

## Water Supply & Sanitation

1. Delhi Jal Board is responsible for procurement and treatment of allocated raw water to Delhi. Delhi Jal Board make bulk supply of treated potable water to Delhi Cantonment Board and NDMC for distribution in their areas of jurisdiction respectively. In the area of Municipal Corporation of Delhi, Delhi Jal Board is responsible for supply of drinking water with its own trunk, peripheral and distribution network.
2. Raw water is being made available to Delhi from Ganga River (240 MGD), Yamuna River (310 MGD), Bhakhra Beas Management Board (140 MGD). About 115 MGD of ground water is being explored through Ranney Wells and Tube Wells of Delhi Jal Board.
3. The geographical locations of raw water resources have tempted to plan for construction of all Water Treatment Plants in the North-West and North-East parts of the National Capital. The water treatment plants constructed are Chandrawal near Metcalf House, Wazirabad, Bhagirathi opposite Yamuna Vihar, Haiderpur 1<sup>st</sup> & 2<sup>nd</sup> near Rohini Jail on Outer Ring Road, Sonia Vihar opposite Bhajanpura on Wazirabad Road and Nangloi.

4. As per Yamuna Water Sharing Agreement signed in 1994, among the Northern Region States of Himachal Pradesh, Haryana, Uttar Pradesh, Rajasthan and Delhi, 0.724 BCM Yamuna water was allocated to Delhi. Uttarakhand was part of the Uttar Pradesh at that time. This share is divided into 3 blocks period of the year i.e. July to October, November to February and March to June. Delhi may get its full share of 0.724 BCM (808 Cusecs consumptive) only after construction of 3 new reservoirs in the upper Yamuna Basin Area. These 3 new proposed reservoirs are : Renuka Dam on River Giri, a tributary of Yamuna in Sirmaur District of Himachal Pradesh, Kishau Dam on river Tons, also a tributary of Yamuna river in Uttarakhand and Lakhwar-Vyasi Dam on river Yamuna near Lakhwar village in District Dehradun of Uttarakhand.

5. Govt. of Delhi paid an amount of ₹215 Cr. to the HP Govt. for land acquisition for Renuka Reservoir. The DPR of the project has already been prepared and approved. Earlier entire cost of the construction of Renuka Reservoir was to be financed by Delhi Govt. Now Renuka Reservoir project has been declared as a national project and as such the Govt. of India will finance the cost of its construction. However, construction work of this project could not be

started as clearance from Ministry of Environment and Forest is still awaited. About 275 MGD raw water will be made available to Delhi on construction of this reservoir.

6. The construction of Kishau Dam through Tehri Hydro Development Corporation and Lakhwar-Vyasi Dam through National Hydro Power Corporation is also yet to be started.

7. The ground water, the only resource available to fill the gap between drinking water requirement of the National Capital Territory and the raw water available is in a very critical condition as the pace of ground water recharge is far behind the pace of ground water exploration. Delhi Jal Board is very much concern on this scenario of very fast depleting ground water level in Delhi. Delhi Govt. prepared draft Delhi Water Board (Amendment) Bill 2006 which is yet to be approved by Delhi Legislative Assembly.

8. On sewerage front NDMC and Delhi Cantonment Board, the two local bodies are responsible for providing sewerage facilities in their respective areas. For the area under jurisdiction of MCD, DJB is responsible for providing sewerage facilities. Since more than 95% of the

total area is within the jurisdiction of DJB, the total sewage treatment is being taken care of by DJB.

9. At present, the sewage treatment capacity of all 17 treatment plants is 512 MGD. However, actual treatment capacity utilization is around 300-320 MGD of sewage only.

### **11<sup>th</sup> Five Year Plan (2007-12)**

1. Two new Water Treatment Plants are under construction at Okhla of 20 MGD and Dwarka of 40 MGD. One more 20 MGD Water Treatment Plant constructed at Bawana is also yet to be utilized due to non-availability of raw water.

2. The construction of Pucca Parallel Channel was assigned to Irrigation Department of Haryana Govt. at a cost of ₹314 Cr. in the year 2006. Now Govt. of Haryana has requested for release of additional amount of about ₹160 Cr. with the plea that cost of construction of this Channel has increased.

3. Waste water recycling plants have already been made operational at Haiderpur, Wazirabad and Bhagirathi water treatment plants thereby adding 37 MGD of water available for the further treatment. The 4<sup>th</sup> waste water recycling

plant at Chandrawal is nearing completion and will be made functional shortly.

4. Sonia Vihar Water Treatment Plant with 140 MGD capacity has already been made functional which has contributed in improving the water supply in East & South Delhi to a great extent.

5. Out of 53 new proposed UGRs, 30 have already been commissioned. 10 UGRs are targeted for completion upto the year 2012-13. During 2013-14, another 4 UGRs will be completed and work on additional 6 UGRs will be started. For balance 3 UGRs, DDA is yet to allocate suitable land.

6. Important programmes implemented to reduce the water distribution losses, is laying of new water lines to replace the old water lines, installation of 305 modern bulk meters on all water treatment plants, water distribution mains and UGRs, installation of meters on all non-metered consumer connections and replacement of all defective water meters by new water meters.

7. To promote rain water harvesting, all schools and new institutional buildings are being provided with rain water harvesting system by PWD and other construction agencies of the Govt. DJB is providing subsidy upto 50% of cost of

rain water harvesting system upto ₹1 lakh to Cooperative Group Housing Societies.

8. On the sewerage front, DJB will complete the projects approved under Yamuna Action Plan Phase-II in this current financial year. DJB has identified the projects to be taken up under YAP-III costing about ₹1700 crores.

9. One of the major achievements of 11<sup>th</sup> Five Year Plan is rehabilitation of entire settled and silted trunk sewers by this financial year. With the rehabilitation of remaining 50 km length of trunk sewer in the current financial year, no sewage will be discharged into the storm water drains thereafter.

### **12<sup>th</sup> Five Year Plan (2012-17)**

The Issues & Challenges relating to Water Supply & Sewerage Sector for 12<sup>th</sup> Five Year Plan were discussed in the Workshop held on 10<sup>th</sup> November 2011. This Workshop was attended by a number of NGOs, Organizations, and Institutions like Central Ground Water Board, NIUA, TERI, EIL, INTACH, DPCC, DJB, IDFC and Senior Officers from Planning Commission and Delhi Govt. Departments. The suggestions received from the citizens and NGOs/VOs were also taken into account along with the deliberations of

the Workshop in finalizing the Approach for Water Supply & Sanitation Sector for the 12<sup>th</sup> Five Year Plan.

### **Mission**

- Potable & Safe drinking water to all residents of Delhi.
- 24x7 uninterrupted water supply in some of the pilot areas and more equitable distribution in entire Territory.
- 100% BIS Standard Water Quality to be made available to all consumers.
- Promotion of rain water harvesting, ground water recharge, regulated & controlled ground water exploration.
- Complete measurement of water supply and distribution network at all levels with 100% metering system.
- Higher standards of treatment for waste water.
- Use of treated waste water for all non-potable purposes.
- 95% of total sewer generated to be collected, treated and disposed through Interceptor sewer and normal sewage treatment network.

- Organizational restructuring of Delhi Jal Board and promotion of PPP approach to improve the management of Water and Sewerage Sector in Delhi.
- Non-Revenue Water Level to be reduced to 30%.

### **Approach**

1. Planning Commission appreciated the Power Sector Reforms undertaken by Govt. of Delhi in 2002 which could brought down AT&C losses from 52% in 2002 to 18% in 2010. Planning Commission advised Delhi Govt. that Water Sector Reforms may be given same priority and attention in the 12<sup>th</sup> Five Year Plan of Delhi.
2. MPD-2021 projected water demand as 1840 MGD @ 80 GPCD for projected population of 230 lakhs in Delhi by 2021. DJB projected water demand as 1380 MGD @ 60 GPCD. The DDA norms of 80 GPCD includes 50 GPCD for domestic requirement and 30 GPCD for non-domestic purposes. The domestic water requirement of 50 GPCD comprises of 30 GPCD for potable needs and 20 GPCD for non-potable water.
3. DJB projected to increase water supply capacity from 650 MGD in 2001 to 925 MGD by 2011. DJB estimated to



continue this level of water supply capacity of 925 MGD upto 2021 if Renuka Project is not completed.

4. The projected demand for water supply indicated in MPD-2021 is 1140 MGD for a population of 190 lakhs in 2011 by DJB and 1520 MGD by DDA. However, the provisional census results of 2011 released by RGI indicates that Delhi's population is 167.53 lakhs in 2011, less than the projected population of 190 lakhs.

5. Thus going by the DJB norms of 60 GPCD, the water supply requirement for the present population of Delhi in 2011 will be 1020 MGD. Taking into account the present water supply capacity of 855 MGD there is a shortfall of 165 MGD at present.

6. Assuming the same population growth, as recorded in 2011 Census, to continue for the next decade, the projected population of Delhi by the end of the 12<sup>th</sup> Five Year Plan i.e. by March 2017 may be around 190 lakhs. Going by DJB norms of 60 GPCD, the water supply requirement in March 2017 for the projected population of 190 lakhs may be around 1140 MGD.

7. In view of the present status of the proposed new reservoirs in Yamuna river Basin for Renuka, Keshau and

Lakhwar-Vyasi, there seems to be no possibility of completion of any of these proposed reservoirs by the end of the 12<sup>th</sup> Five Year Plan. In this situation of non-availability of raw water from these proposed reservoirs, another source of raw water may be by developing a system of tube wells in identified potential area of NCR.

8. Central Ground Water Board has also earmarked potential area for 10 MGD from flood plains of river Yamuna in NCT of Delhi along with Okhla Barrage - Kalindi Kunj through a battery of 25 Tube wells also along Akshardham Mandir and Nizammudin Bridge through a battery of 25 Tube wells.

9. Next measure may be economical and judicious use of available water by laying of Dual Pipe System in limited way for flushing purpose only in all Group Housing Societies and new colonies to be developed in the new urban extension areas by the DDA. Waste water from bathrooms will be collected in a storage tank and pumped to a separate overhead storage tank at the roof and then connected the same with the Cisterns in the toilets for flushing purposes.

10. One of the priority Programme which need due attention is rain water harvesting and ground water

recharge to the extent of maximum potential available in the National Capital Territory, if we wish to continue to make use of the ground water for a longer term.

11. Regulation and control of ground water need a complete action plan so as to control ground water exploration by matching it to the extent of rain water harvesting and ground water recharge made during the period. Delhi Water Board (Amendment) Bill, 2006 may be resubmitted to the Assembly.

12. The present status of non-revenue water of around 54% in Delhi may not be allowed to continue both from the citizen's point of view as well as DJB's point of view. With such high level of non-revenue water, DJB may not find enough resources to meet the cost of water and sewerage infrastructure required for growing population of the NCT of Delhi on the one hand and its present financial position may affect its operational efficiency also.

13. Taking into account the suggestion of the Planning Commission to assign top priority to Water Sector Reforms in 12<sup>th</sup> Five Year Plan and also the present status of Non-Revenue Water, the present set up of the DJB may need total structural reforms and Re-organization. There may be several options and best one is to be selected.

14. Water distribution losses in the form of leakage, seepage, theft and poor revenue collection may be attributed to low level of efficiency as well as lack of incentives for performance as usual in Public Sector organizations. Involvement of private sector may add efficiency and managerial capacity in the Water Sector Management System to a great extent for which PPP approach shall be explored.

15. With the expansion of urbanization process, the water requirement of construction industry in Delhi is increasing. It is estimated that maximum unauthorized exploration of ground water is made by construction industry. Supply of treated waste water at reasonable rate to the Construction Industry, Delhi Metro, Railways, DTC, Major Auto Workshops in Delhi may prove as a better check on unauthorized exploration of the ground water.

16. Although Revised Building By-laws in Delhi stipulate that all the buildings having a discharge of 10,000 liters or above per day shall incorporate Waste Water Recycling System but its implementation needs to be monitored through an efficient enforcement system.

17. Taking into account gravitational and other locational aspects of various non-sewered habitats, mini sewage

treatment plants may be required for such habitats. However, commissioning of such mini STPs and laying of sewer lines in their command areas also need allotment of suitable sites for STPs and cooperation and support from the residents for laying of sewer lines in unplanned habitats.

18. The project for laying of interceptor sewers along 3 major drains i.e. Najafgarh drain, Supplementary drain and Shahdara drain has been started. Implementation of this project is expected to ensure discharge of only treated waste water and control of pollution in Yamuna River.

19. Minimum flow of fresh water in Yamuna River downstream of the Wazirabad is also equally essential for rejuvenation of river Yamuna in the NCT of Delhi. This minimum flow of fresh water may be ensured only with the construction of proposed 3 new reservoirs in the upper Basin of the Yamuna River. Govt. of India may be requested for timely commencement of these 3 projects.

20. Reclamation of sewage water on the lines of North-East Water of Singapore using ultra-filtration, reverse osmosis and UV treatment processes may be taken up through a Pilot Project. If found it economically feasible,

the large scale reclamation of sewage water can be taken up at Rithala Sewage Treatment Plant.

21. Water bodies in the NCT of Delhi have been affected with the rapid urbanization process. The preservation and development of all water bodies shall be taken up to improve the ground water level and rain water harvesting.

22. Storage of flood water in Yamuna River Basin may be done through construction of a Barrage near Palla. It will be a source of additional raw water supply to Delhi during the lean period.