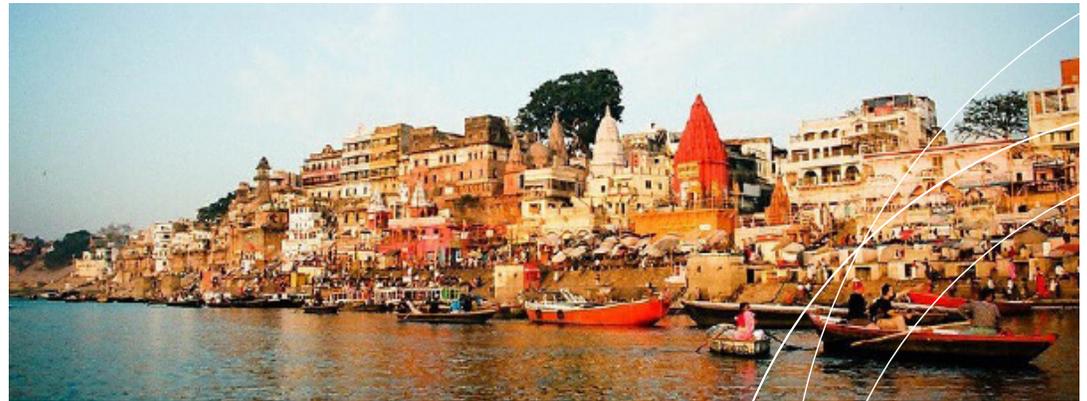




Public-Private Partnership Stories

Clean Ganges (Varanasi, Haridwar & Mathura) PPP



Over 75% of the sewage generated in the towns and cities along the Ganges flows untreated into the 2,525-km long river, which is a water source for 500 million people or 43% of India's population. Recognizing the need to rejuvenate the river, the Government of India (GoI) approved the "Namami Gange" program in 2015. The National Mission for Clean Ganga (NMCG), managed by the Ministry of Water Resources, River Development and Ganga Rejuvenation, looked to develop sewage treatment plants (STPs) through Public-Private Partnerships (PPP) to reduce the pollution flowing into the sacred river. IFC supported the NMCG in Uttar Pradesh Jal Nigam and Uttarakhand Pey Jal Nigam to identify private sector partners for the financing, construction, and operation and maintenance of STPs and to rehabilitate the associated infrastructure in Varanasi, Mathura (Uttar Pradesh), and Haridwar (Uttarakhand).

After a competitive bidding process, in Varanasi, the development of a 50 million liters per day (MLD) STP was awarded to a consortium led by Indian infrastructure company Essel Infra Projects Ltd.; in Mathura, under the "one-city-one-operator" concept, the development and rehabilitation of four STPs (aggregating 67 MLD) and development of a 20 MLD tertiary treatment RO plant were awarded to Triveni Engineering & Industries Ltd.; and in Haridwar, two STPs with total capacity of 82 MLD were awarded to HNB Engineers Private Ltd. In October 2017, tripartite agreements were signed by NMCG, state water authorities, and the winning bidders for setting up STPs under India's hybrid-annuity PPP model, marking the first time this model has been used for wastewater treatment projects in India. In June 2018, the project agreements for the Mathura concession were signed, along with the off-taker agreement between Indian Oil

This series provides an overview of public-private partnership stories in various infrastructure sectors, where IFC was the lead advisor.

IFC Advisory Services in
Public-Private Partnerships
2121 Pennsylvania Ave. NW
Washington D.C. 20433
ifc.org/ppp

IFC's advisory work was undertaken with financial support from DevCo, a multi-donor facility, funded by the UK's Department for International Development (DFID), the Austrian Development Agency, the Dutch Ministry of Foreign Affairs, the Swedish International Development Agency, and IFC.

BACKGROUND

India's holy river Ganges is a water source for 400 million people, which accounts for over 40% of India's population. The river, which stretches from the Himalayas to the Bay of Bengal, is also a destination for waste produced by hundreds of factories. This presents serious health and environmental risks for the people of India. Moreover, the use of untreated or partially treated wastewater for irrigation is widespread among farmers and is responsible for a variety of health and food safety issues.

Previous attempts to clean the river under the Ganga Action Plan (GAP) launched in 1985 largely focused on creating sewerage management assets that state governments or urban local bodies (ULBs) operated and maintained. This approach, was primarily driven with a focus on constructing assets, but failed to adequately invest in their operation and maintenance. This approach has not led to an improvement in the quality of water of river Ganges.

In view of this, GoI looked to leverage the expertise of the private sector to construct, operate, and maintain treatment facilities in major cities along the river. In January 2016, GoI approved a "hybrid annuity PPP model" for the creation and maintenance of assets under the Clean Ganges program. The NMCG intends to implement and establish the hybrid annuity PPP model as sustainable model for the development of wastewater treatment plants with private sector participation.

IFC'S ROLE

As lead transaction advisor to NMCG and state water authorities of Uttar Pradesh and Uttarakhand, IFC helped design the first of its kind hybrid annuity structure with a view to balance public and market risks and created a competitive bidding process to select private partners for construction, operation and maintenance of STPs for 15 years at Varanasi, Haridwar, and Mathura. IFC's role included technical, legal, analytical, and marketing support including:

- Conducting a detailed technical analysis for characterization of waste quality depending upon seasonal fluctuation and evaluation of various technology options for treatment.
- Assessing financial feasibility under different PPP contractual options.
- Reviewing social, legal, and commercial issues related to the project to identify and assess impediments and/or constraints that could affect private sector participation under different contractual schemes and financial arrangements, and to design a risk allocation framework.
- Leading discussions with potential investors to gauge commercial viability of the project, investor interest, and enable optimal project structuring.
- Managing the bid process, including preparation of bid documents and evaluation of bids.
- Assisting in the drafting and negotiation of the off-taker agreement for the treated wastewater from the Mathura project

TRANSACTION STRUCTURE

The transaction structure envisions that the private sector developers would be responsible for the design, constructing, commissioning, operating and maintaining the STPs for a period of 15 years from the date of commissioning of the project. The projects assets created will transfer back to the state water authorities the end of the concession term.

As per the hybrid annuity model, 40% of the capital cost would be paid to the private developers on the completion of construction while the remaining 60% of the cost will be paid over the life of the project as annuities along with operation and maintenance (O&M) expenses. The annuity and O&M payments will be linked to the performance of the STP, which will ensure continued performance of the assets created due to better accountability.

NMCG would be responsible for all payments under the project. The state water authorities would review and monitor the works undertaken by the private developer during the construction period and the O&M activities during the tenure of the agreement.

This transaction structure has huge replication potential in other states in India and has significantly increased investor confidence in the Clean Ganges program and in NMCG as a partner. NMCG is developing hybrid annuity projects in 11 more cities using the model documents developed by IFC.

BIDDING

A single stage bid process was adopted to identify the implementation partners. The tender saw a very good response as more than 35 companies expressed interest and actively participated in the pre-bid consultations. Six bids were finally received for Haridwar, eight for Varanasi and five for Mathura; this is significantly higher than 1-3 bids NMCG typically receives for its DBOT projects.

EXPECTED POST-TENDER RESULTS

- **First of its kind:** First successful hybrid annuity PPP in sewage treatment in India. First long-term off-take agreement for treated wastewater in the Mathura project.
- **Replication Potential:** The framework for this hybrid annuity PPP will influence the design of future PPPs in the states along the river basin and in India.
- **Public benefit:** The project is expected to improve drinking and industrial water supply, which will reduce the stress on groundwater and make non-contaminated irrigation water available for the cultivation of agricultural crops.