

Challenges and Opportunities for Communicating and Disseminating

by Ulf Stein, Johanna von Toggenburg (Ecologic, Germany; photo) and Katharine Cross (IWA, The Netherlands)

Context

Communication and dissemination of information from projects to various target audiences is essential to ensuring sustainability of investments into research, as well as the scaling up of new and innovative approaches. Water practitioners and researchers share a common interest in catalyzing the transfer and use of EU-funded water research outputs in order to meet the policy aims set out in the Water Framework Directive and related directives.



In this context, PREPARED has worked with the FP7⁴¹ project WaterDiss2.0, which aims to improve the processes of research communication and uptake, and adds an intermediate step after research much like a marketing team does in industry. The approaches employed by WaterDiss can be further integrated into the PREPARED project, therefore WaterDiss has been invited to share their experiences (in this newsletter) around PREPARED and EU projects in general. Furthermore, specific input WaterDiss provided for PREPARED to date is provided in Box 1 (see page 3).

Theory

Research is part of a process of knowledge production, management and use. In order for research to have impact, there needs to be a strategic approach to how information is conveyed to various target groups. In the case of PREPARED, the target group includes a variety of audiences from EU policy makers to utilities to city management on how to meet anticipated challenges in the water supply and sanitation sectors brought about by climate change. Often communication approaches are an afterthought but in order to have the desired impact during and beyond the project lifetime, it needs to be a central part and incorporated in all components.

Contact and knowledge transfer between researchers and different policy areas requires a tailored dissemination strategy. This method was used in WaterDiss2.0 to develop linkages between makers and users of knowledge. The approach taken in WaterDiss2.0 was to:

1. Analyse projects and identify their opportunities and shortcoming

WaterDiss2.0 analysed the dissemination strategies and practices of up to 20 FP7 projects in order to identify barriers and facilitators for dissemination and learn from best practices. The analysis consisted of questionnaires about the project outputs and dissemination practices with project coordinators and stakeholders, as well as interviews and conversations with project coordinators / managers or dissemination partners. The interviews and questionnaires highlighted the following general barriers for knowledge transfer of project outputs: a) difficulty of reaching stakeholders at all levels, b) language, c) science-to-policy translation, d) stakeholders lack time to search for information, e) person-dependant dissemination channels, f) lack of training on dissemination, and g) ownership and reluctance to transfer information. The analysis led to the finding, that in order to address these barriers in a project, it is crucial to have a communication strategy (ideally from the inception of the project) which clearly identifies the target groups, their needs and characteristics, defines the key message, and develops communication materials and channels.

2. Devise an Individual Dissemination Strategy (IDS) in cooperation with the project coordinators (if needed)

WaterDiss2.0 supports projects with the creation of a dissemination strategy, where none has been developed so far. For projects that have already developed strategies setting out the project's dissemination and communication, WaterDiss2.0 can help to review as well as the plan of additional activities. PREPARED bases its dissemination on the Advocacy Strategy, which was written in the first months of the project. In a joint effort between the WaterDiss2.0 project and the Dissemination Partners of PREPARED the dissemi-

⁴¹ EU Seventh Framework Programme (2007-2013)

nation practices were reviewed, the adequacy of the target audience, communication goals, and activities were reviewed and further actions and responsibilities were defined.

The structure of the IDS follows a process (see Figure below) that can be repeated over time and for multiple project outputs. The process highlights the importance of clearly identifying the target audience and defining a clear communication goal and activities for each project output. During the creation of an IDS or review of project strategy, the different steps, as well as the assignment of specific responsibilities and actions ensure successful dissemination and uptake of the output. The IDS should act as a roadmap for dissemination of the output, and should be referred to regularly during the carrying out of activities.

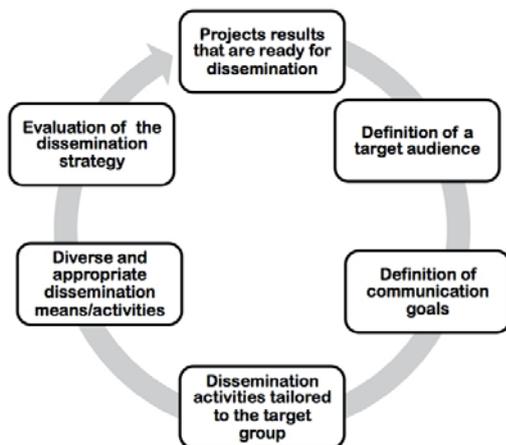


Figure: The Individual Dissemination Strategy (IDS) process

3. Use the tools and events offered by WaterDiss2.0 to carry out recommended dissemination activities and improve visibility of research outputs

Communication and Dissemination Tools

There are numerous communication approaches, and PREPARED has used a variety of methods to convey information to the target audiences. These range from internal newsletters to the IWA WaterWiki to conferences. Several examples are provided in Box 2. The experience of WaterDiss2.0 can also be applied to PREPARED through the various tools and activities that have been developed for projects to present their research results and outputs – both during the run-time of the project as well as after the project end. These tools explore innovative web2.0² features, different communication channels and media, whereas activities include various types of events such as E-seminars, seminars, brokerage events at exhibitions and summer schools.

² Web 2.0 allows users to interact and collaborate with each other in a social media dialogue as creators of user-generated content in a virtual community. This is in contrast to websites where people are limited to the passive viewing of content. Examples of Web 2.0 include social networking sites, blogs, wikis, and video sharing sites.

³ Tweeg is a social platform within the europeanwatercommunity.eu which works like facebook in connecting people.

WaterDiss2.0 has developed several tools on the European Water Community (EWC - europeanwatercommunity.eu), a web-based interface:

- Online brokerage – a searchable database of project outputs, where project manager can input and upload information through an easy online-template and look for useful outputs that have been produced by other projects. Outputs can be searched for according to key words, target groups, and the European Directives that the outputs address. The visibility of project outputs is improved through making specific outputs, rather than entire projects available online, in a database of water-related research results and useful technologies, methods, decision-support systems, etc. This is especially useful as a repository for outputs when projects have already ended and often do not maintain their websites.

- Social platform - the European Water Community hosted on Tweeg³ works like Facebook for water professionals. You can discuss, exchange ideas, upload documents, create closed groups to discuss projects, etc. Four-hundred members joined as of December 2012, and pro-active users can be identified. A permanent group moderator has been appointed recently to guide and encourage discussion. Such a platform can provide an opportunity for PREPARED consortium members to promote project outputs, and also make connections with a wider group of practitioners.



Events organized by WaterDiss2.0 include:

- Webinar and video-making tools that are made available through WaterDiss2.0 can be used to create visual material and can be posted on the project website and the EWC. For example, WaterDiss2.0 cooperated with PREPARED by organising a side event at the World Congress on Water, Climate and Energy 2012 in Dublin, Ireland. More information on this event is outlined in Box 1.
- Workshops/national seminars are typically one-day events organized at a national or regional level, used to disseminate information about relevant projects and their outputs to water managers and implementers.
- Brokerage Events are typically 1-day side-events organized back-to-back with larger regular events such as trade shows, exhibitions, or conferences. Project representatives interact with stakeholders through booths, stands, and posters.
- Summer Schools target young researchers and practitioners. They aim to promote scientific networks, interdisciplinary approaches, research sharing and facilitate networking for future consortia.

Box 1 Seminars at the World Congress on Water, Climate and Energy: WaterDiss2.0 providing communication support to PREPARED

In May 2012, experts from Ecologic Institute, partners in the WaterDiss2.0 project, organised a Seminar entitled “Communicating research: Getting your message across” at the World Congress on Water, Climate and Energy in Dublin, Ireland on 13-18 May 2012, hosted by the International Water Association. The event targeted water researchers as well as practitioners with an interest in catalyzing the transfer and use of EU-funded research outputs in order to meet the objectives set out in the Water Framework Directive and related directives.

During the session, the importance of identifying the target group, place, and time for communicating research outputs, as well as the appropriate use of channels and media for each output, was shown. In the second part of the session, participants could design a communication strategy for their research projects aimed at uptake, based on the dissemination strategy template.

In the afternoon, Darla Nickel presented findings of the WaterDiss2.0 project on ‘Science-policy interface on the EU level’ during a session organised by PREPARED, which addressed the topic of ‘Linking Research To Policy And Climate Change Adaptation Strategies In The European Union’. The FP7 project STREAM (Sustainable Technologies and Research for European Aquatic Management) recorded the presentation on video and broadcasted it through a webinar.



Box 2 – Examples of communication and dissemination approaches used in PREPARED

PrepTalk

PrepTalk 7 is PREPARED’s internal news bulletin which provides an update of news within the project. It is an opportunity to communicate key information across the consortium from introducing new staff to announcing events to providing summaries of ongoing research. Often there can be a tendency to become focused on one component without stepping back and seeing the bigger picture, and PrepTalk provides the opportunity to get an overview of what else is happening within the project.

Events

- PREPARED has been highlighted at a number of international events including the IWA Water, Energy and Climate Change Congress in Dublin 2012 and the upcoming International Water Week - Amsterdam (IWW) www.internationalwaterweek.com
- PREPARED took part in the Cities of the Future Conference (<http://www.iwacof2013.org>) in Istanbul through the Black Sea Forum workshop. This offered an opportunity for organizations (including utilities, researchers, regulators, government, private sector, etc) to share urban water and climate change adaptation strategies in water and wastewater utilities as well as technical expertise among those involved in addressing PREPAREDness to secure the provision of water supply and sanitation. Participants included those from the Black Sea Region as well as international experts. Experiences and outputs from the EU PREPARED project were highlighted and used along with other inputs to formulate an approach to address urban water and climate change problems and solutions common to the Black Sea region.
- The final PREPARED conference will be in Arhus, Denmark from January 21-24 2014. The conference will be an opportunity to share the lessons learned from PREPARED as well as knowledge exchange with other projects and organizations. The three day conference will include the Cities Alliance Forum which will explore different adaptive solutions being applied in utilities within and outside the PREPARED consortium.

Publications

The outputs of PREPARED will be consolidated in two publications (through IWA Publishing), one on science and research and the second on demonstrations and practices. The books will use existing material from PREPARED including reports, papers and articles, and bring the information together in a package that can be used widely by cities as well as water and wastewater utilities looking for climate change adaptation solutions.

Lessons learned from the process of reaching knowledge users

The identification of research outputs and their selection for further dissemination needs to be based on some criteria: the need/importance of an output in the political agenda or for specific target audience, its status (readiness to use) in terms of distance to the market, the affinity of research project coordinator / team towards promoting a specific output and issues like the potential transferability of the output in other geographical area. In the case of PREPARED, the need for demonstrating the technological PREPAREDness of water supply and sanitation systems to climate change impacts stems from priorities identified by the European Commission as well as European cities to improve resilience. Promoting how PREPARED cities can be cost effective, carbon efficient and exportable to other urban areas within Europe and the rest of the world is essential to showing the value of investment into the PREPARED research.

Finally, involving target audiences in consortium research projects has proven extremely successful when projects have chosen the right representatives who are able and willing to uptake the results. Characteristics of the target audience, such as their level of innovativeness, are a large determinant of the level of uptake an output can achieve. Thus, early (proposal stage) characterization of target groups is important in order to explore and integrate their knowledge needs. Being very specific in the target group identification and enhancing personal relationships with target audiences during project lifetime is also a positive factor for dissemination of results at all levels. For PREPARED, one of the key target audiences is utilities and cities. As they are a key component within the project (Work Area 1: Utilities alliances – test and demonstration) where the research is applied in practice, this ensures that the outputs are integrated and institutionalized beyond the lifetime of PREPARED.

Young PREPARED profile

Interview with PREPARED Young professional Ambrose Nahas, IWA, The Netherlands

What is your background?

- I am a Franco-American who has lived in France, England and Canada and the United States. As an undergraduate at McGill University I studied History and Environmental Studies. After I joined McGill's Bioresource Engineering Department to complete a masters in Integrated Water Resource Management Bioresource Engineering (IWRM). I have worked at the Clean Air Task Force in Boston and at the International Water Association (IWA) in The Hague.

What is the topic of your PhD/research?

- Right now I am working on several projects which mainly focus on two topics: salt water intrusion in artificial recharge systems and emerging organic contaminants in artificially recharged water.

How does that relate to PREPARED?

- Integration of water management, both for infrastructure and policy, is both economical and sustainable.

What do you expect of PREPARED?

- To help Europe advance towards greater integration and resilience of water resources and infrastructure.

How will PREPARED relate to the problems within your country?

- The city Grand Lyon is participant in the PREPARED project and as such demonstrates solutions provided by PREPARED.

What are the main water issues in your country?

- Flooding and droughts are increasing in frequency and severity. Also France's very large nuclear capacity requires vast amounts of water.

Personal ambitions with respect to Europe and European research e.g. do you like EU cooperation: are you looking forward to work in or together with other countries?

- I am a staunch supporter of the European Union and cooperation between EU nations. Having lived in four countries by the age of 24 and now living in a fifth, I feel very comfortable working in and with other European countries.



Construction of a new Water Supply and Sewage System in Gliwice, Poland

by Agnieszka Batóg (Utility of city Gliwice)

Gliwice is a beautiful Polish city in southern Silesia. A place best known for its historical meaning, but also famous for its citizens care about environment and protection of natural resources. The city of Gliwice has always been noted as a leader in the field of water supply and sewage systems development and management. This is best proven by the development and construction of large infrastructural projects, some already finished and being implemented by the Water Supply and Sewage System Company Ltd. (PWIK) in Gliwice.

As a matter of fact, Gliwice finished in September 2013 one of the biggest projects. On 14th March 2013, realisation of the Contract "Modernisation of the water supply and sewage system in Gliwice - stage II - Modernisation of the Central Wastewater Treatment Plant" came to an end. It took exactly 24 months (the Contract was signed on 14th March 2011) to extent the existing Plant, including the construction of a treatment system to reduce odour. The works executor was a consortium of P.R.I. POL-AQUA, AWBUD, and MELBUD. Modernisation of the central wastewater treatment plant will contribute to meeting the Council Directive no 91/271/EEC concerning urban wastewater treatment standards by the city of Gliwice.

The task was the biggest and most valuable part of the project „Modernisation of the water supply and sewage system in Gliwice – stage II”, an investment worth over 200 mln PLN, with a 88 mln PLN cohesion fund participation, aimed at improving water supply and sewage systems in Gliwice, aimed at protecting the natural environment in the city and surrounding areas. The Project covers, apart from modernisation of the

Central Wastewater Treatment Plant, modernisation of the Water Conditioning Plant in Łabędy, construction of 2.5 km of new sewage system and 2.3 km of water supply system in Dolna Wieś street area, as well as building 36 km of sewage system in the Ostropa, and 24.4 km of sewage system in Bojków districts. According to the plan, the project „Modernisation of the water supply and sewage system in Gliwice – stage II” will be finished in the first half of 2015. The project is a follow-up of the greatest after war enterprise in Gliwice, which was „Modernisation of the sewage system in Gliwice”, within the framework of which 168 km of new sewage systems for 40 mln euro (with a 21 mln euro Cohesion Fund participation) were built.

These investments are important for Gliwice not only to prevent environment pollution, but also to reduce the risk of flooding. The city of Gliwice and the surrounding area every few years suffer from serious floods. Unfortunately, water from time to time also causes enormous damages to Gliwice city, and endangers its inhabitants. What building the new sewage system has to do with flood prevention? Building new sewage system allows separating sewage from storm water system. This means, that the storm water system will be able to receive more storm water, and efficiently protect Gliwice from too heavy rainfalls. Gliwice authorities' care about flood prevention is best proven by the city's participation in the PREPARED programme. It is worth mentioning, that it is the only city participating in PREPARED from countries being the „new members” of the European Union.



Information and Communication Technology: Seattle Public Utilities, Seattle RainWatch and Operational Adaption

by Paul Fleming (SPU)

Introduction

Seattle RainWatch is an Information and Communications Technology (ICT) that was designed to help Seattle Public Utilities (SPU) better prepare for and respond to incidents of extreme precipitation and urban flooding. It provides key operators and decision makers with enhanced, targeted weather alerts that inform the management of resources and deployment of crews during weather events, acting in effect as an early warning system. After a successful first year of use, RainWatch has proven insightful in unexpected ways and promises to advance existing efforts beyond flood response. This paper describes how RainWatch works as an early warning system and how it is used by SPU to enhance its operational adaptive capacity.

Background

RainWatch is a real-time weather system that provides short-term forecasts, or “nowcasts,” and rain accumulation totals for SPU. It uses rainfall estimates derived from National Weather Service radar data that are calibrated with real time data from a network of rain gauges owned and operated by SPU to improve accuracy over other precipitation estimate products. RainWatch provides alerts when accumulation and forecast thresholds are exceeded. Cliff Mass and the University of Washington’s Mesoscale Analysis and Forecasting Group developed RainWatch for SPU.

After significant urban flooding events in 2006 and 2007 SPU and the UW initiated discussions about nowcasting. RainWatch was then developed and tested through the 2009-2010 rainy season. RainWatch was delivered and went live for SPU in September 2010. The first alert messages arrived in the inboxes of 22 employees across 3 City departments and 4 SPU branches on October 11th, 2010, and through June 2011 a total of 302 messages had been received, interpreted, and used to make – or not make – weather related decisions.

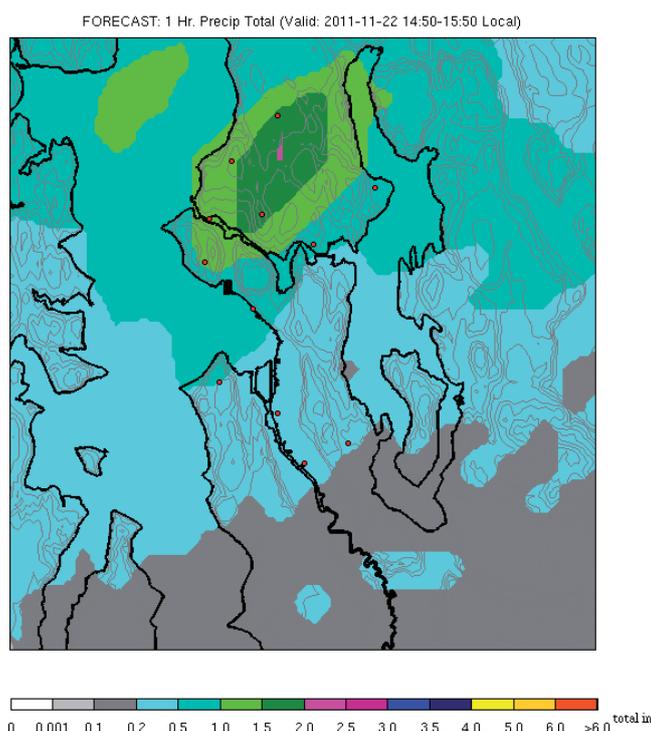
Prior to RainWatch, operators responded to urban flooding by reacting to customer calls and reports from crews in the field. Disparate weather forecasts and unfiltered radar imagery allowed for general advance preparedness, but only at a regional scale. RainWatch represents an improvement by providing operators with a tool that helps predict more specifically where impacts are likely occur and also helps monitor vulnerability.

The essence of RainWatch is the 1-hour precipitation forecast. SPU worked to establish the appropriate thresholds at which the system would send text alerts and detailed images to key

staff showing when, where, and how much rain is expected to fall (upper right). Another important feature of the system are web-based maps that display 1- to 48-hour rainfall accumulation totals city-wide. These continually refreshing images provide clues as to where system and soil saturation may lead to impacts, especially when paired with a forecast alert. The alerts and maps provide system operators with an early warning system that can help inform system operators about where real time responses should be prioritized to reduce potential impacts.

RainWatch Expansion

Over the course of its second year of use, enhancements to RainWatch were implemented and others envisioned. Improvements to regional NWS radar network (i.e. dual-polarization, additional coastal site) have allowed for testing of algorithms and the potential to in some cases extend the RainWatch’ warning capabilities by up to a few hours. Improved radar inputs combined with planned upgrades to SPU’s rain gauge network may also allow for testing of DWW performance enhancements, notably automating pump station modes through RainWatch alerts to reduce CSO events. Presently operators have the ability to manually change pumping to “storm” mode; however RainWatch would allow for more efficient management and reductions to SPU’s energy and maintenance costs.



RainWatch alerts are accompanied by images. Above: a 1-hr “nowcast” showing intense (>1.0”/hr) forecasted rainfall across parts of North Seattle.

Given the uncertain future of extreme precipitation in our region, RainWatch represents a “no regrets” climate adaptation strategy by improving operational response to extreme events today as well as in the future. Its rainfall accumulation feature is enhancing our understanding of neighborhood- or basin-scale impacts. SPU is actively compiling a meteorological database of all extreme events on record that is helping illustrate the vulnerability of the varying basins within the city to differing rain events. The effort will be coupled with RainWatch to forecast rainfall in the medium range as well as predict impacts to SPU’s drainage and wastewater system, based on past system performance under similar conditions, and further enhance the deployment of appropriate operational responses

to reduce those impacts. These potential enhancements in addition to planned changes to RainWatch, improved website functionality, and integration with other City of Seattle weather tools, would contribute to developing a new, local climatology as well as a dynamic and innovative component of SPU’s climate adaptation program.

For more information, please contact: Paul Fleming, Manager, SPU Climate and Sustainability Group (paul.fleming@seattle.gov), or James Rufo Hill, Climate Adaptation Specialist (james.rufohill@seattle.gov), Seattle Public Utilities, 700 5th Ave. Ste. 4900, Seattle, WA 98124. URL: <http://www.atmos.washington.edu/SPU>

Eurocities by Paola Latona (IREN Acqua Gas)

(<http://www.eurocities.eu/>) is a network of major European cities, working together on exchanging best practices and on lobbying the institutions for a better inclusion of urban requirements in European policies. It was founded in 1986 by the mayors of six large cities: Barcelona, Birmingham, Frankfurt, Lyon, Milan and Rotterdam. Currently, the network brings together the local governments of over 130 of Europe’s largest cities and 40 partner cities, that between them govern 130 million citizens across 35 countries.



Image from Eurocities website <http://www.eurocities.eu/>

Based on the EU’s three key challenges, *climate, inclusion and recovery*, EURO-CITIES addresses a wide range of policy areas affecting the day-to-day lives of Europe’s citizens.

The consortium is organized into seven forums: culture, economy, environment, knowledge society, mobility, social affair and cooperation whose member periodically meet to discuss about problems and suggest possible solutions.

On June 12th -14th 2013, members met at the Eurocities Environment Forum (EEF) in the city of Stockholm.



EEF group picture. Photographer: Johan Pontén, City of Stockholm

Delegates of cities were organized in workgroups, *Air quality, Climate Change & Energy Efficiency, Clean cities, Green areas and biodiversity, Greening the local economy, Noise, Waste and Water*. Iren Acqua Gas (IAG) was invited to participate to the forum, both as the Genoa city delegate and as a PREPARED Enabling Change partner. During the first morning, IAG participated in the water workgroup and the discussion focused on a new project addressing new threats to water quality, namely micro pollutants, viruses and bacteria.



The water workgroup Photographer: Johan Pontén, City of Stockholm

The project aims at increasing awareness among citizens and to exchange knowledge. Water quality aspects were dealt with in relation to potability of water and the importance of monitoring and management.

After workgroup briefing, delegates joined a plenary session where, IAG presented some results of the Genoa demonstration in the framework of the PREPARED project. Of main interest was the strong correlation between water and energy management.



Presentation of first results PREPARED applied research in Genoa

The Genoa research activity and demonstration has developed and is applying a decision support system for enhancing water resources management under climate change stressing periods. The DSS helps to understand the impacts of climate related changes. This includes the allocation to competitive uses, protection of water intakes and management of climate change scenarios including dry and flood periods where water intakes are inoperable. The model takes into account hydropower production highligh-

ting the possibility to avoid carbon emission in the atmosphere and this aspect was of particular interest for people participating at the forum.

Addressing changes in climate and how it affects water is a priority and it plays an important role for cities. This is especially the case in Europe where 75% of the population live in cities. Furthermore cities have to deal with specific climate issues, such as urban 'heat island' effects, exacerbated risk of flooding due to less permeable surfaces and possible periods of water scarcity.

Despite efforts to limit the impact of climate change, it is clear that global warming and the fall-out effects cannot be completely avoided. Rising sea levels, extreme weather phenomena with heavier rainfall and wind, more floods and more droughts are close to be a reality to which Europe need to adapt.

In this framework, the PREPARED project was introduced as a valid example collaboration among European partners and of activities for adaptation to climate change impacts.



Conference: Adaptive solutions for water utilities

Demonstrating practical approaches to climate change in urban areas

PREPARED and Aarhus Water are pleased to announce that a conference on adaptation solutions for water utilities will be held in Aarhus, Denmark, January 21-23 2014.

The conference is a three day technical event for water utilities, city authorities, researchers and consultants with an interest in how water utilities are working with practical solutions in order to adapt to climate change on a short, middle and long term time scale.

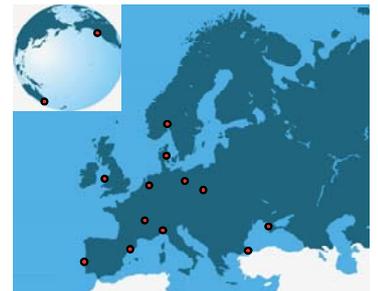
PREPARED partners - including 14 water utilities - and invited speakers are presenting their latest research and experiences. Conference tracks are focusing on solutions for operation and planning of wastewater and drinking water systems, Water Cycle Safety Plans, handling of Climate Change Scenarios, and other key areas within PREPARED.

The third day of the conference will include the Cities Alliance Forum where water utilities are sharing their experience in solution specific sessions, which will evaluate the solution applied in utilities within and outside PREPARED.

During the 3 days, solutions are presented on posters and videos and the teams - utilities, research partners and technology providers - are available for in depth discussions.

More information on the conference including the programme and online registration can be found here: <http://www.aarhusvand.dk/Conference/>

Information on PREPARED: <http://www.prepared-fp7.eu/>



Adaptive solutions for water utilities
Demonstrating practical approaches to
climate change in urban areas

**Aarhus, Denmark,
January 21-23, 2014**



Day1: Tuesday, 21st January 2014		
08:00-09:00	Registration	
09:00-09:05	Opening and welcome. Lars Schrøder, Director Aarhus Water	
09:05-09:40	Status and change of climate change scenarios. Have uncertainty decreased. NN	
09:40-10:15	How can we approach the different climate change scenarios. Simon Tait, Univ. Sheffield	
10:15-10:30	PREPARED - enabling change - an overview. Adriana Hulsmann, KWR and coordinator of PREPARED	
10:30-11:00	Coffee, tea	
11:00-11:30	Integrated control and warning system for urban wastewater systems during rain - the infrastructure of the Aarhus case	Adaption of water supply systems to make them climate change proof
11:30-12:00	Real time monitoring, modelling and control of combined sewer systems	Adapted operation of drinking water systems, both treatment and distribution
12:00-12:30	Real time control to increase hydraulic capacity of wastewater treatment plants during rain	ASR and other subsurface water technologies that can help to deal with climate change related water problems
12:30-13:30	Lunch	
13:30-14:00	Integrated control of combined sewer system and wastewater treatment plants during rain	Remedial actions to prevent adverse effects of re-growth in networks at higher temperatures
14:00-14:30	Warning system for deteriorated water quality caused by combined sewer overflows	System for early warning of deteriorating water quality in distribution networks
14:30-15:00	Improved rainfall monitoring using local area weather radar	System for distributed real time disinfection control
15:00-15:30	Coffee, tea	
15:30-16:00	CFD modelling of a complex combined sewer overflow structure incl. micro location of sensors	Substance flow model for partially closed water cycle in Berlin
16:00-16:30	Data assimilation techniques for improving the accuracy of model predictions	Decision support system for the competing uses of source water incl. protection of water intakes
16:30-17:00	Enhanced real-time measuring and forecasting technologies for combined sewer systems	Assessment of rainwater harvesting and grey water management - A case study for Istanbul
19:00-22:00	Dinner	

Day2: Wednesday, 22nd January 2014		
09:00-09:30	Evohé - An integrated software tool for sensor calibration, off-line data validation and uncertainty assessment	Water Cycle Safety Plan (WCSP) framework
09:30-10:00	Sonar technique for sewer sediment monitoring	WCSP Demo Portugal
10:00-10:30	Real time control strategies for a biological chemical wastewater treatment plant - Demonstrations in Oslo	WCSP Demo Netherlands
10:30-11:00	Coffee, tea	
11:00-11:30	Planning instrument for integrated CSO control in Berlin	Hazard identification and risk reduction databases
11:30-12:00	System for early warning of health risks from faecal contamination in recreational waters	Quantitative Risk Assessment for CC risks in the UWC
12:00-12:30	Implementation of the methodology for climate change assessment for stormwater management in the Barcelona case study	Quantification of risk reduction measures
12:30-13:30	Lunch	
13:30-14:15	Dance for Water - Concept	Use of GIS in CC risk management of the Urban Water System
14:15-15:00	Dance for Water - Application	Use of GIS to manage CC risks in Genoa and Simferopol
15:00-15:30	Coffee, tea	
15:30-16:00	Adaption Planning Process	
16:00-16:30	Framing Adaption - using interpretative social science	
16:30-17:00	Enabling Change - challenges and opportunities for collaborative research	
Day3: Thursday, 23rd January 2014		
09:00-09:15	Introduction of the Alliance Forum process	
09:15-10:00	PREPARED for climate change adaptation – utilities sharing practical experience. Breakout sessions 1. Participants take part in one of three roundtable discussions: Drinking Water, Wastewater, Water Cycle Safety Plans	
10:00-10:45	PREPARED for climate change adaptation – utilities sharing practical experience. Breakout sessions 2. Participants take part in one of three roundtable discussions: Drinking Water, Wastewater, Water Cycle Safety Plans	
10:45-11:30	Coffee break and poster session. Posters from the demonstration sites and tools from technology providers.	
11:30-12:30	Feedback session on discussions in plenary and closing alliance forum	
12:30-13:30	Lunch	
13:30-14:30	Closing session	

Conference IWA cities of the future, Black Sea countries

by Adriana Hulsmann KWR and Katherine Cross IWA

In September 2013 PREPARED organised a session during the IWA cities of the future conference in Istanbul, that was especially targeting the Black Sea countries. The Black Sea event had the objective to make the countries surrounding the Black Sea aware of the PREPARED project and its achievements. It also aimed to bring Black Sea countries together as we did in the project to learn from each other's problems and even more important to share tested solutions and knowledge and experience gained.



Black Sea countries Source DG JRC ISpra

The countries bordering the Black Sea are Turkey, Georgia, Russia, Ukraine (including Crimea), Romania and Bulgaria. The event was especially organised near the Black Sea to enable the surrounding countries to travel to Istanbul. The countries were asked to present the situation in their territory and the major challenges posed by climate change.

The main challenge for the countries around the Black Sea is the expected rise in sea level that will significantly impact on all activities around the Black Sea and is supposed to be the highest in Europe. In addition to that the average expected increase in temperature is also the highest in this area. The area bordering the coastline has a high population density and are highly developed. One example is the important tourist industry e.g. sunny beach in Bulgaria of high economic value for the country. The sea level rise will cause demographic changes when people have to move inland. The economic impact of sea level rise and coastal erosion due to sea surges combined with salt water intrusion will impact on tourism, agriculture and industry. Sea level rise will also have negative effects on vulnerable wetlands in the area such as loss of biodiversity. More

extreme weather events with heavy rainfall will increase the risk of flooding and economic losses through damage. But also increased water scarcity and droughts will result in decreased run-off and diminishing groundwater levels in the area. This will put more stress on already limited fresh water resources for drinking water supply, domestic and industrial use, irrigation and power generation. At the same time increased summer temperature will increase the demand for water and energy.

That sensible and careful planning is extremely important in the areas bordering the Black Sea was demonstrated by Asu Aksoy from the Istanbul Bilgi University, Turkey in her presentation "Integrating Water and Urbanism for Sustainability". Istanbul is the only megacity in Europe and grows with 250,000 inhabitants per year. A most convincing video film was shown after her presentation that is worthwhile watching to get an idea of the enormous task the decision-makers and the water sector have to face. <http://vimeo.com/41973779>. The audience of 60 experts attending the Black Sea event applauded the film and were duly impressed.

As coordinator of the project Prepared Adriana Hulsmann shortly introduced the project and highlighted the added value of the project especially for the water sector in the region. Our PPREPARED partner Ahmet Baban from TUBITAK Marmara Research Center, Turkey, presented his work in the project concerning "Grey water Reuse and Rainwater Harvesting – A Case Study for Istanbul". Another partner in the project Victor Popovych from IAC NAAS Crimea, presented his research in the project and the challenges for the future in his country with respect to climate change and the water sector. Most important steps to take are the downscaling of climate change scenarios to the level of the cities local level, while at the same time increasing the attention of the government to the necessary adaptation in the water sector. Also needed is a change in the mentality of decision makers in utilities, research, private sector and finding economically effective solutions.

Vitalii Shpyg from the Institute of Hydrometeorology of National Academy of Science (UHMI) in Ukraine explored how using science is an effective way for climate change estimation, drawing up of adaptation strategies and possibilities of water supply improving. Vitalii presented how UHMI is undertaking regional climate modelling in the region, and how this information is being

used to reduce risks from climate change - and specifically flooding. For example, UHMI are implementing a project that expand and further strengthen cooperative management in the Dniester River basin to address cross-border management of floods, taking into account both current climate variability and long-term impacts of climate change on flood risks.



Flooding in Simferopol

WCSP workshop Eindhoven

by Patrick Smeets (KWR)

The WCSP demonstration in Eindhoven was finalised at the workshop held on 22 October. All stakeholders in de Eindhoven UWS were present to share their ideas on managing climate change risks in Eindhoven. The UWS was characterised and climate change risks were identified during two previous workshops in 2011. Since then the stakeholders have worked on dealing with these risks, not only within the PREPARED context, but also in several other projects. So the first step was to revisit the identified risks to include new insights in the risk events. Risk evaluation and risk treatment had taken place from various perspectives, e.g. maintaining ecological quality of surface

water by enhanced control of sewerage and wastewater treatment during extreme events or dealing with moisture in homes from high groundwater levels during wet winters. Maybe typical for the Dutch situation was the pragmatic approach taken. Rather than focussing on likelihood and effect of events and keeping risk below a target, a general direction was chosen; using the current infrastructure and level of investments these were optimised to deal with climate change. For example disconnecting rain pipes from sewers is a long-term investment whereas optimising control of sewers and wastewater treatment is a short term approach to efficiently improve resilience.

To achieve these changes, effective communication between stakeholders, with politics and the community is very much needed. Eindhoven provided some interesting examples of this. With respect to the WCSP framework, added value was perceived from bringing the stakeholders together and the systematic approach to prevent gaps. On the other hand, this requires much time and improvements in efficiency and pragmatism would be welcomed by the stakeholders.



Subgroup discussion on identified risks while being filmed by MugMedia

The Fifth IPCC Assessment Report: What is in it for us?

Nearly five years ago when we wrote the proposal for the PREPARED Enabling Change project we based our strategy on the Fourth Assessment Paper of the Intergovernmental Panel on Climate Change (IPCC, 2007). We were then faced with a number of difficult issues for the urban water sector. For a start the conclusions from the IPCC were subject to a high level of uncertainty and on top of that there was the need to translate the conclusion and related challenges for the water sector to the local level at which the utilities and decision-makers have to operate. Decision-makers had the extremely difficult task to make both management and financial decisions for the years to come on the basis of a very uncertain future. Solutions had to be found that would be the result of a proper balance between acceptable risk and justified investments. Not an easy task that was obvious when utilities and local decision-makers were asked for their plans and investment strategy in the water sector. Clearly the time for large investments in robust infrastructures that would last for decennia has gone and where possible investment are postponed or restricted to 'no-regret' scenarios. Investments that have to be made regardless of the direction and extend of climate change induced challenges. PREPARED tried to find, test and demonstrate step-wise and flexible solutions as well as optimised operation of the existing system to postpone new investments. In the hope that with time the level of uncertainty would have been lowered. Now five years later towards the end of the project and during the implementation and demonstration phase of the project, the new and Fifth assessment report has been released.



What we know from the report is that the evidence of human influence in warming of the atmosphere and the ocean has grown since the previous report. This is also the case for changes in the global water cycle, in reductions of ice and snow, in global mean sea level rise and in changes in some climate extremes. Global surface temperature will continue to rise beyond 2100 and will not be regionally uniform. Changes in the global water cycle in response to warming over the 21st century will also not be uniform. The contrast in precipitation between wet and dry regions and between wet and dry seasons will increase, although there may be regional exceptions. Global mean sea level will continue to rise during the 21st century. Under all scenarios the rate of sea level rise will very likely exceed that observed during 1971–2010 due to increased ocean warming and increased loss of mass from glaciers and ice sheets.

For the water sector it is interesting to know what has changed in the opinion of the IPCC experts and how that has affected the level of certainty for our stakeholders. The question will be addressed by the keynote speaker in the PREPARED final conference in Aarhus in January 2014. We are all eager to hear about the conclusions for our sector and especially about the impact at the local level at which our stakeholders operate.

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5. Institut National des Sciences Appliquées - France
6. International Water Association (IWA)
7. University of Exeter - United Kingdom
8. University of Bradford - United Kingdom
9. Cetaqua Water Technology Center - Spain
10. Iride Acqua Gas SpA - Italy
11. Tubitak Marmara Research Center - Turkey
12. The Institute for Ecology of Industrial Areas - Poland
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21. Clavequeram de Barcelona - Spain
22. Berliner Wasserbetriebe - Germany
23. Municipality of Eindhoven - The Netherlands
24. Mediterranea delle Acque S.p.a. a Iride ACQUA Gas - Italy
25. Istanbul Water and Sewerage Administration - Turkey
26. Utility of city of Gliwice - Poland
27. Empresa Portuguesa das Águas Livres, SA - Portugal
28. Water Department of Greater Lyon - France
29. Municipality of Oslo Water and Sewerage works - Norway
30. Simferopol Drinking Water Supply & Sewerage Company - Ukraine
31. Aarhus Water and Wastewater - Denmark
32. DWR Cymru Welsh Water - United Kingdom
33. Seattle Public Utilities - United States
34. Melbourne Water Corporation - Australia
35. Monash University - Australia