

Proposed Responses- Water accounts

- Water accounts based on the UN System of Environmental Accounting for Water (SEEA-W): linking socio-economic activities to water use.
- They represent the balance between water demand and the supply of clean water, taking into account the needs of both human activities and of natural ecosystems.
- Water accounts (balances) can be an additional tool to promote the efficient use of water, and demand management at the river basin level.
- There is a need to obtain a consistent set of data at the river basin level on sectoral demands.
- For the Blueprint: a way to determine the need of including more quantitative data in the first revision of River Basin Management Plans (RBMPs) by 2015.

Type of Responses

- The production of water accounts is a technical and institutional response (need to use reliable and official data sources, and knowledge of water resources managers of the River Basin Authority)



De la Marquesa weir, Júcar River. www.chj.es

Time-Frame to Apply Responses

- Water accounts can be developed any time, but they make more sense prior and during a drought episode: a water resources balance main use is to plan based on available water resources and existing demands.
- Water saving and optimization measures according to results will be especially useful during a drought episode.

Sectors relevant to the Responses

- Data gathered involves different parameters: climatic, soil, land cover, runoff, storage, water uses... thus, involving all major demanding sectors (public use, industrial, irrigation...)

Expected Impact of the Responses

- The project intends to show: the feasibility of obtaining data for different parameters at the sub-basin level and at monthly time scale.
- Recommendations (to be produced) can include water savings and optimization measures to ensure supplying basic demands (e.g. useful under a drought episode).
- For the specific case of the Júcar River Basin, since there is an existing Drought Management Plan (DMP), the project can help in checking the demands calculated to apply the plan's measures, and make recommendations on adjustments.
- NOTE: the use of different hydrological models (according to the purpose of each), and the uncertainty of the data sources and estimations will most likely produce important discrepancies in the resulting balances.

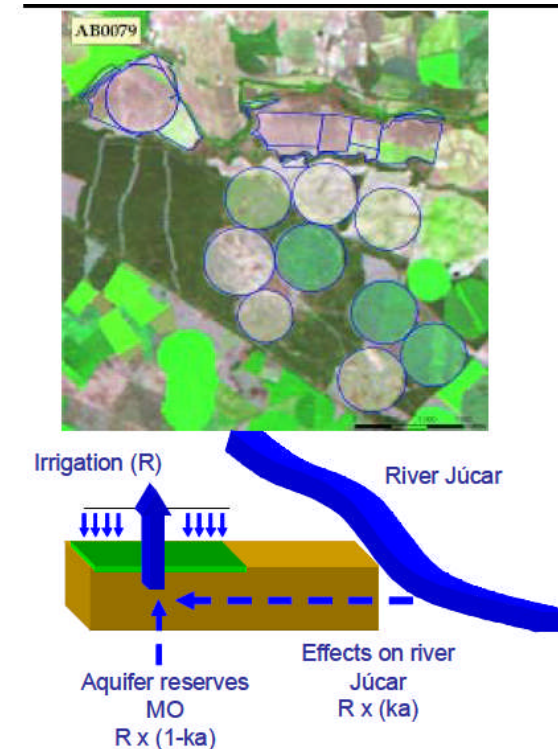
The specific case of the Júcar DMP: Proposed Responses

- **Modifications of the RBMP**
 - **Management rules, saving and use restrictions to be included in RBMP or a superior law**
 - **Joint management of surface water and groundwater: drought wells**
 - **Non-conventional resources: reuse of treated wastewaters in agriculture**
 - **New non-conventional resources: desalination**
 - **Water markets**
 - **Water rights purchases**
 - **Agreed reductions in groundwater extraction from Mancha Oriental Aquifer;**
 - **Direct treated wastewater reuse by traditional irrigation in lower Turia basin;**
 - **Improved control measures for control of water use and environmental flows**
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- River Basin Authorities in Spain developed Drought Management Plans (PES, 2007), including the operational regulations for the systems, as well as the measures to be applied in relation to the uses of the Public Hydraulic Domain.



Type of Responses

- **Measures for environmental protection,**
 - Monitoring the instream flow at the most serious trouble spots of the Júcar & Turia systems
 - Monitoring of places of special environmental value, e. g. the monitoring of the quantity and quality of water in the Albufera lake of Valencia, (RAMSAR wetland)
 - Other specific measures: Water Rights Exchange Centre
- **Administrative measures for managements and control,**
 - Water quality and control of Public Hydraulic Domain
 - Control and monitoring of groundwater sources
 - Control and monitoring of surface water sources
- **Management measures of demand and supply,**
 - Savings in the urban supply
 - Savings in the supply to agricultural zones
- **Measures for additional resource creation and alternative sources.**
 - Improvements in supply (use of wells..)
 - Reuse of treated wastewater (use in agriculture, parks, street cleaning...)

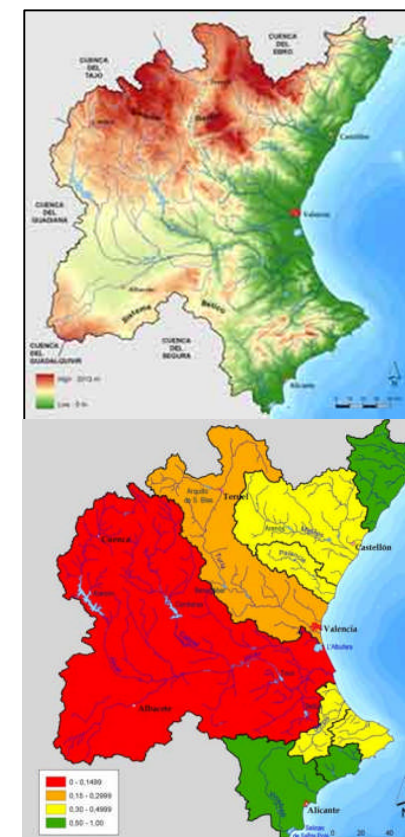


Irrigations Pivots with Underground Waters in the Surroundings of the Júcar River and its Effect on the River Itself

Time-Frame to Apply Responses

- Before: Normal and Pre-alert statuses: Planning and information control
- During: Alert and Emergency statuses: conservation and restrictions
- After: planning (back to normal status) and follow-up measures are applied

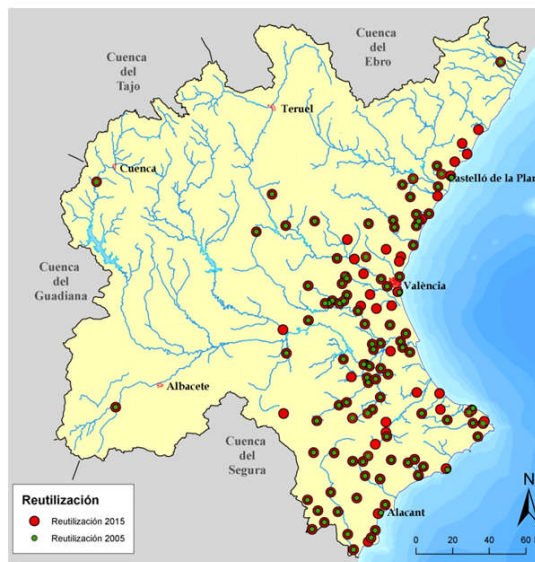
TYPES OF MITIGATION MEASURES							
Indicator	1-0.5	0.5-0.4	0.4-0.3	0.3-0.2	0.2-0.15	0.15-0.1	0.1-0
Status	Normal	Pre-alert		Alert		Emergency	
Objective	Planning	Information-control		Conservation		Restrictions	
Type of measure	Strategic			Tactics		Emergency	



Sectors relevant to the Responses

- ❑ **Agriculture:** Use restrictions in irrigation, reuse of treated wastewater in agriculture
- ❑ **Nature:** Impact control in natural environment (e.g. wetlands), Temporary reserve exploitation in strategic aquifers, etc.
- ❑ **Industry:** possible water conservation to reduce water use; reuse of industrial water..

Treated Wastewater reuse



Wastewater Reuse Plants

Treated wastewater vs. reused wastewater (2009)

- Total treated waste water volume: 625 hm³/year
- Total reused volume: 143 hm³/year
- Total Future maximum consumptive reused volume: 271 hm³/year (by applying RBMP, PoM).
- Main uses: agriculture and environment.

Expected Impact of the Responses

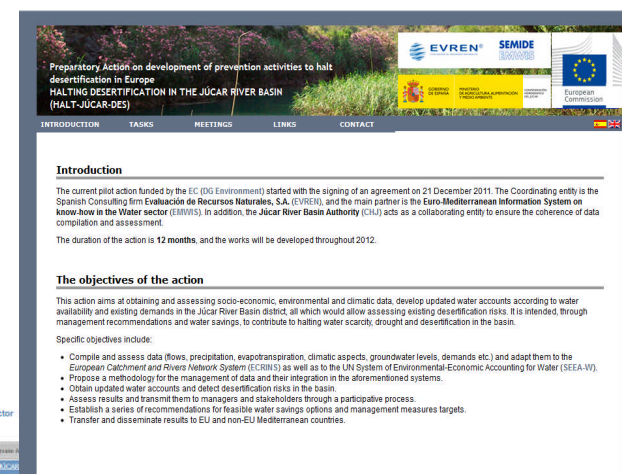
- ❑ Better drought management planning
- ❑ Supplying basic demands (being the priority public supply and environmental flows)
- ❑ Increased water saving
- ❑ Increased water availability
- ❑ Reduced vulnerability to drought
- ❑ Better decision making process
- ❑ Reduced economic and environmental damages

More information on DMP: www.chj.es (*Plan especial de Alerta y Eventual Sequía*)

More information on Halt-Jucar-Des:

<http://www.evren.es/halt-jucar/>

<http://www.emwis.net/initiatives/desert-jucar>



Preparatory Action on development of prevention activities to halt desertification in Europe
HALTING DESERTIFICATION IN THE JÚCAR RIVER BASIN (HALT-JÚCAR-DES)

Introduction

The current pilot action funded by the EC (DG Environment) started with the signing of an agreement on 21 December 2011. The Coordinating entity is the Spanish Consulting firm Evaluación de Recursos Naturales, S.A. (EVREN), and the main partner is the Euro-Mediterranean Information System on know-how in the Water sector (EMWIS). In addition, the Júcar River Basin Authority (CJL) acts as a collaborating entity to ensure the coherence of data compilation and assessment.


The duration of the action is 12 months, and the works will be developed throughout 2012.

The objectives of the action

This action aims at obtaining and assessing socio-economic, environmental and climatic data, develop updated water accounts according to water availability and existing demands in the Júcar River Basin district, all which would allow assessing existing desertification risks. It is intended, through management recommendations and water savings, to contribute to halting water scarcity, drought and desertification in the basin.

Specific objectives include:

- Compile and assess data (flows, precipitation, evapotranspiration, climatic aspects, groundwater levels, demands etc.) and adapt them to the European Catchment and Rivers Network System (ECRINS) as well as to the UN System of Environmental-Economic Accounting for Water (SEEA-W).
- Propose a methodology for the management of data and their integration in the aforementioned systems.
- Obtain updated water accounts and detect desertification risks in the basin.
- Assess results and transmit them to managers and stakeholders through a participative process.
- Establish a series of recommendations for feasible water savings options and management measures targets.
- Transfer and disseminate results to EU and non-EU Mediterranean countries.



SEMIDE EMWIS
Euro-Mediterranean Information System on know-how in the Water sector
Internacional portal

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Tasks to be developed:

The works of this action are divided in 6 main activities:

1. Establishment of background and context.
2. Collection of data and contacts with administrations and other partners.
3. Use of ECRINS and SEEA-W with local data.
4. Assessment and recommendations.
5. Meetings and deliverables.
6. Dissemination and capacity building.

Expected results:

Through this action it is intended to share with the European water community the possibility of obtaining detailed water accounts that can contribute to obtain a better knowledge on the European river basins status. In addition, it will develop an assessment and identification of water saving and management measures to halt desertification in the basin, through a sustainable water use in harmony with the environment. This exercise will in turn contribute to the political process "A Blueprint to Safeguard Europe's Waters".