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Asia Water Forum 2022

8–11 August 2022 • Online



Focus Area: Universal water and sanitation services

Session Title: Sector capacity and stakeholder engagement

Schedule: [11 August 2022 (Thu) | 9:00 a.m. - 10:30 a.m. (GMT+08)]

Implications of Drink from Tap Mission for Future Urban Water Projects: Lessons from Puri, Odisha

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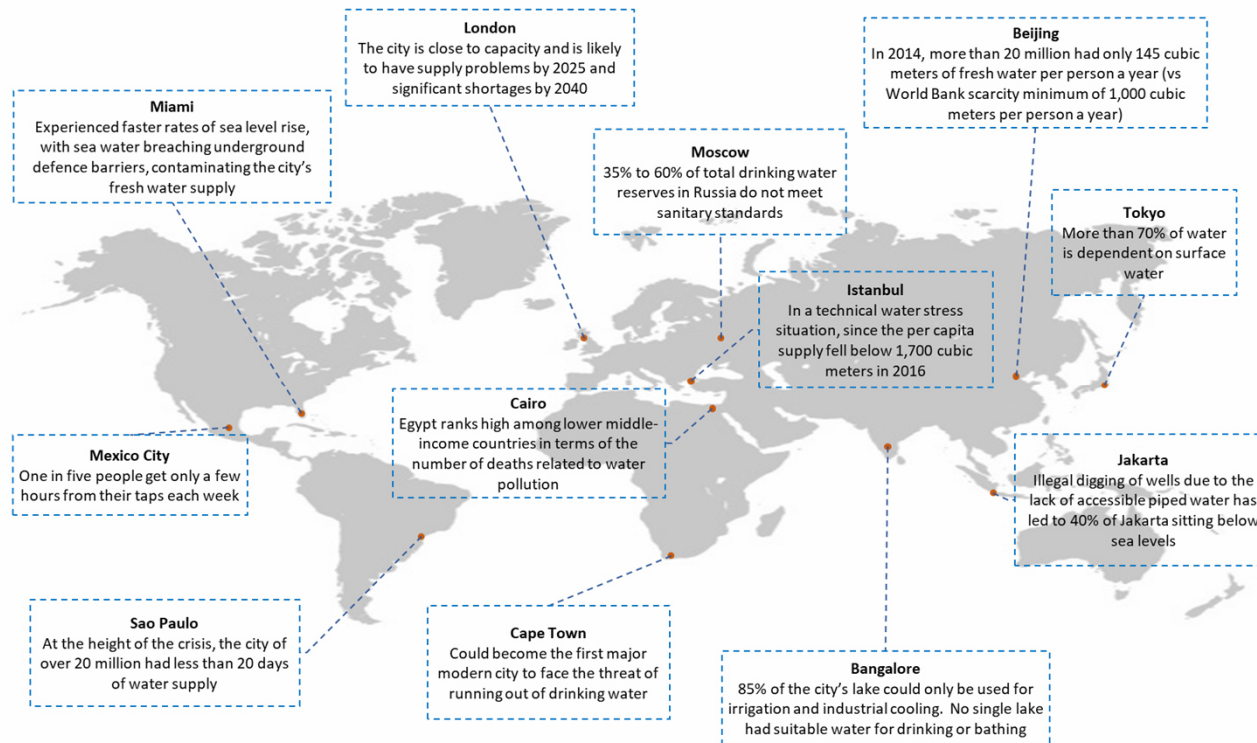
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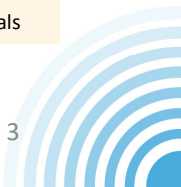
Global Water Scenario in Cities

Fig.: Global cities considered most likely to run out of water | Source: [BBC](#), [Whitehelm Advisers](#), February 2020



Causes of poor water provision globally:

- 1. Quality**
 - Unsafe, dirty drinking water caused by waste entering the water bodies
 - Biodegradable waste, hazardous pollutants and toxic chemical pollutants
 - Industrial Activity pollute lakes and streams
- 2. Access**
 - The nearest clean water sources may be a long way from people's homes
 - In 16 countries, more than 40% of the population do not have access to even a basic water facility such as a protected well (Water Aid, 2016)
- 3. Price**
 - High-quality drinking water is very expensive in some countries
 - WHO: 50 lit / person / day - recommended 'intermediate' quantity needed to maintain health, hygiene and for all domestic uses
 - Expensive relative to the income earned by individuals



Odisha's Initiative In Water Sector

Fig.: Map of Puri district of Odisha, India | Source: [ResearchGate](#)

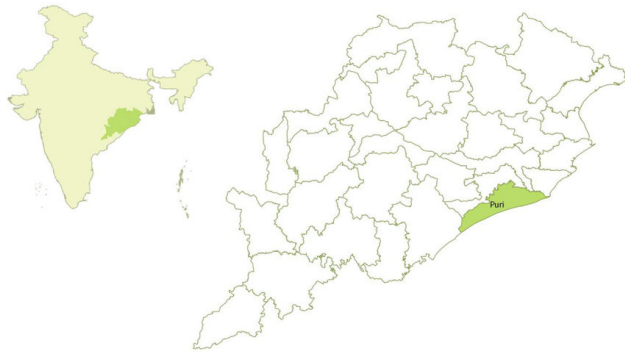
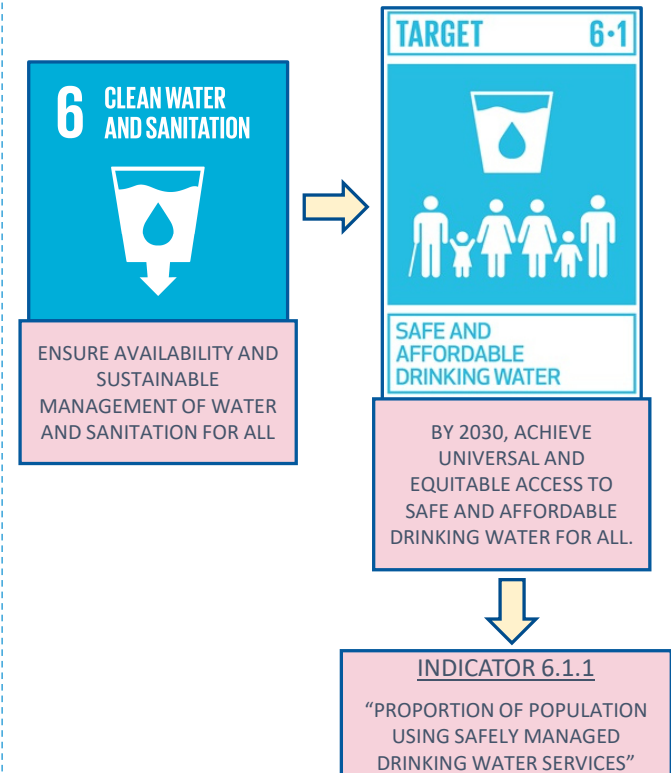


Fig.: Drink from Tap Water | Source: [Twitter](#)





PESTEL Analysis of Drink from Tap Mission

WATCO, Land Tenure

- WATCO: A **wholly-owned, not-for-profit Company of the Government of Odisha**, registered under the Companies Act, 2013.
- Land Tenure: Bringing **excluded settlements and communities into the fold**, regardless of their land tenure or legal status

NRW, Discharge, Source, Recharge

- NRW: Reduced from **54% to 15%**
- Zero Discharge: At WTP (**Operation of Sludge Handling Unit**)
- Source: Migration to a **Surface Water Source** (the Bhargavi River)
- Recharge: New Intake Well for **feeding recharge ponds**

Smart Water Management

- Real Time Command and Control System with **PLC & SCADA**
- **Mobile Responsive System**
- **GIS based** Asset and Consumer mapping with real time Dashboard

Management of Odisha Govt.

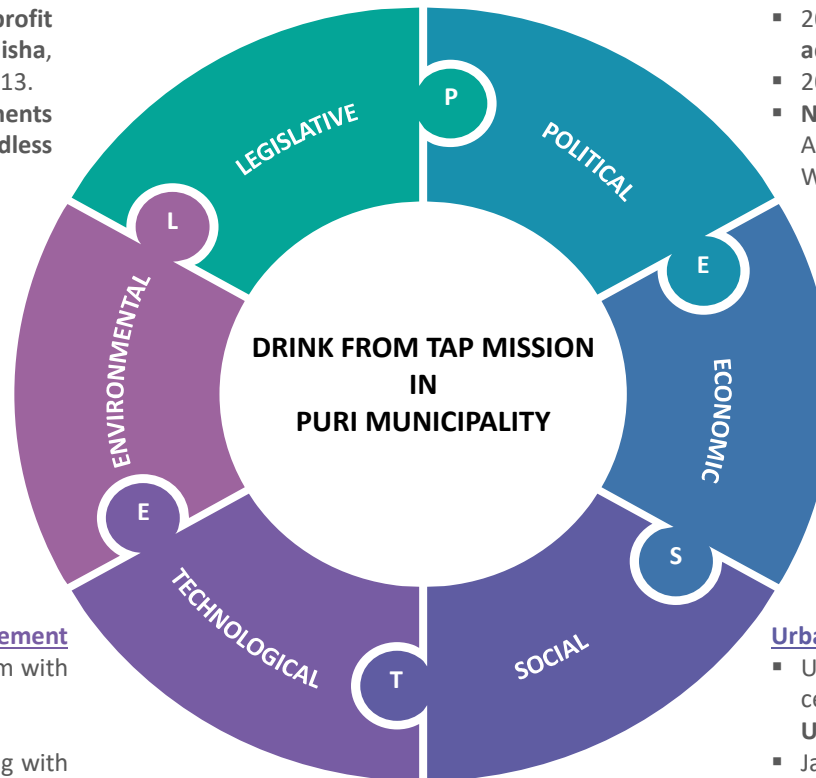
- 20th October 2017: **555 Projects** (composite administrative approval)
- 2017-20: **928 Projects**
- **Numerous convergences** such as the State Plan, AMRUT, DMF, UIDSSMT, OMBADC, and Deposit Works

Cost, Charges & Tariff

- Overall Per Capita cost of Project \approx **Rs. 8,960/-**
- Cost of Drinking Water / cum. = **Rs. 14 /-**
- **Connection Charges and Water Tariff** is categorized

Urban Poor & Jalasathis

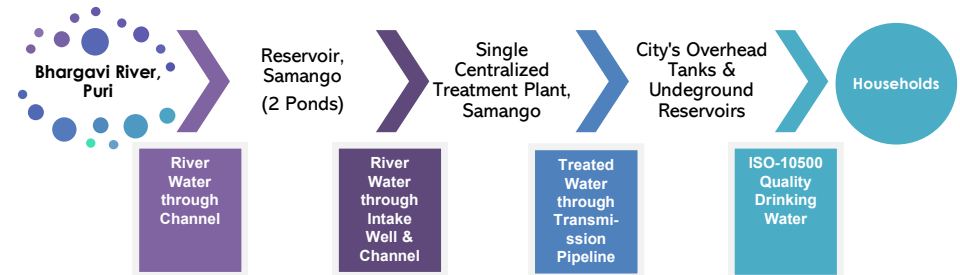
- Urban Poor: Equitable, sustainable and people centric service provision with **focus on the Urban Poor**
- Jalasathis: **Community led water distribution** at ward level through **Incentive Based Partnership**





Key Information of Project Site

- Population: 2.5 Lakh (approx.)
- Slum Population: 66,000
- No. of Households: 32,017
- Source: River Bhargavi
- Water Treatment Plant (WTP): 42 MLD
- Total Water Demand: 38 MLD
- No. of Ground Service Reservoirs (GSR)s: 5
- No. of Elevated Service Reservoirs (ESR): 19
- No. of Water Testing Laboratory: 1
- Operational zones (OZ): 19
- No. of DMAs: 19 Nos, one per operational zone with 1000 to 2000 connections
- Length of Water Distribution Pipelines: 275 Kms
- Clear Water Rising Main: 46 Kms
- Raw Water Rising Main: 800 Meter



1. Leakages were fixed in defective and aged pipes.
2. Dept. looked for international best practices and the core engineering team visited Singapore.
3. The government partnered with National Informatics Centre (NIC) and developed their own software to monitor the system.
4. Then systems were installed every few 100 metres to measure the velocity and pressure of water. After that, they compared water pressure at different points and real-time quality surveillance was done.
5. One of the main sources of water in Puri is the Mangala river (a small tributary of Bhargavi river). A channel is created to provide water to all the underground reservoirs in the city which further pump it to the overhead tanks finally supplied through taps. Since this is 100% metered a household will have to pay a charge of roughly Rs 100-150 per month.



Policy Reforms, Cost & Duration

- a) Right to **Tap Water**
- b) No to Hand Pumps and Public Stand Post (**yes to only household connection**)
- c) Relaxation of house connection norms for the poor:
 - i. No need of **property ownership / lease deed**
 - ii. With **indemnity undertaking**
 - iii. Cost **free** connection for **urban poor**
 - iv. Easy installment of connection fee for others **@Rs.100/month**
 - v. Providing **house connections with two taps** at **Govt. cost** under AMRUT for the slums/urban poor (1 at kitchen and 1 at toilet)
 - vi. Covering all **uncovered slums and uncovered areas**
- d) Execution of **house connection** by Govt. as **Public Work**- by amending rules
- e) Exempting public from getting **Road cutting permission** from Municipality and **associated fees** (Rs. 10K to 15K).
- f) Composite administrative approval – **555 projects approved in single order**; which helped in cutting bureaucratic delay.
- g) Involvement of **Women SHG** in connection drive camp approach at ward level
- h) Customer Connect Program at ward level organized by SHG: Women SHGs ensure that houses are mobilized with requisite materials, community is mobilized, house connections are made, and facilitated and act as the bridge between Govt. and consumer and Rs. 100 is paid for every connection – **incentive-based performance link.**

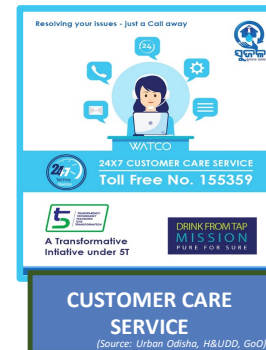
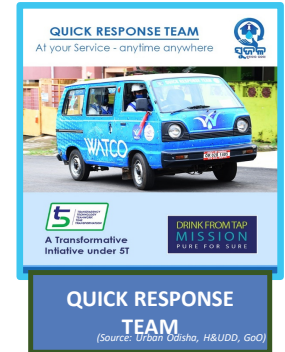
Total Cost = 224 Crores & Overall per capita cost ≈ Rs. 8,960/-

- a) Survey, Investigation, Planning, Design and Tendering for the implementation of “Drink from Tap Mission” to convert from intermittent to 24x7 ≈ **14 months**
- b) Execution for 24x7 WS ≈ **9 months**
- c) Previously, funds from the JNNURM and AMRUT schemes were used to construct basic infrastructure during a **five-year period.**

Smart Water Management & Key Initiatives

In nine-months duration, smart water management was implemented in Puri which was in house developed. The various aspects of the Smart Water Management implemented are enlisted below:

- Real Time Command and Control Centre
- Data capture for preventive maintenance of water supply assets
- Reduction of NRW through Leakage Detection and Control
- Efficient incidence management and quick resolution of problems
- Mobile responsive Real Time Flow, Pressure and Quantity Monitoring of water
- GIS based Asset and Consumer mapping with real time Dashboard is also available
- KYC for efficient billing, collection and complaint redressal is easily carried out



Connection Charges & SLB Indicators

Table: Connection Charges for Water Supply as on 14th July 2022 | Source: WATCO, Puri

Sl. No.	Category	Scrutiny Charge / Connection
1	Domestic (for individual houses)	Rs. 3,000
2	Domestic (for the urban poor)	Nil
3	Domestic (for private apartments, group housing schemes, etc.)	
a	Having up to 25 Flats / Households	Rs. 10,000
b	From 26 to 50 Flats / Households	Rs. 20,000
c	More than 50 Flats / Households	Rs. 30,000
4	Institutional	Rs. 5,000
5	Industrial / Commercial	Rs. 6,000
6	Public Stand Post (1 No.)	Rs. 3,000
7	Temporary water supply connection for non-residential purposes	Rs. 500

Table: SLB Indicators for Water Supply Services of Puri Municipality | Source: WATCO, Puri

Sl. No.	Performance Indicator	Benchmark	2019-20	2020-21	Target for 2021-22
1	Coverage (%)	100%	75.60%	95.00%	100%
2	Per Capita Supply of Water (LPCD)	135 LPCD	124.5	138	138
3	Extent of Metering (%)	100%	0.01%	45.00%	100%
4	Extent of Non-Revenue Water (%)	20%	24.00%	24.00%	20%
5	Continuity of Water Supply	24 hours	3 hours	10 Zones: 24 hours 9 Zones: 8 hours	19 Zones: 24 hours
6	Eff. in Redressal of Customer Complaints (%)	80%	100%	100%	100%
7	Quality of Water Supplied (%)	100%	100%	100%	100%
8	Cost Recovery (%)	100%	16.51%	28.00%	30.00%
9	Eff. In Collection of Water Charges (%)	90%	50.00%	75.00%	90.00%

Jalasathi

An initiative to empower women by including the women from Self-Help Groups in water distribution and consumer management. They serve as a vital community conduit for WATCO's performance-linked reward programme and are responsible for:

- Facilitating new connections, identifying illegal connections and regularizing them
- Reading Water Meters
- Generating, Distributing Water Bills, and Collecting User Charges
- Field Water Quality Testing
- Support in Consumer Complaint Redressal
- Sensitizing people on Water Conservation



Fig. Poster – Jalasathis of Puri | Source: WATCO, Puri



- Incentives to Jalasathi:**
- **Rs. 100/-** only per each new water supply connection mobilized through them.
 - **5% of the monthly water user charges** collected through them through the PoS/mPoS machines.
 - **50% of the increase in user charges** collected after reassessment of bill amounts. (It is payable only once after the reassessment)
 - **Rs. 20/-** only for **conducting a pair of water quality tests**, namely, H2S and RC tests as specified in prescribed document. (Maximum 20 water quality tests in a month)



Lessons from the Mission

- a) **Household Level Coverage** → Last Mile Connectivity.
- b) **Continuity of Water Supply** has increased.
- c) **Automated pump and pressure control** is being maintained compared to manual control → Lifting the water to Roof Level Storage tanks is eliminated.
- d) **Additional Treatment/Filtration systems** at home has declined.
- e) **No requirement for sump at home** - benefitted slum settlements.
- f) **Replacement of House Service Connections (HSC)** with **compression fittings with saddles and household meters** (mechanical meters).
- g) **NRW reduced from 54% to 15%** → water required in 24x7 Water Supply is less than that of Intermittent Supply Systems.
- h) **Metering and Volumetric Billing** – Cost Recovery % has increased.
- i) **Real time water quality monitoring** as per BIS standards (IS:10500) without human intervention.
- j) **Large scale** city-wide deployment of an industrial **IoT solution** in the Drinking Water Supply sector → Helped better service delivery.
- k) **Issue Detection Time reduced** from few days to few minutes.
- l) **On the spot automated testing and chemical dosing** compared to manual practice.
- m) **Community Participation** → **Jalasathis** helped in transformation of field situation with enhanced confidence of the people in public water supply system. Each Jalasathi's woman is earning between Rs. 10,000/- to Rs. 12,000/- per month as incentives.



Global Water Awards 2022

WATCO (Water Corporation of Odisha) received the “**Distinction of Global Water Leader Award, 2022**” at the **Global Water Summit** held on 17th May, 2022 in Madrid, Spain.

This Global Award has been presented to Odisha for the achievements made in providing **24x7 Drink from Tap** water supply in Odisha and for achieving 100% House connections in the Urban areas of Odisha.

The award was received by **G. Mathi Vathanan, Principal Secretary, Housing & Urban Development Department and Chairperson, WATCO.**

WATCO has made these dramatic achievements within a short span of 6 years from its incorporation.



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THANK YOU!

Thank [Asia Water Forum 2022](#) for providing this opportunity to present.

I would like to thank my
[Prof. Dr. Jublee Mazumdar](#), Capstone Project Guide
for guiding me throughout the process.

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