PAVITR

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Overview

PAVITR

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

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

Objectives

Asses the technical, financial and environmental sustainability of PAVITR Approach

Enhance natural-based and high innovative water & wastewater treatment technologies

Impel a cross-cutting issue that engages society and promotes gender equality

To develop and validate innovative, adapted and cost efficient wastewater & water treatment systems

To produce marketable secondary raw materials

Develop and demonstrate applications for wastewater treatment and large scale nutrient recovery

Provide evidence and policy recommendations

Improve acceptance from final users

Empower and support industries and SMEs in India

Scope

Technology Enhancement

- Natural-based treatment technologies
- High-innovative treatment technologies & sensors
- Emerging pollutants removal technology
- Drink Water and Rainwater Harvesting
- Sensors development

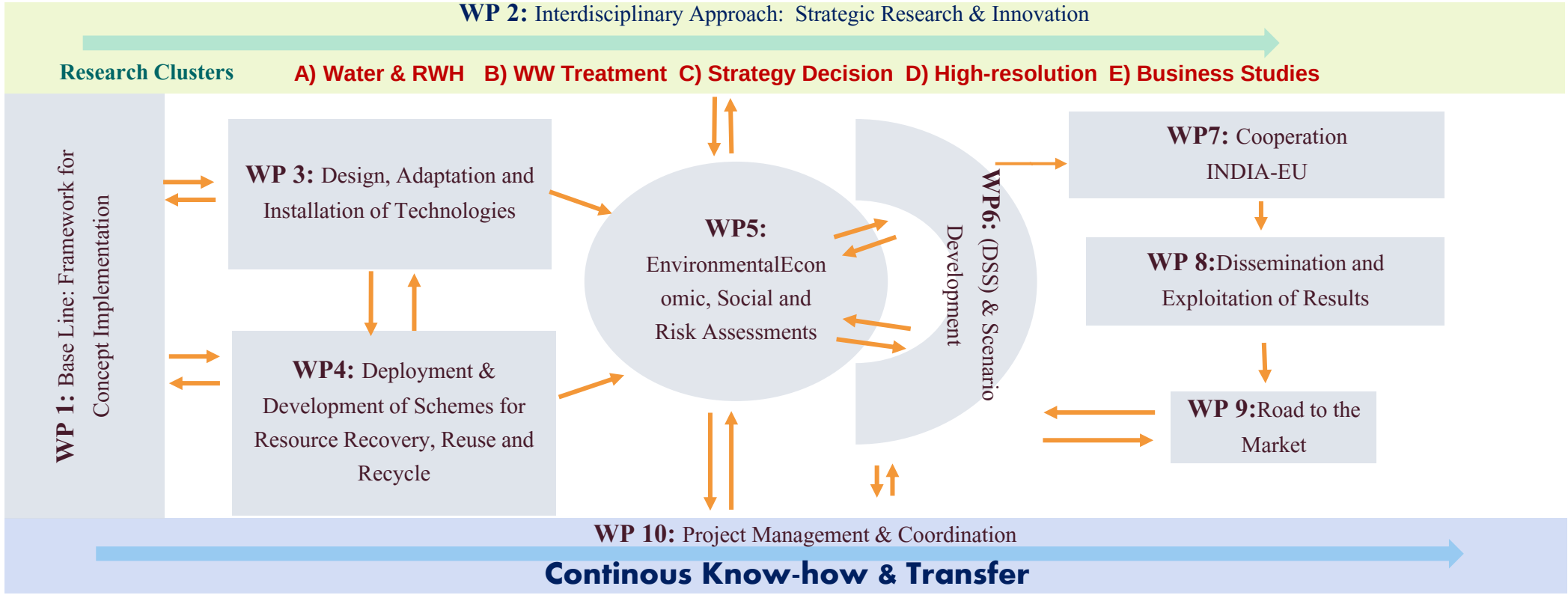
Demonstrative Application

- 14 Pilot Systems in five Indian regions:
- Treatment capacity to benefit 46.900 people with sanitation and access to water.

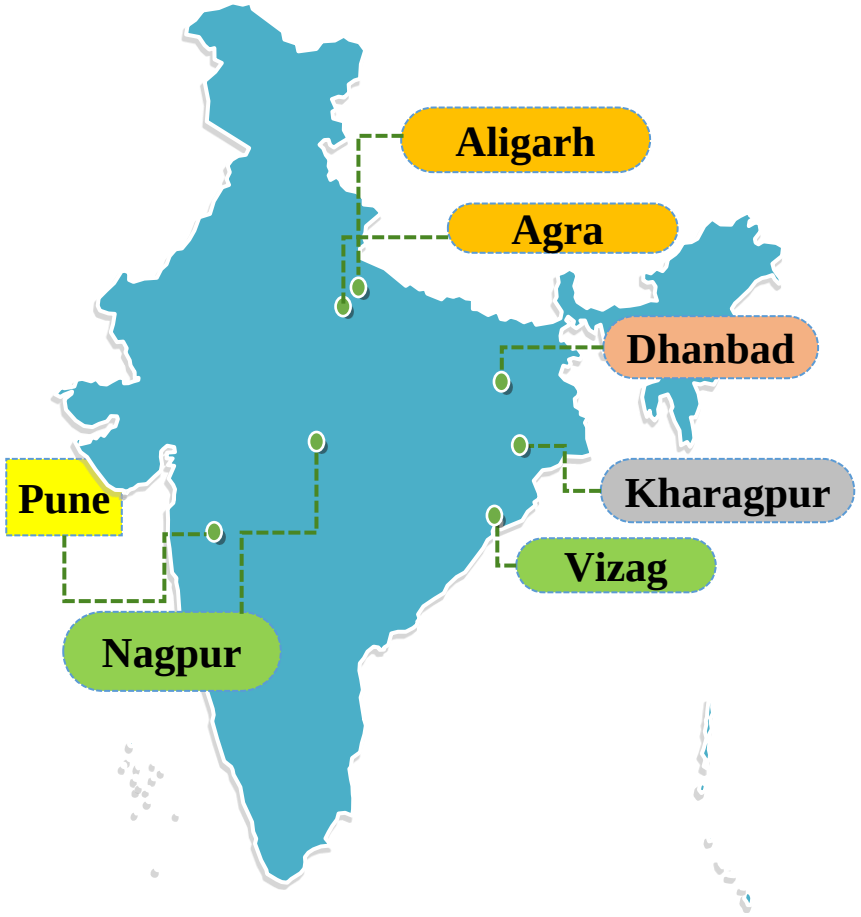
Road to the Market

- Training and Know-how transfer.
- Creating new business opportunities and green jobs
- Future upscaling and multiplying
- Decision support system.

Methodology



Geography



S. N.	Pilot Technology	Capacity m^3/d	Place	Partner
1	ECl2	30	Pune	AUTARCON + SIU
2	ABR + CW (Anaerobic Baffled Reactor & Constructed Wettland	50-**100**	Pune	IRIDRA + SIU + NEERI
3	Rain Water Harvesting	100	Dhanbad	KRETA + IIT – ISM
4	Optimized SBR (Sequencing Batch Reactor)	25- **150**	Dhanbad	BIOAZUL + IIT – ISM
5	RichWater SBR	25-**75**	Aligarh	BIOAZUL + AMU
7	Short-Rotation Plantation Willow + Bamboo System	25-**50**	Aligarh	TTZ + AU + AMU
8	French Reed Bed	50	Aligarh	AMU + IRIDRA
9	Sensors for UASB optimization (Upflow anaerobic sludge blanket	25-**250**	Aligarh	AIMEN + AMU
10	Fecal Sludge & Septage Mgt.	5	Aligarh	AMU + IRIDRA
11	MBBR (Moving Bed Bioreactor)	50-**100**	Nagpur	NEERI + BIOAZUL
12	SAFF (Submerged Aerobic Fixed Film Reactor)	50-**100**	Nagpur	NEERI + BIOAZUL
13	FSSM (Fecal Sludge Mgt)	25	Vizag	NEERI + IRIDRA
14	MBBR- VFCW – TOXIDATION	TOXIDATION [$3m^3/d$]	Kharagpur	AUTARCON + IIT-KH

Water governance and socio economic issues

Water in India is governed as a public good with evolving yet disjointed awareness of its environmental, social and economic foundations.

- 5 states account for approximately 50% of the total sewage generated in the country.
- From those 5, 4 states accounts 67% of the total sewage treatment capacity in the country
- No sewage stablished in 7 additional states.

Rapid urbanisation and population growth

Lack of sanitation and wastewater treatment

Water shortages

Degradation of rivers, streams and aquifers

Over exploitation od groundwater resources

Highly contaminated surface water sources

Lack of legislation regarding emerging contaminants

Water governance and socio economic issues

More than 50% of the population has no access to safe drinking water

The annual impact of water borne disease is estimated to affect 38 million persons

Death of 1.5 million children per year, as consequence of enteric related diseases

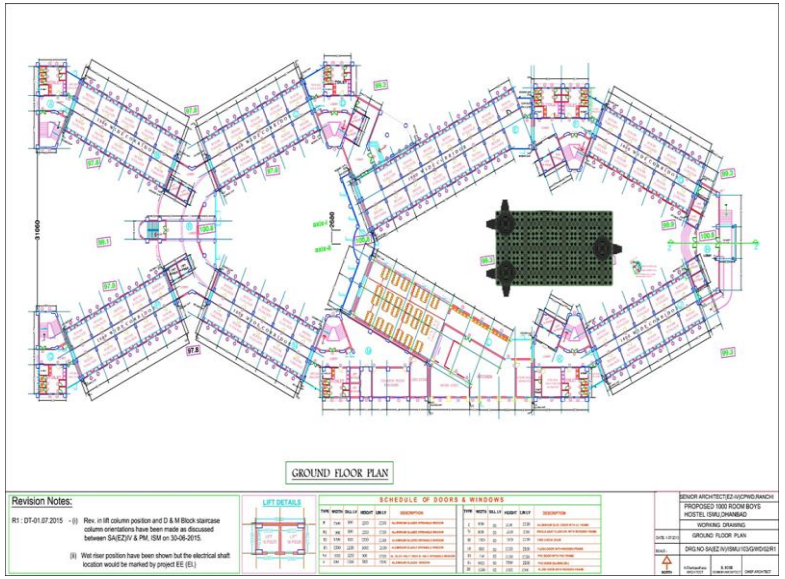
Drinking water coverture for urban areas has not changed over the last 15 years

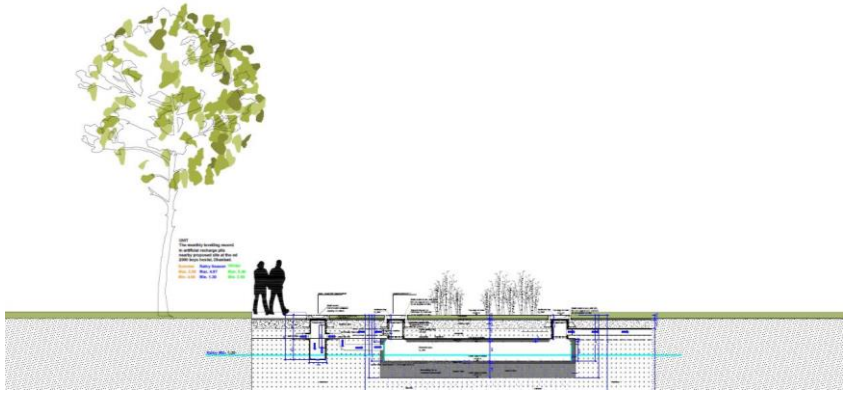
66 million inhabitants are exposed to water sources containing excess fluoride

10 million inhabitants have excess arsenic in their groundwater

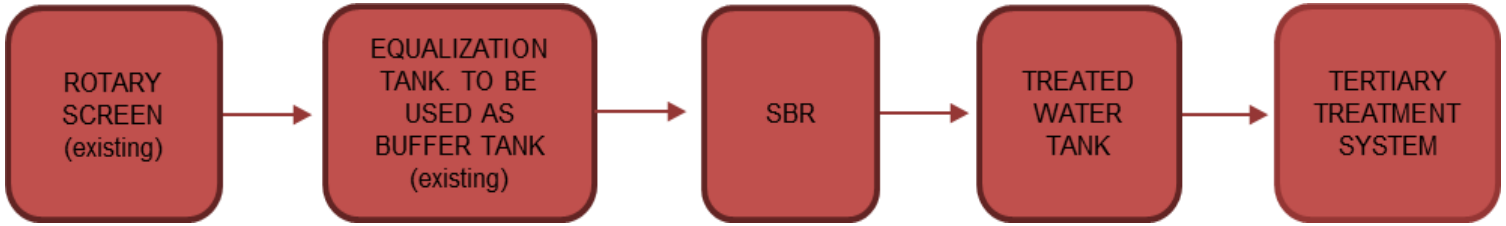
Governance reform needs to keep pace with technological advancements in agricultural, urban, and industrial water management.

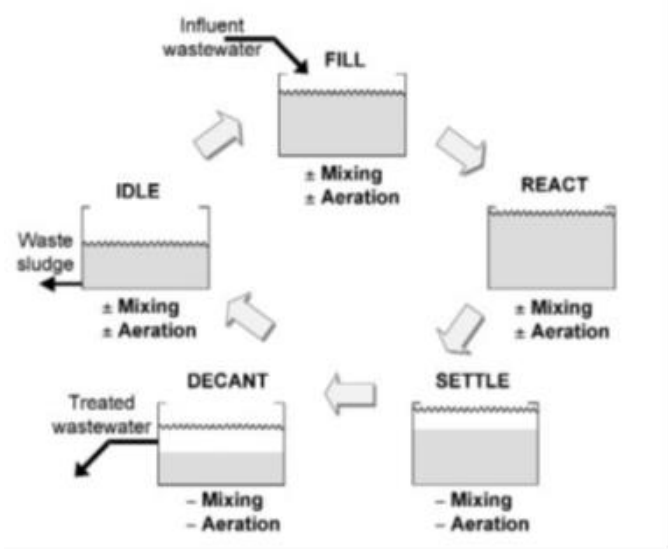
Rain Water Harvesting

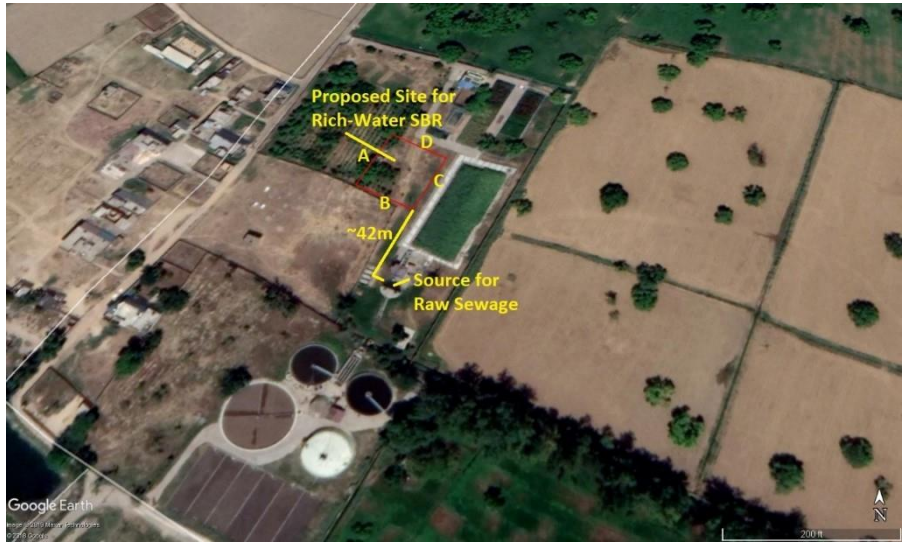




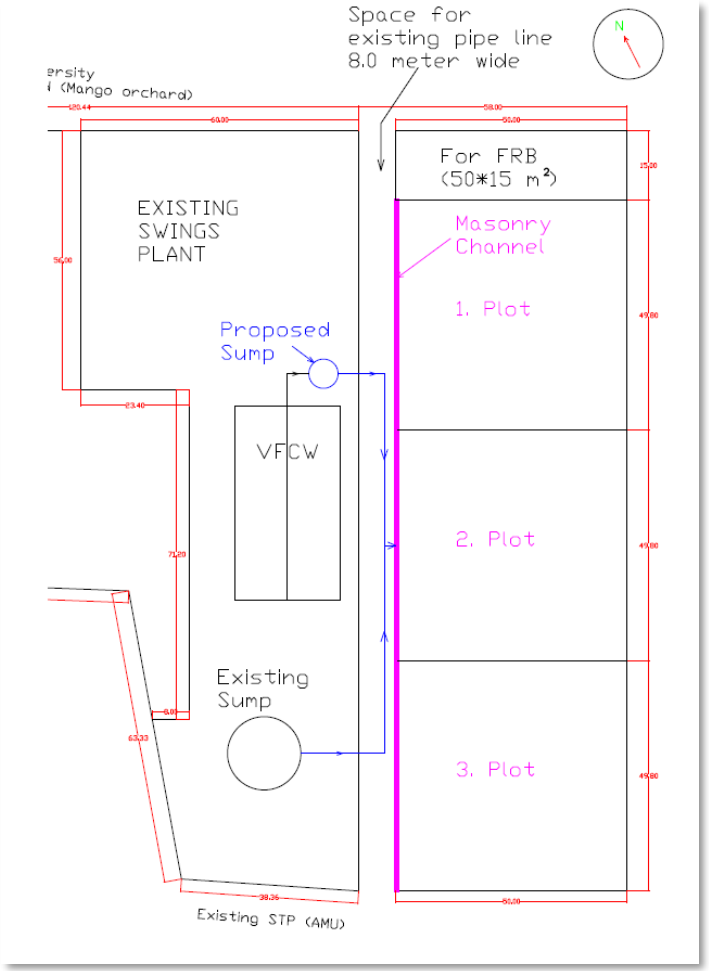
Rich Water Sequencing Batch Reactor (SBR)



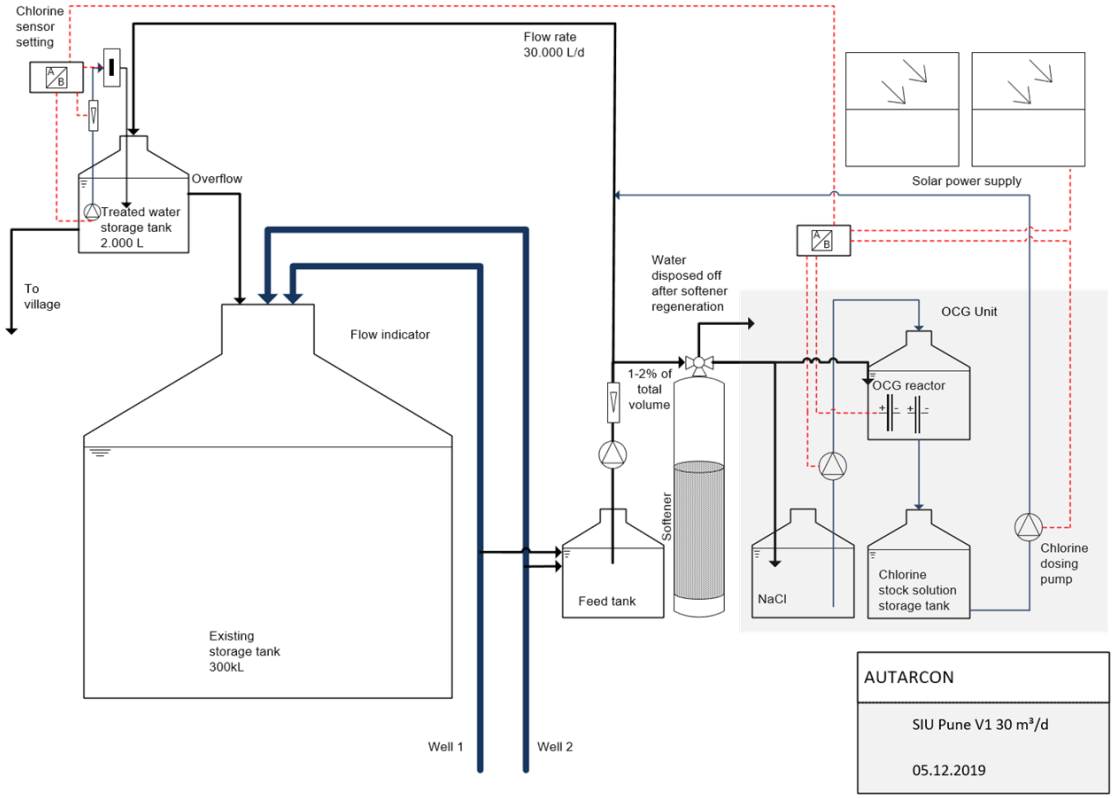


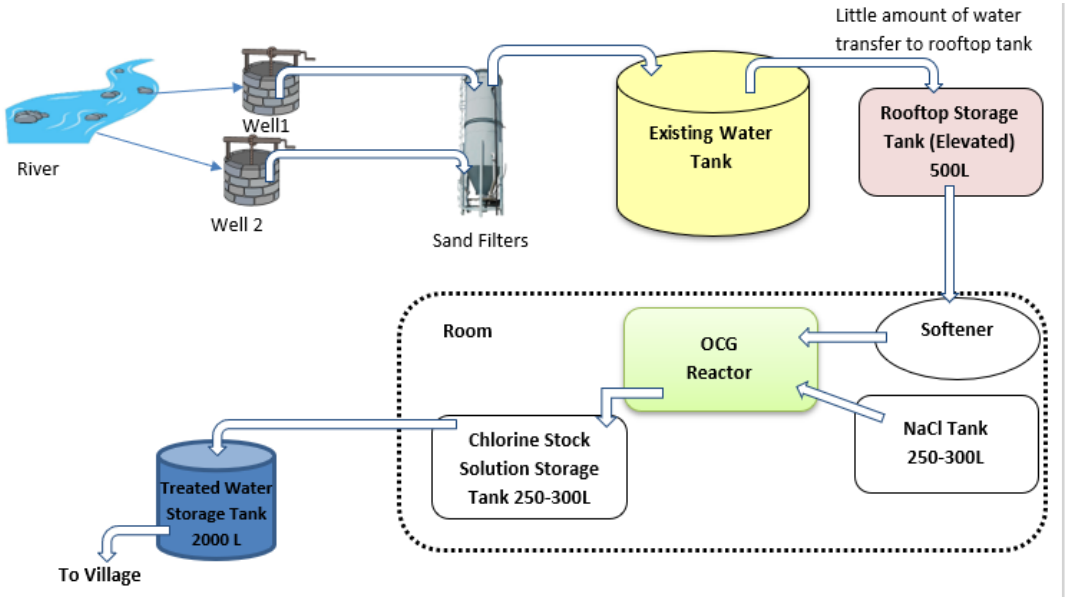


Short Rotation Plantation (SRP)

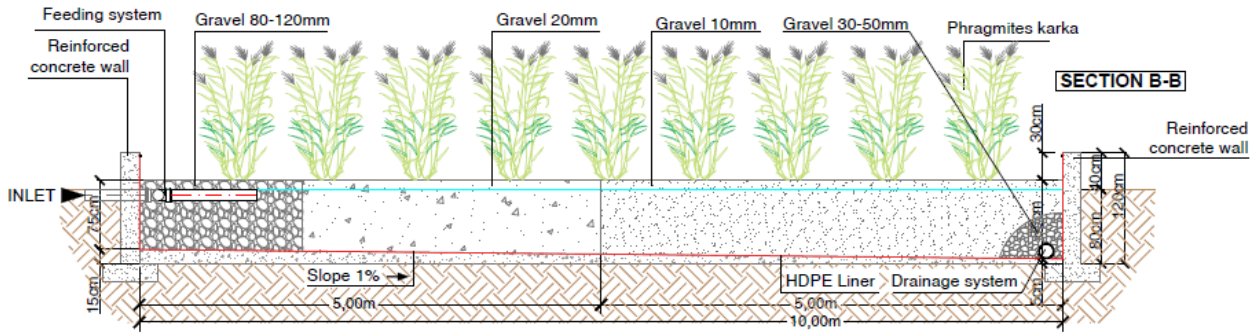


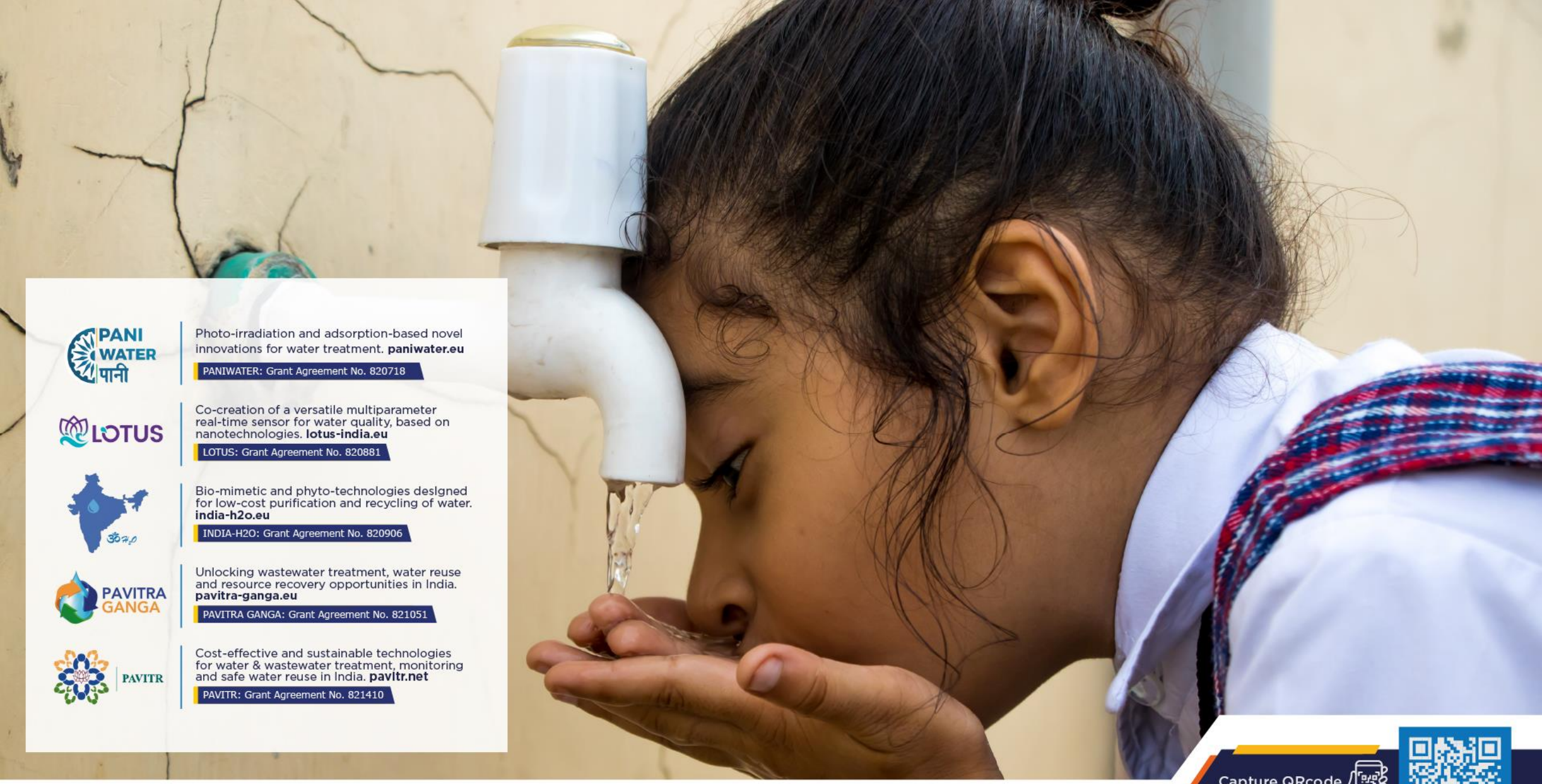
Disinfection for safe drinking water





Anaerobic Baffled Reactor + HF Constructed Wetland





PANI WATER पानी

Photo-irradiation and adsorption-based novel innovations for water treatment. **paniwater.eu**

PANIWATER: Grant Agreement No. 820718

LOTUS

Co-creation of a versatile multiparameter real-time sensor for water quality, based on nanotechnologies. **lotus-india.eu**

LOTUS: Grant Agreement No. 820881

Bio-mimetic and phyto-technologies deslgned for low-cost purification and recycling of water. **india-h2o.eu**

INDIA-H2O: Grant Agreement No. 820906

PAVITRA GANGA

Unlocking wastewater treatment, water reuse and resource recovery opportunities in India. **pavitra-ganga.eu**

PAVITRA GANGA: Grant Agreement No. 821051

PAVITR

Cost-effective and sustainable technologies for water & wastewater treatment, monitoring and safe water reuse in India. **pavitr.net**

PAVITR: Grant Agreement No. 821410

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