Chapter 13

WATER SUPPLY & SEWERAGE

1. Water Supply & Sewerage are an essential component of the basic infrastructure for urban settlements. The number of households in Delhi has increased from 18.61 lakh in March, 1991 to about 25.54 lakh in March, 2001. Besides domestic use water is also required for industrial, commercial and other institutions and fire fighting purposes.

2. Water Supply and treatment capacity is being increased in Delhi in almost in each five year plan taking into account the requirement of drinking water for the population increasing at a very high rate, almost more than double to the rate of increase at national level. Inspite of best efforts made by the Government, water supply front remained a matter of concern due to various reasons like raw water scarcity and related problems, transmission and distribution losses, supply with less pressure, uneven distribution, depleting ground water level, non-recharge of ground water due to rapid urbanization, increasing cost of water treatment and increasing gap between water supply cost & tariff, etc.

3. The water treatment and supply capacity, which was 66 MGD in 1956, was raised to 240 MGD in 1979, 437 MGD in 1990 and 650 MGD in 2002. The target for Eleventh five year plan (March, 2012) is kept as 985 MGD water treatment and supply by DJB in Delhi.

4. Out of total 25.54 lakh households in Delhi in 2001 about 19.24 lakh households were provided piped water supply system. About 5.60 lakh households were provided water supply through tubewells / deep bore hand pumps / public hydrants. Thus about 75.33% households met their water requirement through piped water supply system and about 21.91 % household through tubewells / deep bore hand pumps / public hydrants. Remaining 2.76 % households depended on other sources like wells, river, tanks, canal, ponds etc. (Table No. 13.8)

5. WATER REQUIREMENT

5.1 Based on a norm of 60 gallon per capita per day as per CPHEEO norms prescribed in MPD 2021, the water requirement for 2006-07 would be 990 MGD. As per CPHEEO manual, the per capita per day water requirement is 60 GPCD as per details given in the Statement No.13.1

Statement No.13.1

1.	Domestic	172 lpcd
2.	Industrial, Commercia l and Community requirement based on 45000 liters per hect. Per day.	47 lpcd
3.	Fire protection based on 1% of the total demand	3 lpcd
3.	Floating population and special uses like hotels and Embassis	52 lpcd
4.	**Total**	**274 lpcd (60 gpcd)**

5.2 In MPD-2021 by DDA proposed water requirement with the norm of 80 GPCD, out of which 50 GPCD is 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. The requirement details are given in the Statement No. 13.2.

Statement No. 13.2

Norm	Quantum (in gpcd)		Source for non-potable water
	Potable	Non-potable	
Domestic @ 50 gpcd	30	20	-
Residential	30	20	Recycling and perm issible GW extraction at community level.
Non domestic @ 30 gpcd	5	25	-
Irrigation, horticulture, recreational, construction, Fire @ 6.65 lpcd	-	10	Recycling from STPs and permissible GW extraction.
Public-semi public, Industrial, commercial	5	15	Recycling from CETPs
Total @ 80 gpcd	35	45	-

With the norms of 60 gpcd, water supply requirement, for projected population of 23 million in 2021 in Delhi, will be 1380 MGD as per MPD-2021.

6. WATER SUPPLY TARGETS 2007-08

6.1 Delhi Jal Board had proposed to increase the water supply capacity from 650 MGD as on 31.3.04 to 914 MGD as on 31.3.2008 as per details given below :

Statement No.13.3

S.No.	Name of Plant	Existing capacity as on 31.3.2004 (MGD)	Proposed capacity at the end of 31.3.08 (MGD)
1.	Chandrawal Water House no. 1 & II	90	90
2.	Wazirabad I, II & III	120	120
3.	Haiderpur	200	200
4.	North Shahdara (Bhagirathi)	100	100
5.	Bawana	-	20
6.	Nangloi	40	40
7.	Sonia Vihar	--	140
8.	Renney wells and Tube wells	81	87
9.	Optimization of WTPs	19	40
10.	Recycling of waste water at Chandrawal, Bhagirathi, Haiderpur and Wazirabad	-	45
11.	Iron removal at Okhla	---	12
12.	Addl. 20 MGD WTP at Okhla.	---	20
	Total	**650**	**914**

6.2 Nangloi Water Treatment Plant could not function upto its full capacity of 40 MGD due to non-supply of raw water through WJC system by Haryana Government inspite of raw water supply available from BBMB. Haryana Government is constructing two Acua-ducts on WJ canal to enable the system to carry additional raw water. Further, Non-release of full 300 cusec of raw water for Sonia Vihar Plant by UP Government has also adversely affected the achievement of water supply target in 2006-07.

6.3 Two new Water Treatment Plants are proposed to be constructed at Dwarka (50 MGD) and Okhla (20 MGD) during the 11th Five Year Plan. Raw water for the two plants will be available on construction of the pucca parallel channel from Munak to Haiderpur.

7. WATER CONSUMPTION

7.1 DJB supplies treated water in bulk to the NDMC (New Delhi Municipal Council) and to the DCB

(Delhi cantonment Board), both of which are responsible for the distribution of water within their own territories. The water supply infrastructure in these territories is owned by them and, consequently, is not the responsibility of the DJB. MCD area is the responsibility of DJB.

7.2 During 2006-07, water production by DJB was 720 MGD with water obtained from a range of sources such as river Yamuna, Bhakra storage, Upper Ganga Canal and from underground water resources.The billed quantity of water during the year 2006-07, substantially reduced to 253.60 MGD due to following three main reasons:

(i) Fixing of upper average water consumption at 20 kl/30 kl per month w.e.f. 28.9.2005 for domestic consumers whose DJB/private water maters are non-functional till defective water meter is replaced. For residential premises having built up area upto 200 sq.m. the fixed average to 20 Kl and 30 Kl per month respetively. However, if the actual average consumption is less than 20 Kl/30 Kl per month, the water charges will be calculated at actual average.

(ii) JJ re-settlement colonies and rural areas in Delhi are inhabitated by weaker sections of society and in order to provide some economic relief to persons residing in these areas, the Board as policy have been providing un-metered water supply to these areas and water charges are being recovered at assumed average of only 10 Kl per month per connection till un-metered connections are converted into metered. Besides, assumed average of 10 Kl per month, service charge is also recoverable alongwith sewerage maintenance charge, if applicable. Out of 16.35 lac sanctioned water connections 3.39 lac are un-metered connections.

(iii) Around 5.00 lac water meters out of 12.96 lac metered connections are non-functional and defective.

7.3 (i) During the years 2003-04 and 2006-07, 277.10(MGD) and 200.21 (MGD) water was distributed and charged to various categories of consumers respectively as given below:

Statement No.13.4

Category	**No. of Connections**	**Sales (in MGD)**		**Percentage of Sales**	
	2006-07	**2003-04**	**2006-07**	**2003-04**	**2006-07**
Domestic	15,13,894	243.62	193.46	78.38	76.29
Commercial & Institutional	96,853	26.25	20.25	8.45	8.15
Industrial	24,200	7.23	5.87	2.33	2.31
Bulk supplies to DCB and NDMC	----	33.70	33.59	10.84	13.25
Total	**16,34,947/-**	**310.80**	**253.60**	**100%**	**100%**

(ii) On an average or generally, the billed quantity of water and non-revenue water in DJB has been as under :

Statement No.13.5

<table>
<tr><td rowspan="2">System Input Volume</td><td rowspan="2">Authorized Consumption 58%</td><td rowspan="2">Billed Authorized Consumption</td><td>Billed metered Consumption (including water exported in Bulk)</td><td>13%</td><td rowspan="2">Revenue water 50%</td></tr>
<tr><td>Unbilled metered consumption</td><td>0%</td></tr>
<tr><td rowspan="3"></td><td rowspan="2"></td><td rowspan="2"></td><td>Unbilled unmetered consumption</td><td>8%</td><td rowspan="3"></td></tr>
<tr><td rowspan="2">Unauthorsied consumption</td><td rowspan="2">2%</td></tr>
<tr><td>Water losses 42%</td><td>Apparent Losses 2%</td></tr>
<tr><td></td><td></td><td></td><td>Metering Inaccuracies</td><td>0%</td><td></td></tr>
<tr><td></td><td></td><td></td><td>Leakage and Overflows at Utility’s Storage Tanks</td><td>0%</td><td></td></tr>
<tr><td></td><td></td><td></td><td>Leakage on Distribution Mains and service connections upto point of Customer Metering</td><td>24%</td><td></td></tr>
</table>

7.4 Inspite of increase in water treatment and supply capacity in each five year plan in Delhi, the average per capita capacity of water remained at 47.5 GPCD IN 2005-06 (Table No. 13.1).

8. WATER RESOURCES

8.1 The water supply treatment plants of DJB treated 629 MGD surface water and 81 MGD ground water as on March, 2007. The water resources of DJB are indicated in Statement No. 13.6.

Statement No.13.6

(March 2007)

S.No.	Source	Quantity (MGD)
1.	Yamuna	229
2.	Ganga	160
3.	Bhakra Storage	240
	Sub Total	**629**
4.	Ranney wells / Tube wells (Ground Water)	81
	Total	**710**

GROUND WATER

8.2 The decreasing ground water level in Delhi has become a matter of serious concern. At some places in south and south west Delhi, the water level has gone 20-30 meter below the ground level. The quality of underground water is deteriorating and in several places it has been found to be unfit for human consumption. The salinity of ground water is increasing in south-west and north-west Delhi. In some areas of Shahdara and Kanjhawala, nitrate content has been found to be more than 1000 mg/litre. Fluoride and chemical concentrations, more than prescribed limits, have also been found in ground water at various locations in Delhi. To tackle these problems, the Central Ground Water Board has taken steps to regulate the number of tube-wells being commissioned in Delhi.

8.3 As on March 2007, DJB has 2425 functional Tubewells and 21 Ranney Wells. The Flood prone area upstream of Wazirabad barrage is being exploited for commissioning of more tube wells by DJB. The deepening old lakes and other water bodies, preserving and developing the forest area in Delhi, construction of check dams at Asola Wild Life Sanctuary and plantation of trees, are some of the steps being taken to improve ground water resources.

PARALLEL CHANNEL FROM MUNAK TO HAIDERPUR

8.4 About 30% of the raw water discharged from Tajewala Head works is lost in the present water carrier system through the Yamuna river and the Western Yamuna Canal system. To prevent this loss, a parallel pucca channel is under construction from Munak to Haiderpur. This channel of 102 kms. length is being constructed by the Haryana Government. The estimated cost is Rs. 314.15 crores and it is targeted to be completed in 2008. The entire cost of the project will be financed by Delhi Govt. Water availability will increase by 80 MGD on construction of this channel.

RESERVOIRS

8.5 Renuka Dam, Kishau Dam and Lakhwar Vyasi Dam are proposed to be constructed so that Delhi gets its share in Yamuna water as per Yamuna water sharing Agreement signed in May, 1994. The

approved allocation of Yamuna water to each state may be seen at Statement No. 13.7. About 275 MGD water will be available to Delhi from Renuka Dam. Delhi will also get 372 MGD water from Kishau reservoir and 135 MGD from Lakhwar Vyasi reservoir.

Statement No.13.7

S.No.	States	Allocation (BCM)			Total (BCM)
		July to October	Nov. to Feb.	March to June	
1.	Haryana	4.107	0.686	0.937	5.730
2.	Uttar Pradesh	3.216	0.343	0.473	4.032
3.	Rajasthan	0.963	0.070	0.086	1.119
4.	Himachal Pradesh	0.190	0.108	0.080	0.378
5.	Delhi	0.580 (Consumptive 1926+405 return flow) or 2421 cusec	0.068 (Consumptive 231+ 495 return flow) or 726 cusec	0.076 (Consumptive 255+495 return flow) or 750 cusec	0.724 (Consumptive 806 + 495 return flow) or 2350 cusec

8.6 Uttranchal Government entered into an agreement with NHPC for implementation of Lakhwar Vyasi Project. NHPC prepared project report and estimated its cost of about Rs. 10,000 crores. The cost of electricity generation was found very high and non-saleable. NHPC proposed to transfer part of electricity generation cost to water component cost. This approach is not acceptable to Government of Delhi and CWC has been requested to take care of water component cost.

9. WATER ACCOUNTING & AUDITING

9.1 Till now DJB was using old system for measuring the quantity of raw water available at water treatment plants and the quantity of treated water supplied by treatment plants for distribution. Similar was the position at under ground water tanks, reservoir and booster pumping stations. Due to this system, DJB was not able to assess exact amount of water distribution losses. To overcome this situation, DJB has started a comprehensive programme for installation of bulk meters at all water treatment plants. About 66 bulk meters have already been installed and remaining 20 bulk meters will be installed by March, 2008.

9.2 DJB has also decided to install bulk meters on all distribution mains, underground reservoirs and booster pumping stations for correct measurement of water supply from these points upto different localities / consumer points. Under this project 231 sophisticated bulk meters will be installed by March, 2008.

9.3 Complete and correct water supply accounting could not be maintained by DJB due to the following facts :-

(i) Out of total 16.35 lac water connections as on 1.4.2007, 3.39 lac are un-metered connections.

(ii) And even out of 12.96 lac metered connections, around 5.00 lac meters were defective or non-functional.

(iii) Fixing of maximum average of 20 KL/30 KL per month(as the case may be) for domestic consumers if water meters is non-functional and till defective water meter is replaced.

9.4 DJB has streamlined its system for obtaining water connections along with installation of water meter. The existing system of supply of water meter alongwith sanction of water connection has been amended and now consumers can purchase water meters of approved specifications from the open market. The consumers having DJB's defective meters have been allowed to get the defective meter replaced with private water meter and have been given option either to get the refund of meter security or get the same adjusted towards water charges in future.

10. WATER TARIFF

10.1 Water tariff, which was last revised w.e.f. 1.4.2005 continued during the year 2006-07. Here, it is worth mentioning that the water under domestic category is still being billed at highly subsidized rates, as a whole.

10.2 Prior to January, 2005, on an average DJB was charging only Rs. 1 per k.ltr. as against the estimated cost of treated water supply of Rs. 7 per k.ltr. DJB has revised water tariffs in Delhi w.e.f. 29.1.05.

10.3 The revised water tariffs are in two parts as against the single rate under the 1998 plan. The revised plan consists of a fixed access charge in one part and water use charges on the basis of actual consumption in other part. Fixed access charges are payable by all registered consumers towards the cost of accessing the net work and for its operation and maintenance.

10.4 The water usage charges have been fixed in different categories for different slabs of consumption on a sliding scale. Under CI, there are four slabs, namely upto 6 kl/month, above 6 to 20 kl and above 20 to 40 kl / month. The new tarrifs per kl. For these slabs are nil, Rs. 2, Rs.5 and Rs. 10 respectively. For a family size of say 4 persons consuming 30 kl/month, the revised tariff is calculated as indicated in Statement No. 13.8.

Statement No.13.8

Consumption Slab (In kl/per Month)	Rate (Rs. Kl.)	Total Usage Charges (Rs./Month)
Upto 6	Nil	Nil
Above 6 and up to 20	2.00	28
Above 20 and up to 30	5.00	50
Total		**78**

The water bill will be calculated as under
Fixed Access Charges + 1.5 X Usage Charges or
Rs. 75 + 1.5 X Rs. 78 or Rs. 192 per month.

10.5 The factor 1.5 to the usage charge is towards maintenance of sewerage system, which means that 50% of the total usage charge of Rs. 78/- in this case goes for sewerage. Therefore, out of total monthly bill of Rs. 192/- the amounts for water and sewerage are Rs. 153/- and Rs. 39/- respectively.

10.6 The impact of the establishment cost of DJB on the cost of production of water can be very well realized from the fact that as against the production cost of Rs.7/kl in DJB, this cost is only Rs. 2.40/kl, in Mumbai, which has a lot of similarity with Delhi in terms of water supply operations and treatment capacity. The present manpower strength of DJB makes it a highly oversized organization as compared to the similar organizations in the other mega-cities of Mumbai, Chennai, Banglore, Kolkata and Hyderabad. The annual establishment cost of water supply set up of DJB is estimated at Rs. 260 crore.

11. RAIN WATER HARVESTING

11.1 All Government Departments, Local Bodies and Public Sector Undertakings have been directed to install rain water harvesting system in their buildings / complexes. Buildings norms have also been modified and now all new buildings with 100 sq.meters and above area will have to provide rain water harvesting system in their lay out plan for approval to Local Bodies. PWD, MCD, DJB have installed rain water harvesting system in the buildings / complexes being maintained by them.

11.2 A plan scheme to promote rain water harvesting is being implemented by DJB. Technical know how

is being provided to all willing individuals, RWAs, institutions, Housing Societies, etc. Financial incentive of Rs. 100,000/- or 50% of cost, whichever is less, is also being provided under the scheme. A number of RWAs have found very encouraging results from rain water harvesting system introduced in their respective areas.

12. WATER CONSERVATION

12.1 Delhi has a network of about 9,000 Kms. Of water supply mains of which, a significant portion is as old as 40 to 50 years and prone to higher leakage losses. Normally water losses are calculated by water billed or consumed subtracted from the water produced. In the case of Delhi, water billed or consumed and leakage losses there from can not be calculated exactly as a majority of houses do not have working meters. Accordingly to the estimates of DJB, the total distribution losses are of the order of 40% of the total water supplied. These are quite high as compared to 10-20% in the developing countries. The distribution losses include losses due to (a) leaking pipes and (b) theft of water through unauthorized connections.

12.2 DJB has taken several steps to minimize leakage losses. To address this problem, a leak detection and investigation (LDI) cell was set up. Initially, the leak detection cell started functioning with the help of a very few conventional equipments viz. sounding rods, micro-correlates and pipe / cable locators. More sophisticated sonic and electronic equipments were subsequently acquired and are now being used regularly. The Board has replaced about 1200-km length of the old, damaged and leaking water mains during the last five years. As a result of these initiatives, the Board expects to bring down the distribution losses to 20% level in the near future.

12.3 DJB has formulated a programme for recycling of backwash water in four major water treatment plants at Haiderpur, Bhagirathi, Chandrawal and Wazirabad. The work for commissioning of Recycling plant at Haiderpur has been completed and work at Bhagirathi, Wazirabad and Chandrawal plants will be completed by June, 2008. On completion of programme of all 4 Water Treatment Plants, about 45 MGD water supply will be available without any additional raw water.

13. SEWAGE TREATMENT CAPACITY

13.1 The sewage treatment capacity of DJB has been increased from 402.4 MGD as on 31.3.01 to 512.40 MGD by March 2007 as per details given below :

Statement No.13.9

S.No.	Name of STP	Capacity (MGD) As on 31.3.2001	Capacity (MGD) As on 31.3.2007	Actual treatment in MGD as on 31.3.2007
1.	Okhla	140	140	130
2.	Keshopur	72	72	50
3.	Coronation Pillar with Oxidation ponds at Timarpur	46	46	23
4.	Rithala	40	80	40
5.	Kondli I, II, III, IV	45	45	50.30
6.	Yamuna Vihar I, II	10	20	7.3
7.	Vasant Kunj	5	5	4.50
8.	Ghitorni	5	5	-
9.	Pappankalan	20	20	7.00
10.	Narela	10	10	1
11.	Najafgarh	5	5	1
12.	Delhi Gate	2.2	2.2	2.4
13.	Sen Nursing Home	2.2.	2.2	2.5
14.	Rohini	-	15	0.5
15.	Nilothi	-	40	19
16.	Mehrauli	-	5	1.89
	Total	**402.4**	**512.40**	**341.39**

13.2 These STPs are not functioning up to their full installed capacity due to various reasons such as low flow of sewage to STPs, trunk and peripheral sewer lines still to be connected to STPs, etc. the sewage generation at present is estimated to be around 676 MGD = 720 (water production) X 0.8) + 100 (Pvt. Ground water entroction) and treatment is around 341 MGD only. This untreated sewage (335 MGD) falling in river Yamuna is the major cause of river pollution.

13.3 DJB has a net work of branch, peripheral sewers of about 6000 kms. Also there is network of 150 kms of trunk sewers. About 91 kms of trunk sewers was settled and silted.

13.4 The consultant for World Bank funded, “Delhi Water Supply & Sewerage Project” estimated 5259 MLD water supply requirement for Delhi in 2021 and waste water generation from this level of water supply will be about 3760 MLD as per Statement No. 13.10.

Statement No. 13.10

Source of waste water	Volumes, mld				
	2004	2005	2006	2011	2021
Total water demand	2685	3763	4090	5181	6272
Total net water supply	2265	2362	2461	3573	5259
Waste water generated	1812	3010	3272	4144	5017
Treated at CETP	200	217	234	346	755
Proportion not sewered	14%	13%	13%	10%	5%
Outside sewered area	254	302	302	294	210
Net generated wastewater	1358	1722	1798	2218	3242
Infiltration	518	518	518	518	518
Gross wastewater to treatment	1876	2240	2316	2736	3760

14 WASTE WATER REUSE

14. WASTE WATER REUSE

14.1 The main opportunities for reuse of treated wastewater in and around the city are considered to be irrigation and horticulture. There is also some demand for sue as cooling water in the power stations. Others options include ground water recharge, return to be raw water source, and the treatment and reuse of sullage water, i.e. water that does not contain human excreta, for flushing toilets, etc.

14.2 Presently DJB supplies about 138 MGD of treated waste water to the Irrigation Deptt. This is discharged directly to the Irrigation channels from the sewage treatment plants.

14.3 A number of small reuse projects are in the planning or implementation stages. They comprise horticultural, irrigation and industrial uses, and will use up to 46 MGD (210 Mld). Besides, STPs of Delhi Jal Board, treated waste water is available form CETPs in Industrial areas being maintained by DSIIDC and Mini STPs of Slum & JJ Deptt. as per details given in Statement No.13.11.

Statement No. 13.11

SN	NAME OF STP	INSTALLED CAPACITY	TREATED WATER AVAILABLE PER DAY	TREATED WATER IN MGD
DSIIDC				
1	Mayapuri	12 MLD	8 MLD	
2	Wazirpur	24 MLD	15 MLD	
3	CETP GT Karnal Road	6 MLD	4 MLD	
4	Jhilmil	16.8 MLD	3 MLD	
5	Nangloi	12 MLD	3 MLD	
6	Mongolpuri	24 MLD	1.5 MLD	
7	Lawrence Road	12 MLD	3 MLD	
8	SMA	12 MLD	1.5 MLD	
	TOTAL	**118.8 MLD**	**39.00 MLD**	**8.6 MLD**
SLUM & JJ				
1	Molar Band Mini STP	30 lakh ltr.	**6 MLD**	
2	Bakkarwal Mini STP	30 lakhs ltr.	**4 MLD**	
3	Holambi Mini STP	20 lakhs ltr.	**-**	
4	Tikri Khurd Mini STP (Narela)	20 lakhs ltr.	**-**	
	TOTAL	**100 lakhs ltr.**	**10 MLD**	**2.4 MLD**

14.4 18 major drains pollute Yamuna river for various reasons including due to overflow of untreated sewage from unsewered areas. It has been decided to lay interceptor sewers for cleaning Yamuna river. Engineers India Ltd. has been appointed as Project Management Consultant (PMC) for this project and an escrow account has been created.

14.5 DDA is responsible for 4,451 hectt. Of open spaces, all of which are irrigated via tubewells. There is also irrigation of MCD open spaces, central government properties, private parks and properties, road verges, sports stadiums etc. the details of the green areas being maintained by the various agencies is indicated in Statement No. 13.12.

Statement No.13.12

Agencies	Green Areas (in Hectare)
NDMC	445
MCD	2,428
DDA	4,451
CPWD	2,200
Forest Department	11,000
Total	20,524

Statement No.13.13

1.	Treated effluent supplied to CPWD for horticulture purpose in Lutyen Delhi from Okhla STP	20.00 MGD
2.	Treated effluent supplied to Pragati Power Plant from Dr. Sen Nursing Home Nalla and Delhi Gate Nalla STPs	4.00 MGD
3.	Treated effluent supplied to DDA for Japanese Park in Rohini from Rithala STP	5.00 MGD
4.	Treated effluent supplied to Minor Irrigation Deptt. Govt. of National Capital Territory of Delhi from Okhla STP-42 cusecs Keshopur STP -37 c usec Coronation Pillar STP 70 cusec for irrigation purpose.	80.5 MGD
	Total	**109.5 MGD**

15. WASTE WATER MANAGEMENT

15.1 Due to the continuous inflow of migrants and the mushrooming growth of unauthorized colonies and JJ clusters, the landscape of Delhi is spotted with different types of settlements. More than 45% population is residing in such unplanned settlements where sewerage system is not provided. The estimated waste water generation in Delhi in January, 2000 and the population served with sewerage system may be seen at Table No. 13.2. Now, plan schemes to provide sewerage systems in regularized unauthorized colonies, J.J. resettlement colonies, and urbanized villages, are being implemented and the present status of these colonies may be seen at Table 13.4 DUEIIP-2021 projections for waste water generation in Delhi in 2021 are indicated in Statement No. 13.14.

Statement No.13.14

* Predicted population in 2021 = 230 lakh
* Total water demand (excluding losses) = 1380MGD
* Total waste water generation (assumed at 80% of demand) = 1104 MGD
* Waste water going to STPs* = 1064 MGD
* Waste water going CETPs* = 40 MGD
* Further augmentation in the shortfall of STP capacity will depend on availability of raw water and thereupon enhancement in water treatment capacity after receipt of water from Renuka Dam, Kishau Dam and Lakhwar Vyasi Dam.