The rise of ZLD in India

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Wastewater management is crucial to attain sustainability at all levels. How do you rate India in this aspect compared to some countries in Europe and Asia, from your experience and perspectives? How can one compare the effluent management practices in India with other developing countries?

India's water situation is already overstressed with the depleting freshwater resources, and increasing water contamination. Further, increasing municipal and industrial activities have resulted in a signification increase in the generation of wastewater. In this context, wastewater management is extremely crucial for the economic wellbeing of India.

When we discuss about the wastewater management in India, we need to consider it from the perspectives of norms, awareness and compliance. I am of the view that our government has established quite stringent norms for wastewater management, which are at par or, in some cases, more stringent than those prevailing in Europe and other countries.

Similarly, awareness about the need for effective wastewater management is growing, among the general public, and among the business community. Media is also playing a major role in creating this awareness.

The challenge that we face is in terms of compliance. This could be attributed to several factors: Laxity in enforcement and monitoring could be one important factor; complexity of the subject and the dearth of right expertise to suggest a suitable and economic solution could be another factor; reluctance to invest in good treatment technology and also in monitoring and analytics tools could also be a contributing factor.

A.T.E. HUBER Envirotech has always been a strong proponent for the reuse of wastewater. Can you speak about that?

We strongly believe that wastewater is the most secure source of fresh water. Treatment and recycling of wastewater will go a long way in mitigating the water crisis. This can also be the most economical way of generating clean water for industrial processes. With the advance in technology, most efficient and economical solutions are now available for treatment and recycling of wastewater.

A.T.E. HUBER Envirotech has been making huge strides in the area of industrial wastewater treatment. Can you talk a little bit about your efforts in that area?

We offer a comprehensive range of solutions for wastewater treatment, recycling, zero liquid discharge and sludge management covering both industrial and municipal sectors. We have introduced several novel technologies for industrial wastewater treatment. AAA® technology is a highly successful innovation that treats textile wastewater. AVR® based anaerobic bio-methanation plants have been proven to degrade fat successfully in the dairy industry. AHR handles difficult to treat effluents from pharma and petrochem, whereas SUFRO®, an ultra-high flow submerged UF membranes followed by a reverse osmosis membrane system, provide simple and hassle free recycling of wastewater. We have also developed a highly successful solution for API (Active Pharma Ingredients) wastewater treatment using anaerobic + aerobic biological treatment.

We also offer from HUBER SE, Germany, innovative and highly efficient equipment for municipal wastewater treatment right from headworks to comprehensive sludge management, including faecal sludge treatment. Their solar sludge dryer is a revolutionary product that reduces significantly the cost of sludge management.

How important are ZED and other ZLDs are for the Indian industry at this juncture?

I would say very important. In a world where freshwater is increasingly scarce, processes like ZLD assume overwhelming importance. For example, the

Indian textile wet processing industry depends heavily on water, hence sustained water availability is critical for its uninterrupted operations.

ZLD is not only necessary for conserving freshwater, but it is also very useful in recovering resources that are present in wastewater. Irrespective of the reason for employing ZLD techniques in wastewater treatment, it just makes good sense to use it because of how much freshwater is conserved due to reuse, reduced waste disposal costs, and the greatly reduced environmental impact.

How much penetration has ZLD made in our country?

ZLD technologies have yet to make significant inroads in India. However, India along with China are leading the charge to adopt ZLD. ZLD will help industries to reduce their water footprint.

According to industry reports, by 2020, the total potential for ZLD in India will be around $3 billion. The lion's share of this will be in the textile wet processing sector as the government mandates ZLD in this sector. Though there is huge potential, the actual penetration of ZLD in India will depend upon the way the norms are enforced in the country.

What are your thoughts about the challenges involved with ZLD implementation?

The main challenge of implementing ZLD is the cost of operation is high. However, the economics of industrial wastewater treatment are changing. In the face of water scarcity, societal pressures, cost of non-compliance, buyers' demand etc., industrial wastewater treatment technologies like ZLD are fast becoming a viable proposition.

The best way forward is to adopt and embrace this change for the good of the environment and our future generation. The government needs to develop policies that focus not just on discharge control, but on water consumption as well. Policies that encourage the adoption of clean technologies in manufacturing units must be put into place e.g., capital/interest subsidy, tax incentives, etc., may be provided to manufacturers that are environmentally responsible. The CPCB and SPCBs should raise awareness about wastewater treatment technologies through seminars, workshops, and the like.

Effluent treatment produces solid waste, which requires drying. Can you tell us about your sludge drying solutions?

As I mentioned already, HUBER solar sludge dryer is a revolutionary product that reduces significantly the cost of sludge management. In most cases, sludge from effluent treatment plants contains around 80 per cent water and 20 per cent solids. With the cost of sludge disposal costs hovering in Rs 1 to Rs 16 per kg in some regions, it entails a huge cost for the disposal of sludge with such a high level of water content. With HUBER SRT solar sludge dryer, it is possible to achieve maximum sludge dryness, which leaves only 10-15 per cent water content. When compared to conventional sludge drying techniques – that produce dried solids with around 40-45 per cent water – the HUBER SRT helps customers realise significant savings in sludge disposal costs. For example, a textile major where we have installed a solar sludge dryer has virtually eliminated their sludge disposal cost.

Not only is the SRT a sustainable and eco-friendly system, but it also has low opex because solar energy is used to dry the sludge. Another plus is that if the sludge is organic, it can be used as a fuel supplement. ITJ