AquaStress *Mitigation of Water Stress through new Approaches to Integrating Management, Technical, Economic and Institutional Instruments*

Guadiana Case Study

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for the joint working team

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Introduction

AQUA**S**TRESS is a stakeholder driven, European scale, comprehensive multisectoral, integrated (institutional, socio-economic, technical) approach for the diagnosis and mitigation of water stress.

• **A**QUA**S**TRESS is grounded in a *Case Study approach*.

• Local Stakeholder fora are established in the eight Test Site areas, while one other high level stakeholder forum will provide a European scale overview.

• **A**QUA**S**TRESS emphasizes the integration of multi-disciplinary expertise to address complex social and physical problems. In particular experts will develop advice on the many inter-sectoral linkages and feed-backs in the Case Study areas.

Guadiana Case study

Major water stress issues in the region:

I) Inefficient use of water resources

II) Need for promotion of rational and sustainable water resources use and management through participatory processes

III) Lack of SW and GW integrated use (potentially with GW as strategic water reserve)

IV) Poor characterization of point and diffuse pollution sources

V) Lack of Contingency Plans to face drought and water scarcity situations

Joint Work Team (open list)

9 Participating institutes

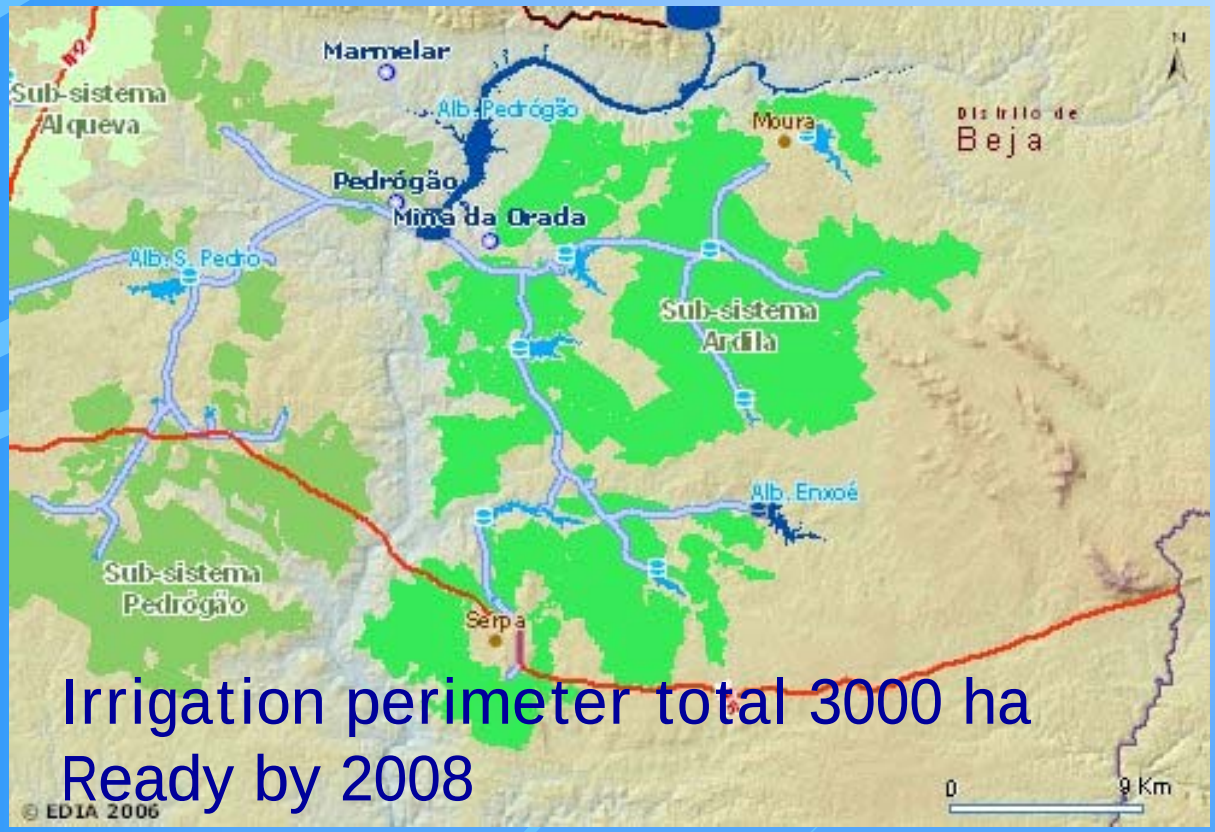
- Rodrigo Maia (FEUP)
- Maria Manez (U. Onsnabruek)
- Mare Sarr (U. College London)
- Adélio Silva (Hidromod)
- Matthias Obermann (U. Hannover)
- Laura Alcalde (U. Barcelona)
- Claire Jacobs (Alterra)
- Michele Vurro (IRSA)
- Elisabetta Preziosi (IRSA)
- Emanuele Romano (IRSA)
- York von Korf (Cemagref)
- Mathieu Dionet (Cemagref)
- Raffaele Giordano (IRSA)
- Bettina Blümling (USF)

Serpa – Mértola region

Alqueva reservoir
Largest Reservoir in Europe
Volume: 4.150 Mio. m³
Height: 96 m

Pedrogao dam:
Hydropower production
Water supply

Future Ardila irrigation subsystem



Irrigation perimeter total 3000 ha
Ready by 2008

Serpa and Mértola (Enxoé dam, common reservoir for urban water supply, severe problems of water quality)

(Commission for Drought, 2005)

Expected Outcomes

Local Outcome:
Test-site specific guidelines for more economically efficient, socially equitable, and dynamically sustainable water management;

Regional Outcome:
Manual that will explain how test-site results can be extrapolated to the greater region;

Activity 1

Rationalization and optimization of water resources use in the Case Study region (quantity, quality and economic aspects)

Responsible Partners:
FEUP, Hidromod, U. Hannover, UB, UCL, Cemagref, IRSA, USF

Stakeholders involved:
all the stakeholders of the LPSF, with special relevance for EDIA, CCDR Alentejo and COTR; Municipalities, Water Utilities and Farmer Associations of the Region

Main goal:

to integrate quantity and quality dimensions in water use rationalization in the region into the development of alternative options to be considered in long-term scenarios.

Activity 1

A.1.1: Case study region characterization

A.1.2: Water quantity/quality evaluation

a) Surface water balance and quality (Hidromod)

b) Groundwater model implementation (IRSA)

c) Surface water control (Hidromod)/
Enhanced reservoir management (U. Hann)

A1.3: Economic evaluation

A1.4: Alternative option: wastewater reuse

A1.5: WSM-DSS application

A1.6: Best management practices

A1.7: stakeholders' involvement, T&D and complementary activities

Activity 2

Technical options application and best practices for agriculture sustainability

Responsible Partners:
FEUP, Hidromod, UCL, Alterra, Cemagref, IRSA, USF
Stakeholders involved:
all the stakeholders of the LSPF, with special relevance for COTR and EDIA; Farmers' associations of the region

Main goal:
Achievement of higher productivity levels and improvement of physical, chemical and environmental status of water and related ecosystems, with farmers' awareness and involvement, in line with WFD.

Activity 2

A2.1: Agriculture water use: assessment and optimization of best practices (FEUP with COTR collaboration)

A2.2: Irrigation water management/ tailoring cropping patterns

a) Agricultural water demands (Leading: Alterra)

b) Performance indicators (Leading: FEUP/Hidromod; supporting: Alterra)

A2.3: LPSF, T&D and complementary activities

AQUASTRESS

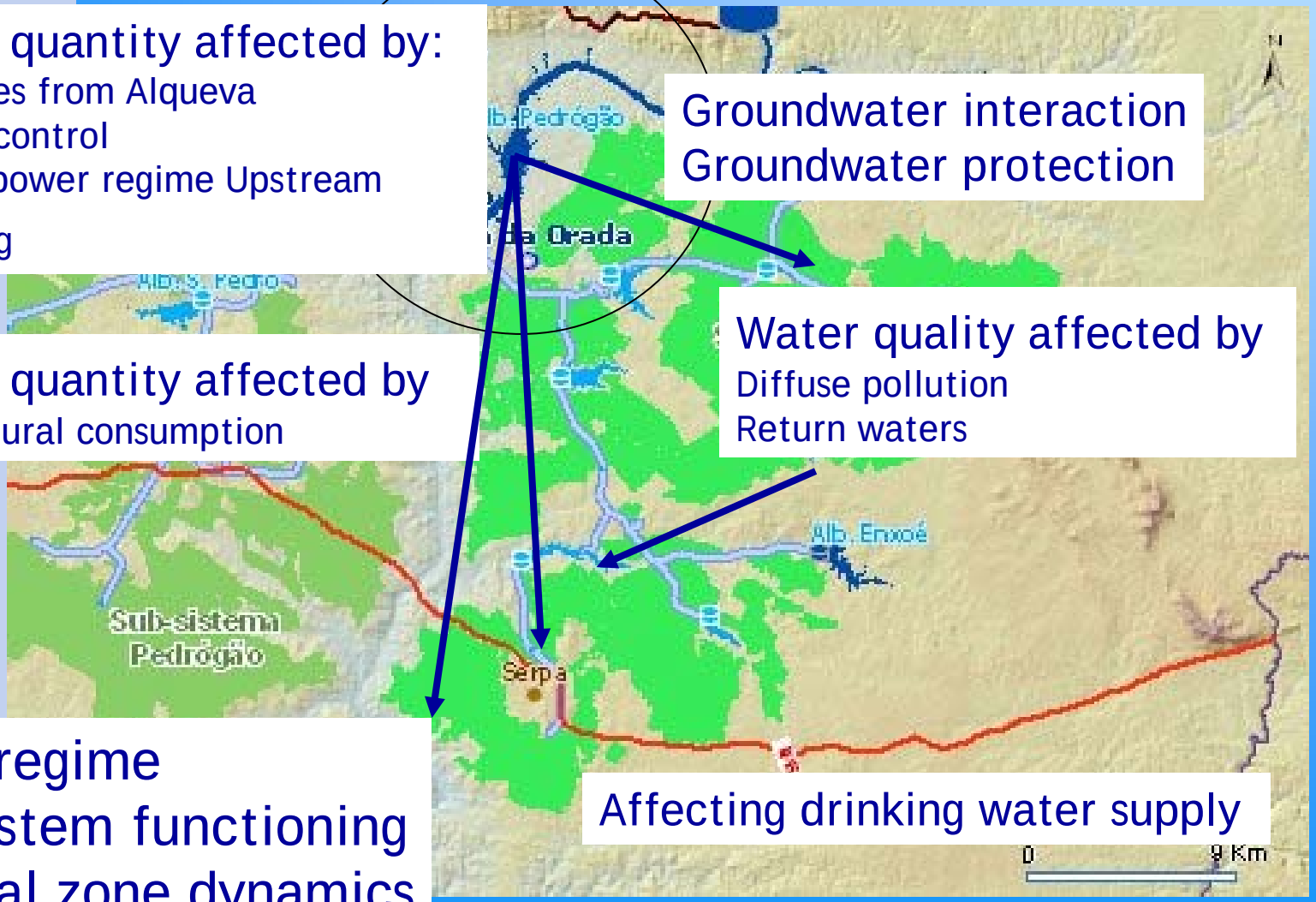
Water quality affected by
- Inflowing Guadina water quality
- Processes inside Alqueva reservoir

Water quantity affected by:
- releases from Alqueva
- Flood control
- Hydropower regime Upstream pumping

Groundwater interaction
Groundwater protection

Water quantity affected by
Agricultural consumption

Water quality affected by
Diffuse pollution
Return waters



Flow regime
Ecosystem functioning
Coastal zone dynamics

Affecting drinking water supply

The Dry Area Forum: A Means to Achieve Global Activity on Arid Area Issues

Tom Mollenkopf
Project Manager
International Water Association

Activities

- Create the network
  - IWA Specialist Groups and other institutions
  - All interested practitioners
- Develop strategic framework
  - What's going on where?
  - Where are the gaps?
- Promote the framework
  - Raise the profile of DAF issues
- Develop 'Principles' documents
- Promote activities at Australia and Beijing

Beeing involved!

- Contact us:

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- Steering group meeting

October 9th, London