


# Public policies and regulation of water services

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Water and Waste Services Regulation Authority (ERSAR), Portugal

ANEAS Convention, 11.11.2014, Mérida



Entidade Reguladora dos Serviços de Águas e Resíduos  
The Water and Waste Services Regulation Authority

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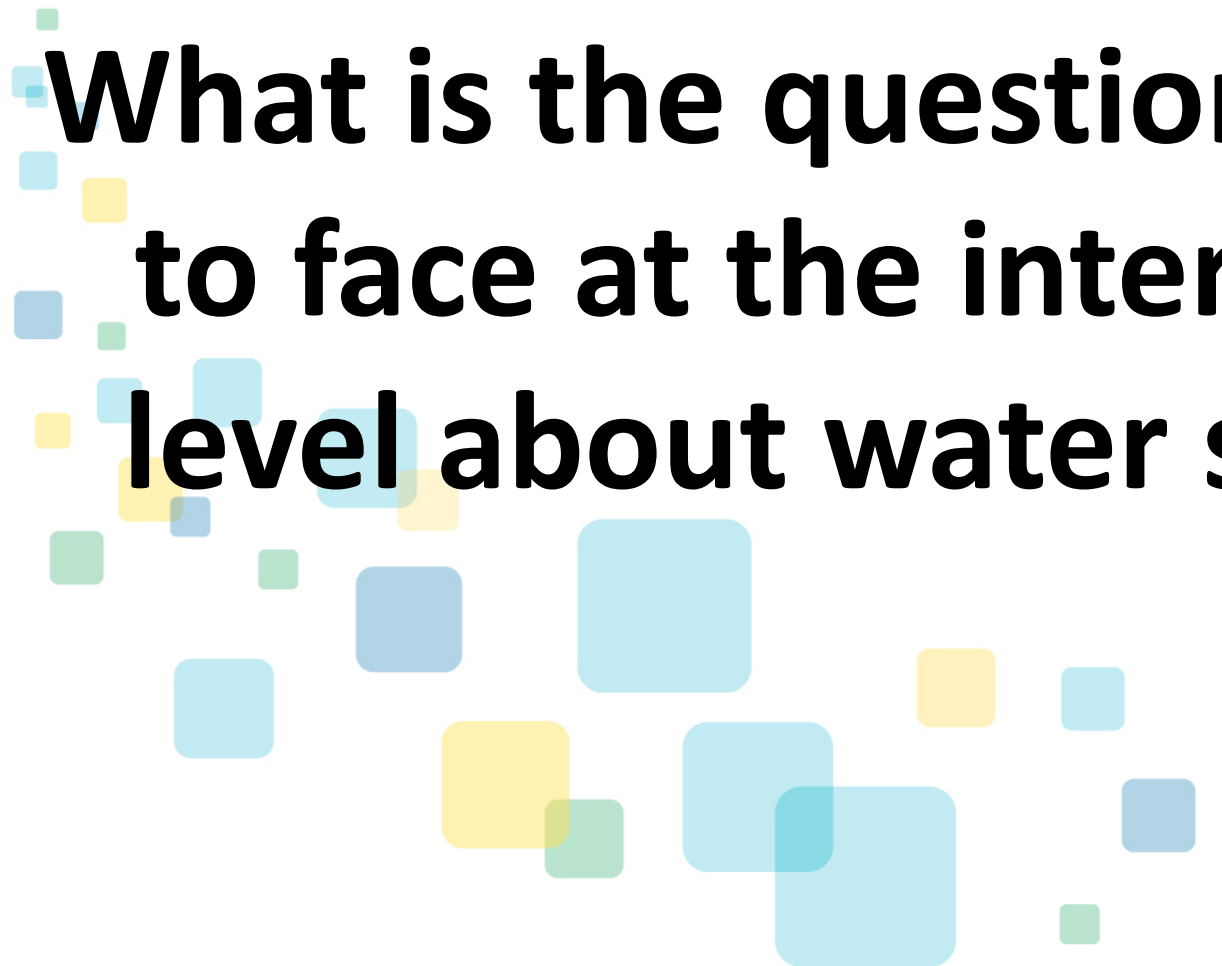
# **Brief presentation of ERSAR, the Portuguese Water and Waste Services Regulation Authority**

## ■ The Portuguese Water and Waste Services Regulation Authority (ERSAR):

- Regulates water supply, waste water and solid waste management services.
- The main objective is to assure:
  - universality of access, continuity and quality of the services;
  - efficiency and equity in terms of affordable tariffs;
  - respect by the environment.

## Brief presentation of ERSAR

- **Regulatory national agency, independent from executive powers at functional, organic and financial levels.**
- **Regulation: (500) water supply, sanitation and solid waste services for 10.000.000 inhab provided by State owned, municipal owned and private utilities.**
- **Staff: 70 employs with skills on legal sciences, economy, engineering and water quality.**
- **Budget: 8.000.000 €/year exclusively financed through taxes coming from utilities.**

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**What is the question we need to face at the international level about water services?**



- Why people have so different water and sanitation conditions around the world?

## Question we need to face



# Question we need to face

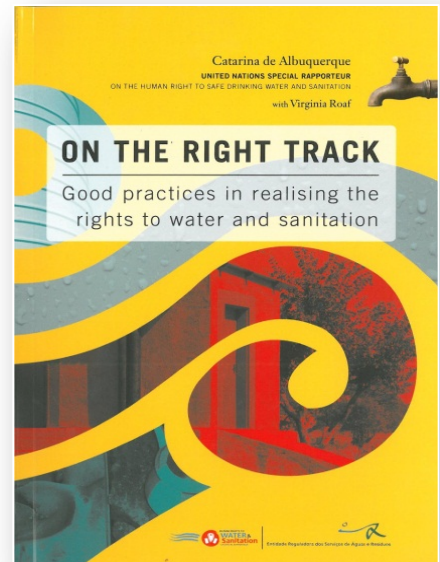
- **The water services:**
  - **Water supply and sanitation are public services essential for the social and economic development.**
  - **They have major implications for the quality of life, environment and public health.**
  - **Countries must promote the development of these services for the population.**
  - **Governments must create the necessary conditions for gradual access of the population.**
  - **United Nations declarations reinforces this need.**

# Question we need to face

- **Millennium Development Goals:**
  - Halve, by 2015, the proportion of people without sustainable access to safe drinking water and basic sanitation.
- **UN resolution 64/292 of 28 July 2010:**
  - Recognized water and sanitation as a human right.

**“On the Right Track: Good Practices in Realising the Rights to Water and Sanitation”**

**Catarina de Albuquerque (United Nations Special Rapporteur) and Virginia Roaf**





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# **What is the meaning and scope of the right to water and sanitation?**

# What is the meaning and scope of the right to water and sanitation?

- **Definition of the right to water and sanitation:**
  - Right of everyone to have access to adequate, proper and safe clean drinking water and sanitation ...
    - by traditional collective systems,
    - by simplified collective systems,
    - by installations serving a single household,
  - ... crucial to public health and environment protection.
- **Those services and/or facilities should be:**
  - Physically accessible,
  - Available in proportion to number of users,
  - With quality (health and hygienically safe to use),
  - Affordable,
  - Acceptable according to cultural demands.

# What is the meaning and scope of the right to water and sanitation?

- **And, as all human rights, must be guaranteed:**
  - Non-discriminatory access,
  - Participation of citizens,
  - Accountability mechanisms.
- **Enforcement of this right by the States means:**
  - **Obligation to respect:**
    - Not to limit access to water and sanitation.
  - **Obligation to protect:**
    - Prevent limitations to access to water and sanitation by third parties, including operators.
  - **Obligation to fulfill:**
    - Facilitate (assist individuals to access),
    - Promote (educate about hygiene),
    - Provide (ensure access for unable individuals).

# What is the meaning and scope of the right to water and sanitation?

- In summary, this declaration implies that the member States have the obligation to promote the necessary measures to fulfill that right:
  - They must create an enabling environment that paves the ground to provide a generalized access by the population.
  - This must be based on an effective “public policy” for the water services!

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# **Public policies for water services (The example of Portugal)**

## ■ The public policy components:

- Adoption of strategic plans for the sector.
- Definition of the legislative framework.
- Definition of the institutional framework (including **regulation**).
- Definition of the governance of the services.
- Definition of the access targets.
- Definition of the quality of service targets.
- Promotion of water quality for human consumption
- Definition of the tariff policy.
- (...)



# Public policies for water services

- (...)
- Management of the financial resources.
- Construction of the infrastructures.
- Improving the structural efficiency.
- Improving the operational efficiency.
- Human resources capacity building.
- Promotion of research and development.
- Development of the economic activity.
- Introduction of competition.
- Protection, awareness and involvement of users.
- Provision of information.

## ■ Adoption of strategic plans for the sector

- Formulation of national strategies
- Definition of goals & measures
  - 1st generation (1993-1999)
  - 2nd generation (2000-2006)
  - 3th generation (2007-2013)
  - 4th generation (2014-2020)
- Annual monitoring of implementation and public reporting of the results
- Stability in the last 20 years



National strategic plan  
for water supply and  
waste water  
(PENSAAR: 2014-2020)

## ■ Definition of the legislative framework

- Clarification of rules governing the sector
- Approving new and modern legislation:
  - Legal framework for State and municipal services and for regulation
  - Legislation for tariffs, quality of service, water quality and technical issues
- Issuing regularly sound recommendations for the sector

LEGAL  
FRAMEWORK FOR  
**MUNICIPAL LEVEL  
SERVICES**

TARIFF  
LEGISLATION

LEGAL  
FRAMEWORK FOR  
**STATE LEVEL  
SERVICES**

QUALITY OF  
SERVICE  
LEGISLATION

LEGAL  
FRAMEWORK FOR  
**REGULATION**

WATER QUALITY  
LEGISLATION

TECHNICAL  
LEGISLATION

## ■ Definition of the institutional framework

- Clear definition of responsibilities of:
  - Owner of the service
  - Operator of the service
- ... and the Authorities:
  - Environment
  - Water resources
  - **Water services**
  - Public health
  - Competition



## ■ Definition of the governance of the services

- The water services are:
  - a public responsibility (State or municipalities) in terms of their provision ...
  - ... but they can be public, private or public-private operated
- Definition of six different governance models
- Political decisions must be based on sound studies
- An healthy competition occurs between models

**State-level services**  
(regional bulk services)

**Municipal-level services**  
(local retail services)

**Direct management**

**Direct management**

**Delegated management**

**Delegated management**

**Concession management**

**Concession management**

- **Definition of the access and quality of service targets**
  - Quality of service based on a set of 2x16 performance indicators
  - Annual assessment of the quality of service for each operator
  - Annual benchmarking between operators
  - Assessment of the evolution for each indicator

<b>Protection of the user interests</b>	<b>User service accessibility</b> AA01 - Service coverage AA02 - Average water charges <b>Quality of service supplied to users</b> AA03 - Service interruptions AA04 - Water tests performed AA05 - Quality of supplied water AA06 - Response to written complaints
<b>Sustainability of the utility</b>	<b>Operator's economical and financial sustainability</b> AA07 - Operating cost coverage ratio AA08 - Unit running costs AA09 - Debt/equity ratio AA10 - Non-revenue water <b>Operator's infrastructural sustainability</b> AA11 - Fulfilment of the water intake licensing AA12 - Treatment utilisation AA13 - Transmission and distribution storage capacity AA14 - Mains rehabilitation AA15 - Service connection rehabilitation <b>Operator's operational sustainability</b> AA16 - Mains failures <b>Operator's human resources sustainability</b> AA17 - Personnel
<b>Environmental sustainability</b>	AA18 - Inefficiency of use of water resources AA19 - Standardised energy consumption AA20 - Disposal of sludge from the water treatment

2 x 20 performance indicators

Ficha de avaliação da qualidade de serviço

Esta ficha apresenta a avaliação da qualidade de serviço, de acordo com o "Guia de Avaliação" (1) que pode ser consultado em [www.ersar.pt](#).

Indicador	Valor (valor de referência)	Notação	Observações
<b>Indicadores de acesso ao serviço</b>			
AA01 - Cobertura de abastecimento	94,4 (95%)	+	De acordo com o nível de serviço previsto no seu compromisso de abastecimento de água potável.
AA02 - Preço médio de abastecimento	0,64 €/m³	-	De acordo com o preço médio previsto no seu compromisso de abastecimento de água potável.
AA03 - Interrupções de abastecimento	0,01 (0,01) interrupções	+	De acordo com o número máximo permitido de interrupções de abastecimento.
AA04 - Análises de água realizadas	100,00%	+	De acordo com o número máximo permitido de análises de água realizadas.
AA05 - Qualidade de água fornecida	100,00%	+	De acordo com o número máximo permitido de análises de água realizadas.
AA06 - Resposta a reclamações	100,00%	+	De acordo com o número máximo permitido de respostas a reclamações.
<b>Indicadores de sustentabilidade</b>			
AA07 - Custo médio de abastecimento	0,64 €/m³	-	De acordo com o preço médio previsto no seu compromisso de abastecimento de água potável.
AA08 - Custo médio de abastecimento	0,64 €/m³	-	De acordo com o preço médio previsto no seu compromisso de abastecimento de água potável.
AA09 - Índice de sustentabilidade	1,00	+	De acordo com o índice máximo permitido de sustentabilidade.
AA10 - Índice de sustentabilidade	1,00	+	De acordo com o índice máximo permitido de sustentabilidade.
AA11 - Capacidade de armazenamento	100,00%	+	De acordo com o número máximo permitido de análises de água realizadas.
AA12 - Qualidade de água fornecida	100,00%	+	De acordo com o número máximo permitido de análises de água realizadas.
AA13 - Qualidade de água fornecida	100,00%	+	De acordo com o número máximo permitido de análises de água realizadas.
AA14 - Qualidade de água fornecida	100,00%	+	De acordo com o número máximo permitido de análises de água realizadas.
AA15 - Qualidade de água fornecida	100,00%	+	De acordo com o número máximo permitido de análises de água realizadas.
AA16 - Qualidade de água fornecida	100,00%	+	De acordo com o número máximo permitido de análises de água realizadas.
AA17 - Qualidade de água fornecida	100,00%	+	De acordo com o número máximo permitido de análises de água realizadas.
AA18 - Qualidade de água fornecida	100,00%	+	De acordo com o número máximo permitido de análises de água realizadas.
AA19 - Qualidade de água fornecida	100,00%	+	De acordo com o número máximo permitido de análises de água realizadas.
AA20 - Qualidade de água fornecida	100,00%	+	De acordo com o número máximo permitido de análises de água realizadas.

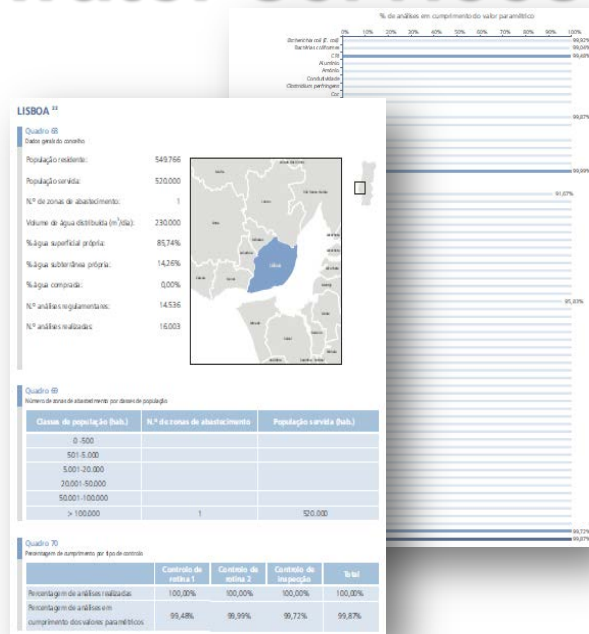
Benchmarking between operators

Quality of service of each operator

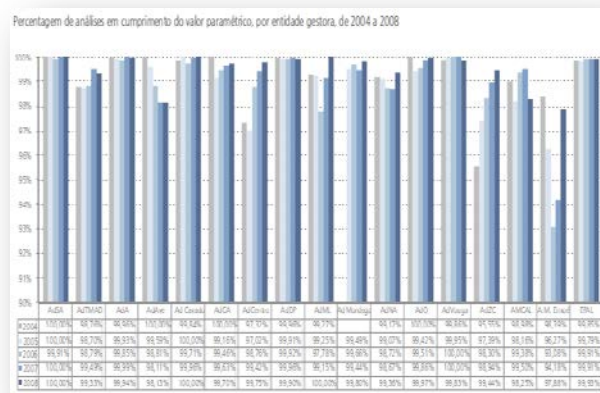
Evolution for each indicator



- **Promoting water quality for human consumption**
  - Promotion of water quality based on European standards
  - Monitoring compliance in real time
  - Annual assessment of the water quality for each operator
  - Annual benchmarking between operators
  - Assessment of the evolution of the water quality on time



Water quality for each operator

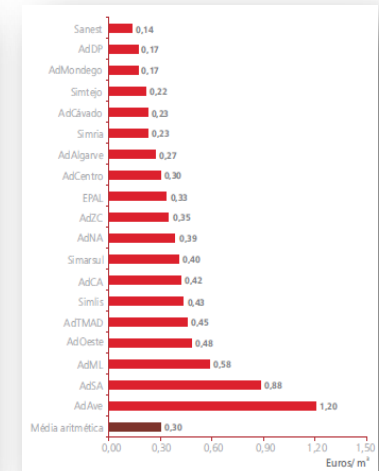


Benchmarking between operators and evolution on time

# Public policies for water services

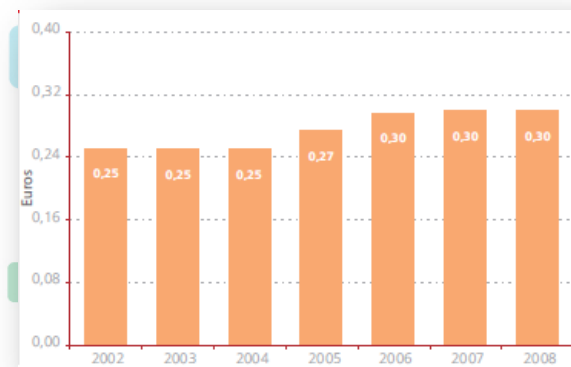
## ■ Definition of the tariff policy

- Promoting (a trend toward) full cost recovery
- Promotion of efficient and affordable tariffs
- Promotion of social tariffs
- Annual assessment of the economic performance for each operator
- Annual benchmarking between operators
- Assessment of the evolution of the performance



Performance for each operator

Benchmarking between operators



Evolution of the performance

## ■ Management of the financial resources

- Portugal invested and is still investing a large amount of money in water infrastructures
- 10,000 x 10<sup>6</sup> euros between 1993 and 2013
- The sector acquired a large experience on using important financial resources (namely from European funds)
- Portugal created an internal market of 1,000,000,000 € /year





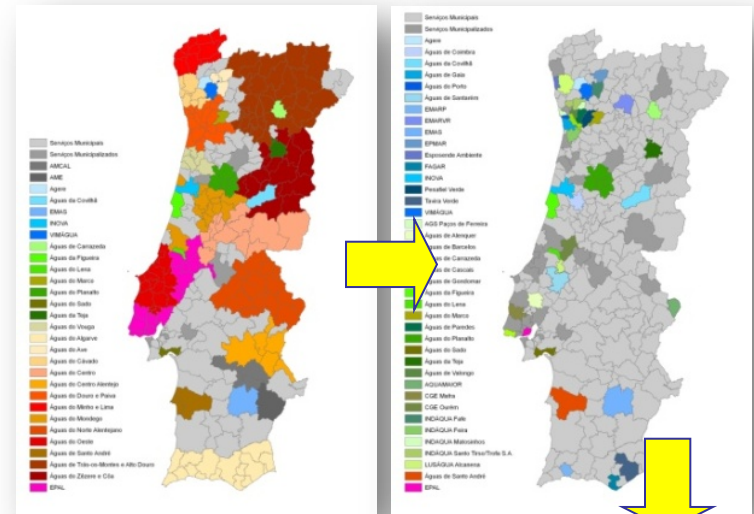
## ■ Construction of the infrastructures

- Portugal has now available a large number of modern infrastructures
- The sector acquired a large experience on planning, design, financing, construction and operation of water services
- A large increase of compliance with European legislation was achieved



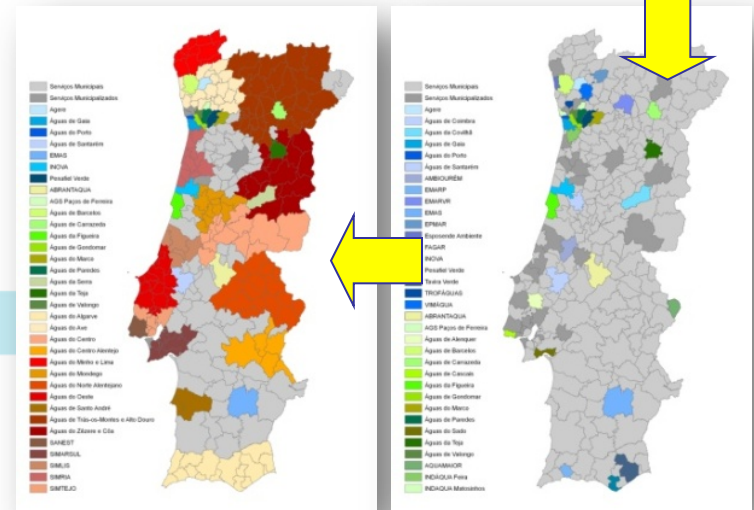
## ■ Improving the structural efficiency

- Division bulk/retail
- Reorganization (almost completed) on bulk systems
  - small number of large and modern regional operators provide bulk services
- Territorial reorganization (on-going) on retail systems
  - still a large number of small/medium size local operators provide retail services
- Current trend to aggregate those local operators



Water bulk services

Water retail services



Wastewater bulk services

Wastewater retail services

- **Improving the operational efficiency**
  - In general it exists a large space of improvement by the utilities.
  - Examples:
    - Commercial water losses
    - Physical water losses
    - Energy efficiency
    - Human resources
    - (etc.)





## ■ Human resources capacity building

- Portugal has at present a large number (24,000) skilled human resources in the sector
- They acquired a sound experience on planning, design, financing, construction and operation of water infrastructures with advanced technologies



- **Promotion of research and development**
  - Portugal has at present a relevant activity on research and development with increasing links between university and industry
  - Portuguese research centers have increasing participation in international R&D projects



- **Development of the economic activity.**
  - Taking advantage of the implementation of strategies to develop water services.
  - Improving the development of the economic sector associated with water.
  - Generating new activities with the creation of employment and prosperity.



## ■ Introduction of competition.

- In the case of natural or legal monopolies, it must be promoted:
  - Virtual competition, through benchmarking between utilities;
  - In the case of private involvement, competition in the market (tender procedures for the allocation of delegations, concessions and the provision of services).
- Competition encourages innovation and technical progress.





## ■ Protection, awareness and involvement of users

- Assessment of the economic accessibility to the service based on an indicator of affordability

$$\frac{\text{Annual water bill for a typical family (120 m}^3\text{)}}{\text{Annual income for a typical family in the region}} \leq 1-2\%$$

- Creation of tools to protect consumers in general
  - Right to be served when the public system is available
  - Right to be served within 5 days of subscription request
  - Right to have a 24h x 365 days of service
- Creation of tools to protect poor consumers
  - Right to benefit from a social tariff (poor families)
  - Right to benefit from a family tariff (large families)
- Human right to safe drinking water and sanitation (UN)

## ■ Provision of information

- Providing rigorous and comprehensive information to all stakeholders
- Guaranteeing ease-of-use by less informed consumers

Annual Report on  
Water and Waste  
Services in  
Portugal  
(RASARP)



Ex. ERSAR web site (free access)





# Role of regulation in public policies

## ■ The success of a public policy:

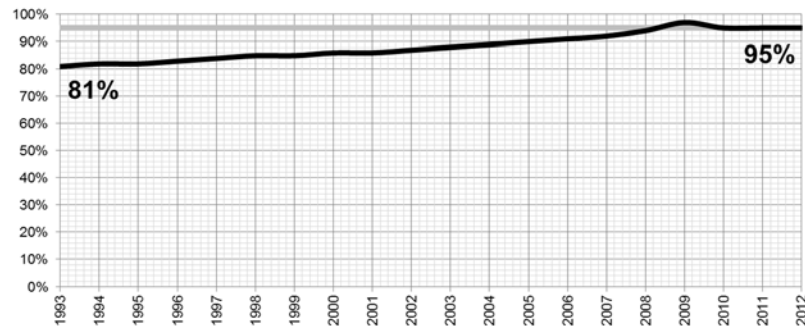
- The success depends on the ability to manage the implementation of all these components with a effective global and integrated approach.

## ■ The role of the regulation:

- Regulation should be seen as a component of public policies on water, one out of various.
- But has a very important role given the fact that it promotes or controls most of the remaining components.

# Role of regulation in public policies

## Results of the public policy in Portugal (1993-2013):



**Water supply**



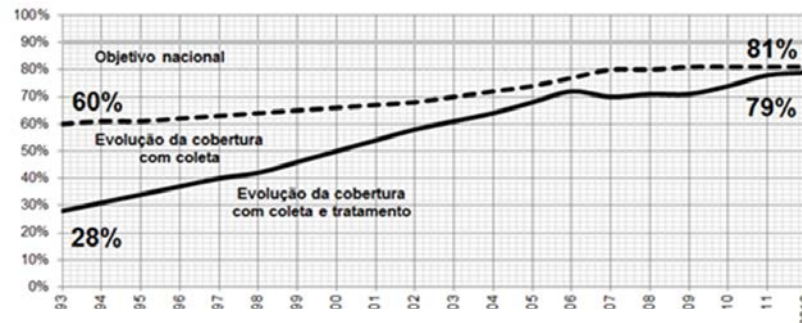
**Water quality**



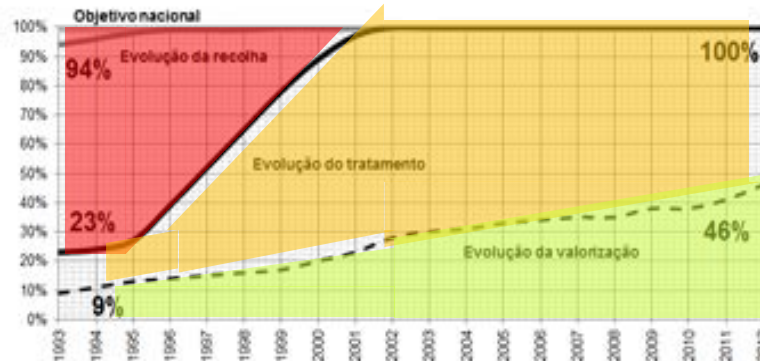
**Hepatitis A**

# Public policies for water services

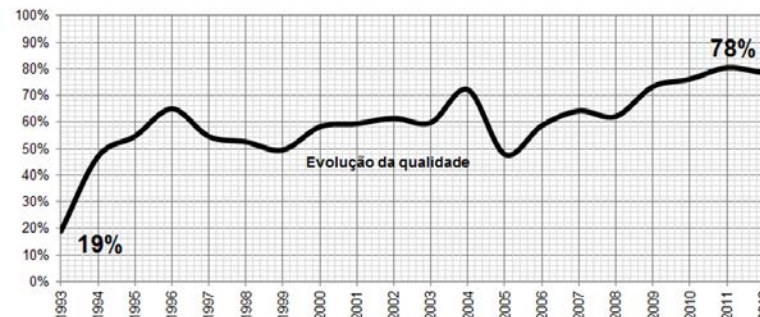
## Results of the public policy in Portugal (1993-2013):



Waste water



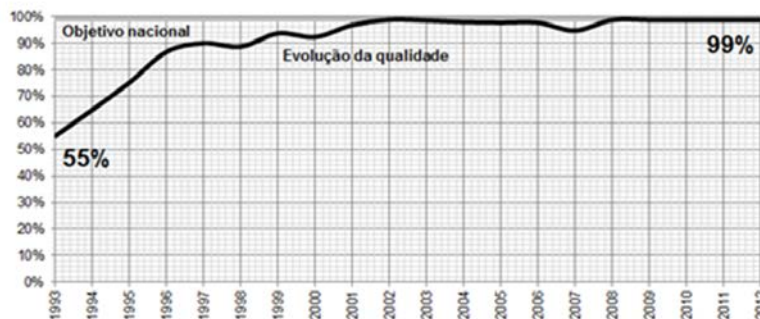
Solid waste



Surface waters

# Role of regulation in public policies

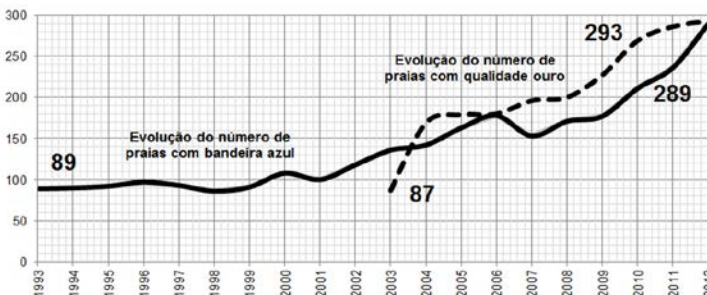
## Results of the public policy in Portugal (1993-2013):



**Coastal bathing waters**



**River bathing waters**



**Blue flags in the beaches**



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# **What regulatory model for the water services?**

- **We can approach regulation of the water services in different ways.**
- **In Portugal we decided to implement regulation:**
  - **With an integrated (holistic) approach.**
  - **Operating at national level (mainland).**
  - **Regulating all the utilities, regardless the governance model (State-owned, municipal-owned and private).**
  - **Adopting a collaborative and pedagogic regulation.**


- **Regulatory Integrated Approach (RITA-ERSAR regulation model)**
  - **Structural regulation of the sector:**
    - Contribution to the organisation of the sector.
    - Contribution to the legislation of the sector.
    - Contribution to the information of the sector.
    - Contribution to the capacity building of the sector.
  - **Behavioural regulation of the utilities:**
    - Legal and contractual regulation.
    - Economic regulation.
    - Quality of service regulation.
    - Drinking water quality regulation.
    - User interface regulation.



# Regulatory model for water services

The success of regulation depends on the ability to manage the implementation of its components, ensuring an effective **regulatory integrated approach.**



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# **Regulatory model: Structural regulation of the sector**


- **Contribution to the organisation of the sector:**
  - **Cooperation with Government in the formulation of the national strategies.**
  - **Proposal of measures with the aim of resolution of dysfunctions.**
  - **Monitoring and regular reporting on the degree of implementation of the national strategy.**

- **Contribution to the legislation of the sector:**
  - **Proposing new legislation.**
  - **Proposing the upgrading of legislation.**
  - **Approving regulations.**
  - **Issuing recommendations.**

- **Contribution to the capacity building of the sector:**
  - **Promotion of innovation and technology in partnership with research centers and universities.**
  - **Edition of free technical guides for the utilities.**
  - **Promotion of training events.**

- **Contribution to the information of the sector:**
  - **Providing rigorous and comprehensive information to all stakeholders.**
  - **Reducing information asymmetry.**
  - **Guaranteeing ease-of-use information for consumers.**



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# **Regulatory model: Behavioural regulation of the utilities**

- **Legal and contractual regulation:**
  - Analysing the creation of new utilities.
  - Analysing tender processes.
  - Analysing contract documentation.
  - Analysing contract modifications.
  - Approving utility contracts with consumers.
  - Monitoring contractual compliance.
  - Promoting the conciliation.
  - Analysing contract terminations.
  - Assessing the global situation annually.
  - Disseminating information annually.

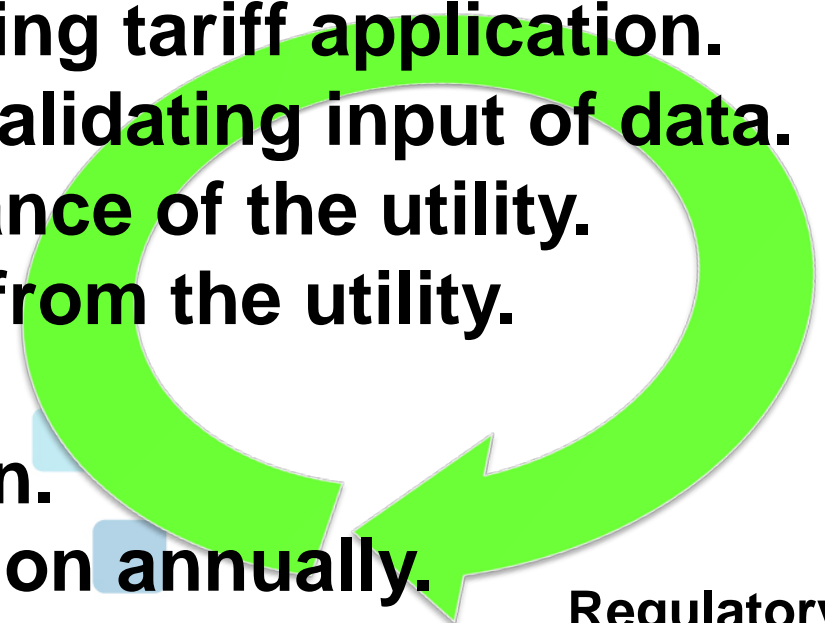
A large, thick, green circular arrow pointing clockwise, representing a continuous cycle.

**Regulatory  
live cycle**

# Behavioural regulation of utilities

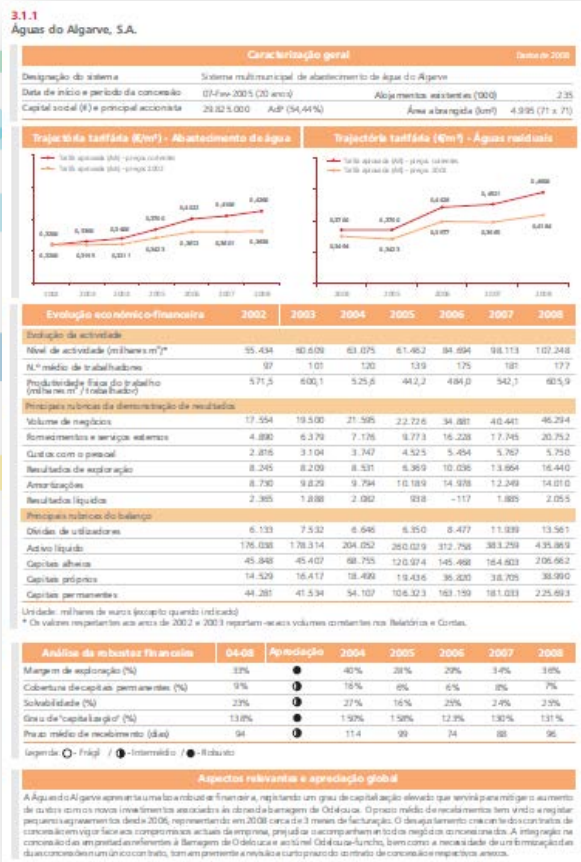
## ■ Economic regulation:

- Defining tariff principles and rules.
- Analysing proposals for updating tariffs.
- Allowing contradictory from the utility.
- Approving the tariffs.
- Auditing utility, monitoring tariff application.
- Requesting utility and validating input of data.
- Accessing the performance of the utility.
- Allowing contradictory from the utility.
- Benchmarking utilities.
- Accessing the evolution.
- Disseminating information annually.

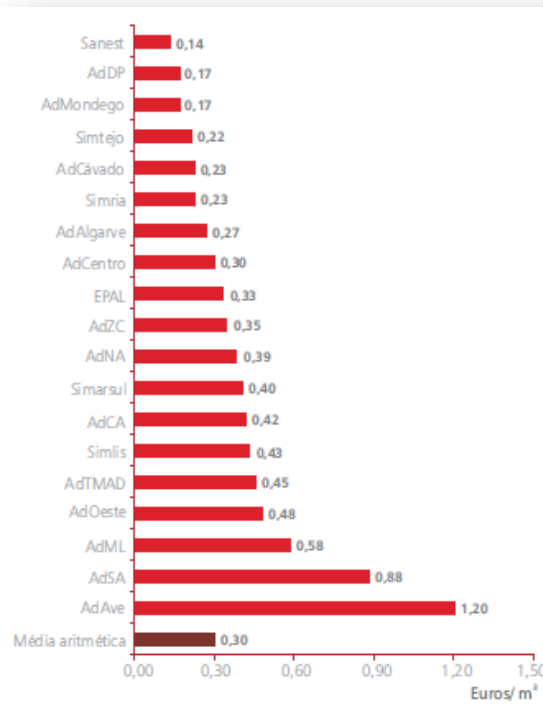


Regulatory  
annual cycle

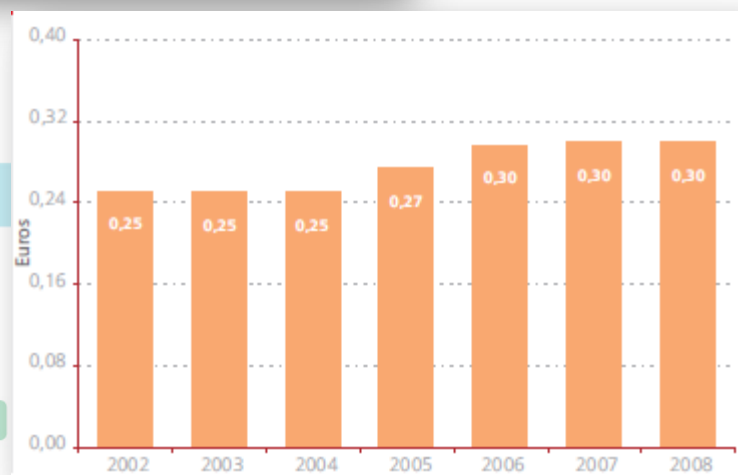
## Annual assessment of the economic performance for each utility



## Assessment of the evolution for the economic performance



## Annual benchmarking between utilities regarding the economic performance



## ■ Quality of service regulation:

- Defining indicators for quality of service.
- Defining targets for those indicators.
- Requesting utility to input of data.
- Validating data (1st stage - at office).
- Validating data (2nd stage - local audits).
- Accessing the utility's performance.
- Allowing contradictory from the utility.
- Benchmarking between utilities.
- Accessing the evolution on time.
- Disseminating information annually.



Regulatory  
annual cycle



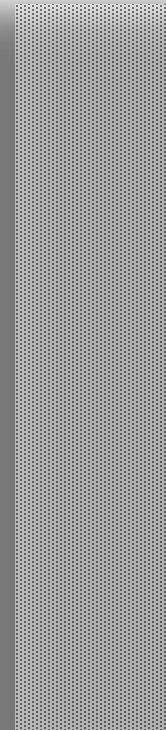
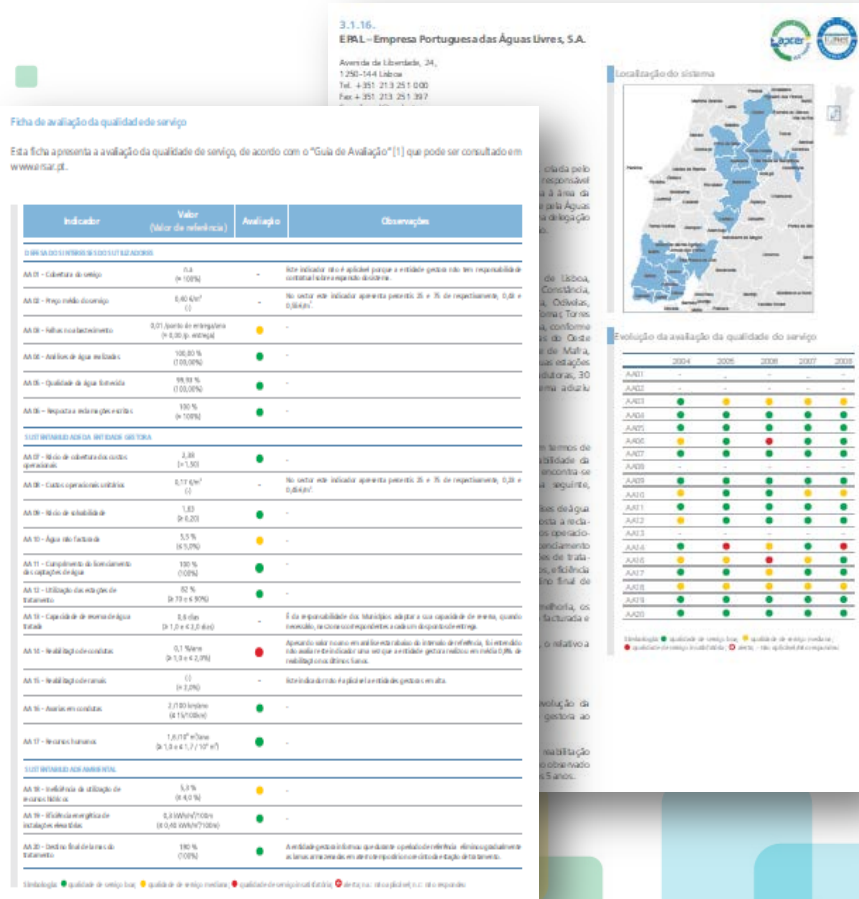
- 2 sets of 16 performance indicators have been defined, applied to all the utilities of water supply and wastewater:

INDICADORES DE QUALIDADE DE SERVIÇO PARA ABASTECIMENTO DE ÁGUA PARA CONSUMO HUMANO	Adequação da interface com o utilizador	Acessibilidade do serviço aos utilizadores AA01 – Acessibilidade física do serviço AA02 – Acessibilidade económica do serviço Qualidade do serviço prestado aos utilizadores AA03 – Ocorrência de falhas no abastecimento AA04 – Qualidade da água AA05 – Resposta a reclamações e sugestões	
	Sustentabilidade da prestação do serviço	Sustentabilidade económica AA06 – Cobertura dos gastos totais AA07 – Adesão ao serviço AA08 – Água não facturada Sustentabilidade infra-estrutural AA09 – Adequação da capacidade de tratamento AA10 – Reabilitação de condutas AA11 – Ocorrência de avarias em condutas Produtividade física dos recursos humanos AA12 – Adequação dos recursos humanos	colectores
	Sustentabilidade ambiental	Eficiência na utilização de recursos ambientais AA13 – Perdas reais de água AA14 – Cumprimento do licenciamento das captações AA15 – Eficiência energética de instalações elevatórias Eficiência na prevenção da poluição AA16 – Destino de lamas do tratamento	estatórias colhidas
		AR14 – Análises de águas residuais realizadas AR15 – Cumprimento dos parâmetros de descarga AR16 – Destino de lamas do tratamento	

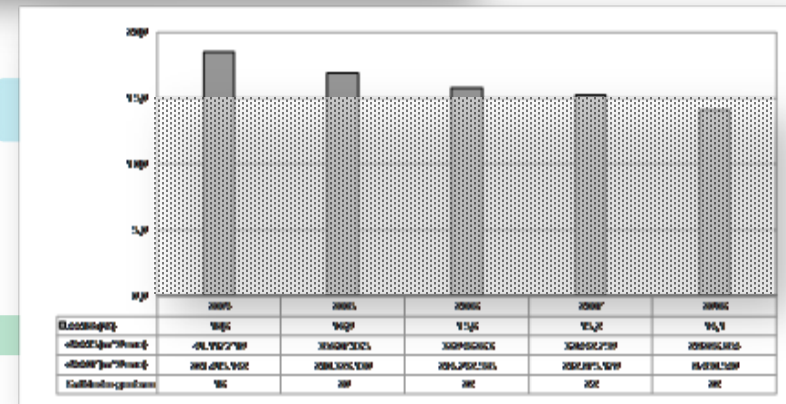


## Annual assessment of the quality of service for each utility

Annual benchmarking between utilities regarding the quality of service



Assessment of the evolution for each indicator of quality of service



# Behavioural regulation of utilities

## ■ Drinking water quality regulation:

- Defining indicators / targets for water quality.
- Approving the monitoring program.
- Auditing utility and laboratory.
- Receiving on time incompliances information.
- Monitoring the resolution of compliances.
- Asking utility to input data from the last year.
- Validating data.
- Accessing the utility's performance.
- Allowing contradictory from the utility.
- Benchmarking utilities.
- Accessing the evolution on time.
- Disseminating information annually.

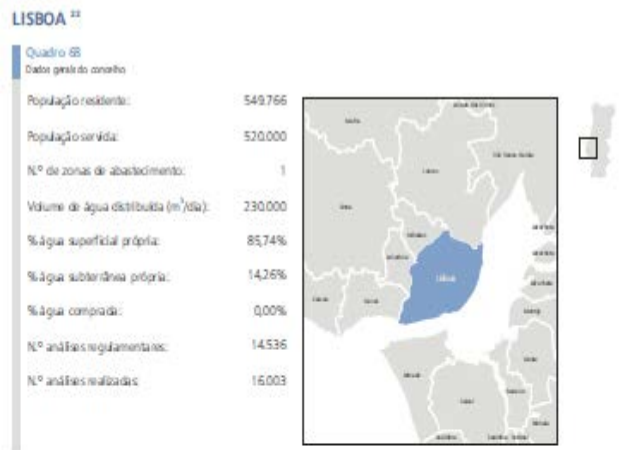


Regulatory  
annual cycle

# Behavioural regulation of utilities

Annual assessment of the water quality for each utility

Benchmarking between utilities and assessment of the evolution for the water quality

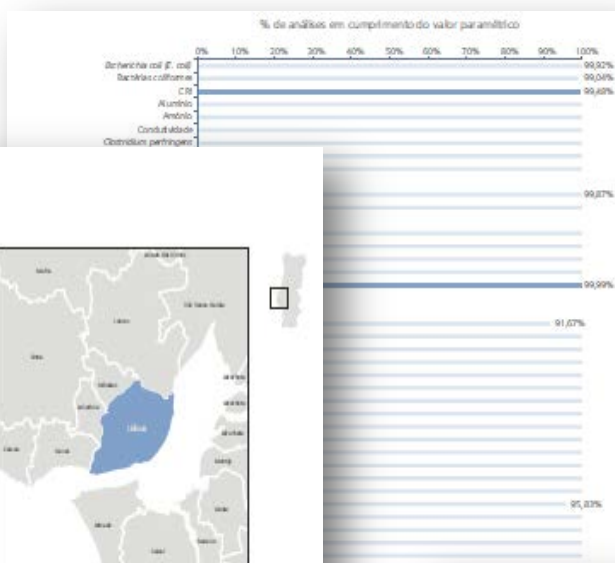


**Quadro 69**  
Número de zonas de abastecimento por classes de população

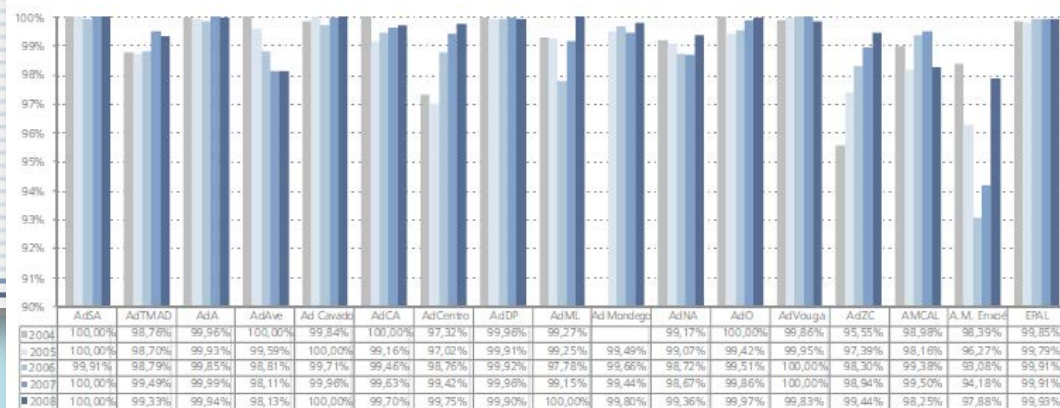
Classes de população (hab.)	N.º de zonas de abastecimento	População servida (hab.)
0-500		
501-5.000		
5.001-20.000		
20.001-50.000		
50.001-100.000		
> 100.000	1	520.000

**Quadro 70**  
Porcentagem de cumprimento por tipo de controlo

	Controlo de retina 1	Controlo de retina 2	Controlo de inspeção	Total
Porcentagem de análises realizadas	100,00%	100,00%	100,00%	100,00%
Porcentagem de análises em cumprimento dos valores paramétricos	99,48%	99,99%	99,72%	99,87%

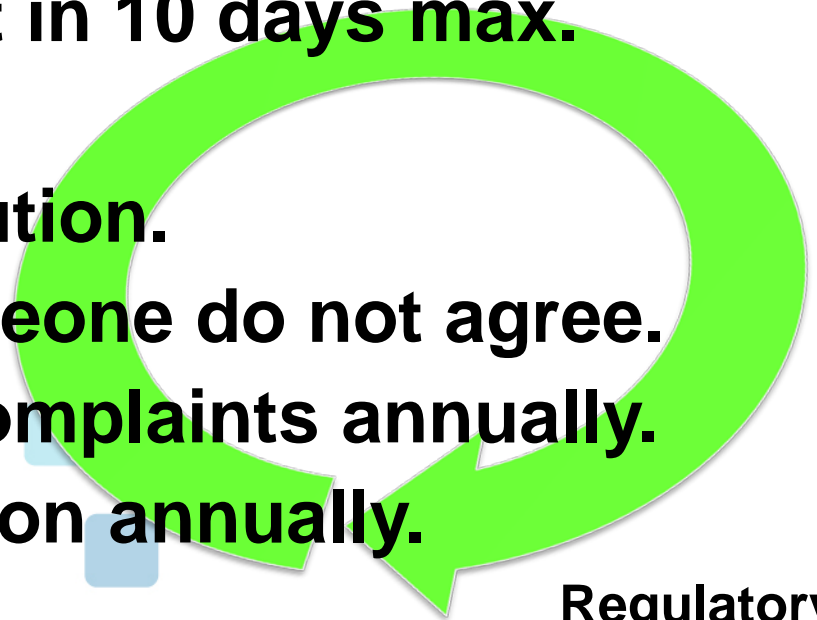


Percentagem de análises em cumprimento do valor paramétrico, por entidade gestora, de 2004 a 2008



## ▪ User interface regulation:

- **Guaranteeing the information to the consumer.**
- **Guaranteeing the right to consumer complaining.**
- **Receiving the complaint in 10 days max.**
- **Contacting both parts.**
- **Recommending the solution.**
- **Suggesting court if someone do not agree.**
- **Monitoring the set of complaints annually.**
- **Disseminating information annually.**



**Regulatory  
annual cycle**



A collection of semi-transparent squares in light blue, yellow, and green, scattered across the lower-left and bottom portions of the slide.

# **Information and awareness as a regulatory tool**

# Information and awareness as a regulatory tool

- **Written documentation and information by the regulator must be available to the consumers:**

What is the quality of my service?

What is the quality of my tap water?



[www.ersar.pt](http://www.ersar.pt)

What is my water tariff?

How many complains has my utility?

# A informação e a sensibilização pública sobre os serviços

- Information available in the Annual Report of the Water and Waste Services In Portugal ([www.ersar.pt](http://www.ersar.pt)):



# Information and awareness as a regulatory tool

- **Documentation and information in the site of regulator must be available to the consumers ([www.ersar.pt](http://www.ersar.pt)):**

What is the quality of my service?

What is the quality of my tap water?



[www.ersar.pt](http://www.ersar.pt)

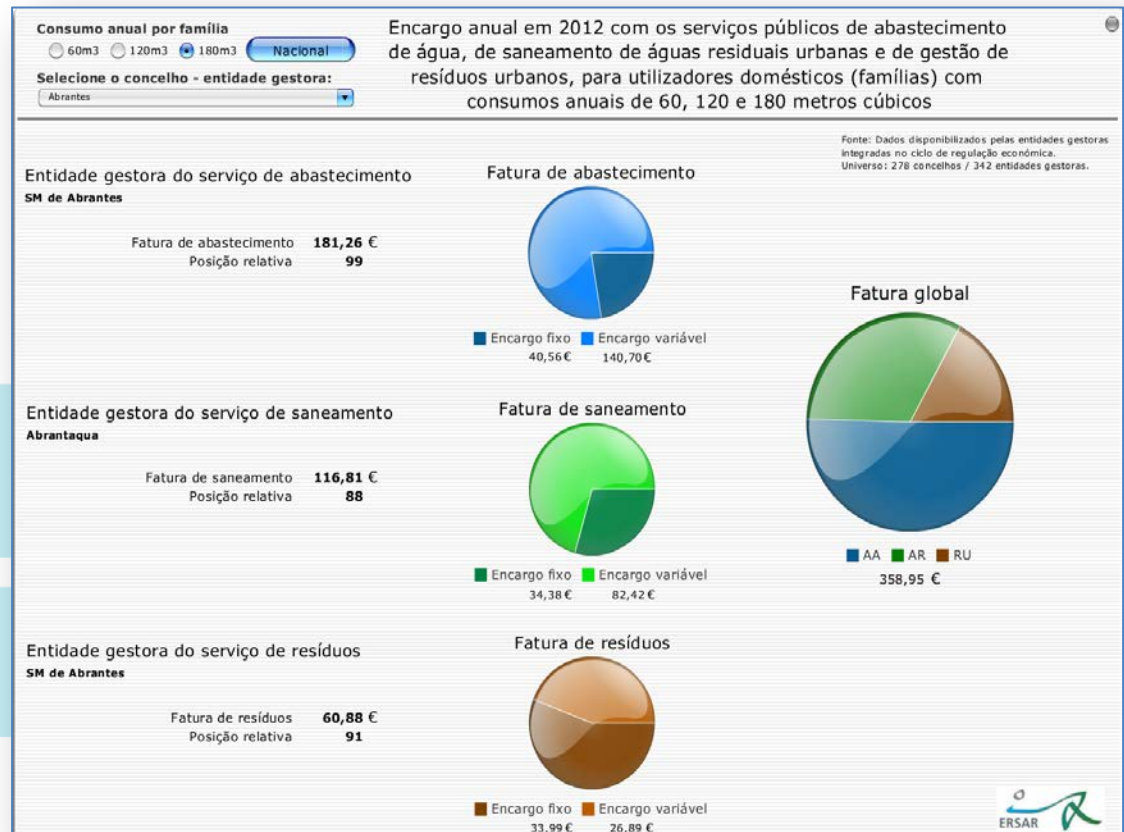
What is my water tariff?

How many complains has my utility?

# Information and awareness as a regulatory tool

## ■ Tariffs:

- 40 000 data / year available to the consumers
- Site [www.ersar.pt](http://www.ersar.pt)





# Information and awareness as a regulatory tool

- **Information by the regulator must be available to the consumers by mobile:**

What is the quality of my service?

What is the quality of my tap water?



**[www.ersar.pt](http://www.ersar.pt)**

What is my water tariff?

How many complains has my utility?



# Information and awareness as a regulatory tool

- Information available in the smartphone ([www.ersar.pt](http://www.ersar.pt)):



- **Philatelic emission of stamps regarding to the awareness of the consumers of the water and waste services.**

# Information and awareness as a regulatory tool

- Contest “Drink tape water!” for young designers regarding to the awareness of the consumers of the water.





# The end

