

Established in 1981, SPML Infra Ltd has vast experience in executing infrastructure for water treatment and transmission, wastewater handling, treatment and recycling, solid waste management, power transmission and distribution, and civil infrastructure development.

Rishabh Sethi, in an email interaction with **Lalitha Rao**, explains how the water crisis in India can be mitigated through advanced technologies like desalination.



WATER & WASTEWATER

'There is urgent need for better management'

— **Rishabh Sethi**, Executive Director, SPML Infra Ltd

Q What are the risks in wastewater treatment sector?

India's urban population is expected to reach 500 million in next one decade from the existing 340 million, a phenomenal growth of almost 50 per cent. Urbanisation has also increased water usage across sectors and as a result wastewater is increasing significantly. The existing facilities to treat wastewater are not adequate. Presently, only about 20 per cent of the generated wastewater is treated. There is an urgent need for better infrastructure and organisation with regard to wastewater management. Most wastewater can be recycled and cleaned to the levels where it can be reused if we adopt the latest and advanced technologies.

Q What are the problems associated with wastewater treatment?

There are large infrastructural gaps with wastewater treatment and sanitation operations stressed due to high levels of inefficiencies. Despite India's efforts to improve wastewater treatment, the country is finding it difficult to keep pace with a rapidly-growing economy and increasing population. In some cities, industrial pollution has made areas unsuitable even for agriculture.

A research study by Sri Lanka-based International Water Management Institute has stated that more than 1 million hectares of land in India could be irrigated if wastewater was made safe for use.

Since the wastewater originates where the people live and in industries, the treatment should

be done as close as possible to the source to make it a viable business model.

The major issues concerning the sector are lack of legal and regulatory framework, lack of knowledge and understanding of the concept by the authorities, access to finance to carry out the project, lack of political and economic instability, political considerations, issues with legal and environmental clearances and land acquisition, lack of political will, fear of failure and lack of trust between private and public partners, delays in design approval and payments, and lack of skilled manpower among others that requires careful consideration.

Q What are your views on desalination technology in India?

Only 21 per cent of Indian population has access to piped drinking water and only 28 per cent to improved sanitation facilities. About 50 per cent (170 million) of the urban population is directly connected to the water distribution networks. The rising costs and growing supply challenges of freshwater is making it crucial to treat seawater for reuse. The raw water quality in India is such that all types of desalination technology can be used giving a good leverage to desalination. The power situation as well as the average size of desalination plant makes reverse osmosis a more suitable technology for the country. At the moment most desalination plants are RO based and the same trend is expected to continue in India.

Q What are some of the key challenges with desalination?

The major challenges with desalination lies in the fact that there is a huge gap between the water tariff expectations and actual cost of desalination (per kilolitre desalinated water). The consumers in India are used to paying nothing or very little for water. Only recently, a few municipalities in India have started charging for water that has been set around ₹10 per kilolitre and tariff moves upwards as per the usage. As per estimate, O&M cost alone including cost of power, chemical, mem-



PHOTOS: SPML

brane replacements and cost of highly trained skilled professionals is in excess of kilolitre ₹35 per kilolitre of desalinated water. Cost to set up the desalination plant is, of course, additional.

Recently, the Indian government has signed a memorandum of understanding with the Netherlands for technical cooperation in water management and several other areas in urban planning. Under the MoU, a joint working group would be set up to prepare annual work programmes. Such steps will bring the technical knowledge and best practices in water management to India that will help in decision making and implementation for the improvement in water sector.

Q A recent study notes that desalination is the only viable option to solve the water crisis in cities constrained by funds or an effective strategy.

Availability of freshwater is the main issue in the water scarce states such as Gujarat, Maharashtra, Tamil Nadu and Rajasthan. The inequality of available water resources existing in India needs to be artificially corrected through incorporation of technologies such as thermal or membrane desalination. With the growing city population, it is getting difficult for the municipalities to cater to the need for freshwater which has resulted in growth of desalination plants.

Logically, the desalination activities are concentrated in those parts where availability of freshwater is scarce but they are surrounded by sea. Chennai, Mum-

bai, Kolkata and parts of Gujarat are suitable places for desalination plants. Sources suggest that there are more than 1,000 membrane-based desalination plants of various capacities ranging from 20 m3/day to 10,000 m3/day available in India.

Q Can you suggest a holistic approach to resolve the challenges facing the water and wastewater sector?

Integrated water management with emphasis on demand management and resource generation is the need of the hour. Watershed management and rainwater harvesting have proven to be effective and implementation of such techniques at larger level is required to be done. The sewage and effluent treatment and disposal should not be treated in isolation from water supply. Giving it less priority has contributed more pollution of water bodies. The holistic approach of water management should be to integrate drinking water supply with treatment of wastewater to achieve sustainable water management.

We need to adopt new techniques of farming and enhance our water infrastructure with modern technology to reduce the usage without affecting the produce. New techniques for treatment of sewage and effluent must be implemented to treat the wastewater up to the level of use for industrial and agriculture purpose. Community participation at grassroots level for water management issues is a must to create awareness and reduce wastage.

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