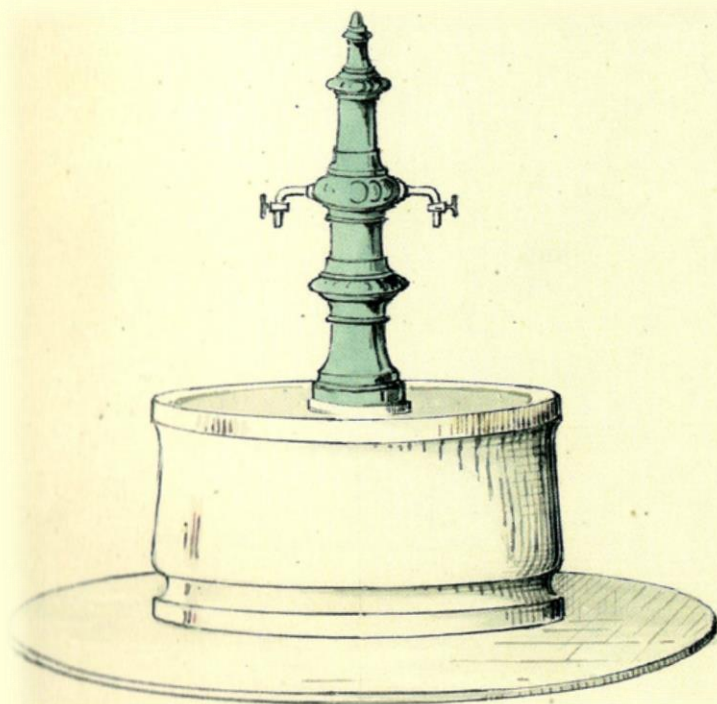


PORTUGUESE WATER SUPPLY AND SANITATION OUTLOOK 2020



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Portugal lies in Western Europe and has 10.3 million inhabitants, of which approximately half are economically active. The population is concentrated in coastal areas, with Lisbon and Porto having the highest population density, followed by the Algarve (south) region.

Portuguese voters elect central government (President and Parliament) and local government (comprised by 278 municipalities in the mainland). The Azores and Madeira archipelagos enjoy regional autonomy and these 11 islands comprise an additional 30 municipalities. For some policy purposes, the mainland is divided into five planning regions.

Portugal became a member of the European Economic Community, subsequently the European Union (EU), in 1986.

Water service provision at the time was unsatisfactory and wastewater treatment limited. Portugal adopted the EU Drinking Water Directive of 1998, the EU Urban Wastewater Treatment Directive of 1991, and the Water Framework Directive of 2000. As a result, the country introduced significant reforms (1993-1995) and investment to meet the EU standards. Nowadays, tap water is universally safe (99%) and public network coverage reaches 96% for water and 85% for sanitation, the remaining being private solutions (borewells and septic tanks).



Portugal

Area:	92.226 km ²
Population:	10,3 million
Unemployment:	7,1%
Inflation rate:	0,3 %
GDP per capita:	€ 20.736

Average Temperature: 7.5°C - 22°C
Average Rainfall: 1001.9 mm/year
Water Exploitation Index+: 14%
Hydrographic Regions (mainland): 8
Shared basins with Spain: 4

Data: 2019

Portuguese Water Market Overview

Annual turnover



€ 1,5 billion

Average price to households(*)



2,0 €/m³

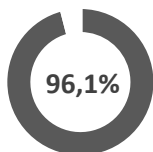
Utilities



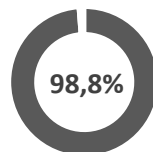
279

WATER

Network coverage



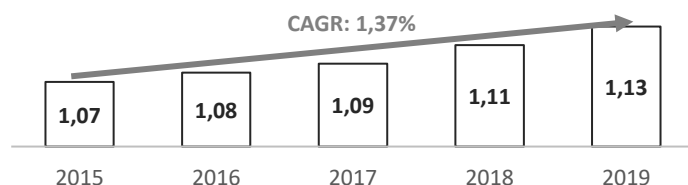
Safe drinking water



Non-revenue Water



Average price [€/m³] (*)



Annual water billed

577 M m³

Per capita total consumption

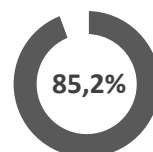
189 liters/day

Per capita domestic consumption

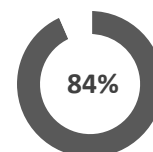
123 liters/day

SANITATION

Network coverage



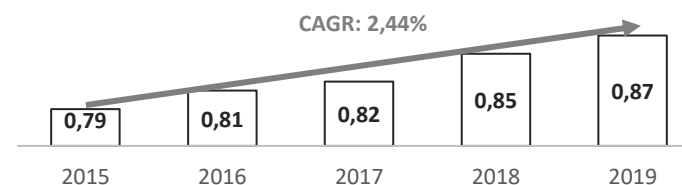
Wastewater treated



Adequate sludge disposal



Average price [€/m³] (*)



Annual wastewater collected

640 M m³

Annual wastewater billed

472 M m³

Annual sludge disposal

573 k tons.

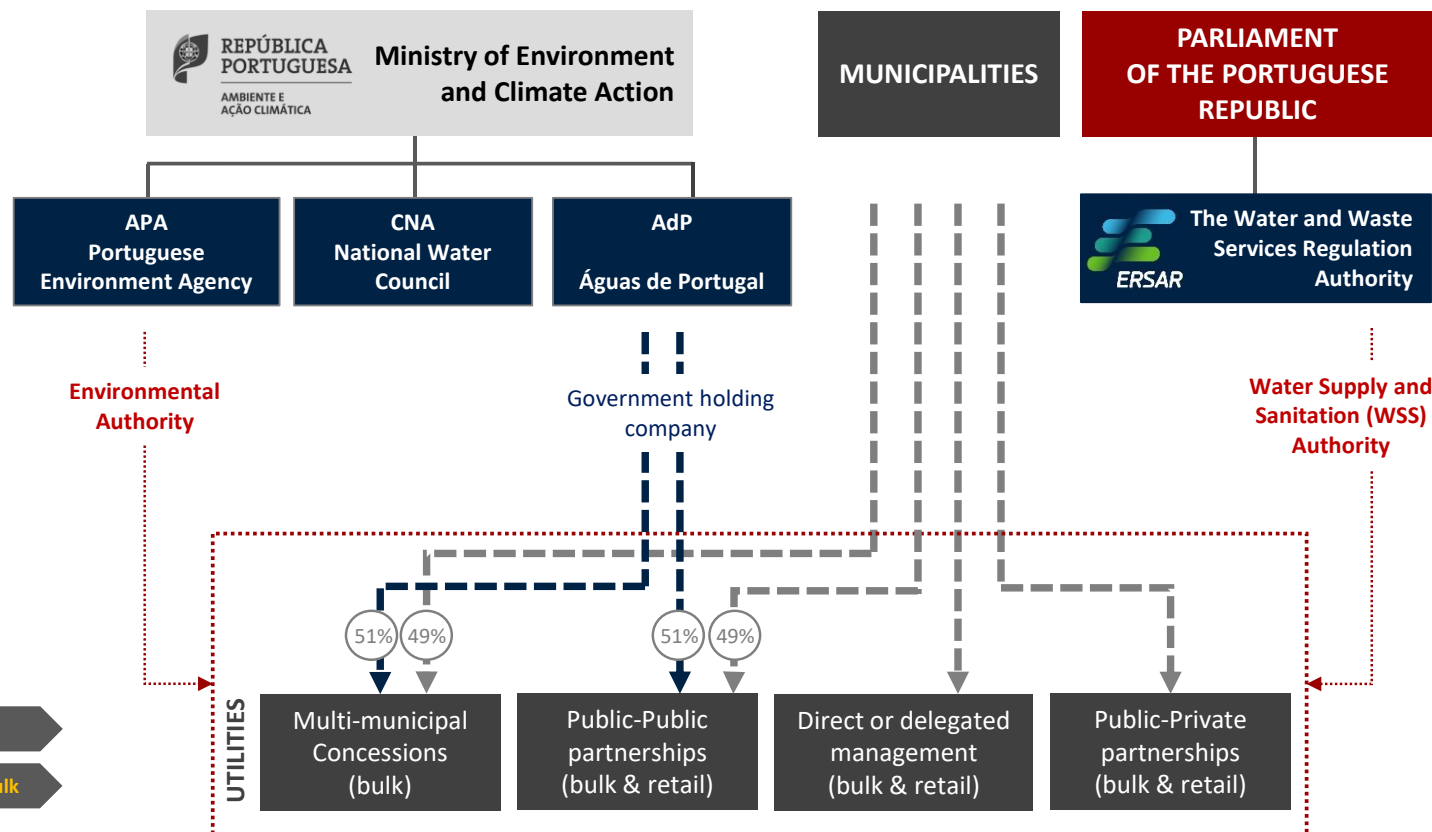
(*) For a consumption of 10m³ per month; Data: 2019, except where indicated otherwise

Institutional Framework

Sector Organization

Municipalities are responsible for the provision of water and wastewater services. They can manage them directly; delegate them in municipal companies; enter into a partnership with the central government through AdP – Águas de Portugal (a State-Owned-Enterprise); or set up PPPs with a private operator

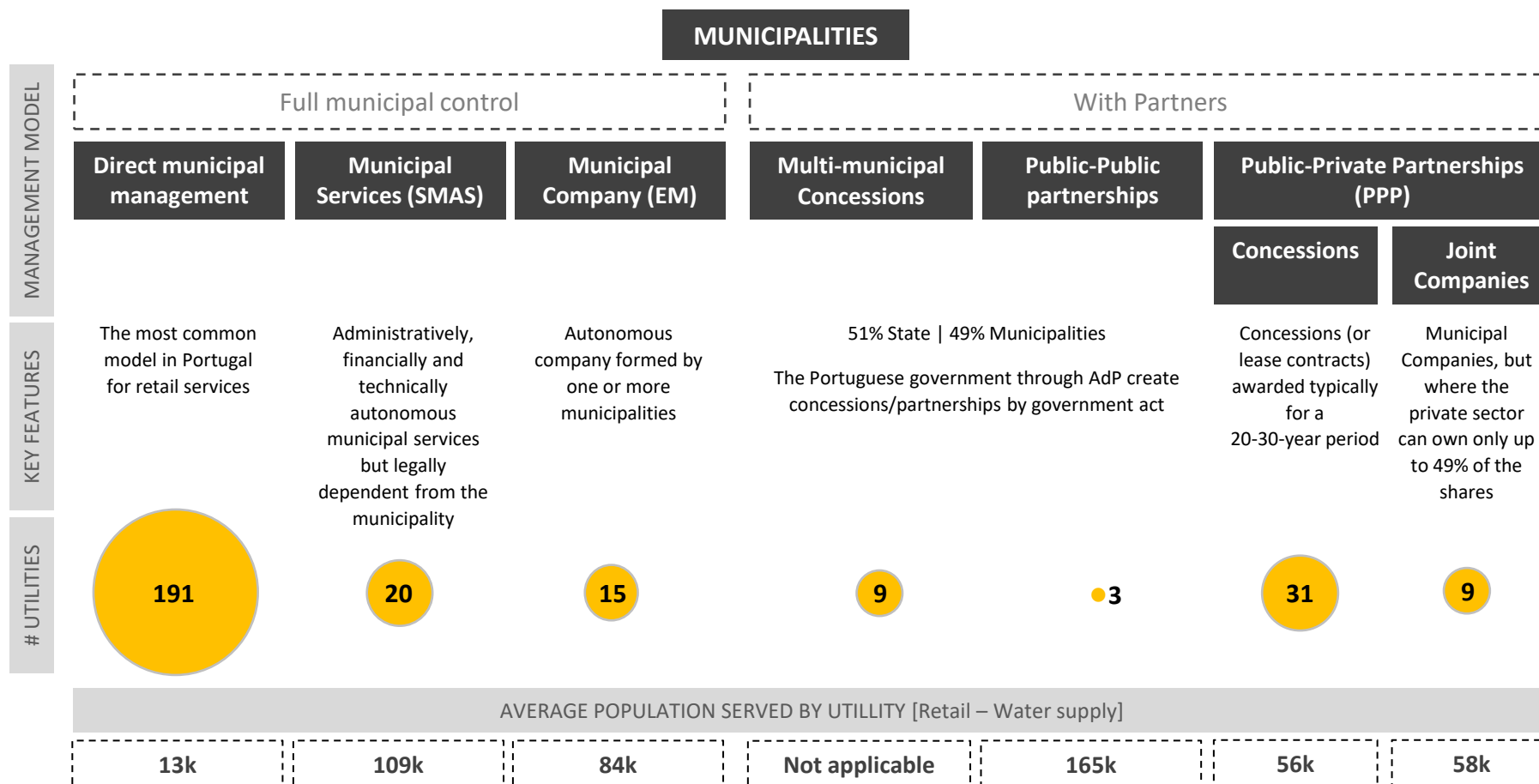
The WSS sector is mainly split between “bulk” systems (regional water catchment and treatment, and wastewater treatment and conveyance, covering 80% of the population) and “retail” systems (water distribution, wastewater collection and customer relationships). AdP (with a majority share) can enter into partnerships with the municipalities in both “bulk” and “retail” systems. The municipalities can also award concessions to private operators or establish joint (mixed economy) companies, although retaining a majority share.



Institutional Framework

Management Models

Municipalities are free to choose their management model. They can do it solely or in partnership



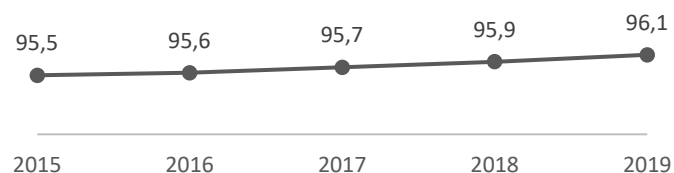
Note: EPAL supplies the greater Lisbon region and is fully owned by the State through AdP-Águas de Portugal (this is the only utility that does not belong to the municipalities due to historical reasons); EPAL is not represented in this figure / *Data: 2019*

Market Performance

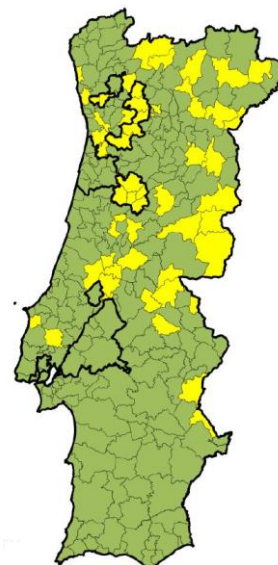
Water

The quality of service is improving yearly. However, costs are still higher than revenues in 55 percent of the water utilities (mostly municipal services)

Water Coverage (%)



Affordability

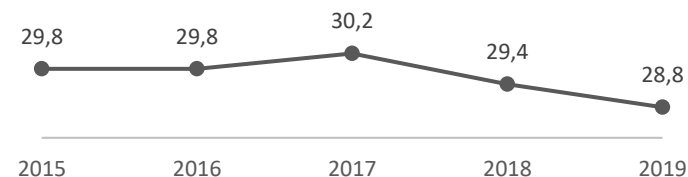


ERSAR Affordability Performance Indicator
Annual cost [%] of the average household income (*)

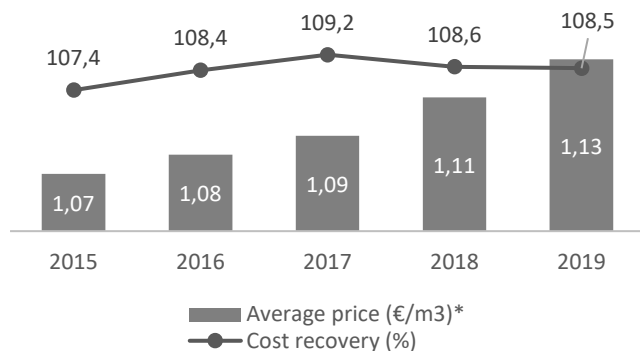
- Good < 0,5%
- Average]0,5;1,0]
- Unsatisfactory > 1,0%

Data: 2019

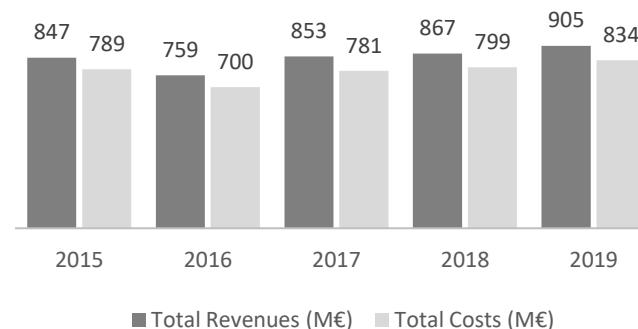
Non-revenue Water (%)



Price & Cost Recovery Ratio



Total Revenues and Total Costs (**)



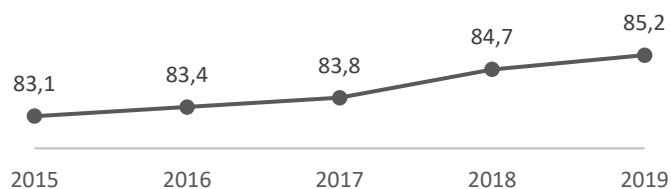
(*) For a consumption of 10m³ per month; (**) Assessed at retail level

Market Performance

Sanitation

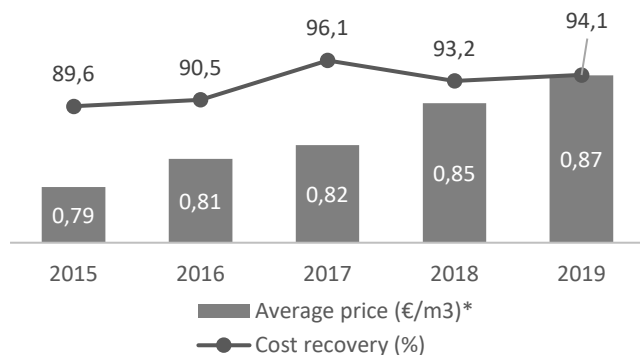
Similarly to water, the quality of sanitation services is improving yearly, but costs are still higher than revenues in 70 percent of the urban wastewater utilities (mostly municipal services)

Sanitation Coverage (%)



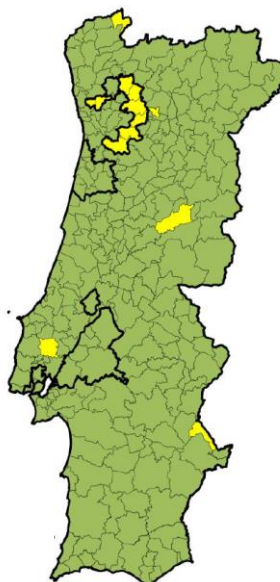
Defined as access to wastewater collection and treatment via public networks

Price & Cost Recovery Ratio



(*) For a consumption of 10m3 per month; (**) Assessed at retail level

Affordability

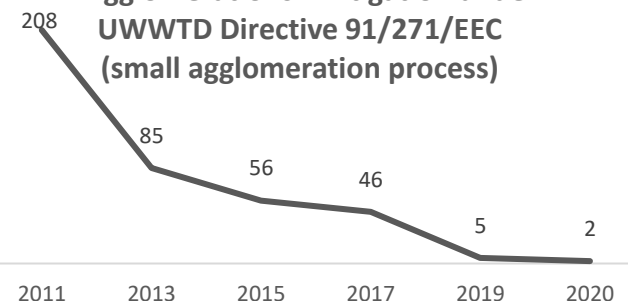


ERSAR Affordability Performance Indicator
Annual cost [%] of the average household income (*)

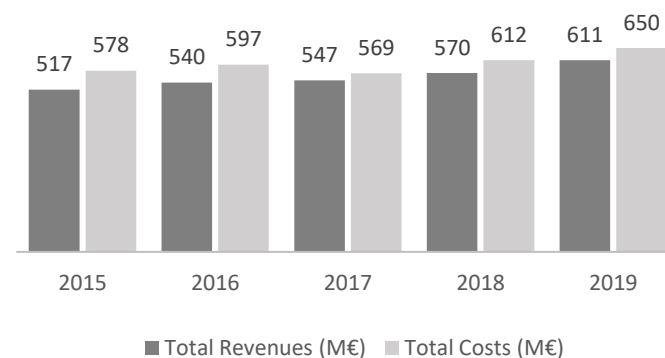
- Good < 0,5%
- Average]0,5;1,0]
- Unsatisfactory > 1,0%

Data: 2019

Agglomerations in litigation under UWWTD Directive 91/271/EEC (small agglomeration process)






Total Revenues and Total Costs (**)



Acronyms: UWWTD – Urban Wastewater Treatment Directive

The accumulated capital investment, for the 1993-2019 period, amounts to € 14,4 billion

Accumulated Capital Expenditure [1993-2019]

	Total:	M€ 14 353
	Annual average:	M€ 559
	Water:	M€ 7 607
	Sanitation:	M€ 6 746



Funding Sources [accumulated 1993-2019]

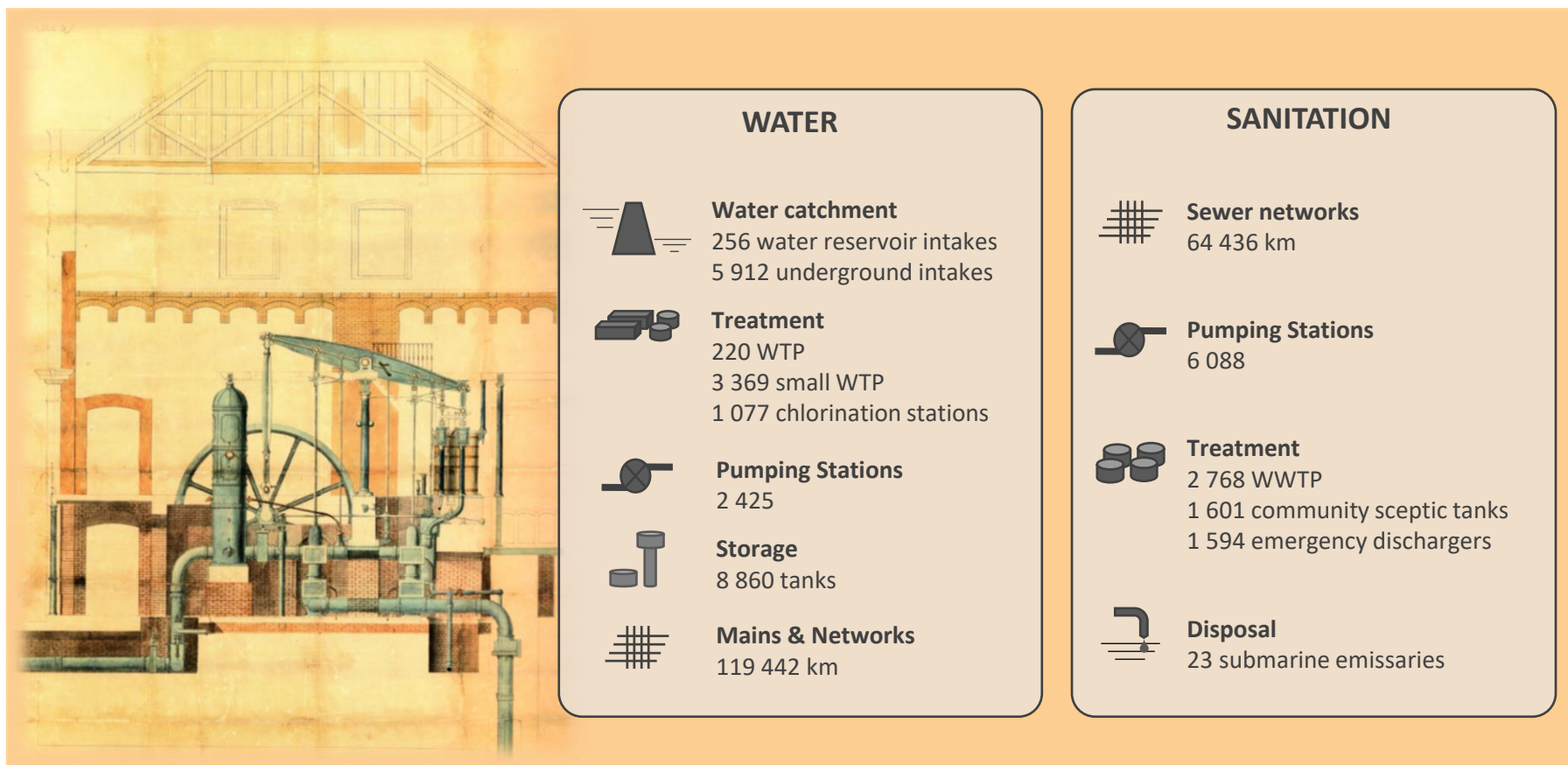
	European Union grants	M€ 6 260
	European Investment Bank	M€ 2 880
	Bonds – Private Placement	M€ 600
	PPPs	M€ 1 200
	Other ^(*)	M€ 3 413

(*) The remaining financial needs came from commercial loans, utilities self cash-flow and subsidies from taxes

Blended finance

The bulk systems were mostly financed through EU grants, EIB, commercial loans, private bonds and self cash-flow; the public retail systems were mostly financed through EU grants, commercial loans and subsidies from taxes (in the situations where there is no full cost recovery). Private concessions are mostly financed through commercial loans, private equity and self cash-flow.

Capital investment in bulk systems and in network extension is practically finished, and a significant part of the assets are within their lifetime limits. Nevertheless, the pace of renewal has been insufficient and strong investment is needed in the upcoming years



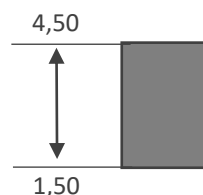
Acronyms: WTP – Water Treatment Plant; WWTP – Wastewater Treatment Plant | Data: 2019

Tariff setting is a municipal responsibility, but follows guidance by the national regulator

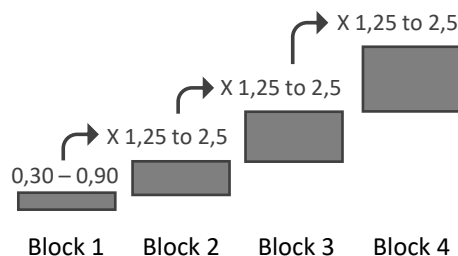
TARIFF LEVELS AND STRUCTURE

There is a wide variation in tariffs levels across the country, but the tariff structure usually includes a fixed charge and a volumetric charge based on an increasing block tariff. Since 2009, ERSAR's recommendation has been the following:

Fixed monthly charge [€]



Volumetric charge [€]

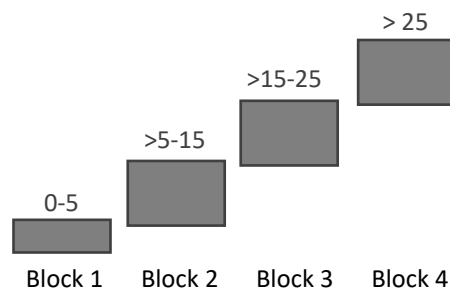


**Average price
to households
[10 m³/month]**

Water: 1,13 €/m³
Sanitation: 0,87 €/m³
Total: 2,00 €/m³

Data: 2019

Volumetric charge [m³]



SOCIAL TARIFFS

Establishing pro-poor tariffs is not mandatory for municipalities, although the majority already implemented them. There are many different schemes in force, and most of them are based on the following principles:

- Exemption or discount in the fixed tariff component
- The 2nd block of the volumetric tariff is charged at the price of the 1st block

Large families also benefit from discounts through adjustments the block ranges

Social tariffs are mostly financed by other utility customers (an cross-subsidy)

of municipalities with pro-poor tariffs in force

Water: 214
Sanitation: 202

Data: 2019

CONNECTION FEES

Connections are compulsory for water and wastewater if the public network is within 20 metres of the household

The ERSAR 2009 recommendation mentioned that connections up to 20 meters should be exempt of fees – a successful measure that promoted many connections. Since 2018 this became mandatory.

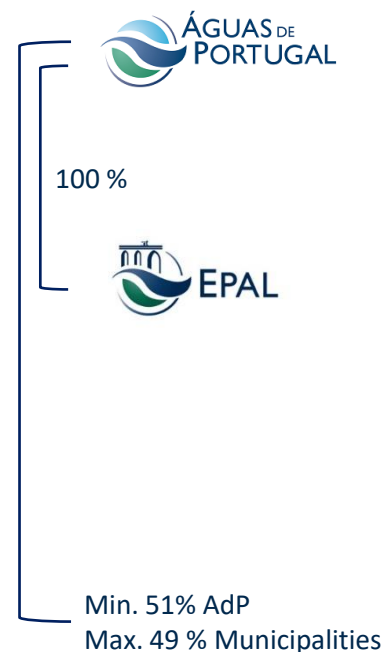
AdP is a State-Owned Enterprise held by the Ministry of Finance and overseen by the Ministry of Environment and Climate Action

AdP-Águas de Portugal was created in 1993 with a share capital subscribed through the incorporation of the existing Lisbon utility, EPAL. With more than 150 years (founded in 1868), EPAL supplies the greater Lisbon region and was already owned by the State (this is the only utility that does not belong to the municipalities due to historical reasons). EPAL provided financial capacity and skilled staff to the newly created AdP.

AdP is owned by the Ministry of Finance, through a public asset holding company (Parpublica) and the public bank (Caixa Geral de Depósitos).

The company's objective is to foster and promote universality, continuity and quality in water and waste services contributing, therefore, to the sustainability of the sector and the protection of environmental values.

The solution adopted to implement the multi-municipal systems involved the creation of regional public companies jointly held by AdP and Municipalities.

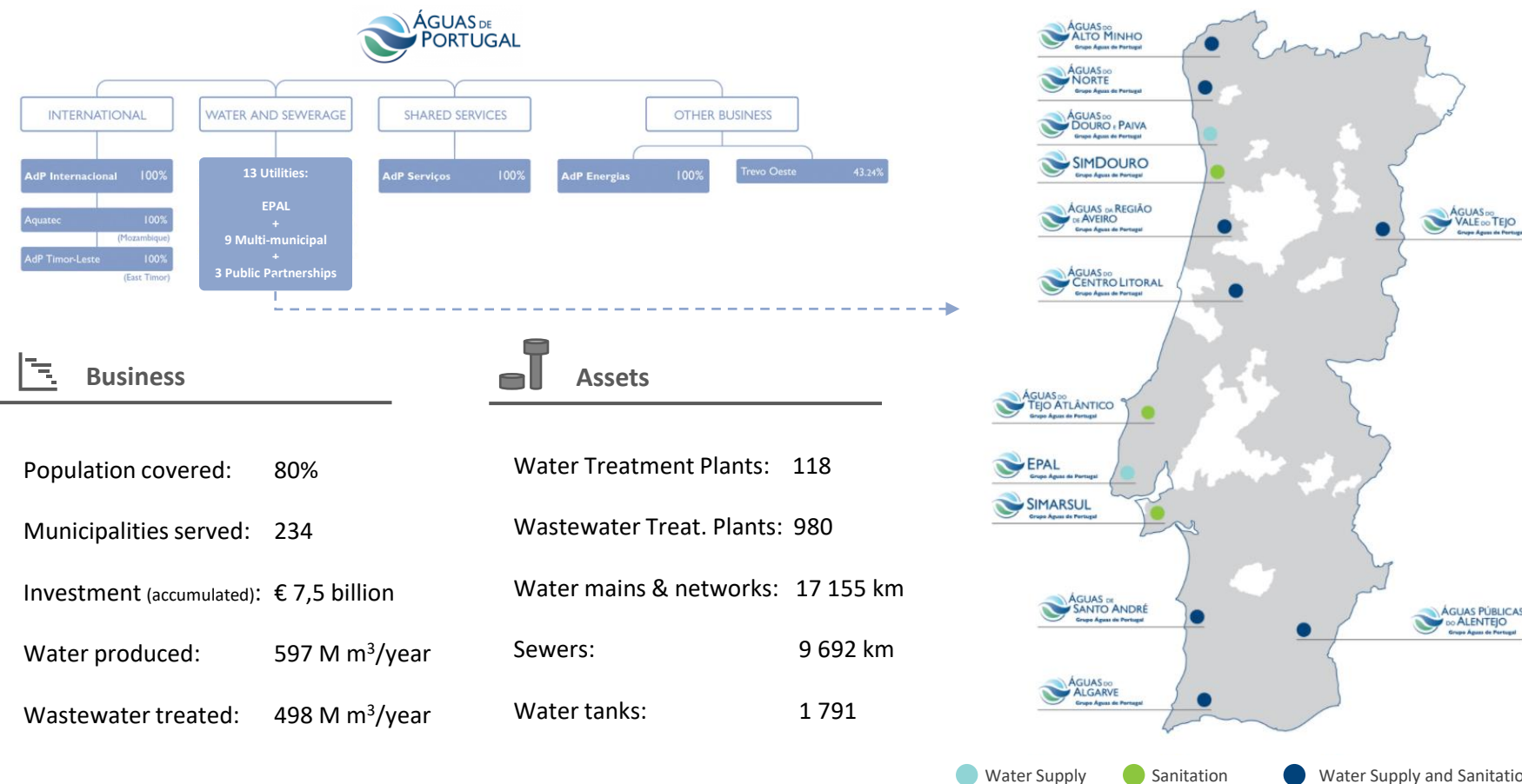


- AdP - Águas de Portugal is the holding company for 13 aggregated regional utilities
- Lisbon utility, EPAL was integrated in AdP. EPAL provided share capital, financial and technical capacity to leverage AdP
- Nine Multi-municipal systems created in large urban areas (1st generation) and afterwards in low density population regions (2nd generation), plus three public-public partnerships

AdP – Águas de Portugal

Key features

AdP is the country's largest player in WSS, being responsible for supplying bulk water treatment services to about 80 percent of the population through multi-municipal companies, public partnerships and EPAL



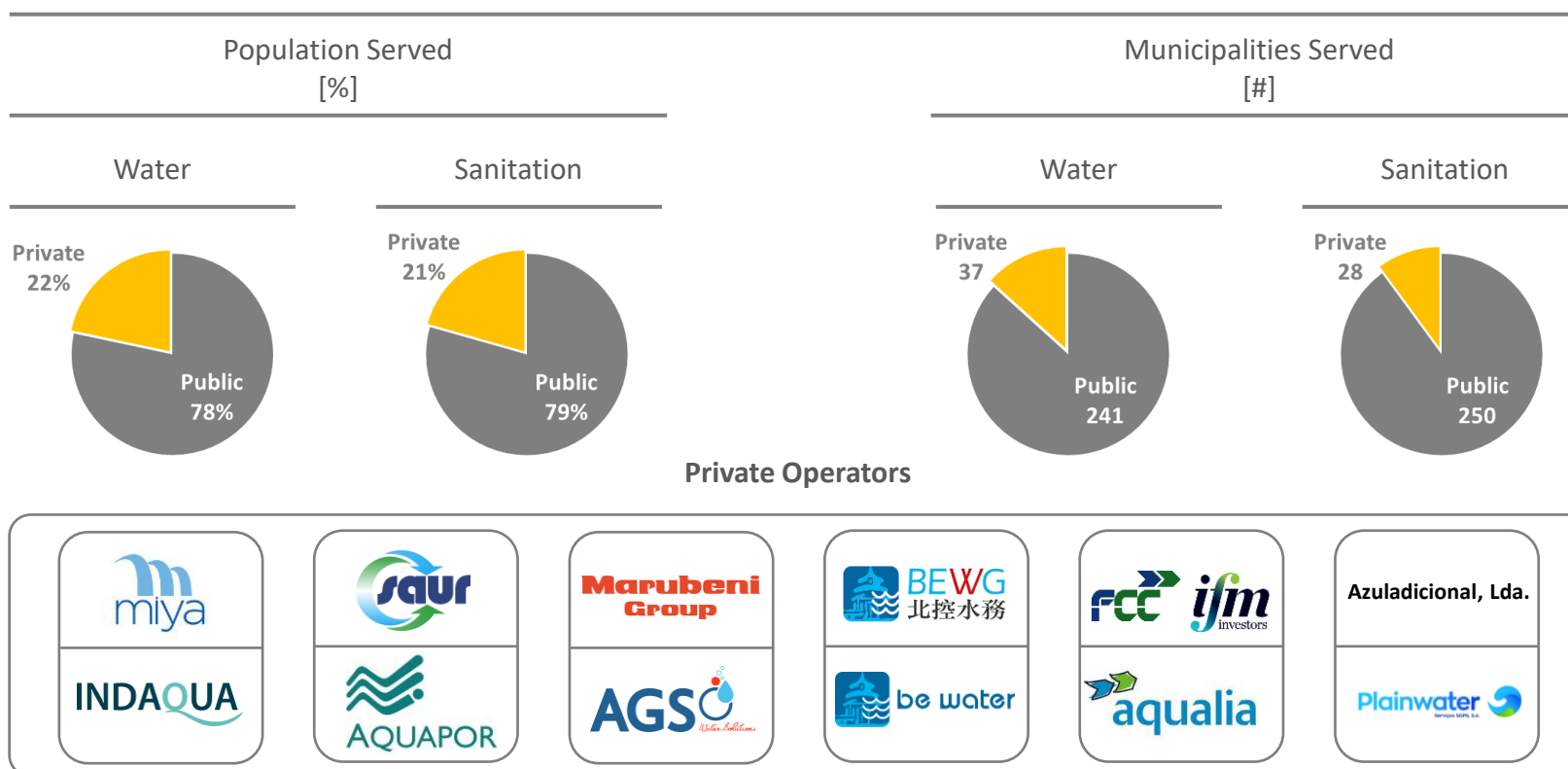
Acronyms: WSS – Water Supply and Sanitation | Data: 2019

Note: the white areas represent the 44 municipalities not served by AdP

Private Sector Participation

Six private operators are supplying water to 22% of the population in the Portuguese mainland

Private Market Share [retail services]



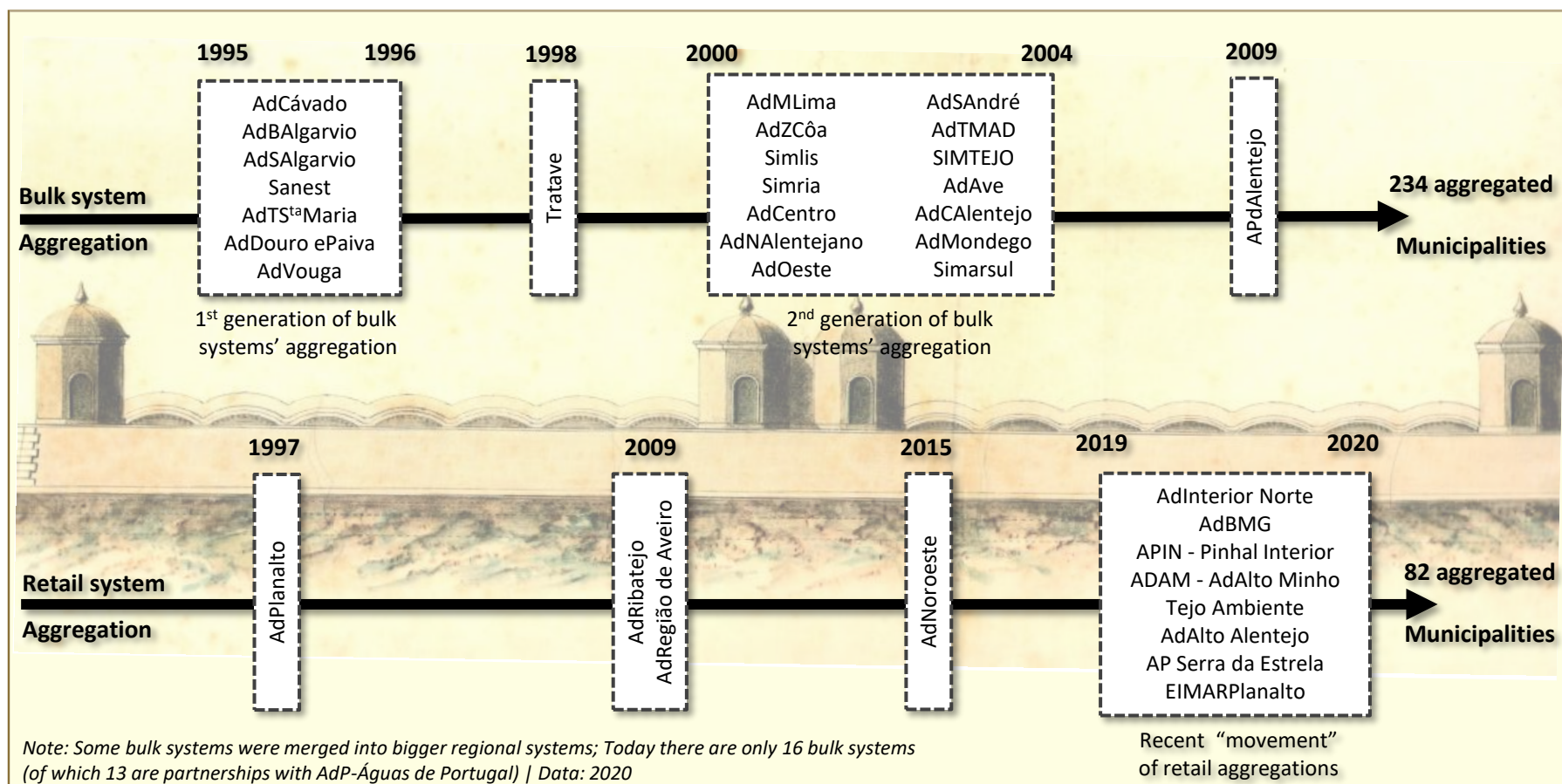
Shareholder

Operator

Notes: Population and municipalities served by retail services | Data: 2019 | Shareholders updated in March 2021

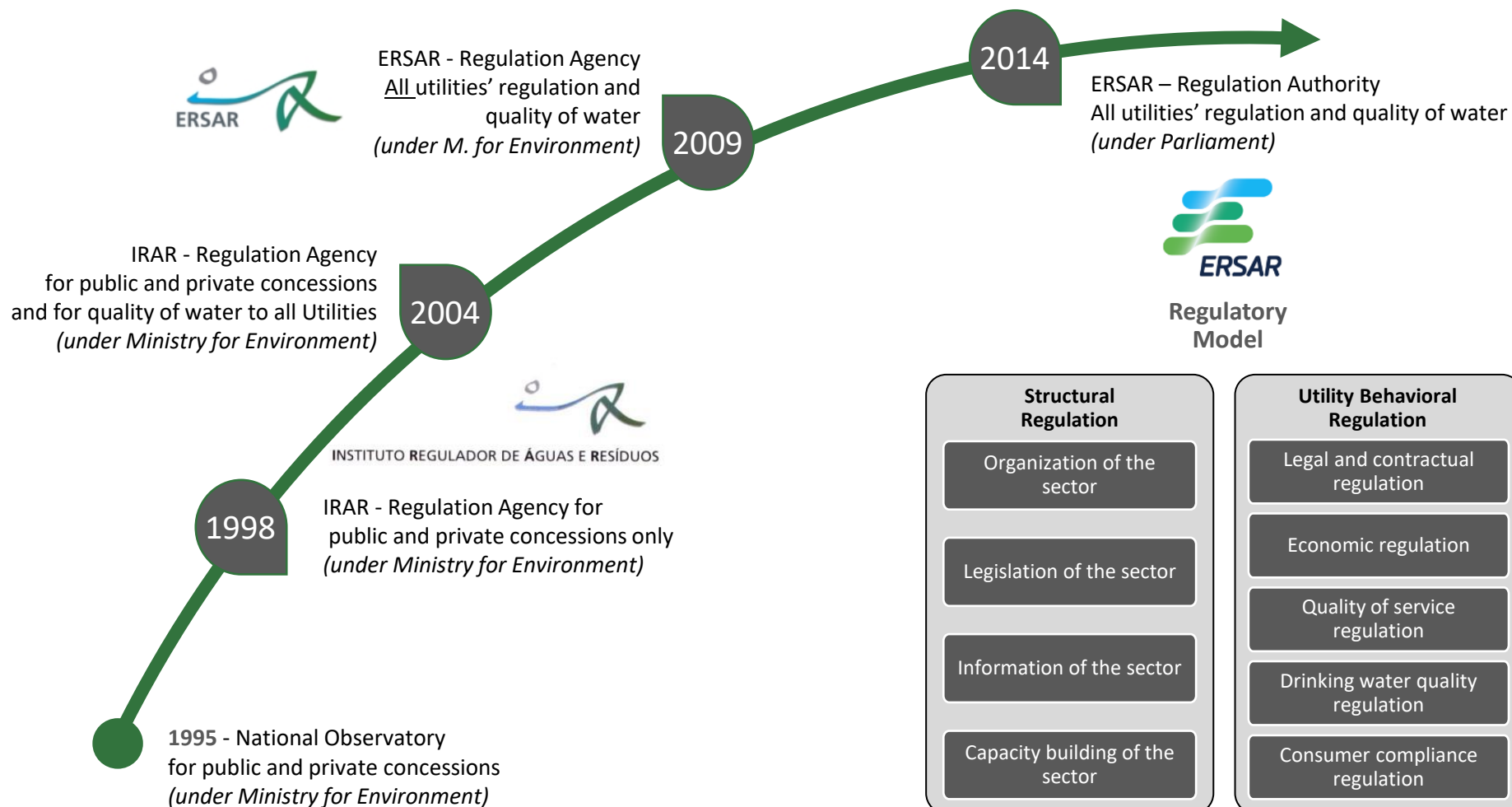
Aggregation of Utilities

Aggregation of bulk systems started in 1995, with the beginning of the reforms introduced in Portugal. Although a very limited number of retail systems' aggregations occurred in the past, a successful "movement" of aggregations kicked-off in 2019-2020



The Regulator

The regulator evolved from a mere Observatory to an autonomous and politically independent Authority



A new Strategic Plan is about to be approved

A new WSS strategic plan (PENSAARP 2030) will be approved soon, containing the objectives, measures and action plan for the next decade.

PENSAARP introduces for the first time the management of the rainwater systems through WSS utilities.

Some trends of PENSAARP include: circular economy (wastewater reuse, sludge valuation, reuse of treatment reagents, etc.); resilience and adaptation to climate change (energy self production, desalination, etc.); communication to improve service perceived-value by society; and utility modernization and digital transition.

Aggregation of Utilities: Will it keep happening?

The recent trend of retail aggregation may continue with the emergence of new companies. If financial incentives to aggregation are maintained, it is possible that this “movement” will re-shape the map of utilities in Portugal.

Investment should not slow down

According to PENSAARP, the investment planned for 2021-30 will maintain the average level of about 500 M€/year (mostly concentrated in the first half of this decade). It is expected that most of the investment will be channeled to rehabilitation.

The Recovery and Resilience Plan (PRR) and the Government Strategy 2030 present mitigation and recovery measures to promote economic growth after the Coronavirus pandemic crisis.

“Water management” is one of PRR components. Its main goal is to contribute to the integrated and circular management of the water resources in water scarcity situations, including investment in the south of Portugal in: desalination (65M€), reducing the water losses (35M€), wastewater reuse (23M€), and improving the capacity and resilience of water availability (55M€).

Mergers & Acquisitions: Will the trend continue?

In 2020, Miya Group was sold by Bridgepoint to Antin Infrastructure Partners (Defining Future Options advised Antin IP). Miya operates in Portugal through Indaqua (serving 600 k people). In the beginning of 2021, Aquapor (serving 1,3 million people), was sold to Saur.

Why is such a small country, with small size PPPs, so attractive? Basically, because the private operators became highly sophisticated and efficient, mainly due to the following reasons:

1. They operate under a stable legal and institutional framework, within EU directives and clear environmental rules;
2. They operate under public scrutiny, with consumers’ awareness and rights demanding high levels of quality;
3. They operate under strong competitive conditions (there are six existing players and more bidders trying to enter the market);
4. They operate under a mature Regulator.

We share knowledge, we don't keep it to ourselves

WHO WE ARE



Founded in 2015, DEFINING FUTURE OPTIONS, is a Portuguese investment, management and advisory company for the Water Sector.

DEFINING FUTURE OPTIONS has a distinct offer: expertise that covers international political and strategical experience, public and private utility management experience, and engineering and economics background in the Water Sector.

Our Team members have two decades of experience in Executive Management of Utilities and PPPs, including transforming inefficient water services into highly professional and efficient water services.

WHERE WE ARE



In Portugal, we have worked with 65 Municipalities, with the Regulator and with Public and Private Sector Companies.

We have developed market studies in more than 20 countries, in Europe, Africa and Americas

WHAT WE DO



- ✓ Advising Governments, Municipalities, Regulators and Public and Private Water Utilities
- ✓ Establishing and reforming Water and Sanitation Utilities
- ✓ Advising PPP programs, procurement, bids, contract negotiations and transition phase
- ✓ Managing relationships and negotiations with Governments, Municipalities, Regulators, Private Operators, banks and non-governmental organizations
- ✓ Performing due diligence and developing strategies for risk allocation and investment valuation
- ✓ Staffing plans, capacity building and training

SOURCES USED TO PRODUCE THIS DOCUMENT

AdP – Águas de Portugal (www.adp.pt)

AEPSA – Associação das Empresas Portuguesas do Setor do Ambiente (www.aepsa.pt)

APA – Agência Portuguesa do Ambiente (www.apambiente.pt)

EIB – European Investment Bank (www.eib.org)

ERSAR – Entidade Reguladora dos Serviços de Águas e Resíduos (www.ersar.pt)

Grupo de Apoio à Gestão do PENSAAR 2020 (www.apambiente.pt)

INE, Instituto Nacional de Estatística (www.ine.pt)

Portal do Clima, (www.portaldoclima.pt)

POSEUR, (www.poseur.portugal2020.pt)

XXII Government – Portuguese Republic, (www.portugal.gov.pt)

PENSAARP 2030 public presentation, 15ª Expo Conferência da Água, 24-25 November, 2020

All analysis by Defining Future Options (www.definingfutureoptions.com)

IMAGE CREDITS

Cover: Manoel Pimentel, “Arte de Navegar, (...)”, Tipografia de Antonio Rodrigues Galhardo, 1819

Pg. 2, 9, 10 & 15: Images kindly provided by EPAL – Museu da Água – Centro de Documentação Histórica e Técnica

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