

COVID-19 AND WATER INDUSTRY: CHALLENGES & OPPORTUNITIES IN THE NEW NORMAL

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While we see the COVID-19 pandemic has put millions in the throes of adversity and posed tremendous challenges, it has also provided the Water Professionals with a lot of opportunities.

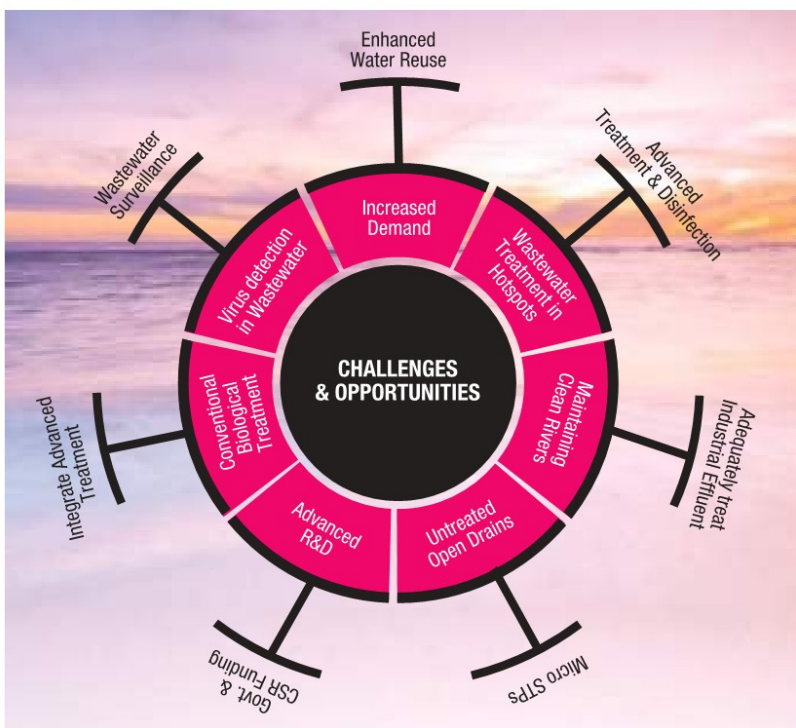
The pandemic and subsequent lockdowns gave Mother Nature a chance to heal and resulted in marked improvement in Water quality in rivers.

This is due to no human contact with water bodies and complete closure of industrial sector, which discharge 'untreated' or 'inadequately' treated wastewater into the drains and rivers. So if we wish to see long term change, we need to seriously work on the point-source pollution abatement. It's not that Industries and Utilities are unwilling to address the challenge; however

the whole programme of River Cleaning require incentivised approach, a paradigm shift towards newer and advanced technologies to integrate in the current treatment trails for improved efficiency and 'adequate' treatment and discharge of effluents.

With time, India has adopted change in strategies to contain the spread of virus; earlier where Lock Downs focused on strengthening of medical capabilities and infrastructure, Unlock phases are focussing on home quarantine and moving on the business and livelihoods with the 'New Normal'. However, this stage of Pandemic has focused on the Water scenario, both at the demand side and supply side. On the demand side, if we see, the average demand of water per person has almost doubled, which has not just reinstated the need of guaranteed access to water and sanitation but also the quality of treated water reaching every house hold. Thus providing ample, safe and adequately treated water to every household with 'Har Ghar Jal' (Water to Each Household) will be a realistic goal with integration of Advanced Decentralised Treatment (ADWWT) approach in a country like India.

On the supply side, it is well established from scientific literature and reports from various countries and from various Research Institutions, Utilities and Pollution Control Boards across India about the molecular detection of the SARS-CoV-2 virus in wastewater. The key findings from various Indian reports establishes that SARS-CoV-2 is not infectious in wastewater, temperature and





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stage of treatment are important factors affecting the virus's survival in water and conventional treatment plant is capable of removing all the genetic materials of SARS-CoV-2. Further, Bruhat Bengaluru Mahanagara Palike (BBMP) reports a correlation of most the COVID-19 hotspots near the STPs of Koramangala- Chalaghatta (KC), Hebbal- Nagwara (HN) and Vrishbhavathi Valleys, raises serious concerns about the current Centralized treatment capabilities. The cause of concern further widens especially when most of the Urban areas re-use sewage water, which has undergone primary and secondary treatment for non-potable purposes. The biggest concern is for the places where there are no sewerage networks and centralized treatment systems.

Thus, here again the opportunity lies in moving fast with Wastewater Surveillance or Wastewater Based Epidemiology (WBE) as an advanced Warning tool to inform public health responses to the outbreak. Along with clinical data and other technological approaches, such as contact tracing, WBE could provide critical monitoring of SARS-

CoV-2 transmission within a community including the beginning, tapering, or re-emergence of an epidemic. This approach mirrors previous reports in environmental monitoring, for example poliovirus RNA, to inform mechanistic models of pathogen transmission dynamics.

There is also need for checking the plumbing systems, as these have reported to be one of the causes of outbreak of SARS virus in 2003 in Hong Kong, where a sewage leak caused a cluster of cases through aerosolisation. Though no known cases of COVID-19 have been caused by sewage leaks; yet the novel coronavirus is closely related to the one that caused SARS, and infection via this route could be a possibility.

Further, the performance evaluation of existing Centralized STPs need an urgent action. Utilities instead of denying and hiding, should come and work in close association with CPCB/SPCBs, Research Labs and Institutions in this direction. Small research based funding from the Utilities, Corporate Social Responsibility (CSR) and Corporate Environmental Responsibility (CER) funding and cohesive working may help the innovation and Start Up ecosystem in Water Sector.

With the large number of hotspots, quarantine centres, home quarantine facilities, super speciality COVID Hospitals and make-shift COVID Hospitals etc., not just that demand to revisit wastewater collection, transport and treatment arises, but also a focussed approach is required towards 'adequate' treatment and disinfection. Hence, wastewater from such places need to be treated with a Decentralized Wastewater Treatment (DWTT) System onsite, followed by treatment at nearest STP and then only discharged to surface after strictly meeting the norms.

However, most of The STPs and most of the prevalent DWTT systems work on biological treatment methodologies and are conventional in nature; the efficiency in terms of retention time during treatment is of utmost importance as the survival of Corona Virus is time and temperature dependent. As per a lead International publication, the virus can survive for 14 days in sewage at 40C, 2 days at 200C and its RNA can be detected

for 8 days though the virus had been inactivated. Hence much attention should be paid to the advanced treatment technologies like Advanced Oxidation, to be integrated to bioremediation methods specially to treat such kind of infected effluents from hospitals and difficult wastewater. Also disinfection and pathogen inactivation should be greatly emphasized in existing wastewater treatment facilities. Policy mechanism is required to be in place to manage and treat municipal sewage wastewater flowing through untreated open drains. DWTT with small footprint, treatment within few hours and at smaller capacities should be encouraged as Micro-STPs.

Thus, the roadmap for the Water Industry in the ongoing pandemic and post COVID Era is pretty clear and what is required in this fight against COVID-19 is the coordinated efforts from various stakeholders. With each challenge lies an opportunity; what is required is the will, enforcement, Leadership, Policy, newer, advanced, efficient and adoptable technologies and above all a revolution in Water Industry to happen.

About the Author

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