



**Potential and Validation
of Sustainable Natural & Advance Technologies
for Water & Wastewater Treatment,
Monitoring and Safe Water Reuse
in India**

Type of action: Research and Innovation action (RIA)

Project duration: 48 months (01.02.2019 – 31.01.2023)

Deliverable D7.1

**1st Report and Publication
of the PP Working Group from each Chapter**

Version: 1.2

Work package: WP7 – Capacity Building & Organisational Development:
EU-India cooperation

Responsible partner: 5- AIMEN

Due date of deliverable: 30.04.2021

Actual submission date: 20.04.2021

Nature of Document: Report

Dissemination Level:		
PU	Public	X
CO	Confidential, only for members of the consortium (including the Commission Services)	
CI	Classified, information as referred to in Commission Decision 2001/844/EC	



This project has received funding from the European Union's Horizon 2020 research and innovation programme under **grant agreement No 821410**

Document change history

Version	Date	Author	Description
1	30.03.2021	AIMEN, SEECON, NEERI and AMU	1 st Version
1.1	15.04.2021	TTZ and UFZ	Review and adjustment
1.2	20.04.2021	AIMEN	Final Version

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1. Executive Summary

In the present deliverable is explained the organization and development of the public private working group (PPWG) into task 7.1. This working group has as objective to organize water professionals from EU and India to establish a common vision and a shared understanding of the challenges in India's water and wastewater sector. The topics designated to be under discussion were selected according to the research cluster developed in the PAVITR project, the experience and knowledge of the PAVITR's partners and the potential interest for stakeholders.

In this deliverable D7.1, it is described the organization proposed of the PPWG -including the considerations and adaptations to the current pandemic situation-, the working strategy of the working groups, the initial composition of the different working groups and the methodology to follow for achieving the results expected. Apart from the general aspects, it is explained the organization of the 1st meetings of the different Community of Practice.

2. Introduction and objectives

The objective of deliverable D7.1 is to describe the organization and preparation of the **public private working groups (PPWG)** of water professionals from EU and India for the knowledge and experience exchange. The main proposal of these groups is to establish a common vision and a shared understanding of the challenges in India's water and wastewater sector. For that, it will be created a community of practice (CoP) that meets common learning needs, produces relevant knowledge resources and serves as a platform for joint advocacy efforts.

The main objectives of this PPWG are:

- Define the learning objectives of the working group.
- Stimulate discussions on the forum and mailing list on the PAVITR website and capitalize outcomes of these discussions.
- Keep members updated about the activities.
- Ensure that the Working Group is moving forward with their learning experience.
- Organize regular meetings to establish a platform of discussion and debate between different experts and agents interested in the topic of discussion: from the PAVITR projects, from other projects, or even stakeholders.
- This PPWG will have interconnections to other tasks of different working packages. The idea is to establish a wider view of each working group to collect information regarding, not only the necessities of the EU-India capacity building & organisational development (WP7) but also information relative to the proposed research clusters (WP2), the impact of this strategy on the exploitation plan (WP4), influence on the regional management (WP6) or connexions with the dissemination strategy (WP8).

2.1. Initial considerations

The planning of Task 7.1 in the proposal must be adapted to the global situation lived in 2020 and the first months of 2021. The worldwide pandemic effects have empowered the searching for different ways to keep on working, developing ideas, and exchanging knowledge. For that, the PPWG had to adapt to the new perspective but without losing the key ideas of their creation: the collaboration between EU and Indian organisms to face the problems of the wastewater in India. A relevant initial consideration was to re-organize the task program to work on the activities required under the new situation. In this sense, it was decided that the most adequate option to go forward with the development of the PPWG (without altering the program established in the Grant Agreement) was to establish **online meetings for the PPWG**.

3. Organization, strategy and methodology of the PPWG

3.1. Organization of the PPWG

The PPWG focused on the discussion of the most relevant topics concerning the PAVITR project. It was essential to select those topics in which PAVITR project has actions and partners involved since their experience and knowledge could mark the correct initial point for the development of the rest of the working group.

In this sense, for the selection of the topics, it was reviewed the different Research Clusters defined in the project proposal, selecting those in which the partners involved have deep knowledge about the technology and the experience of working in different scenarios, from Europe to India. With these considerations, the selected research clusters were: (1) Water and Rainwater, (2) Wastewater treatment, and (3) High-resolution management.

Additionally, it was essential to take into consideration the potential participation of external agents during the PPWG, which means, it must be selected those discussion topics which could be more interesting for the stakeholders, achieving their engagement and guaranteeing the main ideas generated during the workshop reach them. Therefore, into each research cluster, it was selected as discussion topic those in which the PAVITR's partners have more experience

and more promising results are being obtained, those in which it was demonstrated more interest by the community (stakeholders, researchers, society...). Therefore, the topics of the PPWG are next:

- a. **Water potabilization and rainwater harvesting:** This topic belongs to the Water and Rainwater Research Cluster. This topic is included because of the importance of guarantee pathogens-free water for the population and the necessity of enhancement of the treatment systems to provide disinfected water to rural areas of India or remote villages, schools, hospitals, and buildings.
- b. **Water Reclamation:** This topic is included in the Wastewater Treatment Research Cluster. These technologies are promising treatments that are being developed around the world due to their importance in terms of treatment efficiency, cost-effectiveness, and lower maintenance operations. All these characteristics become these technologies as an ideal alternative for small-medium locations/industries and for decentralizing the wastewater treatment.
- c. **High-resolution management:** This topic is included in the High-Resolution management Research Cluster and covers the water and wastewater control by sensors and the **GIS-based ALLOWS** tool to organize regional scenario simulations. The idea of the topic is to improve the management, distribution, treatment, and reuse of water and wastewater using innovative control systems based on sensors. The use of sensors is an interesting solution to apply due to the possibility of controlling remotely the water and the wastewater treatment units, facilitating the installation of equipment in remote areas.

3.2. Working strategy

The idea proposed for the PPWG of the Task 7.1 is to establish two actuation levels: by one hand, the creation of **Community of Practice** for the discussion of each topic and composed of partners that are working on the technology in the PAVITR and experts which are interested in the topic. On another hand, the **Main Group** in which it will be decided general actions based on the previous work carried out in each specific CoP.

The **Community of Practice (CoP)** will be composed of experts on the topic selected. The main objective of the CoP is to discuss technical aspects, identification of problems to overcome, improvements required, potential solutions to the concrete problems presented. These groups will act independently throughout the year, sharing information, discussing different aspects via webinars or workshops, and generating recommendations and conclusions for each topic. The information generated (conclusions, recommendations, etc.) in the meetings will be communicated to the main group.

The Main Group (MG) will be the nexus between the information generating in each specific group and the stakeholders. MG will act as the mechanism which will define the guidelines for each specific group according to the feedback obtained from the meetings with the stakeholders. They will evaluate the different perspectives of the problems planted from a general point of view and will show the conclusions and solutions to the stakeholders and other relevant audiences. Consequently, it will provide information for the PPWG about the interests, gaps, and necessities of the Indian market. With this key information, the main group will drive the specific group discussion for the next period to obtain answers to the problems detected by the end-users of the technologies (ie. Governments, private companies, etc.) This feedback is a very important point for maintaining the PPWG in continuous evolution and to reach the final goal of the platform.

This MG could be composed of some members of each specific group and other members who could have a wider perspective about the problems discussed in the specific groups.

In next figure, it is represented the structure and interactions of the PPWG:

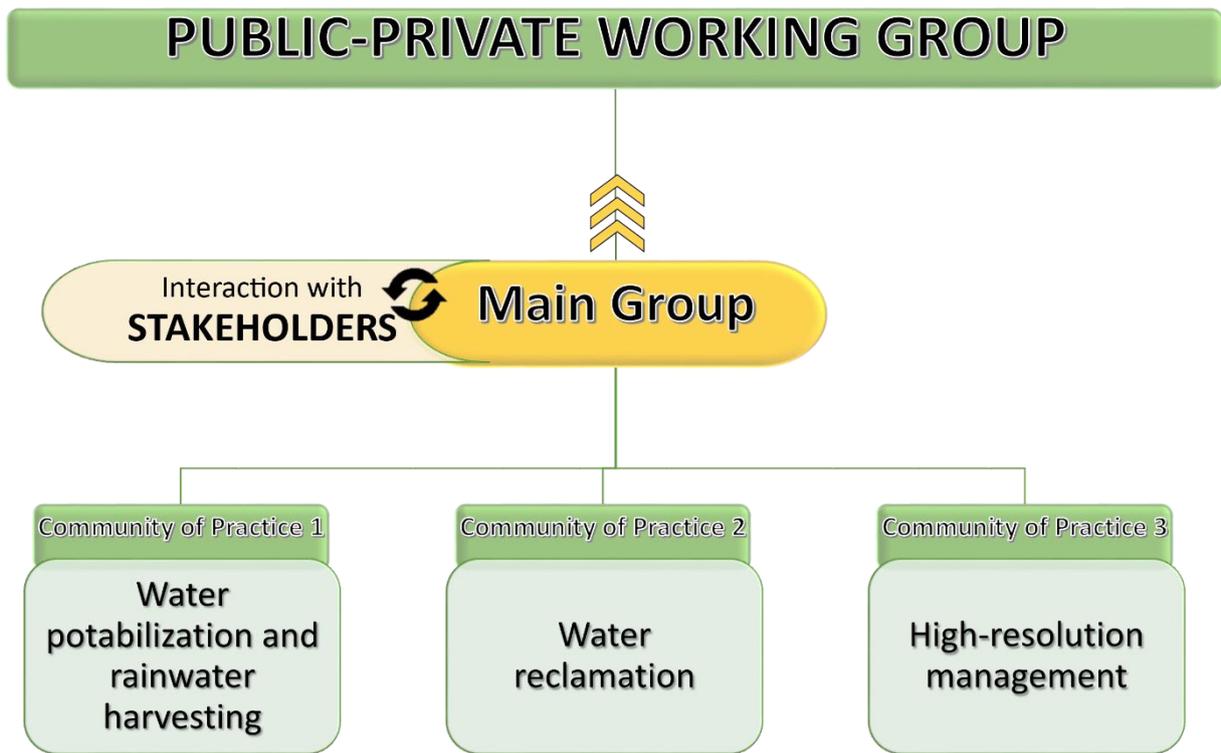


Figure 1: Working strategy scheme of the public-private working group

3.3. Composition of the CoPs

As initial work, it was necessary to define the members of each CoP to ensure partners with the technical capacity, the knowledge and experiences required to discuss the limitation of each sector and able to provide technical solutions to each one. The initial composition of the CoP is described in the next table:

Table 1: Preliminary selection of the components of the CoP

PPWG - CoP	<i>Water potabilization and rainwater harvesting</i>	<i>Water Reclamation</i>	<i>High-resolution Management</i>
Partners from Europe	AUTARCON	IRIDRA	PESSL
	KRETA	AARHUS University	AIMEN
		UPC	UFZ
		BIOAZUL	
Partners from India	SIU – SIT	SIU – SIT	AMU
	ESF	NEERI	
		AMU	

This PAVITR partner will participate in each CoP discussion. Along with the development of the Task 7.1, the configuration of this CoP will be changed (if necessary) according to the requirements of the discussion, the participation of external members and the results derived from the initial meetings.

3.4. Methodology

As aforementioned, the PPWG is organized to keep a continuous evolution, adapting to the necessities detected during the development of the task 7.1. For that reason, the methodology established was prepared according to the necessity of establishing several meetings per year and topic and remarking the interaction with different agents during the duration of the Task.

Thus, the PPWG will divide into three sessions with different reach:

Session 1- CoP: These initial meetings were scheduled for April – May 2021. These first interactions between partners have as objective the establishment of a common vision of the situation for each topic, the problems identified and the challenges to overcome for the implementation of solutions. Each CoP will work independently, discussing the situation of each topic.

Session 2 - CoP: This second meeting will take place in the second semester of 2021 (Sept-Oct 2021). The idea is, in the second workshop, the discussion will take a step forward and the proposal of solution and the identification of key stakeholders will be the remarkable action.

Session 3 - MG: This session will close the year (Nov – Dec 2021). In this case, the MG will be the starring of the session, validation results of the session 1 and 2, and encouraging the interactions with stakeholders.

This structure is similar for the years 2021 and 2022, although, the development of the meetings could provide us information to improve during the next year, in which will be studied a reorganization of the structure. The next figure summarized the methodology proposed and followed:

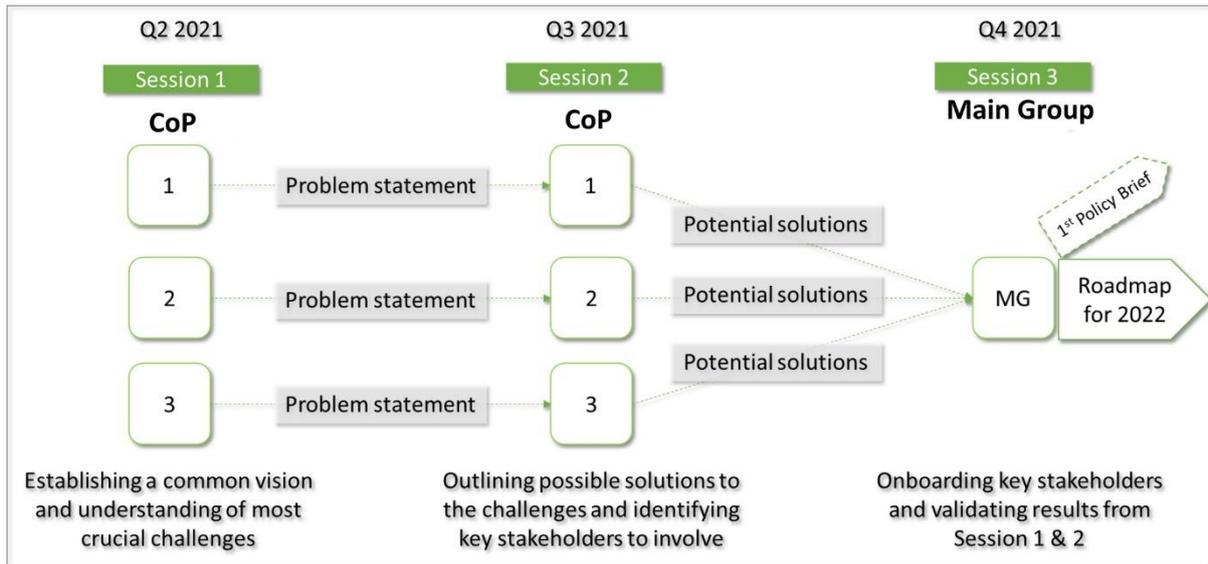


Figure 2: Methodology proposed for the PPWG for the year 2021.

4. First meeting preparation

For the organization of the meeting of the specific group, it was decided that the most adequate option to work in this PPWG is to establish online meetings for each group. During this initial meeting, it was considered not to extend the CoP to external collaborators, due to the necessity of introducing the problems and have an initial discussion for screening information and identify the hotspot of each topic. In future meetings, the participation of external collaboration could be very positive to move forward the discussion through the presentation of new alternatives, different points of view, and for providing feedback to the results and conclusions generated.

In total, 3 meetings are organized (one per topic)

The dates established for the meetings are:

- ☼ *Water Reclamation **April 28th, 2021***
- ☼ *Water potabilization and rainwater harvesting.....**May 5th, 2021***
- ☼ *High-resolution Management..... **May 12th, 2021***

The structure of each meeting is shown in the next figure:

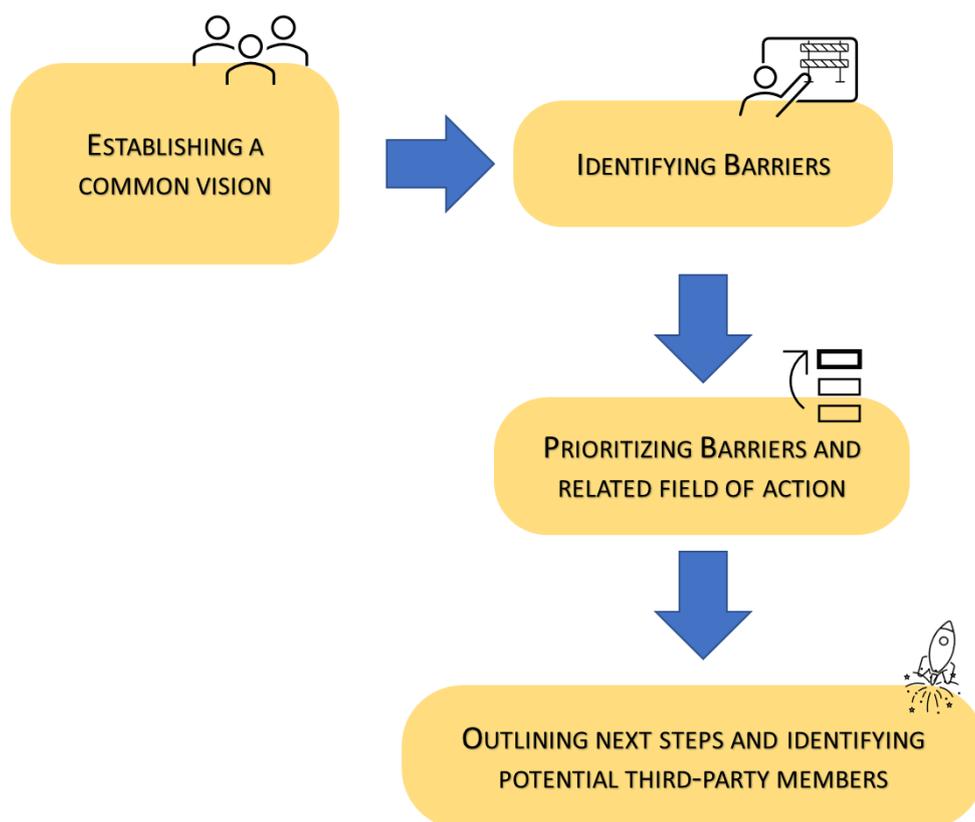


Figure 3: Structure of the 1st meeting

Establishing a common vision:

The initial task to develop in the meeting consists of establishing a common point of view about the problems in each specific topic. The partners involved will answer questions related to the ideal scenario to their sector for allowing them to thrive, the interest they have in the EU-India collaboration, opportunities observed/desired. As a result, a common vision of the group about the situation of the sector will be obtained.

Identifying barriers

Secondly, it is crucial to identify the obstacles, which must be necessary to overcome. Thus, it will be addressed questions to identified possible problems with the government restrictions, technical aspects, social difficulties, adverse interests of private companies, etc. These phases will provide the CoP a map of the most common barriers that they prevent from reaching the vision/thrive in the sector.

Prioritizing barriers

It will be ordered the importance of the barriers detected, in terms of relevance and urgency, according to the interest of each one. Consequently, a list of the most relevant barriers and the order of actuation on them will be defined. Indirectly, it will be identified the agents involved in each barrier and the audience to reach in future workshops, to show the potential problems identified in each sector.

Outlining next steps

Informing about next steps and identifying interesting third-party members (local gov.; expert institutions) to be involved in the process. A summary of the event could support establishing the hotspot of the next event.

5. Conclusion

In the present deliverable, it is described the organization and preparation of the Public-Private Working Group (PPWG). The main objective of this PPWG is the search for solutions to the most common problems related to water and wastewater sector faced in the PAVITR project. The actions related to this task 7.1, was focused on the preparation of the structure and strategy of this working group to achieve a common view of the problems of the sector, the identification of barriers and agents involved, and the establishment of potential solutions.

For that, the strategy of the group was ideated for encouraging the different participants to share their experience and knowledge in each topic -in which they are experts- and favouring the communications between all the parts involved in the sector.

Thus, it was formed the Community of Practices (CoP) for discussing technical aspects and the main group as a driver of the technical solutions to all the agents involved. The structure of the PPWG consider two meetings per year (2021 and 2022) in which the technical aspects will be discussed; and, at the end of the year, a bigger event will take place where it will be shown to a diverse audience the results and main conclusions of the CoP. The main group presents a double objective: by one hand, to engage stakeholders and facilitate the communications and relationship between participants and entities which are responsible for the sector change; on the other hand, collect the feedback of the stakeholders to re-direct the CoP discussion for the next sessions.

The first technical meetings will take place at the end of April 2021 and the second ones will occur in October or November 2021. The main sessions it is estimated to take place in December 2021. According to this timetable, Deliverable 7.2 will include the results of the first year of the PPWG, including impressions of the participants, aspects to improve, and general results and conclusions generated.