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## Back to back meetings - EIP Water Conference 2014

**EIP Water** Conference 2014  
Connecting Innovation Demand and Supply

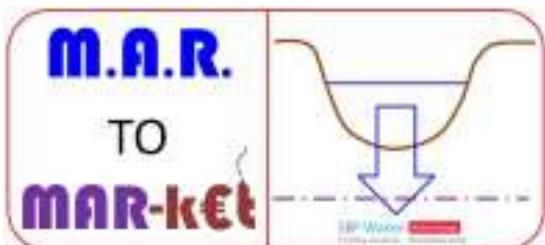
The following open/closed back to back meetings are scheduled to take place in Barcelona one day before or the day after the EIP Water Conference 2014:

[Open back to back meetings:](#)

# MARtoMARK€T

## Executive summary / conclusions of MAR4FARM Workshop in Arenales, Spain

by Enrique Fdez. Escalante (TRAGSA, Spain)



■ **TUE 4<sup>th</sup> November, time 16:00-18:00. MARtoMARket EIP Water Action Group OPEN MEETING**

Objective: Demonstrating the feasibility and efficiency of MAR in combating future water scarcity threats in the Circum-Mediterranean area.

Tentative Agenda:

- Introduction and objectives of MARtoMARket Action Group 128, by J.P. Lobo Ferreira (Leader of AG 128, LNEC, Portugal) / Nikolaus Fleischmann (EIP Water Secretariat)
- A Knowledge Basis on Managed Aquifer Recharge Sites in Europe, by Christoph Sprenger (KWB, Germany)
- Developments of FP7 INNO DEMO MARSOL project & Executive summary / conclusions of MAR Modelling Workshop in Lisbon, July 2014, by Annette Wefer-Roehl / Karl-Ernst Roehl (MARSOL Project Coordination, TUD, Germany) and J.P. Lobo Ferreira (WP 12 Modelling leader, LNEC, Portugal)
- Executive summary / conclusions of Geofluid MAR Workshop in Piacenza, Italy, by Giancarlo Gusmaroli (LIFE AQUOR PROJECT Technical-Scientific Coordinator, Studio Ecoingegno, Italy)
- Executive summary / conclusions of MAR4FARM Workshop in Arenales and Santiuste, Spain by Enrique Escalante (TRAGSA, Spain). (highlighted)
- MAR activities in Italy, and the importance of MAR for Italian stakeholders, by Vincenzo Marsala (SGI Studio Galli Ingegneria S.p.A., Italy)
- MtoM business and project opportunities in Eastern Europe countries (Ciprian Nanu, MATES nZEB Project, Romania)
- Discussion & networking coffee with representatives of UPC and AgBar, Barcelona (Xavier Sanchez Vila, UPC, Spain).

If you are interested to join, please contact: [j.ferreira@lnec.pt](mailto:j.ferreira@lnec.pt) or [nikolaus.fleischmann@fresh-thoughts.eu](mailto:nikolaus.fleischmann@fresh-thoughts.eu).

■ **THU 6<sup>th</sup> November 2014, 16:00-18:30. Clusters for Water Efficiency in European Regions: networking - matchmaking – workshop will be a B2B cluster meeting and brokerage event:**

- To create an open European platform for excellence in water efficiency in urban water management.

# **MAR to MAR-ket**

**¿How to involve industry in water management & in MAR technique?**

Industry must be aware that much of their future is linked to groundwater:

- Water efficiency linked to a bigger productivity and savings
- Guarantee for sustainability and permanence
- Lower “Blue print”
- Huge potential to convert MAR into job opportunity creation

**AWARENESS BY SPECIFICALLY DESIGNED DISSEMINATION TECHNIQUES**



+



**MAR to Market**



**APPROPRIATE CONTEXT FOR A PROJECT & AN SPECIFIC WG**

# **MARtoMARK€t' sequential actions in related industries**

First stages:

- 1. AGRO-INDUSTRY**
- 2. WATER SUPPLY INDUSTRY**
- 3. WASTE WATER TREATMENT PLANTS**
- 4. DESALINATIONS AGENTS**
- 5. BOTTLED COMPANIES**
- 6. GOLF COURSES**
- 7. PUBLIC ADMINISTRATION BRANCHES**
- 8. BALNEARIES & SPAS (*SALLUS PER AQUAM*)**
- 9. HOTELS AND TOURIST FACILITIES (MARKET UPTAKE)**



**MAR to MAR-kEt**

**STRATEGIES AND ACTIONS TO BRING MANAGED AQUIFER RECHARGE SCIENTIFIC BASED SOLUTIONS AND TECHNIQUES TO THE INDUSTRY**

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WaterDISS - Water Demand Side Solutions

**INTRODUCTION**

The major objectives to be addressed by the Action Groups are based on the idea that "Industry should understand that much of its future is linked to groundwater by means of increasing its awareness through adopted dissemination techniques". There are still some barriers that difficult the MAR market uptake but that can be overcome with appropriate promotion of research outputs and a two-way interaction process with stakeholders (WaterDISS, 2013; <http://www.waterrisks.org/waterrisks2013/>)

Three challenging lines of action are:

- Water efficiency linked to a bigger productivity and savings in water supply and energy costs (the demand for water is currently increasing)
- Better coping with climate change extreme events (floods and droughts)
- Guarantees for sustainability and permanence under water scarcity situations.

MAR becomes as a "Market opportunity" for market drivers and associations:

- Lower "Blue print" or "water foot-print" and climate impacts in the aquifers whose content is going to impact other places at virtual value
- Huge potential to create MAR-driven opportunity creation
- Strengthen cooperation with international organisms, in particular the UN-EAR Commission, UNESCO, World Bank, FAO and Red Cross
- Innovative exports involving, firstly, related industrial factors of high visibility
- Mathematical modeling and hydrogeological scientific bases enables for the appropriate location of new MAR sites
- Hydro-economic modeling combining hydro (and) logistic, structural, institutional and economic factors to simulate the evolution of the value of water in space and time

**FRAMEWORK**

**MAR-Solutions project**  
Demo sites

**INDUSTRY MUST BE AWARE THAT MUCH OF THEIR FUTURE IS LINKED TO GROUNDWATER**

- Water efficiency linked to a bigger productivity and saving
- Permanence and sustainability guarantee
- Lower "Blue print"
- Market analysis on the potential exploitation of the achieved Technological solutions

- Demo sites to show the suitability of MAR techniques
- Sequential actions involving, firstly, related industrial sectors of high visibility
- Technological solutions (wp13)
- Hydro-economic modelling (combines factors hydro (geo)logical, structural, institutional and economic to simulate the evolution of the value of water in space and time).

• 21 partners, 8 countries, 3 years, budget about 11 M€

**RELATED INDUSTRIES**

1. AGRO-INDUSTRY  
2. WATER SUPPLY INDUSTRY  
3. WASTE WATER TREATMENT PLANTS  
4. DESALINATIONS AGENTS  
5. BOTTLED COMPANIES  
6. GOLF COURSES  
7. PUBLIC ADMINISTRATION BRANCHES  
8. BALNEARIES & SPAS (SALLUS PER AQUAM)  
9. HOTELS AND TOURIST FACILITIES (MARKET UPTAKE)

**CONCLUSIONS**

-Eight field sites selected for MAR-SOL project will ensure the development of this action group with a huge component of "innovation in action".

-The proposed demo sites will demonstrate the applicability of MAR using various water sources, ranging from treated waste water to desalinated seawater, and a huge variety of technical solutions.

-Targets are, at least, the alleviation of the effect of climate change on water resources, the mitigation of droughts, to countermeasure temporal and spatial water or water availability, to sustain agricultural water supply and rural socio-economic development, to combat agricultural related pollutants, to sustain future urban and industrial water supply, to prevent seawater intrusion in coastal aquifers and to guarantee the survival of certain ecosystems.

-Results of the field sites will be used to develop guidelines for MAR site selection, technical realization, monitoring strategies, and modelling approaches to offer stakeholders a comprehensive, state-of-the-art and proven toolbox for MAR implementation.

**MAR**  
MANAGED  
AQUIFER  
RECHARGE  
SOLUTIONS  
[www.marsol.eu](http://www.marsol.eu)

EU FP7  
Funded project

### MAR to MAR-k€

#### DISSEMINATION AND TECHNOLOGY TRANSFER (D&TT) CRITERIA PROPOSED TO BRING MANAGED AQUIFER RECHARGE (MAR) TECHNIQUE TO THE INDUSTRY

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 CORDERO SÁNCHEZ, Rosa. METODO GUAPO. Alfonso 14b. 28017 Madrid. Email: [rosa@metodoguapo.com](mailto:rosa@metodoguapo.com)

**ABSTRACT**

The main aim of MAR to MAR-k€ is to plan a strategy to bring hydrogeology and MAR to the industry, taking notice of the importance of recharged aquifers for future industry advance in a broad range of branches. This line of action is inserted within the framework of DNA-MAR and MAR-SOL projects • MAR TO MAR-k€ T.A.G.

**FRAMEWORK**

**MAR-SOLutions project**  
Demo sites

- Demo sites: to show the suitability of MAR technique
- Sequential actions involving, finally, related industrial sectors of high usability
- Technological solutions (map 1)
- Hydro-economic modelling combines factors (hydrological, structural, institutional and economic) to simulate the evolution of the value of water in space and time
- 21 partners, 8 countries, 2 years, budget about 11 €M
- Specific action Group (AGs): Demonstrating Managed Aquifer Recharge as a Solution to Water Scarcity and Drought

**Industry must be aware that much of their future is linked to groundwater**

**AWARENESS BY ADAPTED DISSEMINATION TECHNIQUES**

Water efficiency linked to a bigger productivity and savings

- Persistence and sustainability guarantee
- Lower "Blue print"

**Related industries:**

1. Agro-industry
2. Waste water treatment plants dealers
3. Desalination agents
4. Bottled companies
5. Golf courses
6. Public Administration branches
7. Businesses & SPAs (Salinas Per Aquas)
8. Hotels

**Market analysis on the potential exploitation of the achieved technological solutions**

Overall representation of the high complexity of disseminating hydrogeology knowledge

**STRATEGIC STAGES**

- To consider dissemination as a planned process from development groups to diffusion circles.
- To employ technology transfer techniques (e.g. diagnostics and technological resources management).
- To prepare a list of materials and activities for different target groups.
- To let the process be open and adapt it to each country's culture and interculturalities.

**Diagnosis**

**Technology transfer**

Useage of an action plan that combines general and specific information with the description of strategies

Overall representation of the high complexity of disseminating hydrogeology knowledge

**Technological resources management**

Map illustrating the management of technological resources focused to target groups (cross-different technologies)

**Strategic objectives: Process**

Overall representation of the high complexity of disseminating hydrogeology knowledge

**K = d · e<sup>2</sup> · T<sup>3</sup>**

**CONCLUSIONS**

Environmental education and technology transfer are very effective dissemination techniques in Hydrogeology and MAR.

**Sharing technological solutions requires :**

- High doses of "hydro-imagination".
- Achievement of results
- Demo sites. Correctly executed works
- Commitment & generosity
- Patience is the achievement of results
- Innovative and participative mentality
- Appropriate follow-up

It is necessary to make access to information easy to improve education and hydrogeologic knowledge among industry users, so as to facilitate their participation.

The proposed strategy counts on a catalogue of activities and materials focused to target groups & open for future improvements. Each product is a planned process.

# 1st: MAR & agroindustry

- Sector with abundant examples of implementation
- Water and energy efficiency improvements by means of MAR
- Success linked to the supply guarantee without climate dependence
- High quality production in the “*Demo site*”
- Scales variety: From individuals to big industries (associationism)

## • Demo Sites: Arenales (Spain)

Santiuste basin:

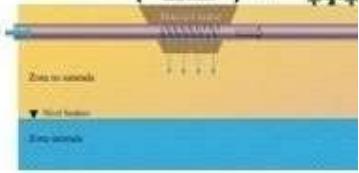
- 10 years
- Channel 27 km
- 5 infiltration ponds
- 3 artificial wetlands
- 1 RBF
- 3 infiltration wells

## Carracillo District:

- 9 years
- Channel 40.7 km
- 3 infiltration ponds
- 1 RBF
- 2 artificial wetlands

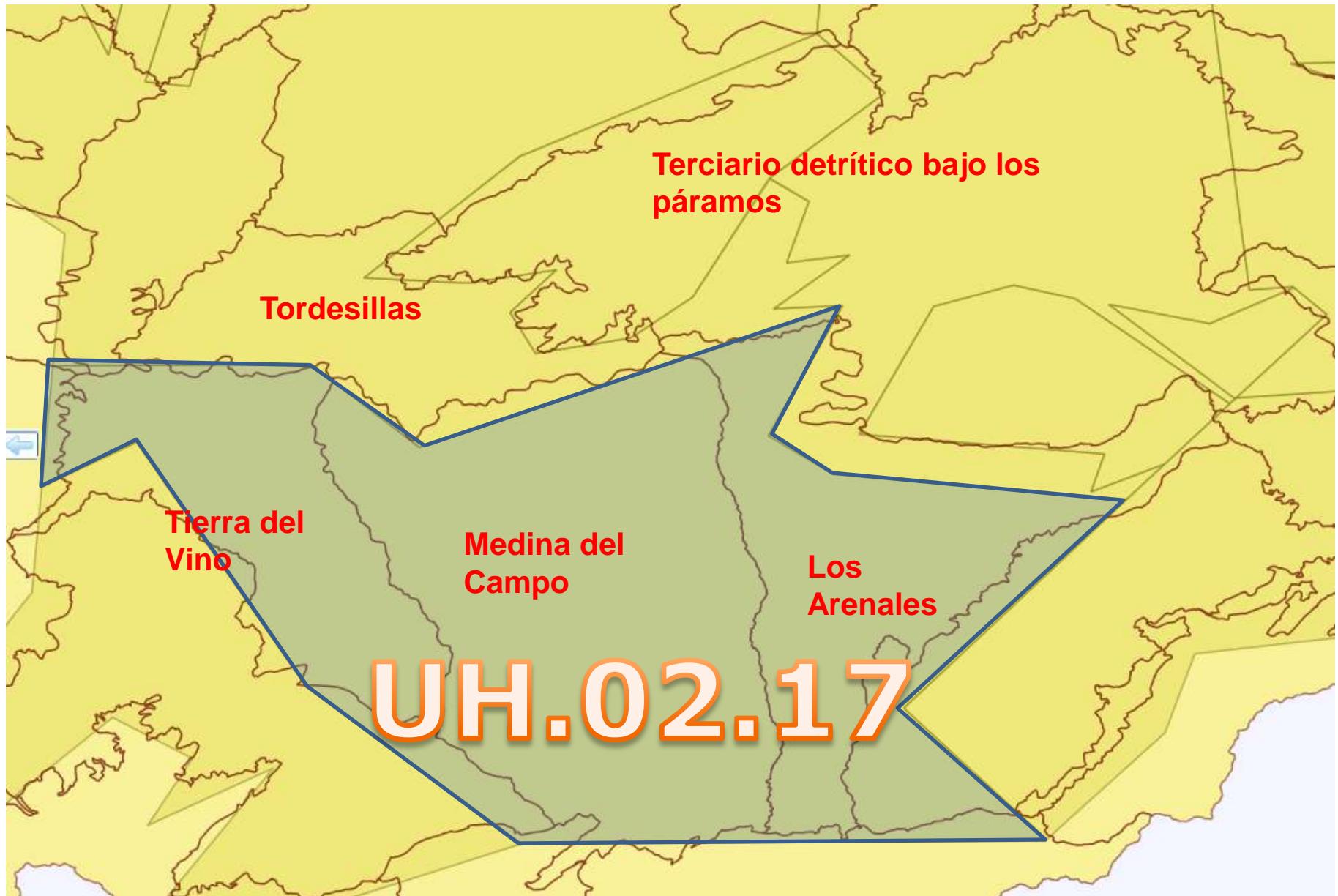
## Alcazarén:

- 1 RBF
- Channel 5.5 km



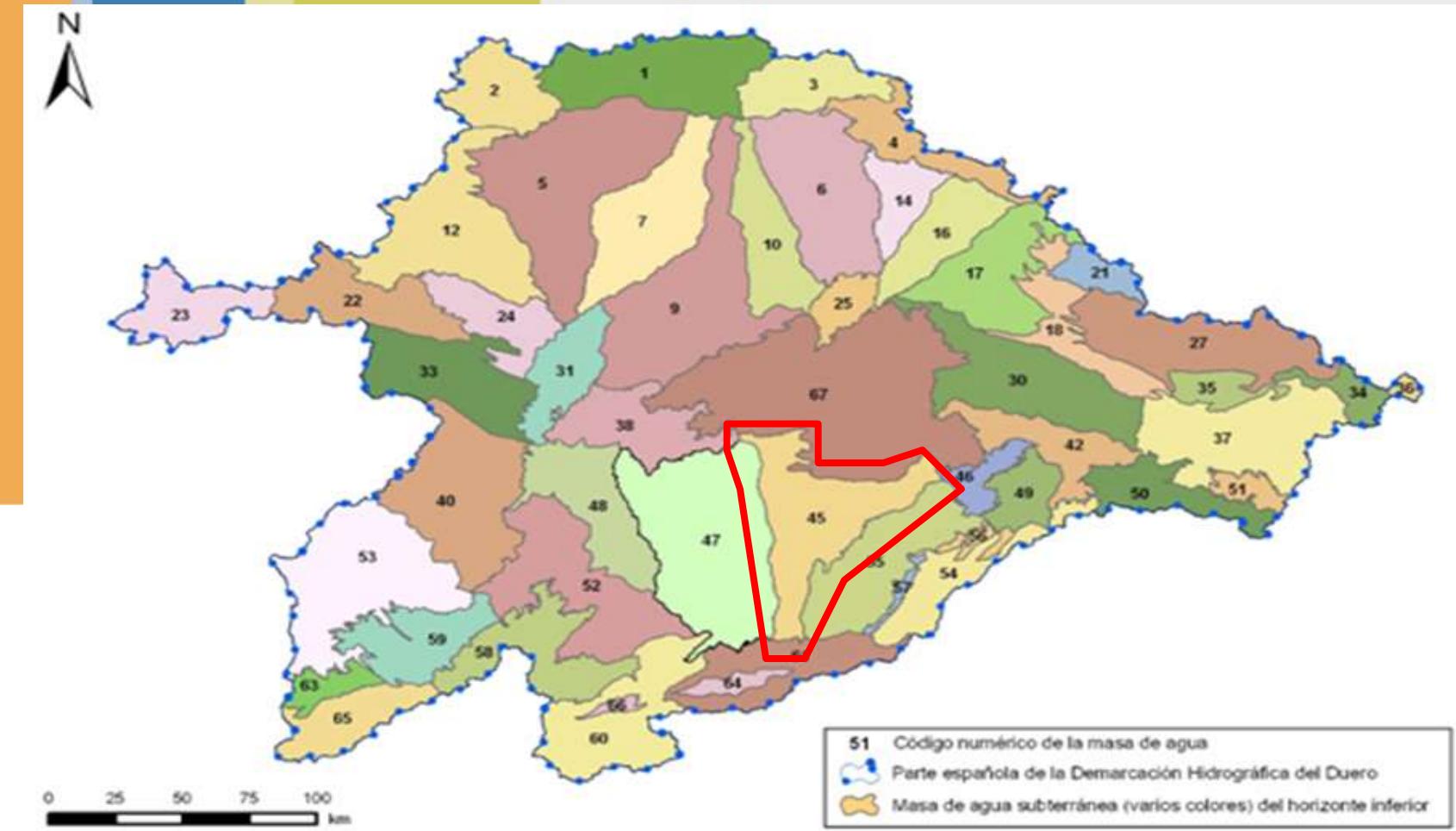
# LOS ARENALES

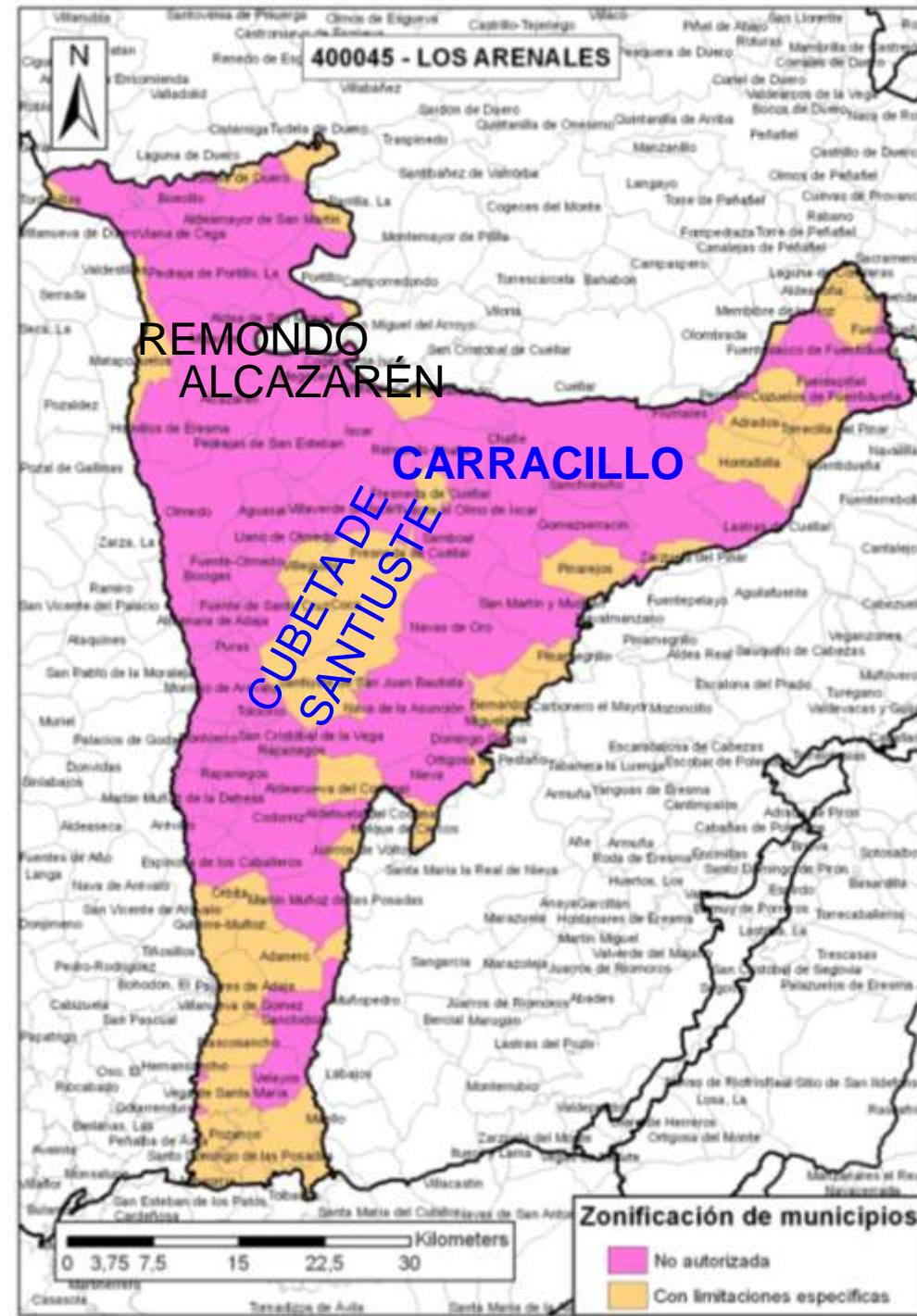
7.550 km<sup>2</sup>



# GROUNDWATER ADMINISTRATIVE DIVISION FOR DOURO BASIN

79.000 km<sup>2</sup>  
64 MASSES OF WATER

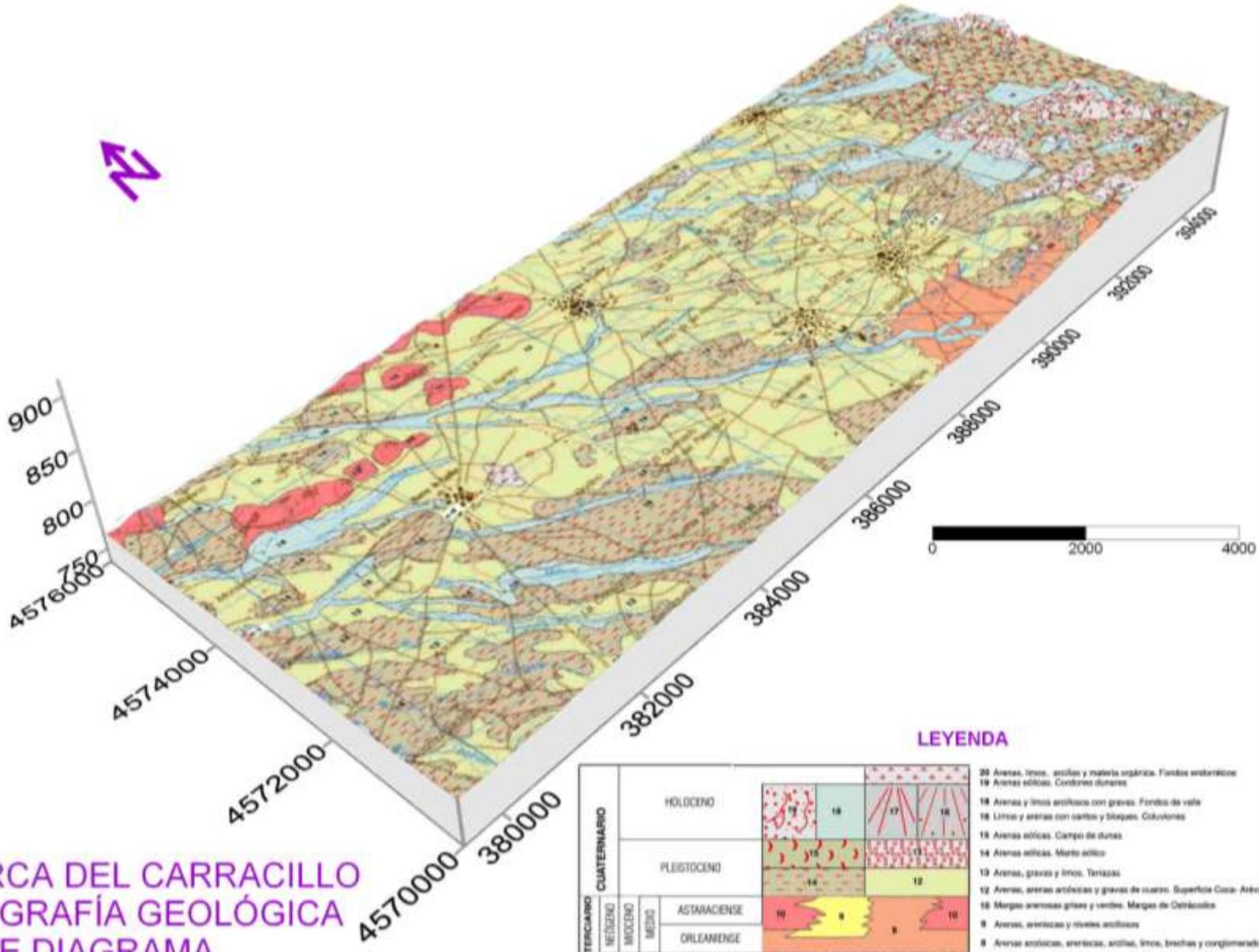




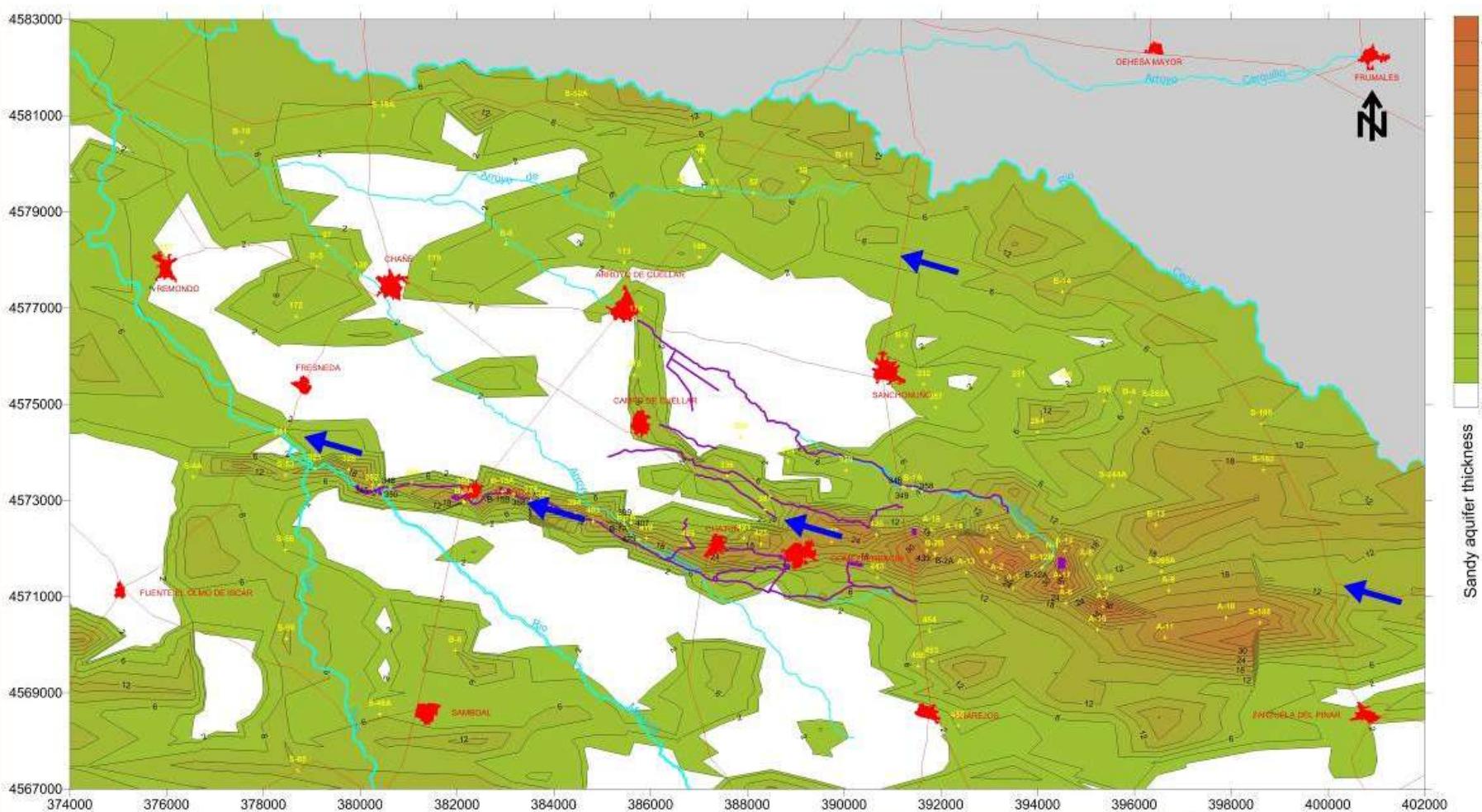
# MAR ACTIVITY IN ARENALES AQUIFER

- 96 VILLAGES IN VALLADOLID, SEGOVIA AND ÁVILA
- 17 INVOLVED IN MAR
- 46.000 INHABITANTS
- BROAD AGROINDUSTRY DEVELOPMENT





COMARCA DEL CARRACILLO  
CARTOGRAFÍA GEOLÓGICA  
BLOQUE DIAGRAMA



## CARRACILLO REGION RECEIVING AQUIFER CONFIGURATION

**LEGEND:**

- ◆ Urban areas
- Hydrography
- Roads
- Sandy aquifer thickness
- Monitoring & control water point
- Tertiary impermeable base (marl and clay)
- ← Groundwater flow
- Artificial recharge channels and infiltration ponds

0 2000 4000 m

**SCALE 1:80.000**  
**Lines equidistance: 3 m**  
**Base cartography: IGN 1:25.000**

# BROAD AGROINDUSTRY DEVELOPMENT

## VEGETABLES PACKING AND EXPORTATION



IRRIGATION: 3500 HA OUT OF 7,586  
713 COMMUNERS  
6,225 PARCELS



# YOUNG IRRIGATION COMMUNITY OPENED TO NEW TECHNOLOGIES



[http://www.regantesdellcarracillo.es/datos\\_tecnicos.htm](http://www.regantesdellcarracillo.es/datos_tecnicos.htm)

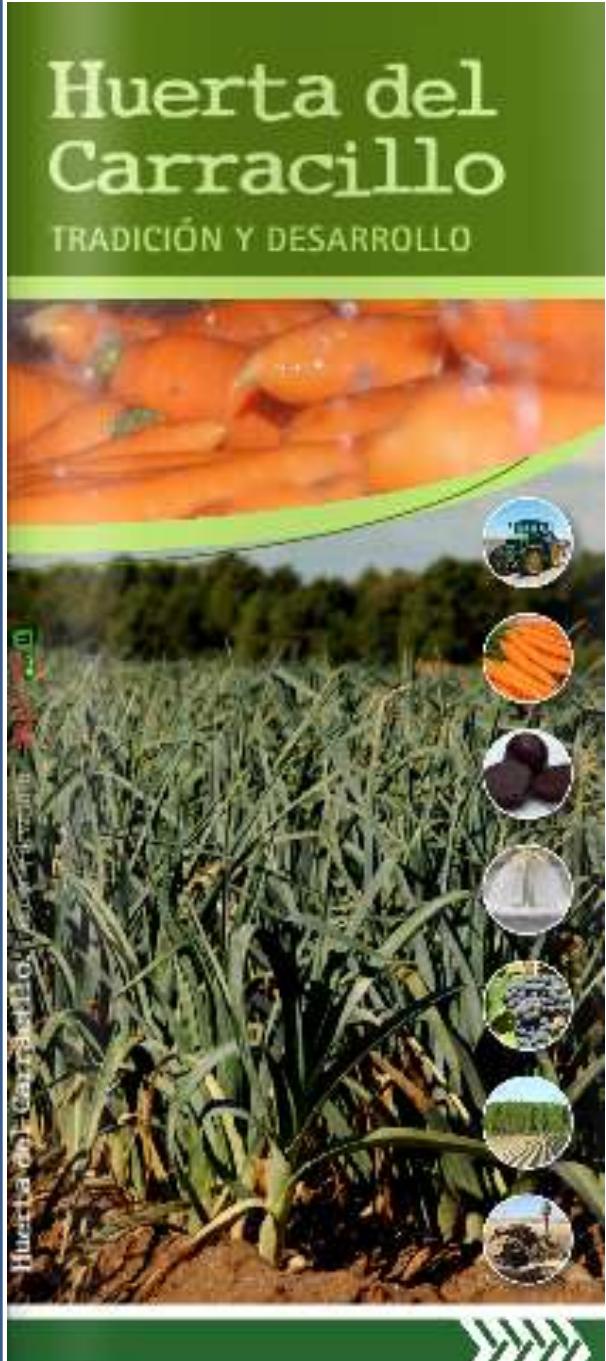
# F FARMS ASSOCIATED TO MAR FACILITIES



# COMPLEX WATER MANAGEMENT DEVICES

- DEPOSITS
- DEPTH BOREHOLES
- FISH BONE PIPING
- IMPORTANCE OF MAR (5.5 HM<sup>3</sup> AS AN AVERAGE FOR THE LAST DECADE)





## EXAMPLE:

- Crops catalog
- MAR water irrigation
- direct linkage between MAR water and high quality products

### Future water quality label

**Huerta del Carracillo**

**Racines para consumir: Hortícolas de La Huerta Segoviana**

Proyecto 'Del surco al Plato' que apoya los productores de la Comunidad de Regantes de la Huerta del Carracillo en la elaboración de un catálogo de hortalizas que incluye datos sobre el cultivo, las variedades, las técnicas de cultivo y recolección, así como consejos para su consumo y almacenamiento.

**Los Surtidores**

Este apartado incluye una sección dedicada a las variedades de hortalizas y sus características, así como consejos para su consumo y almacenamiento.

**El adelantado.com**

**El proyecto 'Del surco al Plato' apoya los productos locales en el medio rural**

La campaña contribuye con más diversidad nutricional de forma sencilla y sana.

1578 días

eDreams

**Huerta del Carracillo**

**LA RECARGA DEL ACUÍFERO DEL CARRACILLO**

**LA RECARGA DEL ACUÍFERO DEL CARRACILLO**

Con el objetivo de mantener la superficie de regadío y garantizar la disponibilidad de agua durante el período estival, en 1998 se declara "área de interés general", por Real Decreto, la derivación de agua desde el río Cega, concluida mediante una tubería hasta hacerla infiltrar en las tierras arenosas de la Comarca del Carracillo para su almacenamiento en el acuífero.

Todos los estudios hidrogeológicos previos, las obras se iniciaron en el año 2002 y finalizaron en el 2005. El punto de captación y derivación surge del río Cega, en un antiguo azud reconstruido conocido como Salto de Abajo, entre los términos de Lasfría y Aguilafuente. Esta tubería recorre el margen izquierdo del río hasta interesar la presión necesaria para enchar el Común Grande de las Pegueras y llegar hasta las cuatro salidas que tiene: el arroyo Temil, la laguna del Señor, el Arreño y el pozo final de la tubería junto a la A-101, todo ello mediante gravitación, sin impulsión alguna. Desde aquí el agua se distribuye por los cauces, arroyos y zonas de inundación de los términos de Gomezserracín, Chatón, Campo de Cuéllar, Narros de Cuéllar y Fresneda de Cuéllar. El agua que fluye por los cauces se infiltra

a través de los suelos arenosos y permeables, haciendo subir el nivel freático en los pizarras de los regantes e incrementando la disponibilidad de agua en el acuífero. También se han construido infraestructuras, ríos y balsas de regulación a la infiltración en aquellos lugares donde estos dispositivos resultan más apropiados para ello.

El agua del Cega se drena desde el azud a partir del 1 de diciembre hasta el 30 de abril, siempre que se garantice el caudal ecológico del río y las necesidades hidrométricas situadas más abajo. Durante este período las necesidades de agua para el riego son menores, por lo que el agua se acumula en el acuífero y puede ser utilizada durante la temporada de riego que va aproximadamente desde abril hasta entrado el otoño.

La recarga no solo permite disponer de agua suficiente para el riego, sino que para los agricultores también supone un ahorro energético, puesto que el bombeo de agua desde menor profundidad requiere menos energía, una vez que la capa freática sube a los niveles normales. La Comunidad de Regantes del Carracillo es la entidad encargada de la gestión de los recursos hídricos existentes en esta Comarca donde hay un total de 7.586 ha regables repartidas en doce localidades segovianas y una de Valladolid, Zaratán.

Para los municipios cuyo suelo es en menor medida para la recarga artificial, como Sanchonuño, Arroyo de Cuéllar, Churie, Fresneda de Cuéllar y Henmedo, se ha redactado un proyecto de próxima ejecución para que puedan regar en verano con agua a presión enviada desde un acuífero situado en los Pinares de Villa y Tierra de Cuéllar, en la zona cercana a Zarzuela del Pinar.

Puedes saber más:

Comunidad de Regantes del Carracillo [www.aguaelcarracillo.es](http://www.aguaelcarracillo.es)

Camino del Agua: Rutas por las obras de la recarga del Carracillo. [www.agua-mapa.es](http://www.agua-mapa.es)

[ec.europa.eu/environment/ecolabel/how-to-apply-for-eu-ecolabel.html](http://ec.europa.eu/environment/ecolabel/how-to-apply-for-eu-ecolabel.html)



**How to apply for EU Ecolabel**

-  **Step 1: Getting Started**
-  **Step 2: Getting Advice**
-  **Step 3: Starting the application**
-  **Step 4: Collecting the Evidence**
-  **Step 5: Submitting the Application**
-  **Step 6: Ecolabel awarded**
-  **Step 7: Marketing your product with the EU Ecolabel**

**Useful material:**

- [Guidelines for the Use of the EU Ecolabel Logo \[EN\] / \[FR\]](#)
- [Marketing guide](#)
- [Presentation: EU Ecolabel Masterclass by Solitaire Townsend, Futerra Sustainability Communications Ltd. \(September 2009\)](#)

**Survey on the EU Ecolabel Regulation**

 **The Ecolabel Catalogue**

**Facts and figures**

**Did you know?**

**FAQ**

**EU Ecolabel on Euronews**





**Agrofood products not included in ECOLABEL possibility (dead end)**

# HIGH BLUE PRINT

- Operational
- In the distribution chain

## BLUE PRINT IN SPAIN. Results-1

RESULTADOS	HH per cáptia (m <sup>3</sup> /hab y año)	HH (miles de m <sup>3</sup> )	Import (miles de m <sup>3</sup> )	Export (miles de m <sup>3</sup> )	Net Export (miles de m <sup>3</sup> )	AD per cáptia (m <sup>3</sup> /hab y año)	HH externa
ESPAÑA	2.240,7	90.746.975	41.002.990	21.627.151	19.375.838,5	1.762	21%
NAVARRA	2.547,9	1.417.313	1.721.060	2.179.913	-458.852,5	3.373	-32%
ANDALUCIA	2.103,3	15.573.057	13.108.543	11.039.466	2.069.077,9	1.824	13%
CATALUÑA	2.430,9	15.464.102	14.874.345	5.479.770	9.394.575,1	954	61%
VALENCIA	2.009,6	8.445.454	9.063.861	4.816.846	4.247.015,2	999	50%
CASTILLA-LA MANCHA	2.259,8	3.966.130	2.911.893	5.655.315	-2.743.421,8	3.823	-69%
MADRID	2.454,1	13.184.736	14.321.244	2.713.695	11.607.548,8	294	88%
EXTREMADURA	2.113,4	2.268.501	1.820.143	6.763.876	-4.943.733,0	6.719	-218%
CANARIAS	1.661,0	2.958.936	2.501.795	174.887	2.326.908,6	355	79%
ARAGON	2.081,6	2.496.547	2.207.672	6.246.397	-4.038.725,3	5.449	-162%
ASTURIAS	2.215,6	2.382.448	1.898.083	1.122.578	775.504,3	1.494	33%
CASTILLA Y LEON	2.131,7	5.289.242	2.942.612	7.648.090	-4.705.477,9	4.028	-89%
GALICIA	2.265,1	6.190.471	4.752.450	3.772.362	980.087,4	1.907	16%
PAIS VASCO	2.319,9	4.875.147	4.106.590	871.746	3.234.843,6	781	66%
BALEARES	2.015,1	1.770.519	1.341.108	123.555	1.217.552,9	629	69%
LA RIOJA	2.230,3	603.096	490.446	469.697	20.748,5	2.154	3%
MURCIA	2.223,6	2.646.896	3.234.808	2.446.376	788.432,2	1.561	30%
CANTABRIA	2.258,9	1.214.380	935.961	811.522	124.439,3	2.027	10%

# BLUE PRINT IN SPAIN. Results-3

Nº	RESULTADOS (miles de m <sup>3</sup> )	Aqua Directa	AV Demanda final	AV EXPORT	AV IMPORT	HH
1	A 011 Agricultura	38.494.438	19.791.282	12.468.458	27.269.514	<b>34.592.338</b>
2	A 012 Ganadería y caza	18.676.279	1.563.355	529.103	718.574	<b>1.752.826</b>
3	A 02 Selvicultura y explotación forestal	6.845.288	3.109.305	725.959	2.225.835	<b>4.609.181</b>
4	B Pesca	20.248	90.070	12.593	42.746	<b>120.223</b>
5	C Industrias extractivas	134.304	28.006	26.502	883.509	<b>885.013</b>
6	DA 151_155 Industria de la alimentación	56.717	13.269.897	1.398.303	1.856.736	<b>13.728.330</b>
7	DA Resto Industria de la alimentación, be	120.352	9.213.068	3.256.754	3.884.630	<b>9.840.943</b>
8	DBC Industria textil, de la confección, de	122.296	845.137	393.827	534.444	<b>985.754</b>
9	DD Industria de la madera y del corcho	27.133	199.152	171.275	339.052	<b>366.929</b>
10	DE Industria del papel; edición, artes grá	288.995	715.600	442.692	617.749	<b>890.656</b>
11	DF Refino de petróleo y tratamiento de o	46.105	68.668	33.249	35.030	<b>70.449</b>
12	DG Industria química	504.702	535.580	371.554	648.705	<b>812.730</b>
13	DH Industria del caucho y materias plásti	199.059	197.066	189.821	222.941	<b>230.187</b>
14	DI Industrias de otros productos minerales	91.381	78.764	75.205	41.109	<b>44.668</b>
15	DJ Metalurgia y fabricación de productos	208.567	231.970	171.248	236.550	<b>297.273</b>
16	DKL Industria de la construcción de maq	23.662	305.727	211.495	436.988	<b>531.220</b>
17	DM Fabricación de material de transporte	27.324	368.280	290.534	298.945	<b>376.691</b>
18	DN Industrias manufactureras diversas	82.578	466.327	124.488	150.372	<b>402.311</b>
19	41 Captación, depuración y distribución d	932.821	459.190	0	0	<b>459.190</b>
20	E Producción y distribución de energía y	341.640	134.914	3.136	2.988	<b>134.766</b>
21	E Construcción	44.115	1.727.627	101	282	<b>1.727.917</b>
22	90.01 Actividades de tratamiento de agua	180.958	172.986	0	0	<b>172.986</b>
23	55.1,55.2 Hoteles	60.571	503.762	0	32.782	<b>536.544</b>
24	55.3-55.5 Restaurantes	561.576	7.721.481	0	1.455	<b>7.722.936</b>
25	R Otras actividades económicas ( G a Q	854.851	7.138.775	730.764	521.954	<b>6.929.965</b>
<b>TOTAL</b>		<b>68.945.990</b>	<b>68.945.990</b>	<b>21.627.151</b>	<b>41.002.990</b>	<b>88.321.828</b>
Consumo Humano		2.425.146	2.425.146			2.425.146
		<b>AD TOTAL</b>	<b>71.371.136</b>	(m <sup>3</sup> /año)	<b>HH TOTAL</b>	<b>90.746.975</b>
		<b>AD per cápita</b>	<b>1.762,3</b>	(m <sup>3</sup> /hab y año)	<b>HH per cápita</b>	<b>2.240,7</b>

Data for 6 out of 9 branches

# *Demo sites*



# MANAGED AQUIFER RECHARGE IN ARENALES AQUIFER

- *Since 2002, when MAR activities began in this sector of Arenales aquifer, (considered a construction for the general interest of the nation), recharge activities have been accomplished by means of the irrigation community, who counted on the support, when they required it, from the technicians involved in the studies and construction work.*
- *After a decade, some articles and books as well as abundant information have been published, specially directed to technicians and researchers, but there are still many users and farmers who ignore a great part of this activity. Within this context, this workshop, that has been called MAR4FARM is specially dedicated to farmers as main user of groundwater resources, in order to solve some doubts they could have (avoiding technical language), as: what were these building works made for?, why is it profitable for agriculture?, how does the aquifer behave?, what should know a farmer on water managing? ...*



Collaborate:



Exmo Ayto. de Santiuste de San Juan Bautista

Ayuntamiento de Gómezserracín

This initiative takes place in the framework of "FP7-ENV-2013 MARSOL (GA 619.120). Demonstrating Managed Aquifer Recharge as a Solution to Water Scarcity and Drought (WP5)" with the support of the European Commission, however it reflects the views only of the authors, and the Commission cannot be held responsible of any use which may be made of the information contained therein.

<http://www.marsol.eu/>



MARSOL INFORMATIVE WORKSHOPS AT SANTIUSTE BASIN AND CARRACILLO DISTRICT



## MANAGED AQUIFER RECHARGE IN SANTIUSTE BASIN AQUIFER

### MAR4FARM WORKSHOP



Exmo. Ayto. de Santiuste de San Juan Bautista (Segovia)  
Wednesday, October 29th 2014, 17 h. Free entrance  
Activity to involve groundwater users

#### Collaborate:



Exmo Ayto. de Santiuste de San Juan Bautista

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MARSOL INFORMATIVE WORKSHOPS AT SANTIUSTE BASIN AND CARRACILLO DISTRICT



## MANAGED AQUIFER RECHARGE IN CARRACILLO DISTRICT AQUIFER

### MAR4FARM WORKSHOP



Centro cultural "Las Fuentecillas", C/ Alta, nº 21 -23. Gomezserracín (Segovia)  
Thursday, 2014 October 30th. 10 h. Free entrance.  
Activity to involve groundwater users.

#### Collaborate:



Exmo Ayto. de Santiuste de San Juan Bautista

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# Irrigation communities with big differences



## MARSOL INFORMATIVE WORKSHOPS AT SANTIUSTE BASIN AND CARRACILLO DISTRICT

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### PROGRAM

17:00 – 17:15	Welcome. D. Octavio Esteban Fernández, President of the Cubeta de Santiuste... Irrigation Community
17:15 – 17:35	Enhanced recharge general aspects (before artificial recharge) <ul style="list-style-type: none"> <li>• Dr. Ing. João Paulo Lobo Ferreira. Civil engineer (LNEC, Portugal)</li> </ul>
17:35 – 17:55	The activity seen from the Douro river basin and the RBMP. Description of previous studies <ul style="list-style-type: none"> <li>• D. Víctor del Barrio Beato. Hydrogeologist (Duero Basin Confederation).</li> </ul>
17:55 – 18:15	Irrigation with reclaimed water. The Alcazarén experience <ul style="list-style-type: none"> <li>• D. José Luis Sevilla Portillo. Agronomic engineer (Junta de Castilla y León)</li> </ul>
18:15 – 18:40	Coffee break
18:40 – 19:00	Aquifer functioning and behaviour <ul style="list-style-type: none"> <li>• Dr. Enrique Fernández Escalante. Hydrogeologist (TRAGSA)</li> </ul>
19:00 – 19:20	Construction work description <ul style="list-style-type: none"> <li>• D. Roberto Fernández García. Agronomic engineer (TRAGSA)</li> </ul>
19:20 – 19:40	Environmental aspects of Managed Aquifer recharge in Santiuste basin <ul style="list-style-type: none"> <li>• Dr. Jon San Sebastián Sauto. Biólogo (TRAGSATEC)</li> </ul>
19:40 – 20:00	Water management techniques at user scale. Recommendations. Presentation of the Ebook: 2002-2012, una década de recarga gestionada. Acuífero de la cubeta de Santiuste, Castilla y León <a href="http://goo.gl/INGXSQ">http://goo.gl/INGXSQ</a> <ul style="list-style-type: none"> <li>• Dr. Enrique Fernández Escalante. Hydrogeologist (TRAGSA)</li> </ul>
20:00 – 20:20	Energy efficiency and use of alternative energy systems for irrigation. Practical techniques <ul style="list-style-type: none"> <li>• D. José Manuel Omaña Álvarez. Agronomic engineer (AIMCRA-Plan 2020)</li> </ul>
20:20 – 20:40	Open debate <ul style="list-style-type: none"> <li>• Rapporteur: D. Luis Sayalero. ATE. Technician of the Santiuste... Irrigation Community</li> </ul>
20:40	Closing. Sr. D. Juan Martín Gómez. Mayor of Santiuste de San Juan Bautista

This schedule, approved in principle, might be subject to modification

Organized by:



## MARSOL INFORMATIVE WORKSHOPS AT SANTIUSTE BASIN AND CARRACILLO DISTRICT

### MAR4FARM

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### PROGRAM



10:00 – 10:15	Welcome. D. Enrique Herranz. ATE. President of the Carracillo Irrigation Community.
10:15 – 10:35	Enhanced recharge, general aspects (before artificial recharge) <ul style="list-style-type: none"> <li>• Dr. Ing. João Paulo Lobo Ferreira. Civil engineer (LNEC, Portugal)</li> </ul>
10:35 – 10:55	The activity seen from the Douro river basin and the RBMP <ul style="list-style-type: none"> <li>• D. Víctor del Barrio Beato. Hydrogeologist, Duero Basin Authorities (CHD).</li> </ul>
10:55 – 11:15	Description of previous studies. Phases 1 & 2 <ul style="list-style-type: none"> <li>• Dº. Carmen Macías Antequera. Dpto. de hidrogeología (TRAGSATEC)</li> </ul>
11:15 – 11:40	Coffee break
11:40 – 12:00	Construction work description <ul style="list-style-type: none"> <li>• D. Roberto Fernández García. Agronomic Engineer (TRAGSA)</li> </ul>
12:00 – 12:20	Environmental impact, specially on forest masses <ul style="list-style-type: none"> <li>• Dr. Jon San Sebastián Sauto. Biologist (TRAGSATEC)</li> </ul>
12:20 – 12:40	Water management techniques at user scale for Los Arenales aquifer. Recommendations <ul style="list-style-type: none"> <li>• Dr. Enrique Fernández Escalante. Hydrogeologist (TRAGSA)</li> </ul>
12:40 – 13:00	Modelling as a tool to study the evolution in quality and quantity of the water in the aquifer <ul style="list-style-type: none"> <li>• Dr. Xavier Sánchez Vila. Civil engineer (UPC)</li> </ul>
13:00 – 13:20	Reclaimed water for MAR and irrigation. The Alcazarén SAT-MAR experience <ul style="list-style-type: none"> <li>• D. José Luis Sevilla Portillo. Agronomic Engineer (Junta de Castilla y León).</li> </ul>
13:20 – 13:50	Energy efficiency and use of alternative energy systems for irrigation. Practical techniques <ul style="list-style-type: none"> <li>• D. José Manuel Omaña Álvarez. Agronomic Engineer (AIMCRA-Plan 2020)</li> </ul>
13:20 – 13:50	Open debate <ul style="list-style-type: none"> <li>• Rapporteur: Dª Elvira del Pozo Campos (TRAGSATEC)</li> </ul>
13:50	Closing. Sra. Dª. Laura del Río Arranz. Mayor of Gomezserracín.

This schedule, approved in principle, might be subject to modification

To be confirmed

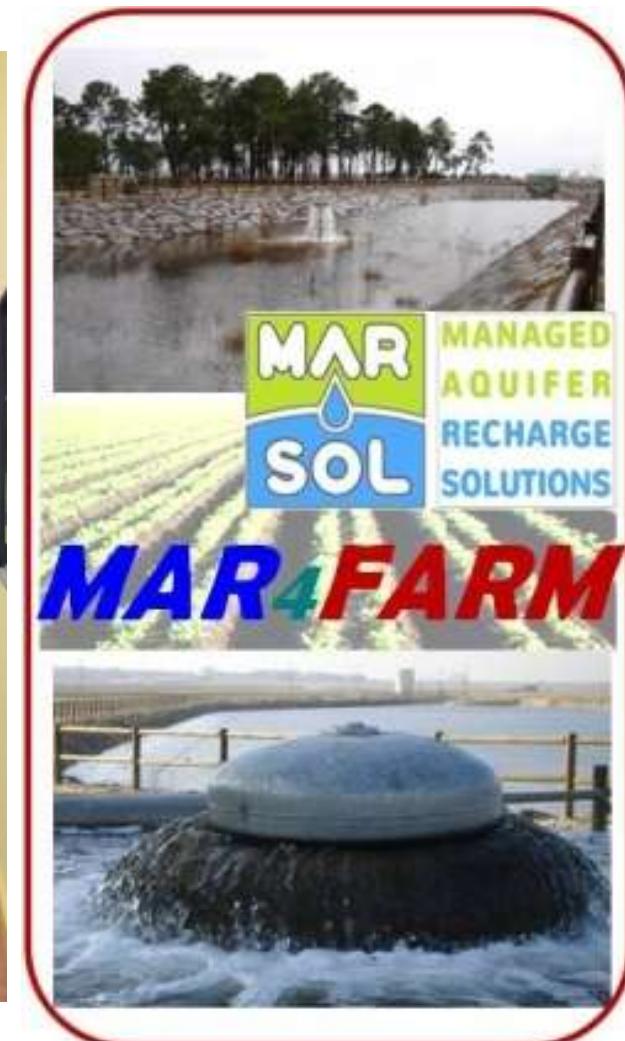
Organized by:



# Invitation to farmers under the key: MAR guarantees your future development



# DIFFERENT ENVIRONMENTS, ACCORDING TO SITES CHARACTERISTICS



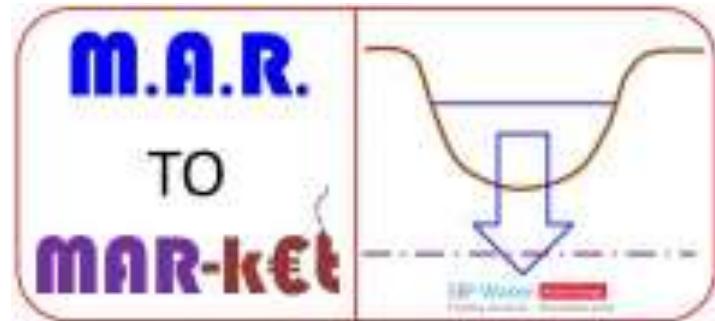
# AN ACTIVITY TO BE REPEATED IN TWO YEARS



# MAR4FARM



- APPROPRIATE MANAGEMENT AND MAINTENANCE OF MAR FACILITIES, AS A KEY TO IMPROVE WATER QUALITY IN THE AQUIFER
- GOOD WATER QUALITY FOR IRRIGATION BRINGS AN ADDED VALUE AS BETTER CROPS QUALITY AND FURTHER HIGHER INCOMES
- LOWER ENERGY CONSUMPTION DUE TO WATER TABLE RAISE AND REDUCTION OF PUMPING COST> SMALLER ELECTRICITY BILL
- IRRIGATION COMMUNITY MUST BE PART AND MAIN CHAPTERS IN MAR DEVICES CONSERVATION
- SAT-MAR BRINGS A GOOD OPPORTUNITY BUT REQUIRES A VERY CAREFUL AND EXPERT MANAGEMENT
- DISSEMINATION OF R&D ADVANCES TO USERS IS A KEY ELEMENT FOR FUTURE MAR IN COOPERATION, INTEREST AND DIFFUSION AROUND
- IT IS IMPORTANT TO PROMOTE RESULTS AND CRITERIA AMONG INTERNATIONAL EXPERIENCES
- IMPRESS - 2000/60. MAR AS A DRIVING FORCE



## IMPORTANT SLOGANS:

- Doubled irrigation ha in 10 years
- “Do not close a well, reuse it”
- “Associationism as a fortress”
- Keep an eye on authorities +/- PPP schemes
- Test new governance schemes
- \$ saved by means of MAR in the first stage, specially on irrigation savings (electricity)
- Special attention to € savings



# CONCLUSIONS

- MAR IS HAVING A STRONG PRACTICAL POTENTIAL THAT SHOULD BE BROADEN
- CURRENT STATE OF THE FACILITIES MUST BE ADAPTED TO NEW MARSOL AND MAR TO MARKET OBJECTIVES
- IMPORTANCE OF MAR WITHOUT INTERFERING IN THE FARMERS WORK
- BLUE PRINT HAS HUGE DIFFERENCES AMONG SPANISH REGIONS, WHAT IS DUE TO, IN A CERTAIN MEASURE, THEIR INDUSTRIAL ACTIVITY
- GREEN WATER IS BECOMING MORE AND MORE IMPORTANT IN SPANISH ECONOMICAL ACTIVITY
- WATER USE BY INDUSTRY BRANCHES. IT IS IMPORTANT TO POINT THE MOST RELEVANT ASPECTS FOR EACH

# Thank you

## Barcelona, November 4th 2014

**Collaborate:**



LABORATÓRIO NACIONAL  
DE ENGENHARIA CIVIL



Exmo Ayto. de Santiuste de San Juan Bautista

Ayuntamiento de  
Gomezserracín

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