



MILESTONES IN THE PROCESS OF REACHING EVERYONE WITH WATER AND SANITATION IN THE DISTRICT OF SAN PEDRO, BOLIVIA

Identification of milestones that allowed or accelerated the process of reaching Everyone with water and sanitation



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ABBREVIATIONS:

AAPS	<i>Autoridad de Fiscalización y Control Social de Agua Potable y Saneamiento</i> /Water and Sanitation Control Authority
CAPyS	<i>Comité de Agua Potable y Saneamiento Básico</i> /Water and Sanitation Committee
DESCOM	<i>Desarrollo Comunitario</i> /Community Development
UMSB	<i>Unidad Municipal de Saneamiento Básico</i> /District Water and Sanitation Unit
DMSB	<i>Dirección Municipal de Saneamiento Básico</i> /District WASH Office
EPSA	<i>Entidad Prestadora de Servicio de Agua</i> /Water Service Provider
FI	<i>Fortalecimiento Institucional</i> /Institutional Strengthening
GAMSP	<i>Gobierno Autónomo Municipal de San Pedro</i> /Autonomous District Government of San Pedro
INE	<i>Instituto Nacional de Estadística</i> /National Institute of Statistics
LVSS	<i>Lista de Verificación de Servicios Sostenible</i> /Sustainable Services Checklist
SAP	<i>Sistema de Agua Potable</i> /Water System

MILESTONES IN THE PROCESS OF REACHING EVERYONE WITH WATER AND SANITATION IN THE DISTRICT OF SAN PEDRO, BOLIVIA

1. BACKGROUND

The district of San Pedro has the following characteristics and context:

- **Country:** Bolivia
- **Department:** Santa Cruz de la Sierra
- **Province:** Obispo Santiesteban
- **Population:** 19,103 (source: INE)
- **Coordinates:** 16° 49' 39" South, 63° 28' 54" West
- **Average elevation:** 210 meters above sea level
- **Climate:** Dry tropical
- **Surface area:** 4,074.95 km², (163.5 km long axis)
- **Ethnic origin:** mainly Andean Quechua and Aymara
- **Political division:** Made up of 8 boroughs and 19 communities
- **Category and degree of dispersion:** rural, concentrated
- **Main economic activity:** Farming



Origin of the District of San Pedro

The population has its origin in the spontaneous colonization of the department of Oruro and the valleys in 1967. Years later, the settlers founded the town of San Pedro, whose name was taken from “Curichi San Pedrito,” their water supplier.

Health

In the year 2006, the district health network was made up of four Health Centers and five Health Posts, all first level (primary care). The main causes of mortality: acute diarrheic diseases, malnutrition and acute respiratory infections. The infant mortality rate for the district, according to the Network Management of the Province is 64 per 1,000 live births.

San Pedro 2006 Figures: Access to Water and Sanitation Services¹

74% of the families had a connection to the drinking water distribution network.

70% of the Educational Units had drinking water.

67% of the Educational Units had restrooms.

33% of the Educational Units practiced open defecation.

¹ Information and photos taken from Water For People's annual report to the Ministry 2011.



Streets of San Pedro



Yard of a home in San Pedro

Currently, the district of San Pedro is organized and divided in 8 boroughs and 19 communities where 3,231 families live and have public health and educational institutions, as shown on Table 1.

Table 1: Political Division and Community Data

No.	Name of the Borough	Community	Families	Schools	Health Facility
1	San Pedro	San Pedro	837	4	Health Center
2	San José	San José	258	3	Health Post
		Villa Don Bosco	12	-	-
		San Silvestre	50	1	Health Post
3	Villa Rosario	Villa Rosario	130	1	Health Post
		Santa Rosita	70	1	-
		San Lorenzo del Norte	35	1	-
4	Sagrado Corazón	Sagrado Corazón	389	4	Health Center
5	Litoral	Litoral	120	1	Health Post
		Murillo	71	1	Health Post
6	Hardeman	Hardeman	470	4	Health Center
		El Carmen	28	1	Health Post
7	Piraí	Piraí	305	3	Health Center
8	Canandoa	Canandoa	310	3	Health Post
		Monte Grande	22	1	-
		Guadalupe	17	-	-
		La Isla	7	-	-
		Los Limos	25	1	
		Peta Grande	75	1	Health Post

Source: Data from annual monitoring by Water For People

2. THE PROCESS

The Beginning of Water For People's Intervention in the District of San Pedro

Year 2006: The Nongovernmental Organization (NGO) called Instituto de Capacitación para el Desarrollo (INCADE), which had been helping the district of San Pedro with the implementation of ecological toilets, requested help from Water For People on the co-financing of these infrastructure and water system units in the water communities of Santa Rosita and San José del Norte. For the implementation of these projects, in January 2007, the creation and strengthening

of the District Water and Sanitation Unit – under the District Department of Public Works – was fostered.

Year 2008: Water For People made the decision to finance the district of San Pedro directly as the operating arm of the District Water and Sanitation Unit. Initially, the operation of this District Water and Sanitation Unit was subsidized 100% by Water For People and INCADE until a subsidy of 0% was reached in the year 2010. From that time on, the Autonomous District Government assumed complete responsibility for this technical entity.

Year 2011: The strengthened District Water and Sanitation Unit was established as a District WASH Office as part of the organic municipal structure, with financial independence and decision-making and planning authority.

Year 2012: With the District WASH Office established, the implementation of the Everyone Forever approach began, based on experience and as a replica of reaching Everyone in the Villa Gualberto Villarroel District (Cuchumuela) in the same year.

Milestones in the Process of Reaching Everyone with Water and Sanitation

Milestones and aspects that had an impact or accelerated the process of reaching Everyone Forever with water services in the district of San Pedro were identified. Milestones stand out according to the following criteria:

- Milestones regarding *partnerships and intervention strategy*.
- Milestones in the increase in the level of service *at the community level*.
- Milestones in the increase in the level of service *at the public institution level*.
- Milestones in the increase in the level of service *at the family level*.
- Milestones in the process of building the *sustainability of water services*.



Milestones in Partnerships and Intervention Strategy



Strategic Partnership

In search of sustainability of the investment, Water For People identified the local District Government as the principal and most important ally. It had to be strengthened and focused to fulfill its role as the water and sanitation service authority in its jurisdiction through a technical entity within the institution. This partnership was formalized through the signing of an annual co-financing agreement.



Directors of Water For People accompanied by district authorities: (left) current mayor of San Pedro, José Rojas, and president of the District Council, Martin Bobarin (right), mayor of San Pedro, Benedicto Zurita, 2010-2015 fiscal years (right).

Leveraging Resources

Within the framework of the agreement, the district government's economic counterpart commitment was established as 50% or more for all the projects and activities planned annually, which made it possible to multiply the impact and scope of Water For People's investments.

Creation of the District WASH Office

To achieve the financial technical autonomy and efficiency of the district and to deal with problems related to Water and Sanitation, Water For People fostered the creation of the District WASH Office in the year 2010. Now this technical entity is the operating arm of the District Government of San Pedro for giving and receiving technical assistance, managing the financing of several entities, and executing the agreement with Water For People.

Figure 1 shows the ideal basic structure of a District WASH Office, which would make it possible to carry out the necessary activities in relation to water and sanitation in the district.

Figure 1: Basic Structure of a District WASH Office



Structure of the Agreement

The Water For People agreement document has undergone changes and adjustments in recent years in an effort to achieve the institutional goals in terms of quality and time. Among other things, the document specifies:

- The primary goal of reaching Everyone Forever aligned with the goals of the 2025 national agenda and the achievement of Sustainable Development Goal 6 (SDG 6).
- An annual working plan structured by type of projects and activities, such as investment and community development projects, institutional capacity-building of service providers, annual monitoring by Water For People, implementation of sustainable sanitation and the water quality plan, strengthening and equipping the District WASH Office. Each one co-financed equally.

- The obligations and responsibilities of the District WASH Office as the executing arm of the District Government.
- The commitment of Water For People to provide technical assistance and support to the District Government.
- The technical requirements and conditions for approval of financing for projects and activities.
- The financial execution method (Administration of District Government).
- Regular coordination meetings and evaluation of the execution of the agreement between Water For People and the District Government.

Technical Assistance from Water For People

Water For People's commitment to provide technical assistance to the district of San Pedro is established within the framework of the agreement. Due to the distance between the district of San Pedro and the Water For People office in Bolivia (approximately 500 Km), the Water For People technical team made periodic trips to the district to provide training and support on different activities at the District WASH Office, as well as the monitoring of works in progress. Regular video conferences were also held for the purpose of remote coordination and technical assistance.

Intervention Flowchart of the Agreement

The timing difference between fiscal/administrative years in the institutions (from October to September for Water For People and from January to December for the District Government) has made it necessary to adjust and reconcile schedules.

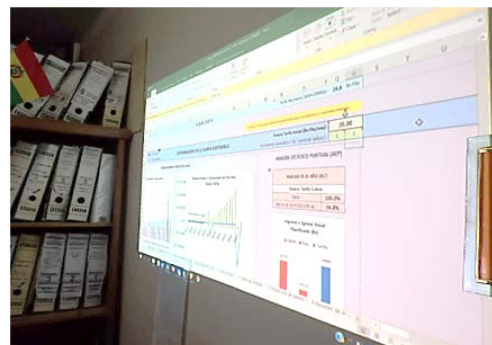
This adjustment is shown in a joint flowchart for Water For People and the District Government (Appendix I), which identifies key activities and milestones for achieving the goals outlined in the agreement, defining terms and outputs within the framework of the life of the project, considering the district's internal administrative processes.

Strengthening of the District WASH Office

Water For People offers training for the staff of the District WASH Office through the transmission of methodologies, the approach and operating tools. It also co-finances equipment for the District WASH Office technical and social staff for the office as well as field work.



Monitoring of works in progress



Training at the District Water and Sanitation Office on the use of water quality lab equipment and review of tariffs

In the year 2016, Water For People and the District Government of San Pedro co-financed the purchase of a vehicle to transport staff members from the District WASH Office to the communities. The most distant community is three hours away by car.

Annual Monitoring of Water and Sanitation Services

Using the monitoring tool (called Flow), Water For People and the District Government of San Pedro have monitored the status of Water and Sanitation services in the district on an annual basis since 2011. The results are analyzed with the authorities to make adjustments and plans for the following year.

Initially, this activity was financed entirely by Water For People but was gradually assumed by the District Government. Currently, annual monitoring is financed in equal proportions by Water For People and the District Government and is led by the staff of the District WASH Office.

District Basic Sanitation Plan

With the need to ensure and give continuity to the approach and methodology, support has been given to the District Government with the formulation of the District Basic Sanitation Plan, within the framework of annual monitoring. The purpose is to contextualize and focus the actions of the District WASH Office in the next five years on achieving and maintaining of Everyone Forever.

Empowerment of the Everyone Forever Approach with District Authorities and the District WASH Office

Through diverse interventions of Water For People and the District WASH Office (workshops, coordination meetings, evaluations, sessions to promote activities, etc.), it has been possible to inform and raise awareness among the authorities of the District Government of San Pedro regarding the situation and problems related to water and sanitation services in its jurisdiction, making use of annual monitoring reports and tools. The district authorities adopted the approach and allocated a budget according to the plan to expand and maintain access to water.



Delivery of the vehicle for the District WASH Office



Annual survey taking by staff from the District WASH Office in San Pedro



Mayor and Secretary General of the District Government of San Pedro participate in the marathon for water and sanitation in the district of San Pedro, organized by the District WASH Office in 2016

Milestones in Increasing Level of Service at the Community Level



Management and Budget Capacity of the District Government of San Pedro for investment in Water Infrastructure Projects

The District Government of San Pedro, through its authorities, has played the leading and decisive role in reaching acceptable service levels in its jurisdiction. With good resource leveraging and management in dealings with the central level, it achieved the construction and/or improvement of all of the water systems and, therefore, an increase in service levels in the district.

Water For People has supported and co-financed the construction of water systems in the communities of Santa Rosita and San José del Norte (2008) and Monte Grande (2012) and has fostered the Sagrado Corazón expansion (2013). Table 2 shows data on the 19 existing systems in the district of San Pedro.

Table 2: Summary of Water Systems Built in the District

Community	No. of Families	Type of Water System	Year of Construction	Year of Well Construction	Year of Tank Construction	Year of Network Construction
San Pedro	564	Mixed	2003	2000	2000	2000
San José	210	Mixed	2008	2008	2008	2008
Villa Don Bosco	19	Mixed	2007	2011	2011	2011
San Silvestre	57	Mixed	2006	2010	2010	2010
Villa Rosario	87	Mixed	2008	2011	2011	2011
Santa Rosita	64	Mixed	2008	2008	2008	2008
San Lorenzo del Norte	45	Flowing Well	2006	2005	-	2005
Sagrado Corazón	314	Mixed	1976	2005	2005	2005
Litoral	142	Mixed	2006	2006	2006	2006
Murillo	72	Mixed	2013	2006	2013	2013
Hardeman	522	Mixed	1990	1992	1992	1992 / 2013
El Carmen	22	Mixed	1996	2000	2016	2000
Pirai	307	Mixed	2005	1990	2012	2016
Canandoa	260	Mixed	2004	2011	2004	2011
Monte Grande	28	Mixed	2005	2012	2018	2012
Guadalupe	36	Mixed	2014	2014	2014	2014
La Isla	47	Mixed	2014	2013	2013	2013
Los Limos	29	Mixed	2015	2014	2014	2014
Peta Grande	130	Mixed	2007	2007	2007	2007

Source: Asset Analysis from annual monitoring by Water For People 2017

Implementation of the Water Quality Plan and Installation of a Water Quality Laboratory

This document, prepared in coordination with the San Pedro District WASH Office, the water quality plan, promotes water quality monitoring according to national legislation and regular sanitary inspection of the infrastructure, among other matters. In line with the plan, Water For People deemed it appropriate to provide the District Government with portable water analysis

equipment to monitor the minimum parameters recommended by Bolivian regulation NB 512.

The laboratory is installed in a district facility. It is managed by the District WASH Office and provides the service of minimum water quality analysis and monitoring of the presence of fluoride in the water for operators of drinking water services.

Parameter	Maximum acceptable value
pH	6.5-9.0
Conductivity	1500 $\mu\text{S}/\text{cm}^*$
Turbidity	5 NTU
Residual chlorine	0.2-1.0 mg/L
Thermotolerant coliforms	<1 CFU/100 mL
Escherichia coli**	<1 CFU/100 mL
	<2 NMP/100 mL

Minimum control parameters

Implementation of Continuous Disinfection Equipment in Water Systems

In fiscal year 2017/2018, one of the priorities of the San Pedro program was to promote the incorporation of chlorination equipment in existing systems. In these last two years, with support from Water For People and the District Government and the community as counterparts, disinfection systems have been implemented using manual chlorine injection pumps in four communities: Santa Rosita, Los Limos, Piraí and Sagrado Corazón. These communities have received the training necessary to operate the equipment and monitor residual chlorine. To date, 12 out of 19 communities have a continuous disinfection system.



Director of the District WASH Office performing an analysis of minimum control parameters

Milestones in Increasing the Level of Service at the Public Institution Level



Prioritization and Budget Allocation of the District Government for Sanitation Infrastructure

Since fiscal year 2014, Water For People has fostered and prioritized improvement in the level of service in public institutions through investment in projects for the improvement and construction of sanitation infrastructure with cofinance from the District Government of San Pedro.

Water For People has leveraged resources for the construction and/or improvement of the following schools (Educational Units, EU) and Health Centers (HC):

- Fiscal year 2014: EU Monte Grande, EU Peta Grande, EU La Isla, EU Sagrado Corazón (Pacífico Feletti).
- Fiscal year 2015: EU San Lorenzo (Gualberto Villarroel).
- Fiscal year 2016: HC Villa Rosario (San Bernardino), EU 12 de Abril (Canandoa).
- Fiscal year 2017: HC El Carmen.



Chairman of the Santa Rosita Water Committee verifying residual chlorine in the water

Budget Allocation from the District Government for Cleaning Supplies for Schools

In its Annual Operating Plan, the district of San Pedro allocates a budget for the operation of schools. Since fiscal year 2017, the District WASH Office has prioritized and conducted follow-up on this resource for the acquisition of hygiene and cleaning supplies for all the schools in the district, which are distributed at the beginning of each fiscal year. This action fosters the availability of soap for handwashing and supplies for cleaning sanitation infrastructure, improving the existing level of service.



Bathrooms at San Lorenzo EU, with the old latrine in the background

Training and Awareness-raising Workshops: Operation and Maintenance of Sanitation Infrastructure

The San Pedro District WASH Office holds annual training workshops at schools on the operation and maintenance of sanitation infrastructure, in addition to hygiene, handwashing, and environmental education. These topics reinforce a positive attitude toward behavioral changes, seeking the involvement of faculty and students with regard to maintenance of adequate levels of water and sanitation services in the school as well as the community.



District WASH Office holding MHM workshops at secondary-level schools

Inclusion of Menstrual Hygiene Management (MHM) in Community Development Training Workshops

Starting in fiscal year 2017, MHM has been one of the topics covered by the social component of the District WASH Office in community development training at schools. Although this activity is just getting started and there is much to be done, the topic is being addressed by parents, teachers and students, who now realize its importance and identify the need for an adequate space for menstrual hygiene management in sanitary facilities.

Milestones in Increasing the Level of Service at the Family Level



Health and Environmental Education

Among the main topics of Community Development training at the community level are health and environmental education for families. In these training workshops, participants reflect on the importance of water and its rational use, as well

as the importance of payment of a sustainable tariff for the service.



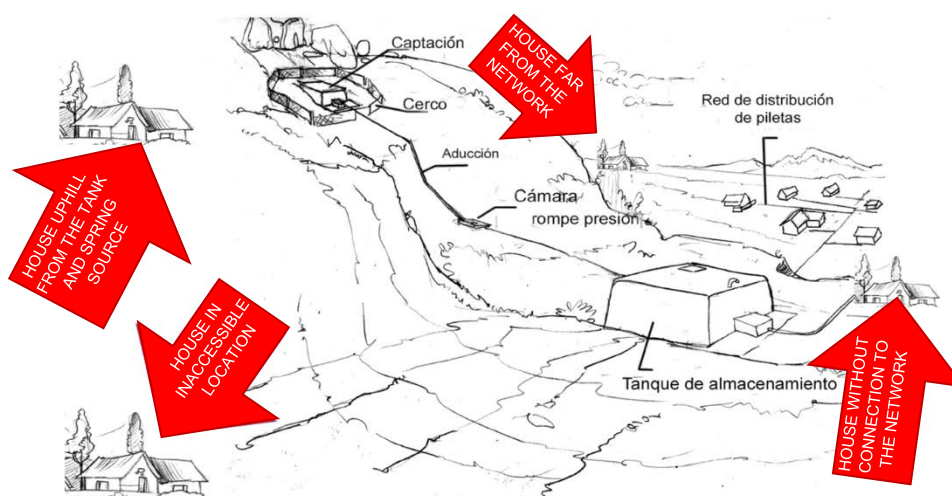
Training workshops held at educational units by the District Water and Sanitation

Definition of the Criteria to reach Everyone

An important milestone in the process of reaching Everyone at the family level in the district was analyzing, defining and consolidating the criteria of reaching Everyone with water and sanitation. The Water For People team in Bolivia considers reaching Everyone at the family level to mean that every family living in the community has an improved water service available, whether or not they decide to connect to it. Therefore, it is important to identify and differentiate between cases of families that do not have a connection to a service for strictly administrative reasons and families that have technical difficulties gaining access to improved service.

Issuance of Acts of Universal Access to Water Services

For the documentation, support and declaration of universal access to water services in communities in the district, an act per community has been prepared where representatives of the Water Committee, the District WASH Office and local authorities sign to certify that all the families living in the community have an improved water service or have it available to them. The 19 communities in the district of San Pedro have their respective affidavit of universal access to water services recognized and endorsed by their representatives and district technicians.



Different cases of families with no connection to the drinking water service

Important Milestones in the Process of Building and Guaranteeing the Sustainability of Services



Institutionalization of Centralized Community Development Workshops – (Institutional Strengthening)

The District WASH Office holds four centralized district workshops per year for the purpose of strengthening, ensuring the continuity, and conducting follow-up on the activities of water service providers. These workshops, which have become an institution in the district, cover and strengthen the following topics:

1. Organization and leadership (organizational and legal matters)
2. Administration of the service (administrative/accounting matters)
3. Tariff calculation (tariff review and adjustment)
4. Operation and maintenance of the water system and basic plumbing (technical matters)

Among other activities, water service providers that participate in the workshops prepare or update their legal documents, receive training for their operators or plumbers, receive updates on the use of accounting tools, and have their tariffs reviewed.

Review of the Results and Progress on Institutional Capacity-building

In order to review the results obtained over the course of the different activities and workshops, the social component, the District WASH Office and Water For People have developed visual tools for service provider evaluation and follow-up to show their achievements and areas for



Mayor of San Pedro and representatives of water service providers in the Institutional Strengthening workshop

improvement to ensure the sustainability of the services they provide. The tools are available and can be seen by the public at the District WASH Office, which creates an atmosphere of competitiveness and establishes new challenges for water service providers.



Tools of the District WASH Office for reviewing the achievements and challenges of the district's water service providers and delivering tariff review reports to service providers

Application of the AtWhatCost Tool to Review Sustainable Tariffs

The AtWhatCost tool², used to calculate the tariff for water service, has been adapted by Water For People in Bolivia for analyzing tariffs in an interactive and informative way and producing a report on the results of the review, which the District WASH Office gives each service provider.

Through this tool, the San Pedro District WASH Office could verify the tariffs of the 19 existing water service providers and help them improve. The AtWhatCost tool helps us see the cash balance of a water service provider over time, considering different tariff options. For example, Figures 2 and 3 show the forecast for the annual and cumulative cash balance of a water service provider considering their current tariff and compares it with a new scenario incorporating a new sustainable tariff.

² The AtWhatCost tool has a tutorial video, which was prepared for training at District Water and Sanitation Offices. It can be seen at <https://vimeo.com/265817497>

Formalization of Water Service Providers with the Water and Sanitation Authority

The San Pedro District WASH Office provides technical assistance and guidance to water service providers on the documents required to apply for formalization before the Water and Sanitation Authority. Much of the documentation is produced through the centralized Institutional Strengthening workshops held by the San Pedro District WASH Office. Currently, two of the district's water service providers have an operating license issued by the Water and Sanitation Authority. Some of the water service providers in the district are completing their documents and others are in the process of obtaining their licenses.

Categorization of Water Service Providers

In 2018, Water For People in Bolivia incorporated the criteria of categorization of water service providers according to their size. The purpose is to define the considerations and requirements that Water Service Providers must meet according to their size and that have an impact mainly on the scope of the interventions of community development/institutional capacity-building and water quality components. As a result of this analysis, the following have been defined:

- Water service providers < 31 members: Small
- Water service providers 31-80 members: Medium
- Water service providers 81-400 members: Large

The categorization of water service providers affects the calculation of the sustainable tariff (Figure 4).

Implementation of Micrometers

Through the District WASH Offices, Water For People promotes the incorporation of micrometers in all water systems in its interventions. In the case of San Pedro, Water For People co-financed

Figure 2: Annual and Cumulative Cash Balance: Current

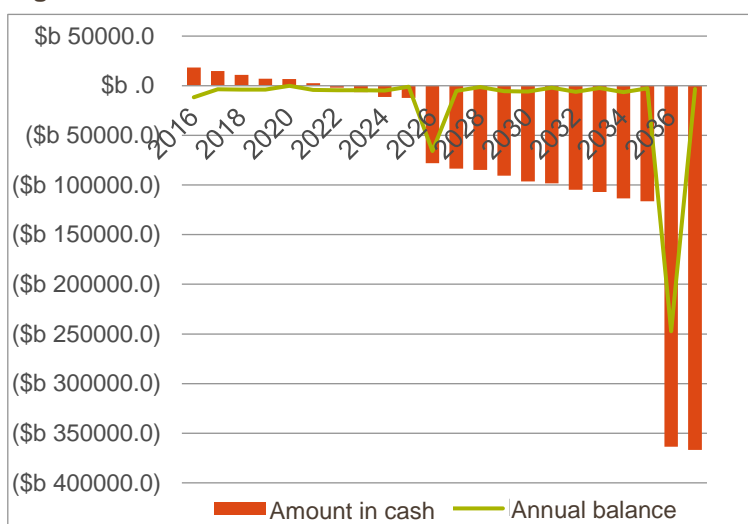
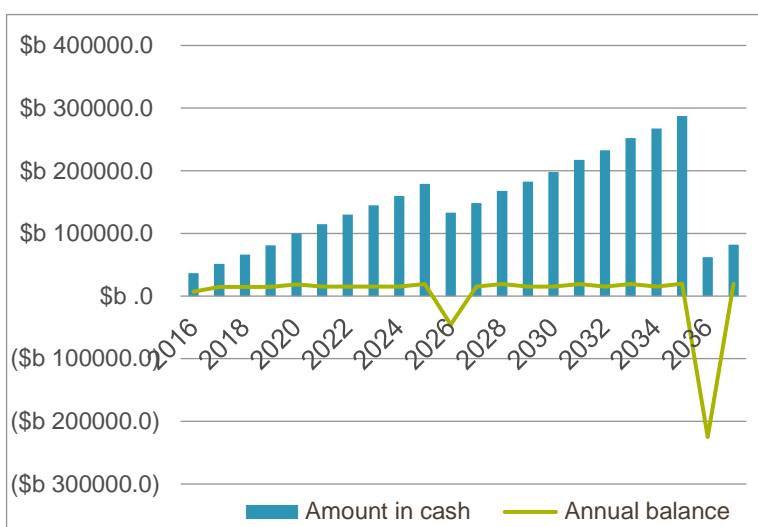


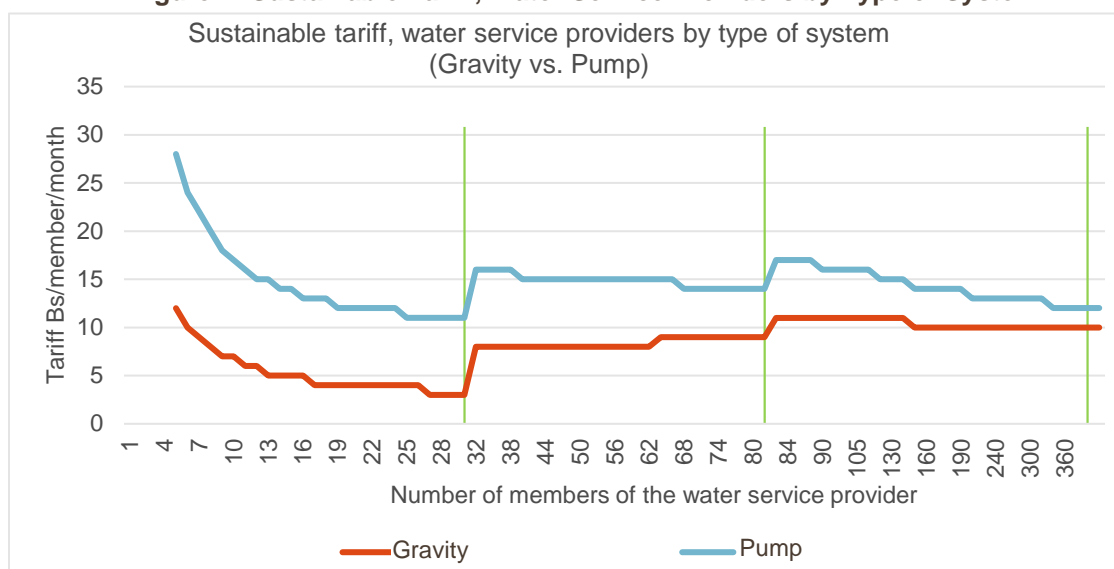
Figure 3: Annual and Cumulative Cash Balance: New Tariff



Source: Data from the Water For People 2018 AtWhatCost tool

the acquisition of micrometers for the communities of San Lorenzo and Villa Don Bosco in the year 2017, with the community as the counterpart for their installation. In 2018, the Autonomous District Government of San Pedro/ District WASH Office implemented micrometers in two other communities, Los Limos and Villa Don Bosco, with which 100% of the communities in the district now have micrometering.

Figure 4: Sustainable Tariff, Water Service Providers by Type of System



Source: Prepared in-house

3. FIGURES IN THE PROCESS

Results of Annual Monitoring of Service Levels

Table 3 shows the detail of the progress and trend in reaching Everyone at the community, public institution and family levels in the district of San Pedro in recent years.

Table 3: Water Access Percentages

	2013	2014	2015	2016	2017	2018
Communities	82	100	100	95	100	100
Public institutions	66	95	95	100	98	100
Families	-	-	-	-	99	99.4

Source: Data from annual monitoring by Water For People

Results of Monitoring the Level of Sustainability

Water For People makes an annual evaluation of the level of sustainability of the services provided by the Service Authority (District Government /District WASH Office) and water service providers in the district, as well as progress in water resource management (WRM), according to different criteria.

According to evaluations using the Sustainable Services Checklist (SSC) made in fiscal years 2017 and 2018 in the district of San Pedro, the results shown in Figure 5 were obtained.

Figure 5: Results of Evaluation of Sustainable Water Services in San Pedro

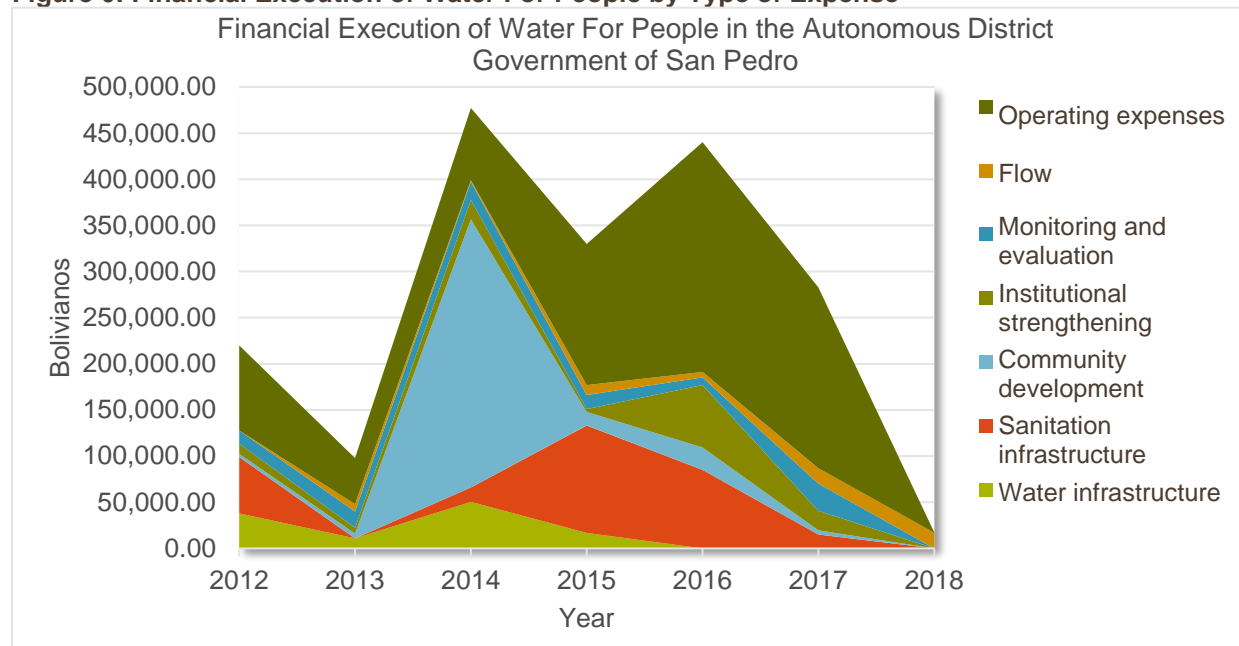
Evaluation Parameters SSC		Results: Level of Sustainable Services	
		2017	2018
Service authority	Structure	High	High
	Finances	Basic	High
	Management	High	High
	Monitoring	High	High
Service provider	Structure	High	High
	Finances	Basic	Intermediate
	O&M	Intermediate	High
WRM	WRM	Intermediate	High

Source: Monitoring and evaluation of the SSC 2017 – 2018

Financial Execution of Water For People

Figure 6 shows the breakdown of the financial resources allocated by Water For People in the process of reaching everyone in the district of San Pedro.

Figure 6: Financial Execution of Water For People by Type of Expense



Source: Financial data from Water For People in Bolivia

4. CURRENT STATUS OF THE LEVEL OF WATER SERVICE: DISTRICT OF SAN PEDRO

According to the results of annual monitoring 2018, San Pedro has the following levels of water service at the three different levels: community (water systems), public institutions (health and education establishments), and homes.

The following four figures (Figures 7-10) use this color legend, where high (green) and intermediate (yellow) are considered acceptable levels of service:

	High level of service
	Intermediate level of service
	Basic level of service
	Inadequate level of service
	No improved system

Figure 7 shows that the district of San Pedro has intermediate and high levels of service. Therefore, Everyone is considered to have been reached.

Figure 7: Global Results of Service Level of service in the District of San Pedro



Source: Data from annual monitoring by Water For People 2018

Figures 8, 9 and 10 show the indicators or criteria used to evaluate the level of service at the three levels: homes, public institutions and community. The results were obtained through monitoring surveys conducted in the 2018 fiscal year.

Figure 8: Indicators: Level of Service in Homes – 352 surveys

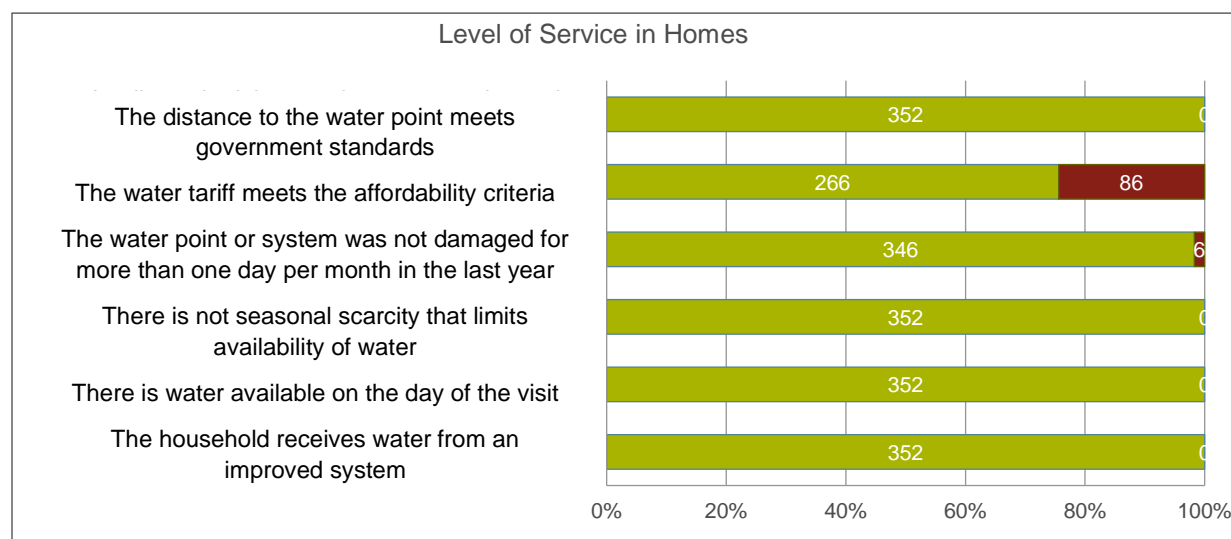


Figure 9: Indicators: Level of service in public institutions (EU and HC) – 46 surveys

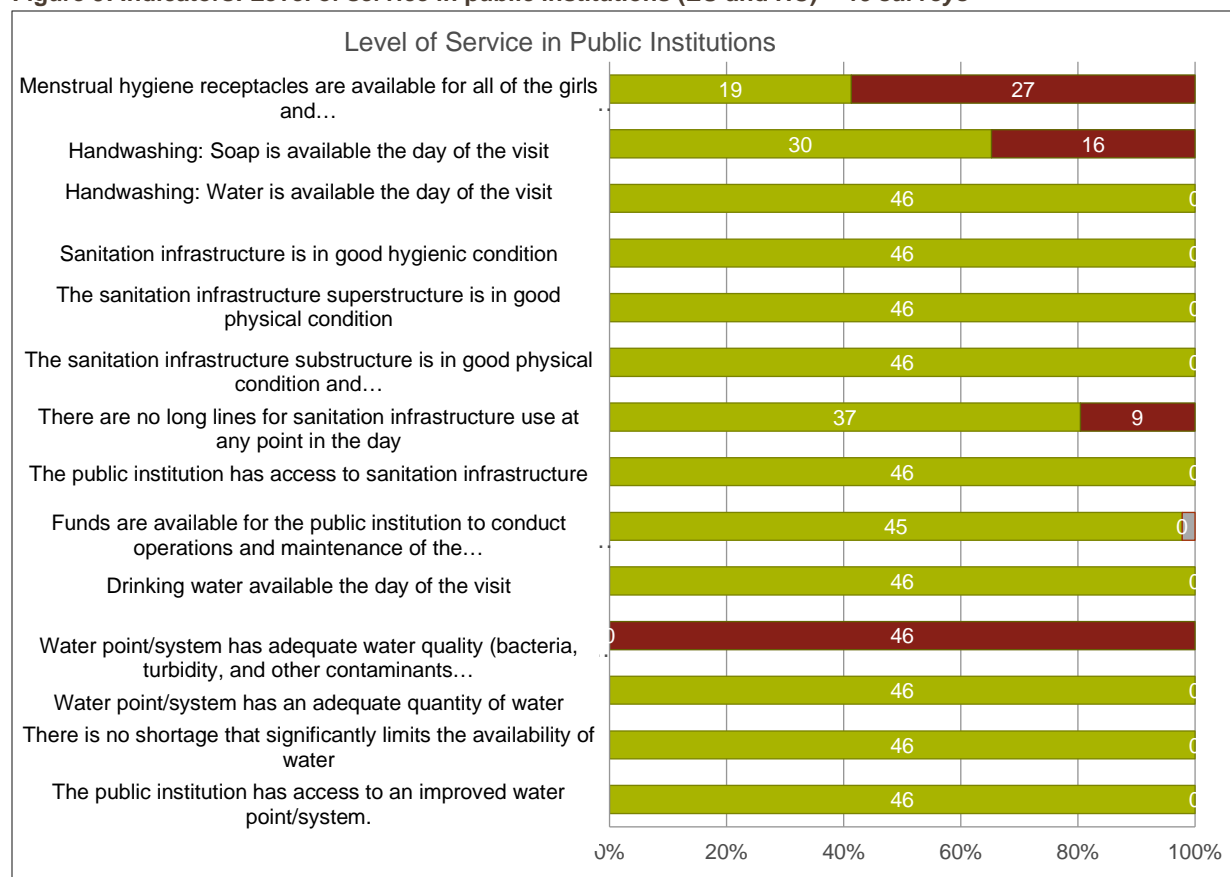
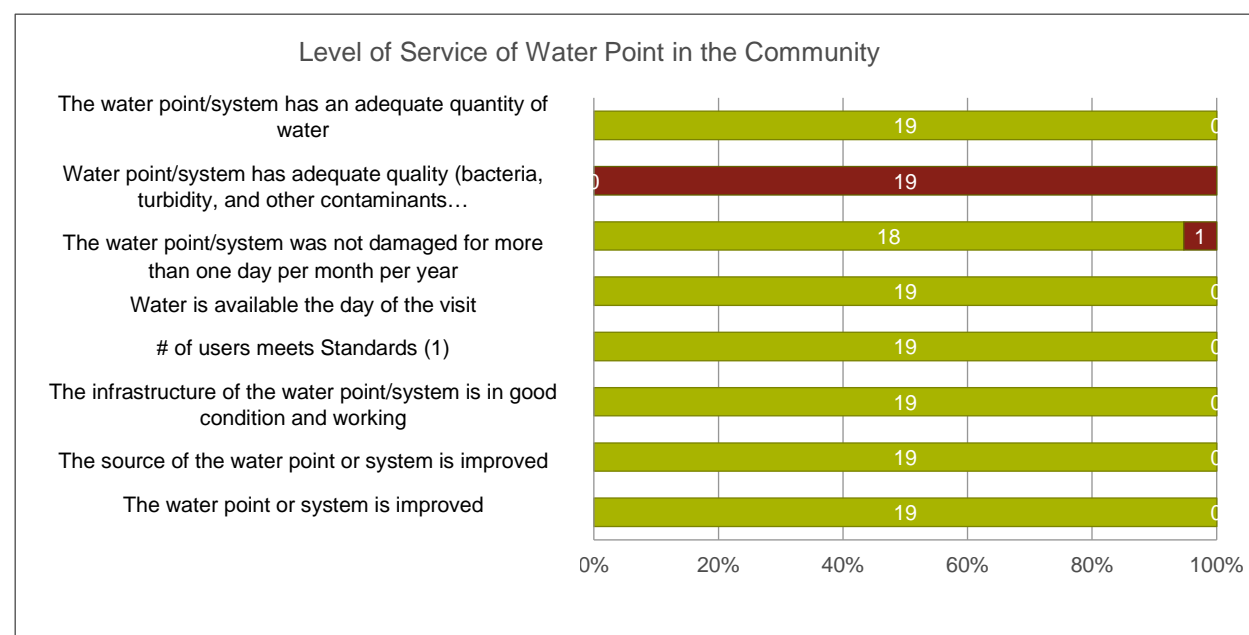


Figure 10: Indicators: Level of service of Water Supply Point in the Community (water system) – 19 surveys



Source: Data from annual monitoring by Water For People 2018

5. PROGRESS ON SANITATION



With regard to home sanitation, Water For People provided support to the district of San Pedro with co-financing of these infrastructure units from 2006 to 2011. The cofinance for the construction of a family bathroom was as follows:

- Water For People: US \$150
- District Government of San Pedro: US\$150
- Family: US\$ 800*

**Approximately (in cash and labor)*

The district of San Pedro has a high water table and tends to flood during the rainy season, due to which the technical option adopted and promoted for family sanitation was the double-chamber dry toilet. Through 2011, Water For People co-financed the construction of 775 bathrooms in the district of San Pedro, as shown on Table 4.

Since 2012, Water For People no longer finances the construction of bathrooms at the family level. Currently, the San Pedro District WASH Office heads social housing projects financed by the central government, through which homes for low-income families that include sanitation facilities are built, with which the district continues to progress toward reaching Everyone with sanitation services. At the same time, the district is arranging for the construction of its first sewer system.

Table 4: Number of Ecological Dry Toilets Built with Help from Water For People in San Pedro

Year	Community	Toilets Built
2006	Hardeman	50
2007	Hardeman phase II	50
	San Silvestre	50
	Villa Rosario	50
2008	San José del Norte	75
	Sagrado Corazón	50
	San Lorenzo	35
	Hardeman phase III	70
	El Carmen	30
2009	San José del Norte phase II	40
	Murillo	29
	Hardeman phase IV	34
2010	San José del Norte	34
	Santa Rosita	24
2011	Murillo	24
	Santa Rosita	30
	Villa Rosario	30
	San Pedro	70
	TOTAL	775

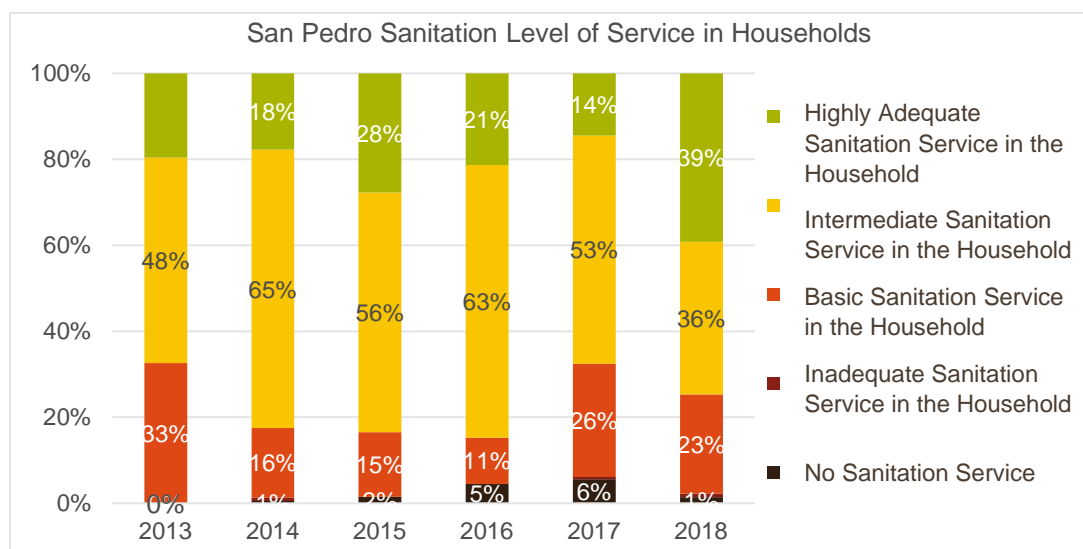
Source: Prepared in-house



Beneficiary in the process of building his ecological dry toilet

Figure 11 shows the progress and trend in the level of sanitation service at the family level obtained through annual monitoring of homes in the district of San Pedro.

Figure 11: Trend in the Level of Sanitation Service at the Family Level



Source: Data from annual monitoring by Water For People

6. CONCLUSIONS

What Worked Well?

- The district of San Pedro was declared to have reached Everyone in the year 2017 and has complied with the Sustainable Services Checklist (SSC) in the year 2018.
- The partnership with the local government and its strengthening have been key in laying the foundations for the sustainability of water and sanitation services in the district.
- The district's management capacity is noteworthy. Leaders in the mayor's office and district council are aware of the problems related to water and sanitation and empowered with the approach and vision of Water For People, which has made the establishment of the District WASH Office possible, as well as progress on levels of service and sustainability in the district.
- The creation of an autonomous technical entity in the district, such as the District WASH Office, has been decisive in the local government's positioning as the authority for water and sanitation service and the development of projects and activities aimed at achieving, maintaining and monitoring levels of service and sustainability in the district.
- Leveraging resources through the agreement between Water For People and the District Government of San Pedro has made it possible to multiply the impact of Water For People's financing and accelerate the process of reaching Everyone Forever.
- Onsite as well as remote technical assistance provided by Water For People to the District WASH Office has made it possible to transfer tools, methodology and the approach to work in the process, which have been adopted by the district.
- The annual monitoring tool (Flow) has been the heart of Water For People's intervention, with annual evaluation of progress, next steps and priorities throughout the process.
- The annual centralized workshops for water service providers held by the District WASH Office ensure support and annual updating of the administrative technical capacities and

documents of existing water service providers, considering that in many cases, water service providers change their Board of Directors every year or two.

- The water quality laboratory installed in the district will enable water service providers to monitor water quality periodically at an affordable cost. The service will be operated and managed by the District WASH Office and its cost includes only the replacement of reagents, saving up to 70% compared to the amount ordinarily charged by existing laboratories in the department.
- The acquisition of the vehicle for the District WASH Office with the district counterpart has been essential to its operations, considering the great distances between communities and difficult access to them.
- In the district of San Pedro, several attempts have been made to identify a sustainable method of removing fluoride from water. Among them, reverse osmosis has been particularly effective in removing it.



Mayor of San Pedro and Director of Water For People in Bolivia officially opening the Water Quality Laboratory

At the school in the community of San José del Norte, a small reverse osmosis machine has been set up under the responsibility of the teacher and it has reduced the concentration of fluoride to permissible limits. Due to the high cost of this option, it has yet to be considered a sustainable alternative to be implemented at the level of water systems in the district of San Pedro. This initiative has motivated many students at the school to think about the issue of water quality and they came up with the idea of bottling water treated by reverse osmosis to sell at their production cost to families in the community.



Water treatment lab at the San José del Norte school sells jugs of drinking water to the community

What Didn't Work Well?

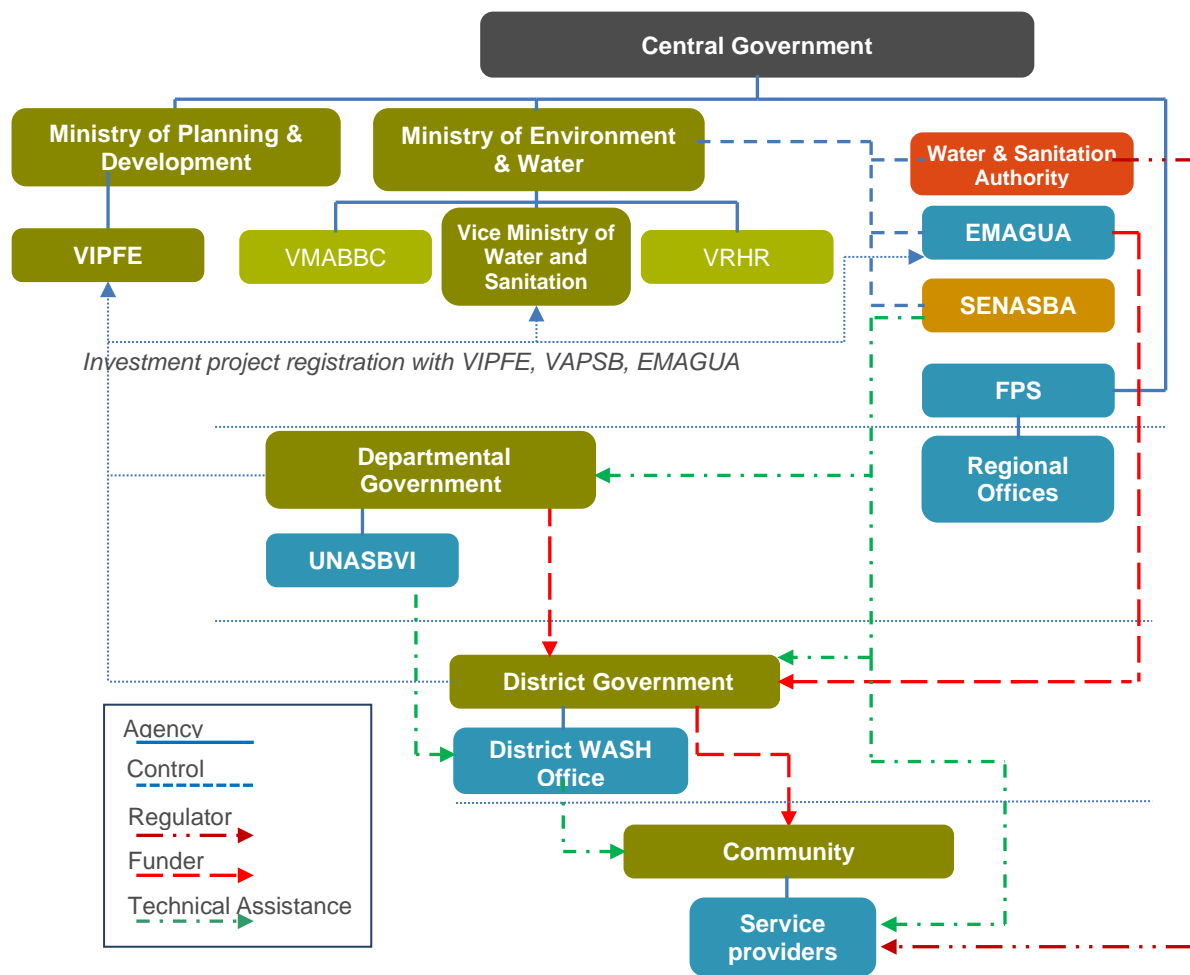
The presence of fluoride in the water continues to be the San Pedro program's main cause for concern. Several attempts have been made and studies have been conducted to find a sustainable solution to the problem of fluoride in the water:

- In the year 2010, Water For People, through Universidad Mayor de San Simón, provided

support on a research project called “Remoción de Flúor de Aguas Subterráneas por adsorción con carbón de hueso” (Removal of fluoride from underground water by adsorption with bone carbon), which showed positive results. However, a weakness is insufficient availability of cow femur bones to treat the volumes of water required. Therefore, the solution was not sustainable.

- In the year 2016, through Water For People, a group of volunteer water quality specialists from abroad visited the district for the purpose of seeking appropriate technology for removing fluoride. They conducted several tests with slow filters using ground brick, sugar cane ash, activated charcoal, and rice hulls, among other materials that didn't yield the expected results.

Figure 12: Mapping of the Water and Sanitation Sector Institutions in Bolivia



Next Steps

- Periodic follow-up and technical assistance to the district with no investment of resources on the part of Water For People.
- Follow-up on future monitoring, for at least 4 years, to be conducted in the district to observe the maintenance of levels of service and sustainability.
- Currently, Water For People in Bolivia is analyzing the scenario and adjusting the exit plan for districts that reach the Everyone Forever milestones, as is the case of San Pedro.
- It will be important to observe the behavior and interaction of the district with different

institutions in the water and sanitation sector in Bolivia that provide support and technical assistance to districts and water service providers, as is the case of the Ministry of Environment and Water (MMAYA) as the head of the sector, the Vice Ministry of Water and Sanitation (VAPSB), the Departmental Government, the Water and Sanitation Authority, and the National Service for the Sustainability of Sanitation Services (SENASBA).

- Figure 12 shows the mapping of institutions in the Water and Sanitation sector in Bolivia that interact with the district of San Pedro. These institutions should ensure maintenance and/or improvements in the levels of service and sustainability in the district of San Pedro.

Water quality:

- The accreditation of the water quality laboratory by the competent entity in Bolivia is in progress.
- For the last several months, the District WASH Office has been monitoring the concentration of fluoride in a sample of communities throughout the district. It has been observed that the concentration of fluoride in the water in a community varies from one month to another, that is, there are months when the concentration of fluoride is within permissible limits and months when it is above them. This would allow the District WASH Office to propose and adopt possible seasonal measures or solutions for excess fluoride, optimizing resources.
- Currently, the District WASH Office is working on a support and cooperation agreement with the Technical Research Unit of Universidad Mayor de San Andrés in the city of La Paz to continue conducting research on removal of fluoride from water.

Monitoring and maintenance of levels of service and sustainability of water and sanitation services:

- To date, monitoring has been carried out annually through the Flow tool, which is provided by Water For People. In the case of San Pedro, for fiscal year 2019, plans are to provide support for the district on its migration from Flow to the Rural Water and Sanitation Information System (SIASAR), which is a monitoring platform that is just starting to be used at the national level. It is fostered and recognized by the water and sanitation sector in Bolivia and is expected to become the official monitoring and assessment tool for these services in the country.
- The use of SIASAR will allow the Autonomous District Government of San Pedro to opt for financing from other national sectoral entities for investment projects and to strengthen the capacities of the District WASH Office and service operators within the framework of the sustainability and quality of water and sanitation services.
- The District WASH Office will continue to provide technical assistance at the community level and at the centralized level, conducting follow-up to ensure the continuity of the progress and results achieved.
- Although significant progress has been made on the implementation of micrometers and continuous water disinfection equipment at the district level, sustained follow-up on the San Pedro District WASH Office is required to consolidate good use and/or, in some cases, the reactivation of these devices which, as in the case of old water systems, may need some attention.

Risks and Challenges

Risks for maintaining levels of service and sustainability in the district of San Pedro include:

- Continuity of the vision and political will of district authorities over time. There is always uncertainty about the position new elected officials will adopt with regard to water and

sanitation and the resources to be allocated to this sector and to maintenance of the District WASH Office. In an extreme case, this technical entity could be weakened or eliminated.

- Annually, there is uncertainty about the stability of the technical staff of the District WASH Office. Personnel changes or turnover in the district may cause discontinuity of progress and the capacities achieved.
- The same is true of the Boards of Directors of water service providers; depending on their level of organization and management model, they change every year or two. This undoubtedly represents a risk to the continuity of the work carried out to strengthen water service providers.

Some challenges worth mentioning include:

- Continuing to exercise influence at the departmental and national level for the promotion, institutionalization, and consolidation of the District WASH Offices as a requirement of every district government. This is the cornerstone of the sustainability of water and sanitation services in the districts.
- Exercise influence to bring about or strengthen public policies that place greater pressure on and support rural district governments as the entities directly responsible for the quality of services within their jurisdiction in every phase of the project, including post-project, which is crucial to achieving the sustainability of water and sanitation services.

Therefore, in conclusion:

It is essential that water and sanitation sector institutions in Bolivia fulfill their respective roles with the necessary efficiency, whether to finance projects, regulate services and/or provide technical assistance, in order to ensure the maintenance of the levels of service and sustainability of water and sanitation services in the district of San Pedro over time and without relying on Water For People.

APPENDIX I: FLOWCHART OF INTERVENTION IN PROJECTS OF WATER FOR PEOPLE AND THE AUTONOMOUS DISTRICT GOVERNMENT

