

AquaStress project

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Main features and partnership

AquaStress (Mitigation of Water Stress through new Approaches to Integrating Management, Technical, Economic and Institutional Instruments) is an EU funded integrated project (IP) within the 6th EU Framework Programme for RTD delivering interdisciplinary methodologies enabling actors at different levels of involvement and at different stages of the planning process to mitigate water stress problems. Water stress is seen as a global problem with far-reaching economic and social implications. Therefore, the mitigation of water stress at regional scale depends not just on technological innovations, but also on the development of new integrated water management tools and decision-making processes. This makes a major contribution to the European Communities objectives stated in the 6th Framework Programme and supports the Community Directive 2000/60/EC and the EU Water Initiative.

AquaStress draws on both academic and practitioner skills to generate knowledge in technological, operational management, policy, socio-economic, and environmental domains. The contributions come from 35 renowned organizations, including SMEs, from 17 Countries from Europe and the Mediterranean region. The partners from the Mediterranean area are: Morocco (IAV Hassan II), Tunisia (INAT), France (CEMAGREF, IRD, CIRAD), Italy (CNR-IRSA, CIHEAM-IAMB, HYDROCONTROL, HYDRODATA), Greece (NTUA – University of Athens, University of Piraeus), Spain (University of Barcelona), Portugal (FEUP – University of Porto, HIDROMOD) and Cyprus (Aeoloki Foundation).

The activities are implemented through seven Work-blocks (WB), and each WB comprises of individual Work Packages (WP), with a total number of 31 WPs. The Work-blocks operate as science management units and Work Packages as sub-units having specific scientific objectives and results. The project is coordinated by National Research Council – IRSA – Rome (Italy), while CIHEAM-IAMB is leader of Work Block on Dissemination and Training. The project has started in February 2005 and will last four years.

Objectives and approaches

Aquastress adopts a Case Study – stakeholder driven approach which is organised in three main phases:

- characterisation of selected reference sites and relative water stress problems,
- collaborative identification of preferred solution options,
- testing of solutions according to stakeholder interests and expectations.

Accordingly, AquaStress generates scientific innovations to improve the understanding of water stress from an integrated multi-sectoral perspective to support:

- diagnosis and characterisation of sources and causes of water stress;
- assessment of the effectiveness of water stress management measures and development of new tailored options;
- development of supporting methods and tools to evaluate different mitigation options and their potential interactions;
- development and dissemination of guidelines, protocols, and policies;
- development of a participatory process to implement solutions tailored to environmental, cultural, economic and institutional settings;
- identification of barriers to policy mechanism implementation;
- continuous involvement of citizens and institutions within a social learning process that promotes new forms of water culture and nurtures long-term change and social adaptivity.

The overall objective of the project is to develop stakeholder driven, European scale, comprehensive multi-sectoral, integrated (institutional, socio-economic, technical) approach for the diagnosis and mitigation of water stress. Accordingly, the project empowers local actors, working at different spatial scales, to mitigate water stress at different levels of involvement and at different stages of the planning process. This approach will lead to the prioritised actions that allow gradual improvement and flexibility to adapt to changes in global systems, knowledge, technology and society.

AquaStress intends to deliver guidelines to implement integrated water stress mitigation options at local, regional and European scale. This will be achieved considering:

- Major advances in the understanding, effectiveness and empowerment of stakeholder driven participatory decision making in water management at local and regional scales;
- New insights into the pressures and drivers of water stress in different regions of the EU, and in the regional aggregation of stakeholder based decisions;
- New assessments of diverse policies, institutions and cultural factors as causes and remedies to water stress, leading to new measures of the effectiveness and side effects of mitigation options;
- New approaches to the integration of diverse multi-sectoral and multi-disciplinary expertise for participatory vulnerability assessment and adaptive planning;
- The development of IT knowledge management tools to support this new management approach;
- Identifying areas where new technologies would have the most impact in mitigating water stress;
- A culture change in the European approach to water management, from centralist infrastructure dependency towards a distributed, bottom-up, adaptive integrated systems approach.

In fact, one of the greatest challenges of the project is to make better use of the water management tools which already exist but are not integrated and inter-linked within a larger, multi-disciplinary and more complex water management system. For that reason, AquaStress explores new interfaces between technologies and social approaches, disciplines and sectors, and develop a radically innovative water stress mitigation conceptual framework and guidelines to implement integrated options. Accordingly, a Case Study – stakeholder driven approach is adopted in order to facilitate the change from a culture, dominated by "infrastructure" solutions, to more integrated solutions, attuned to local needs and supported by citizens.

Case Studies

The activities are going on in eight Case Study areas selected across Europe and North Africa with the main objective to develop adequate, integrated and multi-sectorial mitigation options and strategies in accordance with the needs and concerns of local stakeholders. The selection of test sites had been based on a detailed analysis and characterisation of the case study areas on the basis of the following criteria:

- An existing and accessible wealth of existing data on the physical characteristics of the water regions and water management systems;
- Stakeholders amenable to participatory processes;
- The types of water stress issues represented include insufficient or failing infrastructure, inappropriate agricultural and lands use practices, industrial pollution, inefficient water use in domestic, agricultural and industrial sectors, pressures from seasonal population changes (tourism), energy demands, etc.

Case study areas include five Mediterranean sites, characterized by water stress problems mainly in irrigated agriculture, and three sites where the major water problems are related to the environmental aspects of water management. A summary of the Case Study areas including specific water management issues is given as follows:

- Gardiana (Portugal) – Use and allocation of water resources among agriculture, urban and industrial sectors to maximize environmental, economic and social welfare in the Serpa-Mertola region;
- Merguellil Valley (Tunisia) – Improving water use efficiency in intensively irrigated areas in order to save water and attenuate depletion of groundwater resources (Fig. 1);
- Tadla (Morocco) – Integrated and sustainable management of water resources;
- Flumendosa – Sicily (Italy) – Sustainable water management regarding the minimum vital flow in the Flumendosa-Campidano area;
- Limassol (Cyprus) – Decreasing groundwater exploitation through the rationalization of the irrigation practices and the promoting the use of non-conventional water resources;
- Prsemsza (Poland): Adaptation of water management in the watershed to meet the needs of industrial transformation;
- Iskar (Bulgaria): Decrease of the Water Exploitation Index in the Sofia region through improved industrial and urban water management and flood/drought prevention; and
- Vecht (The Netherlands): Improvement of water management by the Velt en Vecht Water Board through participatory approach and water system analysis.



Local stakeholders pump groundwater in the area of Kairouan, Merquellil Valley (Tunisia)

AquaStress is truly stakeholder driver project with local stakeholder fora established in the eight Test Site areas, while one other high level stakeholder forum provides a European scale overview. The project emphasizes the integration of multi-disciplinary expertise to address complex social and physical problems. A high level of flexibility has been included within the project plan to facilitate the "Call Down" of a wide range of expertise to inform and advise the local Stakeholder Fora involved in water management in the Case Study areas. In particular, the experts develop advice on the many inter-sectoral linkages and feed-backs in the Case Study areas. These aspects of AquaStress are supported by a IT knowledgebase system which facilitates the integration of research activities, the workings of the stakeholder fora, dissemination of research progress and communications, and provide operational guidelines and tools for stakeholder driven integrated water stress mitigation solutions. Accordingly, a whole set of training and education programmes is embedded in AquaStress within the Test Sites, in order to inform and extend the involvement of the wider community in the project, and to communicate research results widely across Europe and Mediterranean region.

The Case Study implementation process will be completed by February 2008, while during the last year of the Project, the Joint Working Teams, established at each Test Site, will finalize the local and regional outputs. The final efforts will be focused on the preparation of horizontal outputs with the aim to emphasize the similarities and synergies among the different Case Studies and corresponding activities, and to define a set of possible Case Study and Project applicable results. The ultimate target will be to identify coherent and comprehensive policy recommendations that could be integrated as the project final outcome. In such a way, the project final outputs should have a larger European relevance and follow the challenges and policy orientations indicated in the Water Framework Directive and other EC policy papers on water resource management.

More information on www.aquastress.net



Founded in 1962 at the joint initiative of the OECD and the Council of Europe, CIHEAM is an intergovernmental organisation comprising thirteen member countries from the Mediterranean Basin (Albania, Algeria, Egypt, Espagne, France, Greece, Italy, Lebanon, Malta, Morocco, Portugal, Tunisia and Turkey).

CIHEAM is made up of a General Secretariat (Paris) and four Mediterranean Agronomic Institutes (Bari, Chania, Montpellier and Zaragoza)

In pursuing its three central missions (education, research and cooperation) CIHEAM has established itself as a reference in its fields of activity: Mediterranean agriculture, food and rural development.

CIHEAM Observatory

The CIHEAM Observatory is an instrument for analysis and discussion of Mediterranean agriculture, rural affairs and food.

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