

Navigating Water Loss & Enhancing Resilience in Croatia

Final Conference for the Technical Assistance Project to reduce water losses in the water supply network of Croatia

Water sector development and approaches on NRW reduction in Portugal

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Defining Future Options

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Performance Based Contracts



Ancient water tank, "Mãe d'Água", EPAL, Lisbon

Portuguese water sector background

Portugal presented a challenging baseline back in 1992



1992 KEY INDICATORS

- Water network coverage: < 82%
- Drinking water quality: < 50%
- Wastewater network coverage: < 60%
- Wastewater treatment: < 28%
- Coastal bathing waters quality: < 70%
- Inland bathing waters quality: < 30%

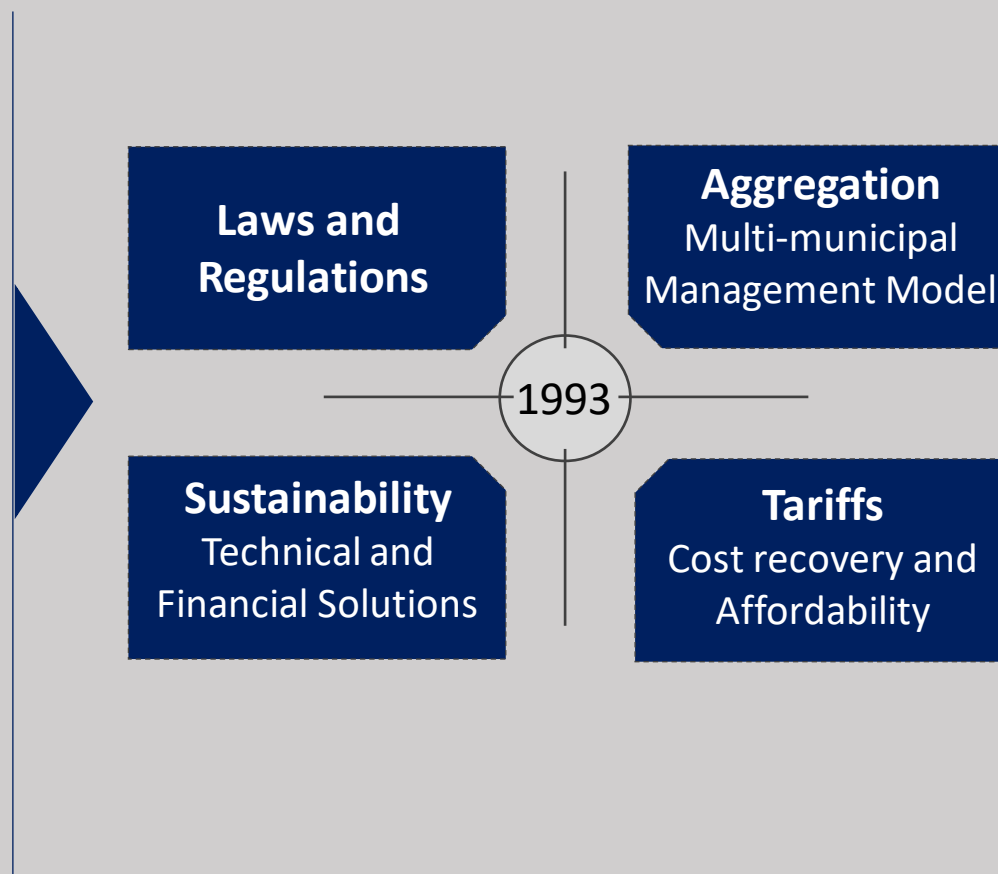
Source: ERSAR

- Portugal entered in the EEC/EU in 1986
- Up to 1992, Portugal was facing little improvement in the water and sanitation
- Municipalities were exclusively responsible for water and sanitation systems, and their capacity to invest was very limited
- Funds from EU were being directed to local, detached solutions, without national coherence
- Negotiations with the EU triggered the structural reforms introduced in Portugal

Portuguese water sector background

Portugal undertook legal, institutional and organizational reforms starting in 1993-1995

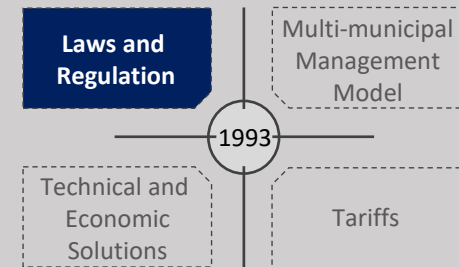
- Legal reforms
- Creation of a National Regulator
- Establishment of a National Water Company for “bulk” WSS (Águas de Portugal), and...
- ...Aggregation through regional “bulk” water companies (100% public)
- Support from EU and EIB
- Cost recovery policy
- Incentive to private sector participation



Portuguese water sector background

Legal reforms encouraged a true water industry with the required investment capacity

- ◇ Until 1993 local authorities were exclusively responsible for water and sanitation systems.
- ◇ In 1993, two distinct concession models were created:
 - ◇ **Public** multi-municipal systems between Government (51%) and Municipalities (49%);
 - ◇ **Private** concessions through international public tender promoted by the municipalities.

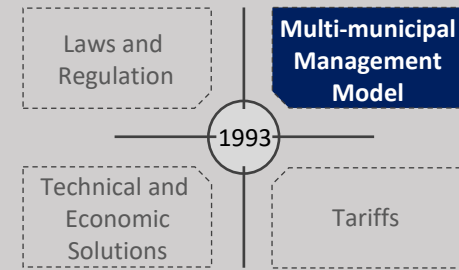


- Adequate management of water resources
- Professionalism of the water market
- Acceleration of the rate of capital investment
- Access to private capital

Portuguese water sector background

Aggregation of bulk water and wastewater systems allowed to accelerate investment

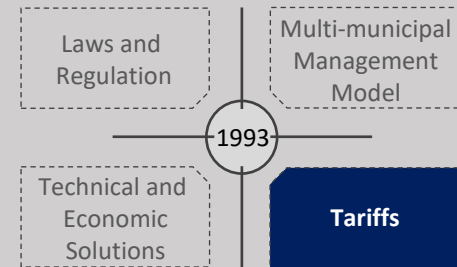
- ◇ Large scale systems;
100% public concessions from 20 to 50 years
- ◇ Responsible for “bulk” services:
 - ◇ **Water treatment and supply to municipalities**
 - ◇ **Wastewater collection and treatment**
- ◇ Responsible for the design, construction, maintenance and operation of the systems.
- ◇ Downstream, municipalities still manage (or grant in private concession) the distribution networks to consumers and also sewerage networks (“retail” service).



- Municipalities are simultaneously shareholders and clients of the multi-municipal companies;
- European Union “Cohesion Funds” supporting capital investment up to 85%

Portuguese water sector background

Each utility has its own tariffs scheme. Usually, tariffs include fixed and volumetric block charges



- ◇ Tariff to be charged to consumer include:
 - ◇ **Multi-municipal tariff**
 - ◇ **Water distribution and sewerage collection tariff**
- ◇ Multi-municipal systems practice “full cost recovery”, assuring sustainability and efficient asset management;
- ◇ **Municipalities are responsible to fix consumer’s tariffs and may subsidize service** to practice lower tariffs although “full cost recovery” is encouraged;
- ◇ **Social Tariffs** are in force in 70% of the municipalities

TARIFFS ENSURE AFFORDABILITY

WATER TARIFF (€)

Average Multi-municipal Tariff	0,56
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Average Tariff to Consumers	1,14
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SANITATION TARIFF (€)

Average Multi-municipal Tariff	0,54
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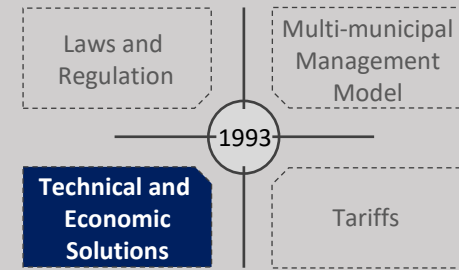
Average Tariff to Consumers	0,90
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Source: ERSAR, RASARP, Data: 2021

Portuguese water sector background

Long term, resilient infrastructure Full compliance with UWWTD and DWD

- ◇ Master Plans to large urban areas:
 - ◇ **Oporto and Algarve: raw water reservoirs , WTP, strategic treated water tanks;**
 - ◇ **Estoril and Aveiro: Sewer main ring and WWTP.**
- ◇ “Second generation” of multi-municipal systems to less populated regions;
- ◇ National Strategic Plans approved each 7 years;



- Capacity to enlarge systems
- High degree of automation
- Careful selection of materials in terms of quality and price



Financial support from European Union and European Investment Bank.

Portuguese water sector background

The tremendous task ahead required planning, stakeholders' alignment and sound application of resources; A WSS national strategic plan was necessary

**PEAASAR
2000-2006**

- Focus on Capital Investment on 1st generation Multi-municipal Systems

**PEAASAR
2007-2013**

- Focus on Capital Investment on 2nd generation Multi-municipal Systems
- Merging municipal systems to improve sustainability

**PENSAAR
2014-2020**




- Focus on efficiency
- Merging municipal systems to improve sustainability

- Since 2000, National Strategic Plans are approved each 7 years
- Naturally, each plan was improved with the experience of the previous one
- The establishment of sequential strategic plans resulted on a constant improvement of the WSS sector

Portuguese water sector background

Strategic Plans and the national utility Águas de Portugal led to “creditworthiness”
Significant investment was made in the form of true blended finance

Accumulated Capital Expenditure [1993-2020]

	Total:	M€ 14 718
	Annual average:	M€ 545
	Water:	M€ 7 775
	Sanitation:	M€ 6 943

Funding Sources [accumulated 1993-2020]

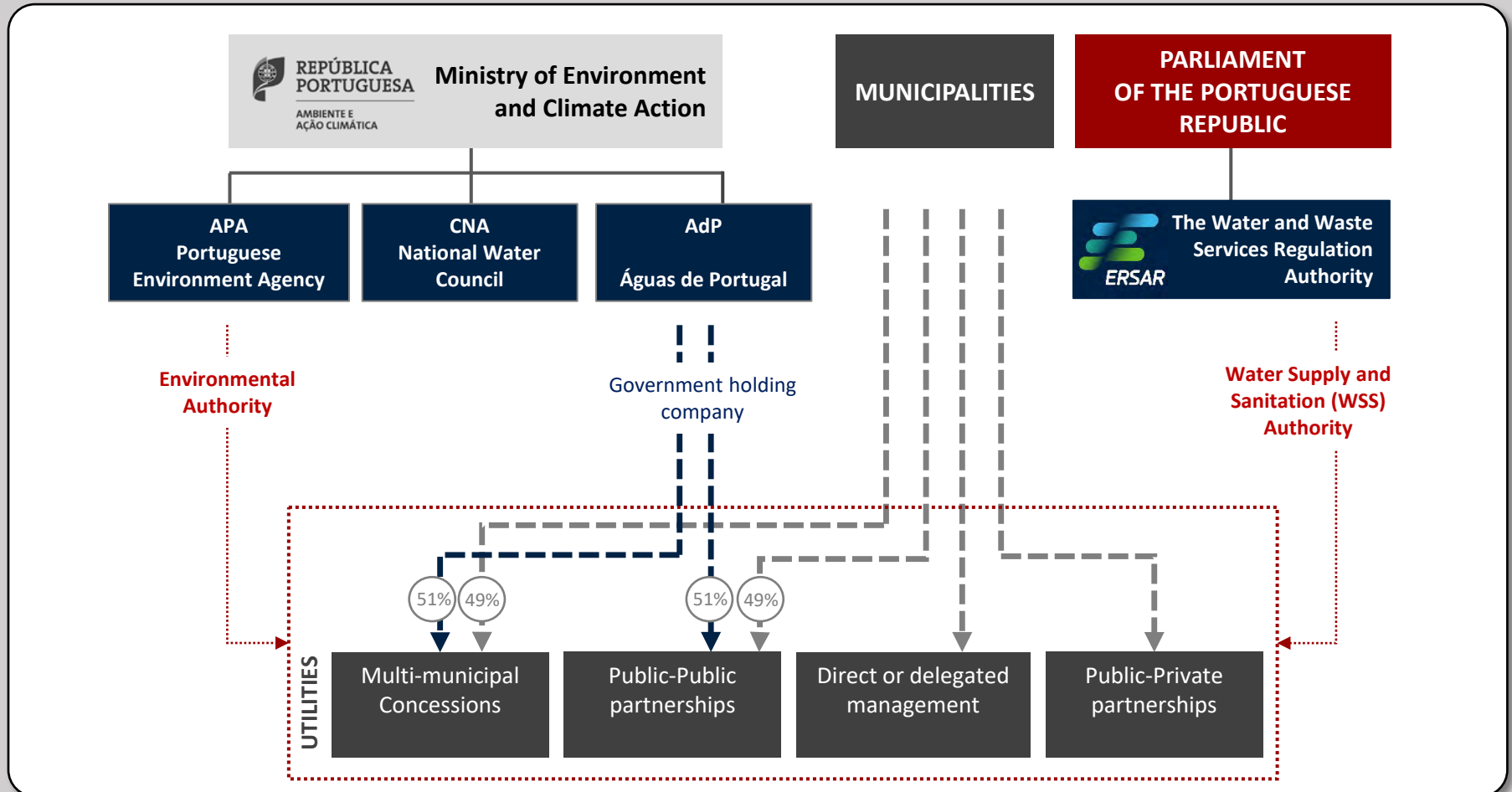
	European Union grants	M€ 6 520
	European Investment Bank	M€ 2 880
	PPPs	M€ 1 200
	Bonds – Private Placement	M€ 600
	Other (*)	M€ 3 518

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

Sources: ERSAR, RASARP; GAG PENSAARP 2020;
POSEUR, CUA; Defining Future Options
Data: 2020

Water sector organization

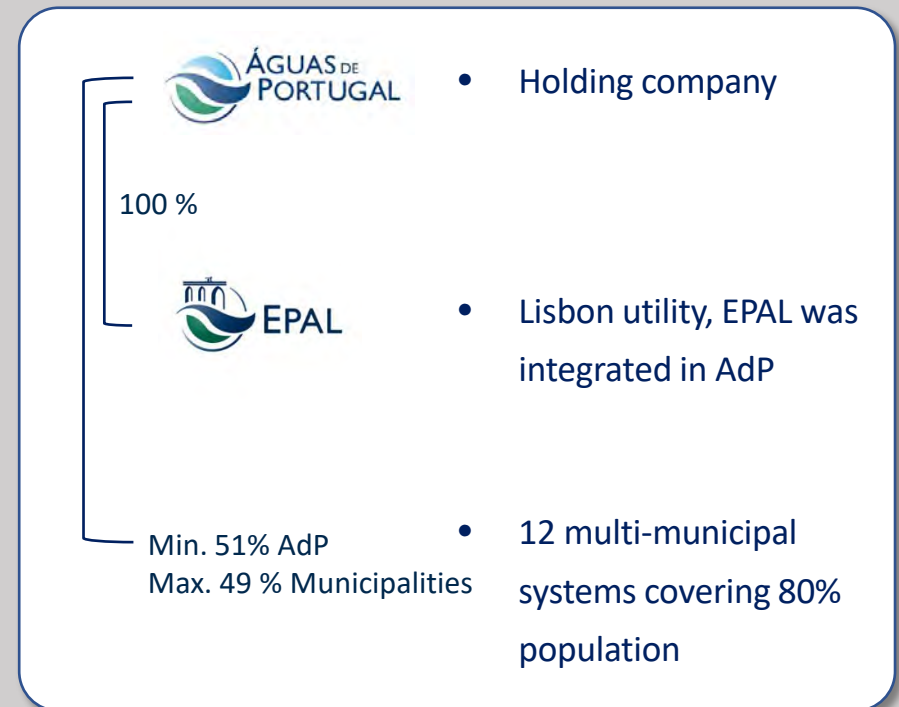
In Portugal, Municipalities are responsible for the provision of water and wastewater services. They can voluntarily choose their management model



The state-owned utility AdP-Águas de Portugal

A state-owned company, AdP-Águas de Portugal, is responsible for water and wastewater treatment (“bulk systems”)

- Multi-municipal management model between AdP (51%) and the municipalities (49%)
- Municipalities are simultaneously shareholders and clients of the multi-municipal companies
- Large scale systems: 100% public concessions from 20 to 50 years
- Responsible for the design, build, finance, maintenance and operation of the systems (DBFOT)

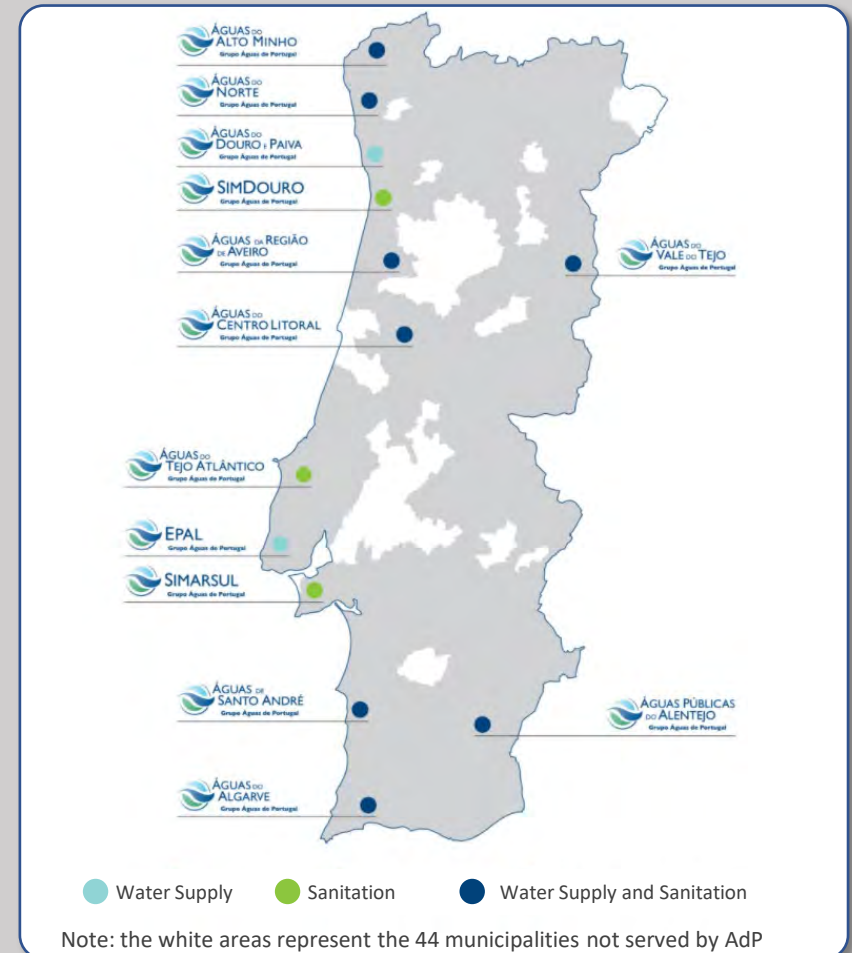


Downstream, municipalities still manage (or grant in private concession) the distribution networks to consumers and sewerage networks (“retail” service)

The state-owned utility AdP-Águas de Portugal

**Municipalities' participation in the aggregated bulk systems is volunteer.
80% of the municipalities are partnering with AdP-Águas de Portugal**

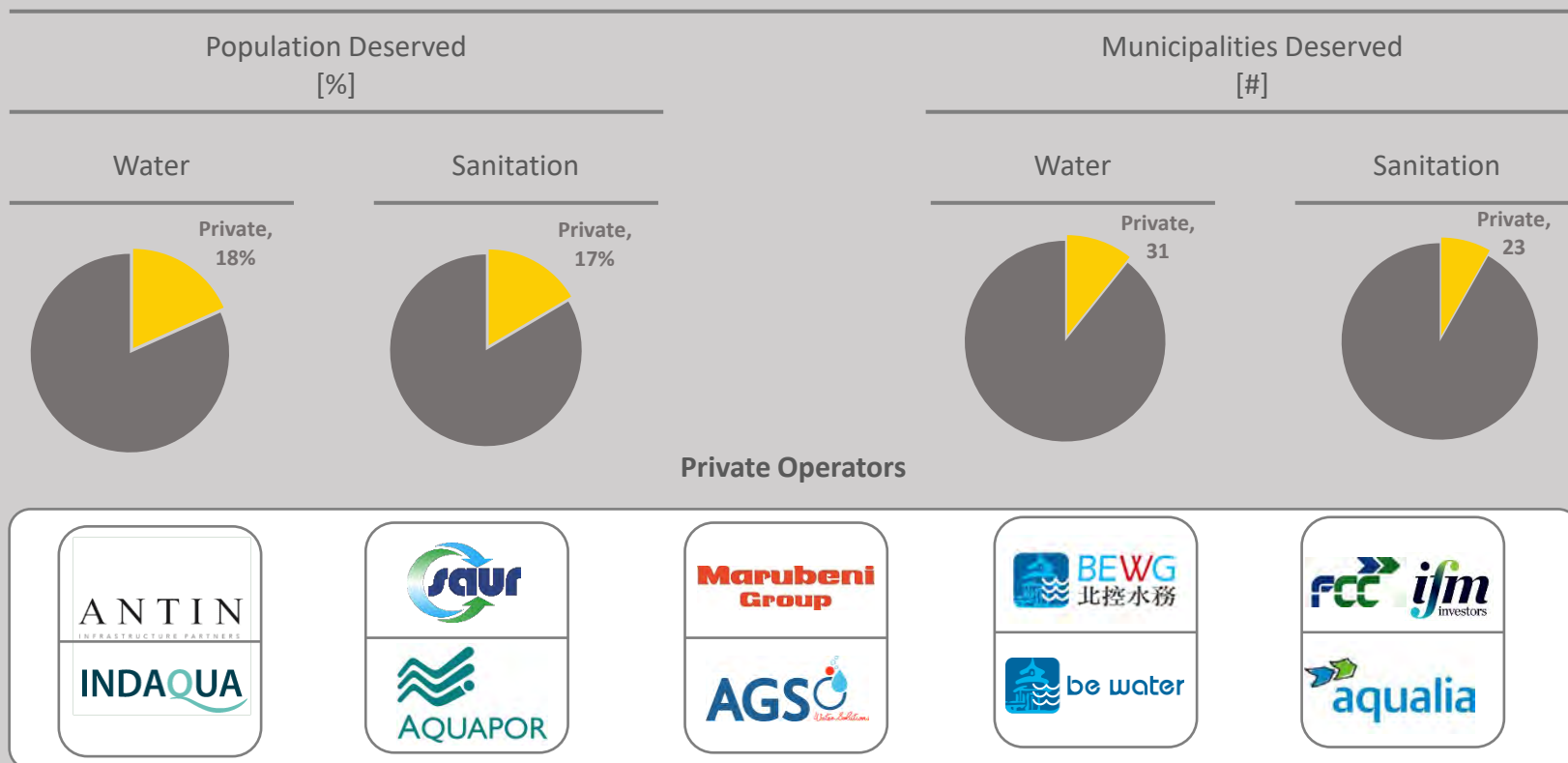
- AdP-Águas de Portugal financed 100% of the assets while:
 - (1) managing properly the water resources;
 - (2) ensuring financial and operational sustainability with full cost recovery tariffs;
 - (3) introducing skilled professionals in management and operation and;
 - (4) taking the “burden” of financing, building and operating WTP/WWTP out of municipalities



Private participation in the water sector

Five private operators supply water and treat wastewater for 18% of continental population

Private Market Share [retail services, 2021]

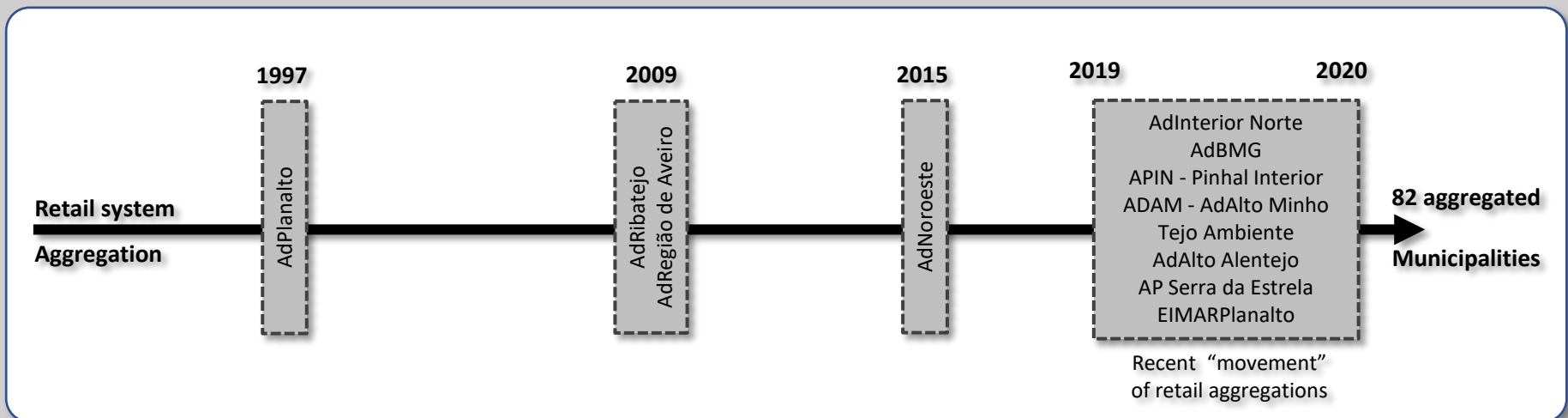


Source: ERSAR – RASARP 2022, Vol 1

Aggregation of the distribution systems

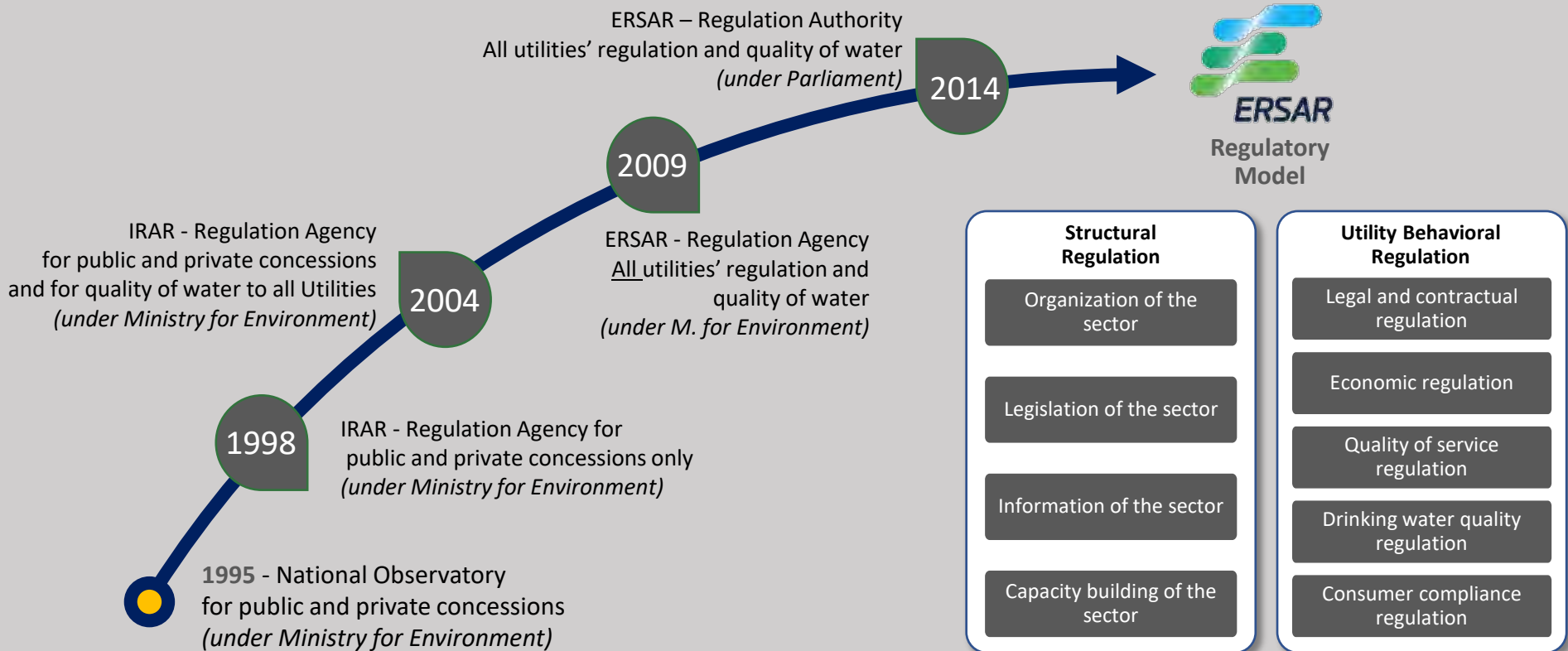
82 Municipalities (of 278) choose to aggregate their systems into 12 regional utilities

- Although a very limited number of retail systems' aggregations occurred in the past, a successful "movement" of aggregations kicked-off in 2019-2020
- This was largely possible due to an incentive scheme made available to municipalities



Regulation

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



The regulator introduces confidence in investors, operators and customers

Lessons Learned

- Legal, institutional and organizational **reforms** are needed to introduce governance trustworthiness and creditworthiness
- A sound **Strategic Plan** allows to align stakeholders, and focus on priorities
- **Aggregation of “bulk” services**, through a national water utility, accelerate compliance with the EU directives (UWWTD and DWD)
- **Aggregation of “retail” services**, is possible if the right incentives and enforcement are in place
- A **strong Regulator**, introduces transparency, professional culture and a path to “full cost recovery” policies
- A positive evolution on moving to **full cost recovery** is possible with an effective institutional framework and strategic planning, without compromising affordability

Brief overview of the
Portuguese water sector

National KPI's

The Case for NRW

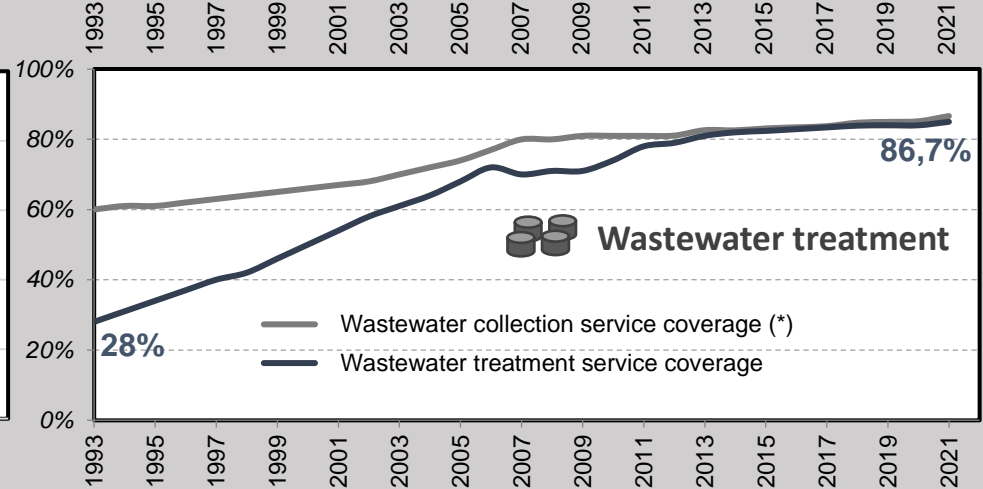
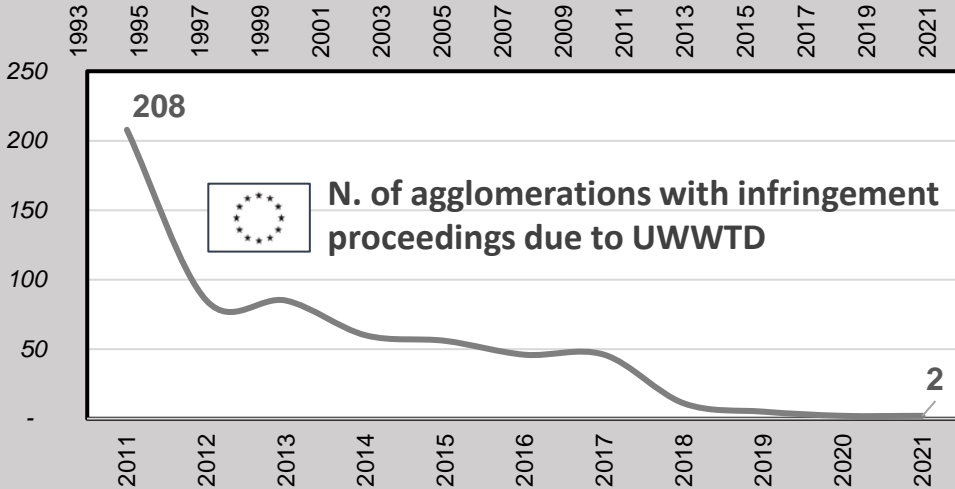
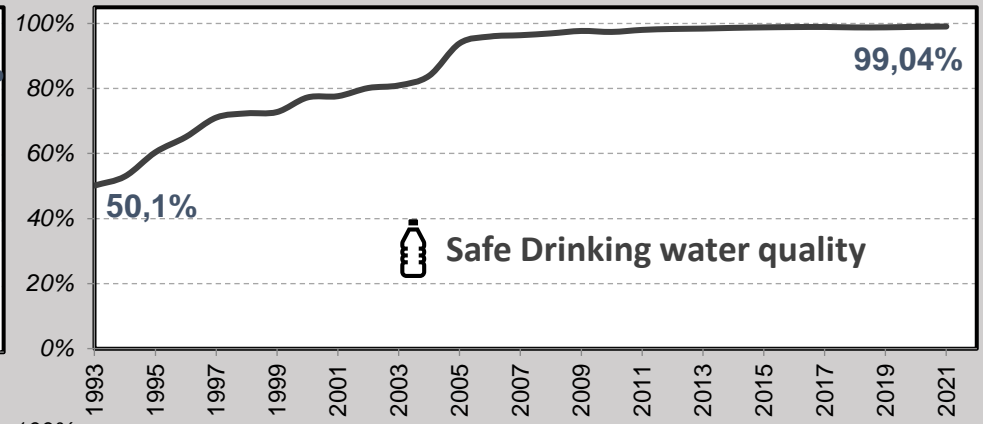
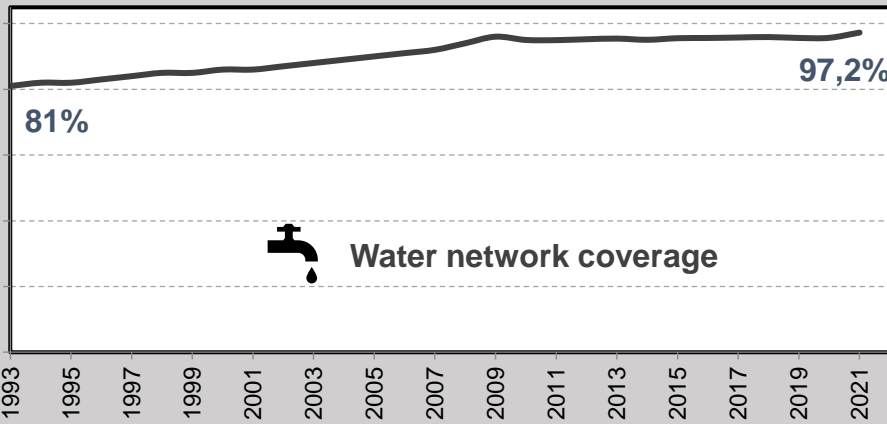
Performance Based Contracts



Ancient pumping station, Museu da Água, EPAL, Lisbon
Photo: Américo Simas

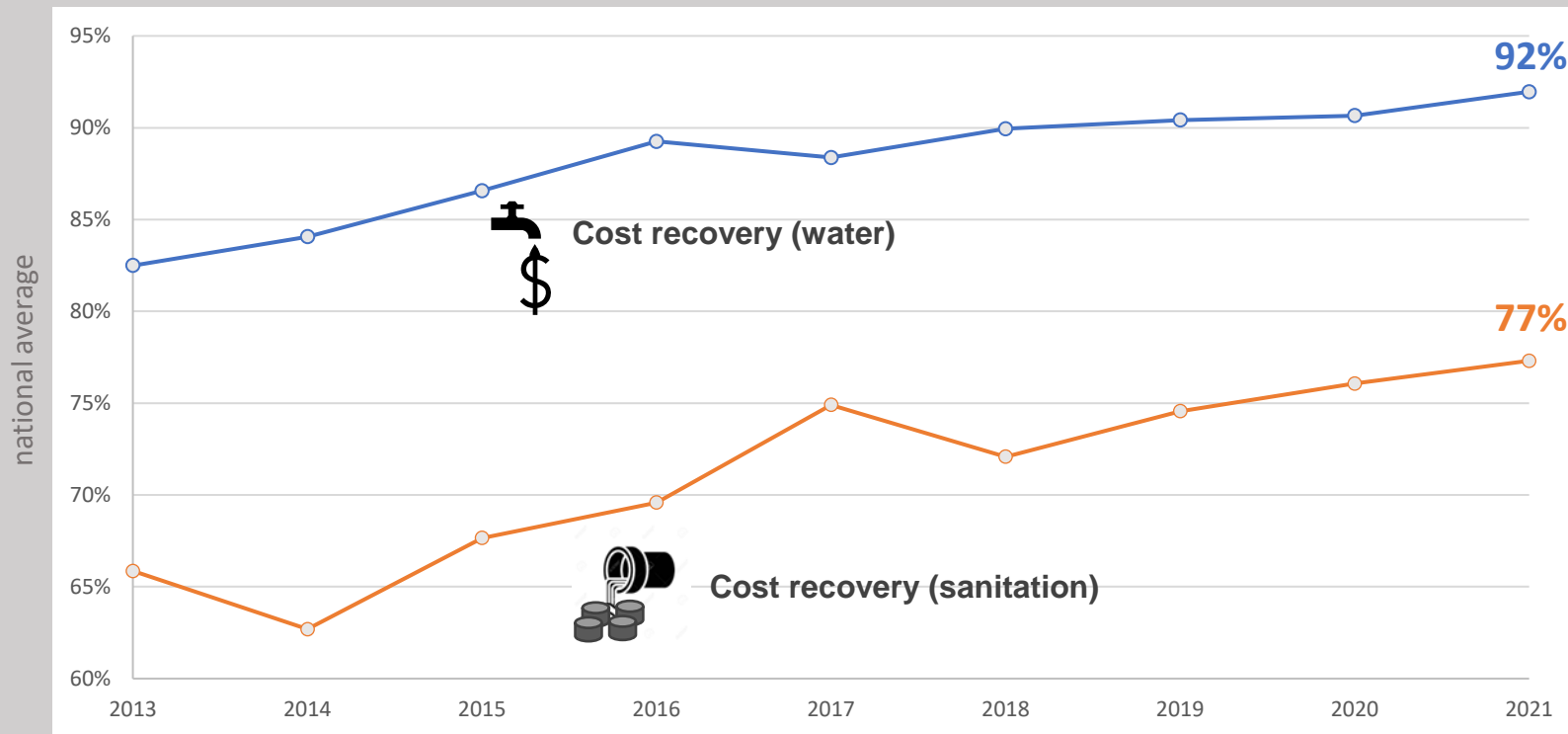
The Portuguese WSS evolution

As result, the Portuguese WSS revealed impressive improvement



The Portuguese WSS evolution

And utilities' economic performance has been gaining momentum



... BUT WE ARE NOT THERE YET

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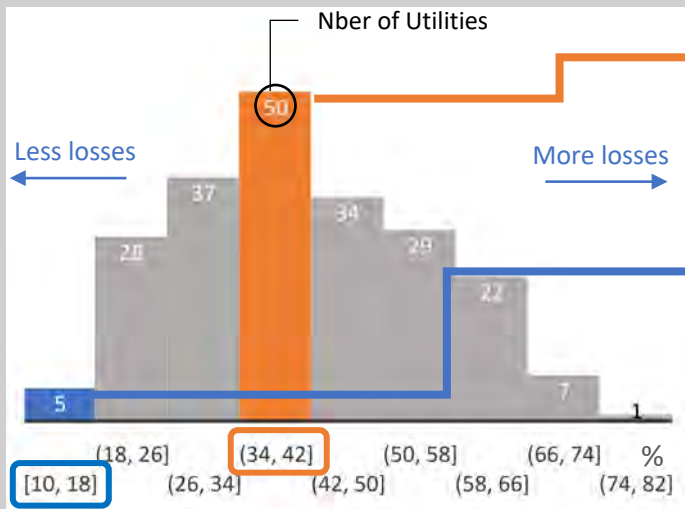


Ancient standpost, Torres Vedras;
Photo: Victor Oliveira

Portugal stalled on NRW reduction

Around 50% of utilities still have more than 1/3 of their water unbilled

2011



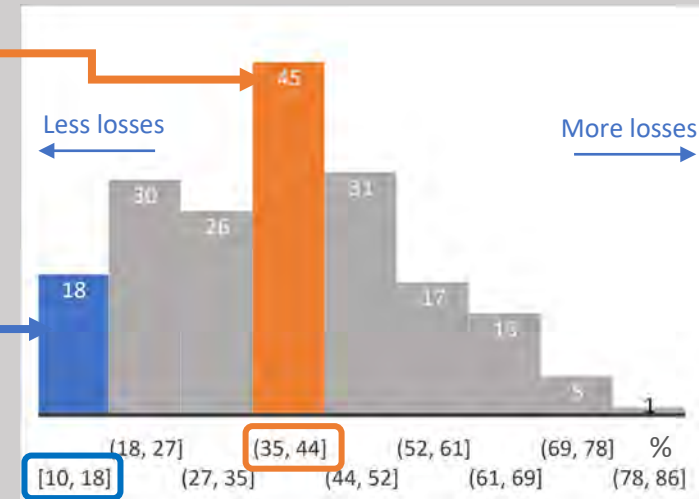
General Stallment

Most utilities still have between 34% and 44% of NRW

Niche improvement

3,5 times more utilities than in 2011 now have less than 18% NRW

2021



Why is so difficult?

You need a long-term plan

Strategic Plan

Actions
Timeline
Investments
KPIs

**Active Leakage
control and repair**

**Design and
construction of
DMA**

**Pressure
Management**

**Meter
Management**

**Detection and
remedy of illicit
consumption**

Monitor and Train

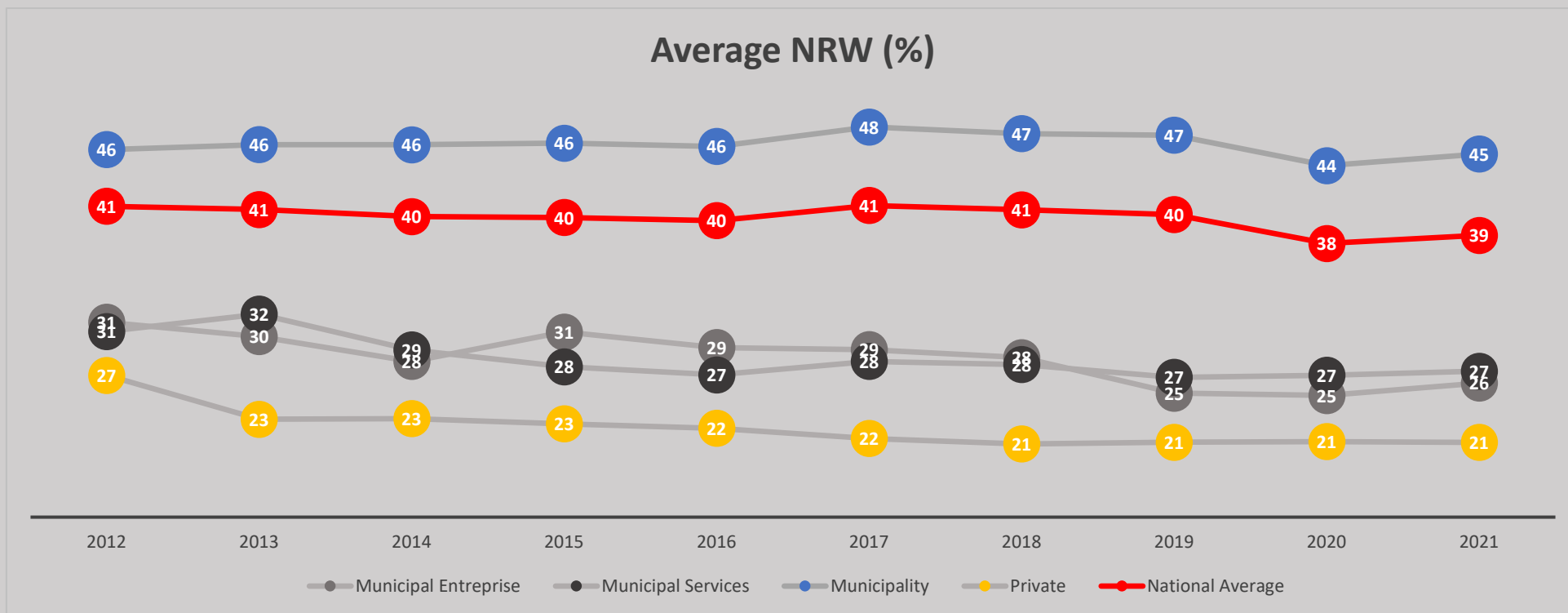
Network renovation

and to stick to it!

Digging deeper

Municipalities are, by far, the worst performers

Practically no gains since 2012



The competitive disadvantages of Public Sector



**BUROCRATIC
PROCUREMENT**



**DIFICULT TO
IMPLEMENT
INCENTIVES**



**NO ALOCATION OF
BUDGET ACROSS
DEPARTMENTS**



**ADMINISTRATIVE
IMPOSED BUDGET
RESTRICTIONS**

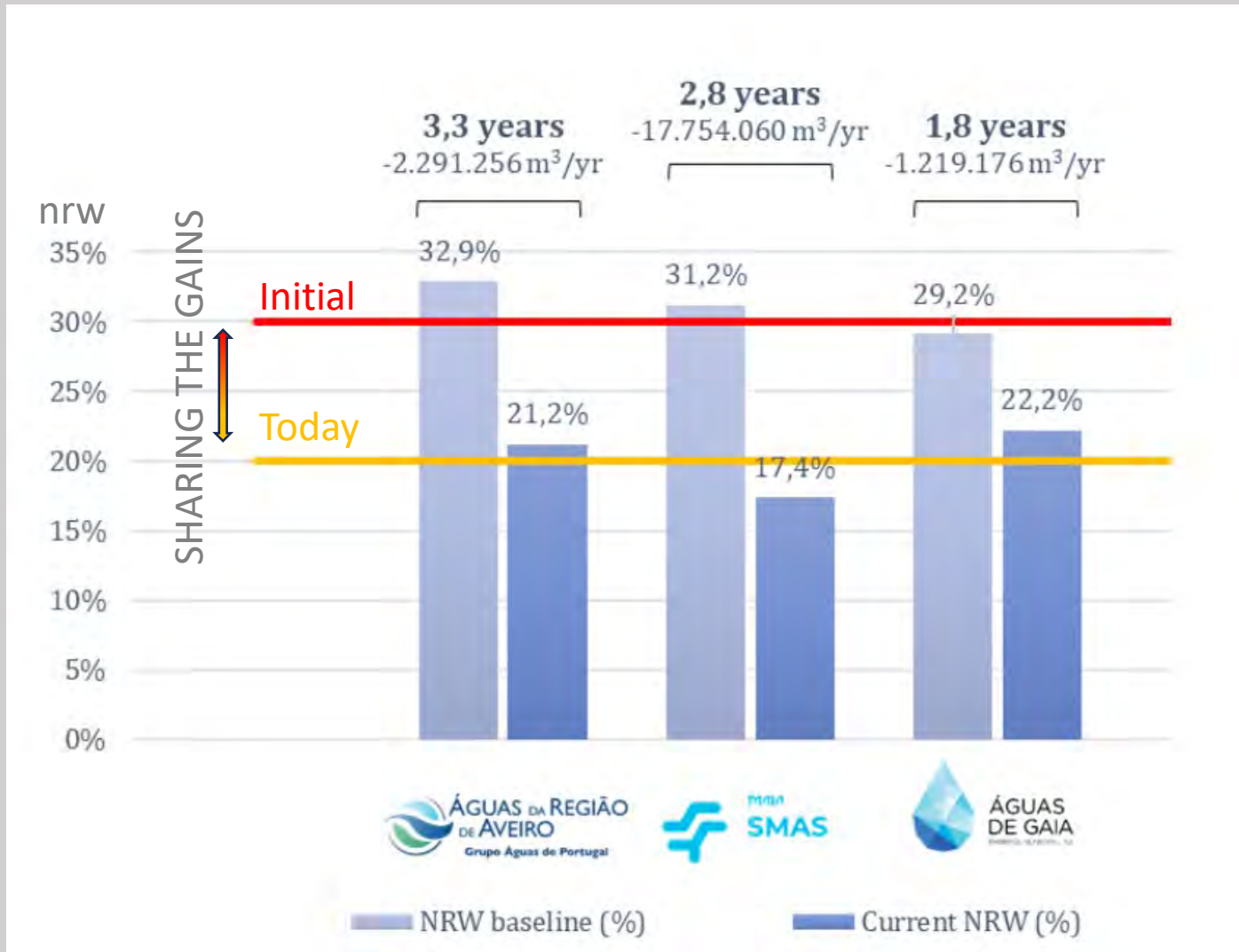
Low speed
Constrained choices
Often the lowest bidder wins
(despite low quality)

Low labor efficiency

No Colaboration

No Money,
(despite sound financials)

Performance Based Contracts: private approach to public incentives



To put in place a proper PBC

Robust Baseline:

- reliable water balance
- proper cost accounting

Criterious definition of ZMAs

- High losses
- High production costs
- Existing infrastructure

Good estimation of cash-flows

- Share of gains
- Project duration
- Efficiency guaranties

Scope Definition (who will do what)

- Investments
- Operation
- Side services (billing...)

Governance

- Clear reporting flow
- Information content
- Share of responsibilities

Monitoring

- KPIs
- Penalties and bonnus
- Terms for extension

Contacts



DEFINING
FUTURE
OPTIONS

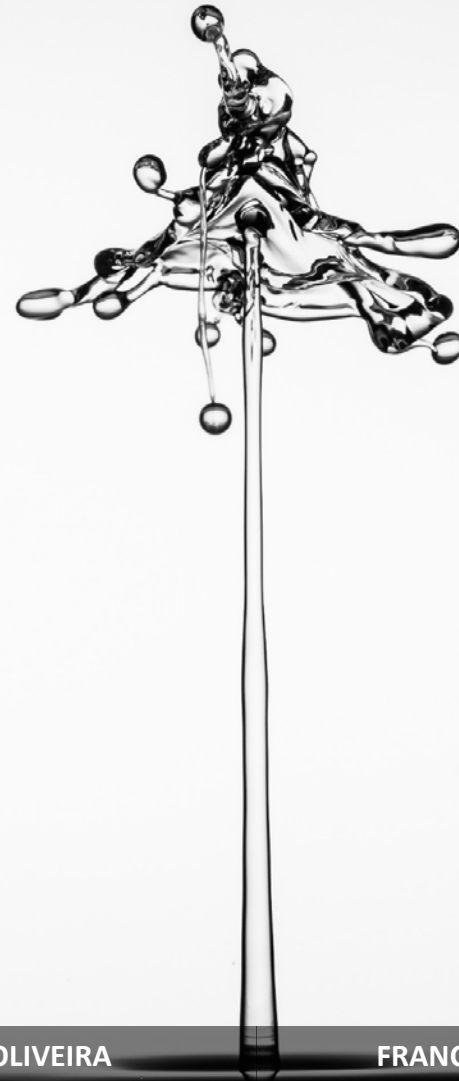
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