Bolivia, and have in common that they belong to the Gran Chaco region, an ecoregion characterized by outstanding biological and socio-cultural diversity. From the economic point of view they share the fact that they are areas where poverty is concentrated, which have the highest rates of unmet basic needs and high levels of marginalization.

With a surface of 1,066,000 km², the Gran Chaco is the largest forested area of South America after the Amazon, and includes territories of Argentina (62.19%), Paraguay (25.43%), Bolivia (11.61%), and Brazil (0.77%). While it has some natural homogeneity from the geomorphologic point of view (a sedimentary plain with low gradient eastbound) the differences in temperature and precipitation make that basically two areas are usually defined in the Chaco: the wet and sub-humid Chaco in the East and the dry Chaco in the west.

There is a significant amount of indigenous population where still persists, albeit very limited, an economy of hunting, fishing and gathering based on the use of natural resources and where they share territory with thousands of creole families – farmers, who raise livestock in the open.

At the environmental level, the Gran Chaco is characterized by being one of the most impacted areas and most severely damaged by heavy deforestation. The situation that can be considered most serious is the reduction of forest mass, since the Trinational Chaco faces strong deforestation process, whether caused by expansion of the agricultural frontier or by livestock enterprises by companies. Because of these phenomena, the economic valuation of Chaco land as market product has triggered serious socio-environmental conflicts for access and use of the natural resources.

2.2 Approach to the cases

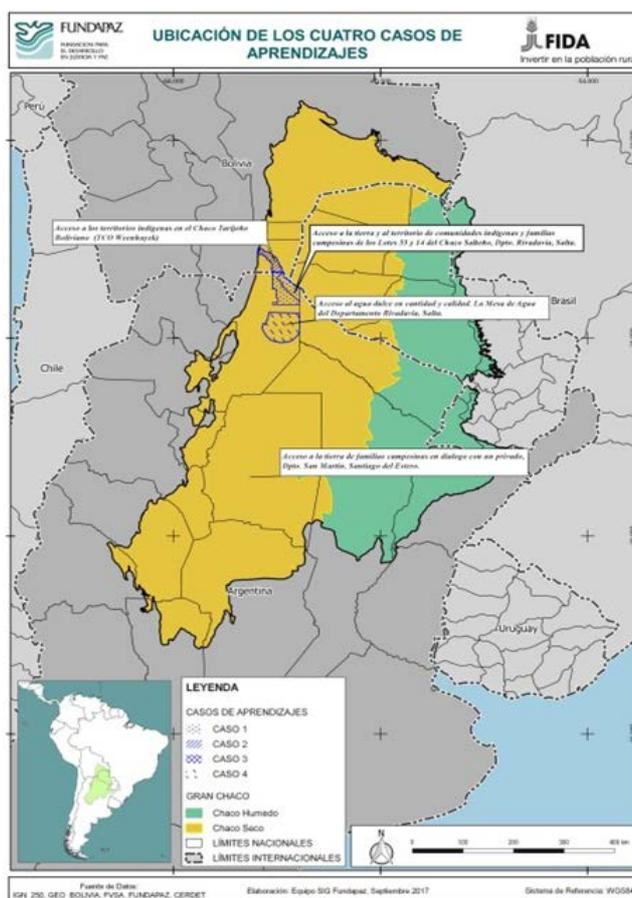
After a first analysis of the literature on participatory mapping, a guide was prepared for the collection of information, which was devised to organize it based on common issues traced in the participatory mapping processes studied. The results were used to compare the cases and advance to the final systematization. The structure of the guide follows basic questions (why, what for, when, where, who, and how), which orient the reflection on the different experiences of mapping, the contexts in which they occurred, the legal framework that enabled their conduct, the actors involved, the methodologies used to map, the strengths and critical points of the mapping, the results, the indirect effects, and, finally, on how the mapping facilitated, influenced or intervened in terms of relations, knowledge, and learning.

In addition, a battery of semi-structured questions was built, which the technicians of the NGOs involved in the projects used to facilitate the dialogue and the survey of information with the mappers directly

involved or with other key actors, representatives and leaders of indigenous and rural organizations, government officials, lawyers, etc. The information collected in conjunction with maps, documents, records, photos, and newspaper articles were analyzed and systematized.

2.3 Comparative table and location of the cases

In Argentina the study cases are located in the Administrative Departments of Rivadavia and San Martín in the Province of Salta and in the Administrative Department of San Martín in the Province of Santiago del Estero. While the study case of Bolivia is located in the Administrative Department of Tarija, on the banks of the Pilcomayo River. All cases correspond to the Trinational Semi-Arid Chaco



Map no. 1: Location of the four cases analyzed. FUNDAPAZ 2017

A comparative table of the four cases analyzed is presented below

CASE	LOCATION	ACTORS	PROBLEM	TIME	PRESENT
Lots 55 and 14	Santa Victoria Este. Dto. Rivadavia. Salta. Argentina	Lhaka Honhat and indigenous organizations, OFC and creole organizations, Government of Salta, National Government, CIDH, CELS, Asociana, FUNDAPAZ	Dispute over access to land and territory. 643,000 hectares and 15,000 people. 64% indigenous and 36% creole	While the case has a history of over 40 years the process systematizes the last 17 years in which the methodology was used	The province transferred in 2014 the ownership with 375,000 hectares to the communities, 230,000 hectares to creoles and areas of institutional use. Process of relocation of creole families, process of investments and delivery of definitive titles
Water access	Department of	Government of	Lack of access to	3 years,	Institutionalization of a

and management commission	Rivadavia and San Martín. Salta. Argentina	Salta, Latin America Semi-Arids Platform, FUNDAPAZ, International Land Coalition (ILC), Church World Service (CWS), INTA, SIWOK, National Government Programs	fresh water in most of the indigenous and rural population. 98% of the families without access to drinking water in Rivadavia	although this limiting factor was traced and has been worked on for many more years	sphere of public/private management. 2,000 identified family cases of urgent attention. 100 solutions implemented. 200 in progress. Projection to move forward with a plan of family works to cover all needs.
TCO Weenhayek and resource management plan	Department of Tarija, TCO Weenhayek. Bolivia	Orcaweta, Weenhayek Communities, CERDET,	Communities that gain access to the territories but have no plan for management of the resources nor access to water	Within a framework of 30 years of access to the TCO the systemized process has 5 years	3 Weenhayek communities have a plan for management of natural resources and access to water
Paraje Km 25	Paraje Km 25, Department of San Martín. Santiago del Estero. Argentina	Church, school, private party, rural organization, Fundapaz, Government of the Province.	Conflict between a private party and 21 rural families for ownership of lands	5 years	Title in perfect co-ownership for the 21 families (1,400 ha) and perfect title for the private party (2,200 ha)

In all systemized cases, the land is not considered only as surface, but rather as *living space*, where there are activities for the production and reproduction of household groups. This material-economic dimension is not dissociated from the socio-cultural dimension of the land, felt as a place of belonging, socialization, collective memory and knowledge transfer.

The mapping processes arise as a result of different needs, therefore the contents of the maps vary based on the objectives and purposes of the mapping. All cases show that the collective construction of the maps – of the community-territory and/or resources – are *processes that reveal* needs, threats, common problems in shared territories and serve to defend the rights to land and water, to determine solutions, possibilities and projects for the future in complex contexts. These are highly dynamic processes that are aimed at generating information by linking different kinds of knowledge: the territorial knowledge associated with the living space of the groups involved, and the technical knowledge of the necessary tool to carry out the mapping (GPS, etc.).

2.4 Development of the cases

Case 1. Lots 55 and 14 of the Chaco of Salta

It is located in the Administrative Department of Rivadavia in the Province of Salta, on the border with Bolivia to the North and Paraguay to the East, in the municipality of Santa Victoria Este. The territory of case 1 has semi-arid characteristics and includes two lots, 55 and 14, which remained as public lands until 2014. The area under dispute measured 643,000 hectares, inhabited by indigenous populations (9,000 people) belonging to five ethnic groups traditionally composed of hunters, fishers, and gatherers² and by

² The groups are identified according to ethnolinguistic criteria as Wichí (Mataco), Iyjawaja (Chorote), Niwakle (Chulupí) – linguistic group Mataguayo –, Komlek (Toba) – linguistic group Guaycurú –, and a small percentage of Tapy'y (Tapiete) – linguistic group Tupi-Guaraní. The groups are distributed in the territory into more than sixty *communities*. The largest indigenous group is represented

creole rural families (6,000 people) who arrived in the region just over a hundred years ago in search of pasture for their livestock and pushed by the expansion of the agricultural frontier³ (Scardozi, 2013). This is a difficult area to inhabit, mainly because of lack of water, but rich in natural resources for extraction (oil, gas, hardwoods), which with the passage of time subjected indigenous and creole people to challenges related to the occupation of the same territory, with different visions and uses of the land and forms of appropriation of nature.

When the land of the Chaco changed from common good to merchandise, due to an increase in its potential value because of the agricultural and livestock expansion, the resulting dispute for its ownership led to the exacerbation of the positions of the different local actors, among which the State.

The Lhaka Honhat Association of Aboriginal Communities (Nuestra Tierra), which brings together indigenous communities in the area⁴, presented in 1998 a complaint to the Inter-American Commission on Human Rights (CIDH, case no. 12,094) because of the construction of major infrastructure works without any consultation, requesting that the State formalized their right to communal property, by delivering a single title on behalf of all communities over a land area unified and free from bovine cattle. Such claim was and continues to be supported by the Center for Legal and Social Studies (CELS) and is monitored by the Foundation for Social Support of the Anglican Church of North Argentina (ASOCIANA).

Since the international legal process was based on indigenous law, it was necessary to incorporate the rights of creole people in parallel processes, to achieve general agreements for distribution of land and resources, able to involve all stakeholders.

In 2000, the "Pilcomayo Project" was formed as an initiative supported by Misereor and Bread for the World⁵, and Asociana and FUNDAPAZ started to monitor the two groups in the respective legal affairs, also favoring organizational strengthening and the generation of institutional capacities to initiate a process of dialogue and agreements between both. Institutionalized dialogue was aimed at generating concrete local proposals for the distribution of land and territories and to make effective the land rights of all.

One of the great achievements of the Pilcomayo Project was the unification of strategies and facilitation of agreements between these groups that imposed their vision and agreed solution to the Argentine State. To that end, in order to generate information and proposals for an equitable distribution of land, participatory mapping was applied for four years (2001-2004) with the support of the Lhaka Honhat Association of Aboriginal Communities and the Organization of Creole Families (OFC). The maps, along with a population census, a socio-economic survey and a study on the state of natural resources in the area (with emphasis on hydrology) were the result of a data survey by creole and indigenous representatives, with the support of such NGOs, which were responsible for training mappers who made use of GPS technology to work.

In the case of indigenous communities, the mappers mapped more than 9,000 points of use: sites for hunting, fishing, gathering fruit, honey, firewood, plants for different uses, old and new cemeteries, sacred and ceremonial sites, also located thanks to the memory of the elderly and marked with place names in indigenous language, demonstrating the traditional occupation of the claimed territory, the multiple and diversified use of resources.

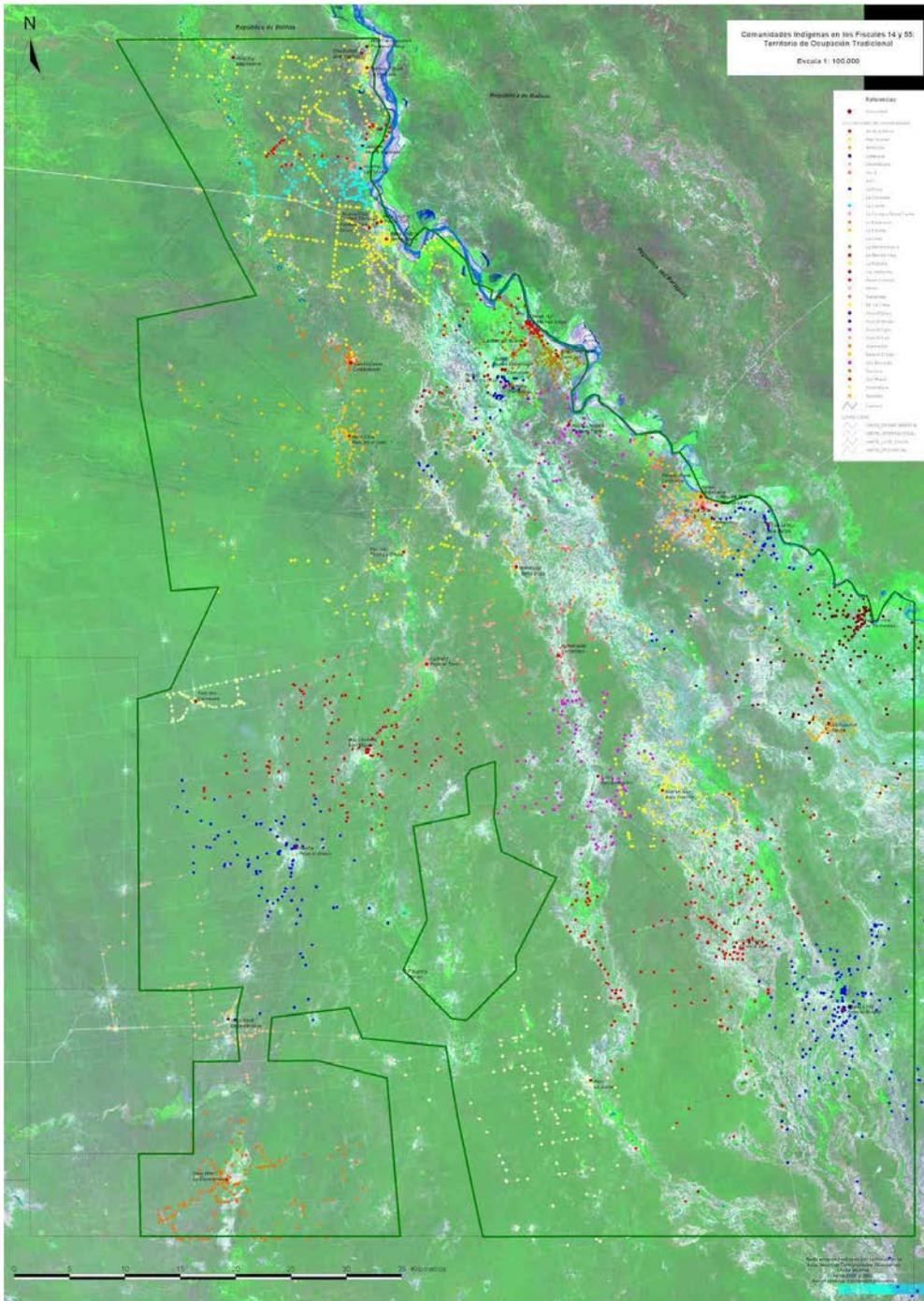
by the Wichì living on both sides of the national border between Argentina and Bolivia, where they called themselves Weenhayek, as we will see in the analysis of case no. 2.

³ Most of the creole population lives in family-based domestic-productive units called *puestos* [posts], spread throughout the territory. In the two lots there are more than 600 and they are located at varying distances from each other.

⁴ Lhaka Honhat is not the only organization of indigenous communities of the area, however it is that which brings together most communities and which carries out the legal and political process of territorial claims and represents the indigenous population in international affairs.

⁵ German agencies of international cooperation for development.

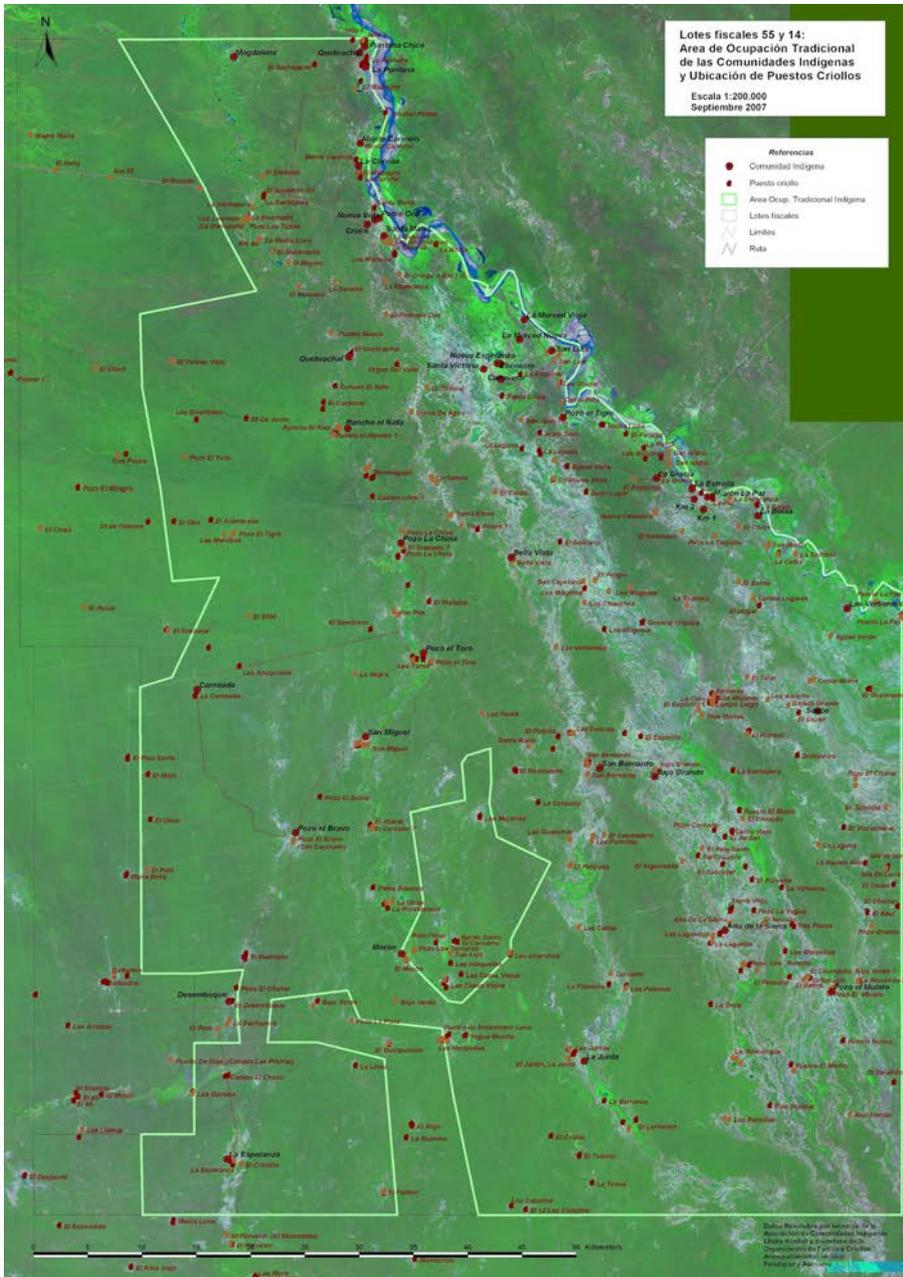
Map 1 (below) shows the results of the indigenous mapping: for graphical representation we chose to assign a different color to each community and their points of use. As can be seen the greatest concentration of points is near the coast of the Pilcomayo. That is where the largest and most populated communities are located. The smaller groups are located in the internal part, away from the Pilcomayo river. The area included in the dark green perimeter, around all points, represents the area of traditional indigenous occupation claimed by part of the Lhaka Honhat.



MAP no. 1: Traditional indigenous occupation area. Lhaka Honhat Aboriginal Communities Organization Property. Preparation ASOCIANA, 2004.

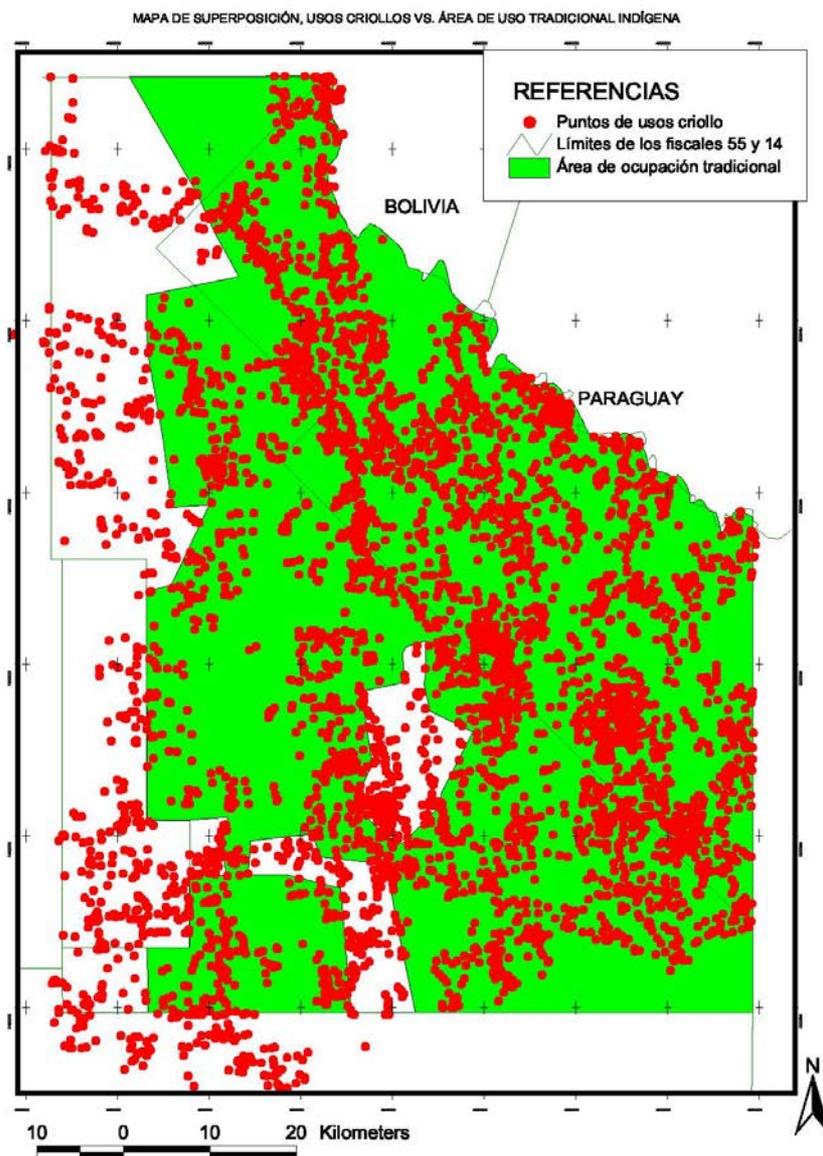
In the case of creole families six mappers were trained, which mapped about 8,000 points of use throughout the territory among posts (houses), animal pens, cattle and sheep grazing areas, natural water sources, wells, camping and hunting areas, cemeteries.

Map 2 shows the location of the creole posts marked with the symbol of the house in red. In addition to this general map showing all the distribution of posts throughout the territory, specific maps of each post were developed for individualization of the points of use.



MAP no. 2: Location of the creole posts in the area of lots 55 and 14. Property: Organization of Creole Families. Preparation: FUNDAPAZ, 2004.

The collective process of building the maps on shared territories enabled observing the ways of inhabiting, using and possessing the same area by indigenous and creole people. Superimposition of the information collected by the two groups clearly showed territorial overlap, as clearly shown in Map 3, where red dots represent the creole use and the green area represents the traditional indigenous occupation area.



MAP no. 3: Overlapping areas of use. Asociana – FUNDAPAZ. 2005

This complicated situation of territorial overlapping is precisely that which needed a solution based on rights of various kinds. It is the core of the current work related to land distribution, carried out by the organizations, NGOs and the State.

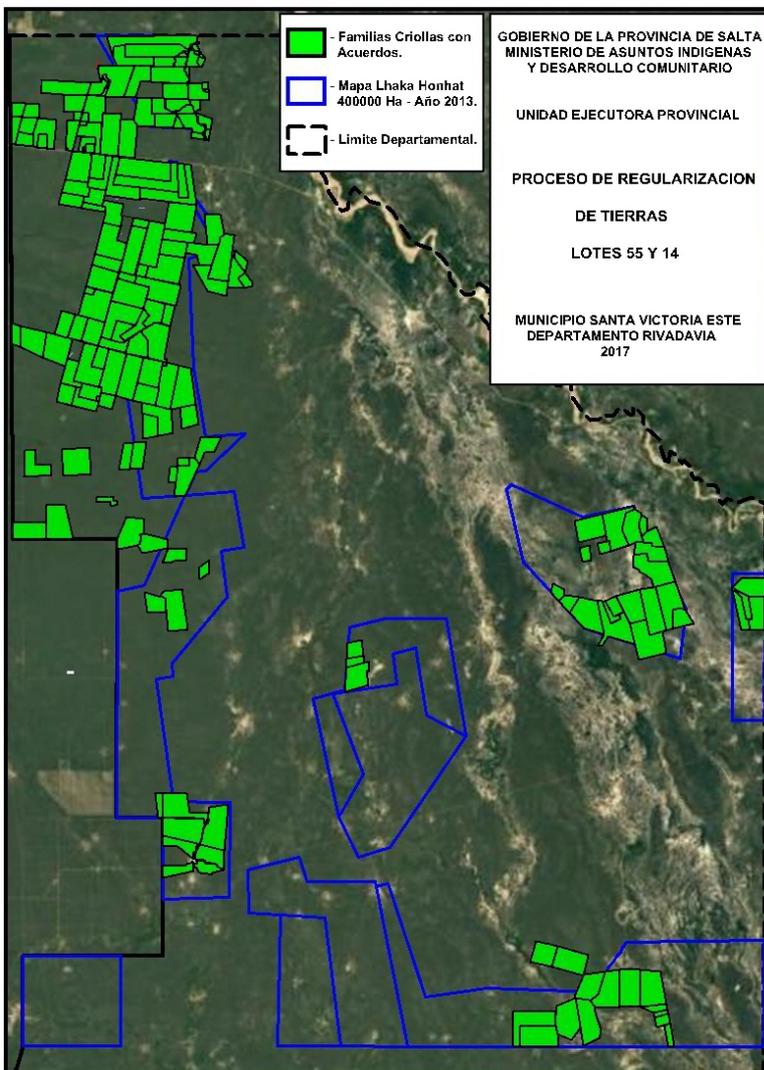
Thanks to the cartographic evidence, advice and joint work of all NGOs, indigenous and creole people could advance in a proposal for regularization and distribution of the land. In October 2007 (7 years after the start of the Pilcomayo Project and following an agreement reached between Lhaka Honhat and OFC) the government of the province of Salta signed Decree 2786/07 through which it allocated 643,000 hectares distributed into 400,000 to 42 indigenous communities and 243,000 hectares to 462 creole families fully institutionalizing the agreement reached by the organizations.

The Decree set directives for distribution between the two groups, legitimized the work of base organizations and established a mechanism to obtain the necessary funds for measurement and for registration of titles. The dialogue methodology focused on maps and painstakingly prepared by the same

organizations proved a valid strategy to achieve a shared solution and, most importantly, perceived as "fair."

Therefore, in 2007, it was achieved that the Government of the Province of Salta officially recognized this participatory methodology and institutionalized it as a strategy for conflict resolution, land use planning, relocation of creole families, measurement of their productive plots, and definition of cattle-free indigenous territory.

Map 4 shows the situation of territorial reorganization in which the creole families that reached an agreement with the indigenous communities are relocated outside the traditional occupation area claimed by the communities, marked by the blue line.



MAP no. 4: Map of current solution and location of creole families (in current process). Property: Government of the Province of Salta. Ministry of Indigenous Affairs and Community Development. 2017

The joint work of the Organizations and the pressure due to being an international case led the national government to commit to carry out – in addition to regularization – a local development program with provincial authorities, with specific funding, such as from the PRODERI (UCAR – IFAD) and other specific provincial and national funding for access to water, housing, roads, among others.

Finally, in 2014, after thirty years of claims, the government of Salta formalized the decree 1498/14 through which it recognizes and transfers the land in community ownership to the indigenous communities and in co-ownership to the creole families. Currently, there is a negotiation process on territorial management and on the use of natural resources that enable this region – which is among the poorest in Argentina – to begin a development process that respects visions, strategies, and expectations of each of the local groups. In this process, the mapping, dialogue and agreement between different actors are increasingly present. In May 2017, over thirty years after the claim was initiated, the Governor of the Province of Salta delivered the first 42 land deeds to creole families, for an amount of 25 thousand hectares.

The mapping is used to calculate how many hectares are owned by each one, each family; it serves to find the lakes in the area, the ravines, roads, landscapes. The government also made a mapping, with the Honorary Commission, but it was not similar to ours or to that of the creole. When the creole made the mapping it was very similar to ours, in terms of the area occupied by them, the only difference was that it was occupied by the animals, cows... and they mapped the route of the cows. Conversely, we are the ones who walk the land, not our animals. Hence, the mapping serves to show that there is difference in land use.

(Francisco Pérez, Coordinator of Lhaka Honhat, 2017)

The mapping by indigenous and creole organizations has been and is currently a very important source of information for the land regularization process... however, this mapping by the organizations continues to be conducted but in a very different context. This difference lies in the presence of the State during these mappings. Several years ago, before an absent State, the organizations were responsible for generating input and information necessary for the land process to advance. [...] The need for participatory methodology in the negotiations is understandable when we can comprehend the extreme importance – for both the indigenous and the creole – of their territory. In such a sensitive conflict as the conflict over land ownership (which should be explained and understood by the notion of territory as a space of geographical, cultural, symbolic, and social belonging, among others), it is realized that the resolution of the conflict is impossible without taking into account the voices, perceptions and decisions of the sectors involved, because, as we said above, it is not only a certain number of hectares at stake in this process but processes related to the identity of the groups, to their cultural norms, to their lifestyles. The territory of the lots is loaded with symbolisms that exceed the purely geographical and it is there that the participation enables advancing in interpreting and agreeing on the spaces of each one.

Consultation to and participation of indigenous peoples and creole families in a process in which they must make decisions are fundamental principles of a State that aims to bring efficient solutions, in a joint work with all stakeholders, and ensure equity and social peace through inclusion. Consultations are instruments of genuine dialogue, which have a decisive role in preventing and resolving conflicts.

(Luis Gómez Almaraz, Minister of Indigenous Affairs for the Province of Salta, 2017)

Case 2. TCO Weenhayek. Bolivia

The Wichí-Weenhayek groups are self-recognized as a single ethnic group united by ties of kinship. The territory they traditionally occupy is located along the Pilcomayo River, on either side of the border that divides Argentina from Bolivia⁶. Therefore, the case of the Weenhayek territory of the Bolivian Chaco is situated in direct continuity – geographic and thematic – with the case analyzed above. Analyzing this experience is fundamental, since on the one hand it shows a different contemporary territorial shape of the Wichí-Weenhayek territories, despite the territorial, socio-cultural and ecosystemic continuity, and on the

⁶ Most Wichí groups are found in Argentina; in addition to the Province of Salta, they are settled in the Province of Formosa and Chaco.

other hand, it shows a different application of the participatory mapping carried out by indigenous communities, with technical support from the Center for Regional Studies for Development of Tarija (CERDET), which implemented the methodology developed by FUNDAPAZ.

The progressive advance of the livestock industry in the Bolivian Chaco region generated a territorial overlap with the indigenous hunting, fishing, and gathering areas. At the end of the 1980s, the Weenhayek communities settled along the Pilcomayo River began to organize to claim their territory. With support from the Free Swedish Mission, they managed to obtain a first grant of the title to 10 communities⁷ from the Council of Agrarian Reform with an area of 500 ha each.

Then, with the aid of the Confederation of Indigenous Peoples of Bolivia (CIDOB), the Organization of Weenhayek Captaincies of Tarija (ORCAWETA)⁸ was founded in 1992, originally representing the Weenhayek and Tapiete people. Along with the Swedish missionaries, with agreements established between the latter and the government of then president Jaime Paz Zamora, the ORCAWETA manages to achieve the first polygonal map of the Weenhayek territory by using aereophotogrammetric techniques⁹.

Thanks to a favorable political situation of international and national recognition of the rights of indigenous peoples, in 1993 there was the achievement of the definitive recognition of the Weenhayek territory, along with 10 other low land indigenous territories in Bolivia, by Decree 23500. This Decree establishes that the Weenhayek territory has a total surface area of 195,659 hectares, consists of two areas covering a strip that spans from Villa Montes and extends along the right bank of the Pilcomayo River and a small piedmont area of the Aguargue Mountain.¹⁰

Despite the formal recognition, the areas recognized for the Weenhayek people were not definitive and were to be confirmed, subject to change according to the results of a consolidation process carried out by means of field tests. To conduct this process, a delimitation commission was formed¹¹; however, the methodological discontinuity of the tests and inadequate engagement of indigenous communities in the field data survey ended up favoring the livestock industry. In addition, due to economic reasons, the works were suspended until 1996, remaining in the field stakes that mark the limits of the measured properties of 64,508.1156 ha, but remaining to be carried out the grant of titles for 131,1150.8844 ha.

Map no. 5: TCO Weenhayek. TCO Weenhayek territorial demand, Municipalities of Villamontes and Yacuiba (CERDET-ORCAWETA) 2014

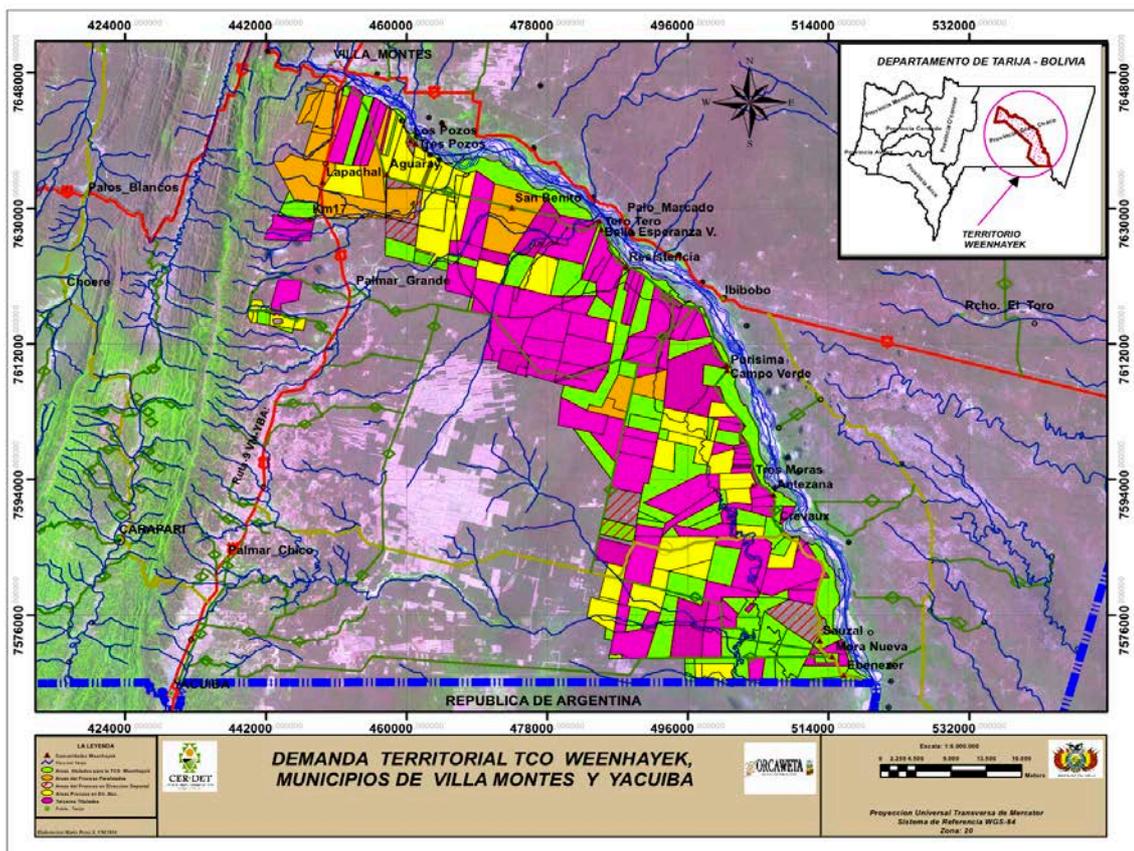
⁷ Resistencia, Purísima, Crevaux, Sauzal, la Mora Vieja, Algarrobal, Tres Pozos, Quebrachal, Timboy, and Capirendita.

⁸ Initially, the meaning of the name was Organization of Weenhayek and Tapiete Captaincies, because the claim was associated with the Tapiete indigenous groups present in the same area.

⁹ Aereophotogrammetry was used to obtain correct measurements of the soil using photographs shot from a plane.

¹⁰ Area 1 is located in the province Gran Chaco, districts of Villa Montes, Crevaux, D'Orbigny, Villa Ingavi with an area of 194,435 hectares. From the southern end of the railway bridge over the Pilcomayo River, in the course of the right bank of the river, to the intersection of the line of international boundary markers. Area 2 comprises the district of Palmar Grande, with an area of 1,200 hectares. From the intersection of the Santa Cruz–Yacuiba gas pipeline with the southern margin of the Timboy gorge.

¹¹ The Commission was composed of the sub-prefecture of Yacuiba, the Corregimiento Mayor of Villa Montes, the 2 municipalities, the Federations of Ranchers of Yacuiba and Villa Montes, representatives of the Weenhayek people, the Ministry of Ethnic Affairs – SAE, representing the Bolivian government, and the Military Geographical Institute.



Map 5 shows the mosaic that makes up the polygon corresponding to the TCO, that is, the area claimed by the ORCAWETA and recognized as ancestral territory of the Weenhayek people. The properties granted in favor of the Weenhayek communities are shown in green, livestock private properties in fuchsia, and areas subject to consolidation in yellow.

In comparison with the previous case, it is evident that the current territorial formation of the TCO Weenhayek was the consequence of choosing different strategies for the territorial demands and the absence of strategies for institutionalized dialogue without participation of all stakeholders.

Mapping of Natural Resources in these communities. Currently, the Weenhayek communities are territorially settled in plots, each with its polygonal boundaries. This spatial delimitation, resulting from territorial fractionation into isolated areas and areas adjacent to livestock private properties, generated the need to rethink an appropriate land management for the new situation of life of the groups in delimited spaces.

In analysis case 1, participatory mapping was used for initial determination of demand and territorial demarcation. In this case, the tool is proposed and implemented as a territorial management strategy after the last allocation of land, in order to make a diagnosis of the current situation of the communities, for the survey of needs and production possibilities.

By means of the Trinational Integrated Program – PIT¹², and with technical assistance from FUNDAPAZ, two indigenous mappers were trained and supported the communities in the mapping of natural resources in each of their plots. The survey enabled establishing the available and utilizable resources and their location, as shown in map 6, of the Tres Moras Weenhayek community. The map shows different types of information corresponding to the territory of the community, bounded by the perimeter in fuchsia, such as houses, different types of wells and cisterns, orchards, pens, boxes for beekeeping, forest area, etc.

¹² The Trinational Integrated Program – PIT is a plan to support indigenous communities of the Trinational Chaco (Argentina, Bolivia, Paraguay), funded by the Church World Service – CWS. The program, characterized by a strong gender perspective, promotes organizational strengthening, access to land and water, legal advice, political advocacy.

This information is useful so the community has a detailed view of the situation and can develop ideas on sustainable management of resources in a delimited space, thinking about the types of productive projects that can be implemented in the short, medium and long term, and which strategies could be employed to manage the space legally titled and ensured.



Map no. 6: Map of the territory and resources of the Tres Moras Weenhayek community. Cerdet. 2014

The community mapping process lasted three months in three different communities and was conducted in the following steps:

1. Presentation and socialization of the activity with the leaders of each community and then with the other members;
2. Appointment of community representatives, who would accompany the indigenous mappers to make the journey across the territory of the community;
3. Mapping in situ: photomapping of the points georeferenced by GPS, traveling on foot for 3 days on average the extension of the community;
4. Office work: upload of the points to the computer; drafting of the map; review of the technical aspects and possible errors;
5. New field trip to reconfirm points, correct errors;
6. Meeting for validation of draft maps with each community;
7. Preparation of the final map for presentation and final delivery to the community.

This survey was useful for preparing the Five-Year Community Development Plan, a document that serves to establish dialogue with municipal and departmental authorities to manage productive and infrastructure projects in the communities. The Weenhayek mappers involved claim that this tool has strengthened both

the communities and the indigenous organization, in terms of knowledge, ability to negotiate with the authorities and empowerment.

We have done the mapping to learn, further increase the knowledge about the territory of the Weenhayek people. Not only for the indigenous organization, but for the institutions, public and private. Previously there were people (non-indigenous) who were responsible for the mapping work for the communities, now the communities themselves learn the situation of the territory.
(Mario Pérez, Mapper, 2017)

Case 3. Paraje km 25. Garza. Argentina

Santiago del Estero is one of the Argentinian provinces most affected by the expansion of the agricultural frontier, characterized by large-scale agriculture, especially transgenic soybean (Redaf, 2010)¹³ and livestock production. This progressive advance toward new cultivable and exploitable spaces constitutes one of the greatest threats to rural families who traditionally live in a family production, which, in most cases, maintain a condition of legal uncertainty with respect to the land they occupy.

This is the case of the 21 rural families of paraje Km 25, historically associated with an economy focused on breeding sheep and goats through the extensive production system, locally called "in open field" where animals are free to roam the space in search of food, as is typical in the Chaco of Salta. This production is carried out with extreme difficulty, because it is a semiarid area, where the lack of food resources, water and general infrastructure for management generate the need of having a large area for livestock management. In accordance with these needs, the 21 families occupied an area of approximately 2,000 hectares of the 3,600 that the original lot spanned and that entered into dispute when they were claimed by someone who held the ownership. (Map 7).

In 2009, the group of families who were unaware of the existence of an owner of the land they occupied received an unexpected visit from an owner of the plot. Initially, they adjusted to the new and unexpected situation, accepting the condition of "occupiers" in a land that belonged to others. The families of the community of paraje Km 25 considered that **"If there is an owner we will have to give him his land,"** action with which is initiated the identification of the problem for the land resource. This situation alerted the school principal and the parish priest, who called for Fundapaz to carry out a training about property rights in order to inform the people and determine the legal actions that could be advanced to regularize the ownership situation.

In 2010, the community organization process was initiated to visualize the problem through the development of participatory mapping. To that end, several monthly property rights workshops were held and the community began to organize, making a request in the Register of Applicants for Regulation of Land Tenure Ownership in the province.

Fundapaz aimed to advise the community so they would have the information and competencies necessary to negotiate with the owner; therefore, community strengthening and territorial recognition work began by locating areas of use. In addition, a team was formed to mark with GPS the points of use in the space that the community recognized as their own and that they were willing to defend in future negotiations. With the work of this team, the community managed to map and delimit 1,725 ha as their own (see Map 8 Proposition 1).

¹³ Red Agroforestal Chaco Argentina, REDAF, 2010, *Conflictos sobre tenencia de Tierra y Ambientales en la Región el Chaco Argentino, 2°Informe*, Reconquista, Observatorio de Tierras, Recursos Naturales y Medioambiente.

2010: Community organization process

- **February:** The San Isidro Labrador Parish and FUNDAPAZ jointly organized a series of monthly workshops so that people would learn their property rights and thus be able to enforce them. A process was initiated to organize the community of families of Km 25 and to raise awareness about Land Rights of the community, which was extended to the neighboring areas.
- **July:** Again appears someone who claims to be the owner of lot 3605 where the community of Km 25 is located, and states that in 1983 bought the field and knew that families lived there.
- **July–December:** period in which the community begins to organize. They begin to perform work to explore the mountain, hills, the best land, the best trees, as far as the animals move to graze, etc. A work team was formed to go map the GPS points of that space that the community recognized as their own, that is, the land that the community would want to defend in the negotiations with someone who appears as owner. This team consisted of representatives of the families of the community of Km 25, FUNDAPAZ technicians, a representative of the Catholic Church and a land surveyor. With the work of this interinstitutional team and the community, it was possible to map and delimit 1,725 has as their own.
- **November to December 2010:** The person who claimed ownership of the land showed up at the place with a team of lawyers and surveyors, and even with some people who generated hostilities. In this situation the first intention of FUNDAPAZ was that the community could also have the necessary resources to sit down and negotiate with this person who held the ownership of the land.

In 2011, a stage of dialogue and advocacy among the various actors was conducted through many meetings, in which each party explained their proposal. In the first instance, the owner of the plot made a first proposal to the community, offering 700 hectares (Map 8 Proposition 2).

The community rejected it and continued the negotiation process. This process was based on the community organization, the knowledge of the right and the defense of the territory centered on the map of use. The proposal of 1,700 ha (Map 8 Proposal 3) in favor of the families was also rejected, finally agreeing on 1,400 hectares titled in favor of the community. This verbal agreement was turned into writing and both parties (the holders and the titled owner) signed it before a notary public (who went to the place so all the heads of households could sign it). It was agreed to establish a 100 days period for titling the 1,400 has in favor of the 21 families.

2011: Dialogue and Negotiation Process

- **January – August:** The negotiation process began between the families of Km 25 and the owner of the land. This was carried out through many meetings, in which each party presented their corresponding proposals. In the first instance, the families demanded an area of 1,900 ha, which the "supposed owner" did not accept, making a counterproposal to grant the property for about 700 ha. The families do not accept this area and the dialogue continues a while longer. In a new meeting, and with the map in hand, the families propose to the complainant that they are granted the ownership of 1,700 ha; this proposal was also rejected by the complainant. After several meetings, it was agreed that the community would be titled to 1,400 ha and that the land owner would be responsible for all costs of surveying and titling in favor of the community. This verbal agreement was turned into writing and both parties (the holders and the titled owner) signed it before a notary public (who went to the place so all the heads of households could sign it). It was agreed to establish a 100 days period for titling the 1,400 has in favor of the 21 families.
- **July:** the families of the community of Km 25 request to be visited by the Registry of Applicants to Ownership Regulation of Land Tenure in the province.
- **September–December:** the community of Km 25 continued processes with the Registry of Applicants to Ownership Regulation of Land Tenure in the province.

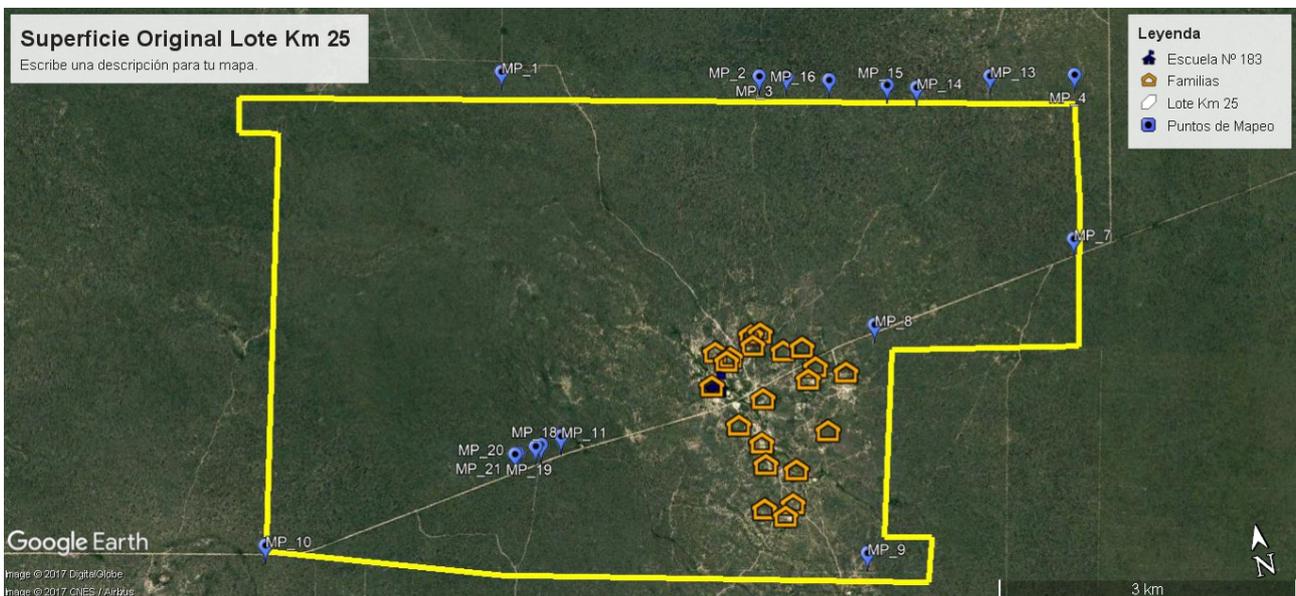
From 2012, after achieving territorial security through access to land ownership the community had to reorganize its use and production model to adjust to a smaller and limited space. The mapping was also used to define areas with different characteristics and productive proposals for each area. Through dialogue between different actors, a search for (economic, financial, etc.) resources is also performed to carry out the planned management activities.

2012: Access to land

- **February:** a property management plan was formulated in conjunction with FUNDAPAZ in order to make a proposal for land use.
- **June:** deed signed by each head of the families of Km 25 and by the former owner of the land.
- **December:** a project was presented to the Fundación Nuevos Surcos to obtain funding for part of the definition of perimeter. In addition, a project was presented to the Ministry of Agriculture of the Country to carry out the property management plan formulated, implement pastures, improve the state of stockbreeding and enrich the vegetation through the construction of fences or paddocks and by planting carob.

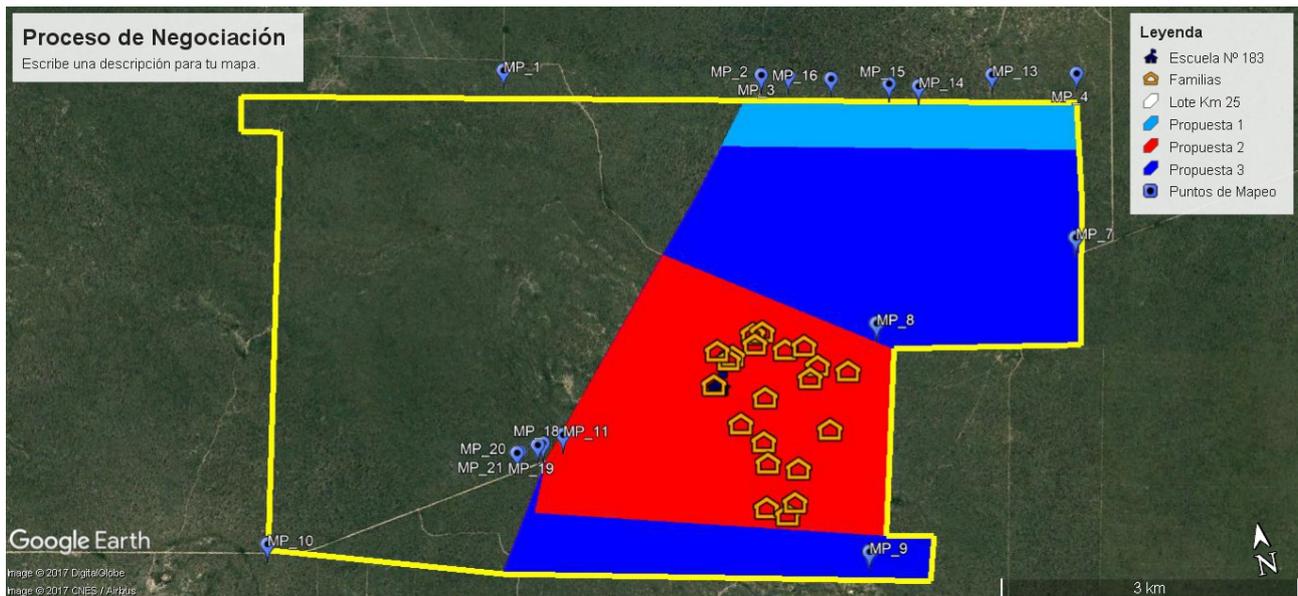
The families agreed not to subdivide the community into plots but agreed on areas of use, such as those of forest use, where they extract firewood and in some cases poles for the use of each family; extensive grazing areas for livestock and a livestock management area where they built paddocks for sowing pasture and means for their access to community dams. In this same area carob was planted to improve the state of the vegetation. They have a community channel and two dams of common use. They used the mapping to define where these areas are located, for subdividing paddocks and installing solar electric fences.

In 2014, the last stage of this process is completed with the delivery of the deeds to each of the 21 families. At the same time, this enabled them to be beneficiaries of various projects funded by the national State and private foundations, which were formulated and implemented jointly with FUNDAPAZ, leading to improved use of the natural resources in their territory.



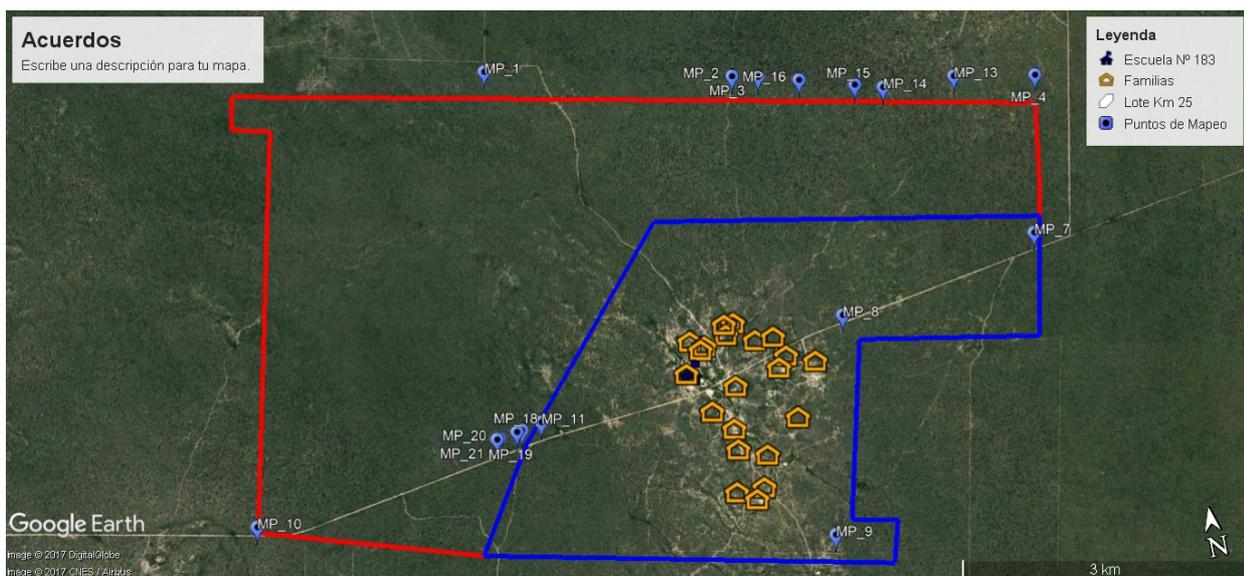
Map no. 7: The initial conflict situation. FUNDAPAZ 2011

Map no. 7 shows the original area according to the cadastral plan of the lot Km 25, the location of the homes of the 21 families, the school of the locality and some of the points that were mapped.



Map no. 8: The negotiation process. FUNDAPAZ 2013

Map no. 8 shows the various proposals made by both actors that were described during the negotiation process.



Map no. 10: Definitive solution. FUNDAPAZ. 2015

Map no. 9 shows the final agreement between the former owner of the original lot and the families of the paraje Km 25. The red line marks the perimeter of the area of the private party (2,205 ha) and the blue line marks that of the families (1,400 ha.).

Before the mapping we did not know what was a "spatial point," we did not know what was a GPS, none of that was known so we could negotiate.
(Nancy Barraza, 2017)

In our area, the experience of km 25 was a unique experience and a model. Generally all conflicts involving land are violent. This was a case solved through dialogue, consensus between the rural families and the holder of the title of ownership and that led many communities to also be encouraged to carry out land defense processes, using mapping techniques.

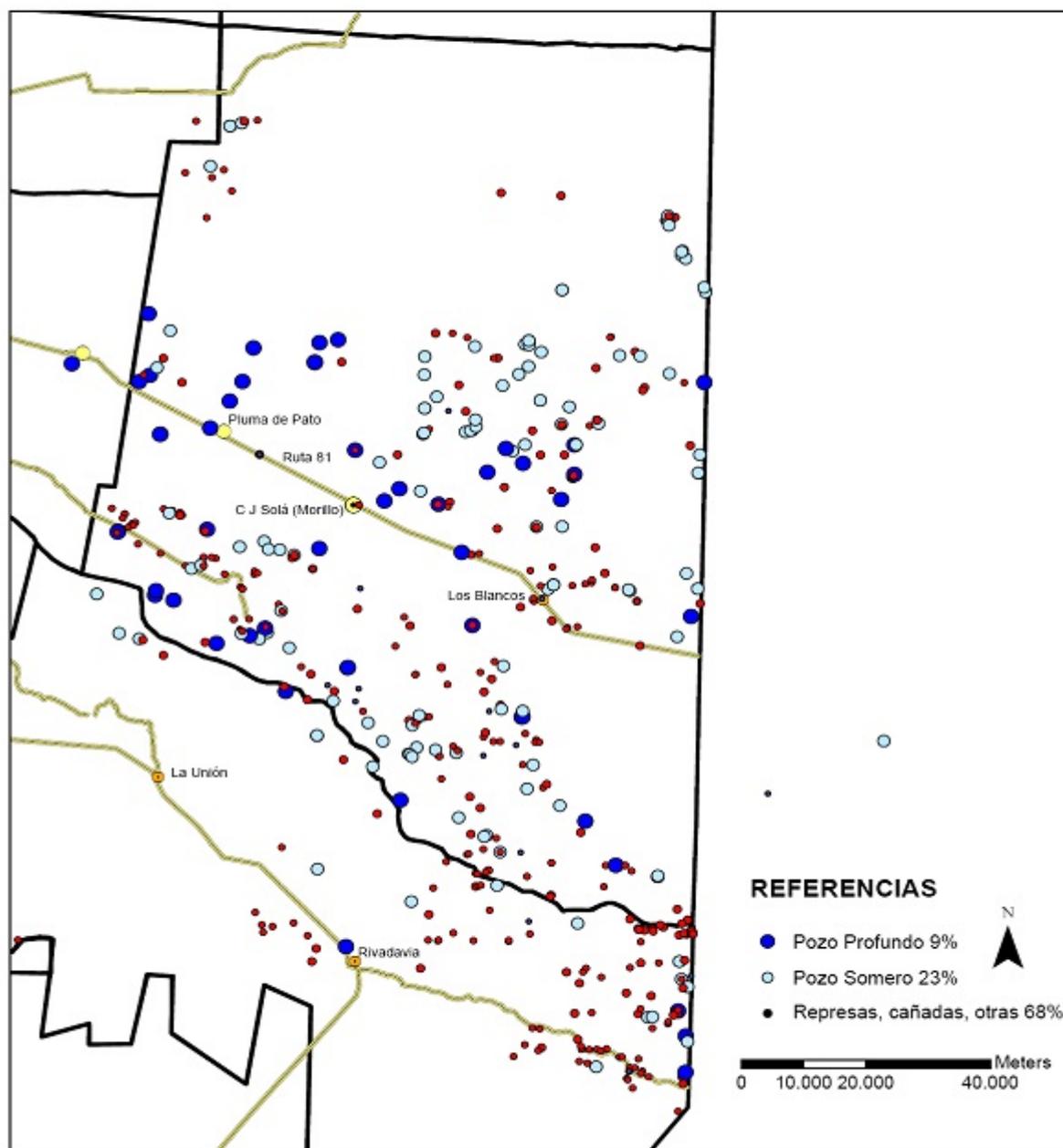
Case 4. *Water access and management commission Argentina*

The shortage of drinking water for human consumption and production is one of the critical issues in the region of Gran Chaco. Access to water is very complex due to several factors of ecological, socio-economic, and political nature. The rainy season in the Chaco is concentrated only during a few months a year, alternating with months characterized by drought; groundwater is of poor quality and has high levels of salinity and arsenic. Moreover, as in the case of the former fiscal lots 55 and 14 discussed above, the historical pattern of settlement of the Chaco groups makes the population scattered throughout the territory, either indigenous communities or creole rural people. As in the first case analyzed, the population here involved in the mapping process is composed of a majority of indigenous Wichí and creole rural people. The latter have historically chosen to live in isolated places that facilitated extensive animal husbandry in the open. Consequently, the investment costs for digging deep wells become very high, to which are added deficiencies in public infrastructure available for it.

In the Department of Rivadavia of the Province of Salta (the poorest of Argentina), lack of water for human consumption has serious effects in addition to nutritional deficiencies, early diseases and infant mortality. While access to fresh water for human consumption is a universal basic right, in this area there are more than 250 rural sites located throughout the territory (12,824 km²) without access to water for both household and animal consumption.

In 2015, the Ministry of Indigenous Affairs and Community Development of the government of Salta made a diagnosis, applying law 7658 of the province and could diagnose the situation of access to water in the area. The data surveys showed that 98% of the population has no drinking water, 9% have a deep well, 23% have a shallow well, and 68% takes water from streams, indicators showing an alarming situation regarding this good. On the other hand, 98% of the population has water of poor quality, a fact that is also observed in the Province of Salta according to the water analyses carried out.

Relevamiento Departamento Rivadavia



Map no. 10: Survey of families with water problems Dept. of Rivadavia. Ministry of Indigenous Affairs and Community Development. 2016

In 2016, to address the water problem in these rural areas of the Province of Salta, Fundapaz promoted the creation of the Water Commission, in the sphere of the Semi-Arid Platform internal to the International Land Coalition¹⁴ and the Church World Service (CWS). Thus a program was devised that could serve the 2,000 families in urgent need of access to water traced in the diagnosis of the Province of Salta and the Mapping of FUNDAPAZ.

¹⁴ Thanks to the Semi-Arid Platform there were exchanges of experience between rural populations (indigenous and farmers) living in Latin American areas sharing similar characteristics, among which water shortage. These exchanges also had a positive impact on the training of NGO technicians accompanying organizations

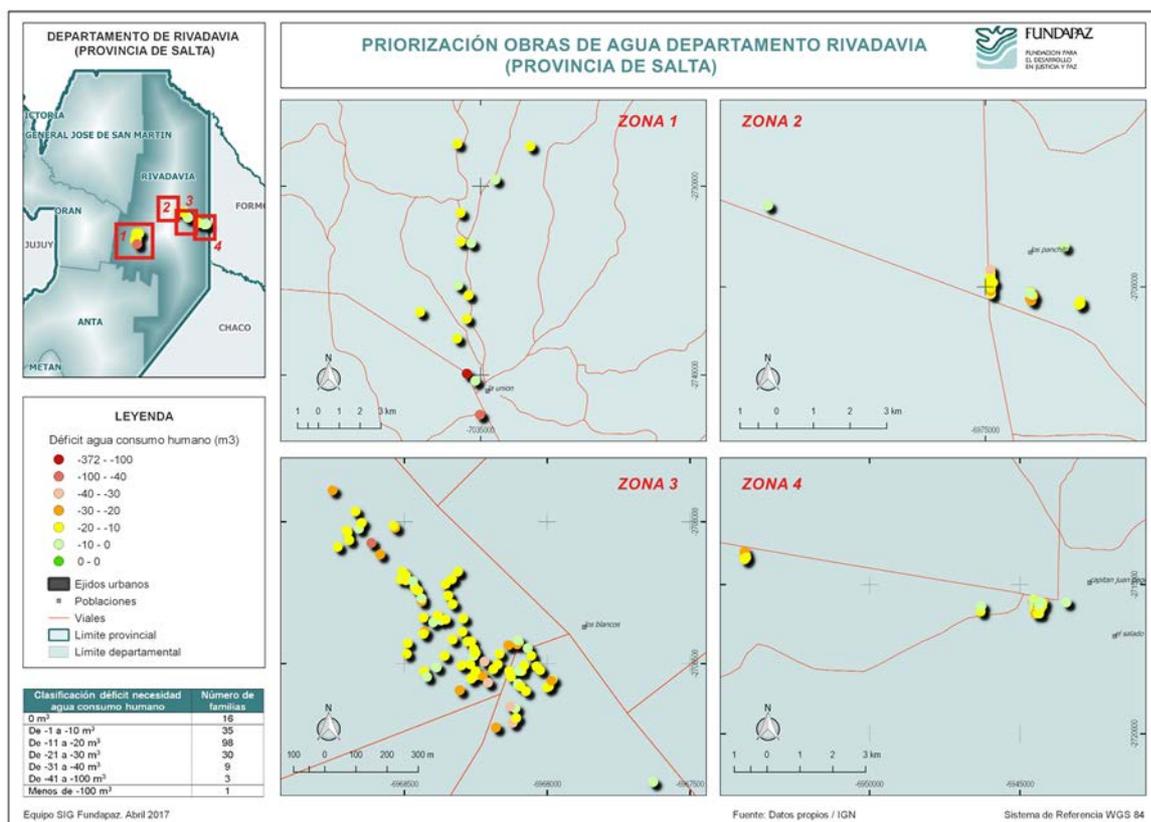
The previous factor that strongly influenced the creation of the Water Commission was the technical and political experience of the Brazilian Semiarid Coordination (ASA), a network consisting of thousands of civil society organizations operating for the management and development of public policies in the semiarid region of Brazil. Since 2001, the ASA has carried out the "1 Million Cisterns Program," a plan to build cisterns to capture rainwater in NE Brazil, solving the access to fresh water for more than five million people living in the semiarid hinterland region of the Sertão.

As in the case of Brazil, the Water Commission seeks to solve the problem of access to fresh water through the partnership between civil society and the State, within the framework of an International Agreement and initially had support from the International Land Coalition (ILC), the Latin America Semiarid Initiative, the Church World Service (CWS), the Trinational Integrated Program (PIT), and the Ministry of Indigenous Affairs and Community Development of the Government of Salta. Then there was the addition of new actors such as the Ministry of Family Agriculture (SAF), the Subdepartment of Community Development, representatives from the National Institute of Agricultural Technology (INTA), from the National Institute of Industrial Technology (INTI), from the Siwok Foundation, from the Programa Hábitat de Nación of the Fundación Gran Chaco, and from the Fundación Escolares, among others.

In order to achieve its objectives, the Water Commission developed a common database with information from the State and Civil Society organizations that facilitated the determination of demands for concrete works for the collection, storage and consumption of water. The beneficiaries are families or communities that through a participatory diagnosis carried out in conjunction with local organizations trace critical situations and provide an order of priority for the works, clarify the need for water collection and storage and define a specific plan to resolve the problem.

The data survey employed a Participatory Geographic Information System (PGIS), designed to record the places, families, demands, and supplies available. The participatory mapping and data collection are performed by indigenous and rural leaders, youth and women from the organizations.

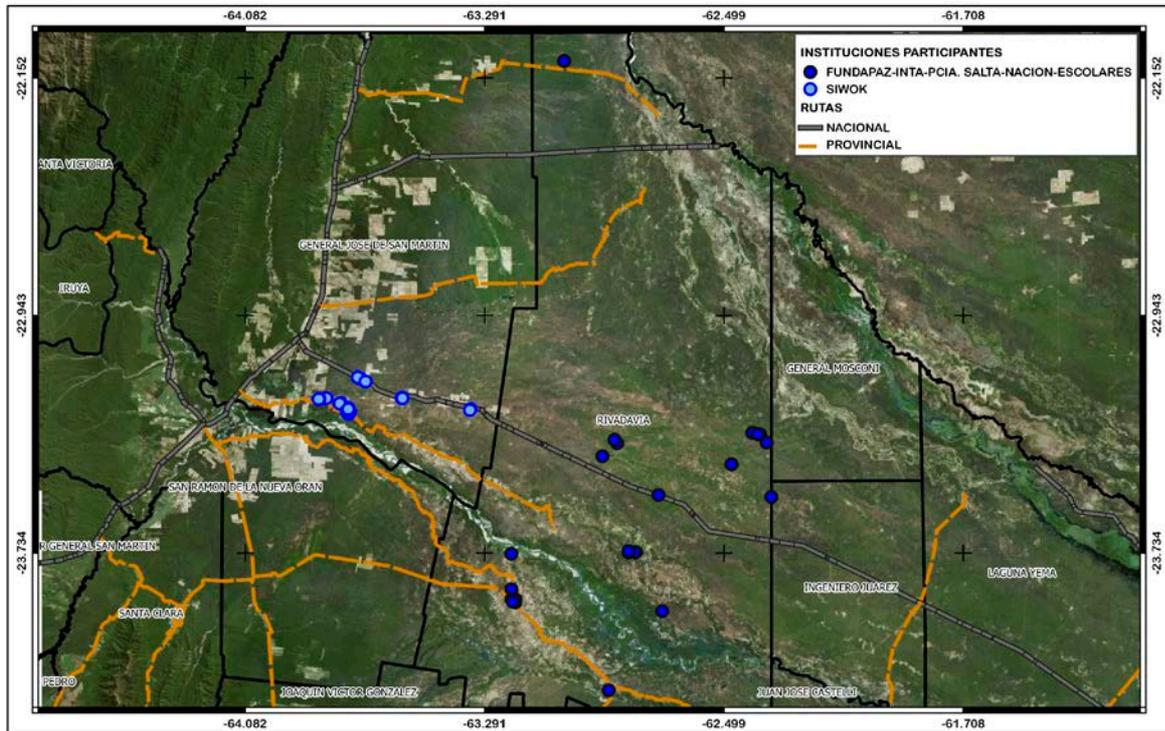
Prioritization of works: the first thing that is done considering the 2,000 family needs traced is to hold a participatory prioritization to provide a logical sequence to the program for construction of cisterns and training. Thus the first 200 urgent needs are traced, as shown in the map below:



Map no. 11: Determination of the 200 priorities. FUNDAPAZ. 2016

This system is designed to control and manage the support program in its entirety, as working together with local organizations enabled the development of a system to identify the beneficiaries of the works based on a preliminary analysis, with democratic and participatory criteria, establishing an order of priority in the interventions based on the conditions of extreme need of water emergencies.

Family solutions accomplished: the program to identify urgent needs enabled progress in concrete works. In 2016 about 40 works were concluded in the entire department, which are also being mapped to obtain the history of each family in this issue. In 2017 other works are under construction with funds provided by the Federal Government (Ministry of Social Development, Subdepartment of Social Protection), Provincial State through the Ministry of Indigenous Affairs, and NGOs that are part of the Water Commission. There is also a proposal submitted by the Commission itself to the Ministry of Domestic Affairs and Public Works and the Subdepartment of Habitat to fund a program called 150 Solutions for Safe Water.



Fuente: Elaboración propia en base a SIG 250 - 2015, IGN

Sistema de Referencia: WGS 84 - DATUM: WGS 84 - Sist. Coord.: Geográficas

Equipo Técnico; FEBRERO 2017

Map no. 12: Identification of works already carried out by FUNDAPAZ and SIWOK. FUNDAPAZ. 2017

Thanks to the coordination and cooperation between the field experience of civil society, the territorial knowledge of local populations, and the State resources, it was possible to advance in the construction of cisterns to collect rainwater, shallow and deep wells, dams, and other water collection systems both in indigenous communities and in different creole localities. The Water Commission that was formed in July 2016 has mapped 2,000 families in need, has solved 40 cases in the first year, is currently solving other 40 cases in 2017, and has a plan to carry out 150 new solutions. If this work pace is maintained, this problem could be solved definitely within 5 or 6 years.

The mapping was and is very important because it enables delving into the reality of the families, into the situation of each family. [...] There were major changes because the families were able to obtain solutions for some demands and for the most urgent ones, as is the water subject for both human and productive consumption.

(Rebeca Soraire, secretary of the Organización Zonal Criolla de Pequeños Productores de Los Blancos, 2017)

The information generated in the participatory spaces undoubtedly provides the possibility to make decisions and devise genuine solutions that are sustainable over time. The water commission formed in 2016 through a framework cooperation agreement signed between the Ministry of Indigenous Affairs and Community Development (Government of the Province of Salta) and the Latin America Semi-arid Platform, the ILC ALC, the PIT, and the CWS is another exemplary case in which the work methodology using consultation and participation has provided excellent results as a space for public-private dialogue aimed at finding solutions for access to potable water or water for production for a sector of the dispersed population, serving in turn as a connection for the Water Commission that works in the Government of the Province of Salta with all relevant areas in the field.

(Luis Gómez Almaraz, Minister of Indigenous Affairs for the Province of Salta, 2017)

3. SWOT ANALYSIS OF THE SYSTEMATIZED CASES

Strengths:

- ✓ Conceptual growth of the leaders in broader perspectives about their problems and possible solutions, incorporating a territorial vision
- ✓ Organizational strengthening, by managing compelling information that enables them to fully diagnose their problems and provide effective solutions in various contexts
- ✓ Political impact, expressed in clear demands and transparent negotiations in the hands of the indigenous and rural organizations.
- ✓ Sustainability over time of the final agreement reached due to the participation of all stakeholders and the reach of a solution considered fair for all.

Opportunities:

- ✓ The methodology has a clear possibility of replicability in similar cases and in other cases/regions
- ✓ A very specific technical, methodological, and political training process.
- ✓ Changes in the communities' awareness as to the territory they occupy, which they want to defend or claim
- ✓ It leads to a broader vision by the managers of the problem. Almost never the problem is concentrated only in a community but has territorial and even regional continuity, and understanding this is crucial to estimate the problem and the solution

Weaknesses:

- ✓ The mapping has costs, which although not very high are not affordable for the communities without support from specific projects for this task. It also requires technical monitoring and almost permanent training.
- ✓ Long time resulting from the complexity of the resolution of the conflicts of access to the resources that do not have only one variable to be negotiated.
- ✓ The process requires at some point the State guarantee to materialize as a formal process with concrete results.

Threats:

- ✓ The maps and information can be used against community interests and therefore they can be used against the objectives set at the beginning of the whole process.
- ✓ If the goals are not adequately explained from the beginning, the process can be extended because the confusion leads to conflicts and false expectations.
- ✓ If the process is not guaranteed by the State, by not being officially recognized, this can become a frustrating episode for the communities.

4. CONCLUSIONS OF THE SYSTEMATIZATION

The four cases analyzed show different applications of participatory mapping as a method for resolving conflicts and generating agreements for access to natural resources by indigenous communities and rural families living in the eco-region of the semiarid Chaco.

The different experiences show how participatory mapping has been successfully applied in heterogeneous situations: in the case of former fiscal lots 55 and 14 of the Chaco of Salta (Case 1), it was used to gain access to the land and for territorial regularization for indigenous and rural people; in the case of the TCO Weenhayek (Case 2) it was applied to natural resource management in specific communities of the Bolivian Chaco; in the case of Paraje Km 25 (Case 3) it was adopted to resolve a conflict between a private party and 21 rural families who reached a consensual agreement for distribution of the disputed area in Santiago del Estero; and in the case of the Water Access and Management Commission (Case 4), the mapping was chosen to solve the serious problem of access to potable water for human consumption and animal production.

While the application of the methodology comes as a proposal external to the context, in all cases the mapping proved an **effective methodology** because it is **accepted** by part of the people involved in the conflicts or affected by different needs. Participatory mapping enables families, organizations, leaders and members of communities to clearly trace problems, needs and/or conflicts, describe them in detail and estimate the extent of the claim.

The acceptance and appropriation of the methodology supports the proper functioning of the mapping as **inclusive social process**. People participate in developing strategies that are perceived as "their own, appropriate, and 'fair.'" This search for solutions in a clearly **participatory** manner is the most important aspect of this mapping.

Being a technical and social process, the mapping generates knowledge of different types and empowers technically and politically. The mapping has at least two levels of **collective production of knowledge**. The first level is inward, towards the communities and groups involved. At this level a new knowledge of the territory is generated by those who live there both in quantitative terms (e.g. how many people there are by using the census) and qualitative terms (what needs there are, what problems, etc.); as the map is an abstraction, it serves to think at different scales and therefore can project the local issues to zonal, regional and global dimensions. The second level of knowledge is outward, toward the institutions or other external actors that need to understand the context. The maps show the different situations and claims and can be shown to others, becoming *documents, tangible evidence*. This informative aspect facilitates dialogue between different actors because it allows understanding, visualizing the situation of others, their ways of living, thinking and understanding the territory and the environment. Therefore we can say that the mapping **facilitates coexistence and neighborhood processes** because **it enables us to understand the rights of others** and reach a **shared, valid and fair solution for all parties involved**.

This is also achieved because the mapping process is characterized by being a "transparent" process. The transparency of the information makes people consider it "neutral," an extremely important aspect in conflict situations, especially in rural settings where there are very strong power asymmetries, where all actors have diversified interests that they defend by all means. The maps become common ground for all parties, being able to generate mechanisms based on trust to then start the dialogue and negotiations.

This aspect was clearly observed in the case of former fiscal lots 55 and 14 with the dialogue between the creole and the indigenous people and between both and the government; in the case of Santiago between the families of km 25 and the private party. It also facilitates the dialogue of local groups with the institutions, as in the case of Weenhayek communities in Bolivia, which map their plots to relieve the territorial situation and the case of the Water Access and Management Commission, in which indigenous and rural people conduct a diagnosis that serves to solve the water problem, guide and direct the construction works according to the possibilities provided by the government.

The impact of the mapping reaches far beyond its initial specific application. When the people involved in the participatory process manage to fully appropriate the methodology they can use in various applications. It is very important to note that the respondents who participated in the mapping processes in the different cases expressed the will to implement the mapping in future projects, especially those

related to the development of productive alternatives and territory management suitable for the demands of the rural families and indigenous communities and geared toward the eco systemic characteristics of the semiarid region of the Chaco, where both animal and food production is strictly associated with an efficient use of the scarce resources, especially water resources. This means that once solved the situation of problems and emergency as to access to land or water, proposals for production and land management can be developed taking into account the eco systemic limits and the economic and sociocultural sustainability.

Importantly, these processes of empowerment and valuation in the semiarid Chaco have an added value: through the survey of what is present in the different territories, as is in the case of the water commission and the Weenhayek communities, the aim is to strengthen the paradigm of *coexistence with the semiarid*. The territory, its people, and its resources are valued, seeking an ecological and social management of the "shortage," in line with good local practices that have allowed for centuries the coexistence of human groups in the region of the Gran Chaco.

When we started the mapping we got excited a lot and said: with the mapping we will know how many hectares are occupied by the communities. When we finished, we uploaded all the information and then the map was generated, we were very happy about the great work we did, because we knew where we were located, where we were standing! Because before we said we wanted the land, demanded that from the government, we said we wanted land, we want land! But we did not know where!
When we finished the mapping work, we saw that is very important, it is a tool for us to work on this territory we are fighting so much for and now there is a major breakthrough, we have achieved a great deal about this, because with the map we know where we are claiming, it is something concrete, we know where we have negotiated with the government and we know where the 400,000 hectares said in the decree are, we know where the 400,000 ha are through the map we have. This is the importance of the map and of the mapping. **(Rogelio Segundo, chieftain of the indigenous community La Curvita, Lot 55, Case 1)**

I think the territory of work had a turn after the mapping because that enabled the same families and neighbors to know different realities that perhaps among them they did not know, they did not know that the problem was so great. **(Rebeca Soraire, secretary of the Organización Zonal Criolla de Pequeños Productores de Los Blancos, Case 4)**

With the mapping they could work with the needs of different cases: in the productive subject, some families have animals, have physical space to garden, have this desire to work [...] they could work this way together with this work of the participatory mapping. Because in some communities it is very rare to have vegetables, fruits, but they want and have physical space to work and this would greatly help the health of children within this community, and parents are willing to work in this productive way and through them the participatory mapping can be worked. **(Néstor Montes, 2017, Case 4)**

We learned many things, that we had to appreciate what we have, the field that is the part of the farmer, the vegetation, so we have to value that a lot ourselves. **(Miguel Arias, 2017, Case 3)**

Many things changed after the mapping, the community could access grants, loans, productive projects as they have obtained the perfect tenure of the land. [...] Many things have then changed for better after the mapping. **(Father Sergio Rafanelli, 2017)**

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