

TASK FORCE to explore ways of contributing to the Sustainable Development Goals



International Conference

Palais des Nations, Room XVIII, Geneva, Switzerland

21 - 22 October 2014

LONG TERM WATER PPPs CONTRACTS

PORTUGAL: THE EXPERIENCE OF AQUAPOR

Diogo Faria de Oliveira

Independent water expert

Founder and Managing Director of Defining Future Options, Lda.

Former Member of the Board of Directors and Executive Director of AQUAPOR Serviços, S.A.

diogoFO.pt@gmail.com

Case Study from: "Public-Private Partnerships in the water and sanitation sector: an exchange of experiences between Europe, Central Asia, the Middle East and North Africa"
International Conference, Geneva, Switzerland, 21 - 22 October 2014

DEFINING
FUTURE
OPTIONS

TASK FORCE to explore ways of contributing to the Sustainable Development Goals

General aspects of the PPP project

About AQUAPOR

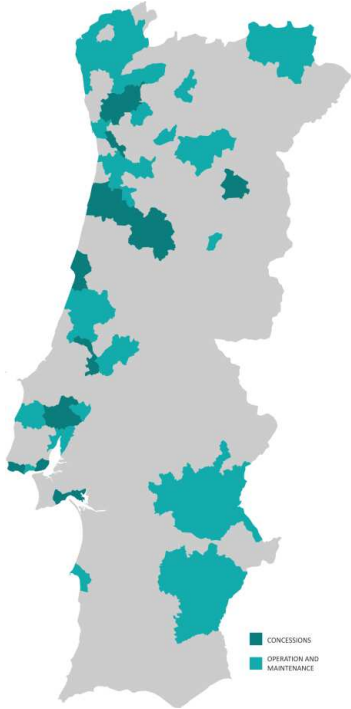
Founded in 1997, AQUAPOR manages water supply and wastewater concessions in 25 municipalities, covering a population of about 1.8 million inhabitants.

Additionally, Luságua (one of AQUAPOR's subsidiary) provides O&M services to 58 municipalities, covering around half a million inhabitants.

Until 2008, AQUAPOR was a sub-holding of the state-owned company, AdP - Águas de Portugal, SGPS, S.A.. In December, 2008, AQUAPOR was acquired by private capital.

More information about AQUAPOR:
<https://www.aquaporservicos.pt/>

AQUAPOR presence in Portugal (data from Dec. 2013)

| Portfolio | Geographic presence | Assets under management |
|--|---|---|
| <ul style="list-style-type: none"> 22 Companies <ul style="list-style-type: none"> - 13 Concessionaries 1.838 million inhabitants € 134 million turnover (subsidiaries' total) Present in 83 municipalities: <ul style="list-style-type: none"> - 25 municipalities under concession model - 58 municipalities under O&M by Luságua 3 Environment Service Providers' Companies 3 SPV Companies 2 International Companies (Angola & Mozambique) 2 Partnership Agreements for the Middle East |  <p> <small> ■ CONCESSIONS ■ OPERATION AND MAINTENANCE </small> </p> | <ul style="list-style-type: none"> 2 dams 109 intakes 11 WTP 33 WWTP (concessions) 158 WWTP (Lusagua's O&M) 438 reservoirs 7.264 km water networks 2.914 km wastewater networks 1.095 employees Total liquid assets: € 223,7 Million (consolidated) |

TASK FORCE to explore ways of contributing to the Sustainable Development Goals



AQUAPOR concessions

Concessions vary significantly in size, scope and time frame.

Basically, there are two generations of contracts in Portugal:

- the first generation concession contracts do not include capital investment (lease contracts). Municipalities (lessors) are responsible for capital expenditures (CAPEX) with private operators obliged to pay a rent (lessor fee) for the use of the infrastructures;
- In the second generation contracts, CAPEX is a responsibility of the operator and a significant percentage of the investment has to be executed within the first five years of the contract.

AQUAPOR Concessions – general aspects

| CONCESSION | SERVICIES | | | | GENERAL ASPECTS | | | |
|-------------------|--------------|--------------|------------|------------|-----------------|--------------|-------------------|---------|
| | Water Supply | | Wastewater | | Population | Investment | Financing model | Period |
| | Production | Distribution | Collection | Treatment | (thousands) | | | (years) |
| TRATAVE | | | | ██████████ | 298 | YES - CAPEX | Corporate Finance | 25 |
| Águas de Gondomar | | ██████████ | ██████████ | ██████████ | 168 | YES - CAPEX | Project Finance | 30 |
| Águas da Teja | ██████████ | ██████████ | ██████████ | ██████████ | 9 | Small part | Corporate Finance | 25 |
| Águas do Vouga | ██████████ | | | | 235 | Through rent | Corporate Finance | 30 |
| Águas do Planalto | ██████████ | ██████████ | | | 68 | Through rent | Project Finance | 30 |
| Águas da Figueira | ██████████ | ██████████ | ██████████ | ██████████ | 62 | YES - CAPEX | Project Finance | 30 |
| Águas do Lena | 73% | ██████████ | | | 16 | Small part | Corporate Finance | 23 |
| Luságua Alcanena | 68% | ██████████ | | | 14 | Small part | Corporate Finance | 15 |
| Águas de Alenquer | | ██████████ | ██████████ | | 43 | YES - CAPEX | Project Finance | 30 |
| Águas da Azambuja | | ██████████ | ██████████ | | 22 | YES - CAPEX | Project Finance | 30 |
| Águas de Cascais | 15% | ██████████ | ██████████ | | 205 | YES - CAPEX | Project Finance | 30 |
| Águas do Sado | ██████████ | ██████████ | ██████████ | ██████████ | 119 | Through rent | Corporate Finance | 25 |
| Luságua Lisboa | | ██████████ | ██████████ | | n.a. | YES - CAPEX | Corporate Finance | 8 |



TASK FORCE to explore ways of contributing to the Sustainable Development Goals



Structure of the project

Country framework

In Portugal, the responsibility for water and wastewater services is shared between the State and municipalities. All assets are public owned.

The State is responsible for the multimunicipal schemes (most of all “bulk”: water production and wastewater treatment and disposal), and the municipalities for “retail” services (municipal systems of water distribution and wastewater collection).

For the provision of these services, municipalities are able to decide between three different organization forms:

- direct management;
- delegation and concession, and;
- promotion of public-public partnerships, or public-private partnerships (up to 49% of private equity).

So, this structure results into the six following different management models:

Management Models in Portugal

| | | |
|-----------------------|------------------------------------|--|
| PUBLIC MANAGEMENT | Municipal Management | Water distribution P&L is merged within the municipal budget. Political driven management and decision. Very often municipalities have no perception of water and wastewater costs. Several of these municipalities have poor levels of service. |
| | Municipal Services (SMAS) | Water distribution is delegated in a specific municipal department. This department has its own P&L. Bank debt concurs for total municipal debt. Management and accounts are reviewed by a national accountancy high court (Tribunal de Contas). |
| | Multimunicipal concessions | Portuguese state, through AdP-Águas de Portugal (state owned operator), creates concessions by government act. Municipalities are also shareholders of the concession (up to 49%). The concession has a fixed capital return rate and tariffs are reviewed every year in order to achieve the contracted IRR. Operational risks are fully transferred to tariff. These concessions are set up exclusively for bulk supply to municipalities. |
| | State-Municipal Partnership | Similar to Multimunicipal concessions, the Portuguese state, through AdP, creates companies in partnership with the Municipalities (AdP 51%). The service is awarded to these companies for 50 years and tariffs are reviewed every 5 years. This model is applied both to bulk and retail services, but has not many experience up to now (only two systems on the field). |
| PRIVATE MANAGEMENT | Concessions and Lease | Asset property remains public while water and wastewater management is delegated to a private company through a tender process. Management delegation includes full responsibility for service provision and even for investment. The maximum period is fixed by law and can go up to 30 years. |
| | Public-Private Partnership | The private operator company takes a minor position (up to 49%) in the capital of a Municipal owned company. Risks are similar to concessions but municipalities remain as majority shareholders in the new company. Management limitations are similar to public services. |



TASK FORCE to explore ways of contributing to the Sustainable Development Goals



AQUAPOR Management Measures

In the past 10 years, in Portugal, water consumption is constantly decreasing mainly for two different sets of reasons:

- **Cyclical reasons**

The financial and social crisis; immigration; unemployment.

- **Structural reasons**

Demographic reduction and aging; environmental awareness (especially after 2005 big drought); tariffs increase; climate change; technological innovations; network efficiency.

According to AQUAPOR's data, since 2007, consumptions decreased 17,9%:



Average consumptions in 14 municipalities managed by AQUAPOR

During the financial and social crisis in Portugal, AQUAPOR assured the sustainability of its concessions improving customer relationship management, mainly focused on customer's obligations. From 2010 to 2013, average collection period decreased 36% and overdue debt per sale reduced 20.9%. These measures were critical to avoid an increase in tariffs.

In addition, focus on Non-Revenue Water reduction goals was given. Business plans' objectives were to achieve less than 20% of Non-Revenue Water in 2018, but that achievement is going to be anticipated by 2015 (AQUAPOR's Non-Revenue Water average is now of 20,4%, while national average is 30,7%).

One of the most significant measures is the "energy efficient water cycle". This project begun in 2010 and aims to reduce energy costs and increase energy sales and, therefore, reduce CO2 emissions within the urban water cycle. This project included: negotiations with power supply companies; optimization of energy consumptions; renewing installed power equipments; reducing reactive energy; improving process monitoring and supervision; improving maintenance management. Energy production measures were also undertaken, such as: installation of PV panels, increasing biogas production and even installing small turbines in water mains.

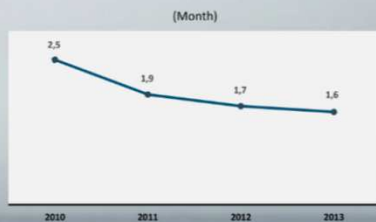
All of these measures (among others) were critical to limit an increase in tariffs.



TASK FORCE to explore ways of contributing to the Sustainable Development Goals

Billing and collection measures to assure sustainability

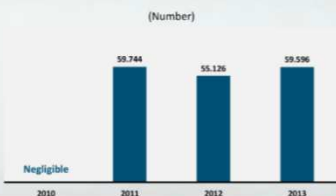
Average receivables time frame



Overdue debt per sale



Inspections of clandestine and illegal connections

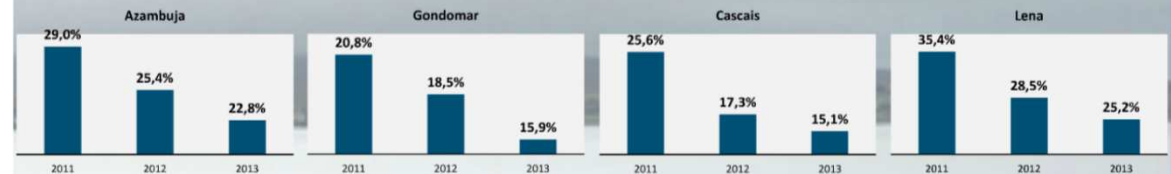


DURING THE FINANCIAL AND SOCIAL CRISIS IN PORTUGAL, AQUAPOR ASSURED THE SUSTAINABILITY OF CONCESSIONS BY INCREASING ITS ATTENTION TO CUSTOMER OBLIGATIONS

THESE MESURES WERE CRUCIAL TO CONTAIN THE INCREASE IN TARIFFS

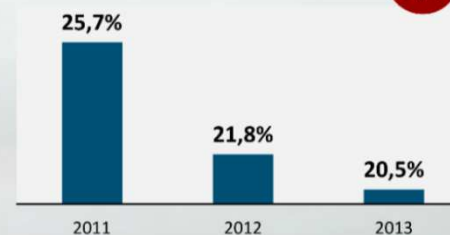
Network efficiency

Water losses (%)

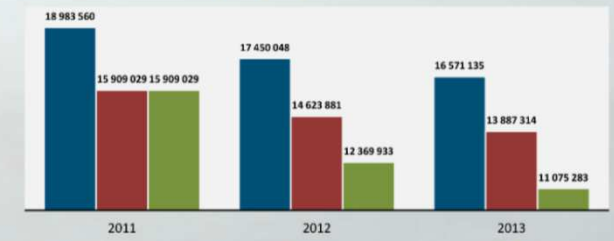


AQUAPOR: Total

Portugal average 30.7%



Water savings (m3)



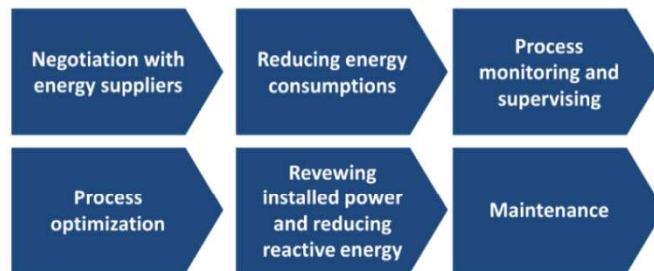
• If AQUAPOR had the % of water losses equal to PT average • If Aquapor had not reduced water losses since 2011 • AQUAPOR Water Losses

TASK FORCE to explore ways of contributing to the Sustainable Development Goals

Introducing the "ENERGY efficient" WATER CYCLE

- ✓ Cost savings;
- ✓ Need of energy optimization
- ✓ Increase of competitiveness;
- ✓ Less environmental impact;

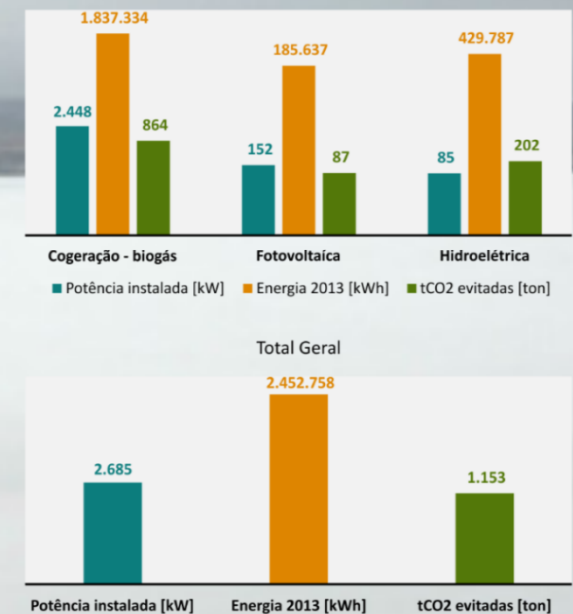
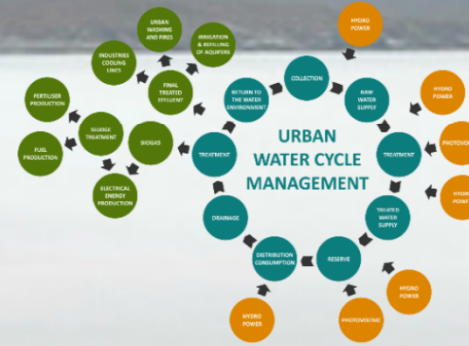
ENERGY COST CUT & SAVINGS



ENERGY INCOME



Energy production inside water cycle



TASK FORCE to explore ways of contributing to the Sustainable Development Goals



Impact according to the water Sustainable Development Goal criteria

Water and wastewater prices

Compared to other public utilities (electricity, gas, telecommunications), water price in Portugal is relatively low.

According to a recent publication, “APDA – O Mercado e os Preços 2014” (*), average domestic price is 1,734 €/m³ (water and wastewater, for 120 m³ per year). Comparing management models, the prices are as follows:

| MANAGEMENT MODEL | Water and wastewater 120 m ³ - year 2013 | |
|-----------------------------|---|-------------|
| | Price per m ³ | Annual cost |
| Direct Municipal Management | 1,37 | 164,90 |
| Municipal Services (SMAS) | 2,01 | 240,95 |
| Public companies | 1,87 | 224,72 |
| Concessions | 1,94 | 232,95 |
| AQUAPOR Concessions | 1,89 | 226,58 |
| Nacional Average | 1,73 | 208,04 |

Note: “Public Companies” includes municipal companies and partnerships with AdP and private operators. Models 4 and 6 above mentioned

(*)Portuguese Association of Water Distributors, “The Market and the Prices, 2014”; <http://www.apda.pt/pt/>

Considering that some municipalities in “direct municipal management” are highly subsidized by taxes (for example, in 23 municipalities there is no tariff for wastewater: it’s for free), the prices of the other three models are very similar.

So, water is still an affordable good, although that may not be the perception for many users. Nevertheless, underprivileged populations and large families benefit from discounts in most municipalities.

Level of service

In Portugal, 95% of the population is served by public water networks and 98,2% of tap water is safe for human consumption; 79% have access to wastewater treatment and 100% to adequate waste collection.

Since 2007, the national water regulator, ERSAR (**), awards water quality prizes to operators that comply above 99% with a previous fixed panel of indicators. The annual quality prizes delivered by ERSAR aim to reward and disseminate Portuguese case studies on the quality of public water supply, wastewater and urban waste management, contributing to improve the quality of service provided to citizens.

In 2014, only 17 operators in Portugal were awarded with the prize for “Level of Service Quality”, 6 of them were awarded to AQUAPOR’s concessions. Regarding the “Quality of tap water for human consumption”, 74 operators were awarded (out of about 500 total operators), and 9 of them were won by AQUAPOR’s concessions.

(**) ERSAR – Entidade Gestora das Águas e Resíduos; http://www.ersar.pt/website_en/



TASK FORCE to explore ways of contributing to the Sustainable Development Goals

Conclusions

- The Water and wastewater Industry in Portugal is mature.
- Private sector can participate in two management models:
 - Concession/Lease;
 - Minority share in public companies.
- Long term contracts sustainability must not be assured only by tariff increase.
- Ad hoc measures were (and will be) taken in order to reduce costs and increase billing and collection efficiency.
- Nowadays, AQUAPOR efforts are being driven to international growth and current portfolio levels of service improvement, profitability increase and cost optimization.
- Information management was critical in order to define priorities and benchmark contracts.
- Achieving adequate business margins was possible due to strong cost control and focus on commercial policies and processes.
- Private operator prices are in average equal to public ones (when they practice sustainable prices).