



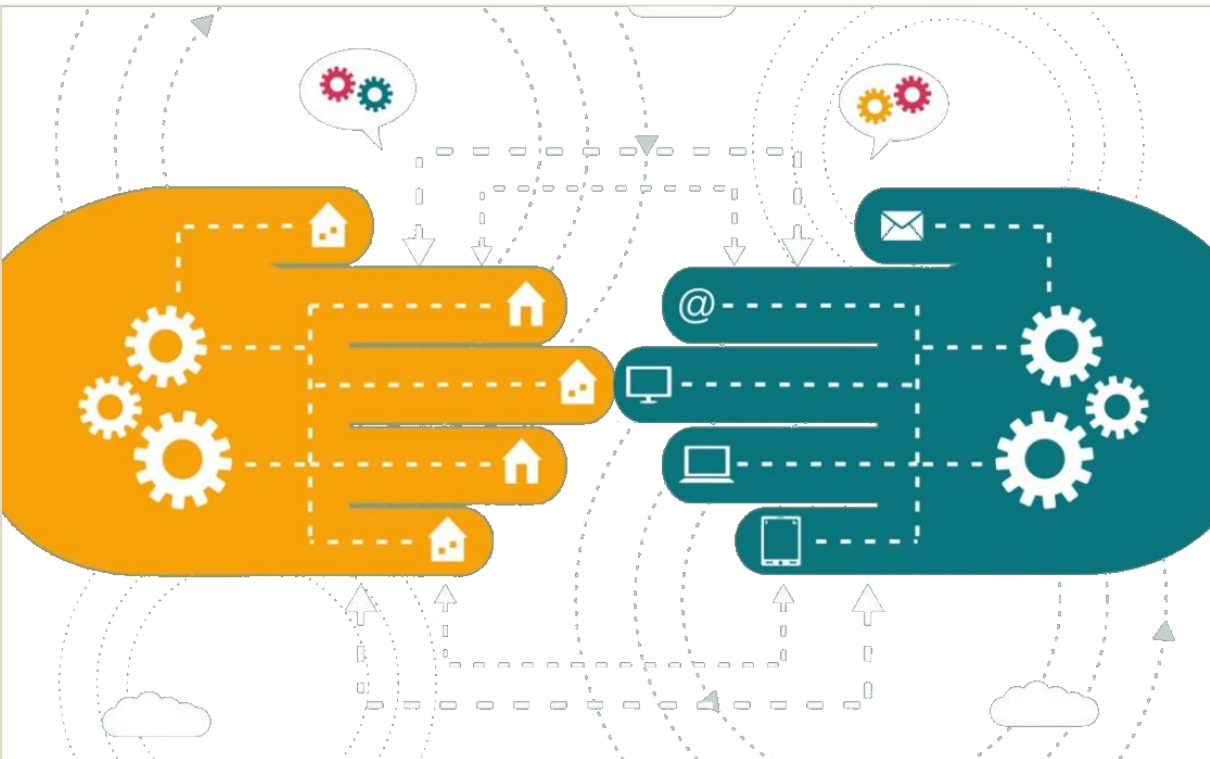
Portuguese Water  
Partnership



Bilateral Session

## **Jordan-Portugal: Sharing Experiences on water**

18th October 2015 | Amman



## **Presentation of the Portuguese delegation to the IWA Development Congress 2015**

**Rafaela Matos**  
Board Member of PWP



Portuguese Water  
Partnership

# The Portuguese water cluster has accumulated significant expertise and valuable competencies in:

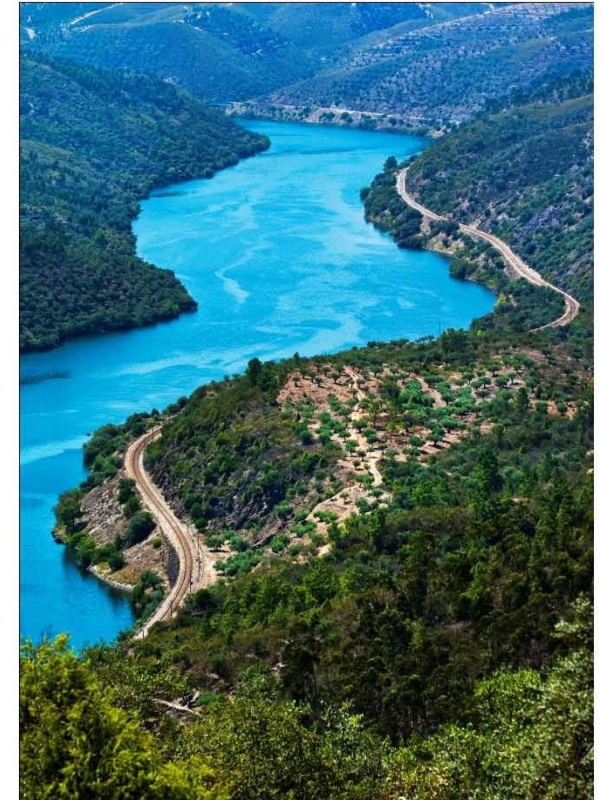
**Water Resources**

**Water Services**

**Hydraulic Developments**

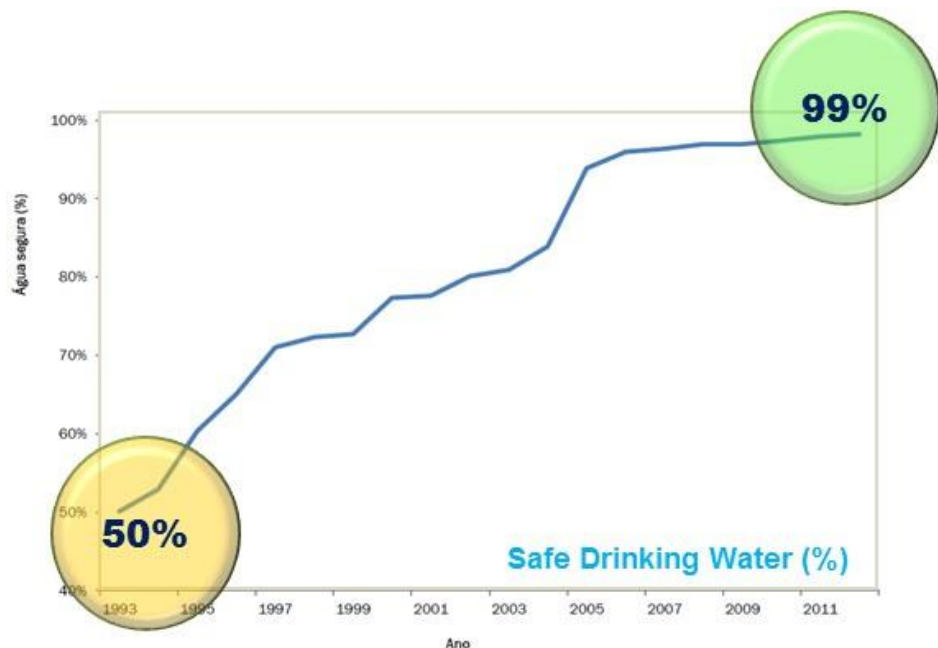
**Coastal Management**

**Governance and Water  
Institutions**





In the last 20 years, Portuguese Water Sector has evolved in a very successful way



**A boom in attendance and  
quality of service!!!**

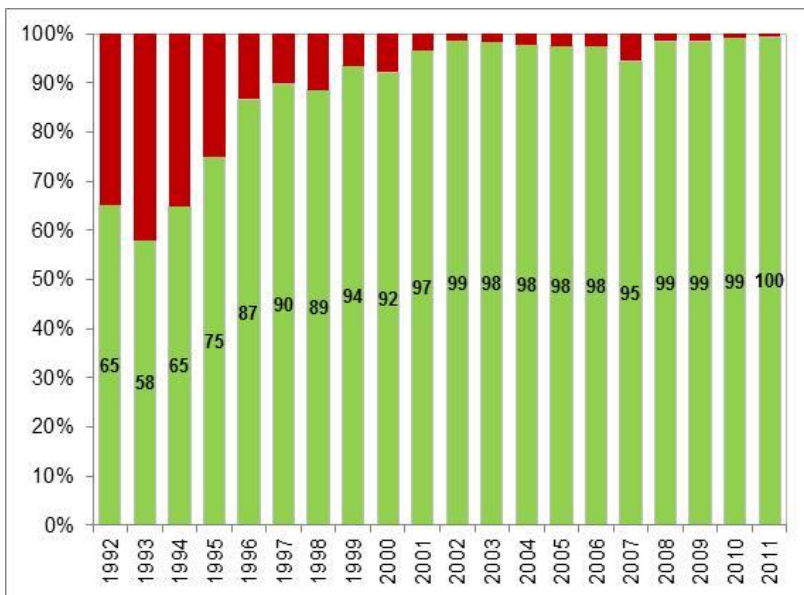






## In the last 20 years, the Portuguese Water Sector has evolved in a very successful way

### Bathing water quality



Portuguese Companies had a key role in this process:

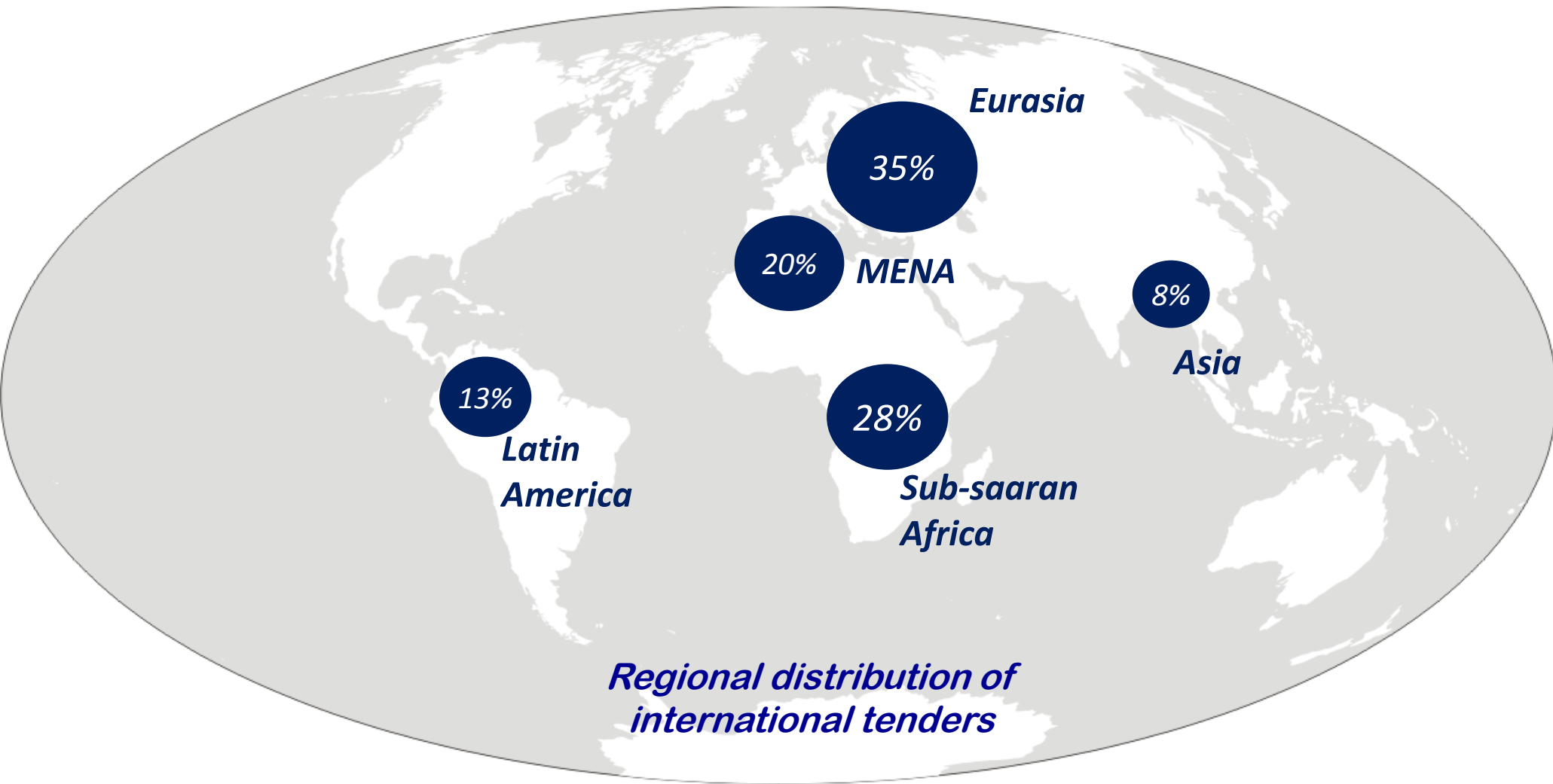
- Design
- Construction
- Supervision
- Equipment's
- Operation & Maintenance

### Some figures about the water and sanitation infrastructures

Surface water intakes	299 un
Groundwater intakes	5735 un
Drinking Water Treatment Pla	229 un
Pumping Stations	2372 un
Reservoirs	8391 un
Water pipes	99674 km

Wastewater treatment plants	2438 un
Pumping stations	4350 un
Drainage systems	50400 km
Outfalls	26 km

## Portuguese firms are actively engaged in international projects in the water sector



# Most of these International Financial Institutions are active in financing the Jordanian water sector



31%



20%



16%



12%



8%



5%



4%



2%



1%



1%



Uniting against Poverty



Portuguese Water  
Partnership

# Some Reasons why Portuguese Water Companies can be added value partners







Portuguese Water  
Partnership

# Some Examples

**Solutions MADE IN PORTUGAL**

**SOLVING WATER CHALLENGES IN A CHANGING WORLD**



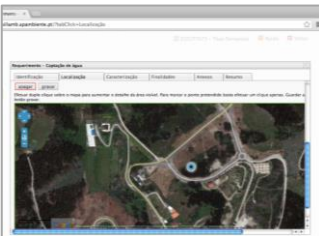
## THE CORPORATISATION OF THE WATER SERVICES

The way for quality services, efficiency and sustainability



## INSTRUMENTS TO SUPPORT STRATEGIC PLANNING

Transforming data into information for decision



## WATER SERVICES BENCHMARKING

Two faces of the same coin: regulator focus and the operator complement.



## WATER AND SANITATION SAFETY PLANS

Portuguese capacities





# Members of the Portuguese Delegation to Jordan



Acquawise Consulting

CERIS

CERIS – a Research Centre of IST



AdP - Águas de Portugal



Douro ECI



Aquasis



ERSAR - The Water and Waste Services Regulation Authority



APRH - Portuguese Water Resource Association



LABORATÓRIO NACIONAL DE ENGENHARIA CIVIL

National Laboratory for Civil Engineering, (LNEC)



# AdP – Águas de Portugal



*Eng. Cláudio de Jesus, Executive Board Member*

**AdP - Águas de Portugal Group** carries out the **MISSION** of designing, building, exploring and managing **Water Supply** and **Waste Water Treatment** systems.

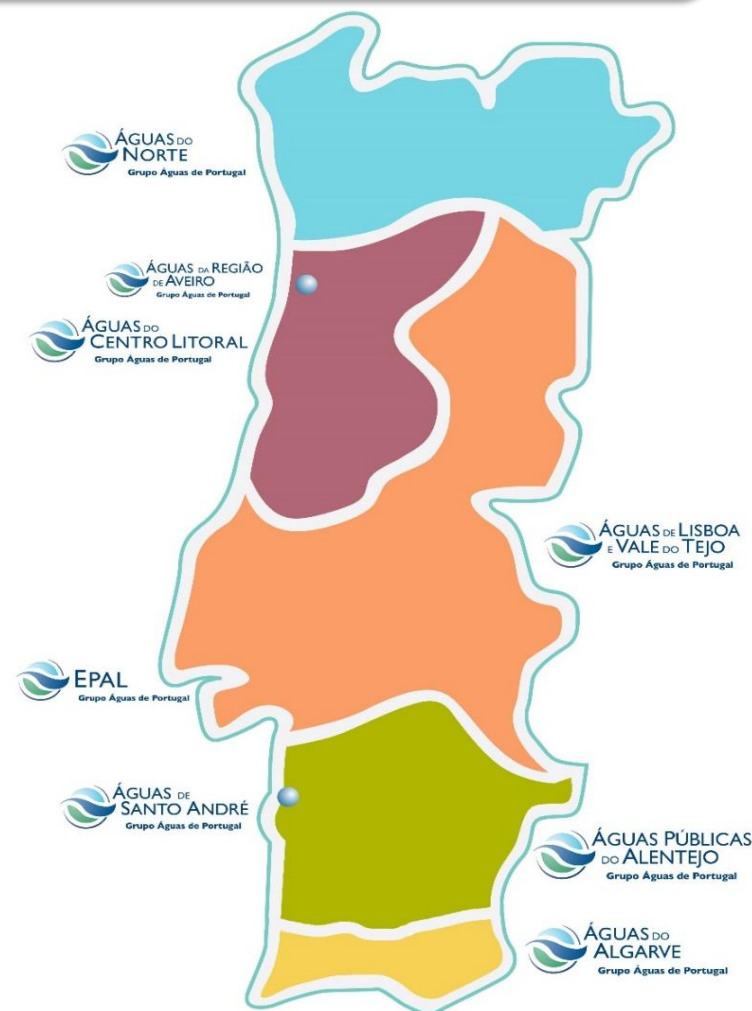
**150** WTP

**573** million m<sup>3</sup>  
of water produced



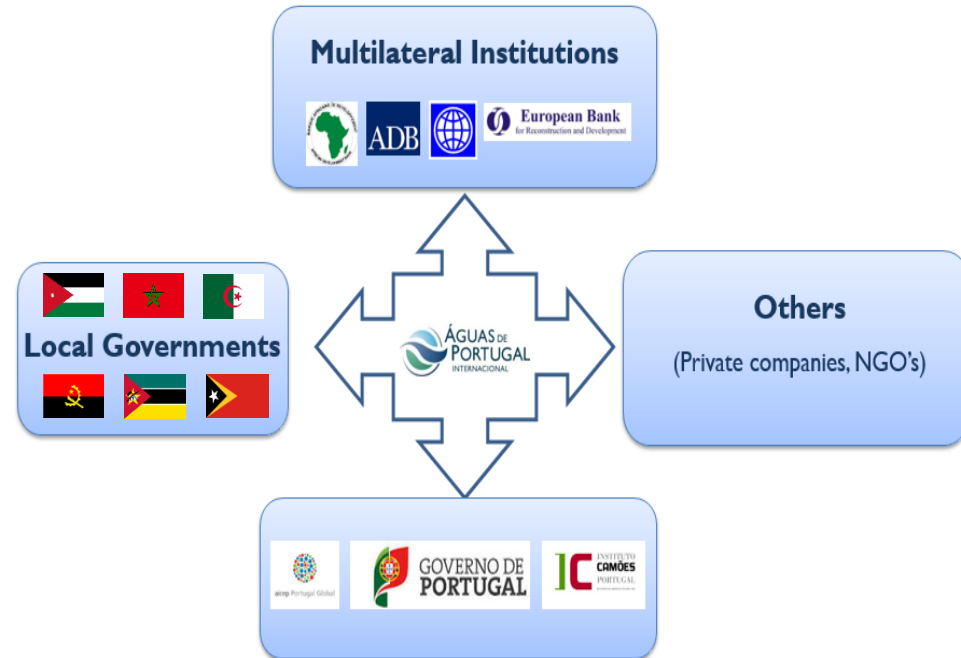
**953** WWTP

**547** million m<sup>3</sup>  
of wastewater treated





**AdP Internacional** was created in 2001 to conduct the business of the **Águas de Portugal Group** abroad, acting as **showcase for the capacity** of the Group and establishing **strategic partnerships** with the **main players** in the **water sector**.



**AdP Internacional** develops its activity to ensure the effective **transfer of know-how** to local human resources, through:

**Technical  
Assistance**



**Capacity  
Building /  
Training**



**Operation and  
Management**





# CERIS – Instituto Superior Técnico

**CERIS** : Civil Engineering Research  
and Innovation for  
Sustainability

***Prof. Francisco Nunes Correia, Full Professor of  
Environment and Water Resources***

## Mission and objectives:

To create and disseminate scientific knowledge, promoting innovation in the built and natural environment areas, through the active involvement in fundamental research, applied research, and high-level consultancy, at the national and international levels.



## 4 thematic strands that cut across all areas:

- 1 Product Development in Civil Engineering Industries
- 2 Risk and Safety in Built and Natural Environments
- 3 Rehabilitation of Built and Natural Environments
- 4 Response to Natural and Societal Changes

## CEHIDRO is the branch highly specialized in water:

- 1 Water Resources, Water Services and Environment
- 2 Hydrogeology and Geo-systems
- 3 Fluvial and Maritime Hydraulic Systems





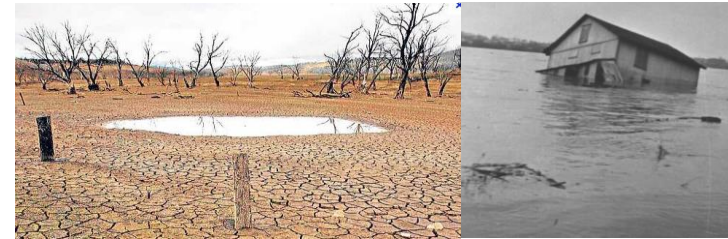
# Main areas of research:

Fluid mechanics

hydraulic structures and installations



harbours and coastal studies



hydrology and water resources



natural and built environment



pollution control and sanitary engineering

sustainability criteria and indicators



water and environmental policies

principles of water governance



# Douro ECI



***Eng. Diogo Talone, Managing Director***

INNOVATIVE BUSINESS MODEL

STRUCTURED AND  
FLEXIBLE



EXPERIENCE ACQUIRED ON  
THE WATER SECTOR

## WE DO

### ENGINEERING

- WATER SUPPLY
- WASTEWATER
- TREATMENT
- RAINWATER
- WATER RESOURCES
- IRRIGATION
- INFORMATION SYSTEMS
- O&M SUPPORT TOOLS

### CONSULTANCY

- CONSULTING AND TECHNICAL ASSISTANCE
- PROJECT MANAGEMENT
- NON-REVENUE WATER AND INFILTRATION AND INFLOW MANAGEMENT
- INFRASTRUCTURE ASSET MANAGEMENT
- WATER QUALITY AND SAFETY
- PROCUREMENT AND LOGISTICS SUPPORT

### INNOVATION

- DEVELOPMENT OF TECHNOLOGICAL SOLUTIONS FOR EFFICIENT USE OF WATER
- APPLIED INNOVATION FOR INCENTIVE PROGRAMS AND OPERATIONAL MANAGEMENT
- KNOWLEDGE TRANSFER

## WE ARE



## WE WORK FOR

GOVERNMENTAL ENTITIES / UTILITIES

INVESTMENT BANKS

CONSULTING COMPANIES

CONSTRUCTION COMPANIES





## WHY JORDAN ?

WE WANT TO SHOW TO THE WORLD WHAT WE ARE DOING



WE WANT TO GROW TO THE WORLD

INVESTMENT BANKS

WORLDWIDE





# ERSAR – The Water and Waste Services Regulation Authority



***Dr. Orlando Borges, President***

# ERSAR – The Water and Waste Services Regulation Authority

- Regulates drinking water, wastewater and solid waste management services.
- The main objective is to ensure:
  - universality of access, continuity and quality of the services;
  - efficiency and equity in terms of affordable tariffs;
  - respect to the environment.
- National agency, independent from executive powers at functional, organic and financial levels.
- Regulates 500 operators, serving nearly 10.000.000 inhab. provided by State owned, municipally owned and private utilities.
- 75 employees skilled on legal sciences, economy, engineering, water quality.
- Budget: 8 million €/year exclusively financed through levies over operators.

# ERSAR – The Water and Waste Services Regulation Authority

- ERSAR has a consolidated model for regulating water services;
- Has developed significant cooperation work at the international level as member of several international regulation networks (WAREG, OECD, ENDWARE, RegNet);
- ERSAR has organized, together with IWA, the *1<sup>st</sup> International Water Regulators Forum*, in September 2014, in Lisbon;
- One of the main outcomes of this meeting was the "*Lisbon Charter for public policy and regulation of drinking water supply, sanitation and wastewater management services*"
- ERSAR would be interested in understanding what kind of regulatory frameworks are in place in Jordan and in the nearby countries and in sharing best practices with similar counterparts.





# Aquasis



# AQUASIS

Grupo Águas de Portugal

***Eng. Alexandra Serra, President***



# AQUASIS

# AQUASIS

AQUASIS is an **IT Services Provider** specialized in the Urban Water Sector, since 1990.

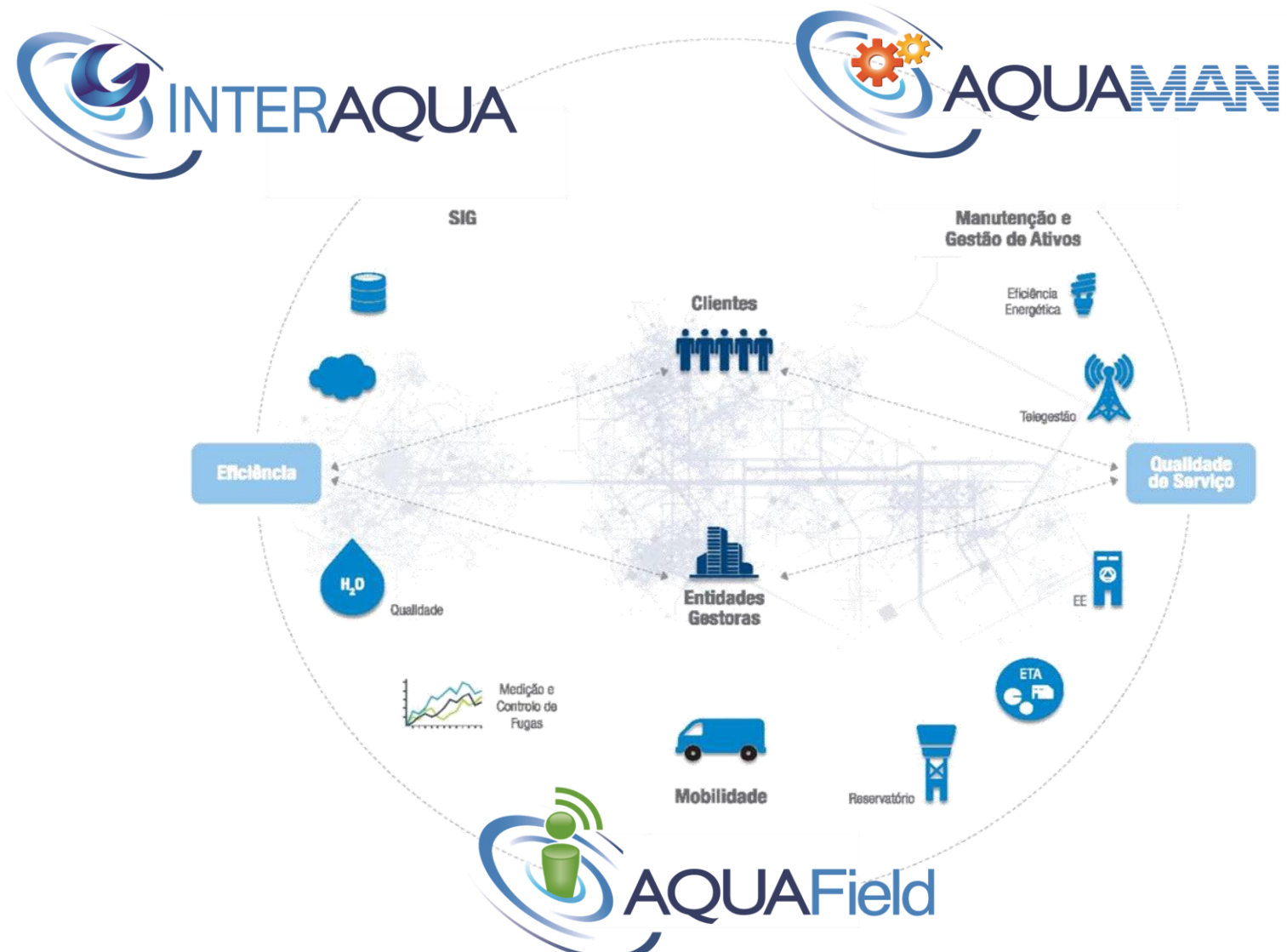
## AQUASIS Planet





# AQUASIS

## AQUASIS Solutions

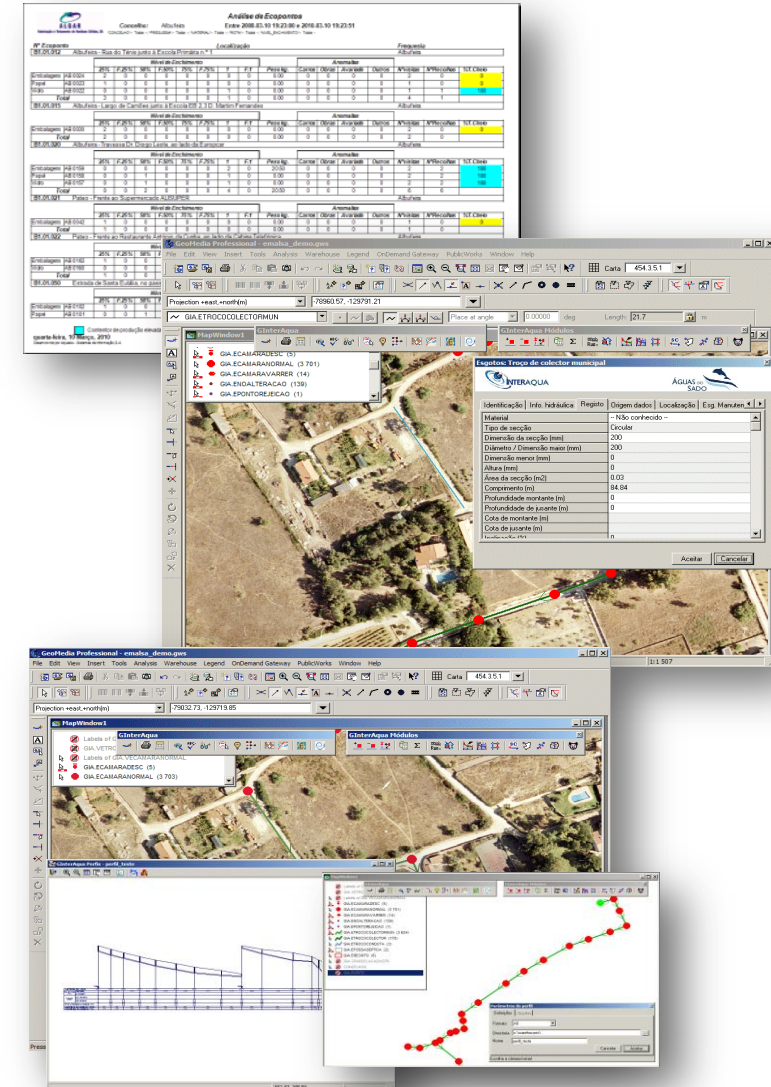




# AQUASIS



edit  
data import / export  
technical document management  
reports, statistics  
plotting  
mathematical modeling  
*EPANET / SWMM*  
Measurement and control zoning (ZMC)  
water quality program (PCQA)  
water / wastewater network management  
demand analysis  
vídeo inspections (CCTV)







# APRH – Portuguese Water Resource Association



ASSOCIAÇÃO  
PORTUGUESA DOS  
RECURSOS HÍDRICOS

*Eng. Alexandra Serra, Board Member*

**The Portuguese Water Resource**

**Association is a**

**non-profitable scientific and**

**technical**

**association**

**created 33 years ago**

The Portuguese Water Resource Association is:

**A Professional Association...**

A 3D map of the Lusophone world, including Portugal, Brazil, and several African and Asian countries, is shown in a light blue color. Numerous small white human figures are placed across the map, symbolizing a global network or strong links. The text "... with strong links in the Lusophone Space..." is overlaid on the map in a bold, dark blue font.

**... with strong links in the Lusophone Space...**

**... and a Global vision on water issues.**

# Our mission is to ...

**Stimulate the  
interdisciplinary and cross-  
sectoral approaches  
regarding water  
management issues,  
consolidating a forum for  
professionals from different  
academic backgrounds and  
sectors acting in the water  
resources domain.**





# APRH is focused in ...

Knowledge Advances |

Collaboration | Discussion |

Debate | Multidisciplinary

Integration | Cooperation and

Stakeholders Participation |

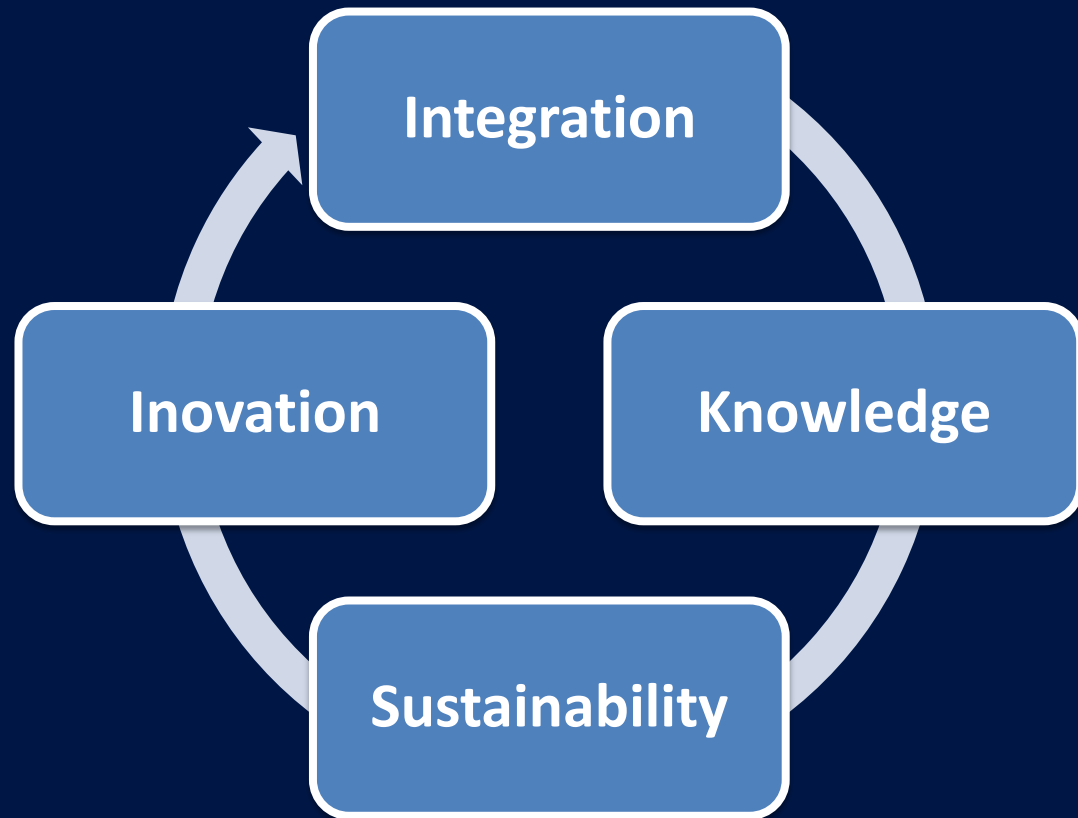
Water Resource Policies |

Scientific and Technologic

Developments | Professionals

International Partnerships |

Communication |





# Acquawise



***Eng. Rafaela Matos, PWP Board Member***



Portuguese company specialized in **management, operation and safety** of drinking water supply and sanitation systems.

Since 2011, Acquawise has provided technical support to more than **60** public and private water utilities.

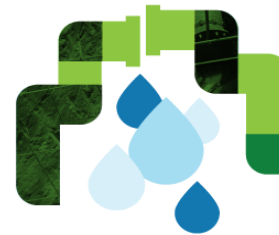
In total approximately **2 million people** have benefited with Acquawise's services!!



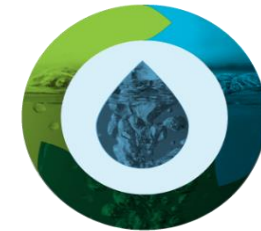
**WATER & SANITATION  
SAFETY PLANS**



**INFRASTRUCTURE  
ASSET  
MANAGEMENT**



**WATER LOSS  
MANAGEMENT**



**AUDITS & TRAINING**

There's a need for more integrated and sustainable management practices to ensure people's access to better health and environment  
**and Acquawise can help in this process**



# **LNEC – National Laboratory of Civil Engineering**

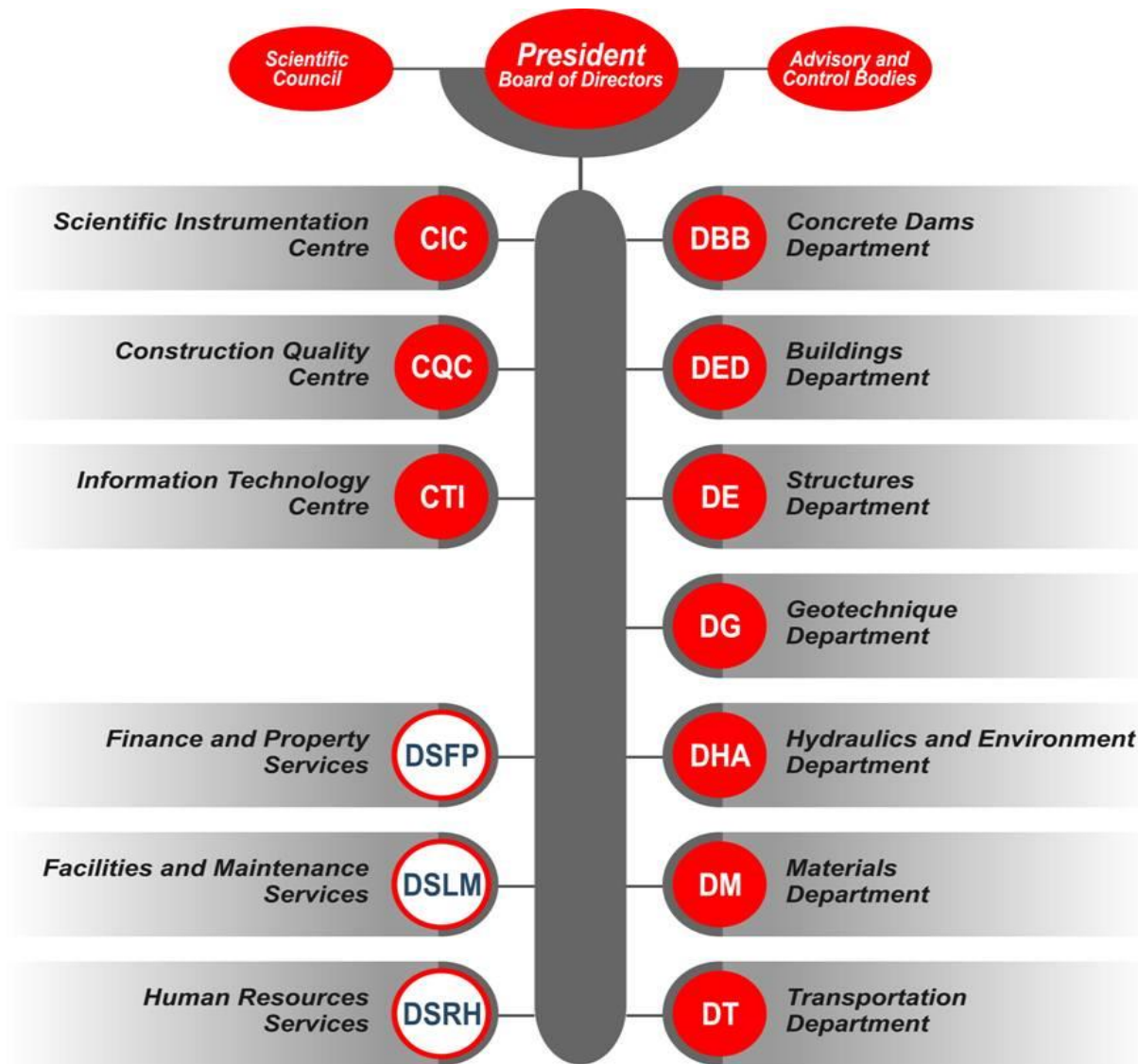


LABORATÓRIO NACIONAL  
DE ENGENHARIA CIVIL

***Eng. Rafaela Matos, Head of Hydraulics  
and Environment Department***

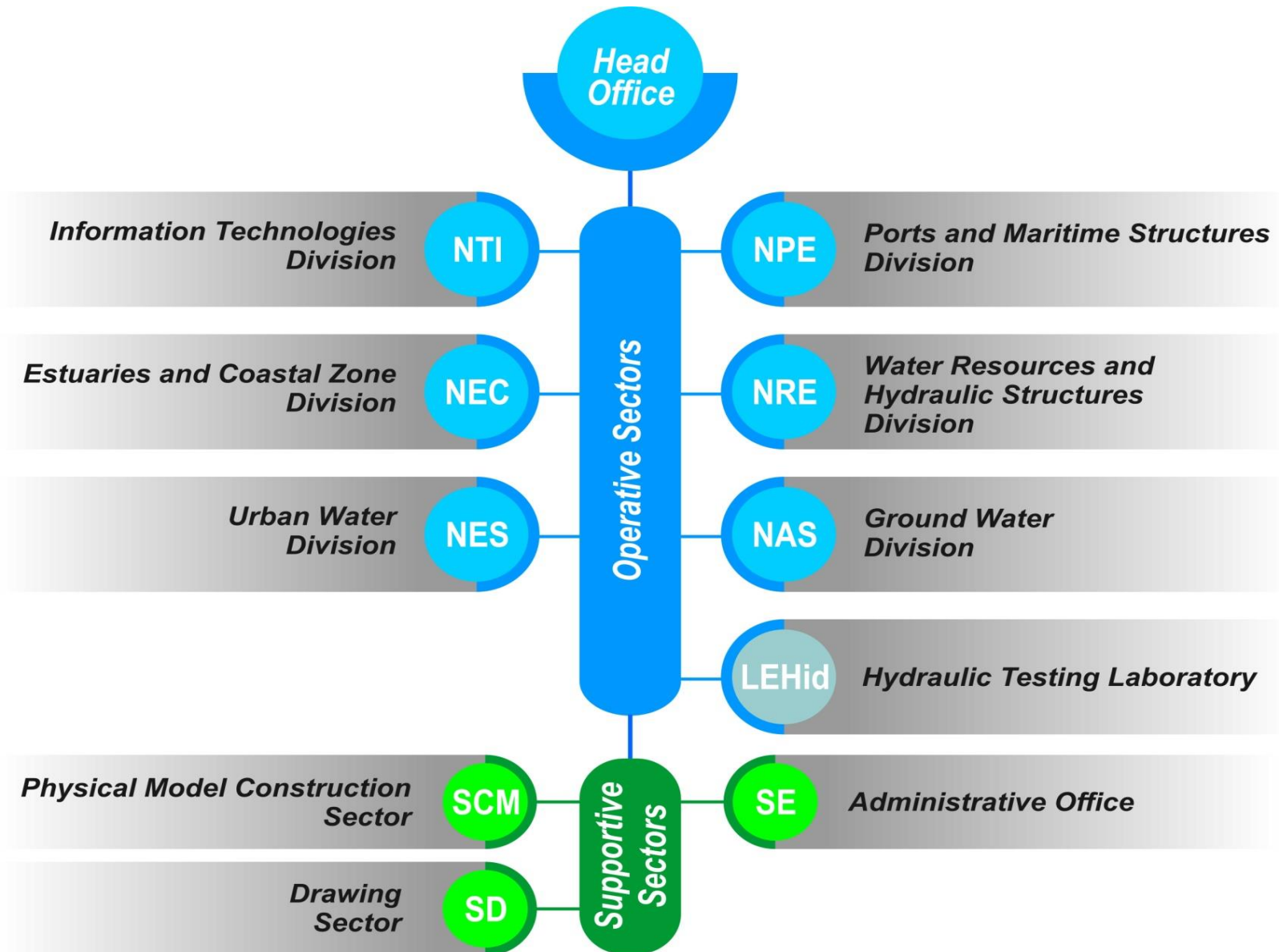


# LNEC in a glance



# The DHA at a glance...

## Organizational Structure



# DHA Relevant Areas of R+D+I

- INTEGRATED WATER RESOURCES MANAGEMENT
  - o Water Framework Directive implementation tools
  - o Extreme events, reservoirs management
  - o Artificial recharge of aquifers
- PHYSICAL INFRASTRUCTURES (FLUVIAL & MARITIME)
- WATER AND ENERGY IN URBAN ENVIRONMENT
  - o Safe drinking water quality
  - o infrastructure asset management
  - o Efficient use of water and energy
- RISK MANAGEMENT AND SAFETY INCLUDING CLIMATE CHANGE ADAPTATION MEASURES
  - o Hydraulic structures (fluvial and maritime)
  - o Urban infrastructures
  - o Coastal zones
  - o Water resources (surface and ground water)
- EXPERT INFORMATION SYSTEMS APPLIED TO HYDRAULICS AND ENVIRONMENT
  - o Real time Control
  - o Data mining
  - o DSS Tools
- COASTAL MANAGEMENT
  - o Morphodynamics of tidal inlets
  - o Water Quality Monitoring and modeling
  - o Coastal aquifer management

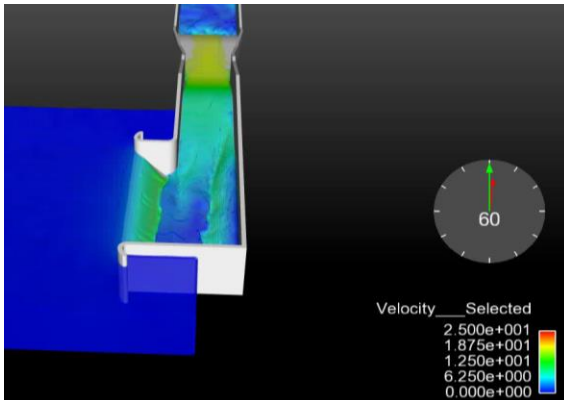


# DHA – Physical Modelling

## Hydraulic structures / dams

- **ALGERIA:** Chertioua  
Dermoun  
Charchar

**Dermoun (Algeria)** (scale 1/70)  
Design discharge - 1327 m<sup>3</sup>/s.



**Chertioua (Algeria)**



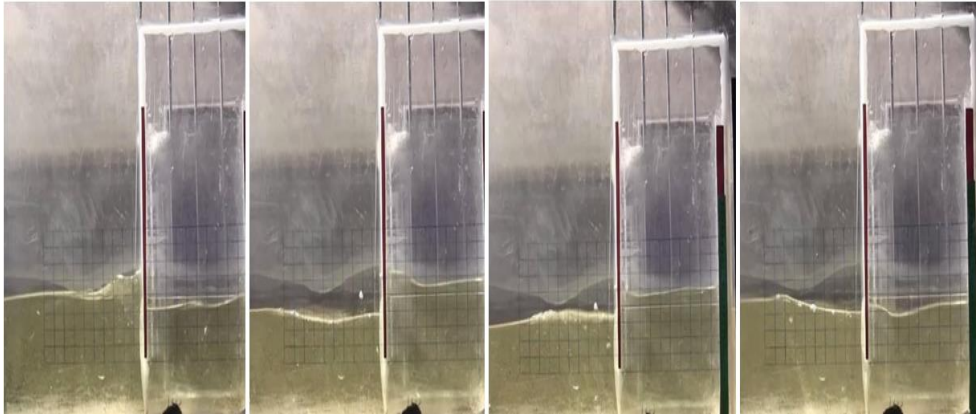
**Charchar (Algeria)**





# DHA – Physical Modelling - Harbour and coastal structures

**DITOWEC - Physical model near the water chamber for different instants**



**Damage progression analysis using a stereo-photogrammetric survey technique**



**Measuring ship movements in physical model scale**



**Submerged reef stability: structural sinking and bed erosion**





**BINGO**  
a better future under  
CLIMATE CHANGE

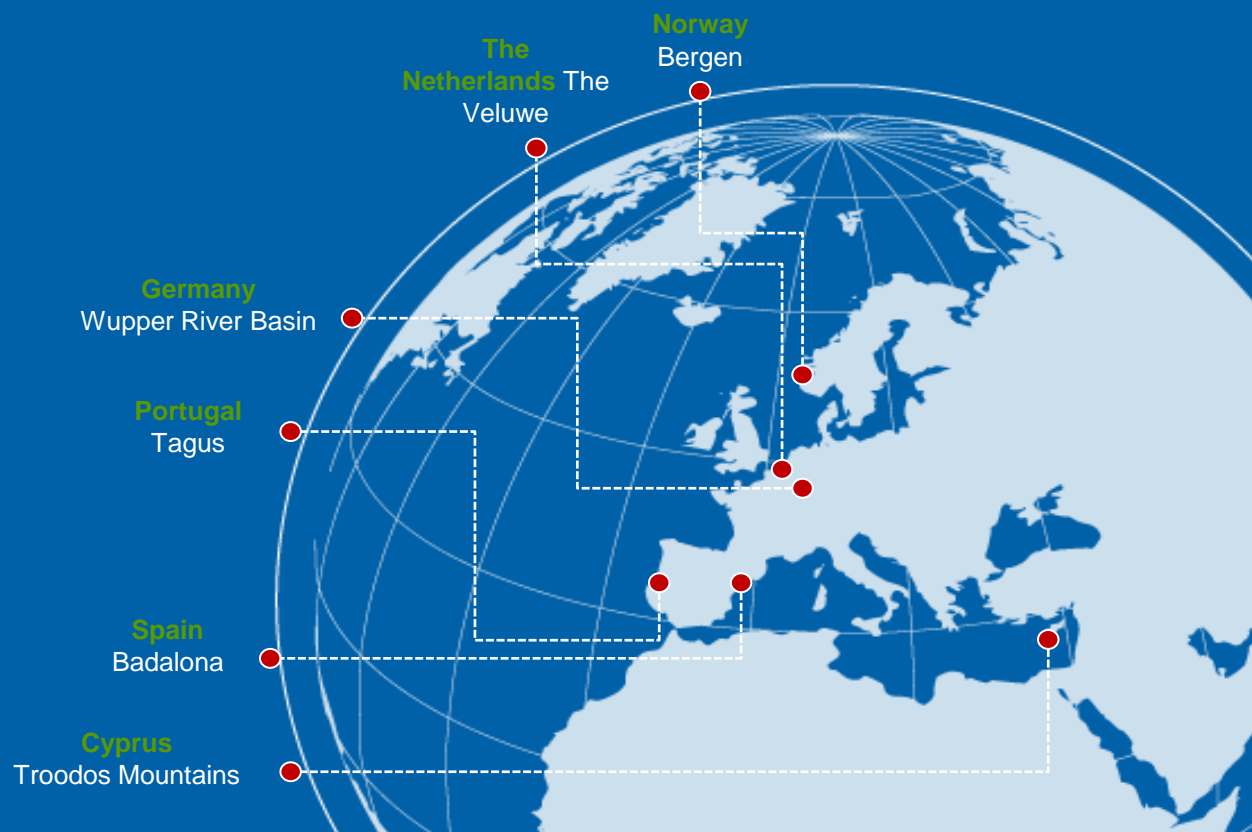
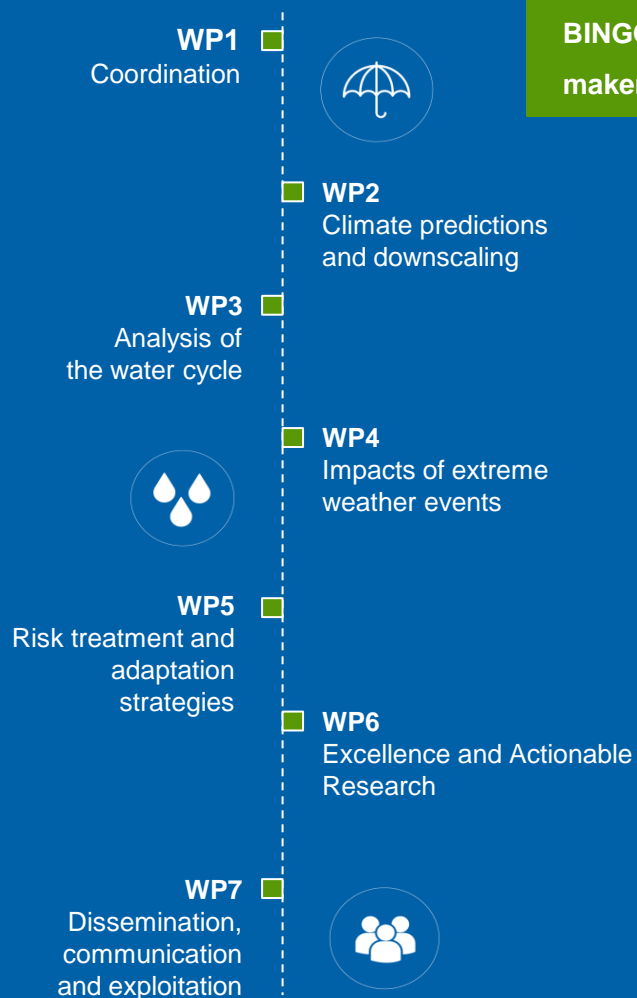
# Bringing INnovation to onGOing Water Management

Funded by Horizon 2020

Coordinated by LNEC - Portugal

[www.projectbingo.eu](http://www.projectbingo.eu)

**BINGO aims at providing practical knowledge and tools to end users, water managers, decision and policy-makers, to better cope with all climate projections, including droughts and floods.**



The BINGO project has received funding from the European Union's Horizon 2020 Research and Innovation programme, under the Grant Agreement number 641739.





# Portuguese Water Partnership

**Thank you !**