PAVITRA GANGA

Unlocking Wastewater Treatment, Water Re-use And Resource Recovery Opportunities In India

teri vito

PROJECT COORDINATORS

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India's water resources are under severe stress resulting from overexploitation and pollution.

The PAVITRA GANGA project is part of a research and innovation initiative, within the framework of the India-EU Water Partnership, established to address these challenges.

In collaboration with local stakeholders and supported by industrial partners, the project aims to deliver cost effective and energy efficient solutions for the treatment and reuse of wastewater with resource recovery in urban and peri-urban regions of India.

OUR MISSION

- Create policy and social support for innovative technologies
- Map, evaluate and improve promising wastewater treatment and reuse technologies
- Deliver actionable, robust and comprehensive solutions for quality and quantity monitoring, control and management of water resources
- Validate the selected innovative technologies for real water challenges in India
- Establish long lasting cooperation in capacity building and knowledge sharing
- Establish future market uptake and post-project exploitation of the demonstrated innovations

DEMO SITES

NEW DELHI: The Barapullah drain in New Delhi discharges about 1.25 million litres of wastewater per day into the Yamuna river. It receives wastewater with variable quality conditions from both households and domestic industries.

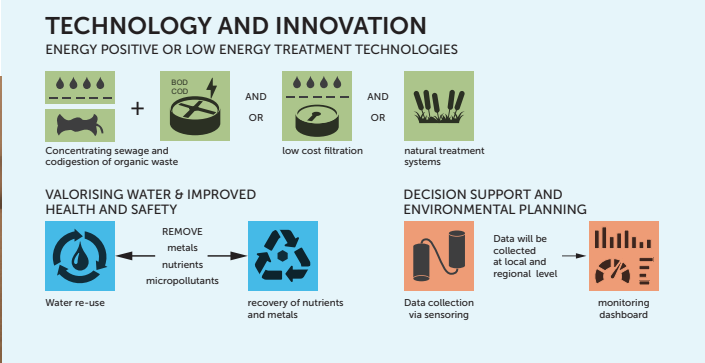
KANPUR: Jajmau region of Kanpur has three wastewater treatment plants. More than 400 tanneries operate in the region. The treatment capacity available is largely insufficient for the generated wastewater. Analysis of sewage water show high concentrations of heavy metals such as Chromium.

TECHNOLOGY INNOVATIONS

The demonstrated technologies target an overall improvement of wastewater treatment and management. Treatment performance and efficiency combined with the recovery of energy and/or materials where possible are tested and demonstrated at lab scale and in real life Indian conditions

The following technologies are being innovated in PAVITRA GANGA:

- **Andicos™ (Anaerobic Digestion by Combining Organic Waste and Sewage):** Consists of filtration through membranes and membrane concentrate processing through a digester with biogas and organic fertilizer production.
- **Aerobic Membrane Bioreactor:** Combines the advantages of conventional activated sludge (CAS) systems with micro/ultra-membrane filtration.
- **Self Forming Dynamic Membrane BioReactor (SFD-MBR):** It is an improvement of an ultrafiltration-based MBR where solid liquid separation is done through a self-forming cake layer that develops on a carrying surface.
- **Clean Blocks:** It consists of mineral wool cubes used to treat sewage by the biological activity within the filters.
- **Photo Activated Sludge (PAS):** Here, a mixed biomass of algae (and phototrophic cyanobacteria) and selected bacteria is grown for nutrient removal
- **Structured Adsorbents:** Developed sorbents are shaped into granulates enabling their application in column set-ups with high hydraulic conductivity, which are easily replaceable and safe.
- **Constructed Wetland Plus (CWplus):** It combines vertical flow constructed wetlands (VFCW) with adsorptive elements and specific sorbents for the removal of heavy metals.



MONITORING & MODELING

- Establishment of a new sensor monitoring network
- Development of an online water management dashboard
- Modelling of water quality and quantity

These solutions will enhance the control and management of the technological solutions and to better assess the impact of mitigation measures and scenarios in the demo case areas.

weiss
Planning Support System

WEAP

WATER GOVERNANCE

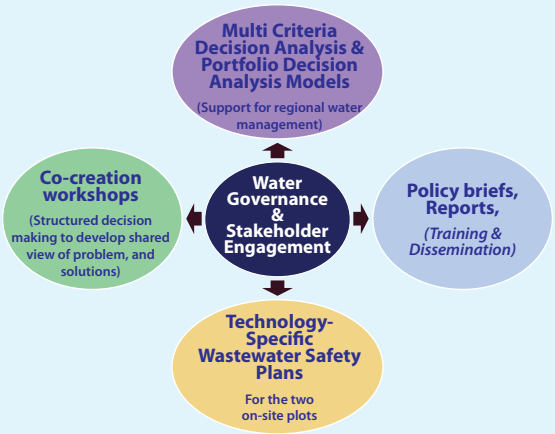
- Effective stakeholder engagement to create policy and social support for innovative technologies and concepts.
- Co-creation processes to establish a connection with stakeholders and engage with actors across the River Ganga basin and further afield.

BUSINESS OPPORTUNITIES

- Creation of an EU-India business platform for future market uptake of PAVITRA GANGA's demonstrated wastewater treatment technologies and resource recovery technologies
- Focus on funding and financing of demand-oriented business
- Identification of future commercial opportunities in the Ganga basin master plan.

TRAINING & EDUCATION

- Capacity building of Indian water professionals
- Creation of a technology and learning network
- Training workshops for Indian stakeholders on techniques and technologies related to PAVITRA GANGA



Training and education networks are crucial for the effective implementation and management of the demonstrated technology and monitoring solutions.

PROJECT PARTNERS

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