

## Rajasthan Urban Infrastructure Development Project

### 62.5 MLD Sewage Treatment Plant (STP) at Delawas, Jaipur

A 62.50 MLD sewage treatment plant at Delawas Jaipur under Package no. JAI/WW/10 of ADB funded project under Phase-I was constructed by RUIDP. The objective of STP was to follow the wastewater disposal standard set by RPCB/CPCB after treatment. Treatment is also necessary to remove the various contaminants present in sewage so as to produce an effluent and sludge, which can be disposed off in the environment without causing health hazards or nuisance.

Earlier Sewage was discharged directly in Amani shah Nala through 1800 mm out fall sewer at Delawas. Farmers were using this untreated sewage for growing vegetables. These vegetables were becoming harmful for peoples and increasing stomach/intestine diseases. Under ground Water Quality was also deteriorated due to percolation of untreated sewage.

### Salient Features

| S.No. | Particulars                     | Details   |
|-------|---------------------------------|---|
| 1.    | Capacity: Present I Phase       | 62.50 MLD   |
| 2.    | Construction agency             | M/s Vatech Wabag Pvt. Ltd Chennai   |
| 3.    | RUIDP Consultant                | M/s Shah Technical Consultancy Services Mumbai  |
| 4.    | Package cost                    | Total Rs. 1406 lacs included-Rs. 60.00 lacs for power connection & III party Inspection& Rs.180 lacs for 5 year O&M |
| 5.    | Total land area                 | 94 bigha  |
| 6.    | Process                         | Activated Sludge Process with anaerobic Digester & centrifuge unit ( no sludge drying beds)                         |
| 7.    | Total Designed flow(I+II phase) | Total 125 MLD   |

### Operation and Maintenance Cost of STP

| O & M Charges of Plant | Rs. Cost per month                |                                   |                  |
|------------------------|-----------------------------------|-----------------------------------|------------------|
| For                    | Power charges to be paid to JVVNL | O&M cost to be paid to contractor | Total            |
| I year                 | 13.50-14.00 lacs                  | 2.66 lacs                         | 16.16-16.66 lacs |
| II year                | 14.00-15.00 lacs                  | 2.82 lacs                         | 16.82-17.82 lacs |
| III year               | 15.00-16.00 lacs                  | 2.98lacs                          | 17.98-18.98 lacs |
| IV year                | 16.00-17.50 lacs                  | 3.16lacs                          | 19.61-20.66 lacs |
| V year                 | 17.50-19.00 lacs                  | 3.36lacs                          | 20.86-22.36 lacs |

### PRESENT STATUS

STP is under O&M from 1.09.2006. The O&M for 5 years is being done by the same contractor who has constructed the STP ( M/s Vetch Wabag Ltd. Chennai)

Following parameters has been achieved by ASP process of STP

|                         |                                   |
|-------------------------|-----------------------------------|
| <b>BOD-</b>             | 18-30 mg/lit against 30 or less   |
| <b>COD-</b>             | 160-230mg/lit against 250 or less |
| <b>Suspended solids</b> | 40-95 mg/lit against 100 or less  |
| <b>pH</b>               | 7.2-7.9 against 7.2- 7.9          |

### Per day generation of inorganic/ organic manure/ Bio gas

- The gas generated during digestion of sludge- Approximately 5800-6200 Nm<sup>3</sup>/ day
- Power Generation Plant has been installed under JNNURM & is in operation since 2009)
- Digested sludge generation per day- 55-60 m<sup>3</sup>/day
- Inorganic matter from Grit Separator - 16.00-18.00 m<sup>3</sup>/day
- Inorganic matter from Fine & Coarse screen- 1.7-2.00 m<sup>3</sup>/day

Under JnNURM another 62.50 MLD STP & Power generation unit operating from Sludge digestion from existing 62.50 MLD STP (constructed by RUIDP) has been constructed by Jaipur Nagar Nigam in year 2009-10. The power generation unit is in operation & about 7000 units power per/ day in being generated from gases produced during digestion of sludge at existing 62.50 MLD STP. This is an example of waste to energy. It is saving about 12-13 lacs power charges /month. The power generation unit cost was about Rs. 7.50 crores.

**Reuse** of effluent (treated waste water) from STP Delawas:-

- Effluent ( treated waste water) can be used for agriculture & industrial purpose after giving some further treatment
- Digested sludge is good manure & can be used as manure in Agriculture & nursery.

### **Aeration Tank in Function**



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**View of Aeration Tank & Power generation unit & Gas Holding Tanks 62.50 MLD STP DELAWAS**