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THE EXCELLENCE EDGE

CLEANING THE GANGA – WAY FORWARD

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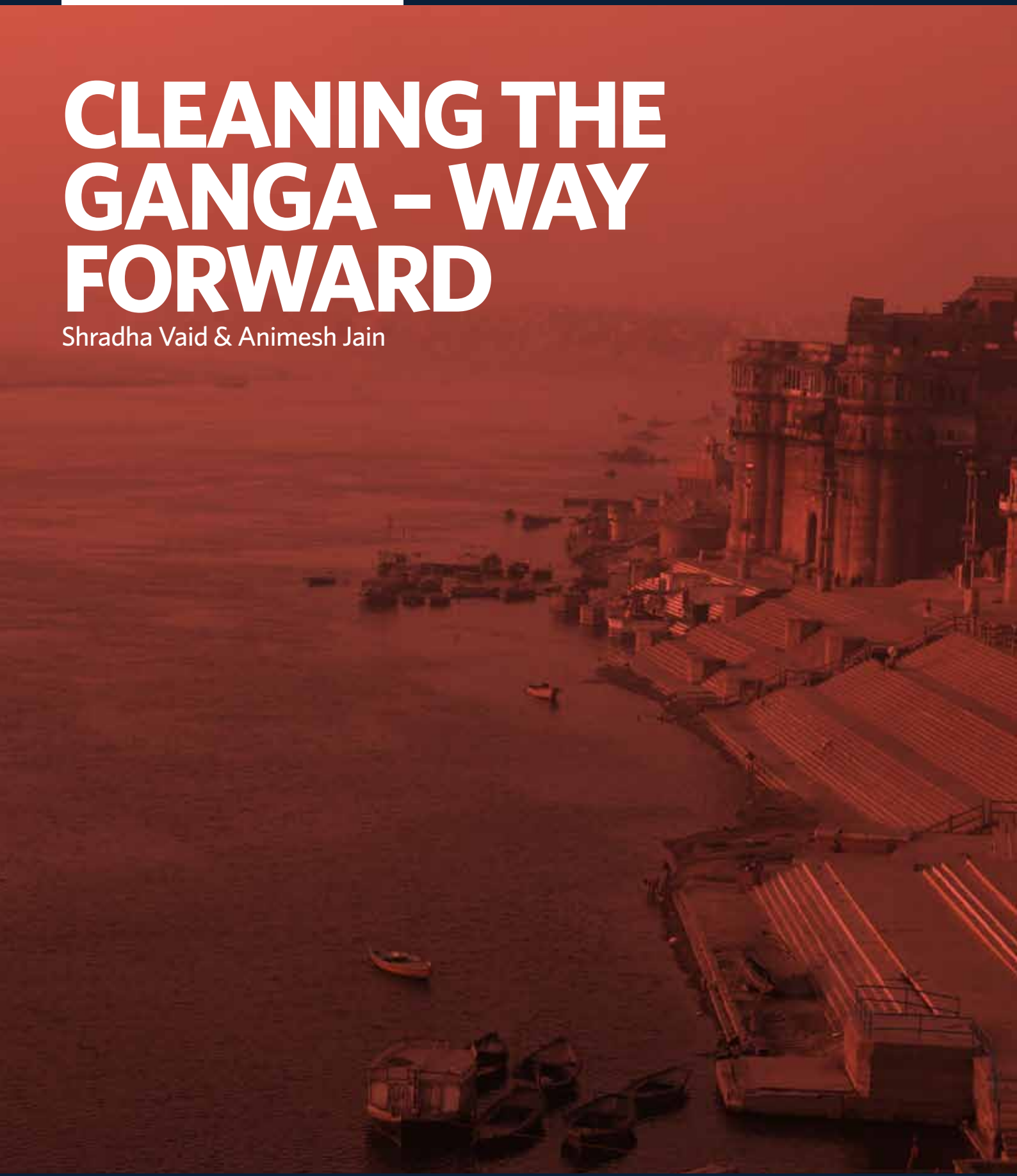

CLEANING THE GANGA – WAY FORWARD

Ganga and its tributaries form one of the most important river eco-systems in the country. The river holds not only immense religious significance but is also critical to the large and diverse ecosystem of the north Indian plains supporting c. 43% of the country's population for its domestic, commercial, industrial and agricultural water requirement. Hence, it is very important for the country to preserve the river and its basin.

Since the first Ganga Action Plan in 1986, the government has spent over thousands of crores on rejuvenating the river. Last year the incumbent government had announced a stimulus package of INR 2,000 crores per annum to boost the ailing river. However, despite increasing political and social interest in the river and the many accomplishments of GAP 1 and GAP 2, the river basin continues being depleted. Densely populated downstream stretches of the river basin have seen steady rise in pollution levels and reduction in water discharge rate. In Kanpur, for example BOD levels (a key indicator or organic pollution in water) are higher than 8 mg per litre which is significantly higher than the desirable level of 3 mg per litre.

The Ganga rejuvenation plans over the years have had two focus areas – management of domestic waste, through construction of STPs, and reduction of industrial effluent discharged into the river. However, progress on both leaves a lot to be desired. In fact according to the Ganga River Basin Management Plan (GRBMP) committee an additional investment estimated of INR 6,00,000 crores is required to fully clean up the river.

CHALLENGES IN DEALING WITH DOMESTIC EFFLUENT

Domestic waste is waste water that is generated from households and typically has high levels of organic waste. Sewage treatment plants or STPs are the most preferred mode of treating this waste before either discharging the treated waste to the river or re-using it for domestic / commercial / industrial purposes. There are two main issues currently faced by STPs along the river length–

1. Existing plants are operating at very low utilization levels – less than 60% of total capacity (based on a CPCB report published in 2013). This low utilization is due to a range of factors from lack of sewage conveyance systems (that connect various drains in a city to the STP) to availability of electricity and trained manpower.

2. The second issue is that the existing treatment capacity can only cater to c. 25% of total waste water discharged in river Ganga. An additional installed capacity of c. 4,500 MLD is required to adequately treat wastewater generated across the complete stretch of the river basin. The key driver of this capacity gap is lack of funding. The cost required to address this gap is estimated at over INR 20,000 crores, and this does not include the cost of constructing sewage conveyance networks or management of city drains. Currently construction and operation of most STPs is undertaken by local ULBs or municipal bodies which neither have the capability nor access to funding required to successfully run these projects.

We believe that solution to both these issues should be explored by promoting greater involvement of private sector enterprises. Large EPC firms not only have the financial bandwidth to undertake these projects on a Design Build Finance and Operate (DBFO) basis but also have the required expertise to operate these plants in an efficient and cost effective manner. Despite the obvious economic potential in Ganga Basin projects, private EPC firms have been hesitant to participate in such DBO / DBFO projects. The key reason for this is the uncertainty surrounding revenue streams throughout the life-cycle of STP projects. A 60 MLD STP (which would be suitable for a city of the size of Moradabad) would cost an EPC firm upwards of INR 80-90 crores in development costs. In addition to this the plant would also incur operating costs of close to INR 40-45 crores per annum. In order to cover these costs as well as provide substantial returns it is essential for EPC firms to generate consistent and attractive revenues from treated wastewater. In short, we need to promote greater reuse across domestic/industrial and agricultural uses to be able to finance these projects.

CHALLENGES IN DEALING WITH INDUSTRIAL EFFLUENT

The Ganga basin is also home to large and heavily polluting industries such as tanneries, paper and pulp and distilleries. UP alone has over 700 grossly polluting industrial units contributing close to 300 MLD of highly toxic wastewater. Various environmental and regulatory bodies in the past have proposed implementation of zero liquid discharge (ZLD) systems in large and medium sized industries in the river basin. In fact, by order of High Court all distilleries in the Ganga basin are required to have ZLD systems. Even though this ruling has significantly increased the installations of ZLD systems, compliance to ZLD norms is still very low. Cost remains a key barrier to widespread ZLD adoption. ZLD systems are incredibly expensive to operate. Whereas a conventional treatment plant incurs operational costs of c. INR 20 per KL of treated water a ZLD systems incurs an operating cost of c. INR 130-150 per KL. For a medium sized distillery which requires a 2 MLD effluent treatment plant this results in additional daily expenditure of c. INR 2-2.5 lacs. It can be argued that ZLD systems can reduce the cost of raw water procurement for these industries as the treated water can be recycled back to the system. However, with current water tariffs across the country procuring fresh raw water remains the more economically feasible option for these industries. In key industrial belts across the basin, water tariffs are as low as INR 15 per KL of water, which is significantly lower than the cost of using treated effluent.

Addressing the issues faced by private EPC firms in operating STPs and lack of compliance by industries require a robust regulatory and market framework.

Firstly, STP operators need to be assured of consistent revenue streams. Both central and state governing bodies need provide the regulatory framework to promote re-use / re-cycle of water for domestic as well as industrial purposes to reflect true cost of water. Increasing tariff to reflect actual economic cost of procuring water would help in creation of water markets enabling STP operators to trade treated wastewater and ensure significant revenue streams to balance the books. Water tariff in southern states such as TN and AP is as high as INR 240 per KL for industrial units. This has not only resulted in profitable STP projects for private contractors but also promoted adoption of ZLD across industrial units

Secondly, STP operators need to be assured of minimum sewerage load to ensure they continue operating at optimal utilizations. STPs providing coverage to entire towns / cities need to be connected to all major drains in the respective city to ensure that major share of sewage generated in the city reaches the STP. The city / state bodies need to make significant investments in constructing sewage conveyance systems to transfer sewage generated across the city to the STP. Additionally, the model contract should provide for availability of essential amenities such as as electricity.

INTERNATIONAL EXAMPLES

Several countries / cities across the world have successfully undertaken river restoration / clean-up projects. Incorporating relevant learnings from these projects into the Ganga Rejuvenation Plan could help us achieve the objective of a clean Ganga faster:

1. River dredging program: Dredging is a onetime clean-up activity used to remove suspended and dissolved solids from the river basin. Countries such as Japan and the US have used this extensively on multiple river basins polluted by industrial waste.

2. Involvement of industrial units in clean-up projects: Some restoration projects have seen extensive involvement of private sector enterprises. For instance GE has been extensively involved in clean-up of river Hudson as a part of its CSR policy. Given the presence of large industrial belts across Ganga basin similar initiatives to promote involvement of industries in creation and operation of STPs as a part of their CSR expenses could be looked at by the relevant authorities.

3. Civil vigilance: In addition to river cleaning, maintenance of river banks and basins are also very important. In London and Mississippi, local authorities have established citizen vigilance programs in association with non-profits to monitor pollution by industries as well as citizens.

Areté Advisors LLP (Areté) is a boutique, sector-focused management consulting firm with offices in New Delhi and Mumbai, India. Areté works with corporate clients in the Agriculture & Foods, Construction, Healthcare, Logistics, Real Estate and Retail sectors.

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