

Horizon 2020

Call: H2020-IND-CE-2016-17

(Industry 2020 in the Circular Economy)

Topic: CIRC-02-2016-2017

Type of action: IA

(Innovation action)

Proposal number: 776451-1

Proposal acronym: FullWaterRecovery

Deadline Id: H2020-CIRC-2017TwoStage

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How to fill in the forms

The administrative forms must be filled in for each proposal using the templates available in the submission system. Some data fields in the administrative forms are pre-filled based on the previous steps in the submission wizard.

Proposal ID 776451-1

Acronym FullWaterRecovery

1 - General information

Topic CIRC-02-2016-2017

Call Identifier H2020-IND-CE-2016-17

Type of Action IA

Deadline Id H2020-CIRC-2017TwoStage

Acronym FullWaterRecovery

Proposal title* Integrated Water Cycle characterization, simulation and upgrade for safe reuse of water-sludge resources in agricultural and touristic areas

Note that for technical reasons, the following characters are not accepted in the Proposal Title and will be removed: < > " &

Duration in months 36

Fixed keyword 1 Water recycling and re-use

Add

Fixed keyword 2 Circular economy

Add

Remove

Fixed keyword 3 Water quality monitoring

Add

Remove

Fixed keyword 4 Water economics

Add

Remove

Fixed keyword 5 Wastewater management

Add

Remove

Fixed keyword 6 Sustainable innovation

Add

Remove

Free keywords
Water policy
water technology
water supply sustainability
resources efficiency
wastewater treatment and recycling
water saving
integrated management of water
water scarcity management
water services

Abstract

The project proposal deals with the water services and recovery actions in the context of the circular economy. The overall objective is to develop an innovative approach for the management of water resources by the optimization and design of simulation and upgrades of the Integrated Water Cycle (IWC), intended as collection-distribution-sewerage-sanification-drain-residual impact control of water in anthropic activities. The project aims to develop a new paradigm for wastewater treatment and residuals control for the safe reuse of water both for irrigation of vineyards and public green in tourist and recreational areas. The primary purpose of the project is thinking a new approach to the closure of the water cycle,



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Acronym **FullWaterRecovery**

increasing the efficiency of the wastewater treatment plants through the re-use of water/sludge/nutrients resource. The proposal is a large scale demonstration project in which innovative solutions are presented and organized in three phases: a) characterization and simulation of selected IWC with the study and development of innovative solutions for water, sludge and nutrients safe recovery; b) design and pilot implementation of the new systems achieved in the first phase in a specific regional-basin area of agronomic and tourist interest in Friuli Venezia Giulia Region (Italy); c) planning and transfer the innovative standards and guide-lines, in other regions with different hydrogeological and climate features. The main goal of the project is the characterization of Integrated Water Cycles by modelling flows and treatments, checking processes, seeking recovery potential and controlling toxicity of residuals, in order to safely reuse water effluents, sludge and nutrients for various purposes. The development of a pilot demonstration project for water resources recovery will lead to new perspectives for reuse and will form a new operational paradigm, easily exportable and implemented in other partner countries and other territorial realities.

Remaining characters

11

Has this proposal (or a very similar one) been submitted in the past 2 years in response to a call for proposals under Horizon 2020 or any other EU programme(s)?

Yes No



Proposal ID 776451-1

Acronym FullWaterRecovery

Declarations

1) The coordinator declares to have the explicit consent of all applicants on their participation and on the content of this proposal.	<input checked="" type="checkbox"/>
2) The information contained in this proposal is correct and complete.	<input checked="" type="checkbox"/>
3) This proposal complies with ethical principles (including the highest standards of research integrity — as set out, for instance, in the European Code of Conduct for Research Integrity — and including, in particular, avoiding fabrication, falsification, plagiarism or other research misconduct).	<input checked="" type="checkbox"/>
4) The coordinator confirms:	
- to have carried out the self-check of the financial capacity of the organisation on http://ec.europa.eu/research/participants/portal/desktop/en/organisations/lfv.html or to be covered by a financial viability check in an EU project for the last closed financial year. Where the result was “weak” or “insufficient”, the coordinator confirms being aware of the measures that may be imposed in accordance with the H2020 Grants Manual (Chapter on Financial capacity check); or	<input type="radio"/>
- is exempt from the financial capacity check being a public body including international organisations, higher or secondary education establishment or a legal entity, whose viability is guaranteed by a Member State or associated country, as defined in the H2020 Grants Manual (Chapter on Financial capacity check); or	<input checked="" type="radio"/>
- as sole participant in the proposal is exempt from the financial capacity check.	<input type="radio"/>
5) The coordinator hereby declares that each applicant has confirmed:	
- they are fully eligible in accordance with the criteria set out in the specific call for proposals; and	<input checked="" type="checkbox"/>
- they have the financial and operational capacity to carry out the proposed action.	<input checked="" type="checkbox"/>
The coordinator is only responsible for the correctness of the information relating to his/her own organisation. Each applicant remains responsible for the correctness of the information related to him/her and declared above. Where the proposal to be retained for EU funding, the coordinator and each beneficiary applicant will be required to present a formal declaration in this respect.	

According to Article 131 of the Financial Regulation of 25 October 2012 on the financial rules applicable to the general budget of the Union (Official Journal L 298 of 26.10.2012, p. 1) and Article 145 of its Rules of Application (Official Journal L 362, 31.12.2012, p.1) applicants found guilty of misrepresentation may be subject to administrative and financial penalties under certain conditions.

Personal data protection

The assessment of your grant application will involve the collection and processing of personal data (such as your name, address and CV), which will be performed pursuant to Regulation (EC) No 45/2001 on the protection of individuals with regard to the processing of personal data by the Community institutions and bodies and on the free movement of such data. Unless indicated otherwise, your replies to the questions in this form and any personal data requested are required to assess your grant application in accordance with the specifications of the call for proposals and will be processed solely for that purpose. Details concerning the purposes and means of the processing of your personal data as well as information on how to exercise your rights are available in the [privacy statement](#). Applicants may lodge a complaint about the processing of their personal data with the European Data Protection Supervisor at any time.

Your personal data may be registered in the Early Detection and Exclusion system of the European Commission (EDES), the new system established by the Commission to reinforce the protection of the Union's financial interests and to ensure sound financial management, in accordance with the provisions of articles 105a and 108 of the revised EU Financial Regulation (FR) (Regulation (EU, EURATOM) 2015/1929 of the European Parliament and of the Council of 28 October 2015 amending Regulation (EU, EURATOM) No 966/2012) and articles 143 - 144 of the corresponding Rules of Application (RAP) (COMMISSION DELEGATED REGULATION (EU) 2015/2462 of 30 October 2015 amending Delegated Regulation (EU) No 1268/2012) for more information see the [Privacy statement for the EDES Database](#).



Proposal ID **776451-1**

Acronym **FullWaterRecovery**

List of participants

#	Participant Legal Name	Country
1	UNIVERSITA DEGLI STUDI DI UDINE	Italy
2	KEMIJSKI INSTITUT	Slovenia
3	AGENCIA ESTATAL CONSEJO SUPERIOR DEINVESTIGACIONES CIENTIFICAS	Spain
4	INSTITUT ZA POLJOPRIVREDU I TURIZAM USTANOVA	Croatia
5	ISTITUTO DI RICERCHE FARMACOLOGICHE MARIO NEGRI	Italy
6	ACQUEDOTTO POIANA SPA	Italy
7	TECHNISCHE UNIVERSITAET WIEN	Austria
8	IRISACQUA srl	Italy
9	Consorzio tutela vini "Friuli Colli Orientali e Ramandolo"	Italy
10	AGENZIA REGIONALE PER LA PROTEZIONE DELL'AMBIENTE DEL FRIULI VENEZIA GIULIA	Italy
11	GIT Grado Impianti Turistici S.p.A.	Italy
12	Soc. Agr. Friul Prati s.s di Lucca G&M	Italy
13	MOSAICO TECNOLOGIE AMBIENTE E INDUSTRIE SRL	Italy



Proposal ID **776451-1**

Acronym **FullWaterRecovery**

Short name **UNIUD**

2 - Administrative data of participating organisations

PIC	Legal name
999899281	UNIVERSITA DEGLI STUDI DI UDINE

Short name: UNIUD

Address of the organisation

Street VIA PALLADIO 8

Town UDINE

Postcode 33100

Country Italy

Webpage www.uniud.it

Legal Status of your organisation

Research and Innovation legal statuses

Public body yes

Legal person yes

Non-profit yes

International organisation no

International organisation of European interest no

Secondary or Higher education establishment yes

Research organisation no

Enterprise Data

SME self-declared status 2012 - no

SME self-assessment unknown

SME validation sme 2012 - no

Based on the above details of the Beneficiary Registry the organisation is not an SME (small- and medium-sized enterprise) for the call.



Proposal ID 776451-1

Acronym FullWaterRecovery

Short name UNIUD

Department(s) carrying out the proposed work

Department 1

Department name Dipartimento Politecnico di Ingegneria e Architettura

not applicable

Same as organisation address

Street Via delle Scienze, 206

Town Udine

Postcode 33100

Country Italy

Department 2

Department name Dipartimento di Scienze AgroAlimentari, Ambientali e Animali

not applicable

Same as organisation address

Street Via delle Scienze, 206

Town Udine

Postcode 33100

Country Italy

Dependencies with other proposal participants

Character of dependence	Participant
-------------------------	-------------



Proposal ID **776451-1**

Acronym **FullWaterRecovery**

Short name **UNIUD**

Person in charge of the proposal

The name and e-mail of contact persons are read-only in the administrative form, only additional details can be edited here. To give access rights and basic contact details of contact persons, please go back to Step 4 of the submission wizard and save the changes.

Title

Sex Male Female

First name **Daniele**

Last name **GOI**

E-Mail **daniele.goi@uniud.it**

Position in org.

Department

Same as organisation

Same as organisation address

Street

Town

Post code

Country

Website

Phone 1

Phone 2

Fax



Proposal ID **776451-1**

Acronym

FullWaterRecovery

Short name **KI**

PIC

998756718

Legal name

KEMIJSKI INSTITUT

Short name: KI

Address of the organisation

Street **HAJDRIHOVA 19**

Town **LJUBLJANA**

Postcode **1000**

Country **Slovenia**

Webpage **http://www.ki.si**

Legal Status of your organisation

Research and Innovation legal statuses

Public body yes

Legal person yes

Non-profit yes

International organisation no

International organisation of European interest no

Secondary or Higher education establishment no

Research organisation yes

Enterprise Data

SME self-declared status..... unknown

SME self-assessment unknown

SME validation sme..... unknown

Based on the above details of the Beneficiary Registry the organisation is not an SME (small- and medium-sized enterprise) for the call.



Proposal ID 776451-1

Acronym FullWaterRecovery

Short name KI

Department(s) carrying out the proposed work

Department 1

Department name not applicable

Same as organisation address

Street

Town

Postcode

Country

Dependencies with other proposal participants

Character of dependence	Participant	
-------------------------	-------------	--



Proposal ID **776451-1**

Acronym **FullWaterRecovery**

Short name **KI**

Person in charge of the proposal

The name and e-mail of contact persons are read-only in the administrative form, only additional details can be edited here. To give access rights and basic contact details of contact persons, please go back to Step 4 of the submission wizard and save the changes.

Title

Sex Male Female

First name **Marjana**

Last name **Novic**

E-Mail **marjana.novic@ki.si**

Position in org.

Department

Same as organisation

Same as organisation address

Street

Town

Post code

Country

Website

Phone 1

Phone 2

Fax

Other contact persons

First Name	Last Name	E-mail	Phone
Barbara	Tisler	barbara.tisler@ki.si	+38647604 98



Proposal ID **776451-1**

Acronym **FullWaterRecovery**

Short name **CSIC**

PIC

999991722

Legal name

AGENCIA ESTATAL CONSEJO SUPERIOR DE INVESTIGACIONES CIENTIFICAS

Short name: CSIC

Address of the organisation

Street CALLE SERRANO 117

Town MADRID

Postcode 28006

Country Spain

Webpage <http://www.csic.es>

Legal Status of your organisation

Research and Innovation legal statuses

Public body yes

Legal person yes

Non-profit yes

International organisation no

International organisation of European interest no

Secondary or Higher education establishment no

Research organisation yes

Enterprise Data

SME self-declared status.....2015 - no

SME self-assessment unknown

SME validation sme.....2007 - no

Based on the above details of the Beneficiary Registry the organisation is not an SME (small- and medium-sized enterprise) for the call.



Proposal ID **776451-1**

Acronym **FullWaterRecovery**

Short name **CSIC**

Department(s) carrying out the proposed work

Department 1

Department name	<input type="text" value="Applied Biology and Soil Sciences (CEBAS)"/>	<input type="checkbox"/> not applicable
	<input type="checkbox"/> Same as organisation address	
Street	<input type="text" value="Campus Universitario Espinardo Ed. 25"/>	
Town	<input type="text" value="Murcia"/>	
Postcode	<input type="text" value="30100"/>	
Country	<input type="text" value="Spain"/>	

Dependencies with other proposal participants

<i>Character of dependence</i>	<i>Participant</i>	
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Proposal ID **776451-1**

Acronym **FullWaterRecovery**

Short name **CSIC**

Person in charge of the proposal

The name and e-mail of contact persons are read-only in the administrative form, only additional details can be edited here. To give access rights and basic contact details of contact persons, please go back to Step 4 of the submission wizard and save the changes.

Title

Dr.

Sex

Male

Female

First name **Diego**

Last name **Intrigliolo**

E-Mail **dintri@cebas.csic.es**

Position in org.

Tenured Scientist

Department

Applied Biology and Soil Sciences (CEBAS)

Same as organisation

Same as organisation address

Street

Campus Universitario Espinardo Ed. 25

Town

Murcia

Post code

30100

Country

Spain

Website

Phone 1

+34968396200

Phone 2

+xxx xxxxxxxxx

Fax

+34656682880



Proposal ID **776451-1**

Acronym **FullWaterRecovery**

Short name **IPTPO**

PIC 968408328 **Legal name** INSTITUT ZA POLJOPRIVREDU I TURIZAM USTANOVA

Short name: IPTPO

Address of the organisation

Street **KARLA HUGUESA 8**

Town **POREC**

Postcode **52440**

Country **Croatia**

Webpage <http://www.iptpo.hr/>

Legal Status of your organisation

Research and Innovation legal statuses

Public body yes

Legal person yes

Non-profit yes

International organisation no

International organisation of European interest no

Secondary or Higher education establishment no

Research organisation yes

Enterprise Data

SME self-declared status.....2011 - yes

SME self-assessment unknown

SME validation sme.....2011 - no

Based on the above details of the Beneficiary Registry the organisation is not an SME (small- and medium-sized enterprise) for the call.



Proposal ID 776451-1

Acronym FullWaterRecovery

Short name IPTPO

Department(s) carrying out the proposed work

Department 1

Department name Department of Agriculture and Nutrition

not applicable

Same as organisation address

Street KARLA HUGUESA 8

Town POREC

Postcode 52440

Country Croatia

Dependencies with other proposal participants

Character of dependence	Participant	
-------------------------	-------------	--



Proposal ID **776451-1**

Acronym **FullWaterRecovery**

Short name **IPTPO**

Person in charge of the proposal

The name and e-mail of contact persons are read-only in the administrative form, only additional details can be edited here. To give access rights and basic contact details of contact persons, please go back to Step 4 of the submission wizard and save the changes.

Title

Dr.

Sex

Male

Female

First name **Marijan**

Last name **Bubola**

E-Mail **marijan@iptpo.hr**

Position in org.

Research Associate

Department

Department of Agriculture and Nutrition

Same as organisation

Same as organisation address

Street

KARLA HUGUESA 8

Town

POREC

Post code

52440

Country

Croatia

Website

Phone 1

+38552408349

Phone 2

+XXX XXXXXXXXX

Fax

+XXX XXXXXXXXX



Proposal ID **776451-1**

Acronym **FullWaterRecovery**

Short name **IRFMN**

PIC 999661146 **Legal name** *ISTITUTO DI RICERCHE FARMACOLOGICHE MARIO NEGRI*

Short name: IRFMN

Address of the organisation

Street VIA GIUSEPPE LA MASA 19

Town MILANO

Postcode 20156

Country Italy

Webpage www.marionegri.it

Legal Status of your organisation

Research and Innovation legal statuses

Public body no Legal person yes
Non-profit yes
International organisation unknown
International organisation of European interest unknown
Secondary or Higher education establishment unknown
Research organisation yes

Enterprise Data

SME self-declared status.....2014 - no
SME self-assessment2014 - no
SME validation sme..... unknown

Based on the above details of the Beneficiary Registry the organisation is not an SME (small- and medium-sized enterprise) for the call.



Proposal ID **776451-1**

Acronym **FullWaterRecovery**

Short name **IRFMN**

Department(s) carrying out the proposed work

Department 1

Department name not applicable

Same as organisation address

Street

Town

Postcode

Country

Dependencies with other proposal participants

Character of dependence	Participant	
--------------------------------	--------------------	--



Proposal ID **776451-1**

Acronym **FullWaterRecovery**

Short name **IRFMN**

Person in charge of the proposal

The name and e-mail of contact persons are read-only in the administrative form, only additional details can be edited here. To give access rights and basic contact details of contact persons, please go back to Step 4 of the submission wizard and save the changes.

Title

Dr.

Sex

Male

Female

First name **Emilio**

Last name **Benfenati**

E-Mail **emilio.benfenati@marionegri.it**

Position in org.

Head, Environmental Chemistry and Toxicology Laboratory

Department

Environmental Health Sciences

Same as organisation

Same as organisation address

Street

VIA GIUSEPPE LA MASA 19

Town

MILANO

Post code

20156

Country

Italy

Website

www.marionegri.it

Phone 1

+39-02-39014420

Phone 2

+xxx xxxxxxxxx

Fax

+39-02-39014735

Other contact persons

First Name	Last Name	E-mail	Phone
Vittorio	Castiglioni	vittorio.castiglioni@marionegri.it	+39-02-39014394



Proposal ID **776451-1**

Acronym **FullWaterRecovery**

Short name **ACQUEDOTTO POIANA SPA**

PIC

935760165

Legal name

ACQUEDOTTO POIANA SPA

Short name: ACQUEDOTTO POIANA SPA

Address of the organisation

Street Viale Duca degli Abruzzi 1

Town Cividale del Friuli

Postcode 33043

Country Italy

Webpage www.poiana.it

Legal Status of your organisation

Research and Innovation legal statuses

Public body unknown

Legal person yes

Non-profit unknown

International organisation unknown

International organisation of European interest unknown

Secondary or Higher education establishment unknown

Research organisation unknown

Enterprise Data

SME self-declared status..... unknown

SME self-assessment unknown

SME validation sme..... unknown

Based on the above details of the Beneficiary Registry the organisation is not an SME (small- and medium-sized enterprise) for the call.



Proposal ID 776451-1

Acronym FullWaterRecovery

Short name ACQUEDOTTO POIANA SPA

Department(s) carrying out the proposed work

No department involved

Department name not applicable

Same as organisation address

Street

Town

Postcode

Country

Dependencies with other proposal participants

Character of dependence	Participant	
-------------------------	-------------	--



Proposal ID **776451-1**

Acronym **FullWaterRecovery**

Short name **ACQUEDOTTO POIANA SPA**

Person in charge of the proposal

The name and e-mail of contact persons are read-only in the administrative form, only additional details can be edited here. To give access rights and basic contact details of contact persons, please go back to Step 4 of the submission wizard and save the changes.

Title

Dr.

Sex

Male

Female

First name **Alessandro**

Last name **Patriarca**

E-Mail **alessandro.patriarca@poiana.it**

Position in org.

General manager

Department

ACQUEDOTTO POIANA SPA

Same as organisation

Same as organisation address

Street

Viale Duca degli Abruzzi 1

Town

Cividale del Friuli

Post code

33043

Country

Italy

Website

Phone 1

+390432706110

Phone 2

+xxx xxxxxxxxx

Fax

+390432700771

Other contact persons

First Name	Last Name	E-mail	Phone
Tosca	Todone	tosca.todone@poiana.it	+390432706113



Proposal ID **776451-1**

Acronym **FullWaterRecovery**

Short name **TU WIEN**

PIC

999979888

Legal name

TECHNISCHE UNIVERSITAET WIEN

Short name: TU WIEN

Address of the organisation

Street KARLSPLATZ 13

Town WIEN

Postcode 1040

Country Austria

Webpage www.tuwien.ac.at

Legal Status of your organisation

Research and Innovation legal statuses

Public body yes

Legal person yes

Non-profit yes

International organisation no

International organisation of European interest no

Secondary or Higher education establishment yes

Research organisation yes

Enterprise Data

SME self-declared status.....2015 - no

SME self-assessment unknown

SME validation sme.....2012 - no

Based on the above details of the Beneficiary Registry the organisation is not an SME (small- and medium-sized enterprise) for the call.



Proposal ID 776451-1

Acronym FullWaterRecovery

Short name TU WIEN

Department(s) carrying out the proposed work

Department 1

Department name Centre for Water Resource Systems

not applicable

Same as organisation address

Street KARLSPLATZ 13

Town WIEN

Postcode 1040

Country Austria

Dependencies with other proposal participants

Character of dependence	Participant	
--------------------------------	--------------------	--



Proposal ID **776451-1**

Acronym **FullWaterRecovery**

Short name **TU WIEN**

Person in charge of the proposal

The name and e-mail of contact persons are read-only in the administrative form, only additional details can be edited here. To give access rights and basic contact details of contact persons, please go back to Step 4 of the submission wizard and save the changes.

Title

Dr.

Sex

Male

Female

First name **Gemma**

Last name **Carr**

E-Mail **carr@waterresources.at**

Position in org.

Post Doctoral Research Assistant

Department

Centre for Water Resource Systems

Same as organisation

Same as organisation address

Street

KARLSPLATZ 13

Town

WIEN

Post code

1040

Country

Austria

Website

Phone 1

+43(0)15880140665

Phone 2

+XXX XXXXXXXXX

Fax

+XXX XXXXXXXXX



Proposal ID **776451-1**

Acronym

FullWaterRecovery

Short name **IRISACQUA srl**

PIC

936201709

Legal name

IRISACQUA srl

Short name: IRISACQUA srl

Address of the organisation

Street Via IX Agosto 15

Town Gorizia

Postcode 34170

Country Italy

Webpage www.irisacqua.it

Legal Status of your organisation

Research and Innovation legal statuses

Public body unknown

Legal person yes

Non-profit unknown

International organisation unknown

International organisation of European interest unknown

Secondary or Higher education establishment unknown

Research organisation unknown

Enterprise Data

SME self-declared status..... unknown

SME self-assessment unknown

SME validation sme..... unknown

Based on the above details of the Beneficiary Registry the organisation is not an SME (small- and medium-sized enterprise) for the call.



Proposal ID 776451-1

Acronym FullWaterRecovery

Short name IRISACQUA srl

Department(s) carrying out the proposed work

No department involved

Department name

not applicable

Same as organisation address

Street

Town

Postcode

Country

Dependencies with other proposal participants

Character of dependence	Participant	
-------------------------	-------------	--



Proposal ID **776451-1**

Acronym **FullWaterRecovery**

Short name **IRISACQUA srl**

Person in charge of the proposal

The name and e-mail of contact persons are read-only in the administrative form, only additional details can be edited here. To give access rights and basic contact details of contact persons, please go back to Step 4 of the submission wizard and save the changes.

Title

Dr.

Sex

Male

Female

First name **Igor**

Last name **Bortolotti**

E-Mail **ibortolotti@irisacqua.it**

Position in org.

Technical supervisor

Department

IRISACQUA srl

Same as organisation

Same as organisation address

Street

Via IX Agosto 15

Town

Gorizia

Post code

34170

Country

Italy

Website

Phone 1

+390481593212

Phone 2

+xxx xxxxxxxxx

Fax

+390481593410

Other contact persons

First Name	Last Name	E-mail	Phone
Emanuela	Stabile	estabile@irisacqua.it	+390481593124



Proposal ID **776451-1**

Acronym **FullWaterRecovery**

Short name **Consorzio tutela vini**

PIC	Legal name
913276826	Consorzio tutela vini "Friuli Colli Orientali e Ramandolo"

Short name: Consorzio tutela vini

Address of the organisation

Street Piazza XXVII maggio

Town Corno di Rosazzo

Postcode 33040

Country Italy

Webpage www.colliorientali.com

Legal Status of your organisation

Research and Innovation legal statuses

Public body	unknown	Legal person	yes
Non-profit	unknown		
International organisation	unknown		
International organisation of European interest	unknown		
Secondary or Higher education establishment	unknown		
Research organisation	unknown		

Enterprise Data

SME self-declared status..... unknown
 SME self-assessment

Based on the above details of the Beneficiary Registry the organisation is not an SME (small- and medium-sized enterprise) for the call.



Proposal ID **776451-1**

Acronym **FullWaterRecovery**

Short name **Consorzio tutela vini**

Department(s) carrying out the proposed work

No department involved

Department name not applicable

Same as organisation address

Street

Town

Postcode

Country

Dependencies with other proposal participants

Character of dependence	Participant	
-------------------------	-------------	--



Proposal ID **776451-1**

Acronym **FullWaterRecovery**

Short name **Consorzio tutela vini**

Person in charge of the proposal

The name and e-mail of contact persons are read-only in the administrative form, only additional details can be edited here. To give access rights and basic contact details of contact persons, please go back to Step 4 of the submission wizard and save the changes.

Title

Dr.

Sex

Male

Female

First name **Mariano**

Last name **Paladin**

E-Mail **direzione@colliorientali.com**

Position in org.

Manager

Department

Consorzio tutela vini "Friuli Colli Orientali e Ramandolo"

Same as organisation

Same as organisation address

Street

Piazza XXVII maggio

Town

Corno di Rosazzo

Post code

33040

Country

Italy

Website

Phone 1

+390432730129

Phone 2

+xxx xxxxxxxxx

Fax

+390432702924



Proposal ID **776451-1**

Acronym **FullWaterRecovery**

Short name **ARPA FVG**

PIC

950037595

Legal name

AGENZIA REGIONALE PER LA PROTEZIONE DELL'AMBIENTE DEL FRIULI VENEZIA GIULIA

Short name: ARPA FVG

Address of the organisation

Street VIA CAIROLI 14

Town PALMANOVA

Postcode 33057

Country Italy

Webpage www.arpa.fvg.it

Legal Status of your organisation

Research and Innovation legal statuses

Public body yes

Legal person yes

Non-profit yes

International organisation no

International organisation of European interest no

Secondary or Higher education establishment no

Research organisation no

Enterprise Data

SME self-declared status..... unknown

SME self-assessment unknown

SME validation sme..... unknown

Based on the above details of the Beneficiary Registry the organisation is not an SME (small- and medium-sized enterprise) for the call.



Proposal ID **776451-1**

Acronym **FullWaterRecovery**

Short name **ARPA FVG**

Department(s) carrying out the proposed work

No department involved

Department name not applicable

Same as organisation address

Street

Town

Postcode

Country

Dependencies with other proposal participants

Character of dependence	Participant	
-------------------------	-------------	--



Proposal ID **776451-1**

Acronym **FullWaterRecovery**

Short name **ARPA FVG**

Person in charge of the proposal

The name and e-mail of contact persons are read-only in the administrative form, only additional details can be edited here. To give access rights and basic contact details of contact persons, please go back to Step 4 of the submission wizard and save the changes.

Title

Dr.

Sex

Male

Female

First name **Stefano**

Last name **Micheletti**

E-Mail **stefano.micheletti@arpa.fvg.it**

Position in org.

Manager

Department

AGENZIA REGIONALE PER LA PROTEZIONE DELL'AMBIENTE DEL FRIU

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Same as organisation address

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PALMANOVA

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Website

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Proposal ID **776451-1**

Acronym **FullWaterRecovery**

Short name **GIT Grado Impianti Turistici S.p.A.**

PIC	Legal name
913195249	GIT Grado Impianti Turistici S.p.A.

Short name: GIT Grado Impianti Turistici S.p.A.

Address of the organisation

Street Viale Dante Alighieri n. 72

Town GRADO

Postcode 34073

Country Italy

Webpage www.gradoit.it

Legal Status of your organisation

Research and Innovation legal statuses

Public body unknown	Legal person yes
Non-profit unknown	
International organisation unknown	
International organisation of European interest unknown	
Secondary or Higher education establishment unknown	
Research organisation unknown	

Enterprise Data

SME self-declared status..... unknown
 SME self-assessment unknown
 SME validation sme..... unknown

Based on the above details of the Beneficiary Registry the organisation is not an SME (small- and medium-sized enterprise) for the call.



Proposal ID 776451-1

Acronym FullWaterRecovery

Short name GIT Grado Impianti Turistici S.p.A.

Department(s) carrying out the proposed work

No department involved

Department name

not applicable

Same as organisation address

Street

Please enter street name and number.

Town

Postcode

Country

Dependencies with other proposal participants

Character of dependence	Participant	
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Proposal ID **776451-1**

Acronym **FullWaterRecovery**

Short name **GIT Grado Impianti Turistici S.p.A.**

Person in charge of the proposal

The name and e-mail of contact persons are read-only in the administrative form, only additional details can be edited here. To give access rights and basic contact details of contact persons, please go back to Step 4 of the submission wizard and save the changes.

Title

Mr.

Sex

Male

Female

First name **Leonardo**

Last name **Tognon**

E-Mail **leonardo.tognon@gradoit.it**

Position in org.

Organizing events manager

Department

GIT Grado Impianti Turistici S.p.A.

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Same as organisation address

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Proposal ID **776451-1** Acronym **FullWaterRecovery** Short name **Soc. Agr. Friul Prati s.s di Lucca G&M**

PIC **Legal name**
 913300979 Soc. Agr. Friul Prati s.s di Lucca G&M

Short name: Soc. Agr. Friul Prati s.s di Lucca G&M

Address of the organisation

Street Via Battiferro 52/2
 Town Mortegliano (ud)
 Postcode 33050
 Country Italy
 Webpage www.friulprati.com

Legal Status of your organisation

Research and Innovation legal statuses

Public body no Legal person yes
 Non-profit no
 International organisation no
 International organisation of European interest no
 Secondary or Higher education establishment no
 Research organisation no

Enterprise Data

SME self-declared status.....2005 - yes
 SME self-assessment unknown
 SME validation sme..... unknown

Based on the above details of the Beneficiary Registry the organisation is an SME (small- and medium-sized enterprise) for the call.



Proposal ID 776451-1

Acronym FullWaterRecovery

Short name Soc. Agr. Friul Prati s.s di Lucca G&M

Department(s) carrying out the proposed work

No department involved

Department name

not applicable

Same as organisation address

Street

Town

Postcode

Country

Dependencies with other proposal participants

Character of dependence	Participant	
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Proposal ID **776451-1**

Acronym **FullWaterRecovery**

Short name **Soc. Agr. Friul Prati s.s di Lucca G&M**

Person in charge of the proposal

The name and e-mail of contact persons are read-only in the administrative form, only additional details can be edited here. To give access rights and basic contact details of contact persons, please go back to Step 4 of the submission wizard and save the changes.

Title

Mr.

Sex

Male

Female

First name **Gianni**

Last name **Lucca**

E-Mail **info@friulprati.it**

Position in org.

Owner

Department

Soc. Agr. Friul Prati s.s di Lucca G&M

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Same as organisation address

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Proposal ID **776451-1** Acronym **FullWaterRecovery** Short name **MOSAICO TECNOLOGIE AMBIENTE E IND**

PIC **Legal name**
 913380519 MOSAICO TECNOLOGIE AMBIENTE E INDUSTRIE SRL

Short name: MOSAICO TECNOLOGIE AMBIENTE E INDUSTRIE SRL

Address of the organisation

Street Via Fratelli Cervi, n. 10

Town MONDOLFO

Postcode 61037

Country Italy

Webpage www.mosaico.it

Legal Status of your organisation

Research and Innovation legal statuses

Public body no Legal person yes
 Non-profit no
 International organisation no
 International organisation of European interest no
 Secondary or Higher education establishment no
 Research organisation no

Enterprise Data

SME self-declared status..... 1995 - yes
 SME self-assessment unknown
 SME validation sme..... unknown

Based on the above details of the Beneficiary Registry the organisation is an SME (small- and medium-sized enterprise) for the call.



Proposal ID **776451-1**

Acronym **FullWaterRecovery**

Short name **MOSAICO TECNOLOGIE AMBIENTE E IND**

Department(s) carrying out the proposed work

No department involved

Department name not applicable

Same as organisation address

Street

Town

Postcode

Country

Dependencies with other proposal participants

Character of dependence	Participant	
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Proposal ID **776451-1**

Acronym **FullWaterRecovery**

Short name **MOSAICO TECNOLOGIE AMBIENTE E IND**

Person in charge of the proposal

The name and e-mail of contact persons are read-only in the administrative form, only additional details can be edited here. To give access rights and basic contact details of contact persons, please go back to Step 4 of the submission wizard and save the changes.

Title

Mr.

Sex

Male

Female

First name **Francesco**

Last name **Belardinelli**

E-Mail **francesco@mosaico.it**

Position in org.

Sales manager

Department

MOSAICO TECNOLOGIE AMBIENTE E INDUSTRIE SRL

Same as organisation

Same as organisation address

Street

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Post code

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Country

Italy

Website

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Phone 2

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Fax

+XXX XXXXXXXXXX



Proposal ID **776451-1**

Acronym **FullWaterRecovery**

3 - Budget for the proposal

Total requested EU contribution for the proposal/ €

8 750 000



COVER PAGE

Title of Proposal

Integrated Water Cycle characterization, simulation and upgrade for safe reuse of water-sludge resources in agricultural and touristic areas (FullWaterRecovery)

1. Excellence

1.1 Objectives

The project faces the common challenge of providing new services and products through the development of green technologies and innovation of services in order to meet the ever growing demand for wastewater recovery. The overall objective is to develop and validate an innovative approach for the management of water resources by the optimization and design of simulation and upgrades of the Integrated Water Cycle (IWC) (i.e. collection-distribution-sewerage-sanification-drain-residual impact control of water in anthropic activities). The project aims to develop a new paradigm for wastewater treatment and residuals control for the safe reuse of water both for irrigation in agriculture (specifically vineyards) and for other destinations such as gardens and public green or reuse in tourist and recreational areas (Figure 1). The primary purpose of the project is defining a new approach to the closure of the water cycle, increasing the efficiency of the wastewater treatment plants through the re-use of water/sludge/nutrients resource. By this project we would like to create further value across the entire life cycle of the water service system while improving overall business operations and safety of water utility providers.

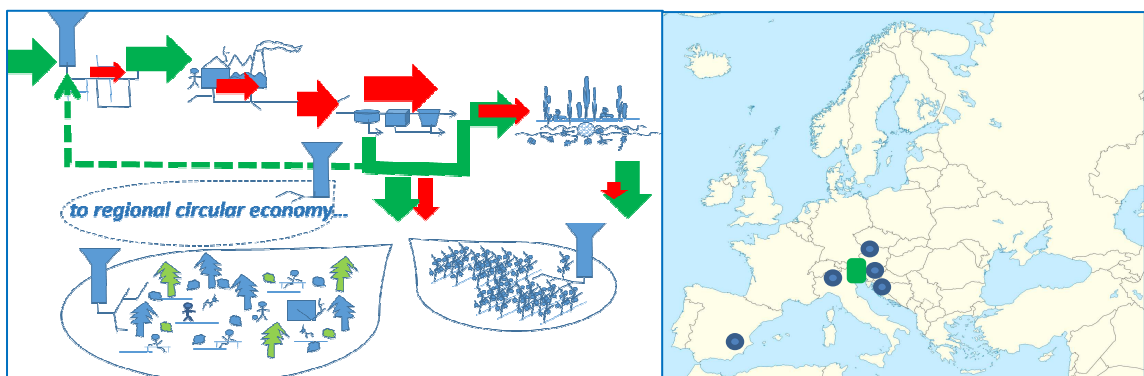


Figure 1: (Sx) Scheme of IWC for a new reuse planning; treating wastewater and controlling residuals to reach safe reusable water for agricultural (specifically vineyards) irrigation, garden embellishment and other uses in recreational touristic areas (FVG –Italy pilot area) or other applications in regional circular economy. (Dx) Region of the demonstration project and main partners site.

The involved partners will have the purpose of exploiting three existing plants of different size in the Friuli Venezia Giulia region (North-East Italy) to develop a new model-pilot water supply system. This method will allow water recovery for reuse in applications able to achieve circular economy in this attractive area, as an example-approach to disseminate to other similar situations in various EU territories. The water and wastewater treatment plants already existing in the area of interest, the long and close cooperation with the local stakeholders, the presence of several wineries and/or tourist and recreational areas, allow to easily optimize and develop the project to achieve innovative standards which can then be used with minimal adjustments in regions with different hydrogeological and climate features. The partners, after careful considerations, agreed to join all the scientific-design-economic efforts on the development of selected plants in Friuli Venezia Giulia (ITA) to create a complete and exhaustive operational standard.

The project is intended to recover resources in wastewater and sludge (e.g. nutrients) resulting from wastewater treatment within IWC, in order to stimulate a new circular economy of water related agricultural (vineyards irrigation) and touristic (garden embellishment, reuse waterworks) industry. During the project special attention will be dedicated on the residual compounds contained in the water, their environmental impact and their toxicological and eco-toxicological risk. Traditional and innovative water toxicology (in-silico and in-vitro) regarding soil and plants application will be studied.

The proposed demonstration project is organized in three phases: a) characterization and simulation of the integrated water cycle with the study and development of innovative solutions for water, sludge and nutrients safe recovery; b) design and pilot implementation of the new systems defined in the first phase in a specific area of agronomic and tourist interest within Friuli VG region (ITA); c) transfer the innovative standards and guide-lines, in the regions of the other partners with different hydrogeological and climate features.

1.2 Relation to the work programme

- Work programme topic: **Towards the next generation of water systems and services – large scale demonstration projects**

Our project will work on whole water-use production chain identifying solutions that enhance both the economic and environmental performance of the system and contributing to the challenges of raw materials depletion (through water/sludge/nutrients recovery from IWC) and climate change (reducing energy needs and CO₂ emission through the characterization, simulation and optimization of the wastewater treatment plants). We will develop and demonstrate innovative solutions at a regional scale for IWC sustainability through the wastewater treatment optimization and safe reuse of water/sludge for vineyard (or other cultivation) irrigation, garden embellishment or other destinations in recreational/touristic areas. The developed paradigm will then be easily implemented and adapted in different regional scenarios. The demonstration project will create a new circular economy approach for the water cycle with special attention to water/sludge/nutrients re-use by reduction of the current water consumption at regional scale towards innovative water services.

1.3 Concept and methodology

(a) Concept

- Describe and explain the overall concept underpinning the project. Describe the main ideas, models or assumptions involved. Identify any inter-disciplinary considerations and, where relevant, use of stakeholder knowledge;

The main goal of the project is the characterization of several Integrated Water Cycles in which effluent water, sludge and nutrients (included in the two liquid and solid matrixes) are recovered with various destination (specially irrigation for agricultural purpose), modelling flows and treatments, checking processes, seeking recovery potential (water/sludge/nutrients) and controlling residuals toxicity. The project aim is to furnish innovative instruments and working methods to Integrated Water Cycle (IWC) managing authorities, in order to obtain a new Integrated Water Service Standard (IWSS), where resources (water/sludge/nutrients) are re-used, reducing water consume, closing water and materials cycle and carefully valuing toxicological risk, connected to residual compounds presence.

The proposed green methodology/technology, able to decode IWC to IWSS, will simulate the processes that take place in IWC, giving a standardized operative tool, that could allow to face hydraulic network and treatment units planning, project, management, requalification, in a sustainable development and water resource preservation vision. Therefore, the demonstration project wants to find and share a technologically advanced standard in water cycle management as a solution at a large scale, efficient and reliable, and able to supply a great number of indications for optimum management of network and plant systems, but also for scenario evaluation during ordinary or extreme events (Climate Changes).

As a practise routine, we can image “FullWaterRecovery” like a standardized method to reach “next generation of systems and services” by Integrated Water Cycle characterization, simulation and upgrade, considering both safe reuse of water-sludge resources in each designated territory and acceptability of this process within local and international water policies advancements.

Once selected some different “demonstrative” situations in the homogeneous area where circular economy is well-defined in, the work will proceed by companies (or stakeholders) involvement to demonstrate, at a large scale, the succeeding of the innovative environmental friendly and ecological solutions for the IWC sustainability.

In the particular pilot-option chosen in the Friuli Venezia Giulia (Italy) area, the best technological solutions for water and sludge reutilisation in vineyards irrigation, together with other uses in recreational-touristic areas will be evaluated and implemented. The IWC will be characterized and simulated, paying particular attention to residual compounds presence and their possible toxicity evaluation. Chemometrics, in-silico and in-vitro tests are planned to evaluate the potential risk of the recovered water/sludge/nutrients in water/soil applications.

Water and sludge final destination will be carefully evaluated and diversified basing on two principal elements:

- a) chemical-physical-microbiological characteristics of the water/sludge and of the destination soil,
- b) proximity of cultivations, public green areas and touristic-recreational districts.

The dissemination of the “New Integrated Water Cycle” concept concerns innovation of the great theme of water use and protection, reiterated in UNO, UNESCO, FAO, OECD and other institutions headquarters, so considering all stakeholder participation in water management and new perspectives in water policies, “FullWaterRecovery” pilot testing will promote investments in innovative green technologies for water management, as wished by 2020 Europe Strategy for sustainable growth.

The project contributes to the main community reference in this matter, that is Water Framework Directive 2000/60/CE (EUWFD).

The demonstration project takes advantage of deepened knowledge and experiences in territorial water cycle research field, as well as Udine University expertise, already involved in previous research and innovation projects on IWC.

The project will be followed by a network of working teams aimed at the protection, enhancement and research of water resources and reuse through the sharing of knowledge, the joint preparation of excellence projects and the collaboration for the preparation of common projects, sharing the various multidisciplinary realities. In particular, it is acknowledged the presence and validity of academic or professional personalities, able to share technical skills (in the fields of engineering, agronomy, economics, medicine, policy and communication sciences), with engagement of PhD researchers specialized in multidisciplinary areas and important laboratorial support (for specialized and targeted analysis).

The various disciplines (hydrology, hydraulics, environmental sanitary engineering, toxicology, hydrogeology, chemistry, agriculture, economy, human science) are equally involved, in order to complete the proposed standard, taking care not to neglect any aspect of IWC and its resource recovery. Moreover, the use of water management companies expertise is very important, in order to be involved in practice and management of the necessary instrumentation to monitor and calibrate the standard model for IWC management. The strength of the “FullWaterRecovery” project is given by the complementarities of the participants chosen with different expertise and know-how, which allows a global view of the entire demonstration process. For complete circular water economy development, it will be necessary:

- UNIUD-WrC expertise regarding (Department acronym):
 - Various integrated water cycles characterization and simulation to project pilot-model systems for water treatment-reuse, co-design treatment plants (DPIA),
 - Soil and various growing cultivations knowledge and interconnections water-nutrients-soil (DI4A),
 - Economical evaluation of the most interesting proposals (DIES),
 - Hygiene and epidemiological risks evaluation of water (DAME),
 - Knowledge related to the best tools for citizenry correct awareness of environmental themes and, particularly, of water and its conscious use and recovery from IWC (DILL);
 - The UNIUD WrC group will strictly collaborate with the Ohio Water Resources Center (OHIO, USA) to develop a new approach for water/sludge/nutrients re-use, comparing different technologies and visions on the IWC;
- collaboration between integrated water service managing authorities to study existing plants and realize innovative solutions for water/sludge/nutrients recovery (ACQUEDOTTO POIANA Spa, IRISACQUA s.r.l.)
- environmental sustainability processes, procedures and analytical support. (ARPA-FVG);
- new methods for characterization, monitoring and risk assessment of residual pollution of IWC, chemometrics and statistical methods for control and forecast pollution of reusable water (IRFMN – “Mario Negri” Institute and NIC-National Institute of Chemistry)
- water irrigation regimes, yields and grape compositions, studies related to water/sludge/nutrients vineyards use (CSIC-Spanish National Research Council)
- evaluation of stakeholder participation in water management (Centre for Water

- Resource Systems - Austria);
- collaboration among municipalities, touristic promotion companies, and other stakeholders for water reuse in municipal or touristic-recreational areas, technology transfer from pilot basin to other zones (G.I.T. - Grado Impianti Turistici S.p.A., IPTPO - Institut Za Poljoprivredu I Turizam Ustanova, Croatia, Soc. Agr. Friul Prati s.s di Lucca G&M);
- collaboration among winery companies and consortia, to evaluate agriculture water reutilization, technology transfer from pilot basin to other zones (Consorzio tutela vini “Friuli Colli Orientali e Ramandolo”, IPTPO -Croatia);
- co-design treatment plants, furnishing and maintenance water recovery plants, for the three years demonstration (Mosaico Tecnologie Ambiente e Industrie S.r.l.).

When (and if) approved, the demonstration project proposal will be planned in a dedicated meeting between partners, that will allow to define intervention logic, objectives, results and activities in a combined way, avoiding roles superimpositions, using resources in a good manner and valorising individual capacities. Once having defined macro-activities and partners role (PP), the next step will be project sheet definition (to which every partner will contribute, according to its activity and specific knowledge). The Leader Partner (LP) will coordinate single PP roles and inputs.

- Describe the positioning of the project e.g. where it is situated in the spectrum from ‘idea to application’, or from ‘lab to market’. Refer to Technology Readiness Levels where relevant;

As a “basin-regional” demonstration project, “FullWaterRecovery” can be considered an application open to be extended to other areas and situations. The choice of little/medium/large recovery pilot plants investigation, with modular and innovative technologies, cover also a TRL 5-7 range in technology readiness level.

- Describe any national or international research and innovation activities which will be linked with the project, especially where the outputs from these will feed into the project;

All research partners are involved in innovation and research, the multidisciplinary fields and expertises introduced in the project cover a wide range: activities on IWC simulation research, in-silico studies and modelling, chemometrics, statistical and mathematic activities, agricultural water-soil studies and innovation, vineyards performance control activities, circular economy application activities, water policy studies and research, studies on stakeholder participation in water management.

(b) Methodology

- Describe and explain the overall methodology, distinguishing, as appropriate, activities indicated in the relevant section of the work programme, e.g. for research, demonstration, piloting, first market replication, etc;

All project actors will work to develop an innovative standard on 3-4 selected IWC located in Friuli Venezia Giulia. The choice to limit the study to a restricted area arises from the possibility to work on plants of different sizes (small/medium/large), in heterogeneous territories (plains and coastal area) located in a radius of about fifty kilometers in which different reuses are expected (irrigation in agriculture, gardens and

public green or reuse in tourist and recreational areas). This particular territorial preference (Friuli Venezia Giulia, Italy) allows to investigate in detail the various issues related to IWC characteristics, to the heterogeneity in orography and morphology and to the intended reuse of water/sludge/nutrients recovered. Once these diverse criteria will be developed, validated and tested, each partner will work together to export and adapt such demonstration results in geographic areas with different hydrogeological and climatic characteristics and make them usable on a “typical” well defined regional large scale. The choice of a regional scale for the demonstration project is therefore related to a better feasibility of the project, thanks to an already implemented and well known IWC networks and to the possibility to develop a pilot-area model of management.

During the project the coordinated involvement of the managing authorities, who deal with the management of water resources, will be essential for the experimental implementation of innovative water systems and services solutions resulting from the use of the proposed and demonstrated standard. The real application on existing treatment plants will allow to test, evaluate, validate and disseminate a new approach, which leads to a more efficient management of resources of the IWC, with the maximum and optimal potential for resource recovery.

Outputs and results of the work will be used by the water service stakeholders and by the communities involved in the project. Indeed, the demonstration project results will be made available to the managing authorities of water services worldwide. Specifically, the following medium-long term results will be achieved:

- a decision support tool to evaluate the performance of existing IWC and recovery potential. This tool can be boosted by investments financed by public tariff according to local and national regulations;
- an optimal territorial planning tool in the event of changes or redevelopment of urban areas at low or high population density;
- recovery of water resources (less consumption of high-quality water), optimization of sanitation and distribution processes, optimum and well-coordinated utilization of the water carrier networks for the proper management of environmental impacts, also due to stormwater runoffs;
- management costs reduction for the IWC, from collection to drain into high-quality receiving water bodies which are located in ecological and faunal areas of scientific, naturalistic and cultural interest;
- capability to evaluate the toxicity induced by emerging pollutants from urban areas;
- new synergies among managing authorities of the IWC to cooperate and achieve a standard model, suggesting new appropriate water policies starting from communities acceptability;
- improvement of the effluents quality by a systematic and continuous approach, developing urban and rural waterway corridors of high landscape value, integrated with sustainable infrastructures;
- continuous monitoring of the existing plants for a regular collection of environmental data;
- cost-benefit analysis for simulated solutions with maximization of fixed targets;
- boost new water culture and communication.

One part of the project will be devoted to the water customers involvement, increasing consumer education on water systems. This proactive approach to engage the community and increase its knowledge based on the safety of the water supply and the challenges that need to be addressed bodes well for utilities that require to make short,

medium and long-term investments as their sources and delivery systems change and age.

All partners will be actively involved in the achievement of the project aim: the coordinator or Lead Partner (LP) University of Udine will be in charge of responsibility for the realization, the supervising and the administration of the project. Each work package (WP) will be coordinated by a partner, who will be the WP leader. This will allow the project activities to proceed in a coordinated and effective way, with no overlap of responsibility, as each partner will have a definite role in the participation and realization of the project. The partners will contribute in the realization of the project informing each other on the development of the activities and sharing expertises, knowledges and know-hows. Because of demonstration project will be organized on the selected area, a part of personnel coming from various partners will visit many times demonstrative basin for experimental sessions, bringing experiences and drawing data for the project objectives. Periodic meeting will be scheduled to assess the progress of the works and for initiating corrective actions on the project, if needed. Dissemination of the results will be achieved on different levels (popular scientific meeting, specialist congresses, publication on specialized scientific journals).

- Where relevant, describe how sex and/or gender analysis is taken into account in the project's content.

The partnership guarantees equal employment opportunities within the working group. For employees and members of the team will be guaranteed equal pay for the same task/role and equal representation in decision-making for the same task/role. The project promotes a culture of enterprises capable of overcoming gender stereotypes, promoting women's participation in R&D, in business projects and in knowledge transfer.

The activities for public opinion awakening on environmental problems (specifically water issues) will be managed by an equal participation of men and women, avoiding the predominance of representatives of one sex.

1.4 Ambition

- Describe the advance your proposal would provide beyond the state-of-the-art, and the extent the proposed work is ambitious.

By this demonstration project, the green methodology/technology, decoding IWC to IWSS, will support the development and enhancement of water resources managing services, advancing them towards the “next generation of water systems and services”, significantly reducing the environmental impact on and lowering the depletion of the water natural resource. The project realization will result in significant outcomes and will have a direct impact on the most vulnerable beneficiaries, in terms of improving the life quality through better access to water resources and new and better job opportunities in the field of water management, moreover a better knowledge of water safe reuse related problems and consciousness about acceptability of resource recovery within a new policy perspective. The action will have positive effects in terms of social inclusion, particularly for people living in remote areas in which the availability of the water resource is limited in quantity and poor in quality. The project will contribute to the development of SMEs that provide services within the IWC to improve systems efficiency for water management. As well, wineries, farms devoted to niche products and tourism sector will be positively affected by the main targets of the project. All

the stakeholders of the IWC are potential partners of the project and will be users, even over time, of the results obtained by the project.

- Describe the innovation potential (e.g. **ground-breaking objectives, novel concepts and approaches, new products, services or business and organisational models**) which the proposal represents. Where relevant, refer to products and services already available on the market. Please refer to the results of any patent search carried out.

The main innovations of the project “FullWaterRecovery” are:

- achieve new operational standards for proper characterization and qualitative simulation of the IWC with the possibility of resource recovery (water/sludge/nutrients), considering new approach to safety, acceptability and policy;
- development of different pilot demonstration plants (small, medium, large) for the recovery of water/sludge /nutrients with different perspectives for use. These pilot demonstration plants will form a new operational paradigm easily exportable and implementable in other partner countries and other territorial realities.

2. Impact

2.1 Expected impacts

- Describe how your project will contribute to:
 - each of the expected impacts mentioned in the work programme, under the relevant topic;
 - any substantial impacts not mentioned in the work programme, that would enhance innovation capacity; create new market opportunities, strengthen competitiveness and growth of companies, address issues related to climate change or the environment, or bring other important benefits for society
- significant reduction of the current water and energy consumption at regional and/or river basin scale by closing the cycles of material, water and energy, using alternative water sources and supporting the transition towards smart water services: *demonstration-pilot project for the recovery of water/sludge/nutrients. The project aims to develop and validate an innovative green methodology/technology for the management of water resources contributing to a reduction of the current water and energy consumption, to use of alternative water sources and to the creation of smart water services;*
- interconnectivity between the water system and other economic and social sectors: *the project involves strong interconnection between stakeholders of the integrated water cycle and the sectors where the recovery water will be used (municipalities, farms, vineyards and tourism industry);*
- increased public involvement in water management: *the recovery of water/sludge/nutrients in diversified fields but closely related to everyday life (public green, agriculture, re-use in tourism areas) will definitely raise the level of public involvement on a sensitive issue as that of the protection and recovery of the water resources and their circular economy;*
- increased citizen satisfaction with water services: *the optimized understanding of IWC and the recovery of water/sludge/nutrients will improve the availability of*

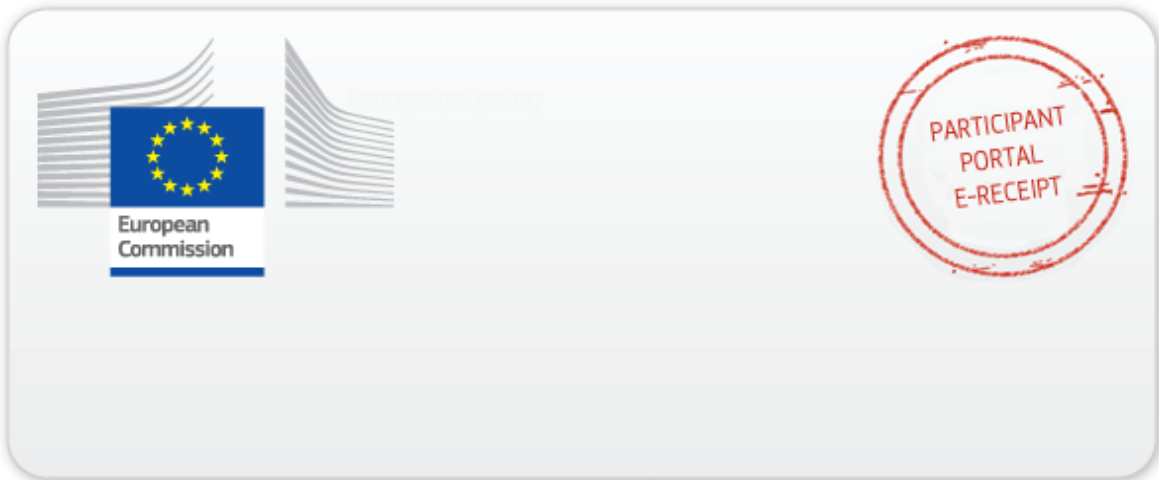
water resources for the community that can enhance its trust in water services, if the best methodology/technology is applied in reuse;

- replication of new business models in other areas and replication of models for synergies between appropriate funding instruments at regional, national or European level: *demonstration-pilot project will lead to models that can be implemented in other geographical areas starting from the European partners involved in the project and also in other territorial realities. The output of the project will be an operating standard/model for the comprehensive potential reuse of water/sludge/nutrients in every situation, therefore in the future, it will be possible to apply for regional, national or European funds, no longer for the study and development of recovery systems, but directly for the improvement of the existing IWC;*
- closing of the infrastructure and investment gap in the water service sector; *the goal of the project is to introduce a new approach in building smarter, more reliable and sustainable water-concerning infrastructures for generations to come. The application of advanced data analytics insights (characterization, simulation and optimization), in addition with alternative water supply strategies building diversified and resilient sources of water (recovery of water/sludge/nutrients), offers opportunities to future-proof the water sector. These investments also can influence efficiency and performance gains made possible through implementation of the latest, most efficient systems designed to optimize energy, chemical and labor costs, thus making the best use of resources.*
- creation of new markets in the short and medium term: *the improvement of old facilities will be a boost for the economy of the SMEs in construction and installation sector in the medium term. As well, winery, farms devoted to niche products and tourism sector will benefit by the main targets of the project. It is important to note that the agriculture and tourism are the main business that characterize the FVG region (selected as pilot area). When the project will be implemented in the other partner countries it will be adapted to local business.*
- providing evidence-based knowledge regarding the enabling framework conditions (such as the regulatory or policy framework) that facilitate a broader transition to a circular economy in the EU: *the Study of residual compounds and their potential toxicological and eco-toxicological effect can result in defining a new standards for the protection of the aquatic compartment, the deepening about new approach to safety, acceptability and policy will be one of the key points of the project.*
- implementing the Sustainable Development Goals (SDGs), in particular SDG 12 'Ensure sustainable consumption and production patterns' and SDG 6 'Ensure availability and sustainable management of water and sanitation for all', as well as the conclusions of the COP21 Paris Agreement¹⁵:
“FullWaterRecovery” project aims to adequately respond to both the SDG 6 and SDG 12. The main objective is to develop an operational paradigm applicable to different sites for the recovery of water/sludge/nutrients in order to recover as much as possible from the treatment of wastewater, limiting waste and closing the IWC. The main goal, indeed is a better quality and sustainability of water resources worldwide, minimizing generated waste and pollutants, throughout the entire water cycle process, as required by SDG 6 and 12. At the same time, the full recovery of water/sludge and nutrients contributes to the ambitious goal of emission reduction established in the COP21 Paris Agreement. Facilities for treatment of domestic and/or industrial wastewater are based on high energy consumption processes; characterization, simulation and optimization of the

entire water cycle will lower such consumption and reduce the direct and indirect emission of CO₂ and other greenhouse gases (GHG) by promoting the sustainable development. As well, the use of high-quality water resources will be reduced and the operating costs (sludge disposal) will be lowered.

- Describe any barriers/obstacles, and any framework conditions (such as regulation, standards, public acceptance, workforce considerations, financing of follow-up steps, cooperation of other links in the value chain), that may determine whether and to what extent the expected impacts will be achieved. (This should not include any risk factors concerning implementation, as covered in section 3.2.)

The project may be affected by the following issues: a) delays due to Italian bureaucracy for the realization of the three pilot-model plants, b) difficulties in the implementation of these improvements to other facilities because of lack of other funding.



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