WIDEST

Water Innovation through Dissemination
Exploitation of Smart Technologies

GA number: 642423

WP 1: ICT for Water Observatory (IWO)

D1.2: Report on Smart Water Community Group monitoring

V1.1   30/10/2015

http://www.widest.eu/

Document Information

Project Number	642423	Acronym	WIDEST
Full title	Water Innovation through Dissemination Exploitation of Smart Technologies		
Project URL	**http://www.widest.eu**		
Project officer	Erik Pentimalli		

Deliverable	Number	1.2	Title	Report on Smart Water Community Group monitoring
Work Package	Number	1	Title	ICT for Water Observatory (IWO)

Date of delivery	Contractual	9	Actual	9
Nature	Prototype ☐ Report X Dissemination ☐ Other ☐			
Dissemination Level	Public X Consortium ☐			

Responsible Author	Gabriel Anzaldi	Email	gabriel.anzaldi@eurecat.org
Partner	Eurecat (BDigital)	Phone	+34 93 553 45 40

Abstract (for dissemination)	This report presents a global monitoring of the EIP Water Action Groups. After that, focuses on CTRL+SWAN Action Group, which is the group WIDEST has joined. Statistics about dissemination and available resources is included, together with recommendations to increase impact.
Key words	EIP Water, Action Groups, Monitoring, Dissemination, ICT for Water

Version Log				
Issue Date	Version	Author	Partner	Change
08/10/2015	1.0	Xavier Domingo	Eurecat	First version
30/10/2015	1.1	Gabriel Anzaldi	Eurecat	Revision and improvements

List of Acronyms

AG	Action Group
BAT	Best Available Technology
EC	European Community
EIP	European Innovation Partnership
EU	European Union
NWP	National Water Partnerships
SIP	Strategic Implementation Plan
SWAN	Smart Water Networks
WDS	Water Distribution Systems

Executive Summary

This report is part of WIDEST (www.widest.eu), a H2020 funded project – Coordination and Support Action (Ref. Number 642423). Deliverable "D1.2 Report on Smart Water Community Group monitoring" focuses on analyse the activity and available resources of Action Groups of EIP Water. This report is based in the information available in the Action Groups section of the EIP Water portal, together with external Action Group information when available.

The document describes why WIDEST has joined Action Group CTRL+SWAN, and finally, presents graphics regarding the number of action groups, members and available resources, together with recommendation to increase impact.

To understand this document the following deliverables have to be read.

Number	Title	Description
D1.1	Report with IWO definition and implementation	This report focuses on the definition and implementation of the ICT for Water Observatory (IWO). The IWO defines a methodology to collect, analyse and publish in a knowledge base resources from relevant sources of information related to ICT for Water technologies. This report includes the objectives, methodologies, functionalities and structure the IWO is going to offer and support, conforming the inputs of the literature reviews and commercial developments and technology trends analysis.
D4.1	Methodology for Portfolio Development	The present document contains the proposed methodology to develop, execute and update the ICT for Water Management Technologies Portfolio including the contact strategy, the portfolio structure and the information interchange protocol. The portfolio will be developed as a knowledge management system using principles and methodologies inspired in collective intelligence in order to achieve the vision of a global ICT for Water Management Portfolio.

Table of contents

Table of figures

Table of tables

1. Introduction

EIP Water
Boosting opportunities – Innovating water

As stated in the EIP Water website (EIP Water, 2015a):

European Innovation Partnerships (EIP) aim to speed up innovations that contribute to solving societal challenges, enhance Europe's competitiveness and contribute to job creation and economic growth. EIPs help to pool expertise and resources by bringing together public and private actors at EU, national and regional level, combining supply- and demand-side measures.

The European Innovation Partnership on Water - EIP Water in short - is an initiative within the EU 2020 Innovation Union. The EIP Water facilitates the development of innovative solutions to address major European and global water challenges. At the same time, the EIP Water supports the creation of market opportunities for these innovations, both inside and outside of Europe.

*The EIP Water aims to remove barriers by advancing and leveraging existing solutions. Its implementation has started in May 2013 with the main objective to initiate and promote collaborative processes for change and innovation in the water sector across the public and private sector, non-governmental organisations and the general public. This is mainly done via the establishment of **Action Groups**.*

The vision of EIP Water is *to stimulate creative and innovative solutions that contribute significantly to tackling water challenges at the European and global levels, while these solutions are stimulation sustainable economic growth and job creation*.

By 2020, the EIP Water aims to achieve the following headline target: *Identify, test, scale up, disseminate and stimulate market uptake of innovative solutions for 10 major water related challenges*.

In order to achieve that, the EIP Water defines eight priority areas in their Strategic Implementation Plan (SIP) (EIP Water, 2012), centred on challenges and opportunities in the water sector, and on innovation driven actions. These priorities are:

- Thematic priorities
    - o Water reuse and recycling
    - o Water and wastewater treatment, including recovery of resources
    - o Water-energy nexus
    - o Flood and drought risk management
    - o Ecosystem services
- Cross cutting priorities
    - o Water governance
    - o Decision support systems and monitoring
    - o Financing for innovation

In addition, smart technology has been defined as enabling factor for all priorities.

The EIP Water has published three calls for expressions of commitment for which over 100 proposals were received. Out of these, 29 applications have been selected as Action Groups of the EIP Water. These proposals fulfilled all the requirements and showed the most promising approaches, combining innovative ideas with partners across the innovation value chain and potential for applications and/or commercialization. These Action Groups are actively supported by the EIP Water Secretariat, the European Commission and Steering Group members to increase their impacts and drive concrete outcomes.

Hence, taking in consideration the high impact of the EIP Water in the water sector, this study will focus on analysing and monitoring the EIP Water Action Groups activities. The Action Groups are the centre of this study because they are the most important bodies in regards to the EIP Water objectives achievement. The structure of the Action Groups includes public bodies, Universities, technology centres, private companies and citizen organizations, in other words, all relevant stakeholders for each topic of interest. Moreover, it has the perfect characteristics to foster innovation across all water sectors, joining research, technology advances, industry and consumers.

Although a brief summary of activities will be shown for each Action Group based on information available on the network, this report will focus in the activities supported by WIDEST in the CTRL+SWAN Action Group.

This report is divided in 4 chapters:

- **Chapter 1: Introduction**. This chapter contains an introduction to the EIP Water and the Action Groups, and presents the rest of chapters.
- **Chapter 2: EIP Water Action Groups**. This chapter focuses on the EIP Water Action Groups. What are and why action groups were created. A summary of them is included, being more detailed in the case of ICT for Water related ones.
- **Chapter 3: CTRL+SWAN Action Group**. This chapter summarizes activities performed by CTRL+SWAN action group, especially the ones promoted by WIDEST.
- **Chapter 4: Conclusions**. This chapter shows the study conclusions.

2. EIP on Water Action Groups

2.1 What they are and why they were created

The EIP Water website (EIP Water, 2015a) defines the Action Groups as follows:

> *EIP Water's voluntary, multi-stakeholder Action Groups are at the core of EIP Water and form the central element of the partnership's implementation phase. There are currently 29 Action Groups working to develop, test, scale up, disseminate and stimulate the uptake of innovative solutions to water-related challenges by the market.*

Action Groups are formalised via Calls for Expression of Commitment. After that, these are evaluated aligned with the eight priority areas of EIP Water. The EIP Secretariat supports various EIP Water activities and bodies to fulfil their objectives. The Secretariat works under the supervision of the European Commission.

The objectives of the Action Groups are mainly summarized in their definition: develop, test, scale up, disseminate and stimulate the uptake of innovative solutions to water-related challenges in the market. With this aim, 29 Action Groups are currently supported by the EIP Water. Getting involved in the Action Groups implies getting the following benefits, which the EIP Water sets out to facilitate (EIP Water, 2015a):

- **Innovative solutions for sustainable water management, sustainable growth and job creation**. The overall aim of the EIP Water is to promote the development of innovative solutions for sustainable water management, and thus opportunities for growth and job creation. The major benefit from getting involved in the EIP Water is to become an active partner in the EIP activities, through participating in Action Groups or using EIP Water tools.

- **Visibility and exposure**. Participation in the EIP Water creates visibility and exposure of an organization's activities, leading to a positive reputation, increased networking and/or an increased share in water innovation transfer.

- **Network opportunities**. The EIP Water has already, and will further develop a wide network of actors within the field of water and innovation. The EIP-Water will facilitate the contacts and the use of the international network may lead to potential partners.

- **Use of EIP Water tools**. The EIP Water develops a number of tools that are focused on and available to all actors in the field of water and innovation. An online market and "match-making" place is provided to facilitate the identification of partners for joining development of water innovation.

- **Policy development**: Involvement in the EIP Water offers ways to promote specific policy changes towards an improved innovation transfer in the water sector. Action Groups will report on the innovation barriers they encounter and on proposals for their removal. The Task Force will

develop these experiences into policy recommendations, which will be brought forward to the relevant levels by the Steering Group. Actors in the Action Groups will therefore have indirect influence on innovation policy making.

- **Information on innovation transfer for sustainable water management**. The EIP Water offers free and transparent access on compiled information on water related innovation and the results of the activities within the framework of the EIP Water, fostering dissemination and visibility.

In other words, although being part of an Action Group is voluntary, the benefits of being accepted clearly fulfil the efforts,

2.2 Existing Action Groups summary

Currently, the following Action Groups are supported by the EIP Water:

Table 1 Anaerobic Membrane Bioreactor for Recovery of Energy and Resources AG summary

Anaerobic Membrane Bioreactor for Recovery of Energy and Resources (AG036)		
Led by: Aurora Seco	**Priority Areas**: Water-energy nexus	
The aim of this Action Group is the development of an anaerobic membrane reactor		
Members: 16	**URL**: here	**Documents**: 0
News/Links: 1	**Twitter**: unknown	**LinkedIn/Facebook**: unknown

Table 2 ARREAU - Accelerating Resource Recovery from Water Cycle AG summary

ARREAU - Accelerating Resource Recovery from Water Cycle (AG108)		
Led by: Theo van den Hoven	**Priority Areas**: Water and wastewater treatment, including recovery of resources	
Commercialize value chains for resources from the water cycle, in particular iron from drinking water production, phosphorous from wastewater and cellulose from wastewater.		
Members: 32	**URL**: here	**Documents**: 7
News/Links: 0	**Twitter**: unknown	**LinkedIn/Facebook**: unknown

Table 3 AugMent - Water Monitoring for Decision Support AG summary

AugMent - Water Monitoring for Decision Support (AG124)		
Led by: Massimo Menenti	**Priority Areas**: Decision support systems and monitoring	
Develop proof of concept that bring together in-situ sensors (technology and participatory observations/crowd sourcing) and remote sensing.		
Members: 21	**URL**: here	**Documents**: 0
News/Links: 0	**Twitter**: unknown	**LinkedIn/Facebook**: unknown

Table 4 CITY BLUEPRINTS - Improving Implementation Capacities of Cities and Regions AG summary

CITY BLUEPRINTS - Improving Implementation Capacities of Cities and Regions (AG041)		
Led by: Kees van Leeuwen	**Priority Areas**: Water governance	
The goal of the EIP Water Action Group "City Blueprints" is to develop and implement further initiatives: a) by creating awareness among potential partners (cities and regions), b) by networking, c) by sharing best UWCS practices among cities, d) and by further development of tools that can facilitate implementation, such as a simple UWCS cost-benefit tool to allow cities and regions to provide their own solutions to the urban water challenges ahead.		
Members: 19	**URL**: here	**Documents**: 16
News/Links: 5	**Twitter**: unknown	**LinkedIn/Facebook**: unknown

Table 5 COWAMA - Mitigation of Water Stress in Coastal Zones by Sustainable Water Management AG summary

COWAMA - Mitigation of Water Stress in Coastal Zones by Sustainable Water Management (AG111)		
Led by: Zojer Hans	**Priority Areas**: Water governance	
Build solutions in coastal managed aquifer recharging, based on specific monitoring- and management approaches and specific financing/pricing models.		
Members: 13	**URL**: here	**Documents**: 0
News/Links: 1	**Twitter**: unknown	**LinkedIn/Facebook**: unknown

Table 6 CTRL+SWAN - Cloud Technologies & ReaL time monitoring + Smart WAter Network AG summary

CTRL+SWAN - Cloud Technologies & ReaL time monitoring + Smart WAter Network (AG126)		
Led by: Armando Di Nardo	**Priority Areas**: Decision support systems and monitoring	

CTRL+SWAN Action Group will be devoted to the further development of innovative sensor systems' technologies, to be integrated and implemented in the design of an innovative approach to the water distribution networks management, with the broaden goal to introduce our concept of Smart WAter Network (SWAN) as a key subsystem of the notion of Smart City, as it has been recently recognised in the scientific and technical international community. To tackle the above mentioned issues, we will therefore focus on techniques and technologies for water quality monitoring via innovative sensors and devices, in order to design and implement enlarged data models in a reliable early warning system for a more efficient water distribution network management, and extend our studies on the novel technique for designing i-DMAs compatible with hydraulic performance and optimized for water network protection.

Members: 44	**URL**: here	**Documents**: 2
News/Links: 10	**Twitter**: @ctrlswan	**LinkedIn/Facebook**: here/here

Table 7 DISSME - Demand-Driven Innovation Support for SMEs via NNWPs AG summary

DISSME - Demand-Driven Innovation Support for SMEs via NNWPs (AG131)		
Led by: Sergiy Moroz	**Priority Areas**: Water governance	

The National Water Partnerships (NWPs) have joined forces in the DIS-SMEs Action Group to support SMEs and turn the network of National Water Partnerships into a functional SME support system and a spinning wheel for cross-national matchmaking. The overall mission of the Action Group is to create more opportunities for SMEs to successfully bring innovative water technologies to the (international) market and to work together in a smart, pan-European network establishing a two-way communication channel between SMEs and EIP-Water.

Members: 4	**URL**: here	**Documents**: 0
News/Links: 0	**Twitter**: unknown	**LinkedIn/Facebook**: unknown

Table 8 EBCF - European Benchmark Cooperation Foundation AG summary

EBCF - European Benchmark Cooperation Foundation (AG125)		
Led by: Peter Dane	**Priority Areas**: Decision support systems and monitoring	
Improve water efficiency and sustainability in water and sanitation services through the rollout a benchmarking process that covers the entire water cycle.		
Members: 2	**URL**: here	**Documents**: 0
News/Links: 0	**Twitter**: unknown	**LinkedIn/Facebook**: unknown

Table 9 ESE - Ecosystem Services for Europe AG summary

ESE - Ecosystem Services for Europe (AG052)		
Led by: Ignacio Martin	**Priority Areas**: Ecosystem services	
The Action Group aims to develop a consensual and agreed methodology to assess the tangible and intangible benefits from natural and constructed ecosystems in environment and monetary terms. This methodology will be tested, adapted and implemented in a range of European and non-European demo sites as European, national and local (RTD) projects. Expected is the development of a unique set of economic indicators (in monetary values), allowing economic comparisons among diverse areas and different scenarios.		
Members: 21	**URL**: here	**Documents**: 0
News/Links: 8	**Twitter**: unknown	**LinkedIn/Facebook**: unknown

Table 10 EWW - Energy and Water Works - Energizing Sustainable Deltas AG summary

EWW - Energy and Water Works - Energizing Sustainable Deltas (AG115)		
Led by: Hans van Breugel	**Priority Areas**: Water-energy nexus	
The main goal of the EWW-Action Group is to enhance European interest in innovative crossovers between energy and water in the development of policy, markets and knowledge and to further the relevant industrial policies. In order to achieve this goal the Action Group EWW will organize several international conferences and workshops where knowledge and experience of the EWW projects will be shared and EWW members can address common innovation bottlenecks and barriers. These include issues relating to the governance of innovation.		
Members: 24	**URL**: here	**Documents**: 20
News/Links: 34	**Twitter**: unknown	**LinkedIn/Facebook**: unknown

Table 11 FinnoWater AG summary

FinnoWater (AG013)		
Led by: Pieter De Jong		**Priority Areas**: Financing for innovation
	The FINNOWATER Action Group intends to explore, develop and implement new approaches to increase financial flows in the water (and water-related) sector.	
Members: 19	**URL**: here	**Documents**: 0
News/Links: 6	**Twitter**: unknown	**LinkedIn/Facebook**: unknown

Table 12 InduRe - Industrial Water Re-use and Recycling AG summary

InduRe - Industrial Water Re-use and Recycling (AG045)		
Led by: Albert Jansen		**Priority Areas**: Water reuse and recycling
The objective of this Action Group is to develop new methodologies for industrial water re-use and recycling, and with the aid of these new methodologies, develop and implement (local) innovative technical, social- and environmental solutions.		
Members: 3	**URL**: here	**Documents**: 0
News/Links: 0	**Twitter**: unknown	**LinkedIn/Facebook**: unknown

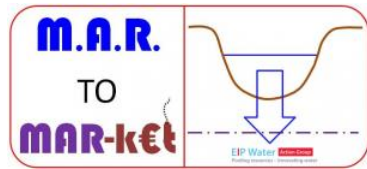*Table 13 MAR Solutions - Managed Aquifer Recharge Strategies and Actions AG summary*

MAR Solutions - Managed Aquifer Recharge Strategies and Actions (AG128)		
Led by: João-Paulo Lobo-Ferreira		**Priority Areas**: Flood and drought risk management
Develop and demonstrate solutions, based on Managed Aquifer Recharge (MAR) in nine case studies, with inclusion of ecological modelling, economic incentives and risk aspects.		
Members: 26	**URL**: here	**Documents**: 2
News/Links: 13	**Twitter**: unknown	**LinkedIn/Facebook**: unknown

Table 14 MEET-ME4WATER - Meeting Microbial Electrochemistry for Water AG summary

MEET-ME4WATER - Meeting Microbial Electrochemistry for Water (AG110)		
Led by: Abraham Esteve-Núñez, Eva Martinez Diaz	**Priority Areas**: Water and wastewater treatment, including recovery of resources	
Commercialise microbial (bio-) electrochemical, zero energy technologies that treat urban and industrial wastewater coupled to resource recovery and/or synthesis of valuable products.		
Members: 13	**URL**: here	**Documents**: 0
News/Links: 2	**Twitter**: unknown	**LinkedIn/Facebook**: unknown

Table 15 NatureWAT - Nature-based Technologies for Innovation in Water Management AG summary

NatureWAT - Nature-based Technologies for Innovation in Water Management (AG 228)		
Led by: Joan Garcia	**Priority Areas**: Ecosystem services	
This Action Group aims to identify and overcome bottlenecks and barriers (e.g. fragmentation of knowledge; lack of demonstration sites and funding for SMEs; financial issues and technical aspects) related to nature-based technologies for water resources management in rural, peri-urban and urban areas.		
Members: 16	**URL**: here	**Documents**: 2
News/Links: 2	**Twitter**: unknown	**LinkedIn/Facebook**: unknown

Table 16 Photocatalysis AG summary

Photocatalysis (AG201)		
Led by: Daniel Fernandez	**Priority Areas**: Water reuse and recycling	
This AG aims to work on photocatalysis technology in removal of pollutants and disinfection to re-use the treated water for urban, industrial and/or agricultural purposes.		
Members: 16	**URL**: here	**Documents**: 0
News/Links: 1	**Twitter**: unknown	**LinkedIn/Facebook**: unknown

Table 17 PVAIZEC - Large PV Pumping Systems for Zero Energy Irrigation AG summary

PVAIZEC - Large PV Pumping Systems for Zero Energy Irrigation (AG103)		
Led by: Luis Narvarte	**Priority Areas**: Water-energy nexus	
Build business case of combining demand-led high-energy-efficient irrigation systems and photovoltaic pumping stations.		
Members: 13	**URL**: here	**Documents**: 2
News/Links: 0	**Twitter**: unknown	**LinkedIn/Facebook**: unknown

Table 18 Renewable Energy Desalination AG summary

Renewable Energy Desalination (AG025)		
Led by: Guillermo Zaragoza	**Priority Areas**: Water-energy nexus	
The Action Group will promote the use of desalination powered by renewable energy, as an environmentally friendly and decentralised solution for sustainable water supply.		
Members: 17	**URL**: here	**Documents**: 2
News/Links: 9	**Twitter**: unknown	**LinkedIn/Facebook**: unknown

Table 19 RESEWAM-O - Remote Sensing for Water Management Optimization AG summary

RESEWAM-O - Remote Sensing for Water Management Optimization (AG132)		
Led by: Ernesto Lopez-Baeza	**Priority Areas**: Water reuse and recycling	
Develop an integrated toolbox for water scarcity detection, diagnostics and DSS for water re-distribution in water scarcity areas.		
Members: 11	**URL**: here	**Documents**: 0
News/Links: 4	**Twitter**: unknown	**LinkedIn/Facebook**: unknown

Table 20 RiverRes AG summary

RiverRes (AG225)		
Led by: Carlos Marcos	**Priority Areas**: Ecosystem services	
This Action Group stimulates river restoration projects by developing decision support tools to optimize and balance environmental and socio-economic pressures.		
Members: 20	**URL**: here	**Documents**: 0
News/Links: 1	**Twitter**: @EIP_RiverRes	**LinkedIn/Facebook**: unknown

Table 21 RTWQM - Real Time Water Quality Monitoring AG summary

RTWQM - Real Time Water Quality Monitoring (AG100)		
Led by: Sergio de Campos	**Priority Areas**: Decision support systems and monitoring	
The aim of RTWQM Action Group is the definition of new affordable monitoring strategies and the enhancement of the innovation chain for water quality monitoring technologies.		
Members: 31	**URL**: here	**Documents**: 2
News/Links: 8	**Twitter**: unknown	**LinkedIn/Facebook**: unknown

Table 22 Smart Rivers Network AG summary

Smart Rivers Network (AG224)		
Led by: Massimo Bastiani	**Priority Areas**: Water governance	
This Action Group promotes multi-stakeholder river contracts for application in Eastern and Central European countries with methods and tools to overcome administrative limitations.		
Members: 19	**URL**: here	**Documents**: 0
News/Links: 2	**Twitter**: unknown	**LinkedIn/Facebook**: unknown

Table 23 SPADIS - Smart Prices and Drought Insurance Schemes in Mediterranean Countries AG summary

SPADIS - Smart Prices and Drought Insurance Schemes in Mediterranean Countries (AG014)		
Led by: Carlos Mario Gómez	**Priority Areas**: Flood and drought risk management	
The Action Group aims at establishing and implementing a methodology on "Smart Pricing and Drought Insurance Schemes in Mediterranean Countries".		
Members: 22	**URL**: here	**Documents**: 1
News/Links: 5	**Twitter**: unknown	**LinkedIn/Facebook**: unknown

Table 24 Verdygo - Modular & Sustainable Wastewater Treatment AG summary

Verdygo - Modular & Sustainable Wastewater Treatment (AG118)		
Led by: Twan Houtappels	**Priority Areas**: Water and wastewater treatment, including recovery of resources	
Verdygo is a new standard in wastewater treatment. An important feature of Verdygo is its industrial modular construction. This construction allows a sewage treatment plant (STP) to adjust (expand or shrink) quickly and easily in order to respond to e.g. aging of population or growth in an area. Verdygo also helps the reuse of effluent on the local level, for example in industry or greenhouses thus making a considerable contribution to sustainable water treatment.		
Members: 3	**URL**: here	**Documents**: 5
News/Links: 3	**Twitter**: unknown	**LinkedIn**: here

Table 25 W4EF - Water for Energy Framework AG summary

W4EF - Water for Energy Framework (AG029)		
Led by: Laurent Bellet		**Priority Areas**: Water-energy nexus
The main objective of this Action Group is to produce a common terminology and a coherent framework for the energy sector to assess its interactions with water.		
Members: 39	**URL**: here	**Documents**: 4
News/Links: 0	**Twitter**: unknown	**LinkedIn/Facebook**: unknown

Table 26 Water Justice AG summary

Water Justice (AG117)		
Led by: Jeroen Vos		**Priority Areas**: Water governance
Based on interdisciplinary research and concrete management instruments to implement more equitable, democratic and sustainable water governance.		
Members: 3	**URL**: here	**Documents**: 0
News/Links: 0	**Twitter**: unknown	**LinkedIn/Facebook**: unknown

Table 27 WaterCoRe - Regional Governance of Water Scarcity and Drought Issues AG summary

WaterCoRe - Regional Governance of Water Scarcity and Drought Issues (AG042)		
Led by: Frank van Lamoen		**Priority Areas**: Flood and drought risk management
different levels of scale (multilevel governance).		The WaterCoRe Action Group on regional governance of water scarcity and drought issues centres around the implementation of Regional Action Plans that are intended to improve water governance in practice, with a focus on connecting institutions in different domains and on
Members: 25	**URL**: here	**Documents**: 15
News/Links: 37	**Twitter**: unknown	**Facebook**: here

Table 28 WaterReg - Water Services Regulation and Governance in Europe AG summary

WaterReg - Water Services Regulation and Governance in Europe (AG102)		
Led by: Maria Salvetti		**Priority Areas**: Water governance
15 partners (Academia, regulators and operators) cooperate in the frame of this AG to address capacity building, research and networking in water sector regulation and governance.		
Members: 10	**URL**: here	**Documents**: 1
News/Links: 8	**Twitter**: unknown	**LinkedIn/Facebook**: unknown

Table 29 WIRE - Water & Irrigated Agriculture Resilient Europe AG summary

WIRE - Water & Irrigated Agriculture Resilient Europe (AG112)		
Led by: Tania Runge		**Priority Areas**: Flood and drought risk management
	Optimize irrigation strategies focusing on efficient water reuse, energy saving, and integrated agricultural water management under drought.	
Members: 44	**URL**: here	**Documents**: 7
News/Links: 36	**Twitter**: unknown	**LinkedIn/Facebook**: unknown

2.3   ICT for Water related Action Groups

Although ICT can be applied almost everywhere, this report will focus in the Action Groups in which ICT or disseminating ICT for Water related activities is a main role. The Action Groups related to Hydroinformatics, having interests in "Water governance", "Water reuse and recycling" and "Decision support systems and monitoring" priority areas.

These Action Groups are[1]:

- AugMent - Water Monitoring for Decision Support (AG124)
- CTRL+SWAN - Cloud Technologies & ReaL time monitoring + Smart WAter Network (AG126)
- DISSME - Demand-Driven Innovation Support for SMEs via NNWPs (AG131)
- EBCF - European Benchmark Cooperation Foundation (AG125)

---

[1] The criteria followed is based on filtering the Action Groups in the EIP Water portal (EIP Water, 2015a) by the topic "Hydroinformatics". This is a fast way to simplify the study, as ICT could be applied in almost every Action Group.

- RESEWAM-O - Remote sensing for water management optimization (AG132)
- RTWQM - Real Time Water Quality Monitoring (AG100)

As part of the WP5 tasks, WIDEST wanted to establish a new Action Group on the EIP Water or EIP on Smart Cities. However, EIP Water is not going to open any new call for new Action Groups at the moment. For this reason WIDEST, after an analysis of the most suitable Action Groups, decided to join the CTRL+SWAN AG. Following chapter will further explain these actions.

3. CTRL+SWAN Action Group

3.1 General information

The Action Group site in the EIP Water portal (EIP Water, 2015a) states the following information regarding CTRL+SWAN:

CTRL+SWAN will perform the following activities to contribute to transform the traditional Water Distribution Systems (WDSs) in modern Smart WAter Networks (SWANs):

- *develop innovative sensor systems' technologies*
- *define water network partitioning techniques*
- *implement a cloud platform to manage big data control*

The insertion of smart sensors in the water distribution system requires a modern approach for the management of SWAN. In this perspective, the activities of AG CTRL+SWAN will be devoted to:

- *Develop innovative smart sensors to be placed in a water distribution network for a fast and online detection of an enlarged set of microbiological and/or physical-chemical parameters in order to monitor and to assess water quality.*
- *Design decision support systems to define optimal partitioning and sectorization of SWAN, applying the paradigm of "divide and conquer" and the criteria of "dual-use value" and, consequently, defining network dynamic layouts (achieved with smart sensors) to improve the management and the protection of water supply systems.*
- *Implement a smart platform to collect and manage data from sensors in an early warning system that will provide a rapid feedback to an overall water management system that will accomplish the goal to continuously meet water quality fulfilments and to efficiently plan maintenance intervention. It will be based on multi-sourced and cloud data platforms including quality and quantity monitoring. The platforms should include data sources from water cycle and data sources from other interconnected domains network utilities, such as electricity, gas, the Internet, etc.*

In this context, CTRL+SWAN defines its mission (Secretariat of the Action Group CTRL-SWAN, 2015):

CTRL + SWAN (Cloud Technologies & ReaL time monitoring + Smart WAter Network) is an Action Group of European Innovative Partnership (EIP) on Water devoted to the development of innovative sensors and technologies to integrate and implement into water distribution networks, with the broaden goal to introduce the new paradigm of SWAN as a key subsystem of the notion of Smart City. The mission can be summarized in different topics: a) Smart Water Networks Technologies and Software; b) Smart quality sensors for water protection; c) Best practice and Best Available Technologies (BAT) on SWAN; d) Action of pressure for European water directive and road maps.

Next, it defines its main actions:

> *In order to transform the traditional Water Systems in modern Smart WAter Networks (SWAN), CTLR+SWAN will perform the following actions: 1. Take part as Advisory board and Stakeholder to EU project; 2. Industrialize pre-industrialized products (sensors, software, etc.); 3. Transform R&D results into powerful engineered products/services and solutions to create value and take over a leadership position; 4. Participate to international congress to strength current relationships, generate new ones and disseminate results; 5. Have an active participation to R&D project /Horizon 2020*

Finally, its R&D activities:

> *The activities of the AG CTRL+SWAN are focused on research and development of innovative smart sensors analysing the new possibilities offered by the implementation of real time and on-line measurements in water resources both in terms of network management and user safety. Essentially the main research activities are: I. develop innovative smart sensors to be placed on smart water networks for online detection of microbiological and/or physical-chemical parameters; II. design decision support systems to define optimal partitioning and sectorization of SWAN to improve the management and the protection of water supply systems; III. realize and implement a smart platform to collect and manage data from sensors in an early warning system based on cloud technologies.*

3.2 Corporate members

CTRL+SWAN has contact and collaborates with the following corporations and institutions:

- **Universities**
    - Second University of Naples – Department of Civil Engineering, Design, Building and Environment (SUN – DICDEA)
    - Second University of Naples – Department of Industrial and Information Engineering (SUN – DIII)
    - University of Naples "Federico II" – Department of Physics (DF)
    - University Ibn Tofail of Kenitra (Ibn)
    - University of Thessaly (UTH)
    - University of Exeter (UE)
    - Universitat Politècnica de Valencia (upv.es)
- **Research centers**
    - BioMEMs (biomemsrc.org)
    - Fundació Eurecat (http://www.eurecat.org, formerly BDigital)
    - National Research Council (CNR) – Institute of Information Science and Technologies, Signal and Images Lab (ISTI)
    - National Research Council (CNR) – Institute for Electromagnetic Sensing of the Environment (IREA)

- o National Research Council (CNR) – Institute of Geosciences and Earth Resources (IGG)
- o The Mexican Institute of Water Technology (IMTA)

- **Companies**
  - o Aqualia, gestión integral del agua (aqualia.es)
  - o Aqua-Consult Ingenieros (A-CING) (a-cing.com)
  - o Basin Authority-County of Trento (IT) (bacino-adige.it)
  - o Costrame di Di Maso s.r.l (COSTRAME)
  - o EdgeLab S.r.l. (edgelab.eu)
  - o Environmental Technologies S.r.l
  - o Hach Lange (hach-lange.com)
  - o Hydrodata S.p.A. (HYDRODATA)
  - o Smart H2O project (www.smarth2o-fp7.eu)
  - o INFOSOLUTION S.p.A. (infosolution.it)
  - o Mares Costruzioni e Progetti I.T. S.r.l
  - o MED.HYDRO s.r.l. Coastal and Hydraulic Engineering and Research
  - o Novaetech s.r.l. – National Institute for Astrophysics (INAF) spinoff company (NOVAETECH)
  - o Promete S.r.l. – CNR spin-off company (PROMETE)
  - o SENSUS ITALIA (SENSUS)
  - o SYSTEA – Systems Technology Advance SpA (SYSTEA)

3.3 Relation with WIDEST and the ICT applied to the water sector

The mission and objectives of CTRL+SWAN fit perfectly in the WIDEST mission. On the one hand, CTRL+SWAN pretends to transform traditional water systems into smart water networks. This process involves several individuals, companies, institutions, technologies… On the other hand, all this stakeholders and technologies will need to make use of state of the art advances in terms of water related systems like sensors, but also latest and better ICT based smart management systems. WIDEST focuses on disseminating EU funded activities outcomes, but also collects information about ICT applied to the water sector, thus being a perfect partner for the CTRL+SWAN activities, as will contribute with novel sources of information and technologies, at the same time that will disseminate CTRL+SWAN activities. Moreover, WIDEST is member of the ICT4Water cluster ("ICT 4 Water cluster," 2015), a cluster of European Community funded projects in which WIDEST introduced CTRL+SWAN as new partner. In addition, WIDEST will support CTRL+SWAN by disseminating its activities and offering the database which will feed the IWO to populate the database used in CTRL+SWAN. Gabriel Anzaldi, project coordinator of WIDEST, is part of the CTRL+SWAN Steering Committee.

3.4 Recent activities

CTRL+SWAN has been participating in several events related to ICT for Water, among others. The most recent ones are:

- ICT 2015 Innovate, Connect, Transform, 20-22 October Lisbon, Portugal
  - The presented poster in the event can be checked in Annex I: CTRL+SWAN poster in ICT2015 Lisbon event.
  - CTRL+SWAN was part of the stand of the ICT4Water cluster, organised by WIDEST.

Figure 1 Members of WIDEST project in the ICT2015 event

- ICT4Water Open Day, Barcelona (Spain), 22 September 2015
  - CTRL+SWAN presented a poster in this event organized by WIDEST.
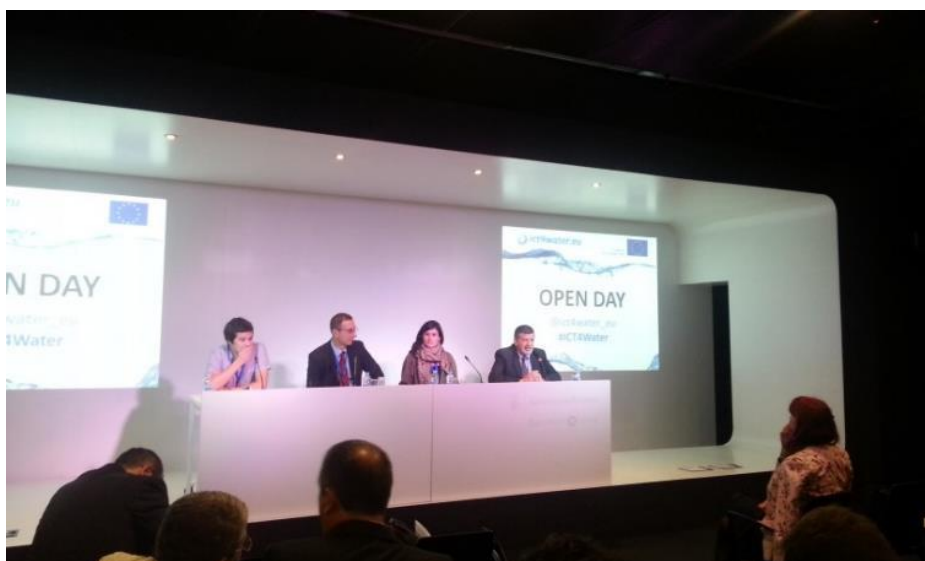
Figure 2 Members of WIDEST in the ICT4Water Open Day

- 3rd AG Meeting at IAHR 2015, Deft (Netherlands), 2 July 2015
- Crossing AG Meeting at CEMEPE 2015, Mykonos (Greece), 17 June 2015
- 2nd AG Meeting at Annual EIP Water Conference 2014, Barcelona (Spain), 5 November 2014
- Crossing AG Meeting at Water Ideas 2014, Bologna (Italy), 23 October 2015
- Crossing AG Meeting at ICT Proposer's Day 2014, Firenze (Italy), 8 October 2014
- 1st AG Meeting at Second University of Naples, Aversa (Italy), 29 May 2014

In total, CTRL+SWAN has participated in 8 events related to the water sector since 2014.

3.5 Published media and tools

3.5.1 Products

CTRL+SWAN web portal counts with a catalog of products categorized in:

- Sensors for SWAN
- Real-Time sensors
- On-Line sensors
- Software
- Cloud infrastructures

WIDEST will feed this database with results from the research, portfolio – in WIDEST D4.1 ICT for Water Management Technologies Portfolio (Haro, 2015) - and collection of sources of information – in WIDEST D1.1 ICT for Water Observatory (Anzaldi, 2015). The CTRL+SWAN tool can act as an equivalent to the WIDEST's IWO tool, which will be available for community after the end of WIDEST project. To maximize WIDEST project impact and availability after its end, this is a priority issue.

In a near future, CTRL+SWAN will also offer Best Available Technologies (BAT) and recommendations, which will provide expert advice to community.

3.5.2 Publications

CTRL+SWAN AG has published to research papers in the SECOTOX'15 and IAHR'15 conferences:

- A. Di Nardo, V.H. Alcocer-Yamanaka, C. Altucci, R. Battaglia, R. Bernini, S. Bodini, I. Bortone, V.J. Bourguett-Ortiz, A. Cammissa, S. Capasso, F. Cascetta, M. Cocco, M. D'acunto, B. Della Ventura, F. De Martino, A. Di Mauro, M. Di Natale, M. Doveri, B. El Mansouri, R. Funari, F. Gesuele, R. Greco, P. Iovino, R. Koenig, T. Korakis, C.S. Laspidou, L. Lupi, M. Maietta, D. Musmarra, O. Paleari, G.F. Santonastaso, D. Savic, A. Scozzari, F. Soldovieri, F. Smorra, F.P. Tuccinardi, V.G. Tzatchkov, L.S. Vamvakeridou-Lyroudia, R. Velotta, S. Venticinque, B. Vetrano (2015). New Perspectives for Smart Water Network monitoring, partitioning and protection with

innovative On-line Measuring Sensors, Proceedings of IAHR 2015 Conference, Delft, 28 June-2 July 2015.

- A. Di Nardo, G.F. Santonastaso, R. Battaglia, D. Musmarra, F.P. Tuccinardi, F. Castaldo, B. Della Ventura, M. Iervolino, R. Velotta (2015). Smart identification system of surface water contamination by an innovative biosensor network, Proceedings of Conference on Environmental Management, Engineering, Planning and Economics (CEMEPE) and to the SECOTOX Conference, Myconos, 14 June – 18 June 2015.

4. General conclusions

EIP on Water Action Groups are covering the entire objective topics. As can be seen in Figure 3 Action Groups per Topic, only Financing and Innovation is represented by only one group, while all the others have three or more. This graphic justifies why, by the moment, no more Action Groups are going to be created.
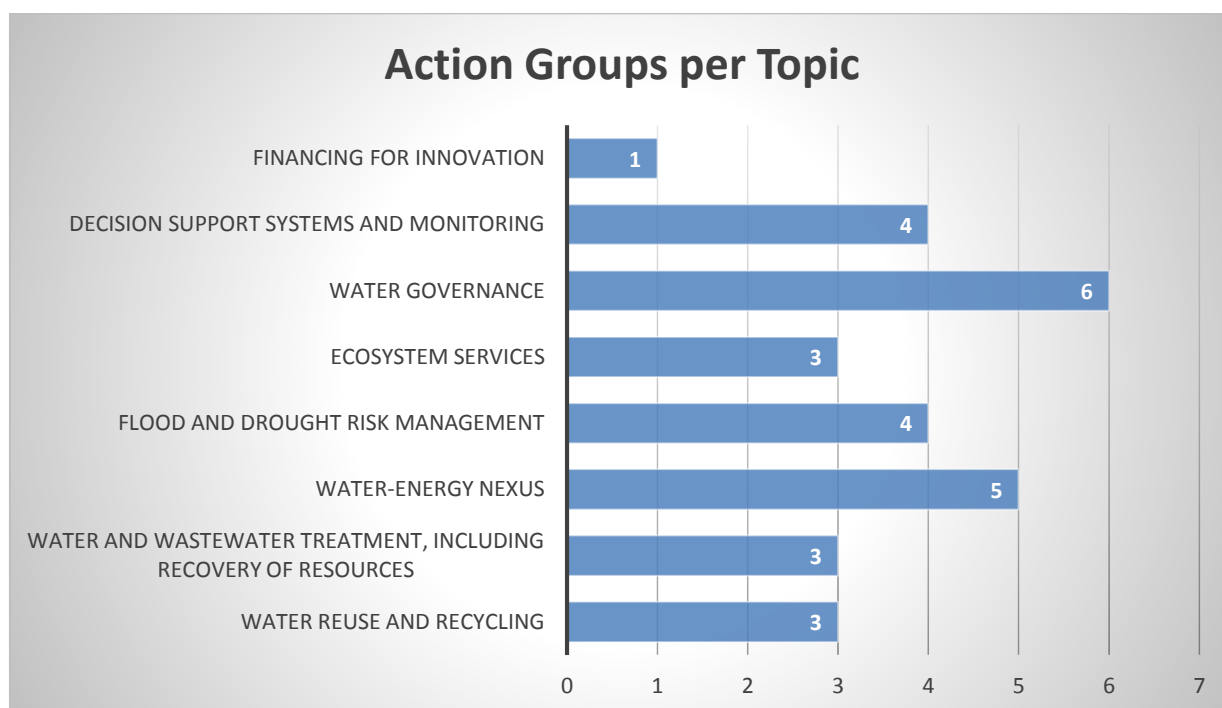
Figure 3 Action Groups per Topic

Regarding the information available in the Internet, Figure 4 Dissemination and publications per Action Group, contains where we have unified news and links to other sources, and documents directly downloadable from the Action Group main site. There are only four action groups with high number of items, while another group of less than ten, have a medium presence. In some cases, this is compensated by a good website, apart from the standard web space provided in the EIP on Water portal. This is the case of CTRL+SWAN, which in addition has an active Twitter account and LinkedIn group. This does not mean that the action groups are not working, but dissemination and making resources available to the whole public should be improved.
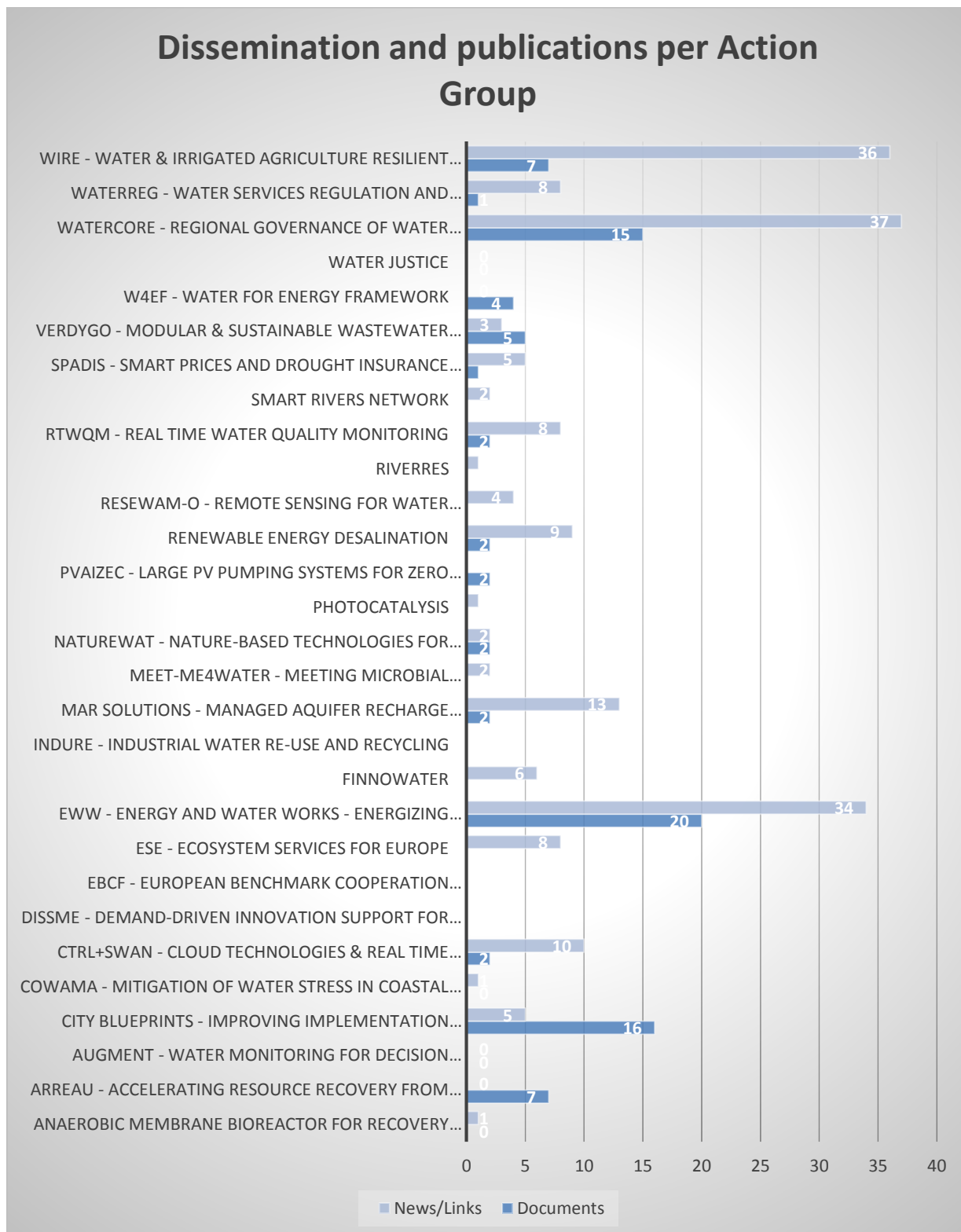
Figure 4 Dissemination and publications per Action Group

Another important indicator regarding the Action Groups is the number of members. We can see that most Action Groups have more than ten members, but five of them are less than five, which makes assuming all the dissemination and production tasks harder. In those cases, increasing the number of members should be desirable. A small graphic with the number of members per Action Group can be checked in Figure 5 Members per action group.
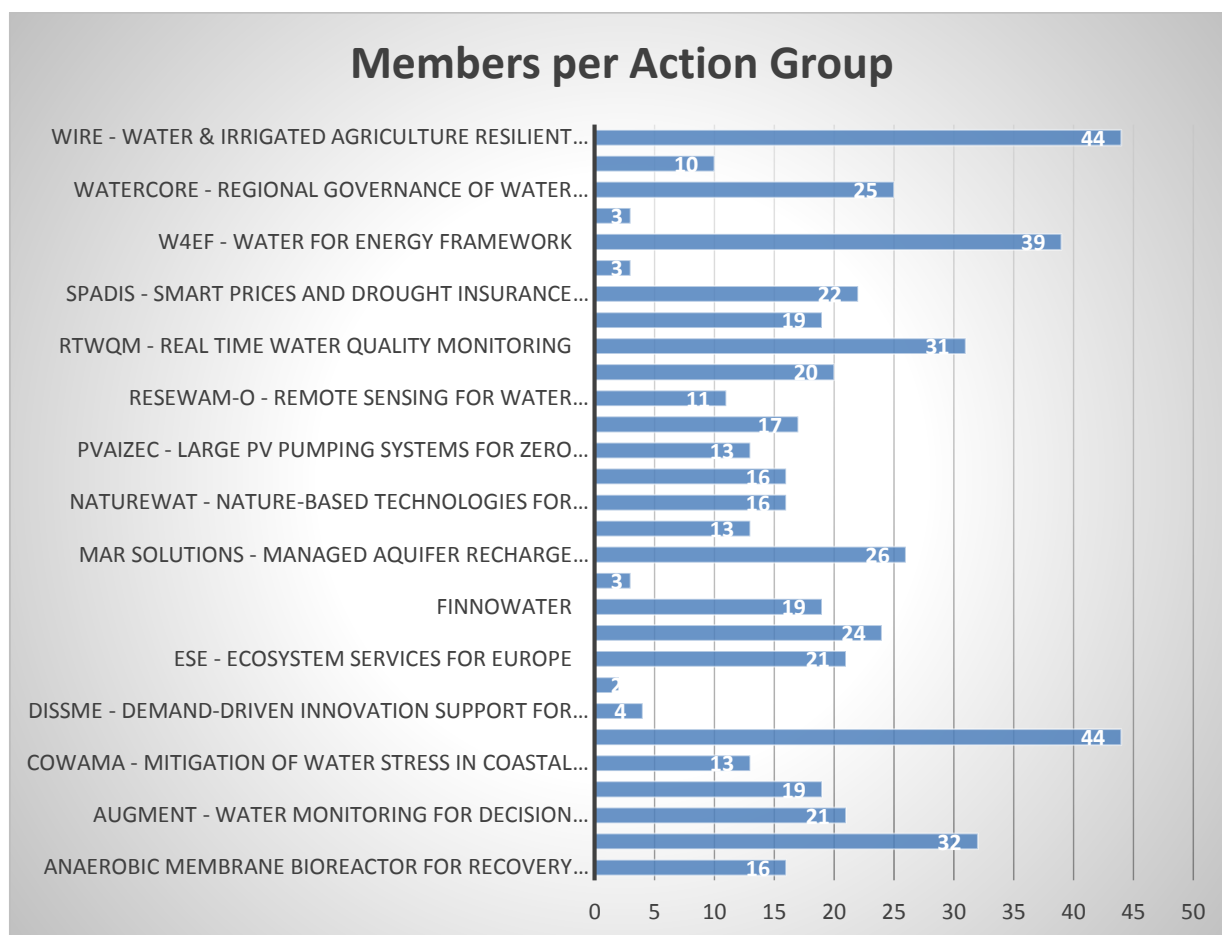
Figure 5 Members per action group

To conclude, we can affirm that several efforts are being done inside the Action Groups and good advances towards the objectives and priorities of EIP Water are being done. However, dissemination and better general Action Group image should be achieved on some cases.

Focusing the conclusions in WIDEST project, the decision of being part of the CTRL+SWAN Action Group gets a symbiotic relation, in which CTRL+SWAN takes profit of WIDEST research efforts, but WIDEST will also be able to get the research efforts available and further exploitable after the end of the project. Moreover, new contacts with other Action Groups are being started. Example of this is the new relationship started with RTWQM Action Group, in which WIDEST will evaluate new synergies.

To obtain more information about the EIP on Water and the monitoring the EIP on Water performs over their Action Groups good references are (EIP Water, 2014, 2015b, 2015c).

5. References

Anzaldi, G. (2015). WIDEST D1.1 - ICT for Water Observatory, 1–36.

EIP Water. (2012). *Strategic Implementation Plan*. Retrieved from http://www.eip-water.eu/sites/default/files/sip.pdf

EIP Water. (2014). *EIP Water Monitoring & Evaluation 2013*. Retrieved from http://www.eip-water.eu/sites/default/files/Monitoring_report_2013_Final.pdf

EIP Water. (2015a). EIP Water. Retrieved October 22, 2015, from http://www.eip-water.eu

EIP Water. (2015b). *Monitoring and Evaluation of the EIP Water 2014*. Retrieved from http://www.eip-water.eu/sites/default/files/EIPWater_M-E-2014report_EdFinal.pdf

EIP Water. (2015c). Pooling resources - Innovating water Enhanced Action Group portfolio. Retrieved from http://www.slideshare.net/EIP-Water/eip-water-enhanced-action-group-portfolio-march-2015

Haro, J. (2015). WIDEST D4.1 - ICT for Water Management Technologies Portfolio, 1–47.

ICT 4 Water cluster. (2015). Retrieved from http://www.ict4water.eu/

Secretariat of the Action Group CTRL-SWAN. (2015). CTRL+SWAN. Retrieved from http://www.swan.technology/

6. Annex I: CTRL+SWAN poster in ICT2015 Lisbon event