

Private cash to plug Ganga spending gap

India's government is ramping up spending on cleaning the Ganga river basin, but the capital requirements are far beyond its capabilities. Radical changes are being tabled to bring more private money into play.

A consortium led by seven Indian Institutes of Technology (IITs) delivered a report to the Indian Ministry of Finance this month, outlining ways to attract private finance to help fund a capex requirement of \$100 billion to clean the Ganga river basin over at least 25 years.

The recommendations, which are an addendum to the Ganga River Basin Management Plan submitted to the government in January, come just weeks after India's cabinet approved an INR200 billion (\$3.1 billion) five-year pollution prevention spending programme (Namami Gange) said to be five times the value invested in the basin since 1985. The budget, to be disbursed by the National Mission for Clean Ganga (NMCG) under the recently renamed Ministry of Water Resources, River Development and Ganga Rejuvenation, is understood to include funding from international financial institutions (the World Bank committed \$1 billion for the Ganga clean-up in 2011, of which just \$65 million had been disbursed by 31 May 2015).

Although the funding gap is significant,

the new financing options being evaluated are far-reaching. The IITs joined forces with 150 public and private bodies (together known as the IIT-C) to discuss economic and financial instruments in May. The \$100 billion figure is an estimate of the capex needs for municipal and industrial wastewater treatment and for solid waste management across the 11 states of the basin, inclusive of the technology cost for industrial zero-liquid discharge.

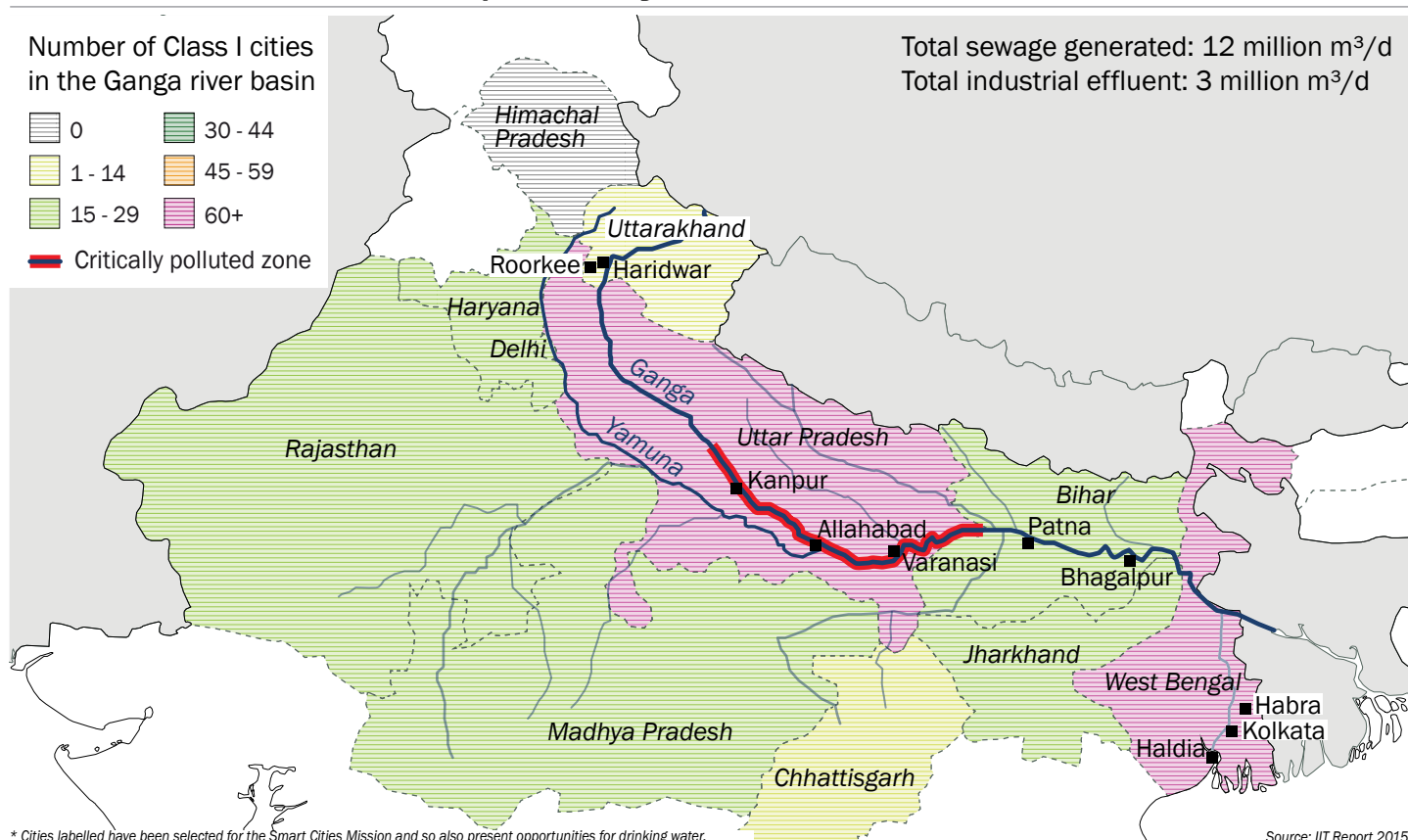
According to Sanmit Ahuja, CEO of Oval Observer Foundation, a key stakeholder in the IIT-C, Namami Gange "is a very good step in the right direction, but it is just not enough. You need the private sector to come in," he told GWI. To do so, he argues, "a market for treated water needs to be created." The key proposal is that Class I towns (with populations over 100,000) will join large and medium-scale industries in being prohibited from discharging wastewater (treated or untreated) into the rivers of the Ganga basin (see map below). The IITs stipulate that fresh water withdrawals need to be priced at least 50% higher than the cost

of treating to tertiary level and reusing the wastewater, in order to incentivise the trading market.

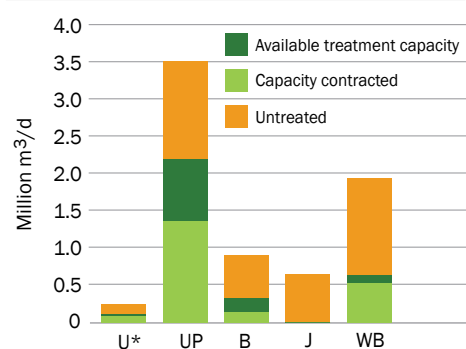
Ahuja said that the IITs are working on about a dozen wastewater treatment PPP pilots in major pollution centres in the basin to jump-start the government's vision to "reorient the whole landscape using PPP constructs". While Ahuja acknowledges that bundling sewer networks into PPP contracts is desirable, he also stressed the logistical challenges of laying pipe networks in India's dense cities; some pilots will therefore group decentralised wastewater treatment plants with highly localised reuse. Details on the projects are expected to emerge by August, and about 80% of them will be located in the pollution heartland of Uttar Pradesh. "The pilot projects are so crucial," Ahuja said, "because once you've established a working model, then the market is so huge that it will spread like wildfire."

The success of these pilots, however, may depend heavily on negotiating reliable sources of secondary revenue from the sale

Map of the Ganga river basin across 11 states



Ganga main stem sewerage needs



* Uttarakhand, Uttar Pradesh, Bihar, Jharkhand, West Bengal
Source: Ministry of Water Resources, River Development and Ganga Rejuvenation

of treated wastewater, with commitments to buy treated effluent to be guaranteed by a government body. "If these pilots are successful even in achieving financial closure in the next 12 to 18 months," Ahuja contends, "then I would say 70% of projects will be funded by the private sector."

In tandem with the pilots, however, serious institutional reform has to be pushed through. One first step is to set up a Water Trading Corporation which can sign purchase agreements for the treated wastewater on behalf of project developers and industries, in order to guarantee payment and hedge counterparty risk.

Crucially, the IIT-C has also tabled a National River Ganga Basin Management Bill which is set to be taken to parliament in the next few months. The law, if passed, would create a National River Ganga Basin Management Commission to regulate the environmental industry and a National River Ganga Basin Tribunal to judge crimes against the Ganga. Under the draft wording, failure to comply with the Commission's orders would be punishable by a fine of up to INR100 million (\$1.6 million) or three years' imprisonment.

Although both the regulator and the tribunal are currently envisaged as Ganga-specific, in time their remit could be expanded to cover the whole country. A national inter-ministerial regulator has long been sought by investors troubled by political interference in PPPs. According to Ahuja, "the stars have now lined up thanks to the Modi government's push."

Rajiv Mittal, CEO of VA Tech Wabag, is confident that the government's commitment to PPPs will have an effect. "PPPs in utilities are definitely a challenge," he told GWI, "but the government is aware of it, so they have got some of the top brains in the country working on it. I'm sure that part of the investment will go under the PPP mode." However, in the near term, he sees more opportunities in the asset-light construction and operation business which

Wabag specialises in. "In the past they had given [assets] to the utilities to operate and maintain, which has not worked, so the opportunity is going to come as a long-term O&M." Under Namami Gange, all O&M periods for both new and rehabilitated facilities must be at least ten years long.

Arun Lakhani, chairman of Indian project developer Vishvaraj Infrastructure, agrees that the clean-up will start with a "DBO phase of two to three years, with a few PPPs to re-establish trust – because investors are wary now." He added: "The important thing is accountability for operating it properly and ensuring that opex keeps coming year after year." While Lakhani believes the government is happy to put in capex, "they are pushing for a [revenue diversification] model which will generate a substantial part, if not all, of [the opex]."

In Vishvaraj's 200,000m³/d Nagpur wastewater treatment plant BOT, revenue from the sale of treated water is shared with the client, allowing the client to cancel out the concession fees. A similar model may prove popular in the Ganga basin, but if such generous purchase agreements are not available, it is possible "that [revenues from] barge activity can subsidise water treatment, or riverfront developments can pay for the ongoing treatment costs," according to Ahuja. The success of the upcoming Ganga pilots will show if such advanced coordination among different state agencies can realistically be achieved, however.

Lakhani is confident that the market for

treated wastewater is here to stay. "Reuse will outpace drinking water. The conflict between industry and agriculture is becoming sharper, [and] more municipal sewage is sold to power stations". Mittal is similarly bullish: "I think today with technology evolving and the cost coming down, water reuse is no longer a choice – it's a must."

Funding is set to roll in from other sources, too. In Delhi, the National Green Tribunal recently ruled that the 'polluter pays' principle will be extended to the whole population. All households, regardless of income or whether they have a sewerage connection, will be forced to pay an environmental compensation tax for cleaning the Yamuna river, which lies within the Ganga basin. "The government has no choice any more," observed Rishabh Sethi, executive director of SPML. "Nowhere is the situation as bad as Delhi. I feel there will also be some sort of levy on the industries which are based around the Ganga."

The IITs calculated a figure of INR10 (\$0.16) a day as the "per capita cost of hygienic civic life in urban settings" – reflecting the total expenditure required on urban sanitation in the 400 Class I and Class II towns in the Ganga basin – and recommends that the government recover this cost "through some policy measure". Given the extremely political nature of water pricing in India – GWI's 2014 tariff survey found the average Indian water and wastewater tariff in major cities to be \$0.14/m³ – this will be more easily said than done.

Ganga calls for data consultants

Anti-pollution planners need statistics to clean up the Ganga river basin.

India's Central Pollution Control Board (CPCB) is calling for interest from international data consultants as part of its real-time monitoring programme for the main stem of the river Ganga.

Sunil Dave, head of the National Ganga River Basin Authority Cell in the CPCB, told GWI that the data consultant will provide "quality assurance" for 113 real-time water monitoring stations to be built along the main stem of the Ganga, at important 'ghats' (riverfront steps) and at the confluence of the major tributaries. This follows the success of ten pilot stations supplied and operated by Tritech of Singapore.

A tender for a data vendor will be released subsequently, with the winning company set to finance and build the stations and receive payment from CPCB based on "quality and quantum of data",

as evaluated by the data consultant. The CPCB has also extended the deadline for highly polluting industries and industrial park WWTPs to install smart effluent monitoring devices.

The CPCB has identified 764 "grossly polluting units" along the main stem of the river Ganga, of which 687 are in Uttar Pradesh. Since 2011 it has issued 'directions' to improve treatment to 200 of these, around 50 of which have since been shut down. However, Dave told GWI that the CPCB has no power to fine polluters or shut down municipal WWTPs which are violating discharge standards.

It also has struggled to stop people tampering with monitors. With ZLD for Class I towns planned, simply watching the outfalls and riverbanks for discharges may be the easiest way to enforce the rules.