

## 2.33. Water Supply, Sewerage and Sanitation

### Introduction

Water Supply, sewerage and sanitation are not only the basic necessities of life, they are also crucial for achieving the goal of “Health for All”. Increased sanitation coverage is directly linked to improvement of health status. Water Supply is perhaps the most important and basic need that has to be provided with reliability, sustainability and affordability. In a water starved State like Tamil Nadu, which depends largely on seasonal rainfall, the provision of drinking water to the population acquires even more significance. With successive governments focusing on the need to improve the quality of life, water supply coupled with sanitation are essential in order to facilitate the citizens to lead a health and productive life.

### Water Supply

Water Security has been one of the important objectives of the Government of Tamil Nadu during successive Five Year Plan Periods. Provision of drinking water security is seen not only as an end in itself but as a means of achieving health and ecological security.

The drinking water demand for the rural and urban population is assessed as under

Rural areas	18.00 tmc
Urban areas	33.40 tmc
<b>Total</b>	<b>51.40 tmc</b>

The present water demand for the various sectors and its availability is tabulated as under:

### Water Demand and Availability

S.No.	Sector	Annual demand & availability in tmc
1.	Drinking water demand	51.40
2.	Irrigation demand	1766.00

3.	Other demands-Industries, power, Live stock	77.40
	<b>Total Demand</b>	<b>1894.80</b>
	Total assessed water resources (853+734)	1587.00
	Gap	307.80

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## **Agencies**

The task of providing safe drinking water and sanitation facilities for the urban areas in the State except Chennai Corporation Area rests with the concerned urban local bodies. In Chennai Corporation Area and in other urban local bodies within the Chennai Metropolitan Area, this responsibility has been entrusted with the Chennai Metropolitan Water Supply and Sewerage Board (CMWSSB).

In respect of urban local bodies (other than those in Chennai Metropolitan Area, Municipal Corporations and Special Grade Municipalities), the Tamilnadu Water Supply and Drainage Board (TWAD Board) is entrusted with the responsibility of project investigation, formulation and execution of large water supply projects at the instance of the concerned urban local body or the Government. In these areas, the concerned urban local bodies are implementing water supply schemes on a limited scale. The Corporations and Special Grade Municipalities are empowered to take up water supply schemes on their own.

The major water supply augmentation schemes, on completion, are handed over to the respective local bodies for maintenance. TWAD Board is maintaining schemes of composite nature covering more than one local body. Here too, the maintenance of the internal distribution lines is the responsibility of the respective local body.

## **Performance of the Sector during 2007-08**

### **Chennai Corporation Area and in other urban local bodies within the Chennai Metropolitan Area**

Surface water sources such as reservoirs at Poondi, Cholavaram, Redhills, Chembarambakkam, Veeranam Lake, Rettai Eri, Porur Lake and Kandaleru Reservoir in Andhra Pradesh under Krishna Water Supply Scheme are the main sources of water supply for Chennai City and the adjacent urban areas. Ground water from the well fields developed in the Araniyar - Kortaliar River Basin, the Southern Coastal Aquifer and Brackish Water based Reverse Osmosis Plants are other sources of water supply. Daily water supply is maintained in the Chennai city at the rate of nearly 640 million litres per day. Of this, 575 million litres of water is supplied to the domestic consumers and another 65 to 70 million litres to the industries and bulk consumers. Nearly 98% of water is supplied through pipelines, while the rest of the streets are covered by supply through tankers.

The CMWSS Board is supplying drinking water in bulk to the Urban Local Bodies adjacent to Chennai city on payment of fixed charges. A quantity of about 27 MLD of water is supplied to these local bodies. The water received from the CMWSS Board is distributed to the consumers by the respective local bodies through the network operated and maintained by them.

### **Outside the Chennai Metropolitan Area**

#### **Rural Water Supply**

The Status of water supply as on 1.4.2007 is as follows:

Total Habitations	-	87010
Fully covered habitations (40 lpcd and above)	-	64440
Partially covered habitations (10-39 lpcd)	-	22101

9985 rural habitations were programmed for providing protected water supply during 2007-08.

### **Special programme**

200 BC/ MBC Hostels in rural areas will be provided with protected water supply

2062 exclusive SC/ST habitations will be covered with OverHead tanks.

1421 High school/ higher secondary schools in rural areas will be provided with protected water supply.

53 cattle markets in rural areas have been programmed to be covered with protected water supply.

385 weekly markets in rural areas will be provided with protected water supply

1431 Individual power pump schemes in rural areas will be rejuvenated

### **Recharge Structures**

400 recharge structures such as Check dams, Percolation ponds will be constructed to improve the sustainability of drinking water sources.

### **Combined Water Supply Scheme**

50 combined water supply schemes are programmed for completion at an estimated cost of Rs.626 crore.

An outlay of Rs. 520.00 crore has been allocated by the Government of Tamilnadu and an amount of Rs. 190.90 crore has been allocated by Government of India for the implementation of rural water supply schemes for the year 2007-08.

### **Urban Water supply schemes**

The status of water supply as on 1.4.2007, is as follows:

<b>Civic status</b>	<b>Good</b>	<b>Average</b>	<b>Poor</b>	<b>Total</b>
Corporations	1	4	-	5
Municipalities	52	90	10	152
Town Panchayats	329	213	19	561
<b>Total</b>	<b>382</b>	<b>307</b>	<b>29</b>	<b>718</b>

Note: Corporation: Good - 110 lpcd and above, Average - 70 to 109 lpcd, Poor - Less than 70 lpcd.  
Municipality: Good - 90 lpcd and above, Average - 50 to 89 lpcd, Poor - Less than 50 lpcd.  
Town Panchayats: Good - 70 lpcd and above, Average - 40 to 69 lpcd, Poor - Less than 40 lpcd

Water Supply Improvement Schemes are under implementation in 84 towns comprising 19 Municipalities and 65 Town Panchayats at an estimated cost Rs.556 crore. Further new water supply improvement schemes in 46 towns comprising 8 municipalities and 38 Town Panchayats have been taken up at an estimated cost Rs.182 crore. These schemes are funded by both Government of India and State Govt. under various heads such as JNNURM (Jawaharlal Nehru National Urban Renewal Mission) UIDSSMT (Urban Infrastructure Development fund for small and Medium Towns), TNUDP (Tamilnadu Urban Development Project) and MNP (Minimum Needs Programme). It has been programmed to complete water supply improvement schemes in 60 urban towns during 2007-2008. The outlay approved for Urban Water Supply Programme for 2007-08 is Rs. 263 crore.

#### **Ramanathapuram Combined Water Supply Scheme**

Ramanathapuram combined water supply scheme to benefit 5 Municipalities, 11 Town Panchayats and 3163 rural habitations in Sivagangai, Pudukottai districts and enroute habitations at an estimate cost of Rs.616 crore has been taken up for implementation.

#### **Hogenakkal Water Supply and Fluorosis Mitigation Project**

The Japan Bank of International Corporation (JBIC) is actively considering financial assistance for Hogenakkal water Supply and Fluorosis Mitigation Project covering the entire Dharmapuri and Krishnagiri districts. The cost of the project is Rs.1334 crore. Aide – memorie has been signed. Pledging of the project and signing of loan agreement by Government of India and Government of Japan are expected by January 2008.

#### **Sewerage Schemes**

It is proposed to complete the 3 ongoing Under Ground Sewerage Scheme (UGSS) projects under NRCP during 2007-08. The Under Ground Sewerage schemes namely Thanjavur, Mayiladuthurai

have been completed and the balance UGSS to Trichy- Srirangam will be completed by this year.

In addition to the above, UGSS have been taken up in 15 District Headquarters towns at a total cost of Rs.405.95 crore. It is also proposed to take up implementation of UGSS in 3 more District Head quarter towns at a cost of Rs.143.36 crore. UGSS to 9 Municipal Towns other than District Head Quarter at an estimated cost of Rs.181.16 crore have also been taken up during 2007-08.

### **Tsunami Relief Works**

During 2006-07, 41 water supply schemes to provide permanent and sustainable water supply to the Tsunami affected urban and rural areas have been taken up for implementation at an estimate cost of Rs.82.18 crore and 16 schemes have been completed and put into beneficial use. Out of the balance 25 schemes, 16 schemes will be completed during 2007-08.

### **Objectives Targets and, Strategies for 2008-09**

#### **Water Supply**

- To increase the coverage of water supply in all towns to achieve the norms for per capita supply ensuring quality of the water.
- To ensure reliability of supply of water for 24 hours in towns in a phased manner.
- To install desalination plants in all coastal towns with appropriate subsidy.
- To increase the norms levels for per capita in line with JNNURM norms.
- To create small water supply undertakings similar to electrical undertakings run earlier by local bodies (now merged with the EB) under the management and supervision of the urban local bodies and entrust them under qualified professional management.

- To implement HRD programs aiming at capacity building for operating the water supply schemes by Urban Local Bodies (ULBs).
- To avoid physical losses, zoning of distribution system and leak detection study should be carried out periodically as a preventive measure to arrest the unaccounted water.
- To encourage innovative and cost effective technologies in the implementation and administration of water supply schemes.
- To safeguard the water supply sources against pollution and degradation.
- To protect water sources against encroachments by legislative measures.
- To safeguard the watercourses, only treated effluent will be allowed to enter the water bodies and regulatory provisions will be made for the safe disposal of Solid and Hazardous waste.
- To encourage recycling and reuse of water by all major/medium industrial establishments.
- To control over-exploitation and degradation of ground water.
- To prepare Master plans for implementation of recharge structures in all river basins.
- To develop State water policy constituting a team solely for the purpose since different agencies are involved.

### **Sewerage and Sanitation**

- Integration of sanitation and sewerage schemes with water supply so that it is given adequate priority during the Plan period.
- Treating of wastewater from storm water drains and industrial effluents before they enter the watercourses.
- Adoption of innovative and alternate technologies for safe disposal, recycling and reuse of waste water wherever possible.

## **Schemes for the year 2008-09**

### **Sea Water Desalination Plant - II (at Nemmeli)**

To reduce the gap between the demand and supply of water in the Chennai Metropolitan Area and to augment the water supply, the Government has proposed to construct another 100 mld Sea Water Reverse Osmosis Plant at Nemmeli, south of Chennai with the financial assistance of the Government of India.

For execution of this project 40.05 acres of land has been identified and was taken over from Aalavandhar Trust and tenders will be called for the project during April 2008.

### **Sea Water Desalination Plant - I (Kattupalli / Minjur)**

The present water supply sources of Chennai City are dependent on the monsoon rainfall and any failure of the monsoon adversely affects the city water supply. The CMWSS Board had proposed to set up a desalination plant on DBOOT (Design, Build, Own, Operate and Transfer) basis as a drought proofing measure and decided to implement the 100 mld Desalination Plant at Kattupalli near Minjur. Construction works are under progress for Desalination plant. As per the Agreement, the company has to deliver 15 MLD of product water from May 2008 and deliver 100 MLD of product water from August 2008.

### **TWAD Board**

Under RWS Programme, it has been programmed to provide water supply schemes to 12585 rural habitations through IPP& CWSS. It is also programmed to take up 350 RWH Structures in Rural area under Regular Programme. Under Urban Water Supply Programme, it has been programmed to provide water supply to 60 towns falling under the category of average and poor Water Supply status towns. It has been proposed to complete 7 Under Ground Sewerage Schemes in Urban Towns.

## **Projects under JNNURM**

### **Revamping of Combined Water Supply Schemes**

In Chennai city, water is distributed through 16 water distribution systems. Under Second Chennai Project, improvements to 11 water distribution system and 7 water distribution stations have been completed with the financial assistance from World Bank and 5 water distribution stations have been completed with the financial assistance from HUDCO. In order to ensure equal supply of water with adequate pressure to all the residents of Chennai city , the improvement to balance 4 water distribution stations, 5 water distribution systems and other allied works such as leak Detection and Rectification programme, reconstruction of raw water transfer conduit I & III and repairs to conduit II from Redhills to Kilpauk Water Treatment Plant have been taken up for implementation at a cost of Rs.337.48 crore under JNNURM funds. From the date of work order, all the works will be completed in two years period.

### **Providing water supply along I.T. Corridor**

The Government of Tamil Nadu has declared the old Mamallapuram Road as IT Corridor. CMWSS Board is implementing the water supply and sewerage infrastructure works. Detailed Project Reports were prepared in 7 packages for the works upto Siruseri and the Government of India has accorded approval for Rs.41.77 crore under JNNURM. The work has been taken up and programmed to complete in the current year. The works for the remaining portion from Siruseri to Thiruporur will be taken up subsequently. This will benefit about 10 urban centres besides the IT Parks and Institutions coming along the IT Express Road.

### **Conveyance of drinking water from Desalination Plant at Minjur to Madhavaram & Redhills for city distribution**

The desalinated water produced at the desalination plant at Minjur will be supplied by the Company at the plant site at Kattupalli Village. To convey this water from the plant site at Kattupalli to

Madhavaram and Redhills for further distribution to the consumers, necessary infrastructure like pipeline, under ground tank and pumping arrangements are required and the Government of India has accorded approval for Rs.87.80 crore under JNNURM. Due to introduction of two stage pumping and Operation & Maintenance for 5 years, the project has been revised to Rs.93.00 crore. The Government of India has sanctioned Rs.70.24 crore as grant under JNNURM. The balance amount will be met by the State Government/CMWSS Board. Work orders have been issued for the two packages. The works are under progress.

The following additional projects are also being taken up with JNNURM and other institutional funding.

Augmentation of Combined Water Supply Scheme to augment water supply of Coimbatore Corporation, 24 town panchayats and 924 rural habitations from Pillur Dam (Phase-II) at an approximate cost of Rs. 110.00 crore benefiting a population of 8,70,582.

The second Vaigai Water Supply scheme at a cost of Rs. 48.87 crore has been taken up for execution during the end of tenth plan period. On completion of this project during the Eleventh Plan period, the Madurai Corporation will be supplying 110 litres of water against the present supply of 65 litres per capita, to its residents.

Water supply improvement scheme to Salem Corporation in Salem district.

### **Sewerage and Sanitation**

#### **Providing sewerage facilities for Municipalities around Chennai City**

For providing sewerage facilities to Ambattur Municipality (Phase-II) detailed project report has been prepared at an estimated cost of Rs.7.33 crore. The implementation of the above scheme will benefit a population of around 2,07,000.

Works estimate for Rs.25.60 crore have been prepared in 5 packages to rehabilitate and extend the sewerage system in

Thiruvottiyur. The implementation of the above scheme will benefit a population of around 3,76,000.

CMWSSB has taken up the work of providing sewerage system to Pallavaram Municipality at an estimated cost of Rs.52.72 crore and the work is in progress. The implementation of the above scheme will benefit a population of around 2,60,000.

Works for rehabilitating and upgrading the sewerage system in Thiru-Vi-Ka Industrial estate in Guindy has been taken up at an estimated cost of Rs.6.95 crore. The work is in progress and will be completed during this year. The implementation of the above scheme will benefit a population of around 1,58,000.

### **Chennai City River Conservation Project (CCRCP)**

The sewerage system improvement works under CCRCP have been taken up at an estimated cost of Rs.720.15 crore with the grant of Rs.491.52 crore from the Government of India and Rs.228.63 crore from Board's own fund. The works were commenced during the year 2001 and have been completed. So far works for a value of Rs.375.63 crore have been completed and put into beneficial use. A savings of Rs.109.28 crore is available in the sanctioned CCEA cost. CMWSSB has proposed to take up further improvement works in the City sewerage system utilizing the savings under CCRCP. 10 Nos. of DPRs for an amount of Rs.20.03 crore have been so far sent to NRCD for approval. NRCD has raised technical adequacy for projected flow of next 30 years. Accordingly the DPRs are modified to the technical requirement.

### **National River Conservation Project**

The CMWSS Board has taken up the implementation of sewerage schemes for Madurai Corporation and Kumbakonam Municipality.

#### ***1.Madurai Corporation***

The sewerage scheme for Madurai Corporation was taken up at an estimated cost of Rs.165.00 crore during February,

2001. The collection system, construction of Sewage Pumping Stations and conveying main for six blocks under Phase-I have been completed, commissioned and handed over to Madurai Corporation. Under Phase-II, the works of collection system, construction of Pumping Stations and conveying main at north and south of River Vaigai, at an estimated cost of Rs.70.25 crore, are under progress. All the works will be commissioned during the current year.

Under Phase-III, two Sewage Treatment Plants each at Avaniapuram (67 MLD) and Sakkimangalam (32 MLD) will be constructed at an estimated cost of Rs.10.15 crore during this year. NRCD has given administrative approval for Rs.10.15 crore. The works for the construction of STPs are programmed to be taken up during this year. Meanwhile, Madurai Corporation has prepared a DPR for the construction of STP adopting revised treatment technology and has sent to the Commissioner, Municipal Administration for approval and seeking funds from JNNURM. In view of the above, it is proposed to drop the construction of STP under NRCD.

## ***2. Kumbakonam Municipality***

The sewerage scheme for Kumbakonam Municipality was taken up at an estimated cost of Rs.50.60 crore during April 2001. The strengthening and the rehabilitation of the existing sewerage system has been completed under Phase-I. Under Phase-II the work of providing sewerage system for the uncovered areas has been completed. For Phase-III (17 mld Treatment Plant at Ammachatram), DPR is yet to be proposed by NRCD. However, action has been taken to execute the work with bridge funding. Work commenced on 15.01.07 and programmed to be completed before March 2008.

## **Plan Outlay for 2008-09**

An amount of Rs. 776.18 crore has been approved for the Water Supply, Sewerage and Sanitation sector for the year 2008-09, of which around Rs. 156 crore will flow to SCSP and Rs. 0.25 crore to TSP.

