



Works in Loriguilla Dam, www.chj.es

3^d Coordination Meeting

Halting Desertification in the Júcar River Basin (HALT-JÚCAR-DES)

Brussels, 9 November 2012

Elisa Vargas, EVREN; Jauad El-Kharraz, EMWIS

Contents

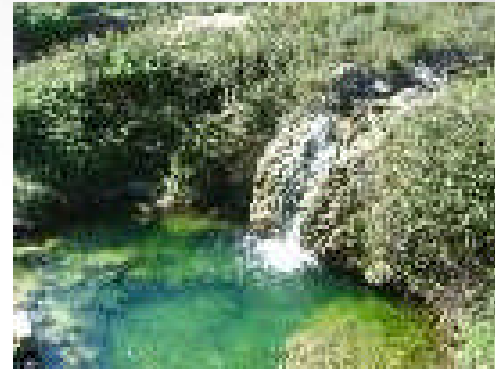


Albufera lake. www.chj.es

- Brief introduction to the project
- Main characteristics of the Júcar RBD
- Progress of tasks (problems, questions)
 - Data gathering task
 - Development of water accounts
- Dissemination activities
- Last steps

Introduction to the project

- Three main partners: EVREN (SME), EMWIS (International network), CHJ (Gov.).
- Scale: Jucar River basin District, in the east of Spain (pilot RBD in the first stage of the WFD implementation).
- Aim: obtain and assess environmental and climatic data, use systems/models and provide recommendations to save water resources.
 - **Water Accounts**
- Transfer results: dissemination to EU and non-EU countries through EMWIS.

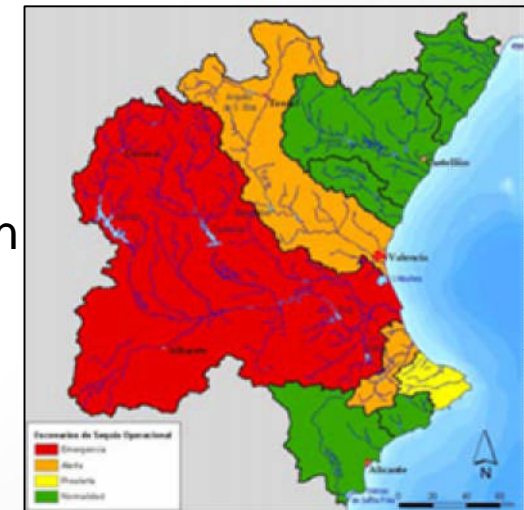


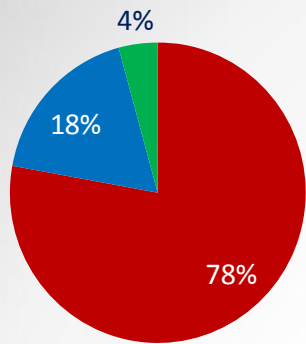
Júcar RBD

The Jucar RBD

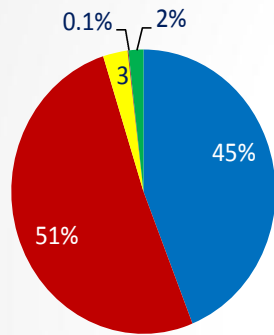


- Surface: 42.851km².
- Population (2009): 5,1 million.
- Mediterranean climate (average temp. 14-16°C; average annual rainfall 500 mm).
- High season variability.
- Relevant groundwater resources.
- Water scarcity & droughts.
 - Drought management plan since 2007.
- Desertification: overexploitation of aquifers and salinization of soils.
- Relevant demographic and touristic pressures.
- A river basin facing most of the water resources challenges!

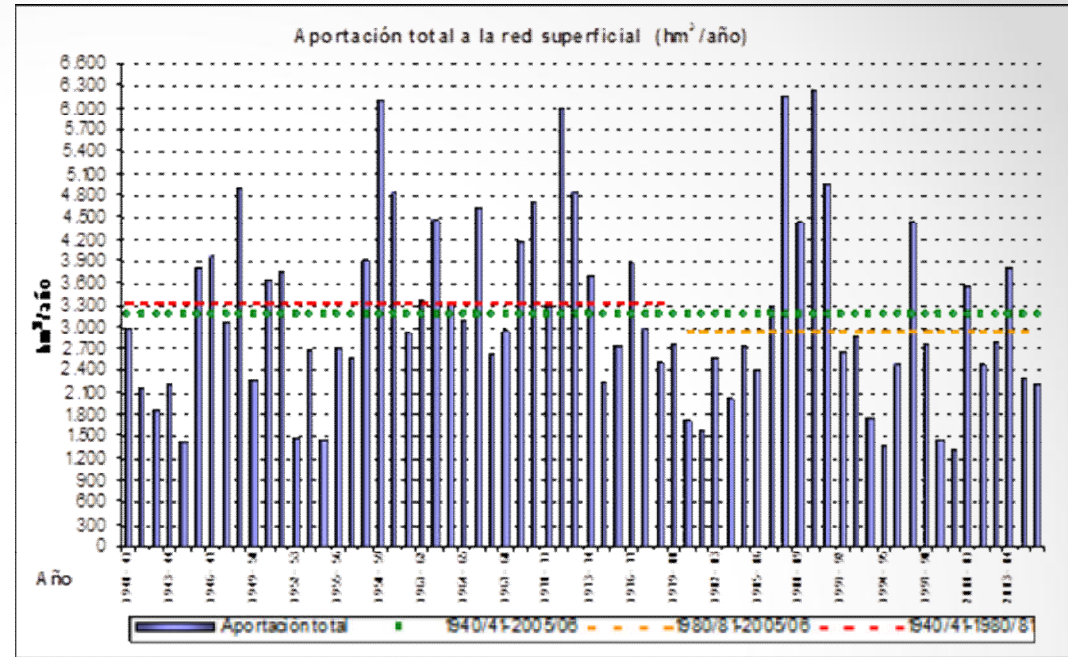




- Agricultural
- Urban
- Industrial-recreational



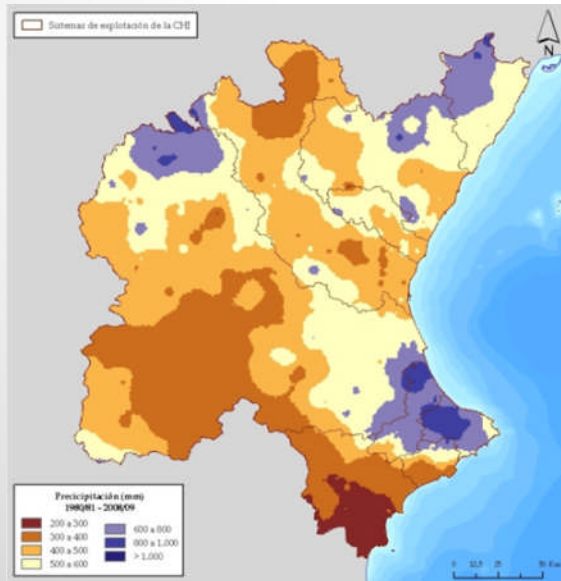
- Surface
- Groundwater
- Reuse
- Desalination
- Transfer



**High spatial and temporal variability;
Mediterranean Basin Feature**

Total Agricultural demand

2.457,53 Hm³/year



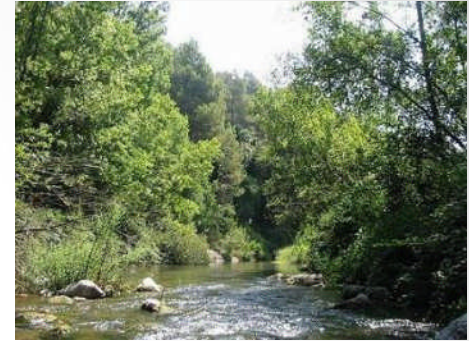
**Spatial distribution of
annual rainfall (mm/yr)
1980/81-2008/09**



Orange trees www.chj.es

Some of the most relevant water issues (identified in the draft RBMP).

- Water guarantee improvement and efficiency of traditional irrigation systems.
- Sustainable management of the Mancha Oriental aquifer.
- Overexploitation of GW in the Vinalopó area.
- Adjustment of ecological flows
- Ecosystem degradation, control of exotic species
- Adjustment and improvement of water treatment in specific municipalities
- Pollution control and eutrophication (Serpis and Albaida rivers)
- Flood risk reduction (low reach of Júcar River)
- Achievement of GES of the Albufera lake
- Water rights regularization
- Further assessment of wetland water requirements
- Priority substances follow-up
-



River flow restoration, Zebra mussel.
Green filter in Albufera Lake
www.chj.es

Progress of Tasks

1. Establishment of background and context. (Completed)

- EU strategies, policies, SEEAW, ECRINS, Júcar RBD features.
- Introductory report on SEEAW and ECRINS.
- Report on Júcar River Basin characteristics (climate features, main water uses, drought episodes and tools, desertification aspects).

2. Collection of data and contacts with administrations and other partners. (Completed)

- Data delivery feasibility, improvement of datasets.
- Contact with Ministry of Agriculture, Food and Environment (MAGRAMA) liaison with National Statistics Institute (INE).
- Meetings with CHJ collaborators.
- Consultation of data and gathering from: National Meteorological Agency (AEMET), National Water System (SIA), INE, CEDEX, IGN, MAGRAMA, ECRINS (EEA ftp), EIONET, EUROSTAT...

3. Apply method by SEEAW and ECRINS specifications. (Current)

- Disaggregation, detailed water resources balance, identification of measures.
- Preliminary water accounts. Polishing in progress.

Data availability

Type	Parameters	Data source	Available temporal scale (month, season, annual...)	Available record of data	Physical scale (stations, aggregated data, watershed, grid...)	Remarks
Climatic and Hydrological	Temperature (T), wind intensity, wind direction, Precipitation (P), SPI.	AEMET	monthly	2007-2012	National	Since novembre 2012 it's not possible to free access to historical data recorded at station level.
Climatic and Hydrological	River discharge at the end of superficial water bodies	CHJ	monthly	2005 and 2009	stations	
Climatic and Hydrological	Groundwater table (Piezometry)	CHJ	monthly	1955-2012	stations	
Climatic and Hydrological	Manantials	CHJ	monthly	1972-2012	stations	
Climatic and Hydrological	Marine Intrusion/Sea Intrusion	CHJ	monthly	1971-2012	stations	
Climatic and Hydrological	Air Humidity Monthly average	INE	annual and monthly	1997-2010	stations	
Climatic and Hydrological	Precipitation (P)	INE	annual and monthly	1995-2010	RBD	rainfall in river basins by years and months. Source: AEMET annual aggregated data
Climatic and Hydrological	Precipitation (P)	INE	annual and monthly	1997-2010	stations	Total precipitation in millimeters by region, season, years and months. Source: AEMET annual aggregated data
Climatic and Hydrological	Temperature (T)	INE	annual and monthly	1997-2010	stations	Monthly average temperatures by region, season, years and months.
Climatic and Hydrological	Actual Evapotranspiration, Potential Evapotranspiration, Temperature, Precipitation, Atmospheric Humidity, Soil humidity, Wind, Radiation	MAGRAMA	daily, weekly, monthly	2000-2010	stations	Agrometeorological Station Network SIAR. Allows viewing and downloading weather data daily, weekly or monthly for one or more stations, including ETO parameter.
Climatic and Hydrological	Streamflow and Reservoirs	MAGRAMA (ROEA)	daily	1912-2009	ROEA stations	Export series data after clicking the station which can be located in rivers, reservoirs or channels
Climatic and Hydrological	Flow	SAIH from SIA	monthly	1990-2012	Gauge stations	
Climatic and Hydrological	Temperature (T), Precipitation (P), Potential evapotranspiration (PET), Actual Evapotranspiration (aET or E0), Soil Humidity, Superficial Runoff, Subterranean Runoff, Total Runoff.	SIMPA from SIA	monthly	1940-2010	grid (1 km x 1 km) National	SIMPA model. Extracted RBD.
Climatic and Hydrological	Precipitation, Temperature, Flows, Runoff, Incomes, Outputs and Storage for Reservoirs, Piezometry	Various origins from SIA	monthly	1940-2010	stations and RBD	
Land use	Land use type	CHJ		2000 and 2006		Corine (use of Patricial)

Data availability

Type	Parameters	Data source	Available temporal scale (month, season, annual...)	Available record of data	Physical scale (stations, aggregated data, watershed, grid...)	Remarks
Water uses	significant water management issues document, for many data, including provisional water balance	CHJ	annual	2005 and 2009	RBD	Draft RBMP and surveys
Water uses	Domestic	CHJ		2005 and 2009	Management Unit	Draft RBMP and surveys
Water uses	Urban consumption	CHJ		2005 and 2009	Management Unit	Draft RBMP and surveys
Water uses	Urban abstraction (based on population)	CHJ		2005 and 2009	Management Unit	Draft RBMP and surveys
Water uses	Urban returns	CHJ		2005 and 2009	Management Unit	Draft RBMP and surveys
Water uses	Energy abstraction	CHJ		2005 and 2009	Management Unit	Draft RBMP and surveys
Water uses	Agricultural abstraction and returns	CHJ		2005 and 2009	Management Unit	Draft RBMP and surveys
Water uses	Annual water abstraction, Water use by supply category and user, etc.	EUROSTAT		1998 - 2008	National level, not disaggregated	National data - by country
Water uses	Water abstractions by economic activity (NACE) and period	INE		2000-2006	National level, not disaggregated	
Water uses	Water returns to the environment by economic activities (NACE) period and type of returns	INE		2000-2006	National level, not disaggregated	
Water uses	Water supply and Sanitation	INE		2000-2010	Regional	

Data availability

Type	Parameters	Data source	Available temporal scale (month, season, annual...)	Available record of data	Physical scale (stations, aggregated data, watershed, grid...)	Remarks
Water uses	Water supply and Sanitation - Total uses of economic activities NACE, period and CNPA-96 products	INE		2000-2006	National level, no deaggregated	
Water uses	Water supply and Sanitation - Total production by economic activity	INE		2000-2006	National level, no deaggregated	The table does not include rows of different activities to agriculture because they have no data ..
Water uses	Water supply and Sanitation - Total uses at market prices of economic activities NACE, period and CNPA-96 products	INE		2000-2006	National level, no deaggregated	
Water uses	Water supply and Sanitation - Total production at market prices by economic activity	INE		2000-2006	National level, no deaggregated	
Water uses	Balance of water flow between environment and economy	INE		2000-2006	National level, no deaggregated	
Water uses	Water acquired and supplied by irrigators and regions	INE		1996 to 1999 aggregated and 2000-2010	Regional, no deaggregated	It has uploaded a folder by year, as provided on the web. The table for 2008 is not available
Water uses	Availability of water by resource and regions	INE		1996 to 1999 aggregated and 2000-2010	Regional, no deaggregated	It has uploaded a folder by year, as provided on the web. The early years have a table type of water concessions and CCAA, and the other years is replaced by the availability of resources and ccaa

Data availability

Type	Parameters	Data source	Available temporal scale (month, season, annual...)	Available record of data	Physical scale (stations, aggregated data, watershed, grid...)	Remarks
Demographic	Population	INE	annual	1996-2011	Municipal Population Series	
Economic	GDP by economic sectors	INE	annual	2000-2011	National	Percentage of GDP at market prices and its components
Economic	Agricultural production by crop	INE	annual	1990-2009	National	Agricultural production by crop type
Economic	Regional accounts of Spain (Regional GDP)	INE	annual	2008-2011	Regional	Regional GDP Current Prices: Table 1. Gross Domestic Product at market prices (GDP) and Table 2. Per Capita GDP Volume Variations: Table 3. Annual percentage changes Appendix: Table 4. Population figures
Cartography	Groundwater	CHJ		currently	RBD	Maps and layers in shape format. Some data sets in Access
Cartography	Surface water	CHJ		currently	RBD	Maps and layers in shape format. Some data sets in Access
Cartography	Administrative boundaries - geographical area	CHJ		currently	RBD	Maps and layers in shape format.
Cartography	Boundaries of management units	CHJ		currently	RBD	Maps and layers in shape format. Some data sets in Access
Cartography	Quality objectives	CHJ		currently	RBD	Maps and layers in shape format. Some data sets in Access
Cartography	Control networks	CHJ		currently	RBD	Maps and layers in shape format. Some data sets in Access
Cartography	Use the Public Water Domain	CHJ		currently	RBD	Maps and layers in shape format. Some data sets in Access
Cartography	Wetlands	CHJ		currently	RBD	Maps and layers in shape format. Some data sets in Access

Encountered problem / Approach (1/2)

<p>Júcar RBMP still under development. (SWMI scheme under consultation, most technical works developed during the past 5 years), due to political issues in the district definition.</p>	<p>Officially approved or publically available data is being used (most recent 2009).</p>
<p>The same parameters are sometimes monitored from various entities and sometimes with different tools (several series exist)</p>	<p>Cross-check of series, determining if there are large discrepancies.</p>
<p>Data robustness depending on source</p>	<p>The most reliable data has been used (in agreement with CHJ).</p>
<p>“Demands” as such are not available yet (better control for surface waters than for GW).</p>	<p>Uses estimations and supplied volumes are being incorporated (from former RBMP, Hydrological Planning Technical Guidance, surveys –AEAS, irrigation...-) and the use of SIMPA model.</p>
<p>Selecting the appropriate scale.</p>	<p>The “Sistema de explotación” (Water Management System) is being used (management unit, union of sub-catchments) because is the functional region that shares resources at the Jucar River Basin District.</p>

Encountered problem / Approach (2/2)

No recorded data for all parameters, or not at an appropriate temporal or geographical scale .	When needed, aggregated data or models have been used (e.g. “PATRICAL”; simulation model for natural regime, developed by CHJ from the SIMPA model –CEDEX-).
Matching of the political-administrative and natural boundaries of the RBD.	Adjustments/estimations in agreement with CHJ indications.
(Foreseen) lack of response from stakeholders to assess the water accounts results	Direct contact, encouragement.
(Foreseen) difficulty in providing recommendations to managers or decision makers on water savings that are not already applied	Try to focus on innovative solutions and specify targets



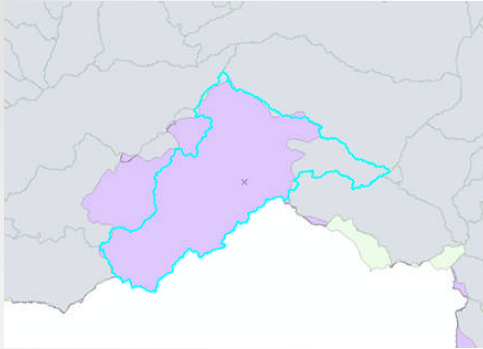
MINISTERIO
DE MEDIO AMBIENTE,
Y MEDIO RURAL Y MARINO

CONFEDERACIÓN
HIDROGRÁFICA
DEL JÚCAR

SISTEMAS DE EXPLOTACIÓN



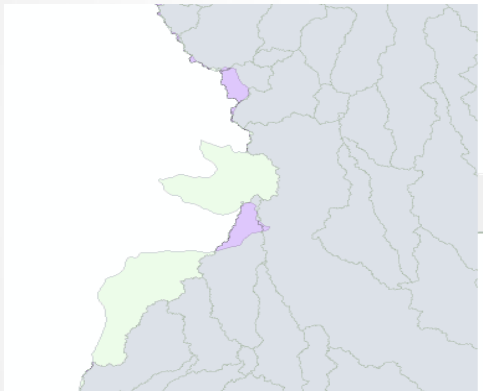
FEC revisions



There are problems with their limits:

Polygon E020146729 is defined as being in the Júcar River Basin (only a small part), when it belongs to the Segura Basin.

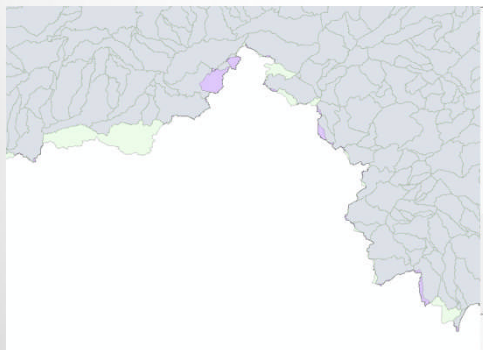
(Opposite case: E020146706 is in the Segura basin, but belongs to Júcar)



In the limit with the Guadiana there are areas assigned to the Guadiana basin, which are actually in Júcar.

In the limit with the Segura, (Almansa region) there is a FEC assigned to Segura which is within the Júcar RBD. Also in the Vinalopó mouth.

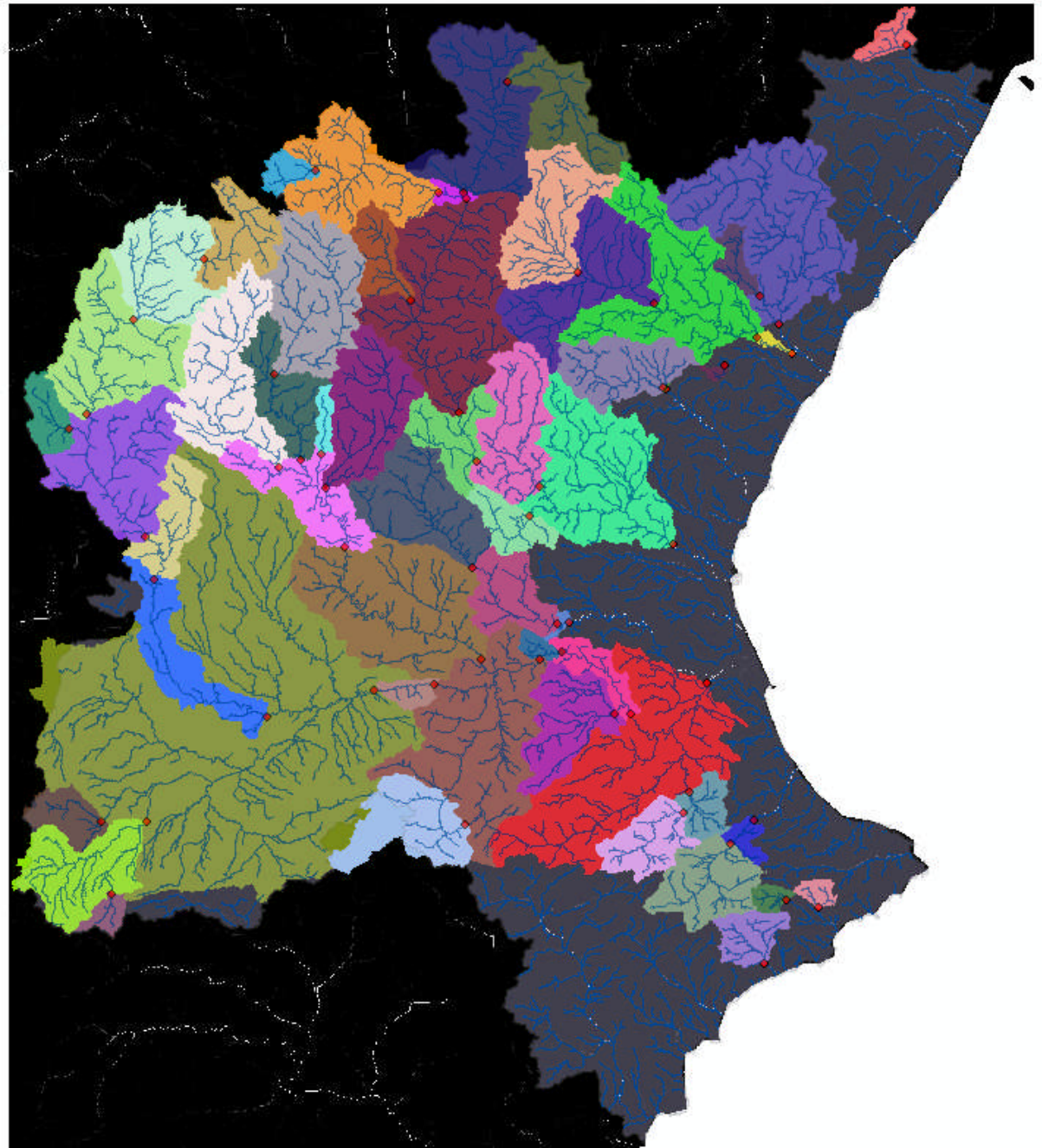
(Hard to determine the boundaries since they are in very flat areas, however, there are official delimitation updated layers).



Small coastal basins appear as if they were not

WX02ID	WX03ID	Is_Coast
E020144034		0
E020144489		0
E020144148		0
E020144370		0
	E030149650	0

Gauging stations with data within the time period (rivers and dams) and their linked catchment areas.



Raised questions

- It is still unclear which are the criteria used for zoning the FECs.
- Problems with sharing data that are not publically available yet.
- Possibility of checking water account tables prepared for the Jucar by the EEA.
- Water use or economic data are not available at the same geographical scale. How can FEC help in resolving this issue. In the Jucar RBD the economic data are available aggregated to region, in the best case to municipalities.
- The breakdown of water use by sector is often based on simulation models or coefficients. (Often develop more accurate and specific studies with a more detailed analysis of local uses, including surveys). A big progress (and maybe the subject for a future research project) would be to define a tool that could provide such coefficients based on the local conditions and the characteristic of the activity.

Progress of Tasks

3. Assessment and recommendations. (Dec.)

- Estimate optimizations and water saving potentials, propose feasible targets.
- To be developed based on results and on stakeholders inputs.

4. Meetings and deliverables. (12 months)

- Kick-off meeting: Valencia, 13 February.
- Working team meetings, internal meetings, workshops...
- Several phone/skype/mail communications with CHJ, EMWIS.
- Communications with EEA.
- Inception report (9 March), 2nd Report (13 July), 3rd Report (8 November) (description of the action, meetings, works development...).
- Expected stakeholder meeting (December).

Progress of Tasks

6. Dissemination and capacity building. (12 months)

- Web-site section EVREN, EMWIS e-bulletin and website.
- Two web-site sections completed.
- Printed brochure.
- Public participation process and Mediterranean meeting expected for December.
- International attended events

Dissemination activities

1. Website:

EMWIS e-bulletin (flash) and website: www.emwis.net/initiatives/desert-jucar/ & Citations (e.g.: Headline of the flash n°103)

Next Flash (Nov. 105) issue will include a special content on our project

2. Workshops:

- Workshop on water accounts, Rabat (Morocco), 11-13/09/2012 (Environmental agencies from 'MA, DZ, MR, TN', EEA, UNDS, EMWIS)
- 2nd Steering Committee meeting of the ENPI SWIM-SM, Brussels (Belgium), 17-18/10/2012 (Euromed water authorities, EC DG Env, EEA, EMWIS, regional water organizations & NGOs, etc)
- First pan-European Drought Dialogue Forum, Nicosia (Cyprus); 30-31/10/2012 (EU water authorities, EU research projects, EEA, EMWIS)
- Workshop on "Improving water resources management & adaptation to climate change - LDAS Tunisia", Tunis (Tunisia), 22-23/11/2012 (Water & Agri. & remote sensing authorities from Tunisia, EMWIS)
- ESA - EMWIS Workshop: "Exploitation of EO for water management in the MED", Rome (Italy), 3-5/12/2012 (Water authorities from Morocco, Jordan, Lebanon, Egypt, Tunisia, ESA, EMWIS)

Dissemination activities

1. Website

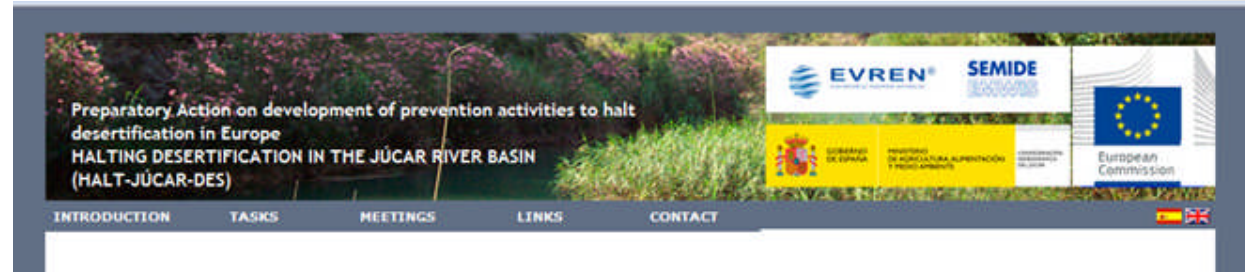
EMWIS e-bulletin (flash) and website:

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

The screenshot displays the EMWIS website interface. At the top, there is a navigation bar with links for Home, e-Flash, My portal, Mediterranean Water Data, Contact, Forum, Crawler, FAO, Thesaurus, News, Agenda, Geo-Catalogue, Projects, Sitemap, and Administration. The main header identifies the site as the SEMIDE EMWIS Euro-Mediterranean Information System on know-how in the Water sector International portal. The current page is titled 'Halting Desertification in the Jucar River Basin (HALT-JUCAR-DES)'. A prominent blue banner announces the '3rd co-ordination meeting of the 2011 Halting Desertification in Europe Pilot projects' on Friday, 9 November 2012, from 10:00 to 15:30. Below this, a 'Draft Agenda' section lists 17 items, including the launch of the 'Space for Mediterranean Countries' Initiative, ENPI-SEIS project meetings, and various regional updates. A sidebar on the left provides a 'Project database' and lists various initiatives like Horizon 2020, EU-WFD, and MED-EUWI. A 'Water Journals' section is also visible. In the bottom left corner, a small image shows the cover of a book titled 'Dr Jauad El-... HALT-JUCAR 1st Pan-EU Drought Di... 30 - 31 October 20...'.

1. Website

www.evren.es/halt-jucar/



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 (C.H.J.) 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.

...on took place in Valencia on 13 February 2012.



...ary 2012. CIRCA folder

Dissemination activities

2. Workshop on water accounts, Rabat (Morocco), 11-13/09/2012:

- Organized by **UN Division on Statistics and EEA** and hosted by the “Haut Commissariat au Plan” of Morocco.
- 40 people with representatives from statistics divisions and water resources management from **Algeria, Morocco, Mauritania, Mauritius and Tunisia**; basin authorities, water supply and sanitation companies and environment authorities from Morocco; and international experts from **EEA, UNDS, UNEP, Austrian Environment Agency & EMWIS**.
- Guidance through hands-on examples was given on how to **implement water accounts and statistics** in their countries **according to SEEA-Water and IRWS, as well as using the SEIS principles**.
- Opportunity to introduce the work done at the EU level with **ECRINS and water accounts at sub-basin level** as well as to present the pilot projects on **the use of water accounts to halt desertification** and support the choice of measures for drought management plan in particular in the case of **the Jucar river basin**.

Dissemination activities

2. 1st pan-EU Drought Dialogue Forum, Nicosia (Cyprus); 30-31/10/2012:

- The **1st pan-EU DDF** was organized by Drought R&SPI project (Fostering European Drought Research and Science-Policy Interfacing) – FP7 project: around 45 participants
- Live dialogue between **researchers, policy makers & water actors**, focused on **drought** to support further elaboration of policy options mentioned in the **Blueprint to safeguard Europe's waters** and the implementation of the **EU WFD (2nd cycle of River Basin Management Plans)**.
- The forum discussed drought issues linked to the 3 main policy phases (design, implementation, review).
- Occasion to present targeted (pragmatic) responses for a MED **drought cases**, often already facing water scarcity. These responses came from an array of different invited projects leads of **drought-related EU projects** and **other international projects** (including our project: **HALT-JÚCAR-DES**).
- **EU WD** will meet before the end of the year **to adopt officially water accounts method** that will be presented at the end of this month in the **EU Blueprint conference in Nicosia**

Dissemination activities

2. 1st pan-EU Drought Dialogue Forum, Nicosia (Cyprus); 30-31/10/2012:

- Presentations of various drought projects:
 - DEWFORA
 - CLIWASEC Cluster (CLIMB, WASSERMed, and CLICO)
 - MIRAGE
 - EPIWATER
 - I-adapt
 - CATALYST
 - IWRM-SMART II
 - SCARCE
 - SICMED
 - WaterCAP
 - Drought Management project (GWP)
 - **HALT-JÚCAR-DES**
 - African Climate
- A paper will be submitted to “Science of the Total Environment” in which we will contribute on ‘drought science-policy substance’.
- **Our project factsheet and response to drought (water accounts)** will be included in DROUGHT-R&SPI Technical Report.

Last steps

- Currently: polishing water accounts (shared results with CHJ),
- Send accounts to stakeholders, providing them a period for consultation and inputs.
- December: Organisation of stakeholder event (national and Mediterranean).
 - More concise results on water accounts.
- Review of works, recommendations, desertification indicators assessment.
- Development of Final report.



Thank you for your attention!

Questions and comments:

evargas@evren.es

jauad.el-kharraz@semide.org

arancha.fidalgo@chj.es



Casas del Río, waterwheel
www.chj.es