



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

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Short report of participation in conferences

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| CO | Confidential, only for members of the consortium (including the Commission Services) | |
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1. Executive Summary

The main aim of the PAVITR project is to validate, develop and deploy cost-effective & sustainable solutions to tackle water challenges and ensure the provision of safe water reuse, rejuvenate water quality of rivers, and restore degraded ecosystems in India.

The current deliverable D8.10 "Short report of participation in conferences" reports on PAVITR's activities to disseminate results during the first 18 months of the project, in particular activities related to national and international events that have been already carried out, have been started and are planned, respectively.

The main contribution of PAVITR in relation to international events up to now was the organisation of the workshop "Applying wetland technology in water and sanitation" at the IWA Water and Development Congress & Exhibition (WDCE2019) that was held from 1st – 5th December 2019 in Colombo, Sri Lanka.

2. Introduction

PAVITR aims to present results at major national events (e.g. Indian Water Week; Indian Water Works Association Convention; World Water Summit in India) and major international conferences with main focus when held in India or in the neighbouring countries. To facilitate this, we aim to propose workshops and/or side events at these events (in parallel to normal submissions for oral presentations for specific topics).

During the first 18 months, PAVITR already participated in one workshop at a major international conference (IWA WDCE2019) and prepared a proposal for another (i.e. IWA Water Reuse 2021).

In the following we describe PAVITR's conference activities

- that already have been carried out with the first 18 months of the project,
- that have been prepared, and
- that are planned in the future.

3. Conference activities already carried out

3.1. Workshop at the IWA Water and Development Congress & Exhibition, Colombo (Sri Lanka)

For the IWA Water and Development Congress & Exhibition (WDCE2019) that was held from 1st - 5th December 2019 in Colombo, Sri Lanka, PAVITR proposed a workshop on "Experiences and lessons learned from implementing wetland technology in India". Finally, this proposal was merged with two other proposals to the workshop "*Applying wetland technology in water and sanitation*" that was finally held on 4th December 2019 (**Table 1**).

About 50 participants attended the workshop that was moderated by Guenter Langergraber (BOKU) (**Figure 1**). The workshop focused on different experiences on the use of wetland technology to support water and sanitation services. Following the opening an introduction to wetland technology has been given by Yaqian Zhao (Xian University of Technology, China) including latest R&D developments. In second part, experiences and lessons from implementing wetland technology in India have been shared by Nadeem Khalil (AMU, India), Guenter Langergraber (BOKU, Austria), Fabio Masi (Iridra, Italy), and Carlos Arias (Arhus University, Denmark). This has been complemented in the third part by insights into co-benefits and trade-offs of using wetland technology from an economic, environmental and social perspective. This included contributions from Andrews Jacob (CDD India), and Katharine Cross (IWA). A panel discussion moderated by Guenter Langergraber (BOKU, Austria) brought together these experiences for exploration of research collaborations and measures needed to boost application of constructed wetland systems.

The presentation of the PAVITR part of the workshop can be downloaded from <https://pavitr.net/index.php/news-and-events/15-events/252-01-12-2019-%E2%80%93-pavitr-workshop-on-treatment-wetlands-in-india-iwa-water-and-development-congress,-1-5-december-2019,-colombo,-sri-lanka.html>

Table 1: Program of the workshop "Applying wetland technology in water and sanitation" at the IWA WDCE2019 Colombo.

| Time | Topic | Speaker/moderator |
|---------------|---|---|
| 15:30 – 15:35 | Welcome and introduction | Guenter Langergraber (Austria) |
| 15:35 – 15:50 | Introduction on wetland technology - Main types and examples from China | Yaqian Zhao (PR China) |
| 15:50 – 16:10 | Experiences and lessons learned from implementing wetland technology in India - Experiences from the EU FP7 project SWINGS - Experiences from the EU FP7 project NaWaTech - Challenges designing and implementing treatment wetlands in India - Future activities (EU H2020 project PAVITR) | Nadeem Khalil (India) Guenter Langergraber (Austria) Fabio Masi (Italy) Carlos Arias (Denmark) |
| 16:10 – 16:30 | Co-benefits of wetland technology | 2 speakers |
| 16:30 – 16:55 | Panel discussion on the use of wetland technology in developing economies - Fabio Masi (Iridria, Italy); Chair, IWA TG "Sanitation for and by Nature" - Nadeem Khalil (AMU, India); Coordinator H2020 PAVITR project - Yaqian Zhao (Xian University, PR China) - Andrews Jacobs (CDD, India) | Guenter Langergraber (Austria) |
| 16:55 – 17:00 | Summary and closing | Katharine Cross (IWA) |



Figure 1: Participants (left) and presenters (right) of the workshop “Applying wetland technology in water and sanitation”. Presenters (from left to right): Andrews Jacob, Nadeem Khalil, Yaqian Zhao, Katharine Cross, Fabio Masi, Carlos Arias and Guenter Langergraber.

A report on the workshop (that included also a report on the PAVITR consortium meeting in Aligarh the week before) was also published in February 2020 in the Newsletter No.54 of the IWA Specialist Group on Wetland Systems for Water Pollution Control.

4. Conference activities prepared

4.1. Workshop proposal for the IWA Water Reuse conference, Chennai (India)

PAVITR submitted a workshop proposal to the "Novel and Innovative Solutions for Safe Water Reuse in India" for the 13th IWA International Conference on Water Reclamation and Reuse that was planned to be held from 13th -17th January 2021 in Chennai, India.

Table 2 shows the proposal of the program for the workshop that was submitted on 13th May 2020. After submission of the workshop proposal, the conferences organisers announced that the conference will be postponed to 16th – 20th January 2022 due to the pandemic. PAVITR plans to resubmit the proposal for the 2022 conference.

Table 2: Proposal of the program for the workshop "Novel and Innovative Solutions for Safe Water Reuse in India" submitted to the IWA Water Reuse conference Chennai.

| Topic | Speaker/moderator |
|--|--|
| Overview of engineered wetlands & NBS in India | Dr. Girish Pophali (NEERI, India) |
| Experiences 1 – Wetland research in the NaWaTech project | Dr. Günter Langergraber (BOKU Vienna, Austria) |
| Experiences 2 – Development of Innovative Wetlands in the SWINGS project, Technology Replication and a Way Forward | Dr. Nadeem Khalil (AMU, India) |
| Experiences 3 - Challenges in the Design and implementing NBS in India | Dr. Fabio Masi (IRIDRA, Italy) |
| Solutions for safe water reuse in PAVITR <ul style="list-style-type: none"> - presentation of the general PAVITR concept - PAVITR case studies from Aligarh, Pune Nagpur, Visakhapatnam, Dhanbad & Kharagpur | Still to be decided Presenters from the Indian team, we aim to include also Indian and international PhD students as presenters |
| Panel discussion with the presenters | moderated by Dr. Guenter Langergraber (BOKU Vienna, Austria) |

4.2. Research papers submitted to conferences

UPC submitted abstracts of research papers to 2 conferences that were postponed due to the pandemic:

1. Spanish National Conference: META 2020 XIV (Congreso Español de Tratamientos de Aguas); planned for June 2020 Seville, Spain, postponed, no new date was announced yet.
 - *Microalgae technologies: from wastewater treatment to byproducts generation.* by J. García, I. Ferrer, J. Puigagut, M. Garfí, E. Uggetti, M. J. García-Galán, R. Díez-Monter:.
 - *High rate algal ponds design by means of biokinetic and hydrodynamic modelling.* by A. Ortiz, R. Díez-Montero, E. Uggetti, M.J. García-Galán y J. García:.

2. IWA 17th Specialised Conference on Small Water and Wastewater Systems and 9th Specialised Conference on Resources Oriented Sanitation; planned for September 2020 in Belo Horizonte, Brazil; postponed to 2021, no new date was announced yet.

- *Design of a full-scale High Rate Algae Pond assisted by biokinetic and hydrodynamic modelling and simulation.*

by Ortiz, A., Díez-Montero, R., Uggetti, E., García-Galán, M.J., García, J.

- *Optimization of microalgal biomass harvesting and thickening at demonstrative scale.*

by Ortiz, A., Díez-Montero, R., Uggetti, E., García-Galán, M.J., García, J.

5. Conference activities planned

As stated before, a main focus of PAVITR's dissemination activities will be on events held in India or in the neighbouring countries. However, international events in other countries are also within the focus if the topic is closely related to the research in PAVITR.

PAVITR identified already some major conferences at which the results should be presented as well as workshops should be organised:

- 9th WETPOL Symposium, 13th -17th September 2021, Vienna, Austria
- 13th IWA International Conference on Water Reclamation and Reuse, 16th -20th January 2022, Chennai, India (resubmission of the workshop proposal described before)
- 17th International Conference of the IWA Special Group on Wetland Systems for Water Pollution Control, November 2022, Bangkok, Thailand (this conference should have been held in Nov.2020 but was postponed)

Besides organising workshops, also conference research papers will be submitted to topic related conferences, e.g. as the above mentioned and postponed conferences

- META 2020 XIV (Congreso Español de Tratamientos de Aguas), Sevilla, Spain
- 17th Specialised Conference on Small Water and Wastewater Systems and 9th Specialised Conference on Resources Oriented Sanitation (IWA SWWS-ROS), Belo Horizonte, Brazil

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