DECENTRALIZED WASTEWATER TREATMENT SYSTEM (DWTS)

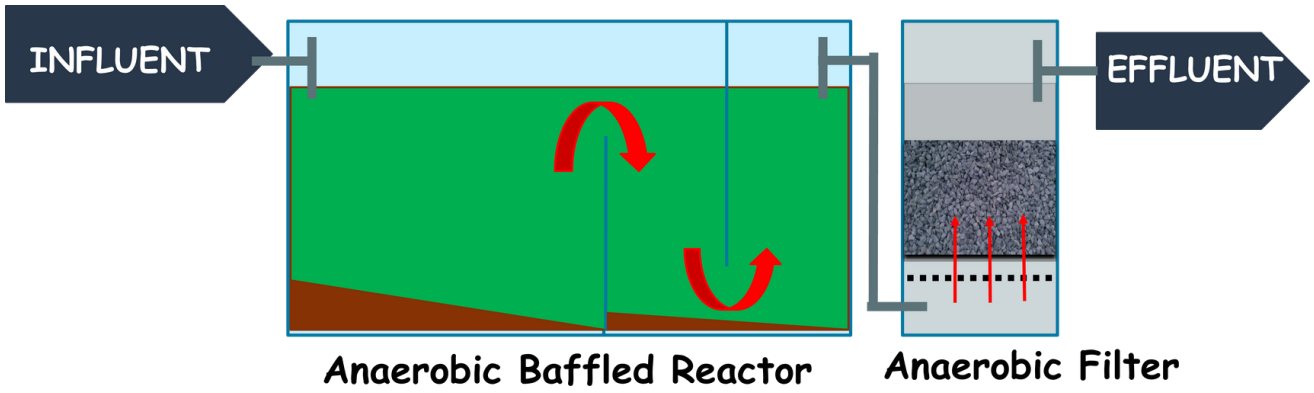
- Water availability has dropped down from 5,260 m^3 to 1000 m^3 from 1951 to 2016 marking her transition from “water stressed” to “water scarce”.
- <8% of urban wastewater is being treated in municipal treatment plants, while other remain untreated.
- 55% of untreated wastewater used for irrigation.

PROBLEM SOLUTIONS

- **Water conservation:** including dams, reservoirs etc. requires high capital cost.
- **Wastewater Treatment Technology:** to alleviate water shortage and improve environmental sanitation.
- **Wastewater Reclamation and Reuse:** Pakistan generates 6.4 billion m^3 of wastewater annually, that can be recovered, reclaimed, and/or recycled after treatment.

GAP AREAS

- Limitations in centralized wastewater treatment system involves complex system design.
- Hence there is a need to develop sustainable WASH solutions which are economical, effective, and easy to operate/ maintain.



KEY COMPONENTS

Wastewater treatment in a DWTS is achieved via:

a) Primary treatment (Settlers/ Anaerobic Baffled Reactors)

b) Secondary treatment (Anaerobic Filter).

c) Tertiary treatment (Polishing Ponds, Membrane Systems, etc.)

ADVANTAGES

- Simple System Design
- Compact Footprint
- Less Operation & Construction Cost
- Energy Efficient

DWTS APPLICATIONS

Designing and Top Supervision of DWTS at DHA Quetta (Capacity: 550 to 2400 m^3/day).

Design consultancy of DWTS for Punjab Local Government Academy (PLGA), Lalamusa (Capacity: 12.5 m^3/day).

DWTS Design of Tehsil Jatoi, District Muzaffargarh Punjab (Capacity: 12.5 m^3/day).

Designing & Top supervision of DWTS at Saidpur Village, Islamabad (Capacity: 324 m^3/day).

DWTS design for Tehsil Jatoi and design consultancy for OGDCL, Nashpa Oil Field Karak (Capacity: 160 m^3/day).

TECHNOLOGY

The collection, treatment, and disposal/reuse of wastewater from urban, peri-urban, and rural communities, or institutional facilities, near the point of waste generation.

Most suitable in context of developing as well as water scarce countries.

The treated effluent can be used for non-potable purposes thus reducing the daily water demand.

CONTACT INFORMATION

Prof. Dr. Sher Jamal Khan

Phone: +92-344-9167770

Email: sherjamal77@gmail.com
sjamal@senv.solutions

National University of Sciences and Technology (NUST)

Institute of Environmental Sciences and Engineering (IESE) NUST, H-12, Islamabad, Islamabad Capital Territory
Phone: +92-51-90854353