



EPAL

**Empresa Portuguesa das Águas Livres, PORTUGAL**

# **EPAL's Experience in preparing for Emergency Situations**

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**W-SMART 2011 INTERNATIONAL WORKSHOP**

**Netherlands, May, 12**



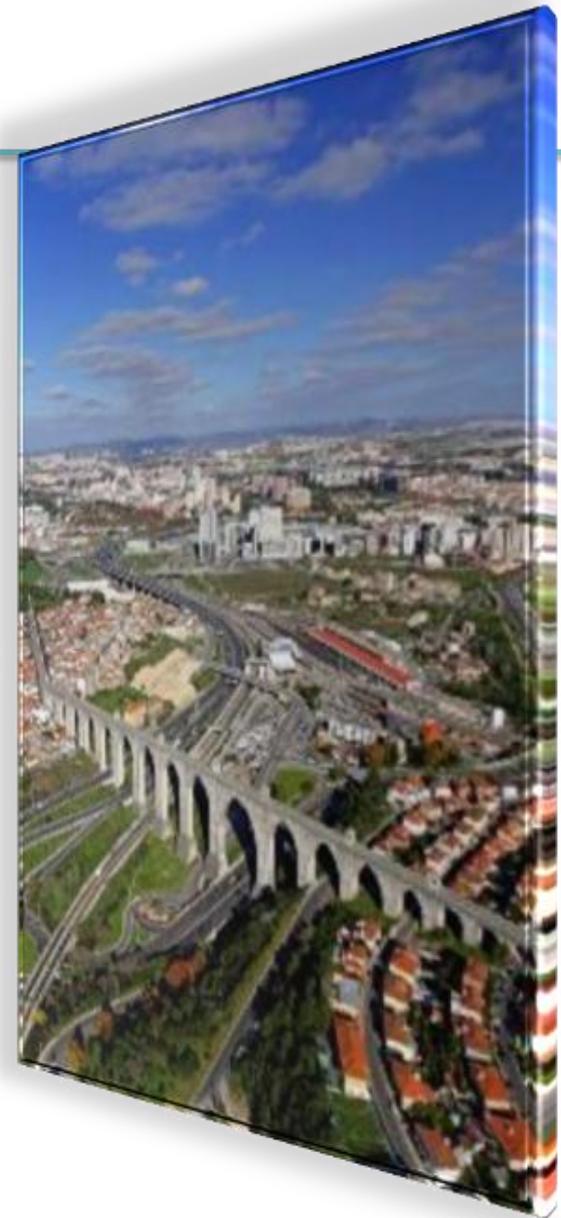
EPAL



ASSOCIATION OF  
METROPOLITAN  
WATER AGENCIES

# PROGRAM

- ➔ 1. EPAL OVERVIEW
  
- ➔ 2. CRISIS MANAGEMENT CAPABILITY
  - ➔ 2.1 WATER SAFETY PLAN
  - ➔ 2.2 W-SMART PROJECT
  - ➔ 2.3 FUTURE IMPROVEMENTS

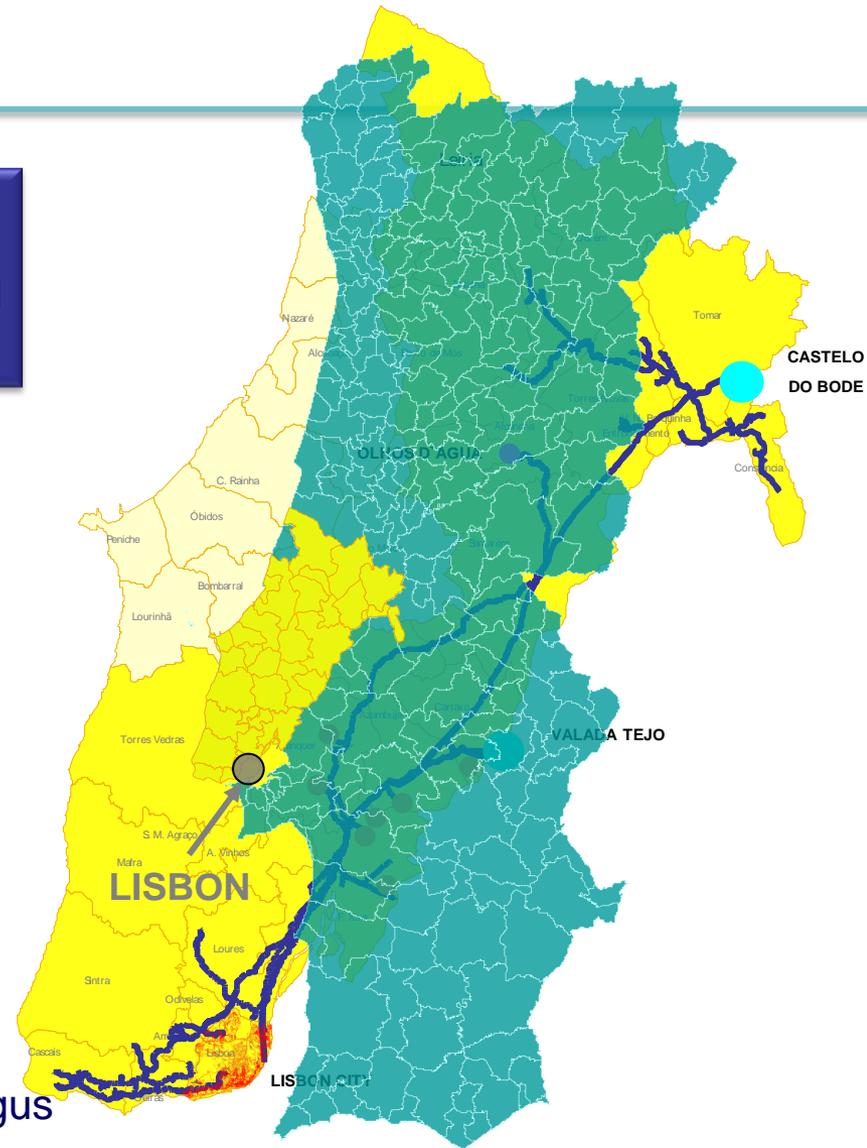


# 1. EPAL OVERVIEW

## EPAL's Mission

Ensuring continuous supply of safe drinking water during routine and crisis events

- **143-year-old Company**
- **Largest water supplier in Portugal**
- **Water Supplied ( $10^6 \text{ m}^3$ ) 213,8**
- **Total Revenues ( $10^6 \text{ EUR}$ ) 164,1**
- **Profit After Tax ( $10^6 \text{ EUR}$ ) 45,9**
- Treatment and supply of drinking water to approximately **2,8 million people**
  - 520,000 inhabitants** of the city of Lisbon
  - 35 Municipalities** to the north of the River Tagus



# 1. EPAL OVERVIEW

## EPAL's Vision

- To be a Reference Company in the Water Sector in Portugal
- Guided by International Best Practices

## Stakeholders

- Public Authorities
- Universities and Investigation Centers
- Associations and NGOs
- Media
- Municipalities
- Clients
- Suppliers
- Workers
- Community



## NETWORK

as a source of Knowledge

## Challenges

- Sustainability and Efficiency
- Protection of Critical Infra-structures
- Emergency Procedures, Training and Exercises
- Stakeholders Expectations
- Climate Changes Impacts ...

# 1. EPAL OVERVIEW

## International Projects - I&D

- Project TECHNEAU “Technology Enabled Universal Access to Safe Water”
- Project Cost Benefit Analysis (CBA) of Flushing - Lisbon Case Study - COST ACTION 637 – METEAU “Metals and Related Substances in Drinking Water”
- Project SAFEWATER “Development and Validation of Integrated Process for Treatment of Drinking Water in Portugal and Norway”
- Project “Fungi Watch - Benefits and Hurdles Associated with the Presence of Fungi in Drinking Water Sources”
- Project PREPARED “Enabling Change”

## National Projects - I&D

- Project “Adapta Clima” - Climate Change
- Project “Nascentes para a Vida” - Biodiversity
- Pedagogical Service “Águas Livres” - Environmental Education

## 2. CRISIS MANAGEMENT CAPABILITY

Since 2009, EPAL, with W-SMART's support have been developing a **Crisis Management Culture** for upgrading **emergency and security preparedness** capabilities.

### PURPOSE

We had to do something, fast and skip to a higher level that **enabled a more effective response**.

**Share and learn** from the experience of other Water Utilities **facing the challenges of natural disaster response and recovery**.

**Best practice assessment** of integrating technology solutions in crisis management, **and the role of international support**.

### HOW TO ACHIEVE

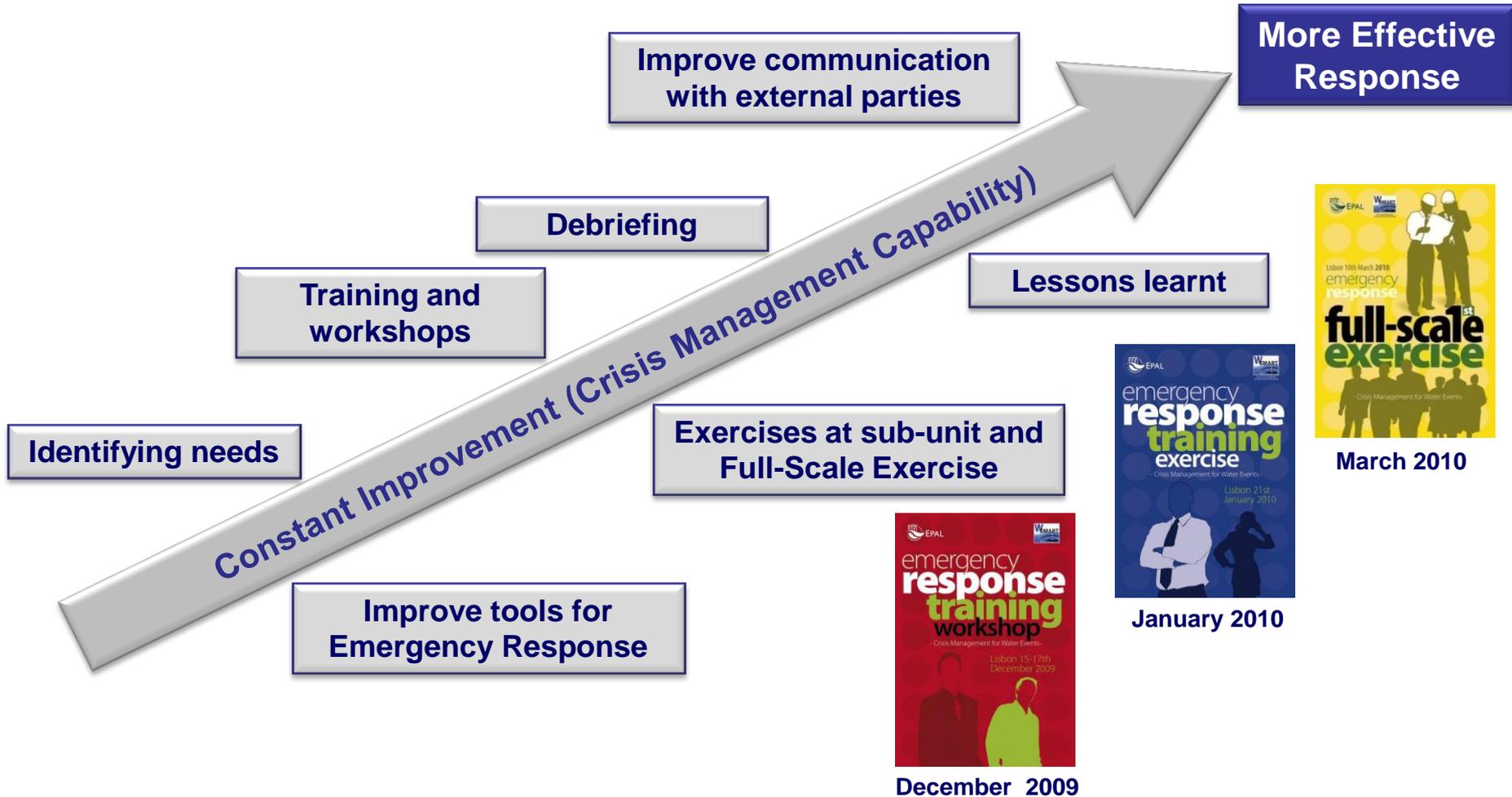
**Changing the corporate culture** by improving inter-departmental communication **and real time information sharing**.

**Minimize effects** - Managing and operating correctly **during emergency situations**.

**Development / Improvement – Procedures, Guidelines, Emergency and Contingency Plans**.

# 2. CRISIS MANAGEMENT CAPABILITY

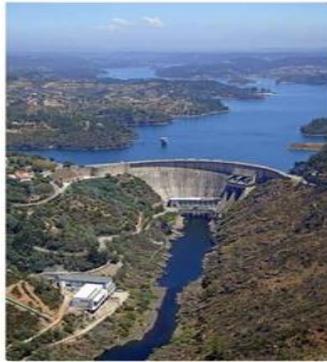
## HOW EPAL HAS BEEN MAKING



# 2. CRISIS MANAGEMENT CAPABILITY

## 2.1 WATER SAFETY PLAN

### APPROACH



SOURCES



TREATMENT



DISTRIBUTION



CLIENTS



- Provide a systematic approach for **improving and maintaining drinking-water safety**
- **Risk evaluation and assessment** from the Sources to Consumer's tap
- Provide water in **Quantity with Quality**

# 2. CRISIS MANAGEMENT CAPABILITY

## RISK ASSESSMENT

- Undertake a **hazard identification** and **risk prioritization**
  - ✓ Assess the hazardous events at each step in the process;
  - ✓ Determine whether they are under control;
  - ✓ To document whether those events need urgent attention.

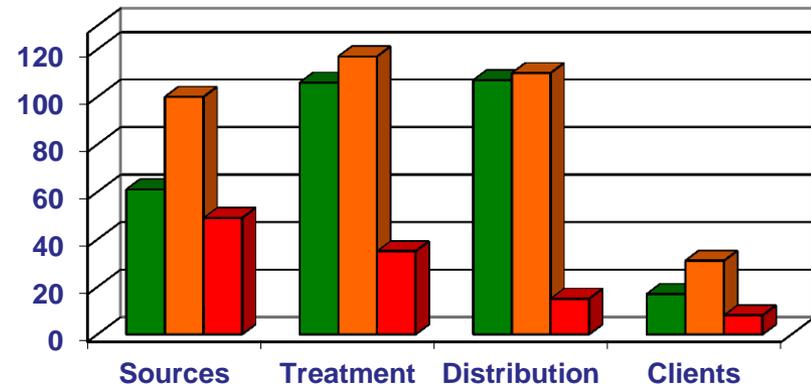
- **Identify Risk Scoring** of each step in the process

*Risk Scoring = Likelihood x Consequence (Public Health/Quantity)*

117 high level risks (red)

- Identify additional control measure and **improvements required**:
  - ✓ Define **monitoring Control Measures**
  - ✓ Define **Corrective Actions**

**Risk Assessment**  
Risks Identified = 731



# 2. CRISIS MANAGEMENT CAPABILITY

## IMPROVEMENT REQUIRED

### Types of Hazardous Event

#### ➤ Natural Disasters

Floods, Droughts, Earthquake...

#### ➤ Human Actions

Acts of vandalism or sabotage...

#### ➤ Serious Incidents

Power Failure, Failure of Automatic Control of Site, Loss of pumping capacity, Burst Pipe, Infiltration in Pipes, Loss of Site...

#### ➤ Inadequate Treatment of Water

Incorrect doses of Chlorine, Lime water, Carbon Dioxide, Aluminium sulphate, Polyelectrolyte...

#### ➤ Contamination of the Sources

Wastewater discharge, use of Fertilizers or Pesticides, Farming and Cattle, Accidental discharges...

### Control Measures & Corrective Actions

- ✓ Studies and Projects
- ✓ Revision and elaboration of Procedures, Work Instructions and Activity Manuals
- ✓ Elaboration of Operational Plans and Maintenance Plans
- ✓ **Elaboration of Security, Emergency and Contingency Plans**
- ✓ Works for Improvement the Supply System
- ✓ Optimization of Conditions for the Operating System
- ✓ Improve **Communication with Stakeholders**

# 2. CRISIS MANAGEMENT CAPABILITY

## 2.2 W-SMART PROJECT

### HOW W-SMART HELP US ON OUR IMPROVEMENT

- ✓ **Offering best practice** of water crisis management based on the accumulative and diversified experience of W-SMART.
- ✓ **Commitment of W-SMART to experience sharing** with its members to upgrade their Security Management capabilities of water supply.
- ✓ Water Companies can help each other in **improving their Crisis Management Capacity**.
- ✓ **Oversight Committee Assessment** of Guidelines, Training and Exercises.
- ✓ **On-site participation during exercises as Observers**, offering their peer-to-peer assessment and recommendations.



# 2. CRISIS MANAGEMENT CAPABILITY

## 2.3 FUTURE IMPROVEMENTS

- ✓ **Implementing simple and workable procedures.**
- ✓ **Preparing a decision support system for determining which information provides the appropriate data for event detection and control under Emergency Situations.**
- ✓ **Optimization of the Internal and External Communication and Reporting.**
- ✓ **Creating strong Cooperation and Coordination with Stakeholders (e.g. Civil Protection, Health Authorities, Municipalities...).**
- ✓ **Realization of debriefings after the practices of the exercises as a way to identify the actual state of art and actions that must be done.**



# 2. CRISIS MANAGEMENT CAPABILITY

## ACTIONS 2011

### Stabilizing Crisis Management Approach at EPAL in order to guarantee the Business Continuity

#### 1. Guidelines - Updating the Emergency Guidelines

- ✓ Based on feedback given from the Units and **lessons learnt**;
- ✓ **Extend to large scale Events**;
- ✓ **Involvement of Government Agencies** and External Organizations.

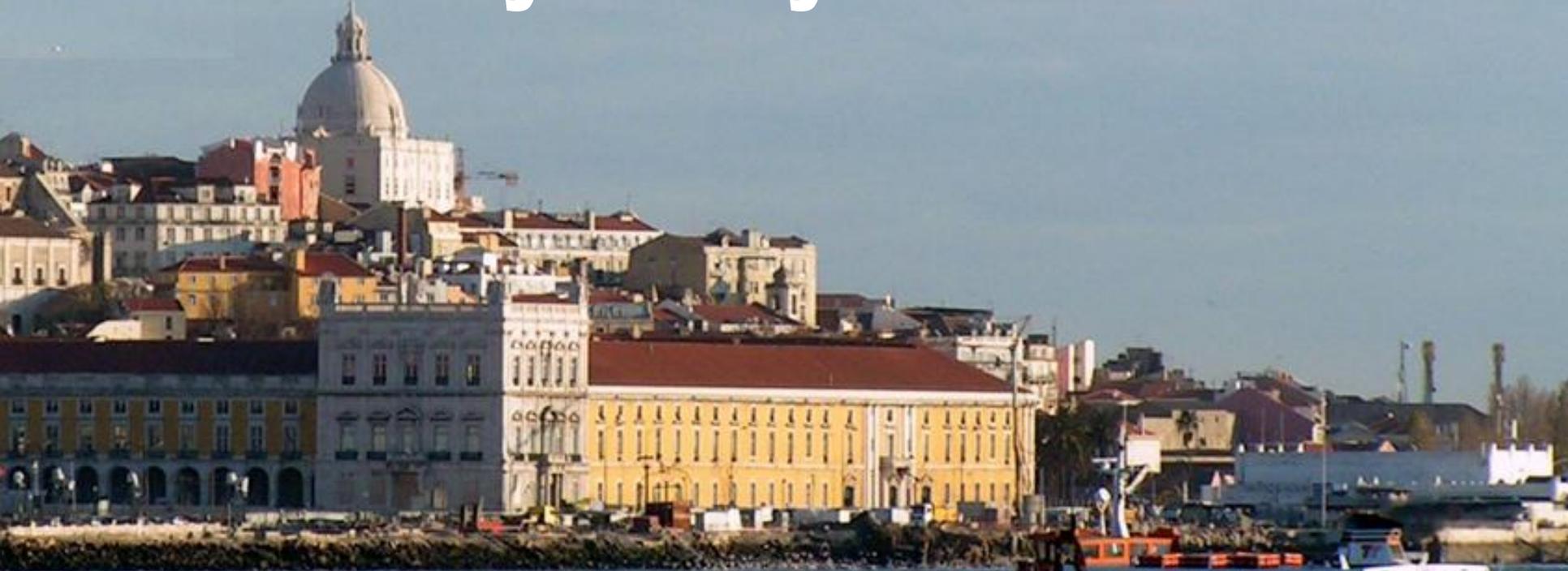
#### 2. Training - “Training the Trainers ” Workshop

At the levels of both the Corporation and its sub Units – water treatment plants, water quality, water supply, security units...

#### 3. Exercises - **Sub-Unit Exercise** - **Involvement of External Parties** (Municipalities, Civil Protection, Local Police).

- **Full-scale Exercise** – Involvement of External Parties (Guidelines for Interagency Communication)

**Thank you for your attention**



**LISBON**

*A City to Visit. A City of Contrasts.*



**Under the leadership of EPAL**

**Lisbon will be the host for the**

*9th  
World Water  
Congress & Exhibition*

**In September 2014**

**Finding Solutions to Assure the Future**

