9th INDIA INTERNATIONAL WATER WEEK 2026

Best Practices
Surat's Water Governance

Presented by

Rajkumar Beniwal, IAS

Municipal Commissioner, Surat Municipal Corporation

THE CITY

Surat: India's Fastest-Growing Urban Economy

8th Largest City

of India in terms of Population.
Spans 461.60 sq. km.

Fastest-Growing City

As per Oxford Economic's
Global Cities 2030 Report

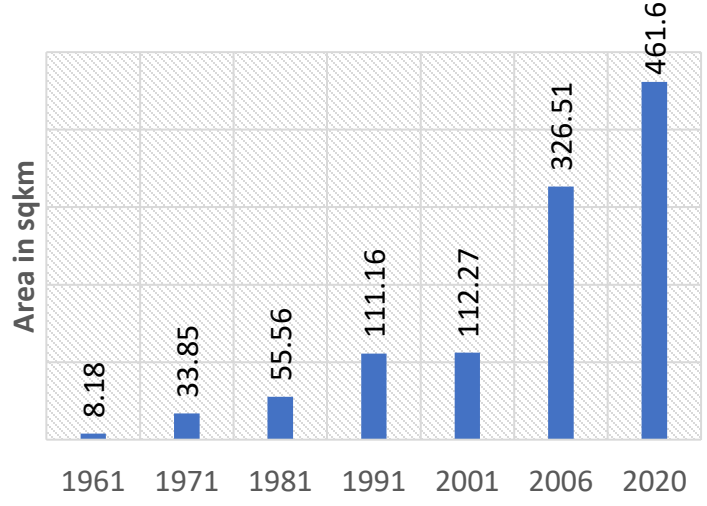
Economic Capital of Gujarat

Hub of Diamond & Textile Ind.
GDP approx. $45 billion
(16% of State | yr. 2023)

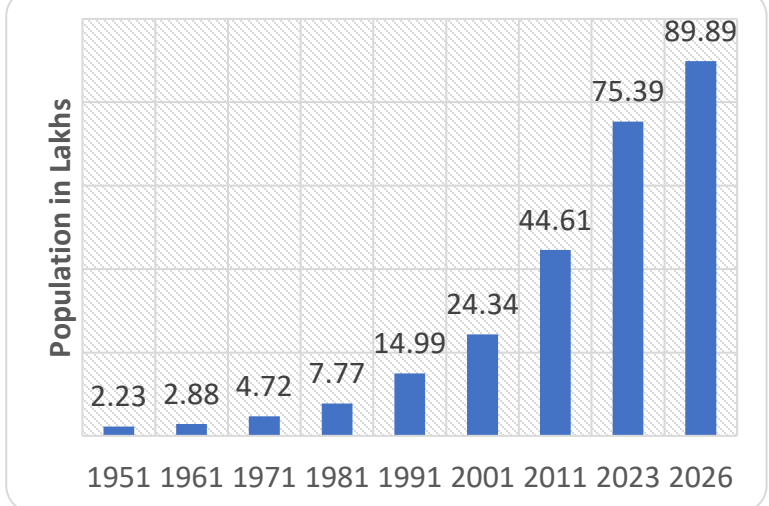
89+ Lakh Population

up from 44.6 lakh in 2011 — doubling in 15 years

City Limit Expansion



Population Growth



60–80%

Decadal growth rate

Among the highest of any Indian city, driving relentless demand for water infrastructure.

THE CHALLENGE

Challenge: Economic & Population Growth driving Water Demand

Domestic Demand

Consistent decadal population growth of 60–80% raises household consumption citywide.

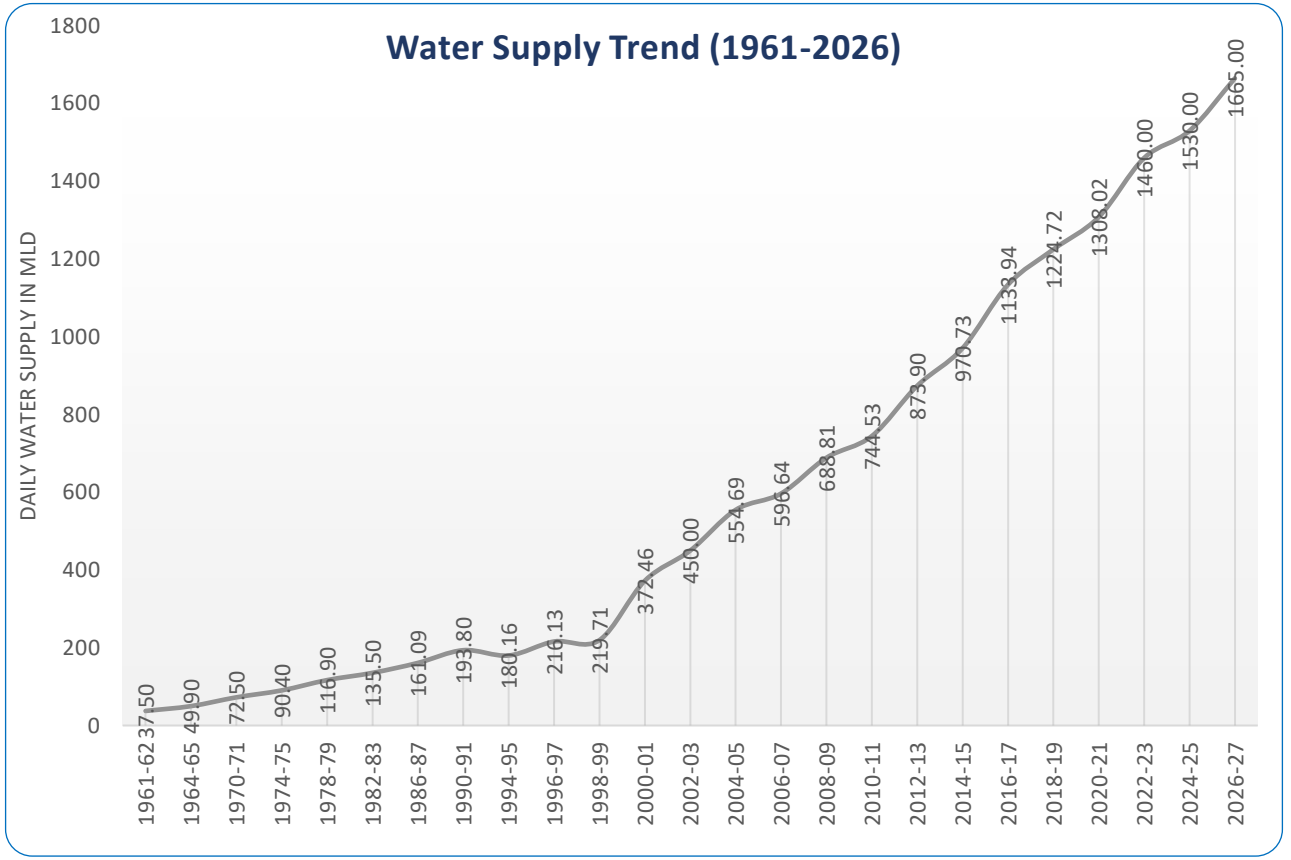
Industrial Demand

Water intensive textile, chemical & manufacturing clusters require assured, high-quality water.

Master Plan 2036

SMC has prepared a long-term infrastructure roadmap to meet the demand and sustain the growth.

Domestic demand from rapid population growth, and **industrial demand** from Surat's water-intensive textile, chemical and manufacturing base, together place sustained pressure on a single river source — the Tapi.



PROJECTED DEMAND 2036	2564 ML Population 1.37 Cr.	PROJECTED DEMAND 2051	3,131 MLD nearly 11x the 2001 level Population 1.68 Cr.

Five Pillars of Surat's Water Governance Model

An integrated, climate-resilient response spanning supply, source protection, circularity, recharge and digital governance

1



Futuristic Water Supply Infrastructure

2



Securing the Source

3



Circularity & Sustainability

4



Groundwater Recharge & River Conservation

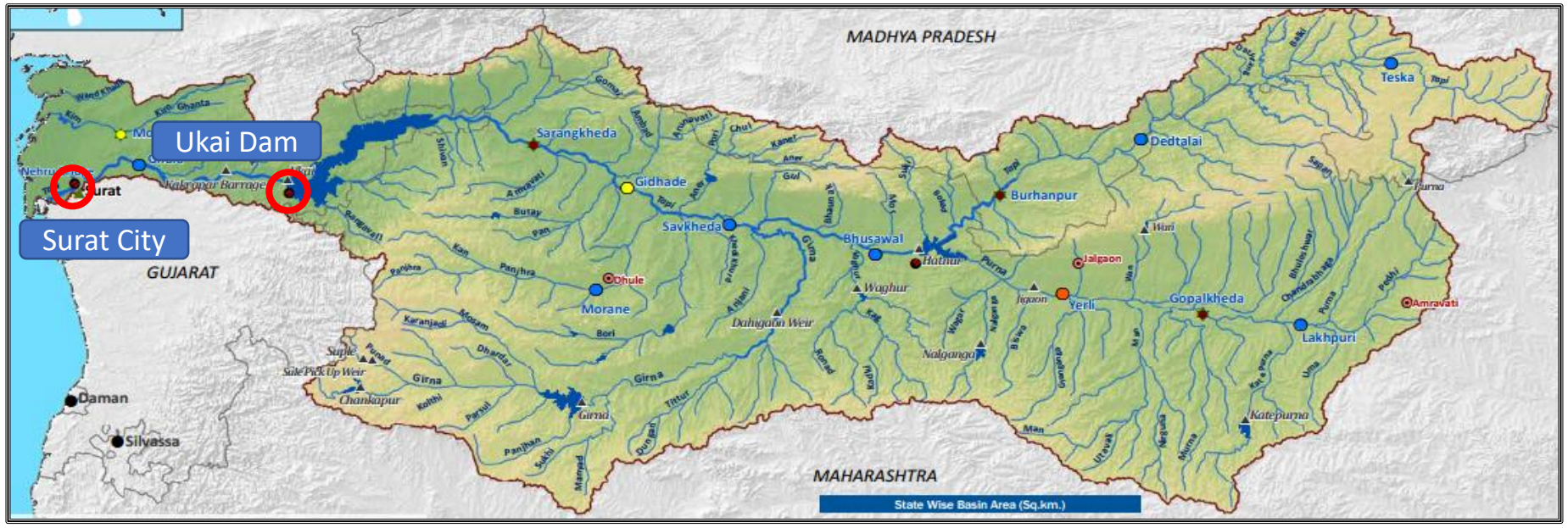
5



Digital Governance & Quality Adherence

From Source to Consumer: Surat's Water Supply System

- **Primary Source:** River Tapi
- **Ukai Dam:** In upstream of Surat at distance of 90 km
- **Ukai Catchment:** Gujarat (6%) | Maharashtra (79%) | Madhya Pradesh (15%)
- **Gross storage capacity:** 7414.29 MCM
- Full Reservoir Level: 345 ft.
  Rule Level: 341.86 ft. (Sept.)
  Present Level: 337.86 ft.





Surat's Water Supply – Source to Consumer

Water Supply Infrastructure

1 RAW WATER



Water Works	09 nos.
Intake Wells	07 nos. / 2193 MLD
French Wells	03 nos. / 160 MLD
Jack Wells	02 nos. / 90 MLD

2 TREATMENT



Water Treatment Plants (WTP)	19 nos. 2338 MLD
Water Quality	IS 10500:2012
Monitoring & Control	SCADA System

3 SUPPLY



Water Dist. Stations (WDS)	46 nos.
Under Ground Service Reservoir (UGSR)	67 nos. 775.35 ML
Elevated service Reservoir (ESR)	97 nos. 192.90 ML
Treatment & Dist. Network	3250 km.

1650 MLD
Gross daily avg. water supply

Frequency of water supply
- In intermittent supply areas: **3–4 hrs. per day**
- In 24x7 supply areas: **16 hrs. per day**

96.70%
Population covered under piped network
(Including newly added area in 2020)

Water for a Brighter Surat

PILLAR 1 · SUPPLY

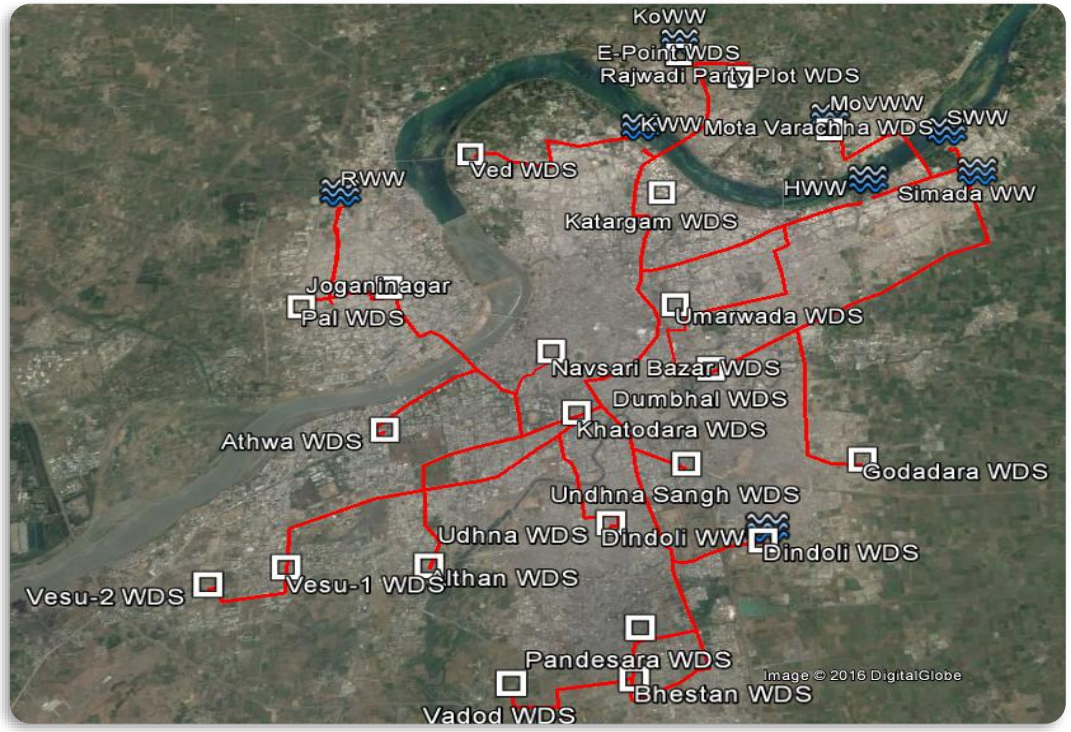
Water Supply Grid System

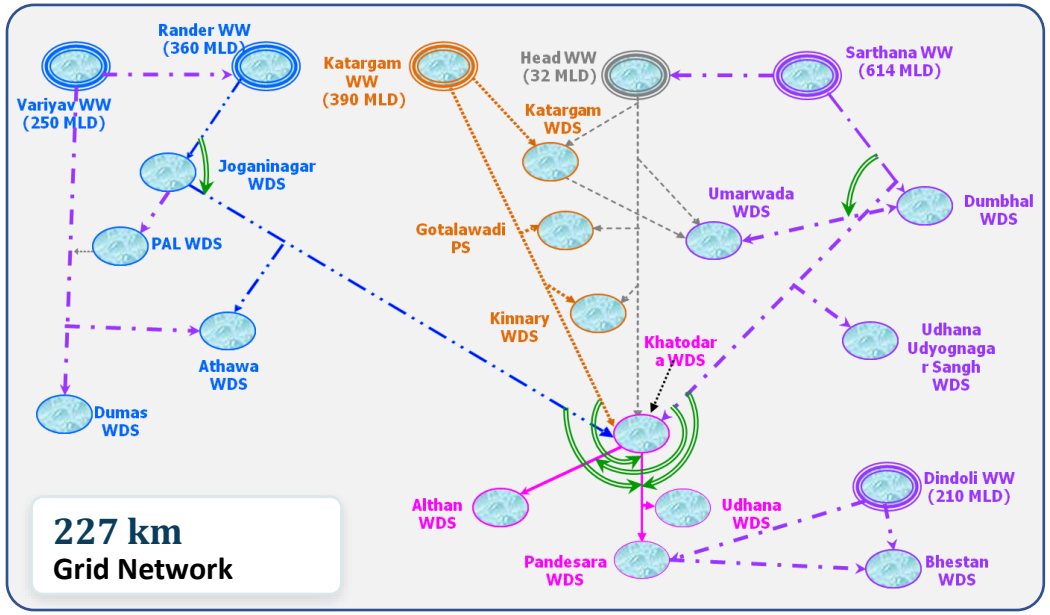
The Water Supply GRID

- For economic transmission of water.
- To ensure water supply across the city in case of any eventuality.
- Helped restore the entire water supply system within 36 hours after major flooding.
- Absorbs WTP / WDS shutdowns and breakdowns without interrupting supply.
- Assures uninterrupted supply to industrial consumers such as Pandesara.

355 kWh/ML → 263.2 kWh/ML

Specific energy consumption reduced through more economical transmission





PILLAR 1 · SUPPLY

24X7 Water Supply

24X7 Water Supply Coverage

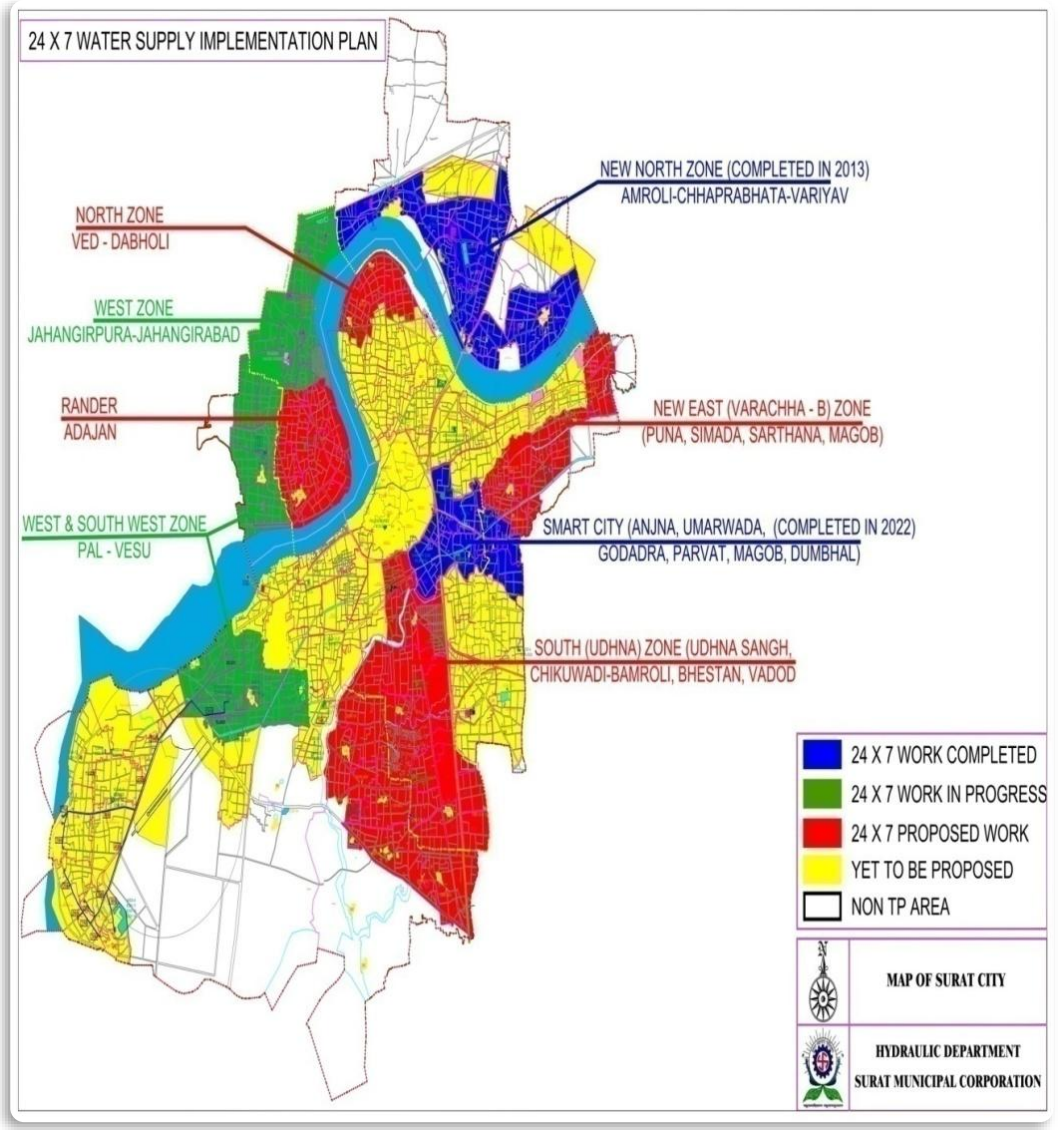
56.17 sq.km.
Area under 24X7

2.65 lacs
Households covered

14.5 lacs
Population covered

76,437
Water Meter Connections

- SMC was one of the leading ULB in India to implement **24x7 Water Supply Scheme way back in 2013**
- New North Zone area (19.55 sq.km) was 1st implemented under Water Supply as a Brown Field Project
- Successfully implemented **100% water metering** in 24X7



PILLAR 2 · SOURCE

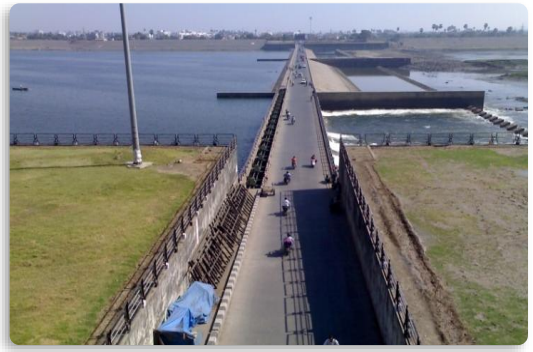
Securing the Source: River Tapi

Weir-cum-Causeway

- Built on the River Tapi in 1995.
- Acts as a water reservoir to meet Surat's water demand.
- Stops salinity intrusion from Arabian Sea tidal water
- Acts as a low-level bridge for traffic and connects Rander & Ved area across Tapi.

31.01 MCM
Reservoir storage capacity

24,000 m^3/s
Design discharge capacity





French Wells – For Lifeline Water Supply

- Infiltration Wells to meet lifeline water demand.
- Executed in river bed where aquifer with continuous natural recharging system is available.
- Requires no treatment except chlorination.
- Ground survey for **Aquifer mapping** through electrical resistivity test (ERT) was carried out in June-2017
- Total 270 Sq km Area Covered through **Heliborne survey** by NGRI (Hyderabad) along the Tapi river

160 MLD
Operational Capacity (3 wells)

144 MLD
Under construction at Valak (3 wells)

PILLAR 3 · CIRCULARITY & SUSTAINABILITY

Recycle & Reuse of Water

- 1st ULB in India to successfully commission Tertiary Treatment Plant (TTP) for recycle & reuse of Sewage Water in **2014**
- **Highest capacity** Tertiary Treatment Plants in India with **115 MLD** capacity
- Tertiary Treated Waste Water supplied to industry, reducing pressure on potable water

330 MLD

TWW reused | **25% of total 1320 MLD** Waste Water

115 MLD

Tertiary Treatment Plant capacity — highest in India

Rs. 140 Cr

Yearly revenue from sale of treated wastewater

8 Lakh

Population's drinking water saved by substituting TWW

Arial view of Bamroli Tertiary Treatment Plant

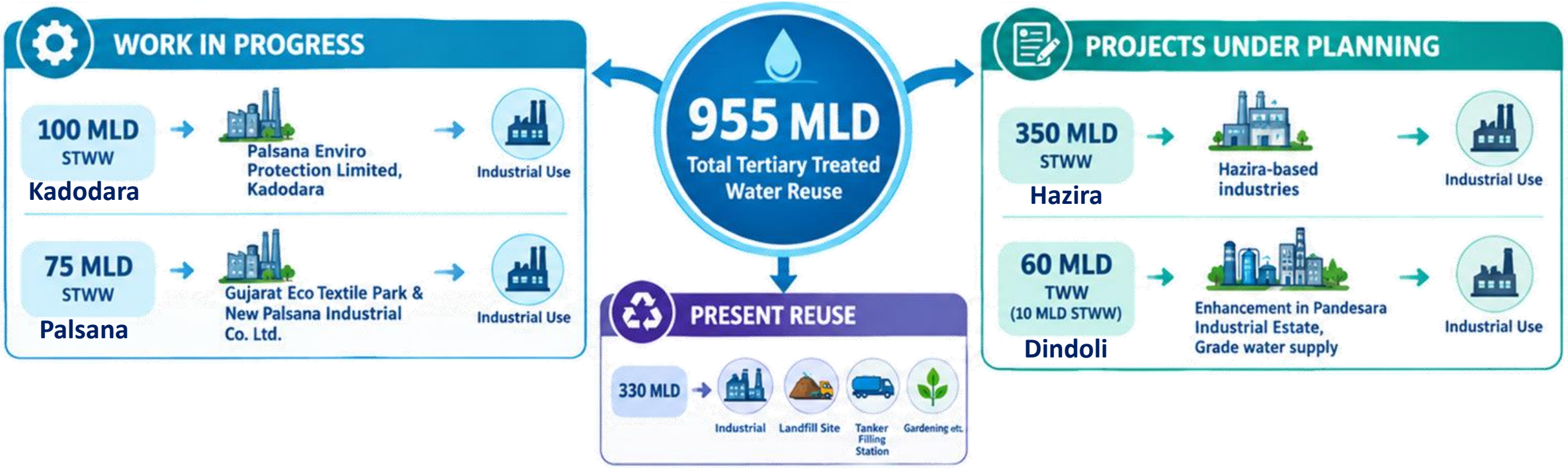


Reuse of TWW 330 MLD

115 MLD	Pandesara – Sachin Industries Clusters
2 MLD	Rejuvenation of Lakes
5 MLD	Ecological Park – Land Fill Closer
28 MLD	Agriculture & Mass Plantation
112 MLD	Industrial Use
49 MLD	Reuse in Treatment Process at STPs
1 MLD	Waste to Compost Facility
0.5 MLD	Dream City Project
0.5 MLD	Bio-diversity Park
17 MLD	Gardening, Circles, Road dividers, etc.

PILLAR 3 · CIRCULARITY & SUSTAINABILITY

Recycle & Reuse of Water – Future Planning



More than ₹410 Cr. | Estimated Annual Revenue

955 MLD | Reuse Potential

PILLAR 3 · CIRCULARITY & SUSTAINABILITY

Sustainability Efforts

Zero Liquid Discharge (ZLD)

- Backwash water in Water Treatment Plant accounts for 2-5%
- Generally backwash water is considered wastage

Zero Liquid Discharge (ZLD)
Backwash water from the treatment process is recycled rather than wasted

- SMC is implementing Zero Liquid Discharge in all WTP.
- 12 WTPs complete, 2 Work in Progress, 7 under planing

74.6 MLD of WTP backwash water recycled back into the treatment process

Use of Renewable Energy

- **Green Energy:** 52% of the total energy requirement is being catered from Green Energy Sources - Solar & Wind
- During 2021-22 to 2025-26, RE (wind & solar) Utilisation Benefits
  - Energy Generated / Utilized: 271.08 GWh
  - Financial Benefit: ₹196.45 Crore

SMC – A leading ULB in terms of use of renewable energy

82.20 MW	45 MW	32 MW
Total Green Energy Generation	Wind Energy	Solar Energy



PILLAR 4 · RECHARGE

Groundwater Recharge through Community Partnership

- Rain Water Harvesting (RWH)/Ground Water Recharge System (GWRS) is compulsory for Building Use Permission (BUC) as per GDCR guidelines.
- GoG under Swarnim Jayanti Mukhya Mantri Yojna (SJMMY) promotes RWH/GWR System

JAN BHAGIDARI > 70 : 20 : 10 FUNDING MODEL

70%	20%	10%
State Government	Private Society	SMC

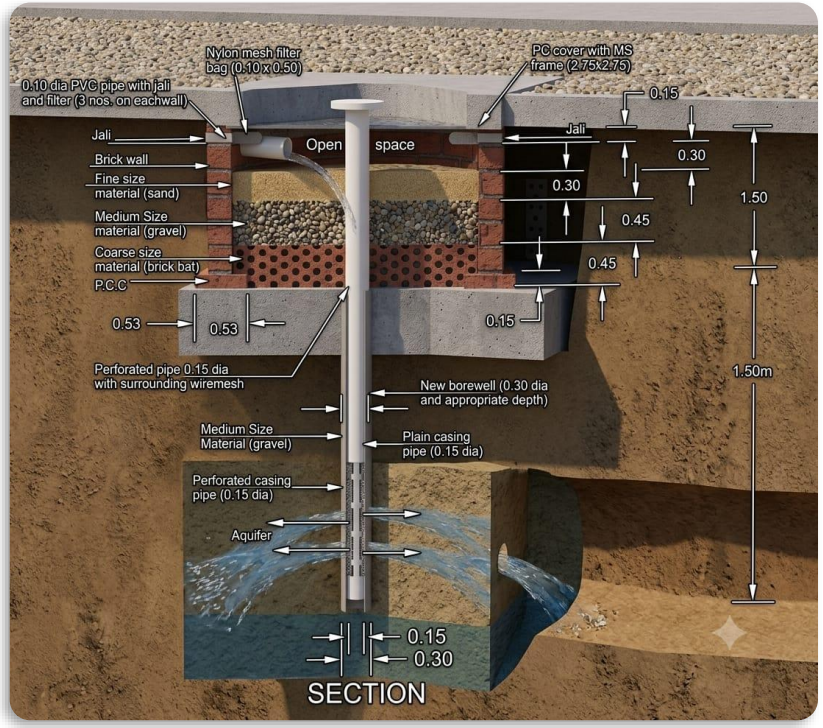
- SMC further incentivizes
  - By enabling utilization of Grant of Corporators/MLA/MPs under Society's Contribution
  - Registration fee reduced from Rs. 5000 to Rs. 100

TOTAL RECHARGE BOREWALL SYSTEMS
9,149

ANNUAL WATER RECHARGE
892.03 ML / YEAR

3,495
GWR systems in SMC premises

12 Designs
Customised GWR System Designs




Biodiversity Park, SWZ


Indoor Stadium


Health Centre,SZ-A

Recharge Systems in Low-Lying Area

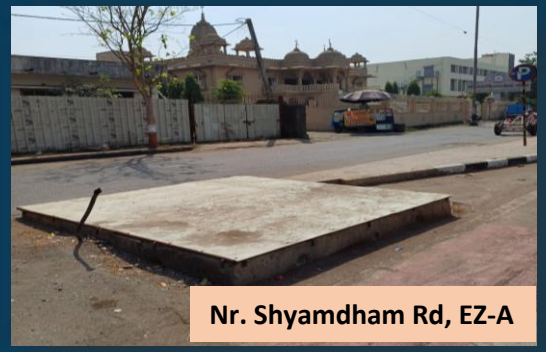
273 Groundwater Recharge Systems

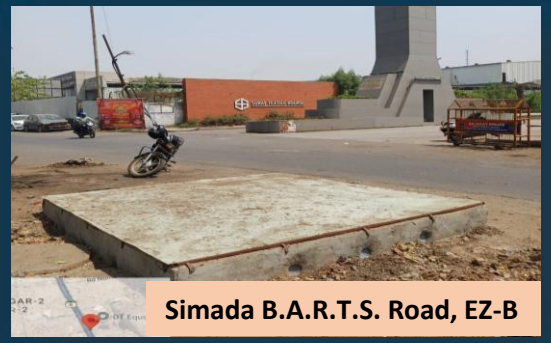
in low-lying, flood-prone, water-logging road stretches in different zones.

- Resulted in a significant reduction in flash-flood water levels and a decrease in water logging duration.


Kadarshani Nal, CZ


Nava Gam Rd, Dindoli, SEZ


Nr. Shyamdham Rd, EZ-A


Simada B.A.R.T.S. Road, EZ-B

Water Body Rejuvenation

29 Lake Gardens







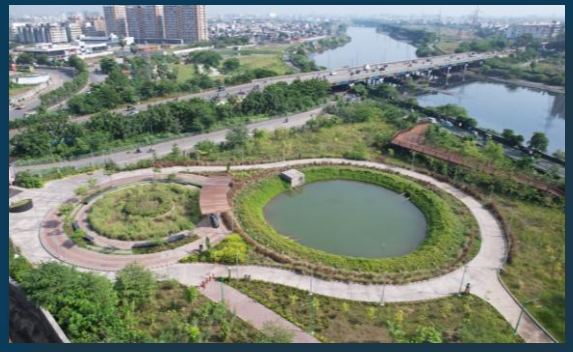


Wild Valley Bio-Diversity Park

Urban forest on 60 Hac. wasteland along the Creek.

14 Nos.
Water Retention Ponds

1 Lac CM
Storage Capacity



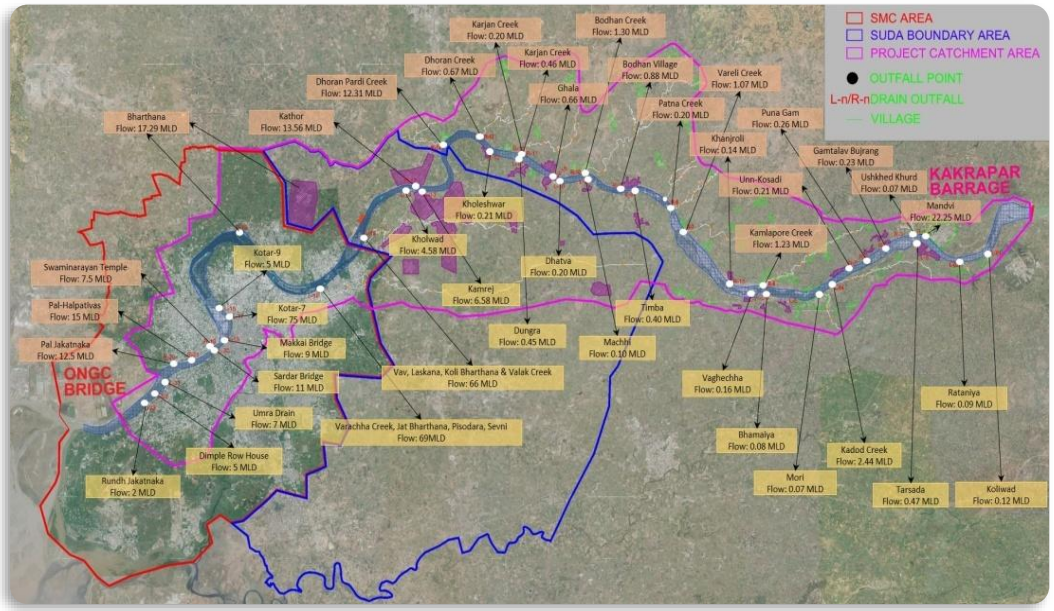


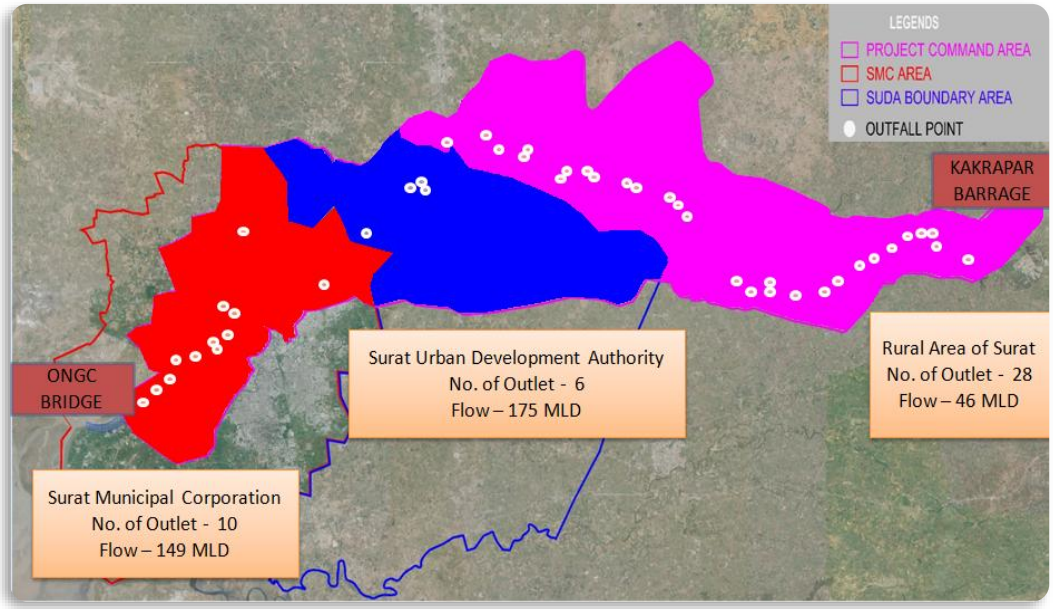
PILLAR 4 · RIVER CONSERVATION

Tapi Shuddhikaran

- Tapi Shuddhikaran Project implemented with a view to reduce untreated sewerage released from different area in the river Tapi.
- Project cost - Rs. 971 Cr.
- **Covers 73 villages/towns** & provides **Comprehensive Sewage System to 26 villages/town**
- **Project command area:** 411.55 Sq.Km.
- **Sewage Pumping Station:** 46 Nos | 423.09 MLD
- **Sewage Treatment Plant:** 24 Nos | 220.98 MLD
- Project under National River Conservation Plan (NRCP), GoI

SMC Area	SUDA Area	Rural Area
10 Outlets | 149 MLD	6 Outlets | 175 MLD	28 Outlets | 46 MLD





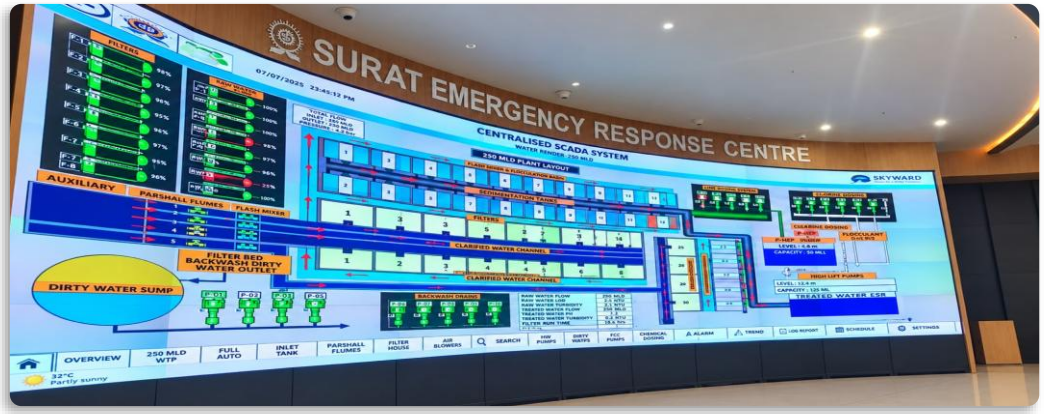
Technology Led Governance

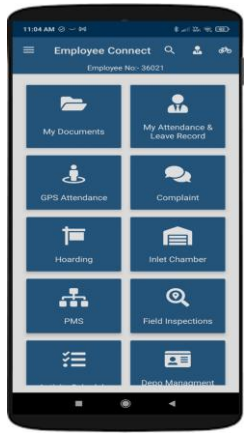
SCADA System

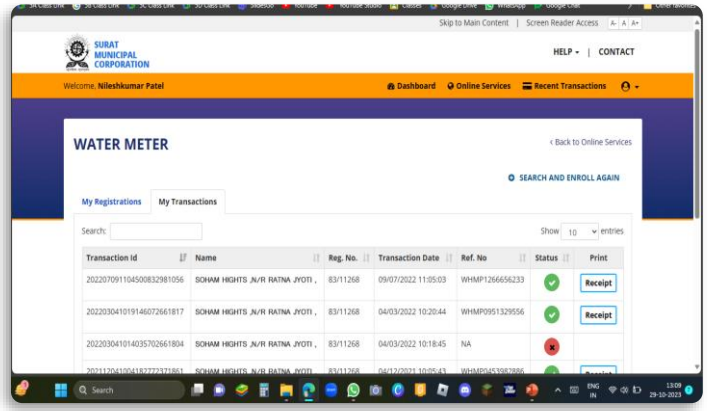
- **Centralised Real-time Monitoring & Control**
- **End-to-End Integration**: From source to Elevated Service Reservoirs (ESRs)
- **Quantitative Monitoring:** Tracks raw water input, treated water output, and ESR inflow to optimize flow distribution and minimize losses.
- **Qualitative Monitoring:** Turbidity, Free Residual Chlorine, pH, TDS, DO at key stages help maintain water quality and detect contamination.

Digital Governance

- **Continuous monitoring through Integrated Command & Control Center**
- Electronic Service delivery through Mobile app & Portal
  - Application for new water connections
  - Water Meter Consumption monitoring
  - Payment of water bills
- **Effective Grievance Redressal**
  - Easy registration – Toll free, Whatsapp Chatbot, Mobile App & Website
  - Employee Connect App for Grievance Redressal
- Mobile App for Daily Water Testing



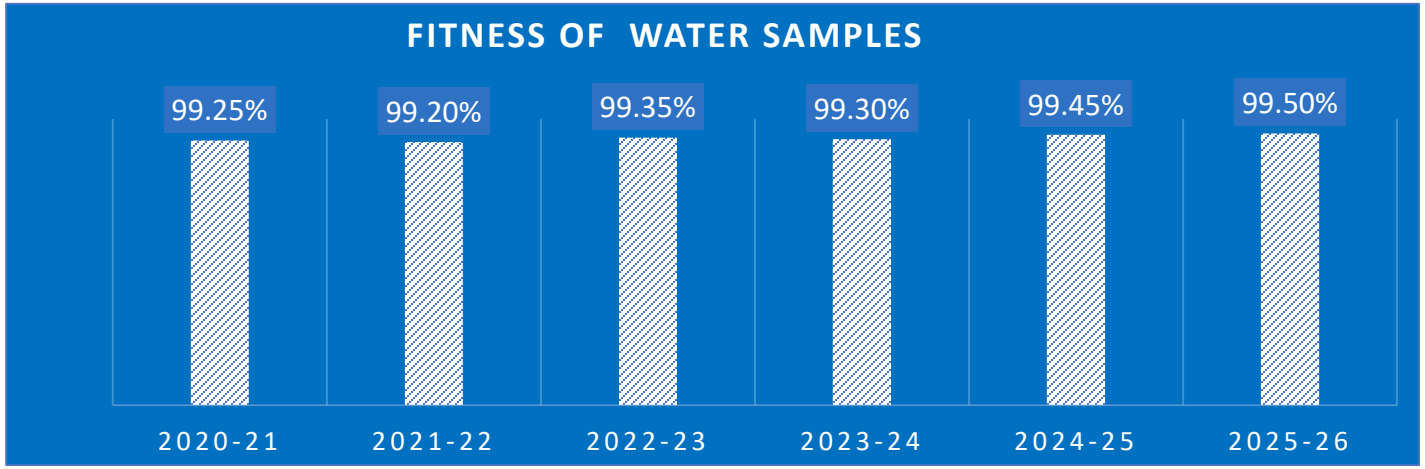




PILLAR 5 · QUALITY

Water Quality Monitoring

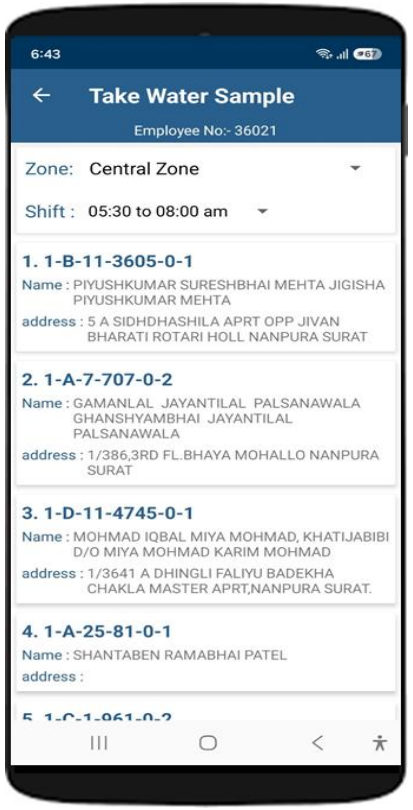
- Water Quality compliance in adherence to drinking water standard **IS 10500:2012** from Source to Consumer
- Realtime Water Quality Monitoring System monitors essential parameters like pH, Turbidity, FRC, TDS, Dissolved Oxygen for raw water and supply water on round the clock basis
- Total **10 laboratories** and One **Mobile Testing Van** for water testing
- Average **Daily Sample** Testing – **1230** (source to consumer)
- Mobile App for Sample Collection - **Random sample assignment**













Financial Sustainability of Water Services

ANNUAL INCOME & EXPENDITURE (₹ Crore, FY 2025-26)

Particulars	Water Supply System	Tertiary Treatment	Combined
O&M Cost	53.63	48.07	101.70
Electricity Charges	136.37	24.90	161.27
Manpower / Salary	38.69	22.75	61.44
Total Expenditure	**228.69**	**95.72**	**324.41**
Total Income	**240.34**	**146.06**	**386.40**

OPERATING PERFORMANCE

₹11.65 Cr
Water Supply surplus
105.1% recovery

₹50.34 Cr
Tertiary Treatment surplus
152.6% recovery

₹61.99 Cr
Combined operating surplus
119.1% recovery

Water Services: Moving Towards Operating Cost Recovery

ANNUAL O&M EXPENDITURE

Service-related contracts	₹21.25 Cr
Consumable stores	₹9.59 Cr
Electricity charges	₹136.37 Cr
Plant repair & maintenance	₹1.78 Cr
Water supply repair & maintenance	₹16.67 Cr
Other miscellaneous	₹4.34 Cr
Salary	₹38.69 Cr
TOTAL O&M EXPENDITURE	**₹228.69 Cr**

ANNUAL WATER-RELATED INCOME

Water Charge (User Charge under Property Tax)	₹217.30 Cr
Water Meter Charges	₹23.04 Cr
TOTAL REVENUE	**₹240.34 Cr**

₹11.65 Cr Operating surplus	105 % Revenue / O&M recovery	59.6% Electricity share of O&M

Thank You

Surat Municipal Corporation

www.suratmunicipal.gov.in