



# **“Management of soil water resources in the EU and China and its impact on agro-ecosystem functions”**

*SHui*

Project number: 773903

## **Deliverable 6.6**

### **Dissemination & Communication Report (including networking activities)**

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Dissemination Level		
PU	Public	X
PP	Restricted to the other programme participants (including the Commission Services)	
RE	Restricted to a group specified by the consortium (including the Commission Services)	
CO	Confidential, only for members of the consortium (including the Commission Services)	



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## Glossary of terms

Consortium Agreement	CA
Coordination Team	CT
General Assembly	GA
Ministry of Science & Technology	MOST
Project Board	PB
Permanent Secretariat	PS
European Commission	EC
European Union	EU



## Executive Summary

Notwithstanding recent challenges associated with the covid-19 pandemic, WorkPackage (WP) 6 has made considerable progress in spreading news of our project via traditional academic fora, open days with targeted groups of farmers / stakeholders and virtual media (including our website and social media). This activity has been documented via the project website (<https://www.shui-eu.org>) and highlights are distilled below for convenience.

- Extensive activity on our project website (> 2500 unique visitors), with new content posted approximately fortnightly
- More than 20 distinct oral / poster presentations at academic conferences and public meetings, with a combined audience exceeding 1000
- Produced a mid-term slide deck of key project results / approaches that SHui researchers can utilize when speaking at national / international fora, to raise awareness of the project
- Produced attractive project brochures, available for download from the project website, for distribution at events where SHui researchers are engaging with the public
- Farmer focus groups delivered by WP5, public meetings and press releases to raise the project's profile in the rural community
- 9 peer-reviewed academic publications, including several examples of multi-partner work across China and the EU
- Distinctive early career researcher training events (comprising face-to-face learning, *in silico* computer modelling analyses and virtual conferences), attracting participants both within and beyond the SHui consortium

Appointment of a part-time Communications Manager is imminent, to coincide with the mid-point of the project, as it has now amassed a considerable volume of new data and tools, and it is critical that recommendations for better soil and water management reach their target audience within the 8 countries comprising the SHui project network.

Dissemination activities are expected to accelerate to achieve our key performance indicators (articulated in Deliverable 6.5) as individual research teams build substantial data sets, in many cases comprising multi-year field trials that are the basis for farmer recommendations.

Please contact the WP6 Leaders (details below) if you have further questions about communication activities.

### **The Coordination Team of SHui**

Jose Gomez

Weifeng Xu

Ana Sanchez

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### **WorkPackage 6 Leaders of SHui**

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## Introduction – Dissemination & Communication Report

In recognizing that the Consortium aims to engage with key target groups (potential beneficiaries), inform them about the project's results and to create win-win situations for all parties involved by bringing them together in a participatory process, a range of communication activities have been undertaken. These have been prioritized according to preferred ways of working by the different groups (Table 1). Further details of these beneficiaries can be found in Deliverable 6.5 (Dissemination & Communication Plan).

**Table 1.** Measures used to reach each target group.

Potential beneficiaries	General <u>Networking</u>		<u>Printed (&amp; virtual) materials</u>			<u>Workshops</u>	
	Social Media	Internet	Mailing List	Brochures	Press Release	Webinars	Events
Advisory Board / Academics	X	X				X	X
Farming Enterprises		X		X			X
Commercial Companies		X		X		X	X
Food & Agriculture Industry	X	X	X	X	X		X
Farmers organisations	X	X	X	X	X	X	X
Catchment managers	X	X	X	X			X
Scientific / Daily press	X	X			X		X

To ensure phased engagement with these groups, the SHui team developed 3 Task Forces to drive the key communications ambitions (activities) of the project:

- Activate and maintain the SHui network, by facilitating network communication and mining the dissemination potential of existing networks (All partners)
- Broadcasting the project's deliverables, by launching the website, distributing press releases, and disseminating project results at workshops and conferences (Initially WP6 Leaders & their teams and especially the Community Manager from mid-term)
- Advancing Knowledge, by training early career scientists and facilitating peer-to-peer learning within the consortium (driven by WP 6 Leaders, with contributions from all WPs).

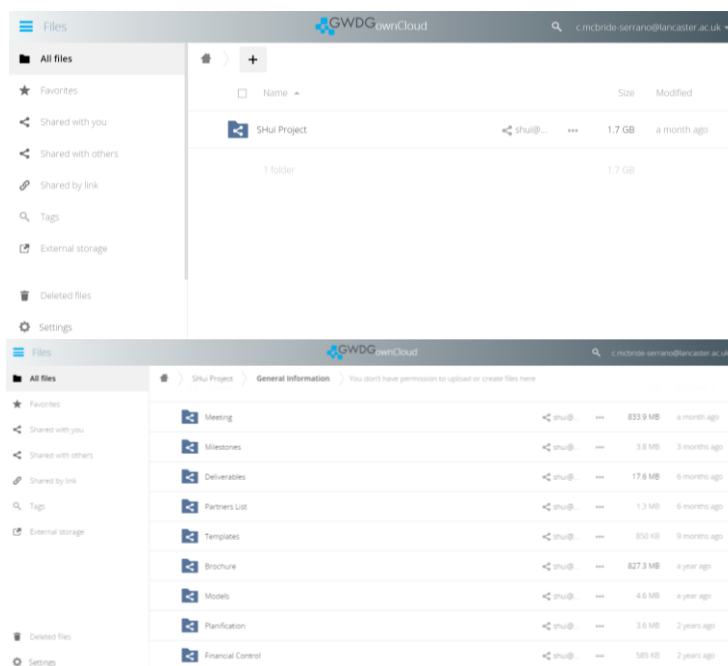
Activities undertaken within these areas are documented overleaf, along with progress towards the set key performance indicators.



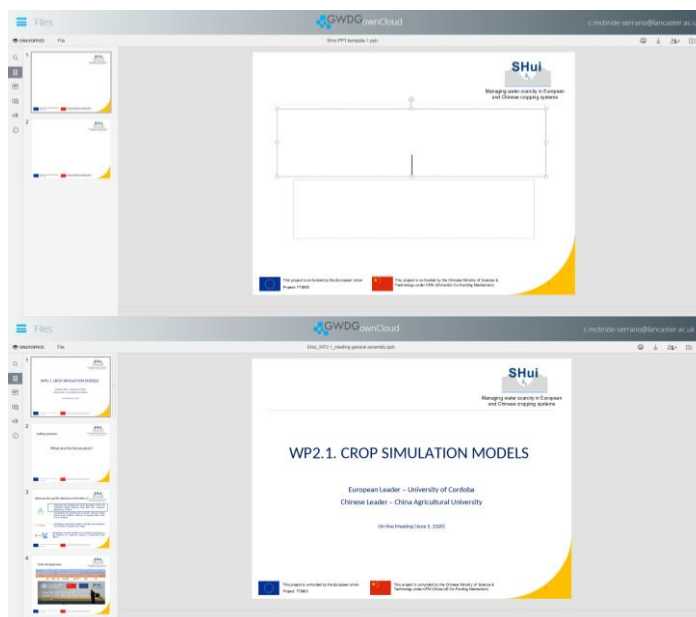
## Task Force 1: Activate and maintain the SHui network

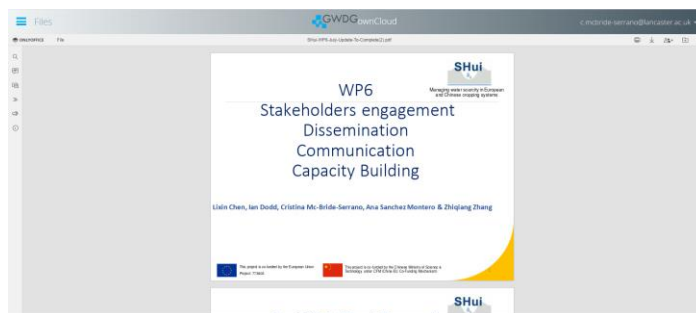
Task Force 1 has implemented a range of measures to facilitate network communication both within and external to the consortium:

1. Developed a professional network which is maintained via a shared document repository (<https://owncloud.gwdg.de/>)

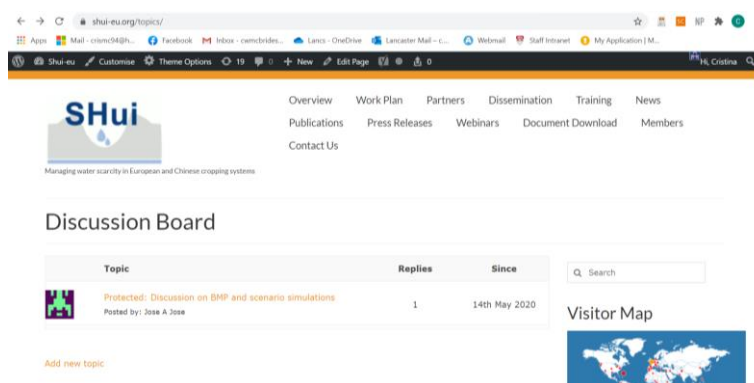


2. Created a coherent SHui brand with graphically consistent material for internal and external communication (available to consortium members via <https://owncloud.gwdg.de/index.php/apps/files/?dir=/&fileid=374399989>), including PowerPoint presentation templates containing the Consortium logo and funders





### 3. Developed a discussion board on the website with member-only access



### 4. Instituted a digital workplace for teams meetings within WorkPackages (via Zoom or equivalent conference calling platforms), e.g. WP2.2 (<https://www.shui-eu.org/shui-adapting-to-covid-19/>).



WP2.2 – Hydrological modelling virtual meeting

### 5. Developed an online proforma “Submit your Dissemination Activity” (<https://www.shui-eu.org/activity-submission/>) to provide the following information, to assist the project to collate relevant information :

- Authors
  - Affiliations
  - Dissemination Vehicle:
  - Abstract
  - Activity Type
- Who ?  
Which SHui partners ?  
Which journal ? Which conference ? Conference dates ?  
To be submitted to conference / journal website  
Dissemination, Training, Open Access Data or News



- Link to digital site To include in case the activity has a website with further information.

The screenshot shows the SHui website's 'Activity Submission' page. The header includes the SHui logo and navigation links: Overview, Work Plan, Partners, Dissemination, Training, News, Publications, Press Releases, Webinars, Document Download, and Members. The main content area is titled 'Activity Submission' and contains a form for submitting dissemination activities. The form includes fields for 'Authors', 'Affiliations', 'Dissemination Vehicle', 'Abstract', 'Activity Type', 'Link to Digital Site', and 'Security Code'. There are also buttons for 'Upload Documents', 'Select File', and 'Upload File'. A 'Submit' button is at the bottom. On the right side, there is a 'Visitor Map' showing a world map, a 'Tweets' section with a tweet from @SHui\_eu, and a 'Language' dropdown menu.

## Task Force 2: Broadcasting the project's deliverables

Task Force 2 has broadcast the project's deliverables by maintaining the project's website and social media, distributing press releases and brochures, and disseminating project results at workshops and conferences, specifically:

1. Given (oral or poster) presentations at 11 events (Appendix 1), to an estimated audience exceeding 1000



Prof John Quinton (ULANC) giving an invited talk on the impacts of tillage and soil erosion on crop yields at Lanzhou University to approx. 300 students and scientists.

2. Implemented the project website (<https://www.shui-eu.org>) which attracted 250 unique visitors within Year 1, and at the time of writing has attracted 2584 visitors, with *circa* 25%, 50% and 25% from the European Union, China and the rest of the world respectively. Preliminary indications of Search Engine Optimisation analyses are that more strategic use of key words (eg. "soil hydrology platform") related to the project in our posts has enhanced our profile on some of the major search engines in use in China and the EU.

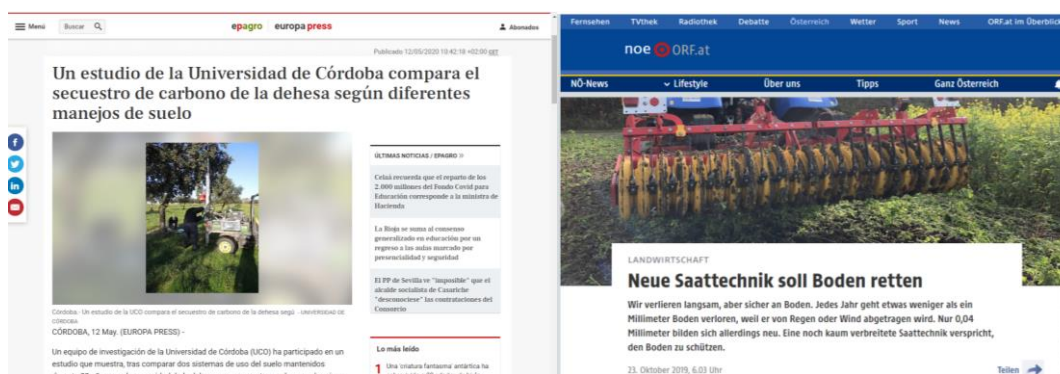




3. Provided 37 Dissemination Posts, 13 News Posts and 3 Training Posts via the website, reflecting the range of consortium activities
4. Set up a Twitter @SHui account, and WeChat and Weibo accounts to publicise project news, resulting in 47/43 Tweets/Followers, with 24/86 respectively for WeChat and 16/33 for Weibo



5. Provided press releases in both Spain (numbering 8) and Austria (1) to attract national / local interest in the project, aligned with key project trials





6. Provided printed brochures to all project partners (either in Chinese, English or Spanish) with additional copies available for download via the project website, for use in public dissemination events, with an updated version available from July 2020 describing project results



7. Compiled an electronic mailing list (Appendix 2) to update key stakeholder groups about project results every 4 months, starting from the project's midpoint
8. Published 9 open access articles (Appendix 3), with 3 of these comprising Chinese and European authors, in journals such as *Agricultural Water Management*, *Soil and Water*, including a summary of the entire project's ethos / ambition in *International Soil and Water Conservation Research*

Progress against key performance indicators over the entire project are provided in Table 2.

**Table 2.** Progress against key performance indicators set out in Deliverable 6.5

Indicator	Sub-indicator	Objective	Progress
<b>Presentations</b>	Entire Project	20	11
	In China	2	2
	All partners	19	8
<b>Website Visitors</b>			
	Year 1	250	250
	Year 2	750	2584
	Year 3	2250	
	Year 4	6750	
<b>Website Postings</b>			
	Dissemination	100	37
	News	50	13
	Training	10	3
<b>Social Media</b>		Posts / followers	
	Twitter	100/200	47/39
	WeChat	150/250	24/86
	Weibo	150/250	16/33
<b>Press releases</b>		30	9

## Publications

Total	30	9
Joint China / EU	15	3
Reads (Various)	1000	1021*
Citations (WoS)	300	9

\* Using ResearchGate wherever statistics available (ScienceDirect for Ohana-Levi et al. 2019)

## Task Force 3: Advancing Knowledge

Task Force 3 aims to train early career scientists and facilitate peer-to-peer learning within and beyond the consortium, which has been actioned via:

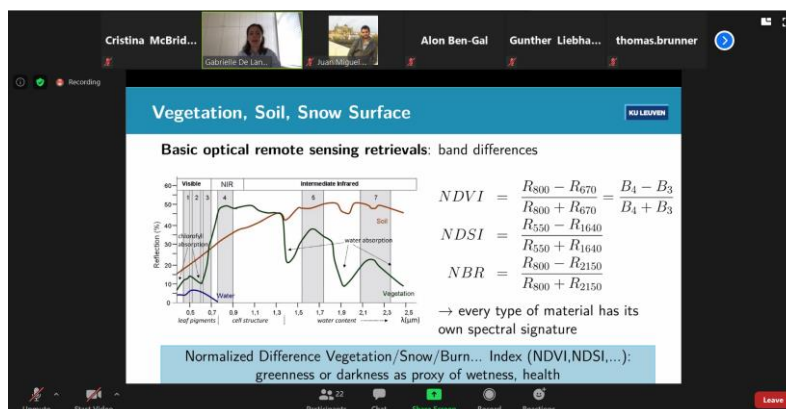
1. Public delivery of two webinars:
  - 15 June 2020 *How to be a qualified graduate or PhD student* – advertised within Chinese student community - capacity capped at 100 (achieved)
  - 29 June 2020 *Partial rootzone drying: from laboratory to commercial practice* - advertised via our professional networks - > 50 attendees from 20 countries, with circa 60% from outside of the SHui consortium, over 10% from China and approximately 35% women



2. Several face-to-face (FF) and virtual (V) workshops as part of the Early Career Research Training Plan – Deliverable 6.4) :
  - (FF) China-Europe Modelling Seminar on Efficient Utilization of Water Resources (Fuzhou, April 4<sup>th</sup> 2019) *In silico* evaluation of AquaCrop, Hydrus and DSSAT with worked examples – 30 attendees within the SHui consortium including 12 Chinese graduate students
  - (FF) Micrometeorology Techniques Workshop (Petzenkirchen, 12 September 2019) Use of eddy covariance and scintillometer to determine landscape water fluxes – 35 attendees within the SHui consortium including 5 graduate students
  - (FF) Catchment Hydrological Modelling Workshop (Beijing Normal University, BNU, 8th-11th Oct 2019) – 19 attendees from the SHui consortium including 8 Chinese graduate students



- (V) How to calibrate and validate the AquaCrop model (Cordoba, 20-24 July 2020) 12 / 68 attendees within/external to the SHui consortium
- (V) Introduction to GIS and Remote Sensing (22 July 2020) 19 attendees within the SHui consortium, including 13 graduate students



### Introduction to GIS and Remote Sensing Workshop

#### 3. Stakeholder events with farmers:

- 20/21 November 2019 Focus group lead by UGOE researchers and hosted by ARO (Israel) comprising 12 farmers (including one woman)
- 4 December 2019 Meeting with farmers at Ministry of Agriculture and Water (hosted by CSIC in Murcia, Spain) with 125 attendees including 90 farmers, and approximately 25% of the audience comprising women
- 4 December 2019 Focus group lead by UGOE researchers and hosted by BOKU (Austria) comprising 31 farmers (unfortunately no women despite persistent attempts to ensure their participation)





- 12 March 2020 Open Day hosted by Eden Rivers Trust and ULANC at Newton Rigg, UK attended by 8 farmers and 15 agriculture students



Progress against key performance indicators over the entire project are provided in Table 3.

**Table 3:** Progress against key performance indicators set out in Deliverable 6.5

Indicator	Sub-indicator	Objective	Progress
Webinars	Audience (on the day)	300	155
	Audience (after event)	600	68
Workshops	Audience	600	183
Stakeholder Events	Audience	600	190

## Problems, Plans and Perspectives

Co-ordinating communications across continents, amongst researches of different cultures / disciplines and with competing demands on their times according to stage of career development has presented some challenges, even in a pre covid-19 world. Critical amongst these has been temporary unavailability of the project website to Chinese visitors, resulting in its mirroring to ensure continued access. Social media usage varies widely across generations, and it has been necessary to institute a rota system to ensure engagement by all partners in this process. Different institutions have different histories of farmer engagement



(according to the longevity and depth of relationships with existing networks), so there have been substantial opportunities for peer-to-peer learning of approaches to generate measurable behavioural change in water and soil management.

The covid-19 pandemic has caused cancellation of several planned events, or their replacement by online versions. For example, many SHui researchers planned on attending the European Geophysical Union's 2020 conference, with a SHui-sponsored session: *Challenges for competitive and sustainable EU-China agricultural systems under increasing pressures on soil and water resources*. Ultimately, this was an online only event (<https://www.shui-eu.org/shui-at-egu-2020/>), which may have inhibited audience participation as text-based communication may be less rewarding to participants. Furthermore, face-to-face farmer focus groups recently have had to rely on electronic / virtual media. While recognising that situations can rapidly change (eg. local regions moving in and out of lockdown according to number of cases), WP6 has collated information on how government-mandated covid-19 restrictions has affected our planned dissemination activities (particularly stakeholder events) during the remainder of 2020. A diminished, and socially distanced, programme of events is still anticipated.

Lastly, there are significant differences in lead-in times for dissemination events within the European Union and China. While many European researchers previously have had considerable freedom to attend annual events of specific (often nationally based) scientific societies (eg. Meetings of the Austrian Soil Science Society and the Spanish Society of Plant Physiology), Chinese researchers often have to apply for permission from their employer to attend international conferences. In some European countries, the covid-19 pandemic has resulted in centralised institutional decisions (e.g temporary travel bans, greater administrative procedures to demonstrate value of any proposed travel) which may restrict researchers' freedom-to-operate to deliver dissemination measures. Existing differences have resulted in our dissemination programme (Appendix 1) having a European bias, necessitating the importance of planned joint, SHui-sponsored events in the latter half of the project, to ensure (especially) Chinese Early Career Researchers get the opportunity to present the results of their SHui research at appropriate international fora.



**Appendix 1.** Oral / poster presentations at academic conferences and public meetings

Partner (s) Lead Author	Conference (Location & Dates)	Attendees Type Gender (M/F) Balance (if known)
Type	Title	
CSIC Intrigliolo Talk	IX International Symposium on Irrigation of Horticultural Crops (Matera, Italy: 17-20 June 2019) <i>Plant-based sensing for irrigation management in the field</i>	120 (at specific talk) Academia/Industry
ULANC Puertolas Talk	IX International Symposium on Irrigation of Horticultural Crops (Matera, Italy: 17-20 June 2019) <i>Assessing the optimal timing of partial root-zone drying alternation in tomato crops under furrow irrigation</i>	30 (at specific talk) Academia/Industry (67/33)
MEDES (+4) Quaranta Poster	IX International Symposium on Irrigation of Horticultural Crops (Matera, Italy: 17-20 June 2019) <i>Soil Hydrology research platform underpinning innovation to manage water scarcity in European &amp; Chinese cropping systems</i>	200 (at entire event) Academia/Industry
CSIC Buesa Poster	XXIII Meeting of the Spanish Society of Plant Physiology (Pamplona, Spain: 28-30 June 2019) <i>Physiological responses of Tempranillo onto different rootstocks under salinity and water stress condition</i>	75 Academia/Industry
ULANC Quinton Talk	Invited talk at Lanzhou University (Lanzhou, China: 21 June 2019) <i>Advances in soil and water conservation – the SHui project</i>	300 Academia (40/60)



BOKU Klik Talk	SWAT Conference 2019 (Organised by BOKU) (Vienna, Austria: 15-19 July 2019) <i>Evaluating the performance of the SWAT model in an agricultural catchment in Austria</i>	180 (entire event) Academia (68/32)
CVUT Noerika Poster	SWAT Conference 2019 (Vienna, Austria: 15-19 July 2019) <i>Applying SWAT to assess hydrological balance &amp; sediment transport in a medium-size agricultural catchment in Central Europe</i>	50 (at specific talk) Academia
CSIC Intrigliolo Poster	International Mid-Term Conference 2019 Italian Association of Agricultural Engineering (Matera, Italy: 12-13 September 2019) <i>Retrieving reference evapotranspiration for irrigation scheduling: forecast or past weather data?</i>	67 Academia/Industry
CSIC Intrigliolo Talk	ISHS International symposium on precision management of orchards and vineyards (Palermo, Italy: 7-11 October 2019) <i>Evaluating the effects of different management practices on vineyard evapotranspiration using remote sensing....</i>	85 Academia
CSIC Intrigliolo Poster	2019 IEEE International workshop on Metrology for Agriculture and Forestry (Naples, Italy: 24-26 October 2019) <i>Exploring the utility of seasonal time series parameters derived from corine land cover products for identifying land processes</i>	59 Academia
ULANC Dodd Talk	International Conference on Integrative Plant Physiology 2019 (Sitges, Spain: 27-29 October 2019) <i>The ups and downs of root-shoot communication</i>	100 Academia
CSIC Intrigliolo Talk	Talk at the Ministry of Agriculture and Water of Murcia, Spain (Murcia, Spain: 3 December 2019) <i>Mulching as a technique for weed control and water use efficiency improvement</i>	125 Mostly Farmers (75/25)





UCO/CSIC Garcia-Vila Poster	iCROP2020 'Crop modelling for the future' (Montpellier, France: 3-5 February 2020) <i>Could crop irrigation requirements be reduced under future climate scenarios?</i>	40 Academia/Industry
6 SHui partners Many Authors Talks	European Geophysical Union: <a href="https://meetingorganizer.copernicus.org/EGU2020/session/35090">https://meetingorganizer.copernicus.org/EGU2020/session/35090</a> (Telematic: 4-8 May 2020) <i>Challenges for competitive &amp; sustainable EU-China agricultural systems under increasing pressures on soil &amp; water resources</i> <b>Multiple talks under the above session heading - talk titles available at: <a href="https://www.shui-eu.org/shui-at-egu-2020/">https://www.shui-eu.org/shui-at-egu-2020/</a></b>	71 Academia
CVUT Noreika and Li Talks	European Geophysical Union (Telematic: 4-8 May 2020) <i>The influence of the spatial distribution of agricultural conservation practices on hydrologic balance variables in a small basin</i> <i>Models and Data: Understanding and representing spatio-temporal dynamics of hydrological processes</i>	25 Academia
KU Leuven de Roos Talk	European Geophysical Union (Telematic: 4-8 May 2020) <i>From the field-scale Aquacrop model to a regional gridded crop model: initial evaluation over Europe</i>	50 Academia



**Appendix 2.** Electronic mailing list of stakeholder group representatives (Contact person and email are confidential)

Partner	Stakeholders	Stak. Mode
IAS CSIC	ASAJA Córdoba	Practical actors
	Consejería de Ag. Junta de Andalucía	Policy makers
	D.O Estepa	Practical actors
	Sygenta	Practical actors
	D.O.Montilla Moriles	Practical actors
	Confederación Hidrográfica del Guadalquivir	Policy makers
IAS CEBAS	Regional Administration of Agriculture (Murcia)	Policy makers
ARO/TERRAVISION	Maon Growers	Practical actors
	Ministry of Agric Extension Service	Policy makers
	Regional Ag. R&D Centers	Practical actors
	Southern and Negev Highlands	Practical actors
BOKU	Amt der NÖ Landesregierung	Practical actors
CVUT	VRV	Practical actors
	SWECO	Practical actors
	DZS Struharov	Practical actors
	AGRA Risuty	Practical actors
	Ministry of Agriculture	Policy makers
	Ministry of Enviroment	Policy makers
	Povodi Vltavy, State Company	Practical actors



MEDES	National and irrigation authorities	Policy makers
	Advisory services	Practical actors
	Farmers Association (COLDIRETTI, Conf.Italiana Agricoltori)	Policy makers
KULeuven	Ministry of Agriculture	Policy makers
	Vlaamse Milieumaatschappij	Policy makers
TERRANOVA		
	Greek Young Farmers Association	Practical actors
	Hellenic Agricultural Organisation "Demeter"	Policy makers
	Agricultural University of Athens	Practical actors
UCO	Comunidad de Regantes del Genil-Cabra	Practical actors
UGOE	Regional consultant for farmers: Landwirtschaftskammer Niedersachsen	Practical actors
ULANC	Eden Rivers Trust	Practical actors
	UK Irrigators Associations	Practical actors



### Appendix 3. SHui publications

#### Authors & Partners

Title

Journal

doi

Reads

Gomez et al 2020 (All Partners)

SHui, an EU-Chinese cooperative project to optimise soil and water management in agricultural areas in the XXI century

*International Soil and Water Conservation Research* 8, 1-14.

<https://doi.org/10.1016/j.iswcr.2020.01.001>

185 reads (ResearchGate) 16 reads (ScienceDirect)

Ohana-Levi et al 2019 (ARO)

A weighted multivariate spatial clustering model to determine irrigation management zones.

*Computers and Electronics in Agriculture* 162, 719-731

<https://doi.org/10.1016/j.compag.2019.05.012>

80 reads (ScienceDirect)

Garcia-Vila et al 2019 (UCO)

Modeling Sugar Beet Responses to Irrigation with AquaCrop for Optimizing Water Allocation

*Water* 11, 1918

<https://doi.org/10.3390/w11091918>

858 reads (MDPI) 153 reads (ResearchGate)

Miras-Avalos et al 2019 (CSIC)

Irrigation-Advisor—A Decision Support System for Irrigation of Vegetable Crops



*Water* 11, 2415

<https://doi.org/10.3390/w11112245>

919 reads (MDPI) 165 (ResearchGate)

Gomez et al 2020 (CSIC)

Variation of soil organic carbon, stable isotopes and soil quality indicators across an eroding-deposition catena in an historical Spanish olive orchard

*Soil* 6, 179-194

<https://doi.org/10.5194/soil-2019-59>

1,323 reads (SOIL) 149 reads (ResearchGate)

Tenreiro et al 2020 (CSIC/UCO)

Water modelling approaches and opportunities to simulate spatial water variations at crop field level

*Agricultural Water Management*

<https://doi.org/10.1016/j.agwat.2020.106254>

111 reads (ResearchGate)

Reyna-Bowen et al 2020 (CSIC)

The influence of tree and soil management on soil organic carbon stock and pools in dehesa systems

*Catena* 190, 104511

<https://doi.org/10.1016/j.catena.2020.104511>

104 reads (ResearchGate)

Wu et al 2020 (CAU/ARO)

Introducing water stress hysteresis to the Feddes empirical macroscopic root water uptake model

*Agricultural Water Management*

<https://doi.org/10.1016/j.agwat.2020.106293>

29 reads (ResearchGate)

Shi et al 2020 (CAU/ARO)

Determining threshold values for root-soil water weighted plant water deficit index based smart irrigation



*Agricultural Water Management*

<https://doi.org/10.1016/j.agwat.2019.105979>

45 reads (ResearchGate) 13 reads (ScienceDirect)