

# WATERCARE Project – Minutes of the III° Steering Committee Meeting

Pescara | 14<sup>th</sup> November 2019

<b>Title</b>	<b>Minutes of the III° Steering Committee of WATERCARE Project</b>
<b>Date/Time:</b>	<b>14<sup>th</sup> November 2019 - Time 3:00 PM</b>
<b>Place:</b>	Abruzzo Region – Piazza Unione – 65127 Pescara (Italy)
<b>Subjects:</b>	<ul style="list-style-type: none"> <li>- Site visit</li> <li>- Welcome &amp; Registration</li> <li>- WPs presentation</li> <li>- Parallel section: Sampling technical instrumentation</li> <li>- Conclusions</li> </ul>
<b>Attendees:</b>	<ul style="list-style-type: none"> <li>- LP – CNR-IRBIM (IT): Mauro Marini, Federica Grilli, Elena Manini, Alessandra Campanelli, Elisa Baldrighi, Pierluigi Penna, Fabrizio Moro, Christian Ferrarin, Elia Rosetti (External Assistance - SINERGIA), Linda Croci and Gianluca Presutti (Equipment provider - WATEC);</li> <li>- PP1 – ASET Spa (IT): Gloria Giacomini, Enrico Esposito Renzoni, Andrea Marinelli;</li> <li>- PP2 – Marche Region (IT): Luigi Bolognini;</li> <li>- PP3 – Abruzzo Region (IT): Luca Iagnemma, Giovanna Marrama, Roberto Ricci, Enzo Del Vecchio;</li> <li>- PP4 – University of Urbino (IT): Antonella Penna, Silvia Casabianca, Samuela Cappellacci, Fabio Ricci, Davide Ippoliti;</li> <li>- PP5 – Split-Dalmatia County (HR): Martin Bucan, Tomislav Opacak;</li> <li>- PP6 – Dubrovnik-Neretva Region (HR): Ivo Duracic, Ivana Kristovic;</li> <li>- PP7 – University of Split (HR): Maja Krzelj, Marin Ordulj;</li> <li>- PP9 – Croatian Waters (HR): Marija Sikoronja, Jasmina Antolic;</li> </ul>
<b>Absences</b>	- PP8 - METRIS

III° Steering Committee Meeting of WATERCARE Project was held at the premises of Regional Council of Abruzzo Region in Pescara (Italy) as the hosting partner was Abruzzo Region (PP3), on 14<sup>th</sup> November 2019.

The attendance list of the meeting signed by the participants can be found in the files attached named '*III STC Meeting Attendance list\_WATERCARE\_14112019*'. All the presentations prepared by the partners (which are mentioned beneath) shall be considered attachments to this document too. (Also, PPTs and Minutes will be uploaded in WATERCARE cloud)

The METRIS representatives (PP8) were not able to participate due to internal commitments.

### Visit to Abruzzo Region target site - Pescara River

PPs started the project meeting with the visit at the Abruzzo Region target site (mouth of Pescara River).

Mr. Enzo del Vecchio (Abruzzo Region) illustrated Abruzzo Region overall plans regarding new port infrastructures and constructions or modifications, as well as problems affecting the area particularly during and after heavy rains. What above-mentioned is strongly related to bathing water quality and studies that will be implemented in the framework of WATERCARE project.

### Welcome

As WATERCARE project manager, Mr. Mauro Marini took the floor highlighting the importance of this 3<sup>rd</sup> STC Meeting since the beginning of his speech as first objectives have been reached but now it is fundamental to clarify all potential doubts on next activities that will involve all PPs and target areas in a more significant way.

Project strength is the experimental activity performed on site and the aim of transform into concrete and improved administrative procedures the achieved results.

We are also aware that IT-HR JS would like to create synergies among projects that are similar or complementary scopes and this is the case of WATERCARE and ADSWIM projects. For that reason, during the 3<sup>rd</sup> Public event a representative of ADSWIM project will present it to the WATERCARE partnership and will share its objectives/activities.

Marini also communicated to the partnership that ASET completed among all steps needed to start the construction of the storage tank.

Then, Luca Iagnemma (Abruzzo Region) as hosting partner welcomed all and wish both a good steering committee and a good stay in Pescara during the two-days' events.

## WPs presentations

### **Work Package 1 - Project management and coordination of activities**

*WATERCARE\_III STC Meeting\_WP1*

Elia Rosetti (CNR-IRBIM external assistance) started his presentation with a brief summary of WP1 activities and what was already realized within the end of RP1.

Then, he showed the deliverables released until the 3<sup>rd</sup> STC Meeting, focusing in particular on the D.1.3.2 – Advisory Group as all PPs sent stakeholder signed Declarations of support. 27 Organizations accepted to join the project Advisory Group: local public authorities, schools, enterprises, associations, etc...

Act. 1.4 – Financial management represented a critical point as different aspects were discussed:

- The first one was the status of the Progress Report 1: at that date it was confirmed in SIU but not submitted as JS PM was performing some checks.
- LP transferred the advance payment amount to PPs about two weeks ago, so it was asked to PPs to confirm they successfully received it (written confirmations were sent to LP during the days following the STC Meeting).

Then, it has been explained that the AP recovery rule changed in comparison to Standard + projects. Now AP is recovered starting from the 3<sup>rd</sup> PR until the 5<sup>th</sup> one, so the amount reported and certified by FLCs in PR1 will be reimbursed in total to PPs.

- 2<sup>nd</sup> PR was also subject of the presentation as main dates and main steps to respect for a proper RP2 reporting activity were shared. It was also recommended to constantly check IT-HR website as new useful factsheets and information can be published by Programme Authorities (i.e. new version of Factsheet 6).
- PR1 reported/certified expenditures and RP2 foreseen expenditures were also analyzed per each PP and it was explained the De-commitment rule by which it is required to each PP to spend at least the 80% of the own budget in order to not be considered “Under risk”.
- Last, minor budget modifications were discussed, in particular it was explained the budget flexibility rule (limit of 20% per BL and WP), how to fill-in the budget change tool and checks to do in order to be sure that budget modification at project level we are proposing is a “minor” one and not a “major” modification.

At the end it has been asked to PPs if they urgently need a budget modification (to be implemented before the reporting phase 2) or it could be postponed to the 3<sup>rd</sup> RP. All PPs accepted to postpone it (written answers were sent to LP during the days following the STC Meeting).

To ensure a swift and proper communication among PPs, an updated version of the WATERCARE Contact list will be released after that each PP will have updated own contacts in the table uploaded in the WATERCARE cloud. The deadline to do this is the 21<sup>st</sup> November 2019.

At the end of the presentation, some questions about the correct reporting of target groups reached during the dissemination activities or implementation of technical project activities were made. Mainly, they focused on accepted proof of verifications and on some issues like privacy regulation (a list of accepted proofs of verification was sent to PPs during the days following the STC Meeting).

## **Work Package 2 - Communication activities**

*WATERCARE\_III STC Meeting\_WP2*

Ivana Kristović (PP6 - Dubrovnik-Neretva Region), as a leader of WP2 presented activities done within Work package 2 as well as other obligations needed to be done by each partner.

For starters, visibility rules are explained as they were on the previous meeting, more specifically about EU and Programme branding illustrative elements have to be clearly and visibly displayed in all published materials and/or activities addressed to the public (printed publications, events, digital and electronic materials...), Project logo + Reference to EU co-financing and importance of it.

Also main documents and material were introduced as sent to group WATERCARE e-mail, such as Communication plan/strategy, Newsletter, Roll up, Poster, Gadgets, Institutional webpage, Facebook and Interreg webpage. Those materials were specifically explained on points of Interreg Programme rules of branding and visibility.

First Newsletter has been made, second Roll up design has been used for this meeting, poster has been publicly displayed, gadgets were described (green approach, main rules – Brand Manual as well as last time), PPs were reminded to create a WATERCARE section on their institutional webpage, and Facebook and Interreg web was mentioned.

For 'in due time' reporting on WATERCARE PPs were asked to actively send their news of progress and activities to Communication Manager. Also, attendees for public events were reminder once again.

DNR also showed their achievements within the WP2 by now (Kick off meeting, Communication Plan, KoM press conference, Poster placement 9/10, Brief project description on institutional website 8/10, 29 articles and videos, 2 publications on specialized press, Newsletter creation, Roll up design, Gadgets - 40 maps, 40 pads and 40 sun hats – total 120 pcs, Pula meeting, Participation in other events (with Programme, EU Commission, National/Regional/Local

Authorities..) – JS Venice Seminar - for LPs, Financial and Communication Managers, Web Content creation and updating of the website - Interreg webpage, Metris webpage, DNR webpage, UNIST webpage 16 News and Social media management – Facebook.

As some partners foresee to purchase equipment or has already did it, WP2 Leader will send a specific communication on Labeling and Plaques in order to comply with Programme rules.

### **Work Package 3 - Implementation and monitoring of the WATERCARE Water Quality Integrated System (WQIS)**

*WATERCARE\_III STC Meeting\_WP3*

After having taken the conceptual models of the WQIS and of the general implementation scheme, the focus of the presentation was put on the data management part, especially in the web interface for the manual insertion of the results of the laboratory analyses.

A demo was also presented for the interactive display of data from the Fano pilot site. The web interface and the data visualization platform will be made available and used by all project partners.

Furthermore, it was described the application of the numerical model of the coastal waters (FOM) to pilot site of the Fano-Arzilla and to the 4 target sites (Rasa, Cetina, Neretva, Pescara). Actually, the numerical model is implemented for the pilot site, but is still in the development phase (due to lack of detailed bathymetric data) in the 4 target sites.

Preliminary results of microbial contamination of bathing waters during the rainfall events (in Summer 2019) showed a high dispersion of *E. coli* and *Enterococci* in front of the Arzilla mouth, with values that exceed the legal limits in the stations near the shore. Environmental parameters including chemical and physical variables were analysed together with bacterial concentrations in riverine and sea water. In particular, in the river waters N-NH<sub>3</sub>, P-tot and Chlorophyll *a* were present. Higher correlation between microbial and nutrient/chlorophyll *a* concentration was obtained ( $p < 0.001$ ). In the seawater, nutrient load shows higher dispersion along the transects



in front of the Arzilla mouth with values from 0 to 3.83  $\mu\text{M}$  for  $\text{N-NH}_3$ , from 0 to 136  $\mu\text{M}$  for  $\text{N-NO}_3$ , from 0 to 212.5  $\mu\text{M}$  for  $\text{N tot}$  and from 0 to 2.96  $\mu\text{M}$  for  $\text{P tot}$ .

Riverine system plays a significant role in the bacterial contamination and nutrient discharge of bathing waters during the rainfall event visible in the stations near the shore (SW0 and SW50). The dispersion is influenced by winds and hydrodynamic events.

The list of parameters to be monitored by Croatian PPs has been defined and agreed together with the LP. The list is attached to the Minutes.

### ***Work Package 3 - Implementation and monitoring of the WATERCARE Water Quality Integrated System (WQIS)***

*WATERCARE\_III STC Meeting\_WP3\_Parallel Session*

In the parallel technical section, some fundamental sensors for the implementation of the WQIS were presented, in particular the datalogger, the multi-parameter probe and the automatic sampler. The sensors were prepared previously and connected to the demo.

The global functionalities of the sensors have also been described with the help of the Italian distributor. The features of the systems / sensors selected for the Watercare Project were then emphasized.

The partners have had the opportunity to see and touch the devices live, asked for commercial information (indicative prices) considering the budget available to them and the use in the field at their sampling sites.

### ***Work Package 4 - WATERCARE Pilot realization***

*WATERCARE\_III STC Meeting\_WP4*

ASET reported the update of the Pilot Project Realization, in detail:



- Construction works were assigned officially at the end of September and the contract with the construction company was signed on Friday 15/11/2019;
- ASET carried out the Clearance works for unexploded ordnance (end of the works 28th of October) and currently it is waiting for the Defense Ministry final approval to start the construction works (expected by the end of November);
- ASET delivered the structural project to the Public Office for Civil works: structural works could start after the 5th of December.

### ***Work Package 5 - Smart system to support governance decision processes in Water Management of Adriatic basin***

*WATERCARE\_III STC Meeting\_WP5*

Martin Bucan from SDC started his presentation with an overview of WP5 objective and goals. After that Bucan introduced activities needed to create smart system to support governance decision processes in Water Management of Adriatic basin.

Dependency of WP5 on work of other activities, primarily Activity 3.2 - Sampling of WATERCARE sites, Activity 3.3 - Implementation of WATERCARE WQIS and WP 4 WATERCARE Pilot realization, was discussed. It was stressed that real-time Alert system is dependent on database which will be filled with data collected during previous activities.

Bucan also talked about responsibilities for the implementation of WP 5 activities and how is responsibility split between SDC, CNR, UNIURB and MARCHE.

Afterwards, working of Alert Tool was described. When a trigger threshold of the Real-time Water Monitoring system is triggered, the Alert Tool is activated. CNR is working on the development of the centralized Water Monitoring System database which will contain all collected data. That data will be used by The Forecast Operational Model. The Alert Tool will be validated with simulations that force the crossing of the threshold limits to verify that the correct response was produced.

For Activity 5.3 Bucan gave overview of EU legislation with respect to Water Framework Directive and Marine Strategy Framework Directive and stressed the need for governance guidelines in order achieve better management of water treatment and water courses. This activity is primarily responsibility of MARCHE.

Last point discussed was cost structure of WP 5 activities. Overview was given for staff and office costs, travel and accommodation costs, external expertise and services costs and equipment expenditure.

Then, Luigi Bolognini from Marche Region took the floor as involved PP (MARCHE is Act. 5.3 Leader). He highlighted EU Regulations' and Directives' articles to comply with as well as a focus on urban wastewater collection systems and their spill in the hydro-environment foreseen in the Urban Wastewater Directive).

Integrations among different EU Directives (Wastewater, UWWTD, Bathing Water and Water Framework) and their adoption at national levels have been also underlined.

Bolognini reminded which were needs and problems to be solved that on the base of the project proposal, in particular the problem of wastewater leakage when it rains and its possible elimination/reduction, so, focusing on the WATERCARE case study site, he underlined that this is not an occasional phenomenon, but it happens whenever a meteoric event occurs.

Then, Bolognini passed to the microbiological impacts that are the most evident effects of this phenomenon asserting that the implementation and management of the WQIS system is the right solution to adopt. Therefore, first step is to share the BW profiles studied and realized in conformity with the BW Directive. For the Fano study case area, profiles' information have been shown and it is asked to concerned PPs to elaborate and share the same type of information in relation to the other project target areas.

Main WQIS elements related to the pilot site of Arzilla (Fano) have been illustrated, showing their position and the reasons of those choices. Per hypothesis, the same and also with the support of specific cartography, has been done for Pescara, Rasa, Cetina e Neretva sites, with the aim at stimulating the discussion on the various issues that each site registers.

At the end and with reference to the D.5.3.1, some reflexions have been exposed on the importance and contents of the Guidelines that will be drafted in order to support the Governance and the implementation of WQIS in coastal municipalities that are affected by criticalities subject of the project.

### Q&A, final conclusions and next steps

At the end of WP presentations all partners firstly discussed on specific technical data that need to be measured in order to implement project activities, mainly on Croatian side, and then on how the budget is assigned to PPs, verifying who is in charge of what and if those amounts were estimated correctly or not.

Last, Mr. Marini took the floor summing up project achievements, next steps and proposing to meet again for the 4<sup>th</sup> STC Meeting within half of May 2020 (probably during the 2<sup>nd</sup> week). That STC Meeting will be hosted by Split-Dalmatia County in Split.

# SAMPLING PARAMETERS protocol

Data and hour UTC:

Riverine:

PARAMETERS	Riverine	Seawater
<b>Meteorological data:</b>		
Rainfall (mm/m <sup>2</sup> and length of time)	Local meteo station	
Wind (speed and direction)	Local meteo station	
Solar Radiation (%)	Local meteo station	
Sea water current	N--NE--E--SE--S--SO--W--NW	
Sea state (waves)	Local meteo station	
<b>Chemical/physical data:</b>		
Salinity	CTD	CTD
Temperature (°C)	CTD	CTD
Redox (mV)	CTD	CTD
pH	CTD	CTD
Conductibility (mS/cm)	CTD	CTD
BOD <sub>5</sub> (mg/L)	LAB	no
COD (mg/L)	LAB	no
Turbidity (NTU)	CTD	CTD
Dissolved O <sub>2</sub> (% sat)	CTD	CTD
Dissolved O <sub>2</sub> (mg/L)	CTD	CTD
Chlorophyll a (µg/L)	CTD/NO	CTD/NO
TSS (mg/L)	no	no
TOM (mg/L)	no	no
Ammonium N-NH <sub>4</sub> (µM)	lab	no
Nitrates N-NO <sub>3</sub> <sup>-</sup> (µM)	no	no
Nitrites N-NO <sub>2</sub> <sup>-</sup> (µM)	no	no
N tot (µM)	lab	no
P tot (µM)	lab	no
Orthophosphate P-PO <sub>4</sub> (µM)	no	no
<b>Microbiological data:</b>		
Fecal Indicator Bacteria (Escherichia coli and Enterococcus)	lab	lab

## WATERCARE SAMPLING PARAMETERS

<b>PARAMETERS</b>	
<b>Meteorological</b>	
Wind (speed(m/s),direction(°N),gust(m/s)); Air Temperature(°C);Relative humidity(%);Barometric pressure(mbar); Vapor pressure(mbar); Solar Flux Density (kW/m <sup>2</sup> ); Solar total flux(MJ/ m <sup>2</sup> ); Rainfall (mm/20 minute); number of lightning strikes; Average distance of lightning strikes(km); North-South tilt(°);east-west tilt(°)	Data from local meteo station Campbell scientific CLIMAVUE50
<b>Chemical/physical</b>	
<b>Riverine</b>	
Temperature (°C) <sup>1</sup>	YSI EXO2 CTD Real Time
Conductibility (mS/cm) <sup>1</sup>	YSI EXO2 CTD Real Time
Salinity(PSU) <sup>1</sup>	YSI EXO2 CTD Real Time
Dissolved O <sub>2</sub> Concentration (mg/L) <sup>1</sup>	YSI EXO2 CTD Real Time
Dissolved O <sub>2</sub> Saturation (% sat) <sup>1</sup>	YSI EXO2 CTD Real Time
Turbidity (NTU) <sup>1</sup>	YSI EXO2 CTD Real Time
pH <sup>2</sup>	CTD Spot
Redox (mV) <sup>2</sup>	CTD Spot
Chlorophyll a (µg/L) <sup>2</sup>	CTD Spot

**Using time in UTC form is mandatory**

<sup>1</sup>Wiped sensors installed on YSI EXO2 multiparametric CTD probe, Fano pilot site. Choosing the YSI EXO2 probe it will be possible to expand the system by installing new sensors for future uses (eg Ph, redox, nitrate, etc.) to be used also in profiling mode

<sup>2</sup>Sensors not installed in Fano pilot site. Keep in mind that to have scientific quality data from pH and Redox sensors, you need almost weekly/monthly cleaning and calibration.

As required during the technical session held at the Pescara meeting, the necessary equipment for the multi-parameter CTD probe and the automatic refrigerated river water sampling are listed below.

They are general advice after the installation experience on the Fano pilot site so the equipment list is not exhaustive because it must be adapted to your measurement site. In general, considering the available budget, the list below can be considered a guide to "not buy" non-essential equipment. Contact the national distributor for further details.

Equipment and accessories to buy for **YSI EXO2 multiparametric CTD probe**. All Watercare sites

Code	Description	Note
599502-01	YSI model EXO2 multi-parameter probe with 6 universal sensor ports, 1 wiper port, integrated data logger for data storage, bluetooth, internal battery power, KOR-EXO software for configuration, management and calibration included. Level sensor incorporated in the probe body (range = 0 - 10 meters or site dependent level)	<ul style="list-style-type: none"> <li>• Choosing the YSI EXO2 probe it will be possible to expand the system by installing new sensors for future uses (eg Ph, redox, nitrate, etc.) to be used also in profiling mode</li> <li>• Central wipers and wiped sensors were chosen to drastically reduce biofouling</li> </ul>
599827	Wiped Temperature/conductivity sensor (long term monitoring)	
599100-01	Wiped Dissolved oxygen sensor (optical)	Concentration and saturation
599101-01	Wiped Turbidity sensor	
599090-01	Automatic central wiper for sensor cleaning	
599564/AF1	Anti-Fouling KIT consisting of: Copper cage for sensor covers, copper adhesive tape, spray solution, transparent protective films. (Codes = 599564, 616189, 616290, 599663)	Useful in salt water
599810	USB adapter for probe connection - PC	Not essential for watercare project but recommended. Useful for laboratory test or

		field profiling mode. Alternatively you can use the DCP or the bluetooth link
599820	Multi-output DCP adapter for SDI-12 / RS232 signal acquisition (adapter required in connection between probe and external datalogger)	
CONN-EXO	Connector for standard EXO cable-probe interface to an external datalogger	
599040-4	Probe cable - length 2 m	
K-SLN-04	Calibration KIT (Conductivity, Turbidity)	

Equipment and accessories to buy for YSI EXO2 multiparametric CTD probe.

**Optional (because they are Watercare site dependent).**

599201	EXO2 flow cell kit	In Fano pilot site we decided to pump the river water into the box. Don't buy if you design to install the EXO2 directly into the river
	Peristaltic pump	
681680059 + 609004367/2	150m (pipe) water collection kit, with 2 anti-occlusion filters	
601644000	Wet Threshold Sensor ISCO mod. 1640	Buy it if you want to start the automatic water sampling after crossing a threshold by the river level

Equipment and accessories to buy for **ISCO AVALANCHE portable refrigerated sampler**. All Watercare sites

	ISCO AVALANCHE portable refrigerated sampler, including - 14 bottles of 950ml in polyethylene with caps, basket 2 n. 2 distribution pipes	
--	---	--



	- distribution arm	
	suction line 150m	
	anti-occlusion filters	
	sampler transport trolley	optional
	kit 14 bottles of sampling from 950ml with caps, 2 tubes, basket and adapter	optional, but recommended. After the end of the sampling, this basket and additional bottles are useful to immediately restore the sampler to make it immediately operational
	USB connection cable between sampler and PC, 3m	optional, but recommended

---