

Water Operators' Partnership Case Study

GWOPA
Global Water Operators' Partnerships Alliance

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EMSAPUNO S.A.
Peru



COPASA MG
Brazil

BEWOP

COPASA MG and EMSAPUNO S.A.

Water Operators' Partnership Case Study





◀ **COPASA MG** Brazil

◀ **EMSAPUNO S.A.** Peru

KEY FACTS



Partners

Mentee: *Empresa Municipal de Saneamiento Básico de Puno Sociedad Anónima (EMSAPUNO S.A.). Public Municipal Water and Sanitation Utility, located in Puno, Peru.*

Mentor: *Companhia de Saneamento de Minas Gerais (COPASA MG) Semi-public Regional Water and Sanitation Utility, located in Belo Horizonte, Brazil.*



Facilitators / Supporting third parties

This WOP was instigated and co-funded by the Global Water Operators' Partnerships Alliance (GWOPA) and Cap-Net. The Secretariat of the Regional WOPs platform for Latin America and the Caribbean (WOP-LAC) helped pair the utilities and develop the partnership agreement. In addition, an individual expert from each country accompanied the WOP (from the Universidade Federal de Viçosa, Brazil, and from the Peruvian government), intervening on training topics during the visits. The external expert on the mentee's side also provided technical support and advice in the development of the Water Safety Plan in between and following the WOP visits.



Duration

March 2014 – March 2015



Cost

US\$19,000 with US\$14,000 financed by GWOPA, and US\$5,000 by Cap-Net.

The estimated in-kind value of staff time contribution for the field visits was estimated at US\$7,500 and US\$7,350 for EMSAPUNO and COPASA respectively. An additional US\$32,000 of staff time was budgeted for the development of the Water Safety Plan at the beginning of the WOP as an estimated in-kind contribution from EMSAPUNO.



Aim

To support EMSAPUNO with the development of a Water Safety Plan (WSP) for Puno's drinking water supply system, strengthen staff capacity on the methodology and technical aspects of WSPs, improve risk management practices related to the quality of supplied drinking water, and safeguard public health in the population of Puno served by the utility.



Approach

Shortly after the formalization of the partnership through the Memorandum of Understanding (MoU), WOP activities kicked off with the initial visit of EMSAPUNO to COPASA, where the mentee received theoretical training on the WSP methodology. Following this initial visit, an internal workshop was organized to disseminate the training within EMSAPUNO and form a WSP technical team. The team then assessed the entire

water supply system to understand and identify potential hazards affecting water supply. When COPASA visited EMSAPUNO, the mentee team was able to present its progress on the WSP and obtain constructive recommendations to improve it. The overall work plan was outlined in the MoU; however, the management of the WOP remained informal and flexible.



Results

The mentee's capacity was increased on the technical aspects and methodology of WSPs: a complete WSP document was produced by the team, with support from the facilitator and mentor utility. Importantly, the WOP activities raised awareness on water quality issues and a sense of responsibility for public health protection within the mentee utility, therefore achieving an essential objective of the WSP approach. Through the WSP methodology, EMSAPUNO's staff also improved its capacity in terms of operational management efficiency, namely by identifying critical control points in the system and required control measures, while also acquiring an overarching framework for the planning and prioritization of future infrastructure improvements in the system to ensure safe water provision. The WOP furthermore raised awareness on other managerial challenges of the utility, such as the lack of continuous training and capacity building of the staff. The mentee also gained capacity to train and support other utilities on WSPs.



Success factors

Demand-driven and targeted focus: The mentee actively pursued this partnership in order to develop a WSP. The small team was committed to the design and development of the WSP, facilitating cohesion, appropriation, and planning.

Alignment with national reforms: The Ministry of Health's recent requirement for all water utilities in Peru to have in place a Plan de Control de Calidad (highly similar to a WSP) suggests potential institutional support and financing opportunities for the implementation of the WSP.

Cost-effectiveness: The WOP design allowed the benefits of an international collaboration to be achieved while minimizing the travel distance and costs for the utilities' visits.



Challenges

Financing and implementation: Financing the implementation of the WSP was raised by the mentee as an important need and concern. Although low-cost corrective measures were undertaken based on the WSP, additional funding is required for its full implementation, especially for infrastructure improvement.

Time constraints and staff availability: WOP activities added to the regular daily workload of the mentee's staff; hence much of the work was achieved outside of regular work hours.

INTRODUCTION

A Water Operators' Partnership (WOP) is a collaboration between two or more water or sanitation operators, conducted on a not-for-profit basis, with the aim of developing their capacity. These partnerships are being used as a way of helping the world's public operators to sustainably deliver adequate water and sanitation for all.

This narrative case study has been produced as part of the Boosting Effectiveness of Water Operators' Partnerships (BEWOP) project, a collaboration between UNESCO-IHE and UN-Habitat's Global Water Operators' Partnerships Alliance, and is funded by the Netherlands Government. BEWOP is a 5-year research, operational guidance and outreach initiative aimed at increasing the effectiveness of WOPs around the world.

The full case study from which this narrative report was produced, is part of a series of cases being documented under BEWOP using a common framework to facilitate analysis and comparison. The case studies, together with other research, are leading to the development of tools and guidance materials to support operators, facilitators and funders to do WOPs with greater ease and confidence in their effectiveness.

The present report analyses the Water Operators' Partnership (WOP) between the Empresa Municipal de Saneamiento Básico de Puno Sociedad Anónima (EMSAPUNO S.A.), located in the department of Puno, Peru, and the Companhia de Saneamento de Minas Gerais (COPASA), located in Belo Horizonte, Brazil (see map). In this WOP, EMSAPUNO is the recipient partner or mentee, while COPASA is the mentor utility. The partnership aims to support EMSAPUNO in the development of a Water Safety Plan (WSP) for the city of Puno's drinking water supply system.

The analysis is informed by a 5-day field visit to Puno in February 2015, numerous remote interviews with employees from EMSAPUNO, COPASA, and the Secretariat of the WOP platform for Latin America and the Caribbean (WOP-LAC), as well as supporting documentation (agreements, activity reports, work plans, presentations). This second case study from the Latin American region was selected for its specific theme of focus and timeframe, for the various aspects of WOPs that it helps illustrate, and for the possibility to gain access to most key actors involved.



Algal bloom in Puno's Port (Peru)

CONTEXT

The political system in place in Peru is a constitutional republic comprised of 26 administrative divisions, i.e. 25 regions and the constitutional province of Lima, the country's capital. The Republic of Peru's GDP was estimated at US\$202.3 billion in 2013, for a population of 30.8 million people (in 2014)¹. Peru is considered an upper middle-income country and one of the fastest growing economies in the Latin America and Caribbean region. Real GDP growth for 2014 was estimated to 2.4 %, which is above the regional average of 0.8%². Peru is ranked 82th amongst 193 nations on the Human Development Index (HDI), evaluated to 0.737 in 2013 (quite comparably to Brazil, which stands at the 79th rank with a HDI of 0.744)³. Given the impacts of economic growth on employment and income, the percentage of the Peruvian population living below the poverty line has dropped from 45% to 24% from 2005 to 2013⁴.

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1. The World Bank, 2015. Data – Peru: <http://data.worldbank.org>, consulted January 27, 2015.
 2. The World Bank, 2016. Peru Overview: <http://www.worldbank.org/en/country/peru/overview>, consulted January 5, 2016.
 3. UNDP, 2015. Human Development Reports, United Nations Development Programme: <http://hdr.undp.org/en/countries>, consulted January 27, 2015.
 4. The World Bank, 2015. Peru Overview: <http://www.worldbank.org/en/country/peru/overview>, consulted January 27, 2015.

Puno remains one of the five poorest Departments of Peru, i.e. it is ranked at the 5th (and lowest) level of poverty at the national scale⁵.

Geographically, Peru is divided into three main areas, which have distinctive climates: (i) a narrow and desert stretch along the Pacific coast (or costa), 50 to 100 km-wide, below 500 m in altitude, bordered to the East by (ii) the Andean highlands (or Sierra), above 500 m and with a highest peak at 6,768 m (Nevado Huascarán), with contrasting dry (colder) and wet seasons, and (iii) the eastern lowlands' tropical Amazonian forest (or Selva), between 400 and 1000 m in altitude, humid and warm^{6,7,8}.

The city of Puno is located in the Altiplano, in the southern part of the country, at a 3827-m altitude in the Andes, on the shore of Lake Titicaca. The Lake Titicaca, which is shared between Peru and Bolivia,

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5. Based on a comment from an interview with EMSAPUNO.
 6. CIA, 2015. The World Factbook : Peru. Central Intelligence Agency.
 7. New World Encyclopedia, 2016. Peru: <http://www.newworldencyclopedia.org/entry/Peru>, consulted January 5, 2016.
 8. FAO, 2015. Aquastat: Peru. Food and Agriculture Organization of the United Nations: http://www.fao.org/nr/water/aquastat/countries_regions/per/indexfra.stm, consulted January 20, 2015.

has an area of 8,372 km² and an average depth of 107 m.⁹

The climate in Puno is characterized by a rainy season from December to end of March, which favours the replenishment of groundwater resources, and also the recharge of the Lake Titicaca, compensating for the very strong sunlight which generates important evaporation. In 1985, an important flood caused the waters from Lake Titicaca to rise to an extraordinary level in Puno. Since then, a floodgate was built in Desaguadero to regulate the water level.

Water utilities in Peru are known as EPS (Empresas Prestadoras de Servicios). The Empresa Municipal de Saneamiento Básico de Puno – EMSAPUNO S.A. operates as a municipal utility within the framework of the National Legislation of Peru for the provision of urban water and sanitation services. It is a publically-owned company limited by shares, with the municipalities of Puno as the majority shareholder, and Desaguadero as the minority shareholder. For about 31 years, EMSAPUNO

provided urban water and sewerage services to 4 municipalities in the region of Puno, i.e. Puno, Llave, Juli y Desaguadero, due to political decisions in the recent years, it now provides water services to the cities of Puno and Desaguadero exclusively.

In the national context, EMSAPUNO depends most directly on the federal Ministry of Housing, Construction and Sanitation (Vivienda), whose water and sanitation branch emits policies for the water utilities. EMSAPUNO also has a direct relationship with the National Superintendence of Water and Sanitation Services (SUNASS), which regulates the performance, development, and auditing of the utilities, regulates and approves the tariff structures, and defines improvement programs for the utilities. The Ministry of Health (MINSA) oversees drinking water quality aspects, and the National Water Authority (ANA), which is associated with the Ministry of Agriculture (MINAG), regulates and controls water permits. The Ministry of Environment (MINAM) controls water intakes, treatment and distribution and the protection of water resources from contamination.

Lake Titicaca is Puno's unique secure water source. It is the only major freshwater source in the south of the country. Most of the water withdrawals in the Titicaca basin are for agriculture use (90.7%

9. New World Encyclopedia, 2016. Lake Titicaca: http://www.newworldencyclopedia.org/entry/Lake_Titicaca, consulted January 5, 2016.

in 2010-2011), while 7.8% are for domestic use, and 1.4% for the mining industry¹⁰. Its outlet, the Desaguadero River (which name's translates to "drain" or "outlet" in English) flows south to Lake Poopó in Bolivia.

Important risks with regard to the health and water quality of Lake Titicaca include the discharge of untreated wastewater into the lake, and contamination from mining activities, including heavy metals, reaching the lake through its tributary rivers. Mine exploitation in the region is artisanal and lacks formal control, and toxic chemicals such as mercury are used. Urban growth in the watershed also brings water pollution concerns due to the under-capacity of waste and sewage treatment infrastructure. Puno's collected sewage is currently not properly treated, and is discharged into the bay where the city is located.

The Chimú intake, Puno's primary water system intake, is located in Lake Titicaca, outside the bay. It supplies 92% of the produced water for Puno. Microalgae proliferation is a major water quality concern, especially during the dry months of October, November, and December, when the lake's water level is lower. This is reported to cause operational problems at the treatment

plant, including in the filters, and generates odour problems. EMSAPUNO operates two other minor water intakes from small underground sources located above the city level to supply the highest sectors of the city: the Totorani intake, and the Aracmayo intake.

The topography in Puno is especially problematic in terms of water service provision. There is a very limited flat area near the lake; therefore there is no space for expansion of the city except in the surrounding hills. Although Lake Titicaca is located at an elevation of 3810 m, the city's peripheral expansion requires for EMSAPUNO to supply water up to an elevation of 4100 m. In order to do so, the water system comprises five steps of pumping stations, bringing high energy and maintenance costs, which increase the price of drinking water. There are important water pressure and service discontinuity issues in Puno's water system, with an average service continuity of 9.2 hours per day across the city, and some of the highest sectors receiving less than 2 hours of water supply per day. Hence, apartment and commercial buildings, houses, and hotels have water tanks on their roofs for storage during the hours of service discontinuity. EMSAPUNO's wastewater services are faced with the same topography problem: there are several pumping stations in the sewage system to feed the (mostly clogged) stabilization ponds that are located at a higher altitude, increasing service cost.

10. Global Water Intelligence, 2014. Global Water Market, Peru: <http://www.globalwaterintel.com/country-profiles/peru/>, consulted January 27, 2015.



THE PARTNERS

COPASA

Up to 2006, the Companhia de Saneamento de Minas Gerais – COPASA MG, was 99%-owned by the government, as a result of an agreement between the State and the local government of Belo Horizonte. COPASA entered the stock market as of 2006: it is now 51%-owned by the government, and 49% are in free float (including foreign company investors)¹¹. Since 2007, the legislation in Brazil has allowed private companies to operate water and wastewater systems through a bidding process. In Minas Gerais, local governments choose whether they want COPASA to provide water and sanitation services in their area. Today, COPASA has water supply service concessions in 631 municipalities and sewerage service concessions in 288 municipalities over the Minas Gerais State's territory. In 2014, of Minas Gerais' total population of approximately 19 million, COPASA served nearly 14.9 million people through a water supply network of 48,151 km, and served 9.7 million people through its 23,092-km sewerage system. COPASA treats 73% of the volume of sewage collected. COPASA is known

11. Based on comment from an interview with COPASA.

EMSAPUNO staff at new water intake Chimú (Peru)





as a reference utility in Brazil, currently employing 12,444 people. The whole management system of COPASA is based on performance indicators, including staff remuneration, which is partly based on performance indicators.

WSPs are not yet mandatory in the Brazilian legislation, but are recommended in the current guidelines. COPASA is implementing WSPs in 9 systems across Minas Gerais, with some operational staff working on it full time. The collaboration with Puno was an opportunity to raise the focus on the importance of having a plan to control water safety: “The best way to learn is to teach”, according to COPASA’s WOP coordinator. The engineering division of COPASA is involved in international cooperation around technological, operational, and managerial aspects.

COPASA joined WOP-LAC in 2007 and participation in the WOP is justified within the company on the basis of boosting reputation. Both instrumental and relational motives were important drivers for COPASA to take part in this WOP as a mentor: “With COPASA being in the stock market, it might be expected to focus on profit in every activity’s objective. However, participation in the WOP, which is not for profit, is justified within the company on the basis of boosting reputation”¹².

12. Based on a comment from an interview with COPASA.

EMSAPUNO

EMSAPUNO is considered a 'medium' EPS in Peru, with 36,554 water connections and 33,842 sewage connections in 2014. EMSAPUNO's staff currently consists of 157 employees. It provides drinking water to 122,733 people through a network of 231 km, and sewerage services to 106,139 people. Key performance indicators are included in Table 1 (page 15). The water services provided by EMSAPUNO to the cities of Puno and Desaguadero reach primarily residential and commercial customers. Approximately 90% of the water demand that EMSAPUNO meets is for domestic use.





Fiesta de la Candelaria Puno 2015 (Peru)

It is important for EMSAPUNO to harness international funding because the utility itself does not generate sufficient resources to improve services. Their customers are 90% residential and publically employed, and the system's topography generates high operating costs. From a management standpoint, exploring possibilities for resource generation was a motive for the utility to participate in a GWOPA workshop organized in Quito.

EMSAPUNO engaged in this WOP with the clear objective of developing a Water Safety Plan (WSP), and building staff skills. These instrumental motives were driven by the final objective of improving water and sanitation service delivery.

Both EMSAPUNO and COPASA reported past contamination incidents that affected their respective water system and threatened their reputation with respect to water quality management and safety. Such incidents were viewed as additional incentives for the utilities to develop their WSP approach and expertise.

Table 1 KPI (mentee)

Size and Service Indicators of EMSAPUNO	2014
Population served (in thousands):	
• Water supply	116.4
• Sanitation	107.1
Water supply connections (in thousands of house units):	
• Water supply	36.6
• Sanitation	33.8
No. of Employees	157
Length of water supply network (in kilometers)	231
Non-revenue water (percent of total)	40%
Working ratio	73%
Staff per 1000 population served (water supply)	1/921
% Water supply coverage	67%
% Sanitation coverage	62%
Billing/collection ratio	78%
Annual turnover of the utility (in thousands US\$)	1,555 ¹³
Average monthly customer bill water (in US\$)	5.68 ¹⁴
Average monthly customer bill wastewater (in US\$)	1.43 ¹⁵

13. 4,825 S/. (Peruvian Sol)

14. 17.63 S/. (Peruvian Sol)

15. 5.45 S/. (Peruvian Sol)

Facilitators

This WOP was facilitated by WOP-LAC, in terms of pairing the utilities, developing the MoU, and facilitating the initial contacts for this WOP; and it was instigated and co-funded by the Global Water Operators' Partnerships Alliance (GWOPA) and Cap-Net.

In addition, two individuals acted as “facilitators” in this WOP, one on each side of the partnership: a professor and WSP expert from the Universidad Federal de Viçosa (UFV) in Brazil, worked in close collaboration with COPASA as a mentor; and a consultant, of the Peruvian Directorate of Environmental Health (DIGESA, under the Ministry of Health), based in the Puno region during most of the partnership, facilitated the work and interactions of the mentee utility, EMSAPUNO. Both facilitators acted as WSP experts to help the development of Puno's WSP, with the UFV professor intervening mainly on the training aspects during the utilities' visits, and with the DIGESA consultant acting also as a motivator and reviewer for the WSP team on the mentor's side. Their role was considered highly important by the interviewees from both utilities.



Captation plant Chimú (Peru)

PARTNERSHIP DESIGN

In October 2012, a workshop on Water Safety Plans was held in Quito, Ecuador, hosted by UN-Habitat/GWOPA, the IWA and Cap-Net, with the participation of 12 water operators from the LAC region. The workshop aimed at providing training to the participants on how to develop, implement, and maintain a WSP in their utilities. EMSAPUNO's current General Manager and the General Director at the time attended the workshop in Quito. Following this workshop, EMSAPUNO contacted the WOP-LAC Secretary to express its interest in participating in a WOP, with the objective of enhancing their knowledge and capacity to design and implement a WSP.

The WOP-LAC Secretary coordinated the search for an adequate partner utility for EMSAPUNO. COPASA, as a member of the WOP-LAC network, was suggested as a mentor. COPASA's designated WOP coordinator requested from the start the participation of the renowned WSP expert from the UFV as a facilitator for the partnership. Cap-Net provided financial support (US\$5,000) for the field visits as a complement to the funding from GWOPA (US\$14,000). The agreement on the terms and conditions of the partnership (MoU) was signed

by both water operators and the WOP-LAC Secretary, after EMSAPUNO had formally joined the WOP-LAC platform.

Analysis of needs

A particularity of this case is that a formal process of diagnosis of need was not required in the typical fashion of most of other WOPs, because a clear objective was identified by the recipient partner prior to initiating the partnership, following the participation of the operator in the 2012 WSP workshop in Quito. The objective, as stated in the WOP agreement, was for COPASA to help EMSAPUNO through the elaboration of a WSP for the city of Puno's water system, which EMSAPUNO would eventually implement. The partner utilities were put in touch via WOP-LAC on the basis of that pre-established objective. Nevertheless, the WSP process in itself may be viewed as a form of diagnosis of needs at the operational level.

The agreement

The partners (EMSAPUNO and COPASA, together with WOP-LAC) signed a Memorandum of Understanding (MoU) on 21st March 2014.

The MoU describes the expected progress of the partnership activities, including:

- a description of the context for the establishment of the partnership,
- some background on both utilities and the mentoring facilitator (UFV),
- the objective of the partnership, the list and contact details of staff involved at the mentor utility and their respective role in the partnership,
- a simple work plan including tentative dates and objectives for the visits to both utilities and main deliverables,
- the names of the EMSAPUNO and COPASA staff responsible for the general coordination of the partnership,
- the details of the budget and financing, feedback mechanisms to WOP-LAC,
- the principles and code of conduct of the partnership.

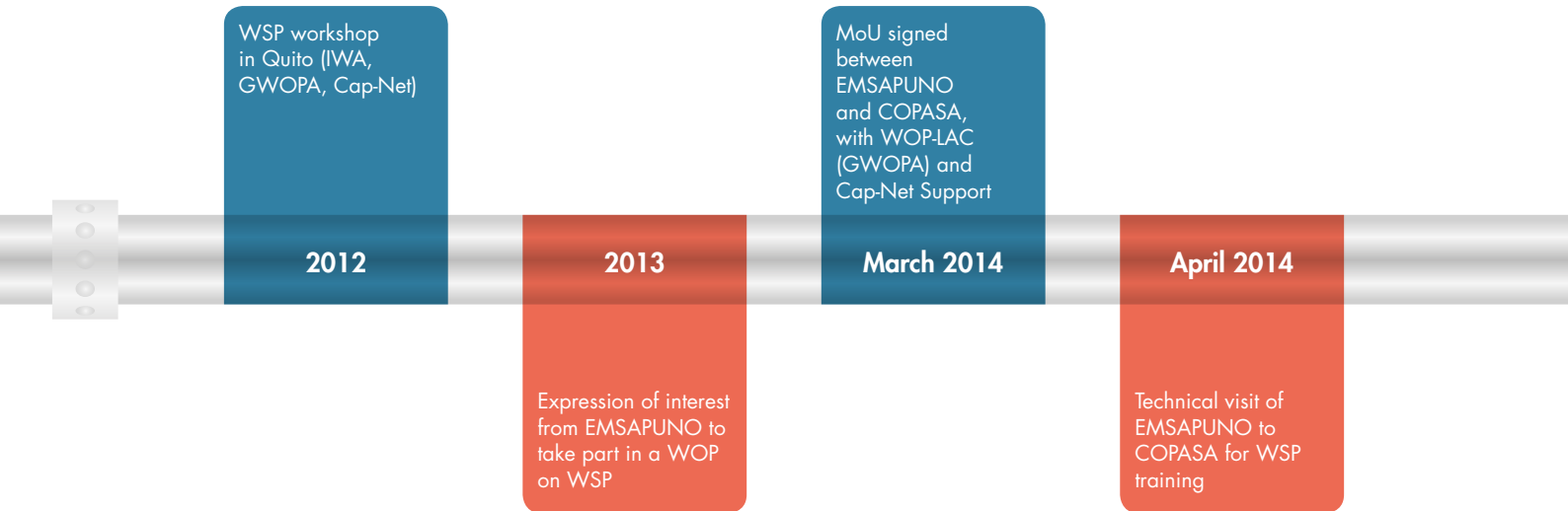
The elaboration of the MoU complemented the diagnosis of needs of the mentee utility with a simple but clear one-year work plan, including a well planned visit to each of the utilities.

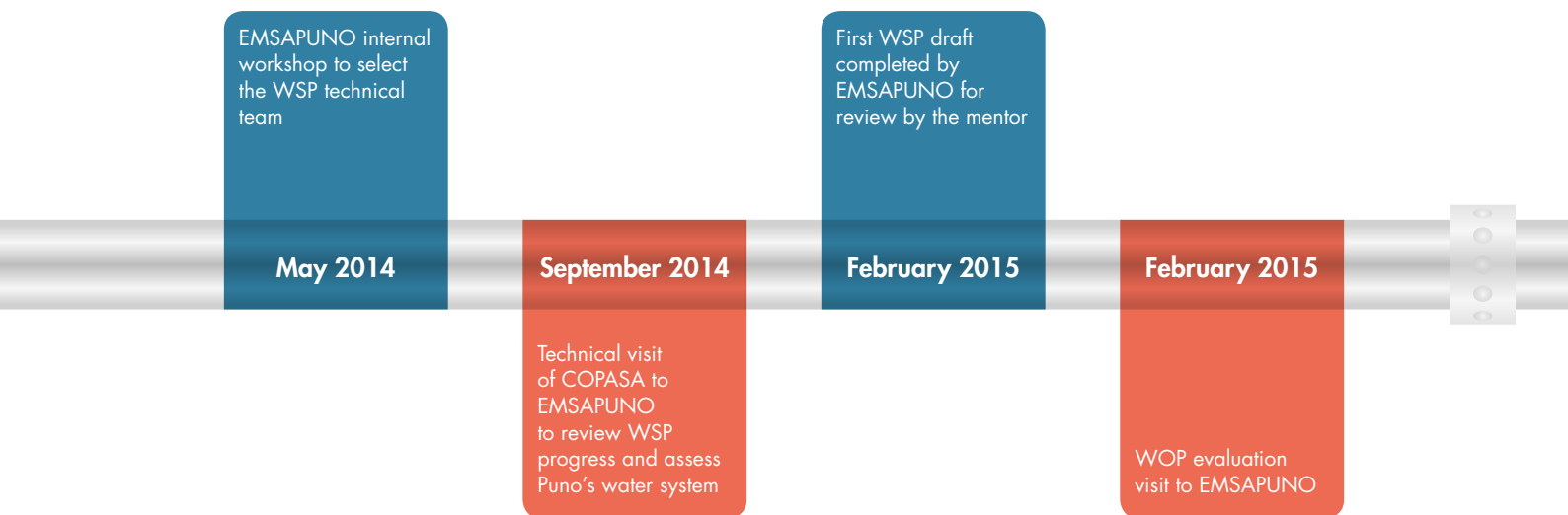


Aziruni treatment plant (Peru)

Timeline

This timeline is not exhaustive, but highlights some key events in the WOP.





PARTNERSHIP IMPLEMENTATION

Major activities contributing to the preparation of EMSAPUNO's WSP began with the initial visit of EMSAPUNO to COPASA in April 2014. During this visit, EMSAPUNO received theoretical training on the WSP methodology, and COPASA's staff shared practical experience of on-going WSP implementation.

Following this initial training in Brazil, EMSAPUNO returned to Puno and held a first informative presentation for its staff on May 16th 2014, with about 10 to 20 people attending, including all the managers and operational staff. The General Manager was involved in holding this workshop together with the facilitator (consultant from DIGESA) and the WOP coordinating team, formed by the Head of Office of Planning and Budgets (WOP coordinator), the Head of Project Formulator Unit, and the Head of Engineering Division. The objective was to replicate some of the training received during the visit to COPASA, explain to the staff the benefits of a WSP, which identifies risks from the watershed to the user and provides a management model to increase water safety. This type of communication event was considered crucial to involve the utility staff in a new theme and to allow EMSAPUNO to commit to the WOP and the development of the WSP. On that day, the General

Management selected the staff that would be part of the WSP technical team throughout this WOP. This team was formed by the Head of the Operation and Maintenance Division, the Head of the Quality Control Division, and the Head of the Water Treatment Plant.

From then on, the development of Puno's WSP was initiated with a field visit of the entire water supply system by the WSP coordinating and technical teams, always assisted by the facilitator (consultant from DIGESA). This was a critical step in understanding the potential hazards that affect water quality in the system, from the watershed to the consumer.

The activities conducted afterwards by the WSP coordinating and technical teams, assisted by their local facilitator, followed the steps of the WSP methodology, i.e. the identification of hazards to the water supply system, the characterization of risks, the identification and validation of control measures, the development of an operational monitoring plan, and of management and communication protocols under routine and exceptional conditions. For each of these steps, the teams held regular internal meetings, and presented reports to the General Management. The interviewees however reported completing most of this work outside the regular work hours. The team



Part of a treatment plant (Peru)



was able to complete this first stage of the work on the basis of the knowledge, techniques and tools acquired initially during the visit to COPASA and communicated to the technical team. In August 2014, a workshop was held to communicate the progress of the work to the rest of EMSAPUNO staff (managers and operational staff).

When COPASA visited EMSAPUNO in September 2014, along with their facilitator from UFV, the EMSAPUNO team was able to present its progress on the WSP and obtain constructive comments and recommendations to improve it. The work plan for COPASA's visit to Puno included a field visit of all installations covered in the WSP, i.e. the Lake Titicaca watershed, all three water supply intakes, the water treatment plant, and the reservoirs. This was the first time that EMSAPUNO received a visit of a utility from abroad, and that an experienced utility like COPASA looked at Puno's system and evaluated its hazards in situ. This visit was highly stimulating for individual staff and for the utility as a whole. This visit was extremely important in terms of knowledge exchange between both utilities, allowing them to share questions, doubts, problems, information, and feedback. A press conference was held during COPASA's visit at the venue where the workshops took place, and the press was able to ask questions.

Television journalists were present, providing publicity for EMSAPUNO and the WOP.

Following COPASA's visit, EMSAPUNO, with the help of their consultant, was able to integrate COPASA's recommendations into the WSP and to complete the first draft document by early February, to be sent to the mentor's WSP expert for review. The objective was to make Puno's WSP a public, printed document that could be presented to the (new) President of the utility, to regional government representatives, and other relevant authorities. This WSP document is the major tangible output of this WOP.

There is a strong will among EMSAPUNO's staff to implement the WSP as a next stage and continuation of this work, which will require additional funding. A few corrective actions were already applied to the water supply system by the utility in the process of developing the WSP, such as the replacement of some chlorination equipment, identified as a hazard. The WSP provides a methodology to enhance water safety management and communication procedures within the utility around potential health risks, however hazards in the water supply system can still come from infrastructure inadequacy or failure, requiring investment to improve equipment and facilities.

CROSS-CUTTING THEMES

Improved awareness of managerial weaknesses

The WOP provided EMSAPUNO with an opportunity to become more critical of some managerial aspects of the utility, namely regarding the lack of continuous training and capacity building. Interviewees manifested their wish for EMSAPUNO to engage in future WOPs on a range of managerial, administrative, and operational themes.

Rise of commitment and leadership

The WOP, as a defined incentive for EMSAPUNO's staff to commit to tangible results, and share experience with the mentor utility, increased the motivation of the staff, adding value and importance to their work. WOP activities also allowed for EMSAPUNO to gain recognition from Peruvian water entities, such as ANA, ANEPSSA (the National Association of EPS), DIGESA, on its WSP work. Finally, interviewees expressed their willingness to disseminate their new knowledge by supporting other Peruvian utilities with the elaboration of a water quality control plan (requested by the Ministry of Health), showing a rise in leadership.

Storage water tanks on roofs in Puno (Peru)



OUTCOMES

WSP technical capacity and knowledge of the methodology

Through this WOP, the mentee's capacity was increased on the technical aspects and methodology of WSPs. Capacity enhancement was measurable: with facilitator and mentor support, the team produced a complete WSP document, while the utility had no knowledge on the topic prior to the WOP. Interviewees also gained capacity to train and support other utilities on WSP development.

Awareness of water quality issues and responsibility for the population's health

Importantly, the WSP work raised awareness of water quality issues within the WSP team, as well as within the mentee utility as a whole, through dissemination efforts. Water quality was not an important focus area at EMSAPUNO prior to this WOP, since the utility deals proprietarily with operational issues related to the continuity and reliability of water services and coverage. Raising utility awareness and sense of responsibility for water quality management to safeguard public health is an essential objective of WSPs, which was achieved through this WOP. The WSP approach

also taught EMSAPUNO's staff about the impact of water supply infrastructure integrity on the quality of the utility's services.

Improved operational management efficiency and planning

Through the WSP methodology, the WOP also initiated the reinforcement of the utility on some operational management aspects related to risk management, in addition to providing an overarching framework for the planning of infrastructure improvements to ensure water safety.

Next steps

EMSAPUNO intends to use the WSP as a management and investment prioritization tool. All participants in the WSP development share a clear, common understanding of their next step, which is to evaluate the costs associated with the implementation of all required interventions on the system listed in the WSP, prioritize them, and seek external funding for implementation.



SUCCESS FACTORS

Clear, specific diagnosis of need pre-established by the mentee

The improvement track for this WOP was clearly established by the mentee from the start. The specificity of the objective, its manageable one-year timeframe, and relatively small number of participants involved in main activities favored cohesion and planning of the teamwork, communication, and progress on the WSP. The WSP structured framework, as a methodological tool, favoured the systematic progress of WOP activities, which was relatively easy to monitor.

Water sector policy context

In 2010, a law was emitted by DIGESA (under the Health Ministry) of Peru to regulate the quality of water for human consumption (Reglamento de la Calidad del Agua para Consumo Humano), according to which all water utilities will be required to develop a PCC (Plan de Control de Calidad, highly similar to a WSP). Guidance for the development of PCCs is still to be provided by the Ministry; meanwhile utilities are not expected to have produced their PCC yet (although a workshop was held shortly before this WOP's evaluation where directives were provided). The present regulatory context may favour the dissemination of Puno's work on WSPs and present opportunities for EMSAPUNO to further connect with water governing institutions in Peru.

Puno's new water intake at Lake Titicaca (Peru)



Water treatment plant in Azirun (Peru)



Appropriate matchmaking

The mentor's positive attitude, encouraging a "learning by teaching" experience, added to the mentoring qualities of COPASA, combining notoriety and expertise with humility and openness. The staff selection for the WOP allowed the sharing of both COPASA's practical experience in developing WSPs and the didactical training from an academic expert and facilitator. The joint development by WOP-LAC and COPASA of the MoU and detailed work plan for the kick-off visit of EMSAPUNO to COPASA also set the stage for an efficient evolution of the partnership. The partnership was designed efficiently in terms of balancing the benefits of an international collaboration with limited travel distances and costs for the utilities' visits. The language and cultural differences and the stark contrast between both utilities' contexts provided an international feel to the experience of both partners, while they both still belonged to the same region and to the WOP-LAC network, which may facilitate a more sustainable relationship between the utilities in the future.

Commitment of the mentee

The high level of commitment from the mentee, as individuals and as a team, and the support from the management, were important success factors. The General Management participated actively in selecting the appropriate staff for this WOP, based on criteria related to technical expertise, sense of commitment, professionalism, enthusiasm, and potential to return the benefits of the experience to the utility as a "multiplied effect". This appropriate staff selection increased the potential for this WOP to be a success from the early stages of the collaboration. The additional impulse from a local facilitator (consultant from DIGESA) contributed to that commitment. The early visit to COPASA shortly after the formalization of the partnership (MoU) provided immediate capacity building and relational results, boosting motivation of the partners. EMSAPUNO's staff who travelled to Brazil were impressed with the effectiveness of the work plan for their visit and with the professionalism of COPASA. EMSAPUNO was thereafter determined to progress efficiently on the WSP before receiving the visit of COPASA, scheduled 5 months later. Finally, the notification of the evaluation visit to Puno might the full completion of the first WSP draft by February 2015. The commitment from EMSAPUNO's team included a concern for inclusiveness and integration in the utility as a whole, and a will to disseminate this experience also beyond the utility across the country.

CHALLENGES

The delivery of the WSP document as the expected outcome of this one-year WOP was a challenge in itself to EMSAPUNO's staff. In fact, there was no internal knowledge on this topic within the utility, and mastering the underlying technical aspects of the methodology requires technical skills and training. One year was a limited time to complete such a task, especially as the staff was busy with its regular responsibilities at the utility. A lot of the work was achieved outside regular work hours, which raises concerns with regards to the sustainability of this approach.

COPASA's still recent expertise and experience with implementation of WSPs was a source of hesitation to engage in the WOP initially. However, with support from the local WSP expert (facilitator from UFV), this may have benefited the WOP in the end, by providing an opportunity to learn for both utilities. This mutual learning experience is especially well suited for WSPs in raising awareness and creating a responsible attitude towards water safety within both utilities.

The lack of funding continuity might pose a more important threat to the efficacy and long-lasting impact of this WOP. Several interviewees on the mentee's side communicated their concerns regarding the need to secure additional funding for the implementation of the WSP in Puno, without which, the time and effort put into the development of the WSP would be regarded as a waste, even though the learning benefits of the WOP are recognized. Providing continuity in funding to sustain the development of the mentee utility's capacity in the longer term and to maximize the benefits of the initial investment is a challenge which is common to several WOPs.

WHAT THE PARTNERS SAY

"The best way to learn is to teach." "COPASA was able to stimulate its professionals to do water safety planning more and more, and to do it better and better".

Cristina Schembri – Manager, Division of Support, Development, and Control, COPASA – WOP Coordinator

"We now have the will and method to do things well, understanding the importance of infrastructure and acknowledging that this affects the health of the population."

Alberto Ordoñez, Head of the Operation and Maintenance Division, EMSAPUNO

"WSPs are universal, they are valid for any water system in the world. Therefore the lessons and experience are transferable elsewhere."

Airis Horta, Head of the Research and Wastewater Quality Control Division, COPASA

"It would have been difficult to produce the WSP without the WOP."

Augusto Lazo, Director General, EMSAPUNO

"We have learned that WOPs give results. We are very satisfied to have participated."

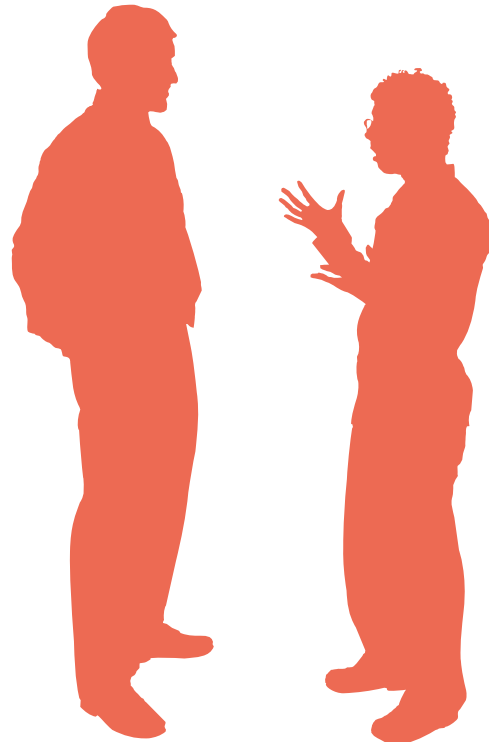
Miriam Laura, Head of Project Formulator Unit, EMSAPUNO

"The WSP is very much about the identification of hazards associated with the water quality. However, through this process, we also identified hazards associated with the management of the utility."

Félix Pompeyo Ferro, Health Ministry of Peru (DIGESA), Facilitator and WSP consultant for EMSAPUNO

"EMSAPUNO achieved being the first water utility in Peru to have a WSP. The exchange of experience with COPASA was instrumental in this achievement."

Ligia Carrasco, Head of Planning and Budget Office and WOP coordinator, EMSAPUNO



Lake Titicaca (Peru)







Ministry of Foreign Affairs of the
Netherlands



UNESCO-IHE
Institute for Water Education

GWOPA
Global Water Operators' Partnerships Alliance