

NRW REDUCTION STRATEGY



Water Supply Department

Name of City: Thane Municipal Corporation

NRW REDUCTION STRATEGY

1. PREAMBLE :

Potable water is becoming scarcer; often making it more energy intensive to procure. More energy is required to pump water to greater distances and from deeper depth in the ground. This alarming situation and ever increasing population has cautioned everybody to conserve the available water resources and adapt oneself to optimum use of available water. The water supply, as an essential commodity, has to be looked upon from demand side as well as supply side. The urban local bodies, which form the supply side, will have to play a vital role in managing this often-scarce resource. As global urbanization continues, they have the complex task of cost effectively providing water to keep cities functioning. Further in the process of improving overall water system efficiency, energy & water consumption have to be viewed as linked inputs rather than viewing them as separate and unrelated. On the other hand, the demand side which consists of consumers have to be made aware of the present situation of the available water resources, necessary habitual changes required to be made by adopting various means of water conservation, optimal use of available water, re-use and re-circulation of waste water for some activities, frequent inspection and rectification of home appliances to reduce leak & wastage, restricted use of appliances requiring more water, etc.

2. EXISTING WATER SUPPLY SYSTEM :

In Thane municipal corporation area sources of water available for @ 23 Lakhs population is as follows

Sr. No.	Source Name	Quantity
1.	TMC own source (Bhatsa Source)	200 MLD
2.	Maharashtra Industrial Development Corporation	110 MLD
3.	Municipal corporation of Greater Mumbai	60 MLD
4.	STEM water distribution and infra co. Pvt. Ltd.	110MLD
		480 MLD

- TMC own source :-** Water is pumped from the pickup weir at Pise on Bhatsa dam and conveyed to Break Pressure Tank (BPT) by two mild steel (MS) pipe pumping mains (1250 mm , 1244 mm) and from BPT to water treatment plant at Temghar by Gravity mains of 1300 mm dia MS and 1000 mm Dia. PSC pipe. Water treatment Plant of 280 MLD is located at Temghar and Treated water is pumped to Master Balancing Reservoirs (MBR) at Mankoli and then transmitted by gravity through the transmission mains of 84 Kms to the Elevated Service Reservoirs (ESR's) and sumps in the city.
- Maharashtra Industrial Development Corporation :-**
 Thane municipal corporation purchase treated water from MIDC (Ulhas River source-Barvi Dam) through 16 no. of connections. The main supply area on MIDC source is East zone of Thane i.e. Kalwa, Mumbra and Diva area. The other areas which are fed with MIDC water are Balkum, Naupada, Kolshet, Nehrunagar, Keninagar, Ramnagar etc. Thane Municipal Corporation takes this water through the bulk connections of size 300 mm to 50 mm dia. This water is taken to ESR's and ground sumps. At some locations water is directly fed to the distribution system.
- Municipal Corporation of Greater Mumbai:** Thane municipal corporation purchase treated and untreated water from MCGM (Vaitarana River source-Vaitarana Dam- untreated water and treated water from Bhatsa dam) through no. of connections. The main supply area on MCGM source is Central zone of Thane

i.e. Kopari, Gaondevi, and Louiswadi area. The other areas which are fed with MCGM water are Kisannagar, Naupada, Rajiv Gandhi Nagar, Kajuwadi etc. Thane Municipal Corporation takes this water through the bulk connections of size 300 mm to 25 mm dia. This water is taken to ESR's. At some locations water is directly fed to the distribution system.

- **STEM water distribution and infra co. Pvt. Ltd.:** Thane municipal corporation purchase treated water from STEM (Ulhas River source-Barvi Dam) through 2 no. of connections. The main supply taken from STEM is at MBR located at Mankoli and other supply taken is at Patlipada in Ghodbunder Road. Thane Municipal Corporation takes this water through the 1530 mm dia. pipe at MBR and 350 mm dia. pipe at Patlipada. This water is taken to ESR's and ground sumps. At one locations water is directly fed to the distribution system.
- Water available from all four sources is distributed through total 54 ESR's and 17 Sump and Pump house to the distribution network having length of 750 km. The system presently covers almost 98% of the present population including the slums. The distribution system in the city is based on both gravity and pumping.
- The distribution system in the city is based on the division of the entire city into 44 water districts.
- There are total 1,51,133 service connections in entire TMC area as per details shown in Table below;

Table No 1. Details of House Connections

Category	Number
Total Connections	1,51,133
Metered Connections	4700
Un-metered Connections	1,46,433

3. NON REVENUE WATER (NRW) :

- **What is Non-Revenue Water (NRW)?**

The difference between the amount of water put into the distribution system and the amount of water billed to customers is known as Non-Revenue Water (NRW). NRW is made up of real losses and apparent losses. Real losses occur in distribution systems, service connections, bursts and storage tanks (including overflow). Apparent loss includes meter and record inaccuracies and unauthorized water uses such as theft and unauthorized connections authorized unmetered uses can also be considered as one of the components of NRW.

- The service level benchmark for NRW is 37% (As there are no consumer meters fixed on the consumer connections, the component of NRW is approximate.) There is considerable scope for reduction of NRW in almost all cities of the country. Though reduction of NRW is a very big challenge, there have been examples of successful reduction of NRW.

- **Different Elements of NRW Reduction Strategy identified are :-**

- Water Audit & Water Balance
- 24x7 Water Supply
- District Metered Area (DMA)
- Supervisory Control & Data Acquisition (SCADA)
- Network Mapping
- Leakage Mapping
- Regularization of Public Stand Posts (PSP)
- Capacity Building
- Tariff Structure

4. TMC's NRW REDUCTION STRATEGY :

- **24 X 7 Continuous Water Supply Project in Uthalsar ward committee area as a Demo zone :-**

Thane Municipal Corporation has planned to undertake the prestigious project of converting existing Intermittent Water Supply System to 24 X 7 Continuous Water Supply Project in Uthalsar ward committee area as a demo zone covering a population of about 3 lakhs. The improvement work will be executed under TMC's own fund/Amrut/Smart City funding for indicative project cost of Rs. 50 Crore. The area is so selected that there is enough storage and no new tanks are required to be constructed. The project would aim at improving Technical & Commercial efficiencies and upgrading existing intermittent supply for continuous pressurized 24 x 7 water supply & reduction in non-revenue water and to bring down the gross water consumption as per the norms. At present, the project has been approved by General Body of TMC.

- **Smart Metering:** - Thane Municipal Corporation has planned to undertake the smart metering to the full city area .In the first phase Thane Municipal Corporation has planned to fix the consumer meters on Bulk domestic connections above 25 mm dia. and all commercial connections. In the second phase Thane Municipal Corporation will fix meters on all slum connections and connections below 25 mm dia. for apartments/Buildings. The billing of water will be as per the actual consumption with the telescopic tariff. As Thane Municipal Corporation will charge the consumer with the actual consumption, the actual billing of water will increase and this will reduce the NRW component.
- **Water Audit and Water supply management through SCADA:** - Thane Municipal Corporation has planned to undertake the bulk water audit and Water supply management through SCADA up to the ESR's and sump & pump house .In this programme Thane Municipal Corporation has planned to fix the Bulk meters on the transmission mains along with flow and pressure measuring devices. The Thane Municipal Corporation appoint private operator for the installation of Bulk

meters along with flow and pressure measuring devices along with the SCADA system and manage the transmission system. This will help to arrest the leakages in the transmission system along with the pressure management at all ESR nodes. As Thane Municipal Corporation purchase water from three different agencies and there are some errors in the measurement of the quantity of water, this project will help in accurate measurement of quantity of water purchase and in turn the accurate billing to the other agencies. This will help in saving of water purchase bills and effectively reduce the NRW component.