

## **Minutes of the Workshop on Sharing experiences on DBO/ PPP model in India**

A workshop was organized by NGRBA on 16/5/2011 to share the experience on DBO/ PPP models for Sewage Treatment plants in India. Representatives of the State Governments of Bihar, Uttarakhand, Uttar Pradesh and West Bengal, the MoEF and the World Bank attended the workshop. Resource persons from the Municipal bodies of Alandur & Ahmedabad, Yamunanagar Circle of Haryana PHED and Tata Consulting Engineers presented their experiences. The list of participants is at Annexure-A.

The Joint Secretary, while welcoming participants, emphasized the importance of DBO/PPP models in order to bind the EPC contractors for efficient Operation and Maintenance (O&M) of STPs during their entire life cycle.

### **Rajkot Municipal Corporation (RMC) (PPP contract)**

Shri. S.N Sen, Project Officer (Procurement) presented the experiences from the 45 MLD STP in Rajkot based on information sent by the RMC. A private sector service provider was selected for constructing the 45 MLD STP at Madhapar through an instant bidding process. The SWISS challenge method of bidding was adopted. The successful bidder – Jindal Water Infrastructure Limited (JWIL), New Delhi – was responsible for designing, financing, developing, constructing, commissioning, operating, maintaining and managing the STP on a build-own-operate-transfer (BOOT) basis. The terms and conditions of the contract between RMC and the concessionaire are:

- JWIL will own, design, finance and construct 45 MLD STP with tertiary treatment within two years from date of work order.
- JWIL will operate & maintain the plant including payment of electricity bill for 30 years.
- RMC will be responsible for supply of 45 MLD sewage to STP at no extra charge, provide land on lease basis @Rs.1.00 per sq m per year, and also land for safe disposal of sludge.
- JWIL to share with RMC 50 % of the all the revenue accrued by way of carbon credit benefits.
- JWIL to share 2.5 % of the Net Profit from the Projects from the 6<sup>th</sup> year of the O&M period.
- JWIL will collect, and retain appropriate tariff from all users as notified under the terms of the Services Agreement.
- JWIL shall have exclusive rights to market and sell the recovered water after meeting the requirement of RMC (not exceeding 3 MLD) for its fire fighters.
- The Concessionaire agreement period started from 13.08.2010.

### **PHED Haryana (Management contract)**

Shri. S.P.S. Rana, Superintending Engineer, presented the experience of Haryana PHED regarding engagement of private operators for O&M of the STPs constructed under the Yamuna Action plan (YAP). The selections were done through a competitive bidding, under the following terms and conditions:

- PHED, after due verification, to pay the actual costs of personnel as well as maintenance works executed as per 'Item of Works' of the agreement. The PHED will also pay for electricity charges.
- The agency has to ensure that the treated effluent has a BOD of less than 30 mg/l and TSS less than 50 mg/l, measured through samples collected thrice a day from the inlet and outlet. Penalty clause for non fulfillment has been included.

Mr. Rana explained that outsourcing has reduced expenditure by about 30%. He also made a detailed presentation of the 25 MLD STP at Yamuna Nagar Zone-1, where the operation and maintenance of the plant was awarded to a private operator (M/s The Kadian Co-op L/C Society Ltd., Panipat) for 3 years periods since 2008.

### **Ahmedabad Municipal Corporation (Management contract)**

Shri. M.K. Shah, Dy. City Engineer spoke on behalf of the Ahmedabad Municipality. The STPs were constructed on a turnkey basis, with O&M management contracts awarded to private operators on a competitive basis for a period of 3-5 years. The salient features of the agreement are:

- parameters of inflow and outflow of the waste water, with penal clauses for non fulfillment of the guaranteed parameters as per the contract. The performance of different type of STPs shows that the treated effluent contains BOD of 18 – 30 mg/l and SS of 20 – 35 mg/l (102 mg/l in the lagoon).
- provision for extension, provided the same operator is successful in the next bidding process.
- rights of the Ahmedabad Municipality to use the treated water for industrial as well as irrigation purposes, and commercial sale of the sludge in the form of manure.
- provision for payment of diesel and electricity expenses by the municipality.

### **Alandur Municipality (PPP/ DBO contract)**

Shri Mahesan, Municipal Engineer Alandur, presented their learning from a 24MLD STP (in 2 modules of 12 MLD each), developed on Finance, Design, Construct, Operate & Maintenance basis. The Alandur Municipality has entered into a contract with a private operator (M/s IVRCL Infra Structures & Projects Ltd Hyderabad) for design, construction of the STPs followed by maintenance and operation for 14 years. The key features of the contract are:

- Capital infusion by IVRCL (Rs 4.00 crores), the municipality (Rs 16.00 crores, through a loan) and upfront deposition of connection charges by the residents (Rs. 12.40 crores, plus interest amount of Rs 2.46 crores).
- Liability of the contractor to operate the facility in accordance with the SPCB guidelines, including penal clause for non fulfillment of the guaranteed parameters.
- Payment to the operator is based on the sewage quantity received in MLD & rate (Rs. 3772.00 per MLD) as per the agreement.
- The monthly user charges are being able to meet the loan annuity and the monthly payment to IVRCL and this is thus a self sustaining model.

### **TATA Consulting Engineers Ltd.(BWSSB)**

TCE presented the FIDIC (developed by International Federation of Consulting Engineers) Design, Build and operate guidelines. They also presented procurement processes and shared their experience for Bangalore water supply and sewerage, wherein STPs under Phase – I with total capacity of 245 MLD (comprising 7 STPs of different capacity, commissioned in 2003) & under Phase – II with total capacity of 339 MLD (comprising 11 STPs of different capacity, being commissioned) have been/ are being constructed under the following terms & conditions:

- Under Phase-I, the contracts were awarded to design, construct and maintain the STP for the defect liability period (1 year). Subsequently the O&M was awarded as a maintenance contract to a separate agency for a period of 3 Years.
- All the STPs under phase – II are being constructed through DBO contracts with 7 years O&M.

### **Conclusions**

The important conclusions that emerged from the deliberations are as follows:

- The Rajkot model illustrates the possibility of selling the treated effluent as industrial/ domestic grade water. This should be taken into consideration in all industrial towns.
- The Alandur model is based on collection of monthly user charges that takes care of the loan annuity payments and the O&M charges to the concessionaire. This model can also be

implemented, provided the ULBs make the required efforts to ensure collection of appropriate user charges.

- It is important to ensure comprehensive changes in terms of house connections for these models to be successful so that adequate quantity of sewage is collected and recycled / reused.
- All O&M Contracts should aim for a long time horizons to ensure that the operators make the requisite investments for efficient operation of STPs.
- The '**Asset Replacement Fund**', in the form of 10% of the cost of construction, if withheld from the EPC Contractor and subsequent operator, could ensure timely replacement of parts/ spares during the operation and maintenance.
- The preferred model would be a long-term Design-Built-Operate model with a provision for staggered payment, which may be an annuity over the entire period covering the entire construction and O&M costs. This would ensure that the contractor discharges his responsibility as per the contract.