



Training Program on Sustainable Natural and Advance Technologies  
and Business Partnerships for Water & Wastewater Treatment,  
Monitoring and Safe Water Reuse in India

### Training Session Plan

**Title of the training session**

French Reed Bed Constructed Wetland

**Author(s) of the training session**

Riccardo Bresciani  
Fabio Masi

**Short description of the session**

The session covers the French Reed Bed Constructed Wetland, with a general description, the key dimensioning methods and design principles. Furthermore, the construction phases will be illustrated, and finally the main operation and maintenance activities will be shown.

**Learning objectives**

At the end of the sessions, participants will:

1. have more familiarity with French Reed Bed wetlands, their functioning and the involved biological processes
2. have the preliminary skills for a first assessment and sizing of French Reed Bed wetlands
3. know the preliminary basis for their construction and operation

**Trainer's required profile**

The trainer should have a background on Sanitary Engineering and experience with constructed wetland design, construction and operation

**Expected duration of the training session**

3 hours, with a break of 15 minutes

## Methodology and key contents of the session

Time	Topic	Key contents	Slides Numbers
5 min	Introduction to the session	Introduction to the authors and to the organization Learning objectives	5
25 min	Introduction to the technology (background overview, principles, performance expected, appropriateness)	Description Functioning Performance Removal mechanisms Plants role	15
60 min	Design of the technology (key considerations, basic calculations, key formulas, etc.)	General CW design FRB design General overview Schemes Design recommendations (pre-treatment, feeding system, vegetation) Filling media Design criteria Sizing methods	35
15 min	Break		
15 min	Construction and/or implementation	Implementation phases Construction details	20
15 min	Operation and maintenance	O&M requirements Malfunctioning in the system Strat-up and commissioning Vegetation start-up Sludge management O&M plan example	12
30 min	Example: the PAVITR pilot	Introduction Materials and methods Key messages	7
12 min	Homework: exercise to design/implement the technology for a case study	Case introduction Key data Solution	6
13 min	Final remarks		

**Credits:** this training has been created in the framework of the EU-Indian Joint Project “PAVIRT-Potential and Validation of Sustainable Natural & Advance Technologies for Water & Wastewater Treatment, Monitoring and Safe Water Reuse in India”. This project has received funding from the European Union’s Horizon 2020 research and innovation programme under grant agreement No821410 and the Department of Sciences and

Technology of India under the Grant DST/IMRCD/India-EU/Water Call2/PAVITR/2018 (G). For more information, please visit: <https://pavitr.net>