



EUROPEAN COMMISSION

DIRECTORATE-GENERAL ENVIRONMENT

Directorate C - Quality of Life, Water & Air

ENV.C.1 - Water

***KICK-OFF MEETING OF THE 2013 HALTING  
DESERTIFICATION IN EUROPE PILOT PROJECTS. 05<sup>th</sup>***

February 2014, Brussels

# Accounting System for the SEgura river and Transfers (ASSET)

Grant nº 07.0329/2013/671258/SUB/C1

Duration: 15 months

Budget: 198012 € (148510 €)

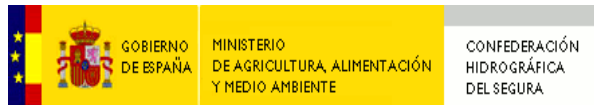
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Cartagena (UPCT), Spain

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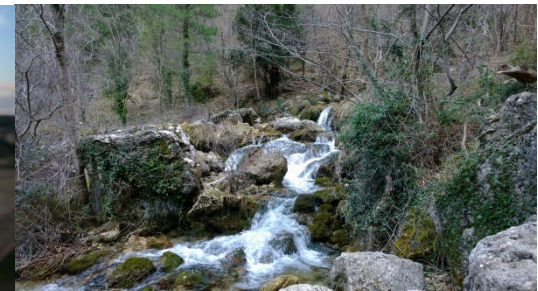
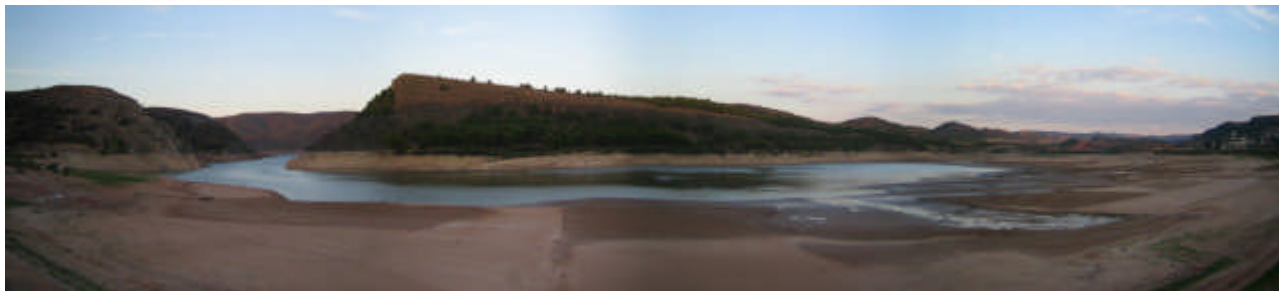
*Mundo River springs, February 2014*



# Team



- Universidad Politécnica de Cartagena (UPCT)
  - Sandra García Galiano; Alain Baille; Francisco Alcón
- Confederación Hidrográfica del Segura (CHS)
  - Jesús García; Adolfo Mérida; Ginés Toral
- FutureWater (FW)
  - Johannes Hunink; Sergio Contreras
- SAMUI FR
  - Mark Morris; Estelle Morris

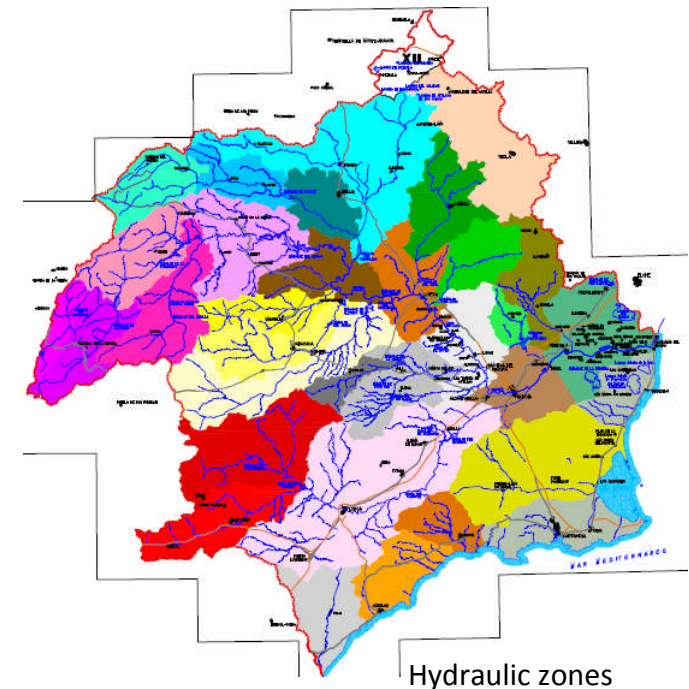
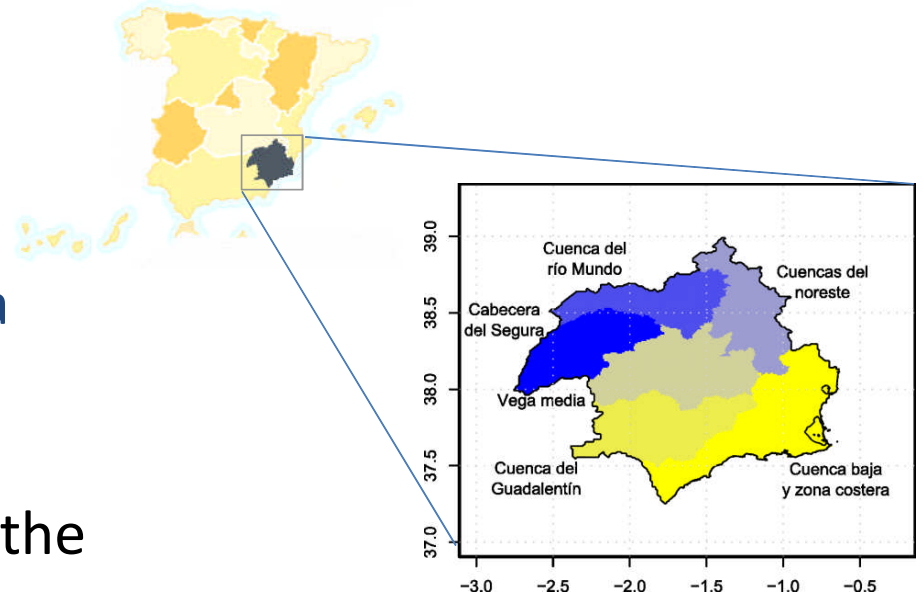




# Main aim

- to obtain, assess and standardize detailed information on the Segura River basin (South East of Spain), including the external transfers in order to analyze and demonstrate the potential of management, technological and economic measures to decrease water scarcity in this drought-prone region.

Tool to be employed: SEEA-W (System of Economic and Environmental Accounts for Water), complementing the EU water resource balances with local data, and integrating the water accounts with the RBMP, demonstrating their use for the local planning.



# Study area: Segura River Basin

## General Characteristics



Europe

Spain



<b>SURFACE (Km<sup>2</sup>)</b>	<b>18 815</b>
<b>POPULATION THAT DEMANDS RESOURCES FROM SEGURA RIVER BASIN (inhabitants). Year 2009</b>	<b>1 969 370</b>
<b>SUMMER POPULATION (inhabitants). Year 2009</b>	<b>&gt; 2 500 000</b>
<b>TOTAL LENGHT OF CHANNEL NETWORK (Km)</b>	<b>1 470</b>
<b>IRRIGATION SURFACE (ha)</b>	<b>269 029</b>
<b>SOURCES OF WATER RESOURCES (Hm<sup>3</sup>)</b>	<b>Surface water ; Groundwater Reutilization ; Desalinisation; Tajo-Segura Water Transfer</b>

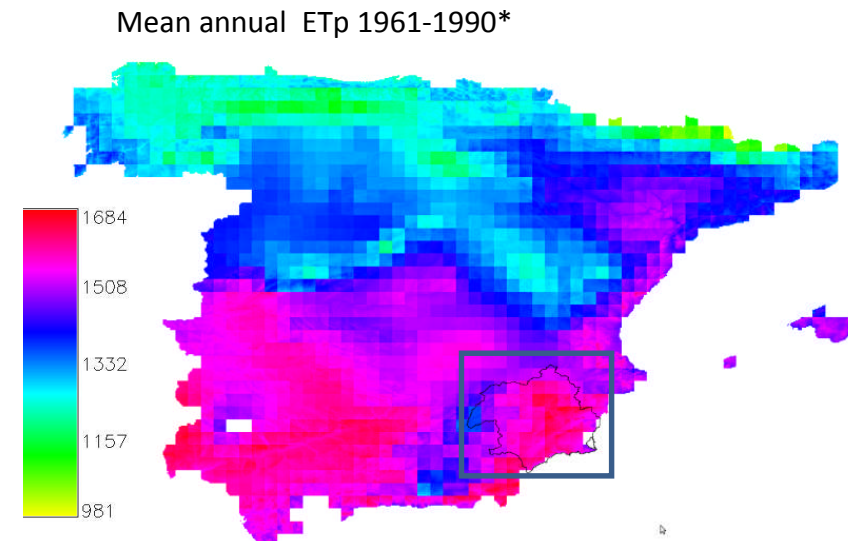
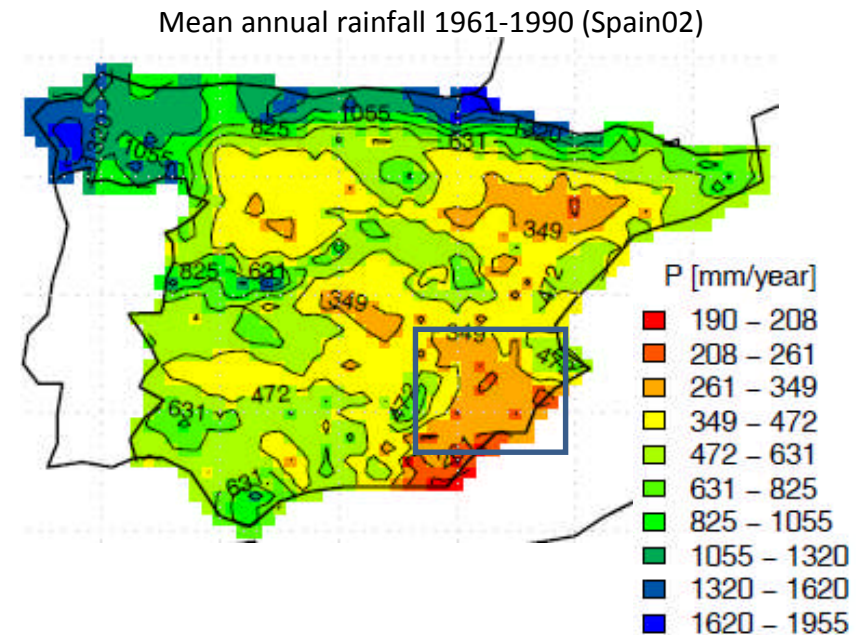
Source: CHS

# Segura River Basin (SRB): main characteristics

- The South East of Spain receives less **Rainfall** than the rest of Iberian Peninsula. SRB: Mean annual **Rainfall** = 300 mm.
- SRB: Mean annual Potential Evapotranspiration **ETp** = 1500 mm.
- Most of the area is classified as semi-arid, while the coastal areas are considered 'arid'.
- Available water resources per inhabitant in the SRB: only 442 m<sup>3</sup>/inhabitant/year → **The SRB presents the least renewable water resources of all the Spanish river basins.**

	Surface (km <sup>2</sup> )	Ratio per inhabitant
<b>SRB</b>	18 870 (3.7%)	442 m <sup>3</sup> /inhab/year
<b>Spain</b>	506474	2460m <sup>3</sup> /inhab/year

Source: CHS, 2007



\*ETp from Hargreaves modified method considering Spain02 dataset.



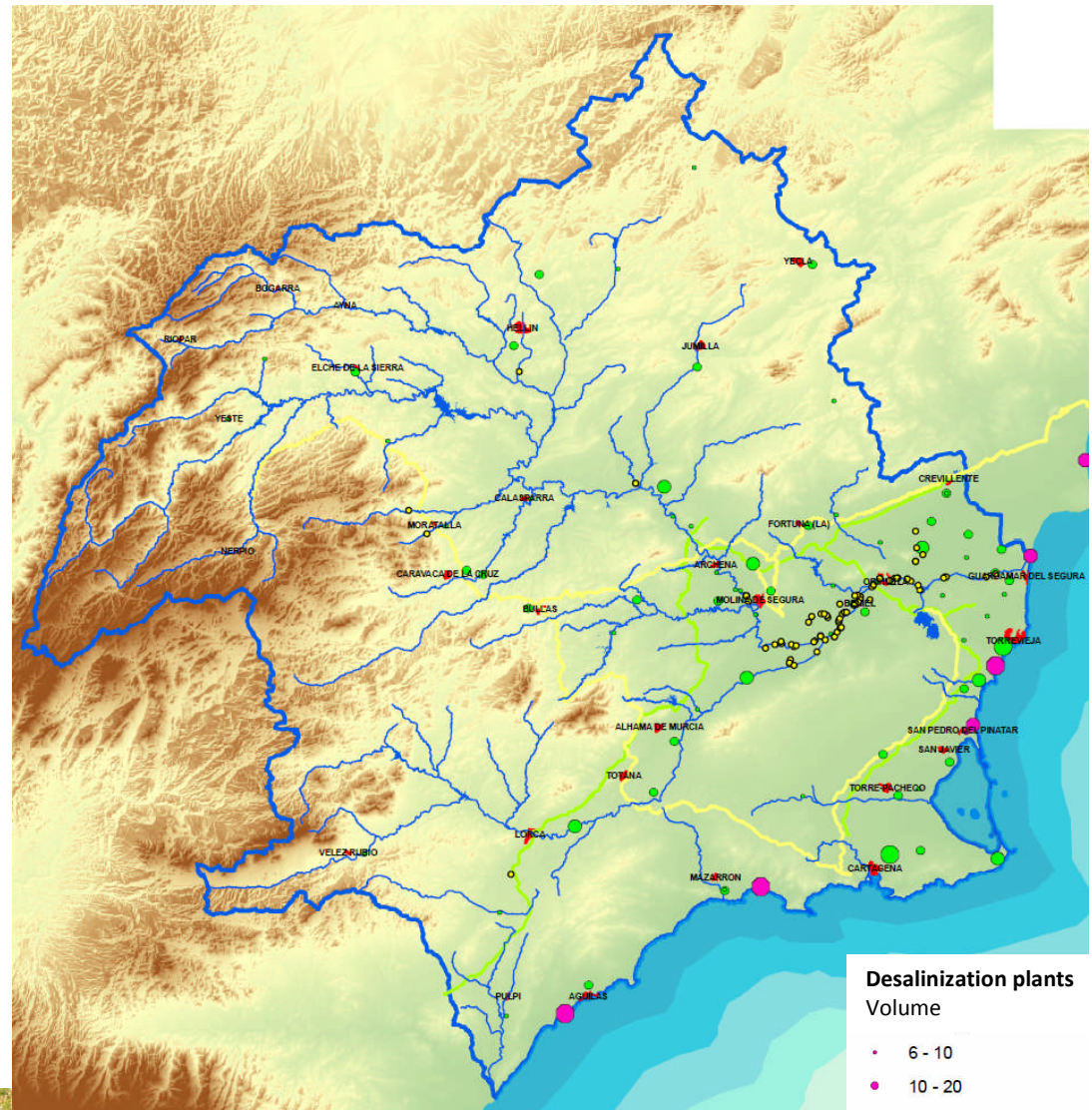
# Segura River Basin (SRB): main characteristics

- Agriculture area: more than 43 % of the basin surface, of which one-third is brought under irrigation (269 000 ha).
- Irrigated agricultural water demand : 85 % of the total water demand in 2007 in the entire basin.
- Water scarcity is a major issue in the Segura River Basin.



Fuensanta reservoir

Segura river downstream  
Talave reservoir  
(Lietor. Albacete)



## Desalination plants Volume

- 6 - 10
- 10 - 20
- 20 - 50
- 50 - 80
- POZOS DE SEQUIA

## EDAR

### Vol\_Reutilizado

- 0 - 500000
- 500000 - 2000000
- 2000000 - 5000000
- 5000000 - 9084227

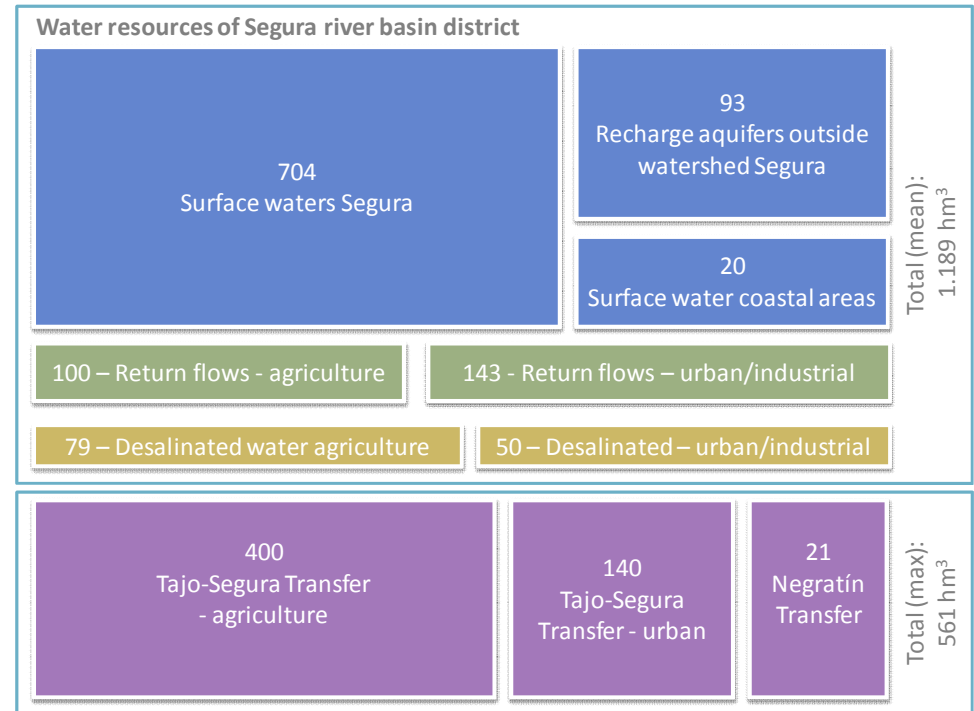
# Segura River Basin (SRB): Measures

Several measures were adopted,

- **Water transfers from other basins**, two water transfers (from Tagus river, and from Negratín river).
- **Desalinization plants** (14 desalinization plants with 146 hm<sup>3</sup> capacity for agricultural use and 188 hm<sup>3</sup> for urban/industrial use).
- **Reuse of treated waters for agriculture** (155 wastewater treatment plants ; 142 hm<sup>3</sup> for 2010).
- **Improvements in flow regulation** (33 dams with more than 10m height).
- **11 water purification plants** (total production 190 hm<sup>3</sup> for 2010).
- **Modernization of irrigation systems** to improve its efficiency and to reduce its water consumption.
- **Transference of irrigation rights between users.**

Main problem: A high number of aquifers are classified as under high pressure and over-exploited.

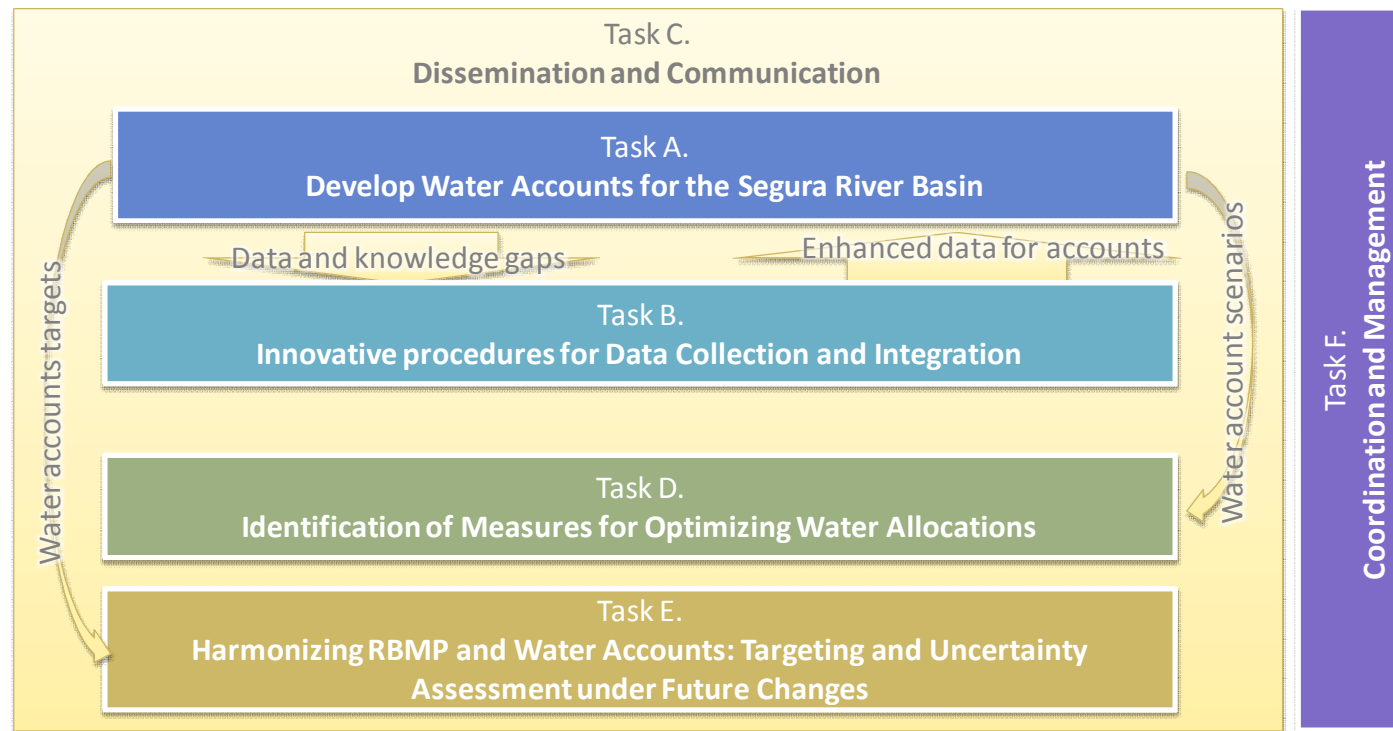
Simplified water balance for SRB (source: CHS)



- Six wetlands according to RAMSAR convention.



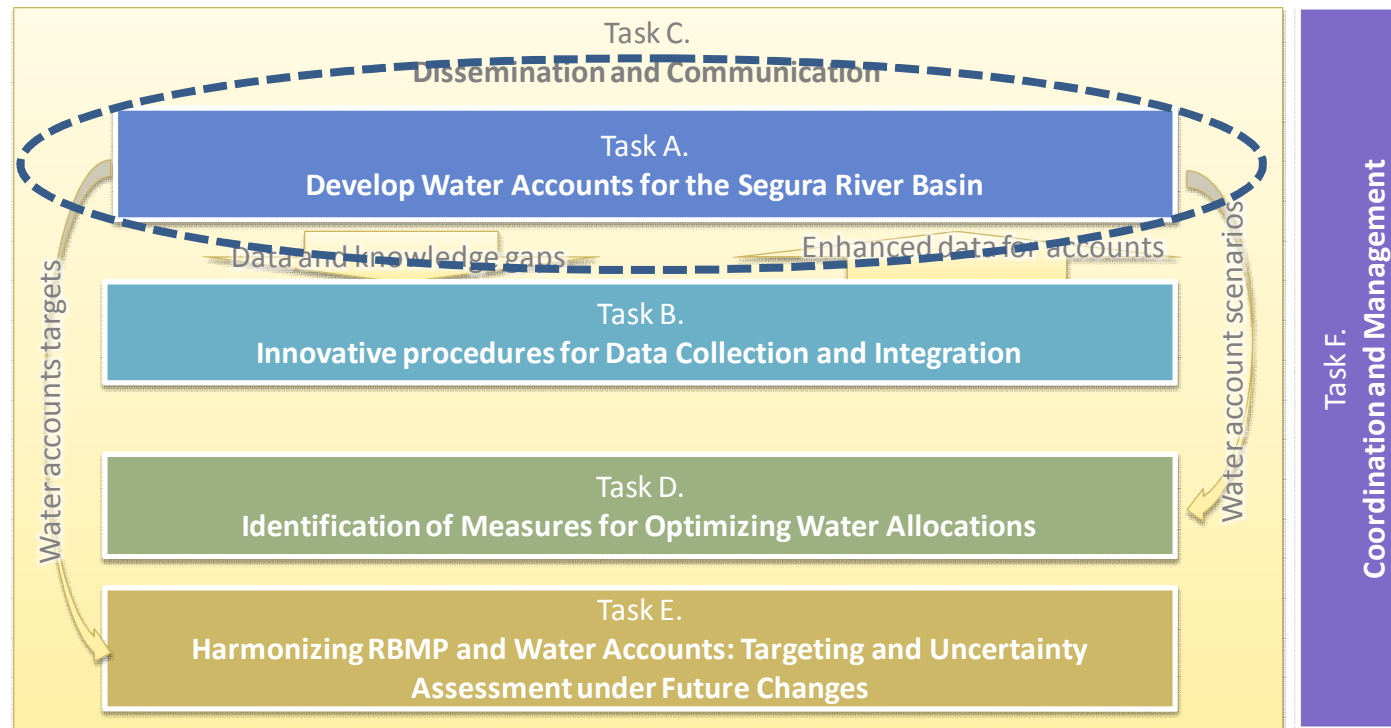
# ASSET's Work Plan



- The implementation of the work plan is structured in four main WPs blocks:
- **Development** of water resources balances: Task A (A1 and A2), and Task B (B1)
  - **Testing** solutions for gathering and integrating data (Tasks B2 and B3), and testing the integration of water resources balance in the RBMP (Task E).
  - **Identification** of management, technological and economic measures: Task D.
  - **Proposal** and recommendations of targets: Task D Task E.



# Work Plan



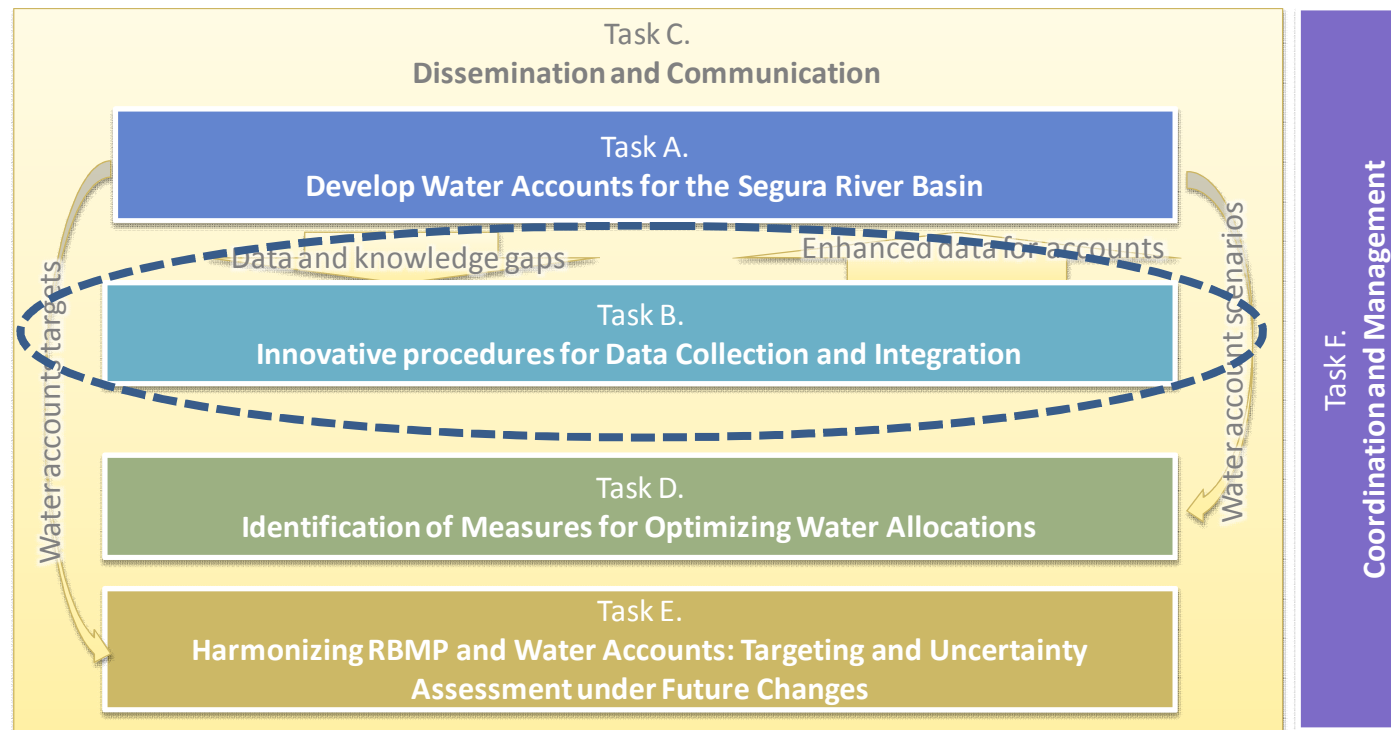
## Task A. Develop Water Accounts for the Segura River Basin

*Responsible: UPCT. Participants: CHS and FW. Aim: to collect all necessary data available (Task A1), and implement it into SEEA-W (Task A2).*

### A1 Data collection

### A2 Data Implementation into ECRINS and SEEA-W

# Work Plan



## Task B. Innovative procedures for Data Collection and Integration

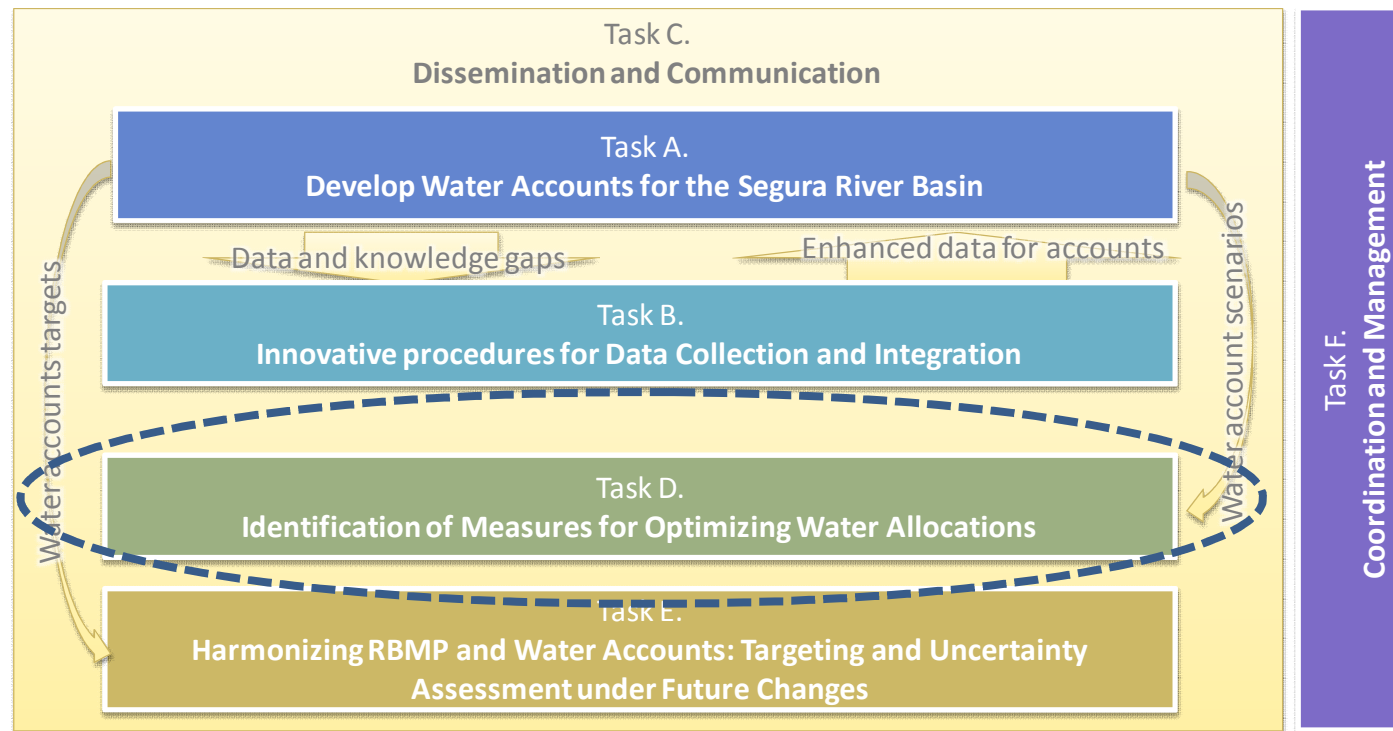
*Responsible: FW.* Participants: UPCT. Aim: to apply already validated procedures for data integration, and besides the following innovative procedures will be applied and tested to support the reconstruction of the water accounts:

**B1 Actual evapotranspiration for water balance closure.**

**B2 Development and testing of GIS-based solution for data integration**

**B3 Merging local and ENSEMBLES climate data.**

# Work Plan

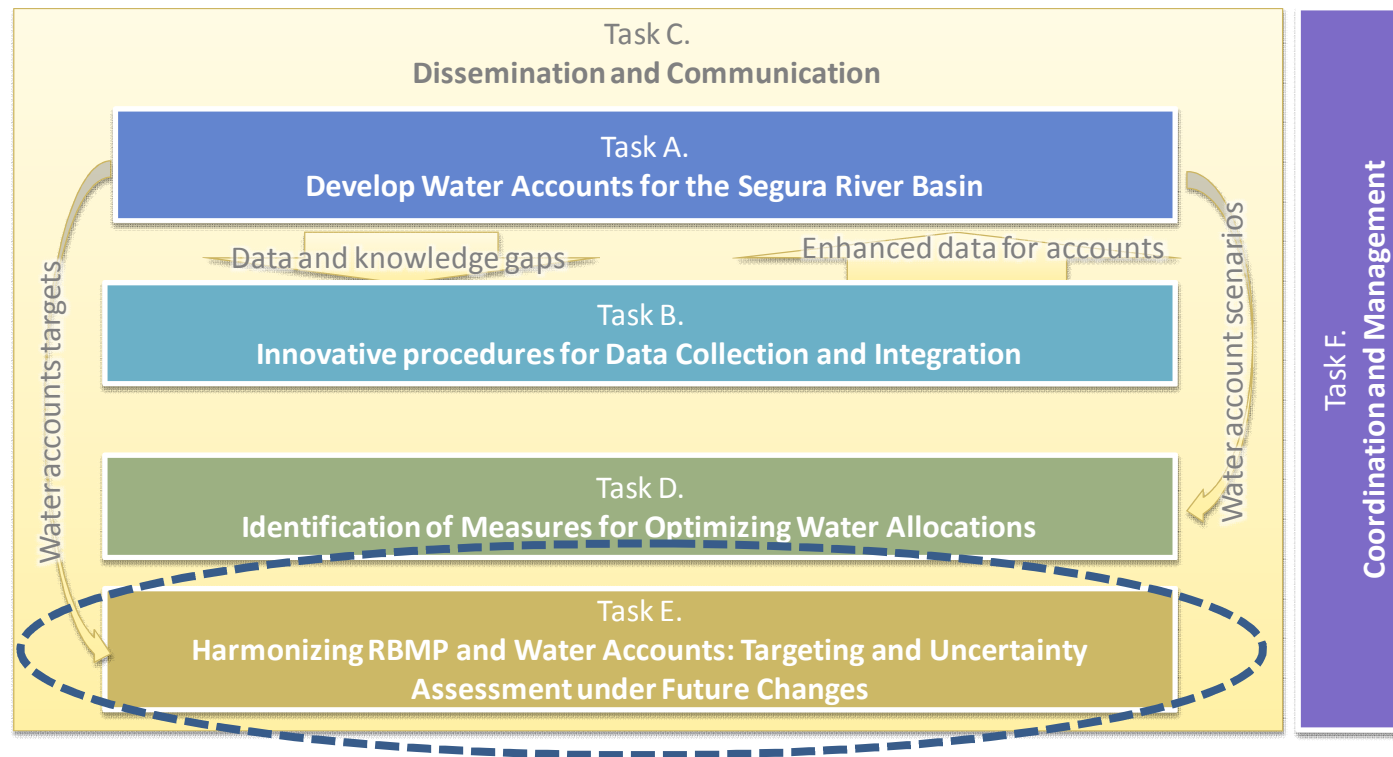


## Task D. Identification of Measures for Optimizing Water Allocations

*Responsible: CHS. Participants: FW and UPCT.* Aim: to identify management, technological, administrative and economic measures and assess their potential impact and effectiveness against specific criteria (e.g. water use reduction per economic activity, cost, environmental and socio-economic benefits) for the Segura River Basin.



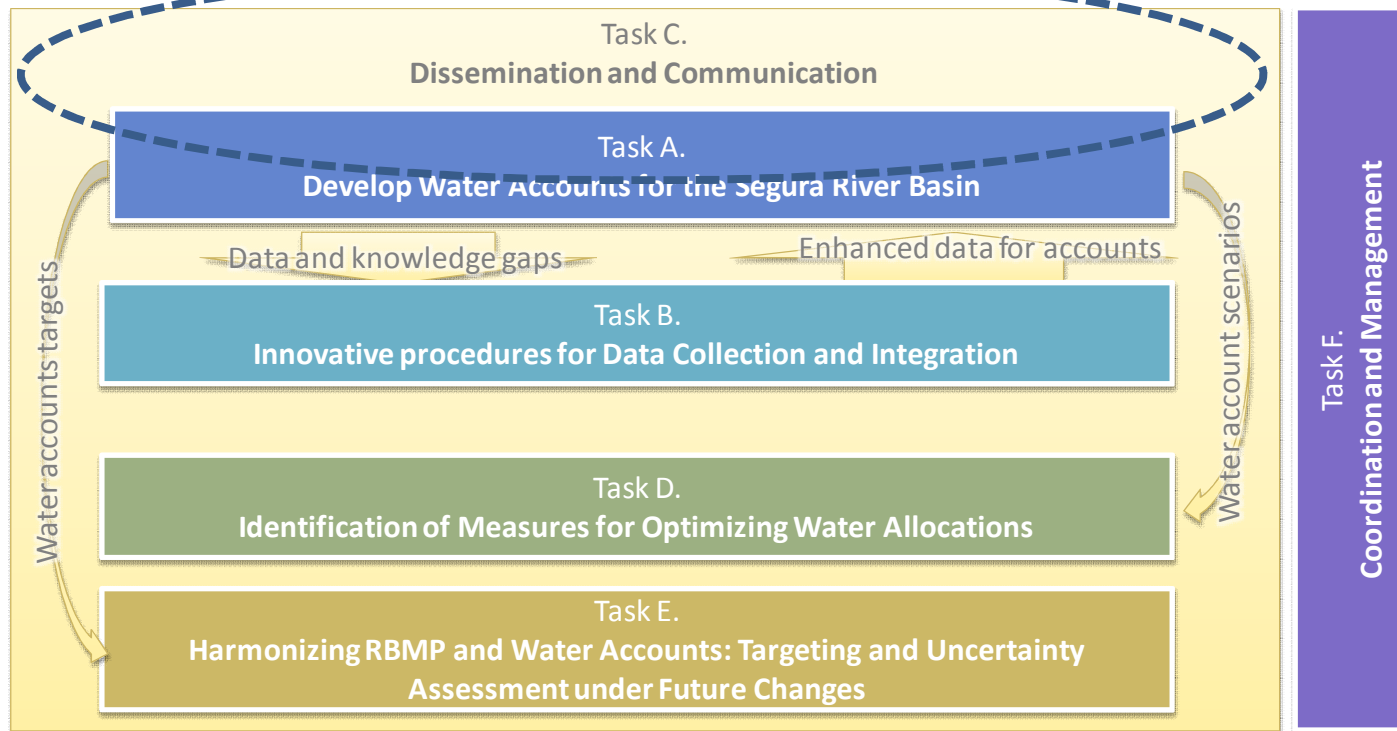
# Work Plan



## Task E. Harmonizing RBMP and Water Accounts: Targeting and Uncertainty Assessment under Future Changes

*Responsible: FW. Participants: CHS and UPCT.* Aim: deriving indicative target levels for water saving and for reducing the vulnerability of water resources in the Segura River Basin. These targets will focus on water efficiency, water-reuse, land-use and climate change adaptation which will allow the preservation and/or restoration of the natural water balance.

# Work Plan



## Task C. Communication & Dissemination

*Responsible: SAMUI. Participants: all.*

Aim: to maximise the value of the research. Fundamental to this programme is identification of the key target audiences. Main C&D related actions are planned: - Project website available at least for 5 years after the project. - News for Networks and social media ( Twitter account )and Policy supporting and River Basin Manager Specific Material (Layman ´s report, Policy brief and executive summary). - Summer School. - Final and Dissemination Meetings.

# Timetable for each stage (Gantt)

2.(a) TIMETABLE FOR EACH STAGE OF THE ACTION SHOWING MAIN DATES AND EXPECTED RESULTS FOR EACH STAGE (table to be repeated as many times as necessary)																	
		Quarter 1			Quarter 2			Quarter 3			Quarter 4			Quarter 5			
Activity		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
<b>A</b>	<b>Develop Water Accounts for the Segura River Basin</b>																
A1	Data collection																
A2	Data Implementation into ECRINS and SEEAW.																
D-A.1	Report on data on temporal and spatial data collected for the water accounts.						X										
D-A.2	Report on the implementation of SEEAW for the Segura river basin district.												X				
M-A	Water balances for Segura river basin district complete according to SEEAW.												M				
<b>B</b>	<b>Innovative procedures for Data Collection and Integration</b>																
B1	Actual evapotranspiration for water balance closure																
B2	Development and testing of GIS-based solution for data integration																
B3	Merging local and ENSEMBLES climate data																
D-B.1	Report on the results of actual evapotranspiration (ETact) assessment.						X										
D-B.2	Report on the data processing, reconstruction and integration methodologies.									X							
D-B.3	Report on the results of ENSEMBLES versus local data assessment.												X				
M-B	Validation of innovative methodologies supporting the elaboration of water balances at EU level.									M							
<b>C</b>	<b>Communication &amp; Dissemination</b>																
D-C.1	Project website.	X															
D-C.2	C&D plan (report).			X													
D-C.3	Layman's report and Policy brief and executive summary.															X	

Gantt with milestones, deliverables and meetings. The work plan is scheduled over a period of **15 months**.





# Summary of Deliverables and Milestones

Title of Milestones (M) and Deliverables (D)	Level	Leader	Timing
D-A.1 Report on data on temporal and spatial data collected for the water accounts.	PU	UPCT	6
D-A.2 Report on the implementation of SEEAW for the Segura river basin district.	PU	UPCT	12
M-A Water balances for Segura river basin district complete according to SEEAW.		UPCT	12
D-B.1 Report on the results of actual evapotranspiration (ETact) assessment.	PU	FW	6
D-B.2 Report on the data processing, reconstruction and integration methodologies.	PU	FW	9
D-B.3 Report on the results of ENSEMBLES versus local data assessment.	PU	FW	12
M-B Validation of innovative methodologies supporting the elaboration of water balances at EU level.		FW	9
D-C.1 Project website.	PU	SAMUI	1
D-C.2 C&D plan (report).	PU	SAMUI	3
D-C.3 Layman´s report.	PU	SAMUI	15
D-C.4 Policy brief and executive summary.	PU	SAMUI	15
M-C.1 C&D actions.		SAMUI	3
M-C.2 Summer School on UPCT.		UPCT	11
M-C.3 Final Meeting and Dissemination Meeting.		UPCT	15
D-D.1-Report on the identification and evaluation of measures to optimize water management in the Segura Basin through water accounts.	PU	CHS	15
M-D Measures identified and assessed through the use of water accounts.		CHS	14
D-E.1 Report on target setting and vulnerability of measures for future changes.	PU	FW	15
M-E Targets set and vulnerability assessed for future changes using Water Accounts and RBMP.		FW	14
D-F.1 First Technical Report.	PU	UPCT	6
D-F.2 Annual Technical Report.	PU	UPCT	12
D-F.3. Annual Financial Report.	RE	UPCT	12
D-F.4. Final Technical Report.	PU	UPCT	15
D-F.5. Final Financial Report.	RE	UPCT	15
D-F.6 Plan for ensuring follow-up activity beyond the project duration.		UPCT	15
M-F.1 Kick off Meeting.		UPCT	1
M-F.2 Coordination Meetings (2) with stakeholders.		UPCT	6 and 9
M-F.2 Annual Meeting.		UPCT	12

The deliverables are public (except financial reports).

Thanks for your  
attention !

Contact: person:  
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