

# D4.4 Communication and Dissemination Plan



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# Title:

# Communication and Dissemination Plan

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|                        | 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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# Introduction

SUBSOL is part of the Horizon2020 open research and data initiative. Key determinants for the success of SUBSOL as a project will be whether generated knowledge is (1) Efficiently exchanged among the consortium members to leverage the capability of each member and (2) Whether knowledge is successfully transferred to external stakeholders in order to bridge the gap between science and practice and turn generated knowledge into innovative market opportunities. The latter aspect will be explained and summarised by the presented "Communication and dissemination plan".

The conducted activities are classified according to definitions provided by the European Commission<sup>1</sup>:

- "Dissemination is the public disclosure of the results of the project in any medium. [...] It makes research results known to various stakeholder groups (like research peers, industry and other commercial actors, professional organisations, policymakers) in a targeted way, to enable them to use the results in their own work."
- "Communication means taking strategic and targeted measures for promoting the action itself and its results to a multitude of audiences, including the media and the public, and possibly engaging in a two-way exchange. The aim is to reach out to society as a whole and in particular to some specific audiences while demonstrating how EU funding contributes to tackling societal challenges."

<sup>&</sup>lt;sup>1</sup> <u>https://ec.europa.eu/research/participants/portal/desktop/en/support/faqs/faq-933.html</u> 19.12.2016



# **Communication and dissemination strategy**

The project's title "bringing **SUB**surface water **SOL**utions to the market" clearly states the declared project aim which is to <u>capitalize on the experiences within the SUBSOL project</u> through the generation of new SWS projects in various target markets. In order to facilitate this process, a market penetration strategy was developed (p.14). As of month 18, the market penetration strategy appears to bear its first fruits as preliminary consortia for joint development of SWS projects are being formed in various target regions.

In order to <u>capitalize on the development of SWS technologies</u> in the long-term, the main **goal** of the communication and dissemination strategy is to <u>create anticipation towards-</u> and demand for SWS technologies.

The underlying **message** of the communication and dissemination strategy is that innovative technologies have been developed which provide an economically feasible and environmentally benign remedy for the persisting and increasing problem of saltwater intrusion in coastal aquifers.

The **target audiences** (Table 1) are being approached via several media and under use of various formal outputs which were created throughout the SUBSOL project (Table 2). The purpose of these materials is to communicate the project activities, results and successes to target audiences (p.4). Most importantly, those outputs <u>promote the successful fullscale</u> implementation of SWSs at the reference and replication sites.

In addition to the formal outputs, the strategy to commercialise SWSs and to break into new markets includes a four step approach of direct stakeholder contact in the target region which is orrganised along four *missions* which have the objective "to increase the uptake of Subsurface Water Solutions (SWS) on European and global markets and to disseminate project results and experiences with the goal of sensitizing potential clients".

# Communication

#### **Goal and objective**

The main objective of SUBSOL's communication activities is to create a positive perception of SWSs among various stakeholders in order to create a *SWS-enabling environment*. The underlying message is that innovative technologies have been developed which provide an economically feasible and environmentally benign remedy for the persisting and increasing problem of saltwater intrusion in coastal aquifers. The underlying goals to support this objective and to communicate this message are as follows:

1) Create a positive perception of the conducted research and development activities among various stakeholder groups and promote the concept of SWSs



- 2) Increase the receptiveness and willingness of policy makers to create SWSenabling legal and policy framework conditions
- 3) Encourage and capacitate technology providers to offer SWS-related services to prospective end-users
- 4) Convince prospective end-users of the viability of SWSs for their businesses

#### **Target audience**

The main target audiences which are addressed by the communication and dissemination activities are summarised in Table 1.

Table 1: The main target audiences, objectives and respective messages for the conducted communication activities

| Target audience   | Objective  | Message   |
|---|--|---|
| General public  | Increase awareness towards the<br>issue of saltwater intrusion;<br>Increase the visibility of the efforts<br>undertaken by members of the<br>consortium to address saltwater<br>intrusion; Increase the visibility of<br>efforts by the commissioning party<br>(European Commission) to<br>improve water management<br>practices in coastal regions;<br>increase the acceptance of SWS<br>technology concepts among the<br>general public; | Intrusion of seawater is a pressing<br>environmental issue; SWSs are<br>environmentally benign<br>technologies to enhance the<br>sustainability of groundwater use<br>in coastal regions; SWSs<br>contribute to a more sustainable<br>use of water resources in general;<br>SUBSOL is funded by the<br>European Commission; |
| Policy makers   | To put the issue of saltwater<br>intrusion and overexploitation of<br>groundwater in coastal regions on<br>the agenda of policy makers;<br>Convince policy makers to create<br>a SWS-enabling legal and policy<br>framework;   | Saltwater intrusion must be tackled and SWS help to do this;  |
| Technology developers<br>(particularly in the field of<br>irrigation, drinking water<br>supply) | Incentivise technology providers to<br>contribute to the development and<br>implementation of SWS and to<br>offer related services to end-<br>users;   | SWS provide an environmentally benign business opportunity with good prospects;   |
| Scientific community  | Push the state of knowledge on temporal storage of freshwater in brackish/salty aquifers;  | Innovative well concepts allow to<br>store and recovery freshwater<br>from brackish/salty aquifers with a<br>much higher efficiency compared<br>to what has been possible in the<br>past;   |
| Prospective end-users   | Demonstrate the economic and<br>technical viability of SWSs;<br>Identify prospective SWS end-<br>users which are willing to adapt<br>SWSs in their daily business<br>operations;   | SWS are innovative technologies<br>which pose an environmentally<br>benign and economically viable<br>solution for temporal freshwater<br>storage in coastal regions; SWS<br>will improve business operations;  |

# **Selection of media and means**

Table 2: Summary of communication activities that are planned over the course of the SUBSOL project.

| Activity                                   | Objective   | Target audience  | Pertinent message  | Medium  |
|--|---|--|--|---|
| Website                                    | Provision of a<br>central<br>platform for<br>the SUBSOL<br>project  | Laypersons but also<br>experts who would<br>like to access public<br>SUBSOL<br>materials/project<br>outcomes                           | Functionality, benefits<br>and successful<br>implementation of<br>SUBSOL technologies<br>but also project progress | Website   |
| Project<br>brochure                        | Provision of<br>introductory<br>information   | Stakeholders,<br>general public  | Description of the<br>project objectives and<br>activities   | Brochure in multiple<br>languages   |
| Additional<br>Information<br>materials     | Increasing<br>the visibility<br>of SUBSOL   | Participants of<br>events/workshops,<br>networking   | Material dependent but<br>mostly a brief<br>introduction to SUBSOL   | Briefings, handouts,<br>etc.  |
| Promotional<br>film                        | Increasing<br>the visibility<br>of SUBSOL   | Laypersons and experts   | SWS technologies offer<br>novel and innovative<br>solutions for pressing<br>societal/environmental<br>issues       | Audio-visual  |
| Newsletter                                 | Sharing<br>SUBSOL<br>relevant<br>information  | Individuals who have<br>shown interest in<br>SUBSOL by<br>proactively signing<br>up to the newsletter                                  | Updates on conducted activities and project outcomes   | Email   |
| Conferences<br>and<br>networking<br>events | Increase the<br>visibility of<br>SUBSOL;<br>knowledge<br>sharing and<br>networking;<br>Identify new<br>partners | Expert audiences;<br>Stakeholders who<br>are involved in<br>research, technology<br>implementation or<br>public policy making,<br>etc. | SWS technologies<br>function effectively and<br>are ready for replication  | Presentations,<br>face-to-face<br>meetings, focus<br>group<br>discussions,<br>expert<br>workshops |

#### Website

The SUBSOL website is a valuable tool to increase the general visibility of SUBSOL. For many stakeholders, the SUBSOL website will either be their first impression of SUBSOL in general or their medium of choice to clarify questions and receive additional knowledge. Therefore, the SUBSOL website aims at providing information for anyone who is interested in SUBSOL. Laypersons are able to access introductory information whereas experts may utilise scientific publications or data from reference and replication sites.

# **Project Brochure**

The project brochure provides an introduction to SWS technologies and briefly introduces the reference sites. It has been published in English, Chinese as well as Spanish to increase the accessibility for stakeholders in the various target regions.

## **Information materials**

Information materials are tailored according to audience specific requirements and focus on increasing the visibility of SUBSOL as well as disseminating results. In general, the information materials have an introductory purpose and will refer to the SUBSOL website for additional information. Information materials are produced in English and Spanish.

#### **Promotional film**

The SUBSOL promotional film is meant to stimulate interest during conferences, bilateral meetings and other suitable occasions. It will be permanently accessible on the SUBSOL website and provides a brief introduction to SWSs. The conveyed message is that SUBSOL technologies pose novel and innovative solutions to urgent societal/environmental freshwater scarcity issues and have been successfully applied in different contexts.

SWS technology users are depicted as first movers and thus, shown in a positive light. This is meant to stimulate other prospective end-users to consider implementation of SWS technologies for their own purpose.

The promotional film is accessible via: <u>http://www.subsol.org/home/article/subsol-project-movie</u>

## **Newsletter**

Throughout the 36-months SUBSOL project period, six newsletters will be produced (biyearly). The newsletters contain background information about progress within the SUBSOL project (e.g. updates from the replication sites, outcomes of annual general meetings) as well as additional background information (e.g. interviews with SUBSOL consortium members). Target group are individuals who have already shown interest in SUBSOL as they signed up to the newsletter proactively. The newsletter addresses a rather broad audience of interested individuals.

#### **Conferences and networking events**

Members of the SUBSOL consortium attend various international conferences and networking events. Their attendance will increase the visibility of SUBSOL and facilitates knowledge sharing and building bridges with expert audiences such as researchers, prospective end-users as well as policy makers. These interpersonal meetings will allow sharing success stories of SUBSOL technologies at the reference sites and promoting the opportunity of SUBSOL technology application in various geographic and socioeconomic contexts. The attendance of SUBSOL consortium members is confirmed for the following conferences and will be complemented by their attendance to selected conferences listed in Table 3.

- 10th IWA World Water Congress & Exhibition; October 9-14, 2016; Brisbane, • Australia
- Global Forum for Food and Agriculture; January 2017; Berlin, Germany
  European Geosciences Union General Assembly 2017: Session on Catchment Science and Management: Nature-Based Solutions for rural and urban
- environments (co-organized); April 2017; Vienna, Austria International Symposium on Managed Aquifer Recharge (ISMAR 9); June 2016; Mexico City, Mexico •
- Sustainable World Food Supply; October 2017; The Netherlands •

Table 3: List of conferences with potential links to the SUBSOL project.

| Date                       | Event   | Place                      | Website   |
|----------------------------|---|----------------------------|---|
| Oct 30 -<br>Nov 2,<br>2016 | AWWA Water Infrastructure<br>Conference & Expo  | Phoenix,<br>AZ, USA        | http://www.awwa.org/conferences-<br>education/conferences.aspx        |
| 02 - 03<br>Nov 2016        | IWA New Developments in IT<br>& Water Conference  | Telford/UK                 | http://www.wwem.uk.com/it2016/  |
| 03. Nov<br>16              | Groundwater and climate<br>resilience : lecture   | Oxford                     | http://www.water.ox.ac.uk/w-mike-edmunds-<br>memorial-lecture/        |
| 6 -10<br>Nov 2016          | International Water<br>Conference   | San<br>Antonio,<br>TX, USA | https://eswp.com/water/overview/                                      |
| 7 - 9 Nov<br>2016          | International CCWI<br>Conference  | Amsterda<br>m, NL          | http://www.iwcconferences.com/14th-<br>international-ccwi-conference/ |
| 9 -11<br>Nov 2016          | VietWater   | Saigon,<br>Vietnam         | http://www.vietwater.com/   |
| 15 Nov -<br>17 Nov<br>2016 | IWATER – International<br>Integrated Water Cycle Show                                     | Barcelona/<br>Spain        | http://www.iwaterbarcelona.com/en/                                    |
| 17. Nov                    | Southern California Salinity<br>Management Summit   | Los<br>Angeles,<br>USA     | http://www.socalsalinity.org/   |
| 17-18<br>Nov 2016          | 10th World Aqua Congress:<br>Smart water solutions for India                              | New Delhi,<br>India        | http://www.worldaquacongress.org/                                     |
| 18 - 19<br>Nov 2016        | International Conference on<br>Technology and<br>Environmental Science                    | HCMC,<br>Vietnam           | http://iceti2016.tdt.edu.vn/  |
| 17 - 20<br>Nov 2016        | 2nd Science Summit on Urban<br>Water-   | Beijing/Chi<br>na          | http://www.iwa-summit2016.org/  |
| 21-25<br>Nov 2016          | Ecosystem Services for SDG<br>in Africa   | Nairobi,<br>Kenya          | http://www.espconference.org/africa2016                               |
| 28-30<br>Nov 2016          | International Forum on Water<br>2016  | Sanya,<br>China            | http://conf.1000thinktank.com/ifw/                                    |
| 6-8 Dec<br>2016            | Groundwater Week  | Las Vegas                  | http://www.groundwaterweek.com/                                       |
| 17 - 18<br>Feb 2017        | ECOLOGY '17 / International<br>Conference on Ecology,<br>Ecosystems and Climate<br>Change | lstanbul,<br>Turkey        | http://www.dakamconferences.org/ecology                               |

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| 16 - 17<br>Mar 2017      | 1st IWA Conference on Algal<br>Technologies for Wastewater<br>Treatment and Resource<br>Recovery                                     | Delft, NL                        |   |
|--------------------------|--|----------------------------------|---|
| 19 -22<br>Mar 2017       | AWWA Sustainable Water<br>Management Conference  | New<br>Orleans,<br>USA           | http://www.awwa.org/conferences-<br>education/conferences/sustainable-water-<br>management.aspx |
| 22 - 24<br>Mar 2017      | Water Philippines  | Manila,<br>Philippines           | http://www.waterphilippinesexpo.com/  |
| 22 - 24<br>Mar 2017      | IWA Regional Symposium on<br>Water, Wastewater and<br>Environment: The Past,<br>Present, and Future of the<br>World's Water Resource | Izmir,<br>Turkey                 | http://www.iwa-ppfw2017.org/  |
| 28 -31<br>Mar 2017       | Wasser Berlin International  | Berlin                           | http://www.wasser-berlin.de/en/   |
| 6-7 April<br>2017        | 1st WSSP conf: Water and<br>Sanitation Safety Planning   | Netherland<br>s                  | http://www.iwcconferences.com/wssp-and-<br>extreme-weather/                                     |
| 24 - 26<br>April<br>2017 | Coastal Cities 2017  | Cadiz,<br>Spain                  | http://www.wessex.ac.uk/conferences/2017/coast<br>al-cities-2017                                |
| 2-5 May<br>2017          | ALTER-net 2017 : Nature and<br>society: synergies, conflicts,<br>trade-offs  | Gent,<br>Belgium                 | http://www.alter-net.info/outputs/conf-2017   |
| 10-12<br>May<br>2017     | 4th Water India Expo   | New Delhi,<br>India              | waterindia.com  |
| 22 - 24<br>May<br>2017   | IWA Symposium on Lake and Reservoir Management   | Shanghai,<br>China               | http://www.2017iwa-Irm.com/   |
| 24-25<br>May<br>2017     | Global Water Summit 2017   | Madrid,<br>Spain                 |   |
| 25 - 27<br>May<br>2017   | 9th IWA Eastern European<br>Young Water Professionals<br>Conference  | Budapest,<br>HU                  | http://iwa-ywp.eu/  |
| 29 May-<br>3 Jun<br>2017 | XVI World water congress   | Cancun,<br>Mexico                | http://worldwatercongress.com/  |
| 29 May-<br>1 Jun<br>2017 | LuWQ2017 – International<br>conference on land use and<br>water quality  | The<br>Hague,<br>Netherland<br>s | http://www.luwq2017.nl/   |
| 29 - 02<br>Jun 2017      | LET 2017- The 14th IWA<br>Leading Edge Conference on<br>Water and Wastewater<br>Technologies   | Florianopol<br>is/Brazil         | http://www.let2017.org/   |
| 5 - 7<br>June<br>2017    | Water and Society 2017   | Seville,<br>Spain                | http://www.wessex.ac.uk/conferences/2017/wate<br>r-and-society-2017                             |
| 11-14<br>June<br>2017    | AWWA ACE17   | Philadelphi<br>a, USA            | http://www.awwa.org/conferences-<br>education/conferences/annual-conference.aspx                |

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|                           | Leading Edge Conference for  |                               |  |
|---------------------------|--|-------------------------------|--|
| 20 - 22<br>Jun 2017       | Sustainable Asset<br>Management – LESAM 2017   | Trondheim<br>, Norway         | http://www.ntnu.edu/lesam2017/   |
| 26 - 29<br>June<br>2017   | The 3rd International<br>Conference on Water<br>Resource and Environment<br>(WRE 2017)           | Qingdao,<br>China             | http://www.wreconf.org/  |
| 3 - 5 July<br>2017        | International Conference on<br>Water, Informatics,<br>Sustainability and<br>Environment          | Ottawa,<br>Canada             | https://www.sciencetarget.com/iwise2017/                                       |
| 5-9 July<br>2017          | 10th world congress of EWRA<br>on Water Resources and<br>Environment                             | Athens,<br>Greece             | http://www.ewra.net/   |
| 10-13<br>July<br>2017     | International Forum on Water   | Athens,<br>Greece             | http://www.atiner.gr/water   |
| 11 - 13<br>July<br>2017   | Australasian Groundwater<br>Conference 2017  | Sydney,<br>Australia          | http://www.groundwater.com.au/pages/australian<br>-groundwater-conference-2015 |
| 18 - 20<br>July<br>2017   | Water Resources<br>Management 2017: surface<br>and subsurface water mgmt.                        | Prague,<br>Czech<br>Rep.      | http://www.wessex.ac.uk/conferences/2017/wate<br>r-resources-management-2017   |
| 25 - 29<br>Jul 2017       | 11th IWA International<br>Conference on Water<br>Reclamation and Reuse                           | Long<br>Beach,<br>California  | http://iwareuse2017.org/   |
| 13 - 18<br>August<br>2017 | 37th IAHR World Congress<br>2017 : Hydro-environmental<br>sciences and practical<br>applications | Kuala<br>Lumpur,<br>Malaysia  | https://www.iahr.org/worldcongress2017   |
| 30 Sep -<br>4 Oct<br>2017 | WEFTEC2017 90th Technical<br>Exhibition and Conference   | Chicago,<br>IL USA            | http://weftec.org/   |
| 30 Oct -<br>3 Nov<br>2017 | 4th International Water Week   | Amsterda<br>m, NL             | http://internationalwaterweek.com/   |
| 16-17<br>Feb 2018         | ICSWRM 2018  | London                        | https://www.waset.org/conference/2018/02/londo<br>n/ICSWRM                     |
| 10-12<br>April<br>2018    | AsiaWater 2018   | Kuala<br>Lumpur,<br>0Malaysia | http://www.asiawater.org/  |
| June<br>2018              | 25th Salt Water Intrusion meeting  | Gdansk,<br>Poland             |  |
| (?) 2018                  | 8th world water forum  | Brasilia,<br>Brazil           | http://www.worldwaterforum8.org/main/en/                                       |
| 29 Sep -<br>3 Oct<br>2018 | WEFTEC2018 Technical Exhibition and Conference   | New<br>Orleans,<br>USA        | http://weftec.org/   |

# Dissemination

The dissemination activities start upon the production of project results and focus on the distribution of generated knowledge among stakeholders. Objectives of the dissemination activities include:

- 1) Demonstration of the economic and technical viability of SWSs
- 2) Sharing of research results and promotion of further innovation in the field of SWSs
- 3) Incentivising decision makers to create a SWS enabling legal and policy framework
- 4) Increasing the capacity of prospective end-users and technology providers to implement SWSs

SWS-stakeholders are broadly defined as all institutions, companies, small and medium enterprises, legal representatives, and other parties which will somehow use the results created through SUBSOL. The dissemination of knowledge to the respective stakeholders groups is meant to leverage their capacity to deal with SWSs. Beyond knowledge sharing, the dissemination of project results is also meant to build up trust among prospective endusers of SWS technologies.

Table 3: Summary of the planned dissemination activities over the course of the SUBSOL project.

| Output/Activity   | Envisioned impact  | Covered needs  | Potential users  |
|---|--|--|--|
| Web-based<br>knowledge<br>environment   | Empowerment of<br>stakeholders to<br>resort to knowledge<br>created through<br>SUBSOL        | Unrestricted access to SWS knowledge                                     | Various, local,<br>national and<br>international<br>stakeholders                                   |
| Online SWS platform   | Facilitate exchange<br>among parties that<br>are interested in<br>SWS technologies           | Link SUBSOL to existing knowledge exchange networks                      | Scientific<br>community  |
| Participatory<br>technical assessment   | Conflict prevention<br>and facilitation of<br>SWS technology<br>implementation               | Facilitate decision making   | Local stakeholders<br>for participation;<br>International<br>stakeholders for<br>knowledge sharing |
| Policy briefs   | Assist decision<br>makers to overcome<br>legislative barriers                                | Address current policy shortcomings of specific markets                  | Local policy<br>makers, politicians  |
| Publications  | Share lessons<br>learned from the<br>SUBSOL project  | Share SUBSOL knowledge among the scientific community                    | Scientific<br>community  |
| Mission Series I –<br>Assessment of<br>Development and<br>Implementation<br>Experiences at<br>Reference Sites | Capacitation of<br>consortium members<br>and external<br>stakeholders with<br>regard to SWSs | Provide consortium partners with the required knowledge to conduct tasks | SUBSOL<br>consortium<br>members and<br>external<br>stakeholders                                    |
| Mission Series II –<br>Assessment of<br>technology transfer   | Capacitation of<br>consortium members<br>and external  | Provide consortium partners with the required knowledge to conduct tasks | SUBSOL<br>consortium<br>members and  |

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| experiences at<br>Replication Sites  | stakeholders with<br>regard to SWSs   |   | external<br>stakeholders                                       |
|--|---|---|--|
| Mission series III:<br>Awareness<br>generation and<br>assessment of<br>framework conditions<br>at Target Sites | Identification of<br>potential SWS<br>project opportunities<br>as well as project<br>partners and end-<br>users | Verification and assessment of<br>saltwater intrusion in the target<br>region, introduction of SWS to a<br>broad range of stakeholders in the<br>respective target region, discussion<br>of the feasibility of SWS<br>implementation in the target region<br>with local stakeholders, coverage of<br>knowledge gaps | Stakeholders in<br>target markets and<br>consortium<br>members |
| Mission Series IV:<br>Solution Promotion<br>and Capacity<br>Development at<br>Target Sites                     | Initiation of follow-up<br>SWS projects in the<br>target regions  | Final decisions on the development<br>of follow-up projects, hosting of<br>promotional events and trust<br>building activities  | Stakeholders in<br>target markets and<br>consortium<br>members |

## **Dissemination activities**

#### Web-based knowledge environment (D3.1)

The web-based knowledge environment functions as an online collection of SWS relevant materials (open repository) and will be updated continuously throughout the SUBSOL project. It contains e.g. the outcomes of the first two work packages (SWS reference sites and SWS market replication) such as field monitoring data from the reference sites, geochemical and hydrogeological performance assessments as well as *solution packages* from *participatory technical assessments* (pTAs; cost-benefit analysis, stakeholder engagement approaches).

The target audience is defined by the specific content of the web-based knowledge environment. Therefore, the SUBSOL consortium will aim to provide content for as many stakeholders as possible e.g. knowledge institutes, end users, technology developers as well as policy makers.

Web-based accessibility to the knowledge environment will empower local, national and international stakeholders from within the SUBSOL consortium as well as external ones to utilise produced knowledge. Ideally, the generated knowledge will be applied by stakeholders to either support or initiate a SWS implementation at a specific location.

#### **Online SWS platform/Virtual Marketplace (D3.3)**

The online SWS platform will function as a virtual market place and will be linked to the web-based knowledge environment (D3.1) as well as a SWS toolkit (D3.2). The toolkit contains a range of decision support tools for the implementation of SWS technologies in new locations.

The notion virtual market place is derived from the platforms ability to store crowd sourced information on SWS related subjects e.g. experiences on how to receive grants for a SWS

project as well as its aim to facilitate communication among stakeholders to allow exchange of ideas and knowledge (e.g. end users and technology developers).

Building up a *self-help community* will allow engagement of local, national and international stakeholders which are either interested in the implementation of SWS technologies or the improvement of SWS framework conditions.

A linkage to the EIP market place as well as other existing networks (inter alia water technology platform IAH, commission on managed aquifer recharge, watershare, China water platform etc.) will allow benefiting from their popularity and existing user groups.

The platform will strongly increase the accessibility to SWS knowledge and thereby, encourage prospective end users to implement SWS technologies in new markets.

#### Participatory technology assessment (pTA)

Participatory technology assessments (pTAs) are a methodology for focus group meetings with stakeholders which are applied at the replication sites. Subject of discussion are e.g. the suitability of a specific SWS technology for the respective area as (supported by e.g. cost benefit analysis and life cycle analysis) as well as possible stakeholder conflicts.

Outcomes of the pTAs are used to develop solution packages and policy briefs and support stakeholder engagement and capacity building the selected target region.

Hence, the broader aim of pTAs is twofold: (1) First of all, to stimulate exchange among stakeholders and to support decision making on a local level at the replication sites. (2) Second, to derive conclusions on how to communicate with specific stakeholders in the target regions.

The envisioned impact of the pTAs will be to support decision making and prevent conflict among stakeholders at the replication sites and furthermore, to transfer lessons learned into target markets to support stakeholder approaches and smoothen the initiation and implementation of new SWS projects.

#### **Policy briefs and Solution packages**

Because of the novelty of SWS technologies, in some target markets, laws may only insufficiently cover legislative aspects of SWS technology implementation. Legislative shortcomings will be identified and addressed through policy briefs which contain recommendations on how to promote an enabling legislative environment for SWS in a specific area. The policy briefs intend to encourage decision makers in the target areas to facilitate a legislative environment that enables the implementation of SWS technologies and thereby support the market uptake of SWS technologies.

## Solutions package(s)

*Target group*: Decision makers (Politicians, government officials at different levels, head of industry...)



*Objective*: To provide methodological recommendations to SWS decision makers in the form of a strategical and practical step-by-step Participatory Technology Assessment implementation guide on how to carry through the assessment and implementation process.

Based on experiences from the pTA's at the 4 replications sites (Part of Task 3.1) the content of the solutions package includes description of approach and recommendations for:

- 1) Identification of the challenge in the particular area
- 2) Identification, analysis, mapping and prioritization of key-stakeholders
- 3) Identification of appropriate methodological approach for involving stakeholders including:
  - Establishing Initial contact with stakeholders and analyzing the local implementation barriers at hand
  - Practical execution of a stakeholder-workshop regarding the issues at hand and solutions proposed and subsequently analyzing the output of the process.
- 4) Ensuring an implementation of SWS solutions which stakeholders consider successful and satisfying.

Examples from the 4 replication sites are incorporated into the guide and casedescriptions of these will be added.

## **Policy briefs**

*Target group*: SWS stakeholders, potential clients in target region.

#### Objectives:

Assessing the critical standards and framework conditions for applying SWS to:

- facilitate acceptance of SWS solutions and subsequently broader market reach and uptake
- Gain market shares and potential clients.

The policy briefs depend on the findings from the market scan, analysis and penetration route in Task 4.1 as the regions to target the policy briefs at are determined based on these findings.

DBT will gather data from following analyses carried out by partners present in the target regions:

- Analysis of local legal and policy frameworks and gaps and barriers in each of the 6 target regions (Adelphi responsible)
- $\circ$   $\,$  Analysis of the technical gaps and barriers (local site partners)  $\,$
- o Analysis of economic gaps and barriers (based on findings in T4.1 Arcadis)
- o Analysis of other gaps and barriers?



Based on the above analyses, 6 policy briefs are prepared (*DBT responsible*), each addressing a specific target region, containing:

- Presentation of the issue at hand and description/presentation of SWS technologies
- Proposed solutions based on SWS-technologies in this context (Sales-pitch), recommended framework conditions.
- Mini SWOT-analysis on local implementation (strengths, weaknesses, opportunities, threats).

#### **Publications**

At least three peer reviews scientific articles will be published under *green open access* over the course of the SUBSOL project and broach, among others, the following issues: Development of SWS technologies, specific challenges in SWS technology planning and implementation as well as lessons learned from the SUBSOL project.

The target audience of each paper will depend on the papers' respective subject. In general however, scientific papers contain a high degree of detail and will target experts and the scientific community. In addition, peer reviewed publications will increase the accessibility to SUBSOL project knowledge and increase awareness towards project activities in general. An overview of scientific publications from the SUBSOL project as of month 18 is given on p.27.

#### "Mission series" for awareness and promotion at target sites

The strategy to further commercialise SWS solutions and penetrate new markets has a 4 step approach in dealing with stakeholders and organising activities in the target markets. In the following this 4 step approach is described in 4 mission series.

Conducting the mission Series I-IV ties in with the overall goal of SUBSOL's WP4, namely: "to increase the uptake of Subsurface Water Solutions (SWS) on European and global markets and to disseminate project results and experiences with the goal of sensitizing potential clients." This mission concept functions as a gradually developing roadmap for some of the interactive approaches in the market penetration strategy in D4.1 which is further elaborated and submitted as part of the Communication and Dissemination Plan (D4.4).

One of adelphi's main tasks in SUBSOL is to arrange meetings and workshops (summarised as missions) with stakeholders in the reference, replication and target sites. The cornerstone of the missions relates to **six capacity building and awareness raising (Series III)** and **six promotional missions (Series IV)** at the target sites. Series III concentrates on assessment of information, identification of cooperation partners, and verification of desk research for the market scans and elaboration of capacity development

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approaches. Series IV has the goal to promote SWS solutions. Stakeholders are to be convinced to implement a SWS project, for this purpose promotion and lobbying work or conveyance of policy briefs and recommendations to improve framework conditions are taken up. The aim is to equip local stakeholders with helpful knowledge, tools and consulting services with the help of solution packages. While activities requested in Series III are initiated (e.g. feasibility study for a SWS project), these efforts are continued, deepened and complemented before and during Mission IV with policy briefs and solution packages.

At the reference sites (Series I) and replication sites (Series II) missions, the goal is to acquire experiences with existing approaches with the development, implementation and operation of SWS solutions, from which approaches for the Mission Series III and IV are derived. The assessed information will be used to produce the communication and dissemination material which will be essential in setting up capacities in the target markets which are needed in commercialising the solutions and a lasting market penetration. The inquiry in Series I will mostly target aspects concerning the implementation and operation of SWS, and it should make use of long-standing experience with the technology and the data availability on aspects such as technical performance, socio-economic feasibility, or environmental impacts. The inquiry in Series II covers experiences made with the replication in new markets (e.g. with respect to market-specific technological standards or legal framework conditions). The results feed into the knowledge base that will help the stakeholders in the target sites to carry out SWS-related activities. Their content will be oriented towards the stakeholder's needs and preferences specific to the target markets. First results of mission I are part of this report in the form of the synthesis of existing SWS experiences. The information in mission II is mainly acquired with the pTA methodology.

# Mission Series I – Assessment of Development and Implementation Experiences at Reference Sites

#### Objective

Mission Series I has the goal to gather information and experiences about the development and implementation of SWS projects at the reference sites. The results will be used for preparing the knowledge products for mission series III and IV, and to generally enhance the understanding of SWS technologies among the SUBSOL project team.

#### Concept

The mission at the reference sites involves meetings with stakeholders that have been essential for realising the respective pilot site. The stakeholder meetings deal with questions that relate to development, operation and monitoring of the technology. Each site is visited to become familiar with the technology, solve technical questions and to take



photographs for promotional activities. It should be noted that each reference site features a different SUBSOL technology (ASR-coastal, Freshmaker and Freshkeeper).

#### Step-by-step work process

#### Preparation phase:

- Agree with site partners on conducting the missions
- The existing collected information will be crosschecked with the desired list of information in order to identify the knowledge gap
- Identification of important stakeholders and arrangement of meetings
- Preparation of interview guides to build up a knowledge base for the planning of the missions at the target sites. The knowledge collection will cover a broad range of information as it will be difficult to correctly anticipate which information will be requested by stakeholders in the target areas

#### Mission phase:

- Meetings and interviews with stakeholders are held at the reference site or at the premises of stakeholders
- Site visits allow to get impressions, answer questions and contribute to a thorough understanding of the technologies as well as to clarify open questions regarding the operation of the reference sites

#### Follow-up phase:

- Collected information will be integrated into the knowledge base. The knowledge base will serve the preparation of the other missions as best practices regarding the realisation of a SUBSOL project are identified and shared. The reference sites will especially be used for presenting the technologies to the stakeholders in the mission 3 series visits.

#### Derive lessons learned to adapt Missions for target markets

Identified drivers and barriers at the reference sites can be assessed and verified at the replication sites in order to work out general procedures in the development of a SWS solution. These general insights on drivers and barriers can be considered in the conceptualisation phase, when developing potential projects at target sites. Experiences with technology options and their applicability in varying contexts can be used for framing out better applicable concepts for target markets.

Table 4: The three reference sites are located along the Dutch coastline, from the very south to the north near Leeuwarden.

| Site   | Site<br>responsibility        | Associate partner  |
|--|-------------------------------|--|
| Noardburgum (drinking water)                             | Vitens (L <sup>3</sup> ), KWR | Dutch Topsektor Water TKI Technology                                 |
| Ovezande (irrigation water for agriculture)              | KWR (L)                       | Dutch Knowledge for Climate Research<br>Programme, local governments |
| Nootdorp/Westland (irrigation water<br>for horticulture) | KWR (L) Be                    | Dutch Knowledge for Climate Research<br>Programme, local governments |

# Mission Series II – Assessment of technology transfer experiences at Replication Sites

#### Objective

Mission Series II has the goal to gather information and experiences about the development of SWS projects and (especially) the technology transfer to replication sites. The results will be used, among others, for framing Mission Series III and IV.

#### Concept

The Missions at the replication sites comprise meetings with stakeholders that have been of importance for the implementation of SWS technologies in a specific location. During the missions, interview with a range of stakeholders will be conducted. The aspects of inquiry are similar to those at the reference sites but particularly address the technology transfer to international markets. Ideally, each site itself is visited to receive an impression of the technology, address technical questions on the ground and to take photographs for promotional activities.

#### Steps-by-step work process

#### Preparation phase:

- Agree with site partners on conducting the missions
- The existing collected information will be crosschecked with the desired list of information in order to identify the knowledge gap
- Identification of important stakeholders and arrangement of meetings
- Preparation of interview guides to build up a knowledge base for the planning of the missions at the target sites. The knowledge collection will cover a broad range of information as it will be difficult to correctly anticipate which information will be requested by stakeholders in the target areas

#### Mission phase:

- Meetings and interviews with stakeholders are held at the reference site or at the premises of stakeholders
- Site visits will allow to capture impressions of the circumstances for construction and implementation, pose questions to the end users and in this way contribute to a thorough understanding of the replication of the technologies

Follow-up phase:

 Collected information will be integrated into the knowledge base. The knowledge base will serve the preparation of the other missions as best practices regarding the realisation of a SUBSOL project are identified and shared. The replication approaches will be of specific importance to the planning and conduct of the mission 4 series when presenting solutions and developing concrete project proposals.

| Site                       | Site responsibility                   | Associate partner                                       |  |
|----------------------------|---------------------------------------|---|--|
| Falster Island,<br>Denmark | GEUS (L), Bluecon, Orbicon            | econ, Orbicon Danish Ministry of Environment            |  |
| Schinias, Greece           | Geoservice, GtG, NTUA (L),<br>Ubitech | Schinias National Park Authority, Greenhouse<br>Farmers |  |
| Dinteloord,<br>Netherlands | Be, KWR (L)                           | Dutch Topsector Water Technology                        |  |

Table 5: Overview of the replication sites

# Mission series III: Awareness generation and assessment of framework conditions at Target Sites

#### **Objective and envisioned outcomes**

The objective of the third mission series is to assess and verify the information missing for the market scans and the policy and legal framework analysis. According to the status of assessment which might vary for each of the target regions potential future partners are identified and the framework conditions for the development of a SWS project assessed.

#### **Mission concept**

The missions are conceptualised within the framework of visits to the target areas, during which individual and simultaneous meetings with site partners, associate partners and stakeholders are organised. Each visit will be customised in accordance to the



assessment status and identified information gap as well as the stakeholders' needs and preferences e.g. with regard to the water source, water demand and their interest in involvement.

#### **Preparatory activities**

- **Coordination with site partner:** Communicate with the site partner on the activities and experiences in the target site so far and the specific interest of partners in the target site and the objectives of the framework condition assessment and awareness creation.
- Establish communication: Establish communication with the stakeholders at the target sites in consultation with associate partners and site partners. If required, adelphi will try to identify additional stakeholders to those contacts provided by the site partners and those who emerged from the prior conducted market research. Important stakeholders must be involved from the very beginning to ensure they don't feel neglected.
- Problem identification: Assess the present knowledge about the target sites and clearly identify the driving force behind the need for SWS technologies in each target area. Identifying the problem for which SWS technologies may pose a solution is crucial to tailor the missions specifically to the stakeholders' needs and interests.
- **Information gap assessment:** crosscheck available information with information desired and elaborate list of information to be assessed and verified during the mission.
- **Prepare/select information materials:** For each visit, specific information materials from the existing knowledge base will be selected.

#### Activities during the mission

- Assessment and verification of problem: in initial meetings with the project associate and core stakeholders the extend and type of problem related to SWS will be reassured in order to fine tune the introduction to the SWS solutions
- Inform and inquire stakeholder: Existing SUBSOL knowledge modules will be shared with stakeholders for information dissemination purposes e.g. SUBSOL brochure and presentation in the local language as well as the promotional video, and references to publications featured on the website. In addition, stakeholders will be enquired about their present state of knowledge regarding SWS technologies and given the opportunity to formulate specific questions.
- Introduction of SWS technologies to broader audience: Introduction of SWS technologies and information materials for awareness creation as well as to advance the prospective SWS technology users' capacity for technology implementation. Possible SWS project ideas will be brainstormed, and potential partners for further elaboration of project development and feasibility studies identified

- **Discuss the feasibility of SWS technology implementation:** Discuss for what purposes and how the prospective SWS technology user would like to implement a SWS technology. As part of this discussion, field visits may be arranged during which important information are collected on-site.
- **Covering knowledge gaps:** Knowledge gaps that were identified during the preparatory phase are intended to be covered through interviews, questionnaires, discussions and collection of documents and data during on-site visits, these contribute to completion of the market scan approach.

#### Follow-up activities

- **Updating project site partners:** The project site partners of the SUBSOL consortium will be informed about the activities conducted during the missions and further approach at site agreed upon.
- **Market scans/analysis verifications** are completed and shared with KWR, Arcadis and the site partners.
- Upon a final decision to further look into activities in the target area the Gap Analysis, Legal and Policy Framework Assessment and Implementation Barrier Analysis are prepared and sent to DBT for integration into the Solution Packages and Policy Briefs.
- **Continue stakeholder communication:** To assure the genuineness of the stakeholders' interest and to further increase their trust and confidence in the SUBSOL consortium, regular communication (e.g. with the newsletter) is taken up with the identified potential future local partners for SWS solution development.
- **Assess cooperation:** Based on the meetings and post-meeting communication, the willingness of the stakeholders for further collaboration will be assessed (e.g. by their responsiveness).
- Identification of prospective SWS technology users for further collaboration: Stakeholders which emerged as being committed to the implementation of a SWS technology will be selected for continuous support during the upcoming mission.
- Identify activities for mission series IV: Based on the outcomes of the third mission series further activities for Mission series IV may be elaborated.

## Target sites and mission planning

Mission Series III will be conducted on-site in the target areas that are specified in the grant agreement. The regions in the target sites are specified by the outcome of the market scans/analyses and the incorporation of recent developments in the site partners activities. The site visits are intended to be conducted between December 2016 and April 2017



Table 6: Overview of the target sites

| Target Site                                     | Site<br>partner | Associate partner   |
|---|-----------------|---|
| Northwest Europe<br>(North Germany)             | DBT             | Danva (DK)<br>LTO Glaskracht (NL)   |
| Southeast Europe<br>(Cyprus)                    | NTUA,<br>KWR    | ISKI (Turkey)<br>Eydap (Greece)<br>Cypress institute (Cyprus)   |
| Brazil<br>(Pernambuco)                          | GEUS            | Universidade Federeal de Pernambuco (UFPE), APAC Water and<br>Climate Agency Pernambuco State                         |
| Gulf of Mexico<br>(Baja California,<br>Yucatan) | Arcardis        | Cisese, Cotas, Conagua, Semarnat  |
| China<br>(Laizhou Bay and<br>surrounding)       | GEUS            | Tianjin Center (China Geological Survey), University of Nanjing,<br>China-Europe Water Platform, Water4 Coast project |
| Vietnam<br>(Ho Chi Min City,<br>Mekong Delta)   | BGR             | MONRE Ministry of Natural Resources, IGPVN BMZ project  |

# Mission Series IV: Solution Promotion and Capacity Development at Target Sites

#### **Objectives and envisioned outcomes**

The objective of the fourth mission series is to stimulate the stakeholders' interest in SWS technologies and to jointly identify and outline ideas for potential SWS projects. Activities conducted during the mission are meant to strengthen demand for SWS technologies among prospective user groups and facilitate their confidence in the SUBSOL consortium.

The activities will be conducted in close cooperation with the core stakeholders which emerged from mission series three as being most committed. Their capacity for implementation of SWS technologies will further be advanced to deal with the identified implementation barriers in order to further concretise potential SWS projects in the target markets.

Depending on the progress of the solution packages, policy briefs, feasibility studies and the development of the potential project the mission will be conducted together with the technology provider from the project consortium for framing out future cooperation options.

#### **Mission concept**

The missions are conceptualised within the framework of visits to the target areas during which individual and simultaneous meetings with local stakeholders, site partners, associate partners and technology providers are organised.



The activities depend on the outcomes of the assessment and awareness creation as well as capacity development achieved till date. Each visit will be customised in accordance with the progress of solution development and the stakeholders' needs and preferences with regard to the required technology and type of support needed (e.g. capacity building, technological assessments, framing of a feasibility study, awareness creation with decision makers or lobbying of policy recommendations). This is done with by making use of the solution packages and policy briefs. In case of smooth progress of project activities, the meetings will be conceptualised to concretise application opportunities of SWS technologies in the target sites. Framework for the development and implementation of a potential future project are elaborated: location, type of technology, partner setup, ownership and funding are identified.

In addition, prospective technology users will be invited to promotional events at the reference and replication sites in Europe for additional capacity and trust building activities.

#### **Preparatory activities**

- Coordinate with site partner, associate partner, technology provider and WP4 partners: coordinate the development of the solution package so that it fits to the interest of the partners of the consortium and can offer a relevant technology or service which can be provided by one of the project partners
- Sustain stakeholder communication and reassess commitment: Communication with prospective SWS technology users from mission series three will be continued to assure their commitment. If necessary, additional information and support will be provided.
- **Substitution:** Prospective technology users that left the project during mission series three may be substituted or re-assessed.
- **Prepare activities/content:** Activities and knowledge modules will be prepared based on insights gained during mission series three as well as under consideration of the overall project progress.
- **Specific knowledge packages:** Development of audience-specific knowledge dissemination approaches
- Prepare promotional events in target markets with follow ups in Europe: Promotional events including venue, logistics and invitations are to be organised with site/associate partners and stakeholders. Options for visits of the stakeholders from the target sites to the reference and replication sites in Europe are to be assessed.

#### Activities during the missions

(may vary and depend on project progress, are to be detailed out later in 2017)

- Intensify commitment through capacity building: Sharing of customised knowledge modules e.g. feasibility studies to show the potential of SWS

technologies in a specific target area as well as the toolkit and training packages that were developed as part of WP3.

- **Hosting of Promotional Event:** During the promotional events, the site specific SWS solution approaches are presented in an accessible and simple way to allow participation of other interested stakeholders e.g. urban and communal decision makers or the public.
- Elaborate a specific implementation project: A workshop with identified future partners works out a concrete road map for the development and implementation of a potential future project including exact location, type of technology, partner setup, ownership and funding of future activities
- **Planning of trust building activities:** Study tours to the reference sites and visits to the replication pilots are planned with the future partners. This will raise awareness and allows to share experiences with SWS technology application. The locations will be chosen under consideration of the specific target group.
- Other activities as per requirements (workshops, trainings, presentations, dialogues, site visits, stakeholder awareness meetings, etc.)

#### Follow-up activities

- Evaluate outcomes with site partner and technology provider from the project consortium
- Ensure stakeholder engagement beyond the timeframe of SUBSOL: Local stakeholders are linked to SWS networks in which project partners are active to ensure continuous support.
- **Ensure contact establishment:** Ensure that contact has been established between stakeholders and the technology providers.
- **Generate future projects:** identify future project options in which stakeholders and consortium partners can implement SWS projects.

#### Target sites and mission planning

Mission Series IV will be conducted on-site in the target areas which are decided on by the project consortium. Some target sites may change as an outcome of mission series 3 and the results of the final market analyses. The missions are intended to be conducted end of 2017 to mid 2018.

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| Task Name                                | 3Q15 | 4Q15     | 1Q16 | 2Q16 | 3Q16 | 4Q16 | 1Q17 | 2Q17 | 3Q17 | 4Q17 | 1Q18 | 2Q18 | 3Q18 | 4Q18 |
|--|------|----------|------|------|------|------|------|------|------|------|------|------|------|------|
| Communication                            |      |          |      |      |      |      |      |      |      |      |      |      |      |      |
| Website                                  |      |          | C    |      |      |      |      |      |      |      |      |      |      |      |
| Project brochure                         |      |          |      |      |      |      |      |      |      |      |      |      |      |      |
| Information Materials                    |      |          | C    |      |      |      |      |      |      |      |      |      | -    |      |
| Promotional Film                         |      |          |      |      |      | C    |      |      |      |      |      |      | - 2  |      |
| Newsletter                               |      |          |      |      |      |      | C    |      |      |      |      |      | -    |      |
| Conferences and Networking events        |      | c        |      |      |      |      |      |      |      |      |      |      | - 2  |      |
| Dissemination activities                 |      | <u> </u> |      |      |      |      | -    |      |      |      |      |      | -    |      |
| SWS knowledge base                       |      |          |      |      | C    |      |      |      |      |      |      |      | - 2  |      |
| SWS toolkit                              |      |          |      |      |      |      |      |      |      |      |      |      | -    |      |
| SWS online platform                      |      |          |      |      |      |      |      |      |      |      |      |      |      |      |
| pTAs                                     |      |          |      | C    |      |      |      | - 2  |      |      |      |      |      |      |
| Policy briefs and solution packages      |      |          |      |      |      |      |      | C    | - 2  |      |      |      |      |      |
| Publications                             |      |          |      | c    |      |      |      |      |      |      |      |      | - 1  |      |
| Awareness and assessment at TM           |      |          |      |      |      | E    |      | - 2  |      |      |      |      |      |      |
| Promotion and Capacity Development at TM |      |          |      |      |      |      |      | c    |      |      |      |      | -    |      |

Figure 1: Availability of comunication material and dissemination activities

# Exploitation

All communication and dissemination activities within the SUBSOL project are conducive to the exploitation of SUBSOL project outcomes for either commercial purpose, improvement of policies or for solving socioecological problems.

A particular aim is the improvement of the legal and policy framework in target regions in order to enable the implementation of SWS technologies which will be addresses through a legal and policy framework analysis and individual policy briefs. Subsequently, practical implementation of SWSs in the target regions can be pursued in order to promote SWSs as a product. The goal to initiate new SWS implementation projects will allow a direct continuation of the SUBSOL project activities.

## **Disseminating results and guiding the route to market in WP 4**

The objective of work package four is to "increase the market reach of SWS and promote their uptake on European and global markets, and disseminate project results and experiences with the aim of sensitizing potential clients". Hence, the work package is of key importance for dissemination and communication activities within SUBSOL. Figure 2 summarises all WP4 related activities as well as interlinkages. Most activities are built around the mission series which are pivotal for WP4.

#### Data management plan

Data from the SUBSOL project will be documented in a data management plan (D5.1). The data management plan will elaborate in detail how data can be used beyond the time frame of SUBSOL and thereby, allow long-term exploitation of project results. In order to ease reuse of data as well as tools, both will be available on the SWS online platform (D3.3) which will be compatible to other platforms such as Hydroshare<sup>2</sup>. Continued use of developed tools will be ensured through their compliance with open standards.

# **Accessibility of publications**

SUBSOL participates in the Pilot on Open Research in which all publications (p.14) are available under open access (*green open access*). This will be further formulated in the Data Management Plan (D5.1) which will explain what data will be generated within SUBSOL, whether and how it will be exploited or made accessible for verification and reuse and how it will be curated and preserved.

<sup>&</sup>lt;sup>2</sup> https://www.hydroshare.org/



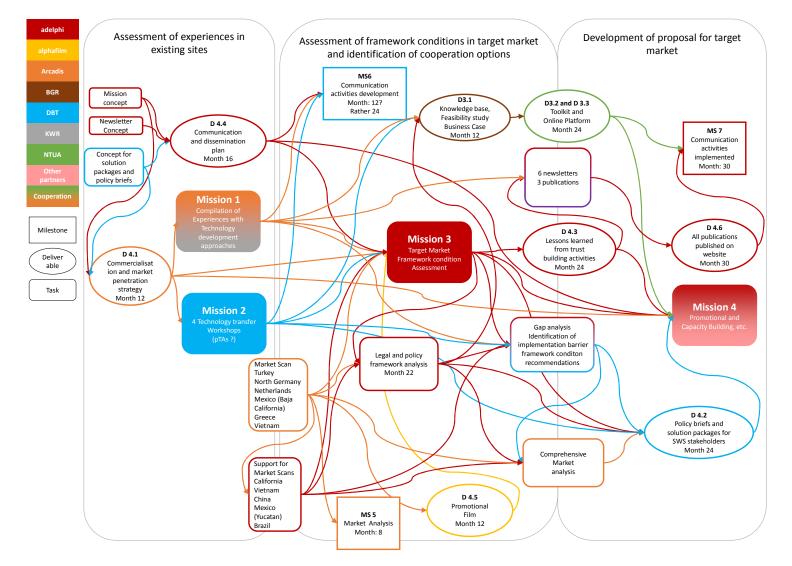


Figure 2: Tasks, deliverables and milestones of work package 4 as well as their interdependencies.

# Annex

A summary of the dissemination and communication activities as of month 18 is given in MS6.

# **Communication and Dissemination material**

| Item   | Link  |
|--|---|
| SUBSOL brochure – English  | http://subsol.org/uploads/deliverables/SUBS<br>OL1.pdf                |
| SUBSOL brochure – Spanish  | Will follow   |
| SUBSOL brochure - Chinese  | http://www.subsol.org/uploads/deliverables/S<br>UBSOL_CN_digital.pdf  |
| SUBSOL Newsletter  | http://www.subsol.org/uploads/deliverables/S<br>UBSOL_NEwsletter.htm  |
| Spaarwater symposium, 14-4-2016: A guide on infiltration and recovery (in Dutch) | http://subsol.org/uploads/deliverables/LR-<br>Thesis_KoenZuurbier.pdf |

# **Scientific Publications**

| Item   | Link  |
|--|---|
| Observations and Prediction of<br>Recovered Quality of Desalinated<br>Seawater in the Strategic ASR Project in<br>Liwa, Abu Dhabi                              | http://www.subsol.org/uploads/deliverables/<br>Stuyfzand_et_al., 2017<br>_Observations_and_prediction_of_Recover<br>ed_Quality_of_Desalinated_Seawater_in_th<br>e_Strategic_ASR_project_in_Liwa, Abu_Dh<br>abipdf |
| Reactive transport impacts on recovered<br>freshwater quality during multiple<br>partially penetrating wells (MPPW-)ASR<br>in a brackish heterogeneous aquifer | http://www.subsol.org/uploads/deliverables/<br>Zuurbier_et_al_(2016) -<br>RTM_on_recovered_freshwater_quality_d<br>uring_MPPW-<br>ASR_in_a_brackisch_aquifer.pdf  |
| Consequences and mitigation of<br>saltwater intrusion induced by short-<br>circuiting during aquifer storage and<br>recovery in a coastal subsurface           | http://subsol.org/uploads/deliverables/hess-<br>21-1173-2017.pdf  |
| Increasing Freshwater Recovery upon<br>Aquifer Storage (PhD thesis)  | http://subsol.org/uploads/deliverables/LR-<br>Thesis_KoenZuurbier.pdf   |
| How Subsurface Water Technologies<br>(SWT) can Provide Robust, Effective, and<br>Cost-Efficient Solutions for Freshwater<br>Management in Coastal Zones        | http://www.subsol.org/uploads/deliverables/<br>Zuurbier_et_al_(2016)<br>  |
| Innovatieve putconcepten maken   | http://www.subsol.org/uploads/deliverables/   |

zoetwaterreservoir in verzilte ondergrond mogelijk

| <u>Zuurbier_et_al. (2015) -</u>      |         |
|--------------------------------------|---------|
| _Innovatieve_putconcepten_maken_     | zoetwa  |
| terreservoir_in_verzilte_ondergrond_ | mogelij |
| kpdf                                 |         |

# **Presentations**

| Item  | Link   |
|---|--|
| Increasing freshwater recovery upon<br>aquifer storage in brackish-saline<br>aquifers: what can hydrogeological<br>engineering bring? | http://www.subsol.org/uploads/deliverables<br>/20160622_ISMAR9_Koen_Zuurbier.pdf                             |
| Freshwater supply: the subsurface to the rescue (presentation Adaptation Futures Rotterdam)   | http://www.subsol.org/uploads/deliverables<br>/20160509_Subsurface_to_the_rescue.pdf                         |
| Spaarwater symposium, 14-4-2016: A guide on infiltration and recovery (in Dutch)  | http://www.subsol.org/uploads/deliverables<br>/Zuurbier_KWR_infiltreren_en_terugwinne<br>n_(Handreiking).pdf |

# Target region presentations from the mission series

| Item             | Link  |
|------------------|---|
| Brazil           | http://subsol.org/uploads/deliverables/Pres |
|                  | entation_Subsol_Brasil.pdf                  |
| China            | http://subsol.org/uploads/deliverables/Pres |
| China            | entation_Subsol_China.pdf                   |
| Cuprup           | http://subsol.org/uploads/deliverables/Pres |
| Cyprus           | entation_Subsol_Cyprus.pdf                  |
| Mexico Maneadero | http://subsol.org/uploads/deliverables/Pres |
|                  | entation_Subsol_Mexico_Maneadero.pdf        |
| Mexico Yucatan   | http://subsol.org/uploads/deliverables/Pres |
|                  | entation_Subsol_Mexico_Yucatan.pdf          |
| Vietnom          | http://subsol.org/uploads/deliverables/Pres |
| Vietnam          | entation_Subsol_Vietnam.pdf                 |