Industry Outlook

WASTE MANAGEMENT STARTUPS

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RETHINKING WASTE MANAGEMENT

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Subhash Sethi, Chairman, SPML Infra, *in interaction with Industry Outlook, shares his thoughts on how the wastewater management industry is evolving in India and how effectively managing municipal and industrial wastewater & adopting reliable technology can help in addressing the challenges faced by this industry.*

RISING POPULATION DENSITY AND INCREASED INDUSTRIAL ACTIVITY ARE CAUSING THE GENERATION OF HIGH AMOUNTS OF WASTE, BOTH HAZARDOUS AND NON-HAZARDOUS. HOW DO YOU SEE THE CURRENT LIQUID WASTE MANAGEMENT MARKET IN INDIA?

India is the second most populated country and also the second-largest water consumer in the world. With steady population growth having a 1404 million current population, the country needs around 740 billion cubic meters of water per year to serve its people. Water demand is constantly increasing and so is the water stress. The government think-tank, Niti Aayog reported that more than 50 percent of the population today has no access to safe drinking water, and about two lakh people die every year due to drinking contaminated water.

Central Pollution Control Board (CPCB) suggests that Indian cities are generating nearly 72,368 MLD (million liters per day) of sewage whereas the installed capacity of STPs is 31,841 MLD. Of this installed capacity, developed and operationalized capacity was 26,869 MLD and out of which only 20,235 MLD was the actual utilized capacity. With a total of 72,368 MLD sewage generated, only 20,235 MLD is treated which is just under 28 percent of total sewage being treated. India with an increasing population and growing demand for water is not utilizing the valuable resource of wastewater to augment the water supply and cater to the need of industries and irrigation. This leaves a big gap of almost 72 percent of generated sewage not being treated and it is released untreated into water bodies. Greater consideration is needed to

COVER STORY

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construct better wastewater treatment infrastructure for abetting water pollution and a reliable solution for water sustainability.

India's wastewater treatment market is expected to reach a total market size of $10.185 billion by 2026. And, the water and wastewater treatment (WWT) technology market is projected to register a CAGR of greater than eight percent until 2027.

HOW IS SPML MAKING A DIFFERENCE THROUGH ITS END-TO-END WASTEWATER MANAGEMENT SOLUTIONS?

SPML Infra has designed and constructed a large number of wastewater treatment plants for both sewage and effluents and has contributed immensely to environmental sustainability. The company has focused its approach on effectively managing municipal and industrial wastewater and not allowing it to harm our delicate ecosystem. Recycling wastewater further enhances reuse and social responsibility conforming to pollution control norms. SPML Infra has built plants that are fully equipped with automated control systems and reliable technology for efficient treatment, operation, and maintenance. With a rich legacy of four decades, it has proven domain expertise to provide water and wastewater management services across the country.

Some of the significant wastewater treatment plants constructed by SPML Infra include:

> SPML INFRA HAS BUILT PLANTS THAT ARE FULLY EQUIPPED WITH AUTOMATED CONTROL SYSTEMS AND RELIABLE TECHNOLOGY FOR EFFICIENT TREATMENT, OPERATION, AND MAINTENANCE

• 240 MLD Sewage Treatment Plant in four modules of 60 MLD each with each module having its primary & secondary treatment section plus sludge thickening & digestion facilities in Ahmedabad, Gujarat. Common facilities for disinfection of biologically treated water, biogas collection & flaring, supernatant/filtrate collection & recirculation system, collection of digested sludge & digested sludge dewatering system along with common chemical preparation & dosing facilities were created in this project.

• 72 MLD Sewage Treatment Plant in Okhla, Delhi based on activated sludge process with gas mixing technology complete with gasholder and compressor to generate energy.

• SPML Infra also contributed to the prestigious XIX Commonwealth Games held in Delhi in 2010 by constructing a 25 MGD (million gallons per day) effluent pumping station (EPS) including twin transmission mains for carrying 33.34 MGD treated effluent to the power plant to generate power which eventually illuminated the Games.

ENERGY CONSUMPTION IS ONE OF THE LARGEST EXPENSES IN OPERATING A WASTEWATER TREATMENT PLANT. HOW CAN THE ENERGY COST BE REDUCED?

Wastewater treatment facilities are among the major energy consumers at the municipal level globally. It is estimated that on average these facilities alone may require about 1-3 percent of the total energy consumption of a country, representing a significant fraction of municipal energy bills.

On the other hand, wastewater and its byproducts contain energy in different forms: chemical, thermal and potential. Traditionally, the only form of energy recovery from most wastewater treatment facilities consisted of anaerobic post-digestion of sludge, by which chemical energy methane is obtained as biogas that is converted into energy sufficient to cover about half of the plant requirements. But with the technology progressing, new and innovative technology implementation may have more efficient strategies for energy savings and recovery from sewage treatment.

SPML Infra has executed a sewage treatment project for Kanpur city with 42 MLD plants that are designed and constructed based on the activated sludge process including power generation from biogas. Biogas generated in two sludge digesters is utilized in three biogas engines of 380 KVA capacities for power generation which fulfill a substantial energy requirement of the plant. Such practices can be helpful for municipalities in reducing the energy consumption at wastewater treatment plants that will also benefit from better affordability and environmental concerns.

ANOTHER MAJOR CHALLENGE FACED IN WASTEWATER TREATMENT IS THE DISPOSAL OF EXCESS SLUDGE PRODUCED DURING THE PROCESS. WHAT SHOULD BE THE IDEAL APPROACH FOR THIS?

After proper treatment of sewage, sludge or biosolid is generated as a byproduct, high-grade manure that can be used in pisciculture, irrigation, forestry, and horticulture. The compositions of sewage sludge vary considerably depending on the wastewater composition and the treatment processes used. It can be viewed either as an organic and nutrient resource to be used beneficially or as a waste material to be disposed of. In India, most of this material is disposed of and a fraction is recycled and used in agriculture, biogas generation, landscaping, or horticulture. Each of these options has economic and environmental benefits, problems, and risks associated with it.

The technologies suitable for meeting the stipulated guidelines and for better quality output are more expensive, but the cost can be easily recovered in the sale of quality produce. The sludge can effectively be used for energy recovery through biogas; some of the STPs in the country are recovering this energy and utilizing it, leading to a reduction in the energy bill of the plant. Wastewater sludge is a useful source of nitrogen, phosphorus, and organic matter and after further processing, it can be used as a liming material.

The ideal approach for the long-term period should consider reducing the public health and environmental risks even further by decreasing the quantity and increasing the quality of the sludge produced. This can be done by strictly enforcing requirements for industrial pretreatment of wastewater, by separating storm and sanitary sewerage, and by investing in new wastewater treatment technologies that will generate less biosolids. Most of these measures will require adequate financial investments, so municipal authorities will need the support of their governments to implement a new approach to wastewater treatment and sludge disposal.

HOW DO YOU SEE THE FUTURE OF WASTE MANAGEMENT WITH REGARD TO THE ADOPTION OF NEW METHODOLOGIES?

Digital technology, satellite surveillance, supervisory control, data acquisition systems, remote sensors, geographic information systems, and more, are being deployed across the country for monitoring of collection and treatment with minimum human interference. The projects executed by the company have witnessed noticeable improvements in operational parameters and quality of treatment, though a lot of work still remains to be done.