

Vol. 13 | Issue Sept.-Oct. & Nov.-Dec. 2022 | ₹ 200

Landscaping & Outdoor Living

Water

A Rare and Precious Resource



Inspiration and insight on Landscaping, Gardening, Golf, Arboriculture, Horticulture, Nursery & Outdoor Living

Digital Edition Available at
WWW.LANDSCAPINGDIGIMAG.COM

Grey Water: Recycle & Reuse



Onkar Tiwari

Director, Ashwath Group of
companies, New Delhi

A Water EPC business development leader and innovator, focused on development of great water infrastructure for the county. A strategic business professional with 23 years of diversified experience in Business Development/Team building/system development and development in Water Industry. He has always been a top performer with Business Intelligence with profound portfolio consultation capabilities and experience of defining Market development activities for enhancing brand penetration. He is currently developing Ashwath Group of companies in water infrastructure projects across 10 smart cities and other habitations. Deft at managing and leading teams for running successful process operations & experience of developing operational procedures & service standards for Business Excellence with key focus on top line profitability. Demonstrated abilities in cementing healthy relationship with key accounts for generating business and leading workforce towards accomplishing business and corporate goals. He is very much goal oriented professional well-versed at adopting emerging trends and addressing industry requirements to achieve organizational objectives and efficiency norms. He showed advanced presentation and relationship development abilities, with track record of generating exponential business growth and prospective clientele. He is having effective communication skill with excellent relationship building & interpersonal skills. He has strong analytical, problem solving & organizational abilities with a flexible & detail-oriented attitude.

Greywater or sullage is all wastewater generated in households or office buildings from streams without faecal contamination. By definition greywater is generally waste water from showers, baths, basins, and washing machines. Greywater treatment is easier than municipal wastewater treatment, generating a large interest in its reuse and recycling. Typical applications for greywater recycling and re-use are toilet flushing, irrigation and other non-potable uses.

Reusing wastewater is a crucial part of the sustainable management of water resources. Greywater can be an important alternative water source, especially in arid and touristic areas, where the biggest water demand is usual in the dry period. The potential ecological benefits of greywater recycling include:

- Ground water reserve saving (One acer of park uses >50 Lakh liters of water per acer)
- Reduced freshwater extraction from rivers, lakes, ponds
- Less environmental impact from septic tanks and water treatment plants,
- Reduced energy use and chemical pollution from water treatment,
- Groundwater recharge and reclamation of nutrients.

However, greywater can be contaminated with different kinds of soluble and insoluble substances and must be treated properly. Contaminants in greywater include



traces of dirt, food, grease, hair, and certain household cleaning products. Typically, aerobic and biological treatments are used as primary greywater treatment to remove dissolved and suspended biological matter, followed by ultra-filtration to prevent particles, bacteria and viruses of passing through. Ultimately, greywater can be disinfected with ultraviolet, to ensure residual disinfection at point-of-use.

Challenges & Opportunities

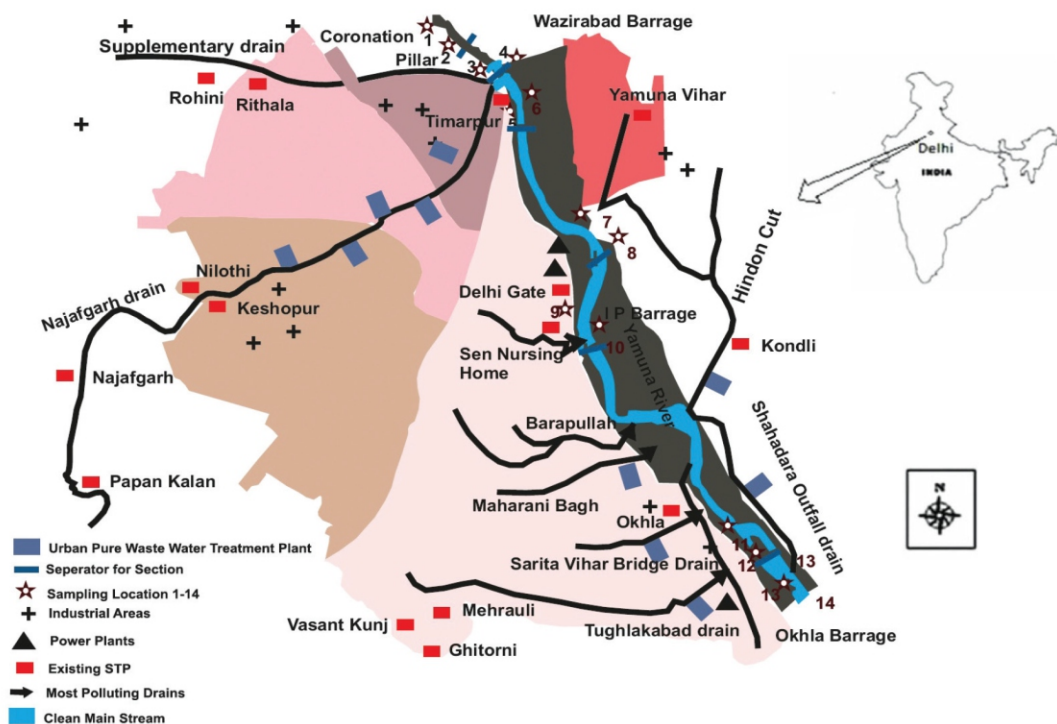
Groundwater Depletion

Ground water depletion is a major challenge in India as a result of increase in population and increase in consumption per capita.

Exploitation of ground water reserves is creating a large adverse qualitative and quantitative impact on ground water reserves. With deep mining of ground water various serious challenges like Arsenic/Fluoride/Iron/chloride etc is now impacting substantial population in India.

As per information available from local population of Delhi NCR we understand that ground water was at between 3-10 meters level which has gone down to 40 to 80 meters plus level in just two decades, which is unprecedented in the any of the example across world

Government and National Green tribunal has also issued multiple advisories and regulations for not using ground water for horticulture and irrigation purposes but in lack of alternative and availability issues cost of treated waste water is very high hence still most of the parks are using ground water to sustain in extreme heat which certainly is amounting to huge ground water depletion and creating irreversible loss to strategic ground water reserve and on the other hand we are polluting our rivers with our waste water on a very large scale.





Restoring the glory of river, lakes or ponds

In India, the per capita water availability is reducing by the day. For example, Delhi used to have at least 4 good sized tributaries, of which the major tributary was Sahibi River, which travelled from Aravali, from Jaipur to Delhi. This tributary is now known as Najafgarh Drain.

Can the Glory of Najafgarh drain be restored? We believe if all small waste drains can be tapped with our system before reaching the Najafgarh Drain, the restoration of the drain to its past Glory is a certainty.

We have done a survey of the river Ganga, under professional contract by NBCC, for the National Mission of Clean Ganga (NMCG). We discovered hundreds of waste drains flowing directly into the river, contaminating, and destroying the ecology of the river. Now if water from these drains is treated before it flows into the Holy Ganga and its tributaries, the river will be restored to its original Glory days.

Similarly, deep in south in Chennai two rivers Cooum and Adyar in very pathetic condition for many years due to



Some SJP plants were installed but it didn't work as they were not cost effective and stopped working in lack of proper maintenance.

industrial and household waste water inflow into them. In 2017, Madras High Court in one order in judgement to a PIL to take immediate step to restore its glory. Some STP plants were installed but it didn't work as they were not cost effective and stopped working in lack of proper maintenance. Situation is same with river Neyyar in Thiruvananthapuram. Narmada river in western India.

Water for children at School

Water availability in schools is an area of concern, especially in ground water scarce areas and schools not located near well or organized water infrastructure places, even if 50% schools have water supply facilities from municipalities or ground water depending on the availability only less than 5% have waste water treatment and reuse facilities.

If Waste water/Graywater is used wisely, schools can be self-sufficient in terms of water usage along with greener and cleaner.

One of the other major challenges is non availability of large capital budget to have the waste water management facility.

Solution

We at Bio Mimicry have developed an economical system with technology transfer from IIT Kharagpur and BARC that require minimal maintenance and runs on Solar power with a beautiful wall garden canopy for safety and aesthetics of the place. we put our systems at school where in we can also provide a great financial model where capital cost can be spread on HAM models and will cost approx 7 Lakh to have the system against an actual cost of 15 lakhs to start with and 25 thousand per month will go as maintenance cost and field warranty for next 3 years.

We will also engage 9-12 children and teach them about Waste water management/Graywater management/Drinking water management/Solar systems and Rainwater management and provide them certification on the above subject.

By combining the Rainwater management systems/waste water management system and in association with school



we can make the school 100% self-sufficient in water and help convert schools to modern Green schools and great examples for the community and society surrounding the school.

We as team has been working on water resources management since last 20 years and have identified the challenges of water for parks and gardens along with power consumption patterns of water treatment facilities.

Thus, we are proud to share a solution developed with technology transfer IIT Kharagpur along with inhouse water expert team, our systems in 100% made in India and seeing a large traction from foreign buyer for efficiency and cost we offer.

Now any park can tap any nearby drain passing by the park and convert the grey water of that drain water with the help of solar energy and advance sequence membrane bio reactor (SMBR) too good for irrigation/ horticulture water with less than 10BOD, Less than 10 TSS, Less than 10 Turbidity and with good dissolved oxygen of more than 6.5 level.

The solution is developed under Start-up India Initiative and made in India which is most compact system available in the market with least energy consumption.

Maintenance cost is also minimal.

We provide field warranty of the system and one-year free comprehensive operation and maintenance.

Our system does also have great design and aesthetic value and have vibrant colour wall garden canopy.