Promoting Environmentally sustainable smart City

SMART Technologies being used by Dhaka WASA

Dhaka 15.10.2018

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Presented by-

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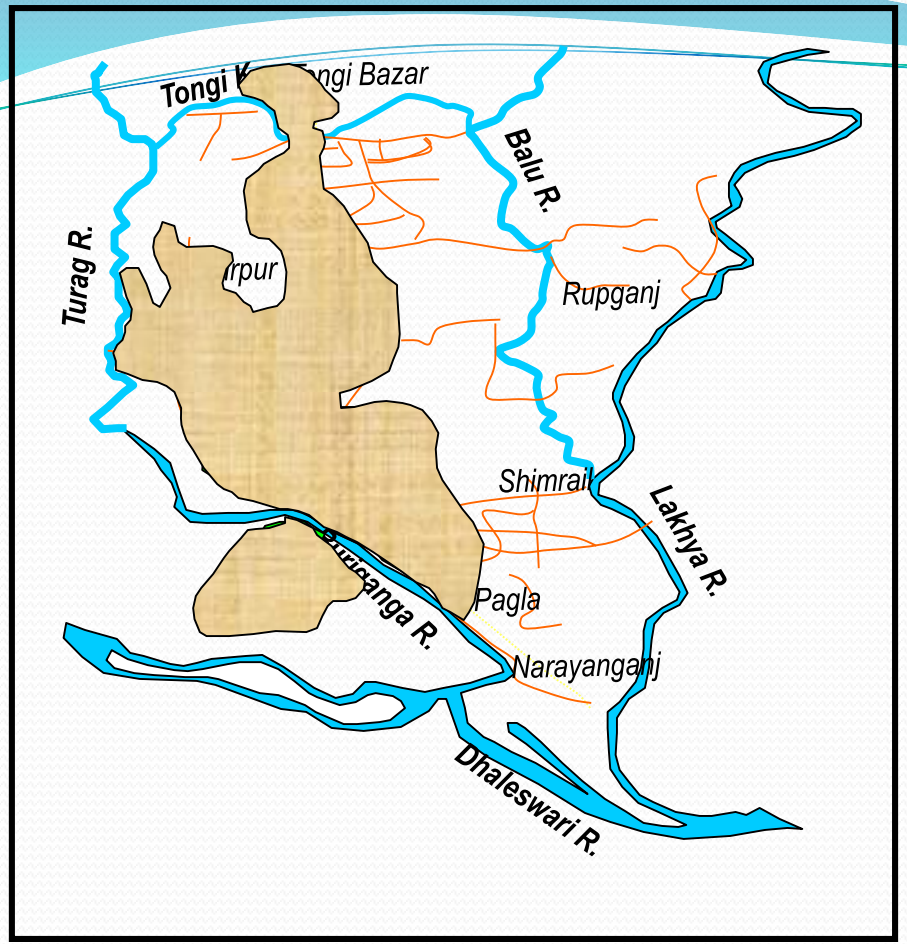
On behalf of
Ms Farzana Mannan ,Deputy Secretary
Mr Shah Momin Chief ,Executive officer
Mr Md nazmul hasan Chowdhury, PM, LGED
Mr.Khan Salim Ahmed,PM, KWASA
Mr Md Abu bakar Siddique , Town Planner



Expansion of Dhaka City

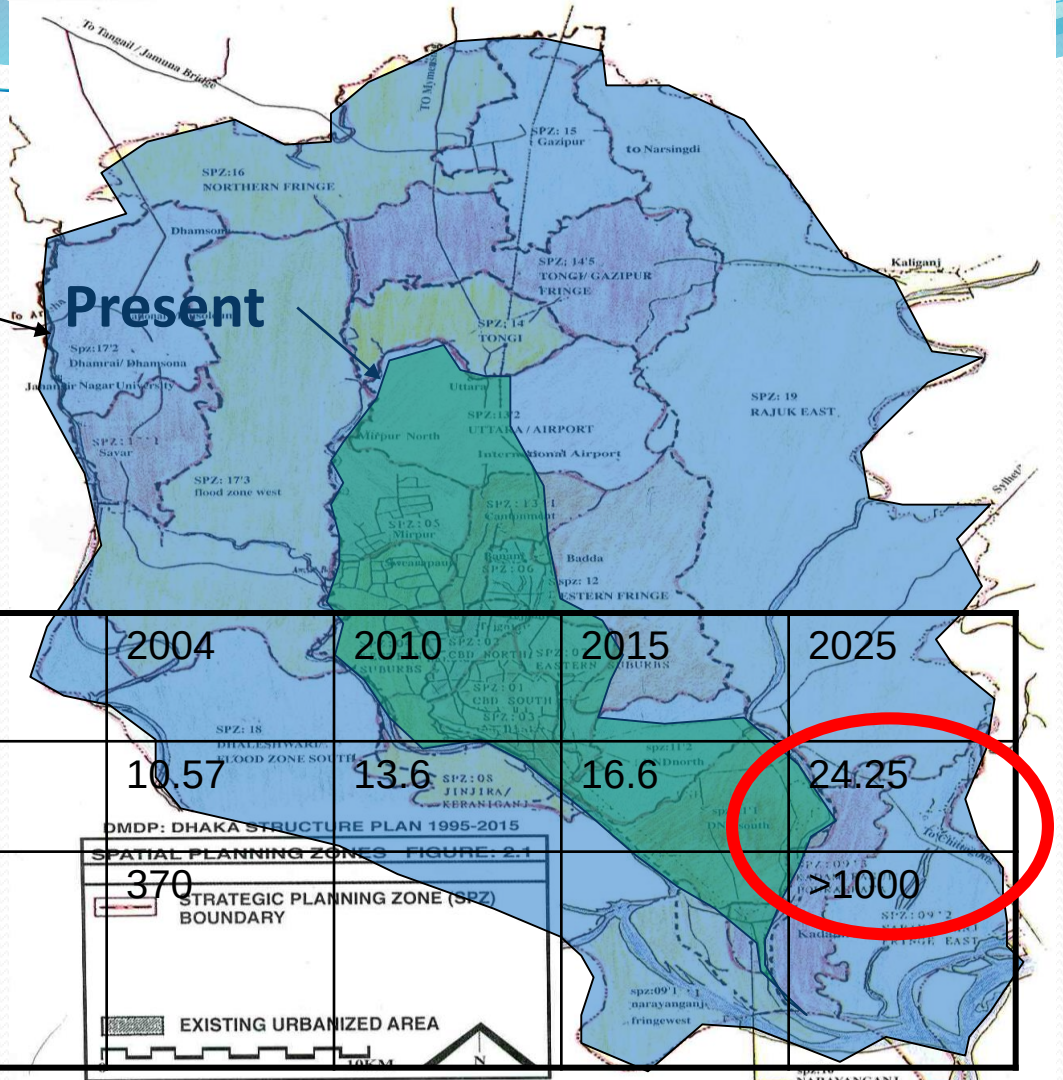
Moghul period
British period
Pakistan period
Bangladesh period

City Expansion

2025

Present

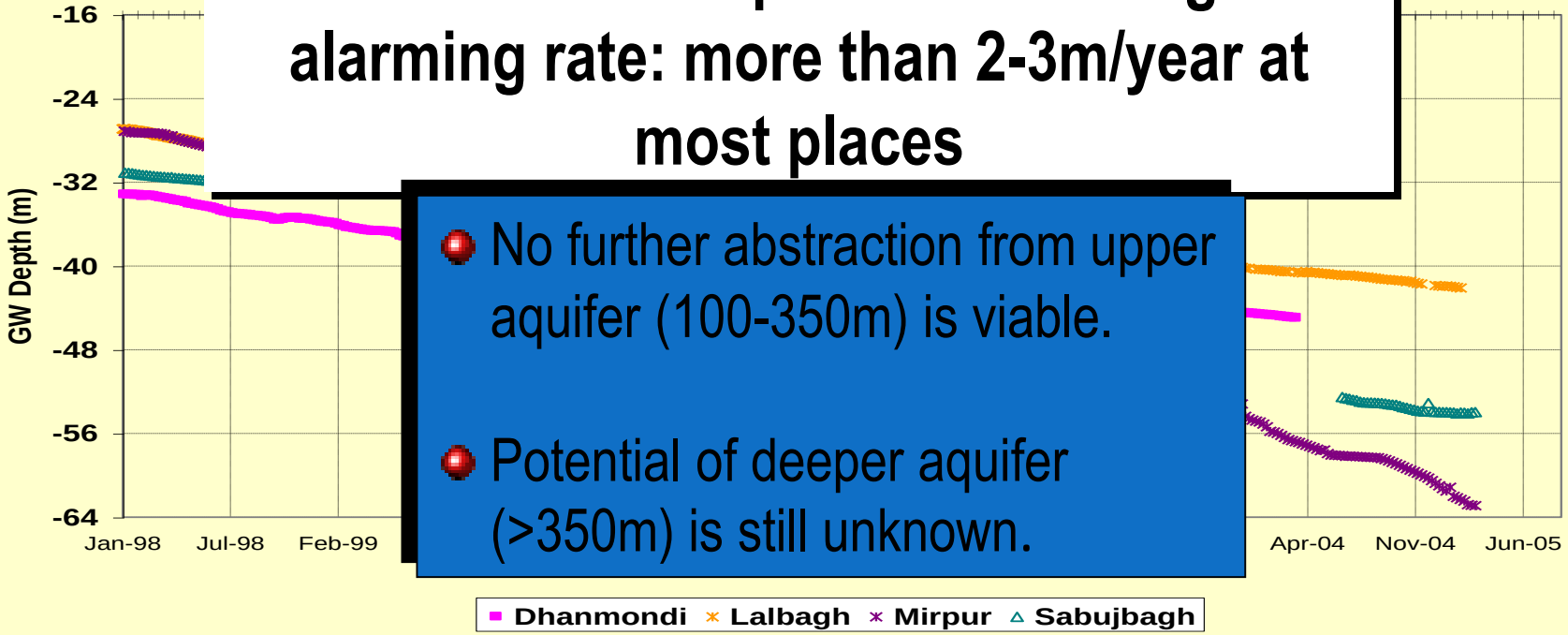
Including : Savar, Tongi, Keraniganj & Adjoining areas



Year	1991	1996	2001	2004	2010	2015	2025
Population (mill)	7.3	9.13	9.25	10.57	13.6	16.6	24.25
Urbanization km^2	250			370			>1000

Source Condition: Ground Water

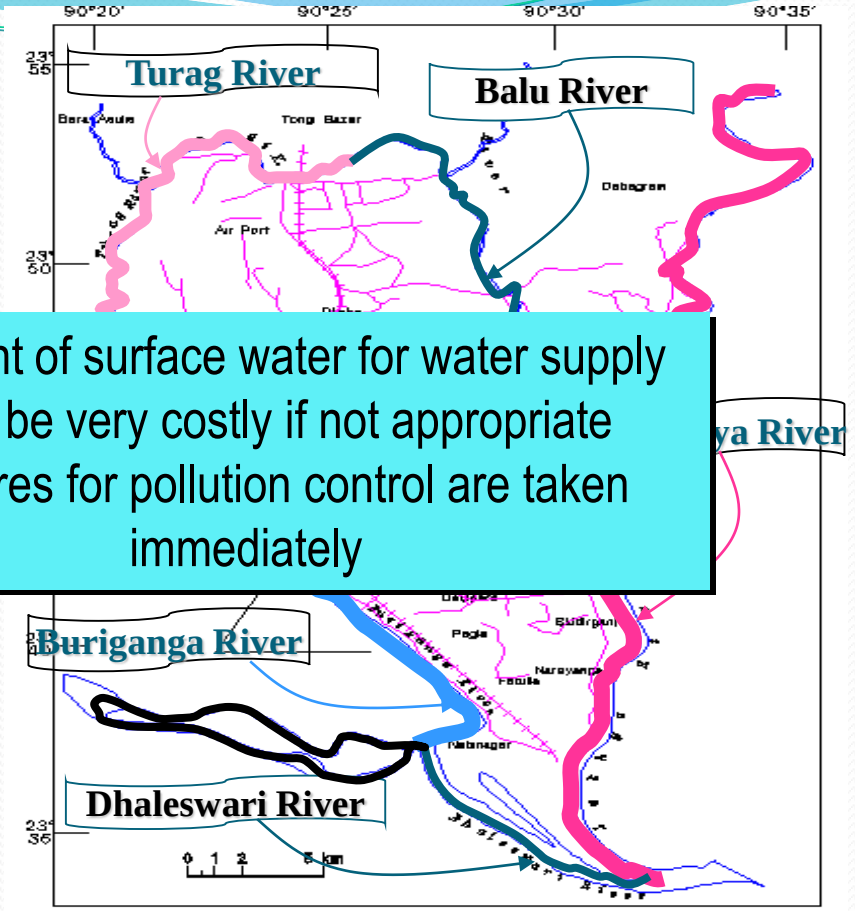
Groundwater depletion occurring at alarming rate: more than 2-3m/year at most places



- No further abstraction from upper aquifer (100-350m) is viable.
- Potential of deeper aquifer (>350m) is still unknown.

Peripheral Rivers of Dhaka City

- Tongi Khal / Turag River
- Balu River
- Shitalakhya River
- Buriganga River
- Dhaleshwari River



Treatment of surface water for water supply would be very costly if not appropriate measures for pollution control are taken immediately

These rivers act as the receivers of storm water, municipal, and industrial wastewater from Dhaka City

Water Demand/Supply Dhaka city

Present pop: is

15 million

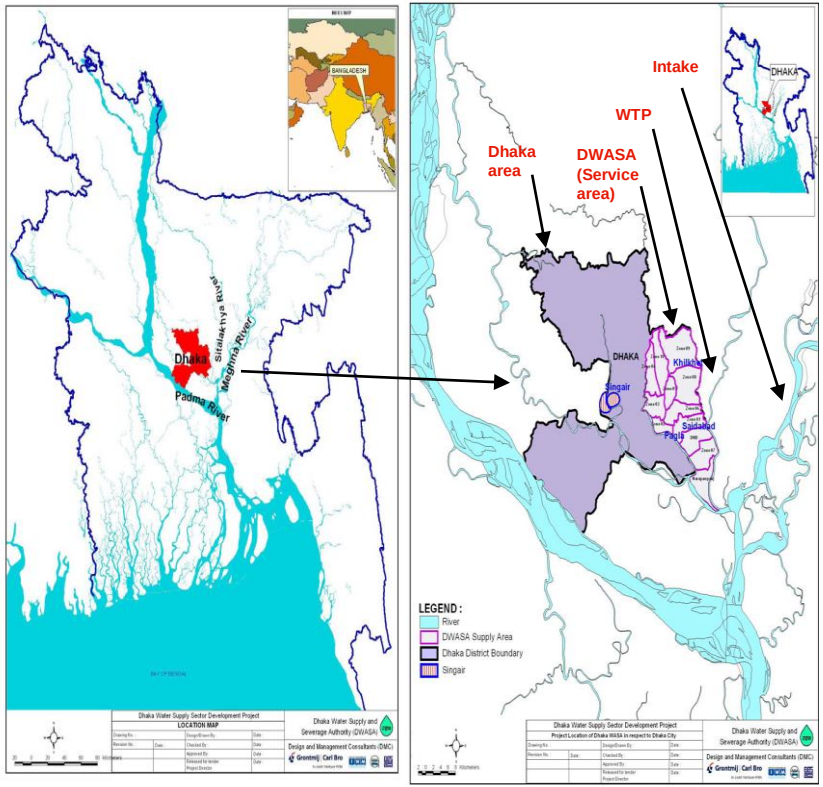
On 2035 the pop: will be

29 million

400 km²

DWASA service area

Supplies 90% of Dhaka City



78%

Current GW supply

+**22%** SW

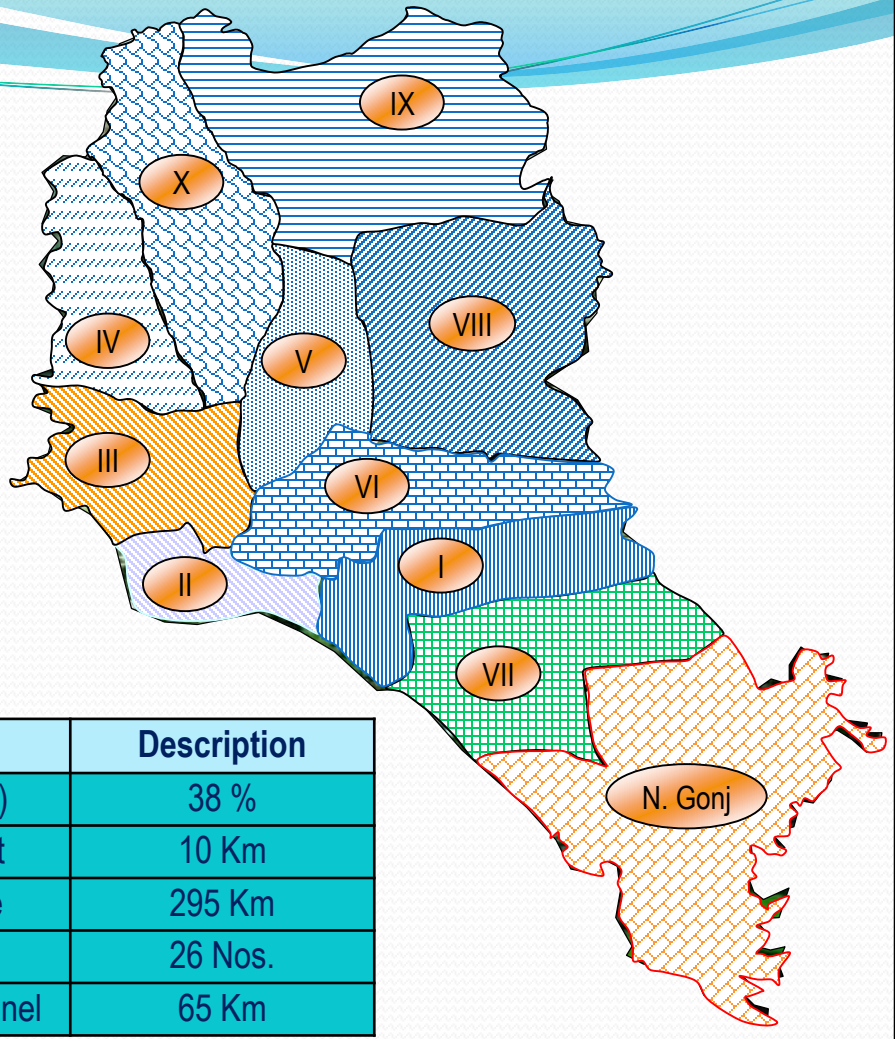
DWASA target-

70% SW within **2021**

Where we are?

Area	: Dhaka & N'ngonj City With Peripherals
Currently Served	: Dhaka & Narayangonj City
Population	: 12.5 Million

Water Supply	Description
Total Coverage (Population)	100 %
Demand Quantity	2,250 MLD
Production Capacity	2,420 MLD
Deep Tube Well	870 Nos.
Surface Water Treat. Plant	04 Nos.
Length of Water Line	3,036 Km
Registered Consumer	320,773 Nos.
Public Standpipes	1,643 Nos.

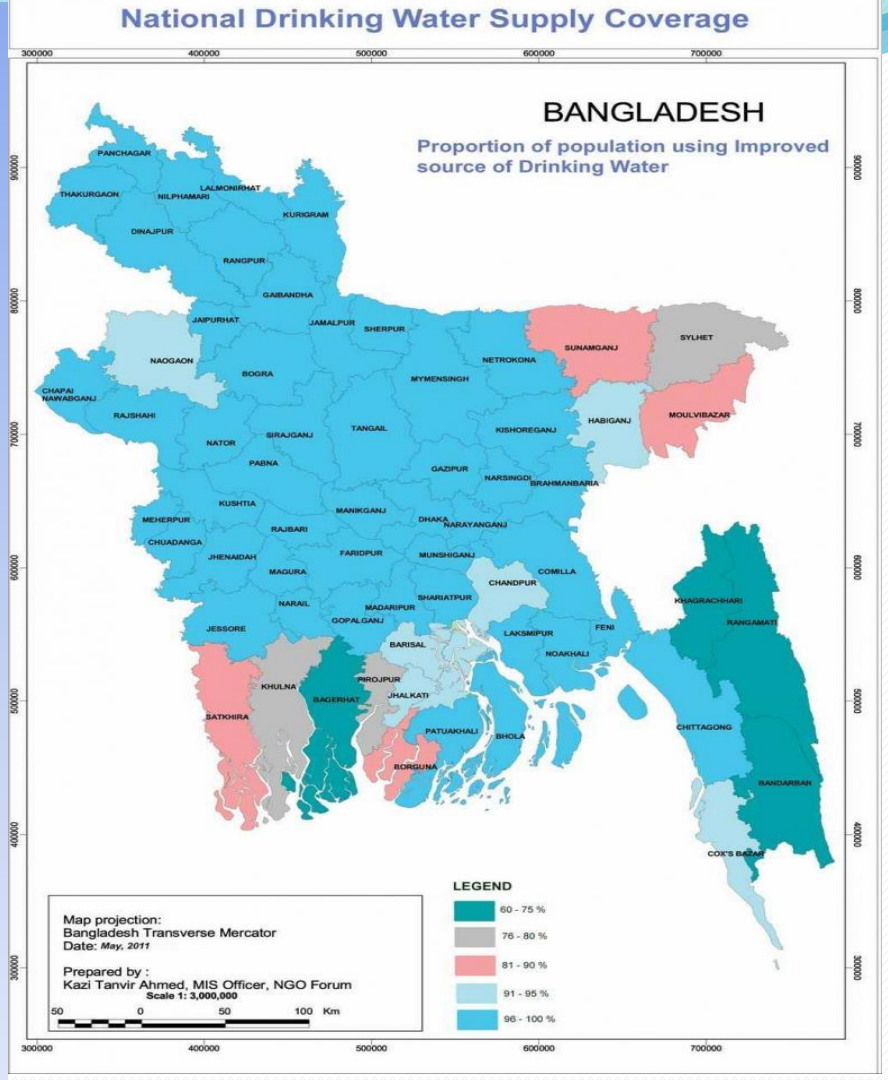


Sewerage System	Description
Total Coverage (Area)	30 %
Sewer Treatment Plant	01 Nos.
Sewer Lift Station	27 Nos.
Length of Sewer Line	882 Km
Registered Consumer	64,192 Nos.

Drainage System	Description
Total Coverage (Area)	38 %
Length of Box-Culvert	10 Km
Strom Sewerage Line	295 Km
Open Channel	26 Nos.
Length of Open Channel	65 Km

Water Body

- Water Utilities in mega cities managed by "WASA" Dhaka, Chittagong, Khulna & RajShahi.
- Water Utilities in other cities managed by City Corporation.
- Water utilities in Rural/Urban area managed by DPHE(Department of public health engineering) , Bangladesh, Pouroshova & LGED (Local Government Engineering Division),Bangladesh.



How WASA Operates?

-According to the WASA Act 1996

- Fully autonomous body
- Corporate management/Corporate culture
- Commercial operation

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MISSION & VISION

of Dhaka WASA

“To be the best water utility in the public sector of south Asia Environmentally, Sustainable & pro people water management”


Challenges

Challenges.....


Traditional Mind Set
Bureaucratic complicacy
Lack of Transparency
Trade Union
Vested Interest

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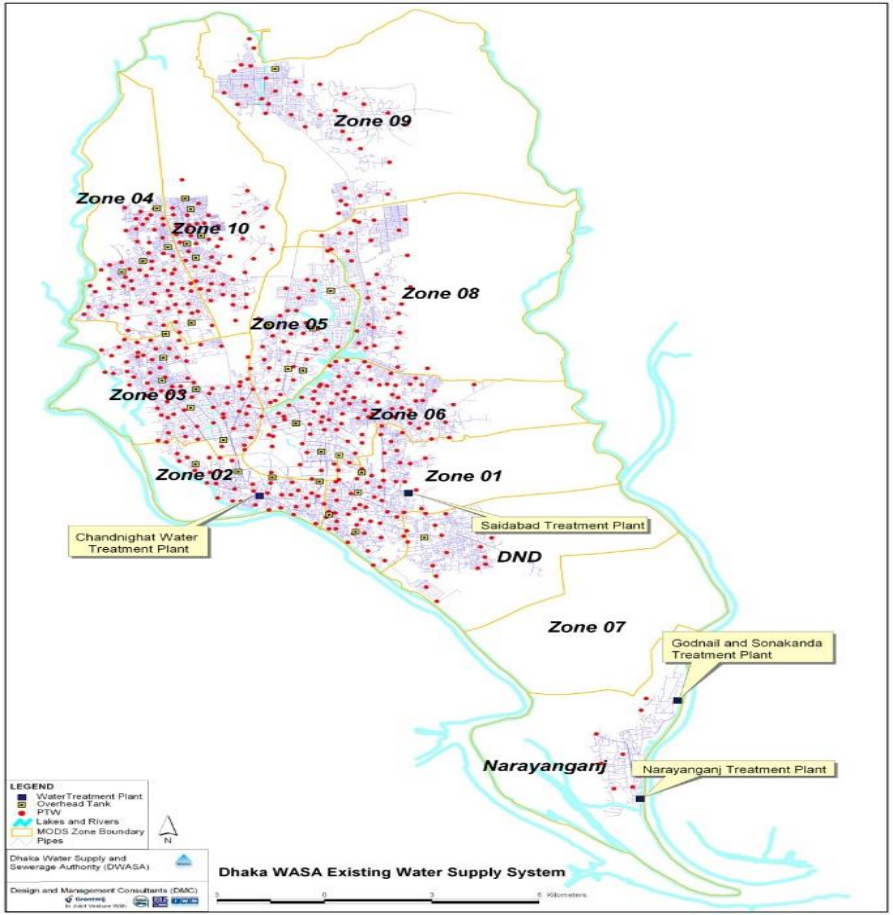
More challenges ……

- Plenty of Undetected Leakages and Illegal Connections.
- Existing NRW 30%-40 %.(Now 20%)
- System is not 100% Pressurized yet; People Need to Use Suction Pumps.
- Water Quality is Very Poor in due to leakage.
- High effluent in nearby surface water.
- Groundwater depletion is very high.



Achievements

Master Plan

Water
Master Plan

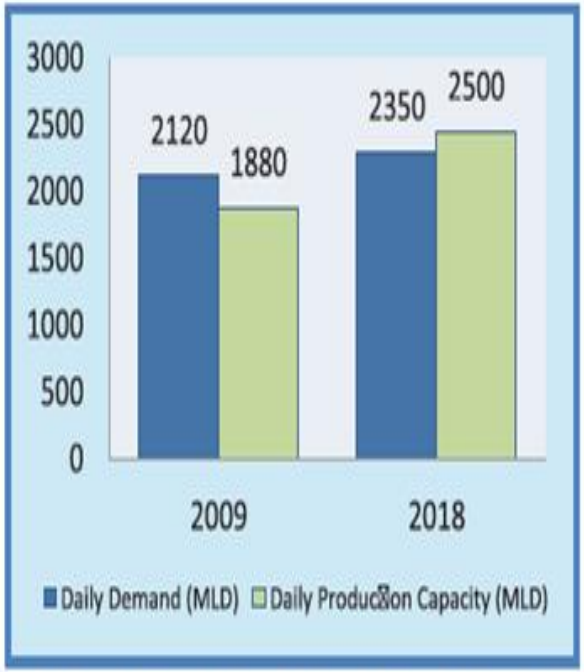
Sewerage
Master Plan

Drainage
Master Plan

DWASA ACHIEVEMENT ON LAST 9 YEARS

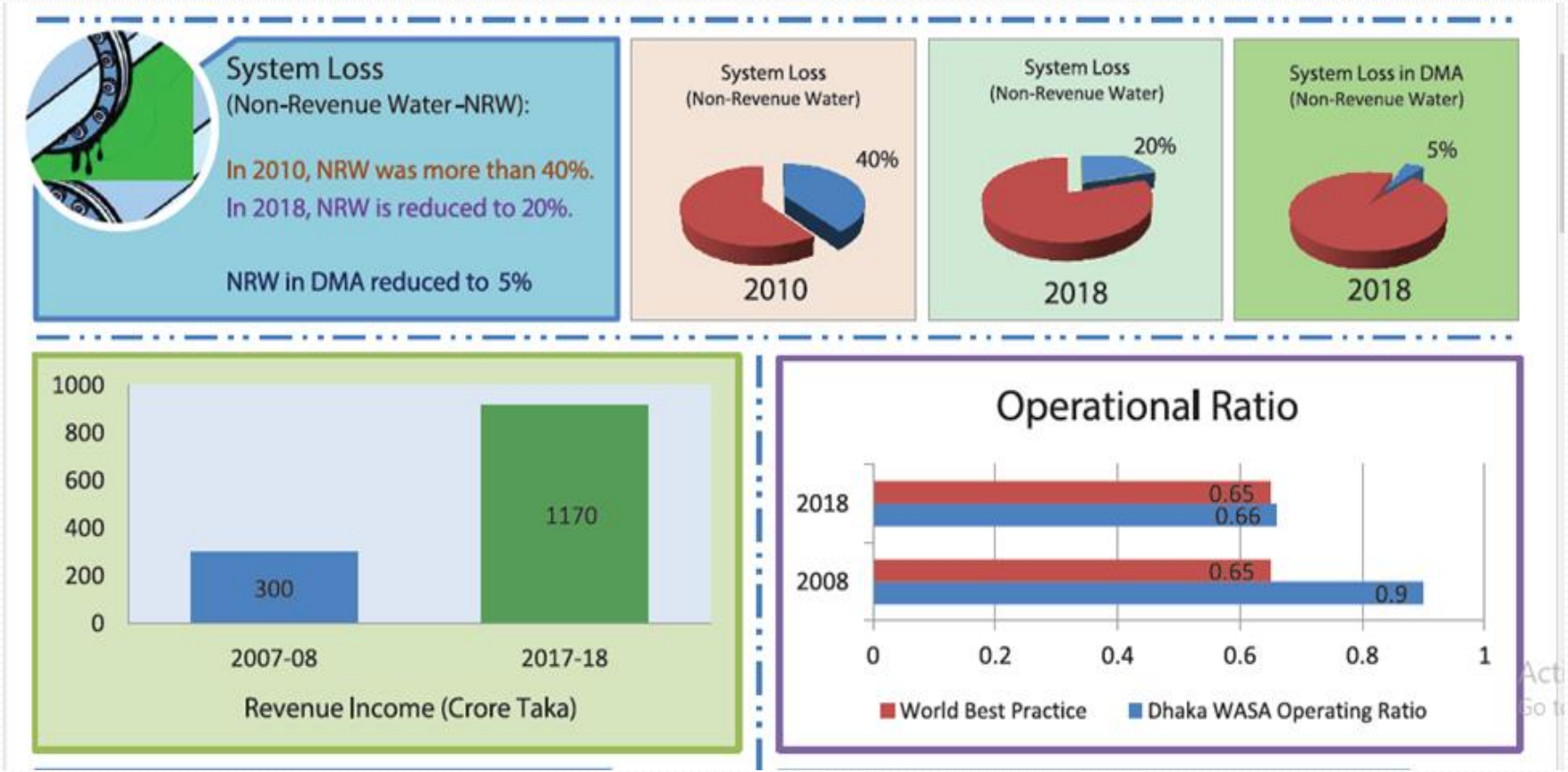
Sl	Subject Area	Year 2008	Benchmark	Year 2018
1	NRW in General %	40.38	25	**20**
2	NRW in DMA %	---	15	**5**
3	Bills Sent Out %	93	99.5	**100**
4	Revenue Collection %	64.5	95	**97.5**
5	Debt Age / Receivable (month)	14.58	3	**5.46**
6	Manpower/1000 connections	16.2	12	**9.16**
7	Operating Ratio	0.9	0.65	**0.66**

INCREASE WATER SUPPLY



Water Supply: For the first time in last 50 years since Dhaka WASA established, it has achieved water production capacity more than its daily demand. In 2009, while daily production capacity was 1880 MLD against daily demand of 2120 MLD, production capacity increased to 2500 MLD. (Now, daily water demand is 2350 MLD).

Decrease system loss, Operational ratio & Increase revenue Income



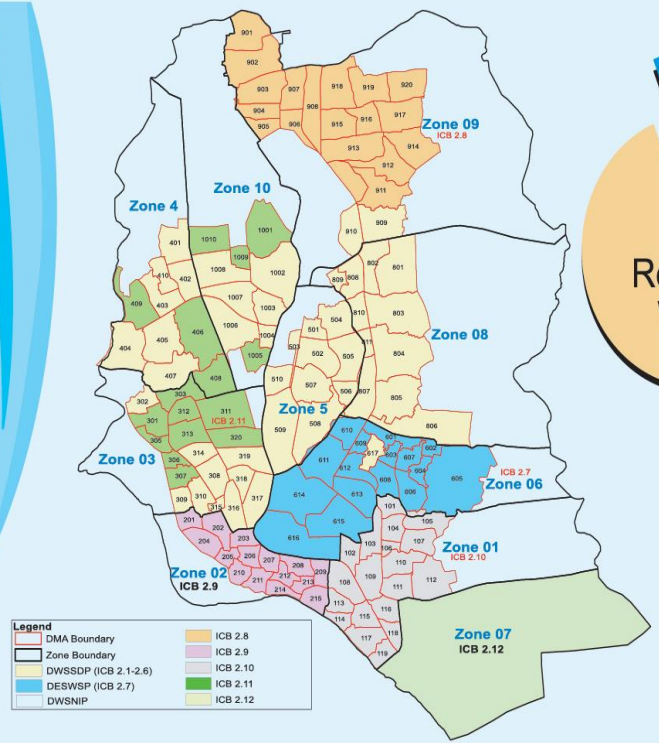
WATER SUPPLY IN SLUM/LIC AREA

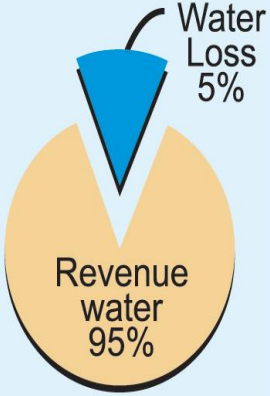
WASA target for 100% water connection of low income community (LIC) / slums by 2019, already 'Korail','Sat tala' & many other slums has done.

Dhaka WASA implementing 145 DMA (District metered area) in the Dhaka city

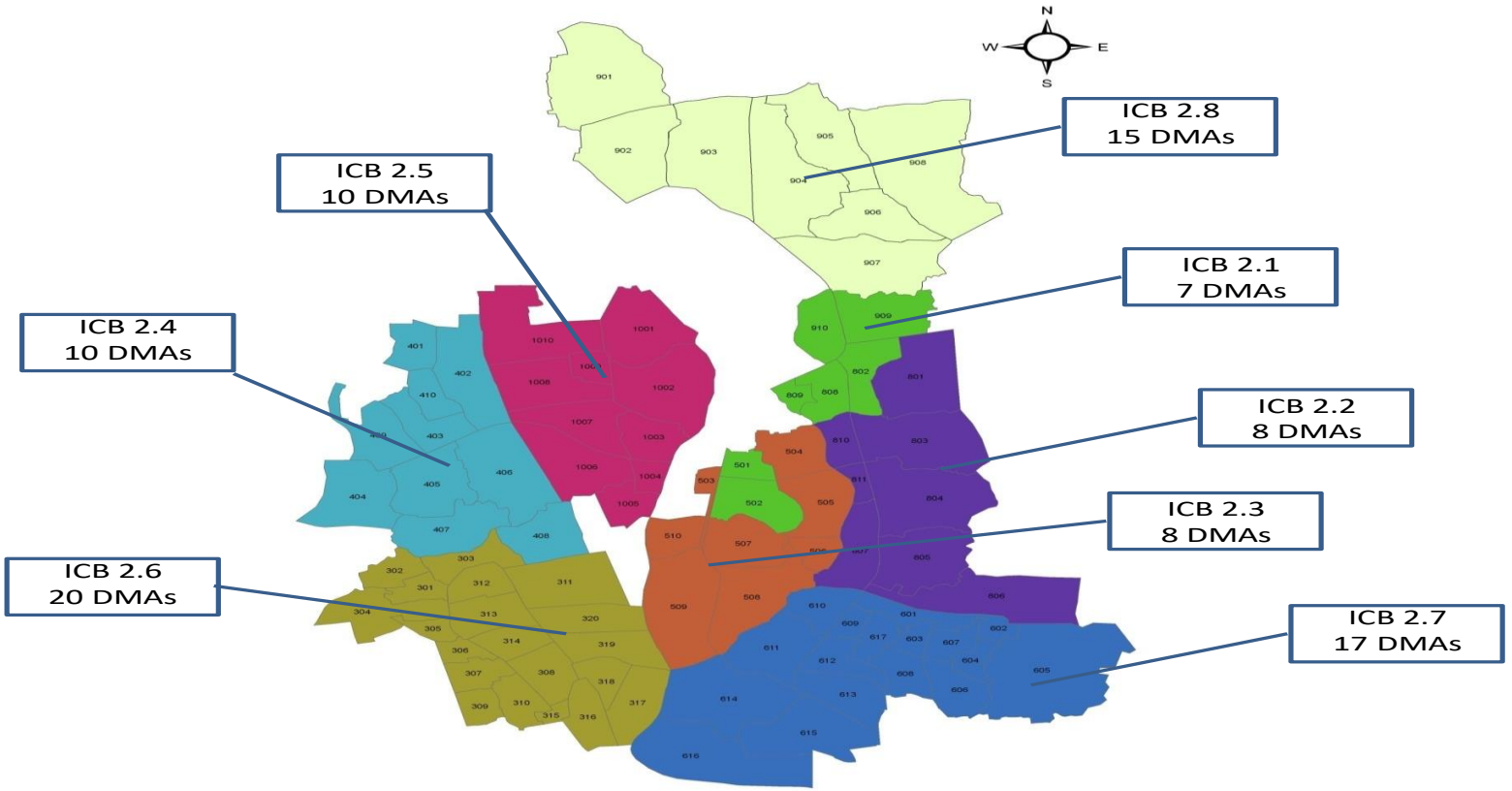
DMA-Mini Water Network:

- Maintain pressurized water supply for 24/7.
- Reduce water loss to 5% in DMA areas.
- No use of suction pump saved electricity of consumers.
- Continuous Real-Time Monitoring & Optimization System Efficiency.





Approach of 11 Packages: 145 DMAs



Some of the ongoing large project

Name of Project	Investment (M. US$)	Completion Year
Padma-Jashsaldia WTP (China Exim Bank)	450	2018
Gandharbpur WTP (ADB,AFD, EIB)	700	2021
Tetul-Jhora-Bhakurta well field (South Korea)	55	2017
DWSNIP (ADB)	275	2021

Total Investment - 1480 M. US$

upcoming Water project

Name of Project	Investment (M. US$)	Completion Year
Saidabad WTP-III	550	2021
Padma-Jashsaldia WTP II	550	2027
Gandharbpur WTP II	750	2028
Total Upcoming Investment	1850	-

Total Upcoming Investment - 1850 M US$

Sewerage Treatment Plant-

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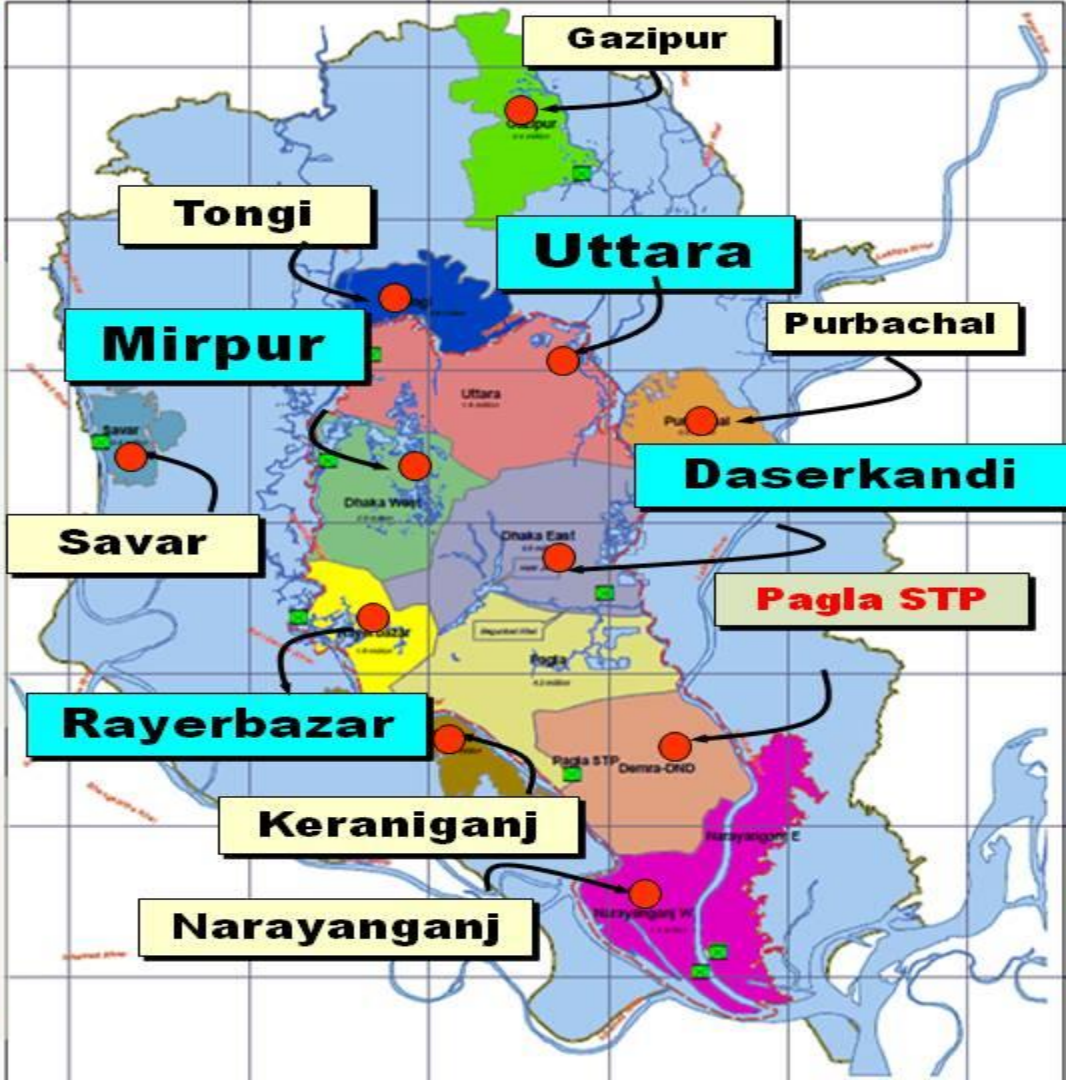
11 new sewage treatment plants along with pipelines and ancillary structures and develop Pagla STP

City dweller in areas outside of DWASA coverage are using Septic Tank



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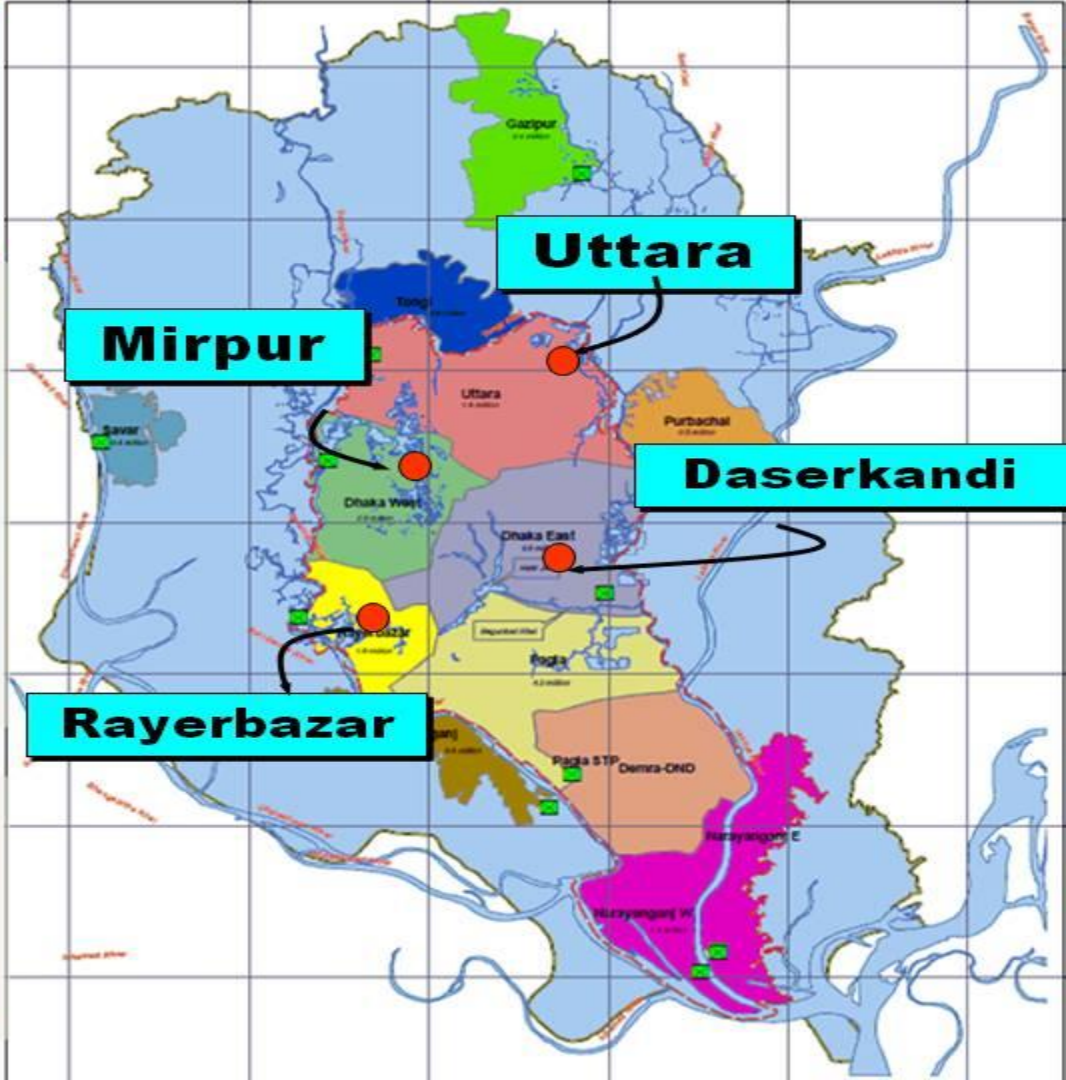
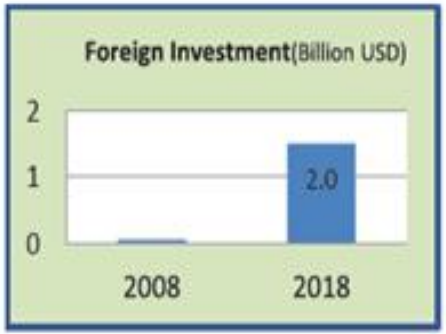


Up coming Project

- 11 Sewerage Treatment Plant
- 23000 Km Sewerage Network
- 100 km Water Network

DEVELOPMENT PARTNERS

ADB	JICA
World Bank	EIB, Luxembourg
EDCF, Korea	China Exim Bank
DANIDA	AFD, France

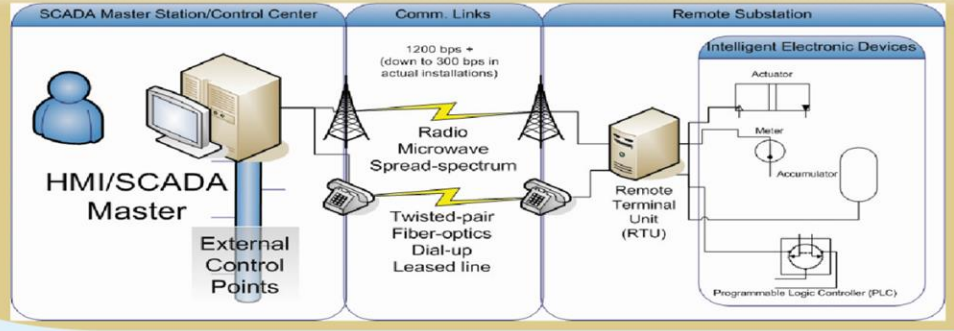


In 2008, Foreign Investment in Dhaka WASA was almost "Zero". Whereas, in 2018, above 2.0 Billion USD have been invested in the water and sewerage sector of Dhaka WASA.

Smart Water Management in Dhaka City

(An Innovative Approach For Digital WASA)

Introduce SCADA, Online Billing & WASA online help line



Introduced **SCADA** system to operate Deep Tube well for energy saving & better water management

△ 100% Real time Online Billing service for 24/7 days.

△ Bill sent by SMS.

△ Payment by mobile/internet.

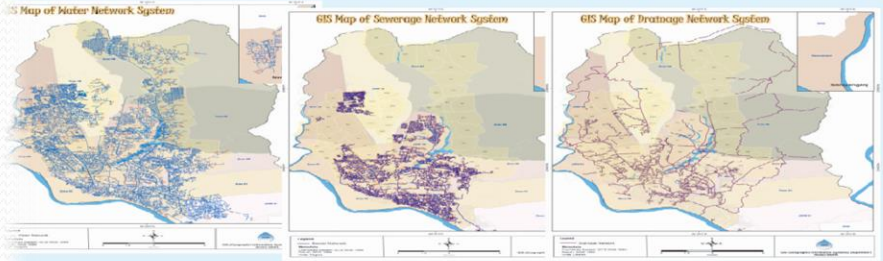
△ Paperless e-Billing System.

Most sophisticated help line system **"WASA LINK 16162"** to seek information or lodge complaints just by dialing "16162"

Online Water Connection, GIS based Utility Network & SMART metering

Online Water Connection Launched :

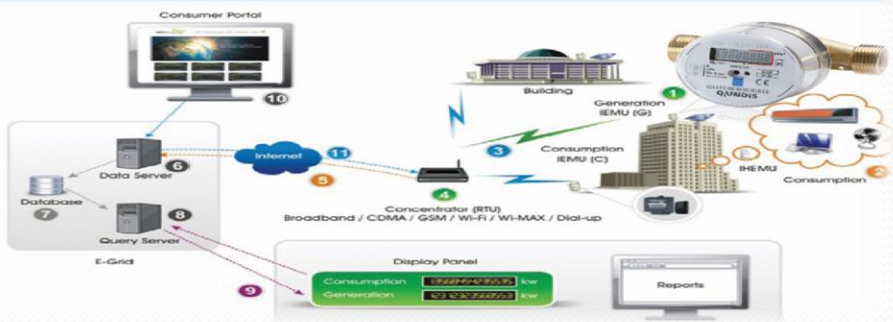
Consumer gets water connection with zero official / physical visit



Geographic Information Systems (GIS) based Water, Sewer & Drainage network for easy operation & maintenance

Smart Meter (Up Coming)

- No physical visit.
- Automatic online meter reading collection.



DWASA introduce 100% e-Tendering & Water ATM for citizen

100% e-Tendering

CPTU e-GP

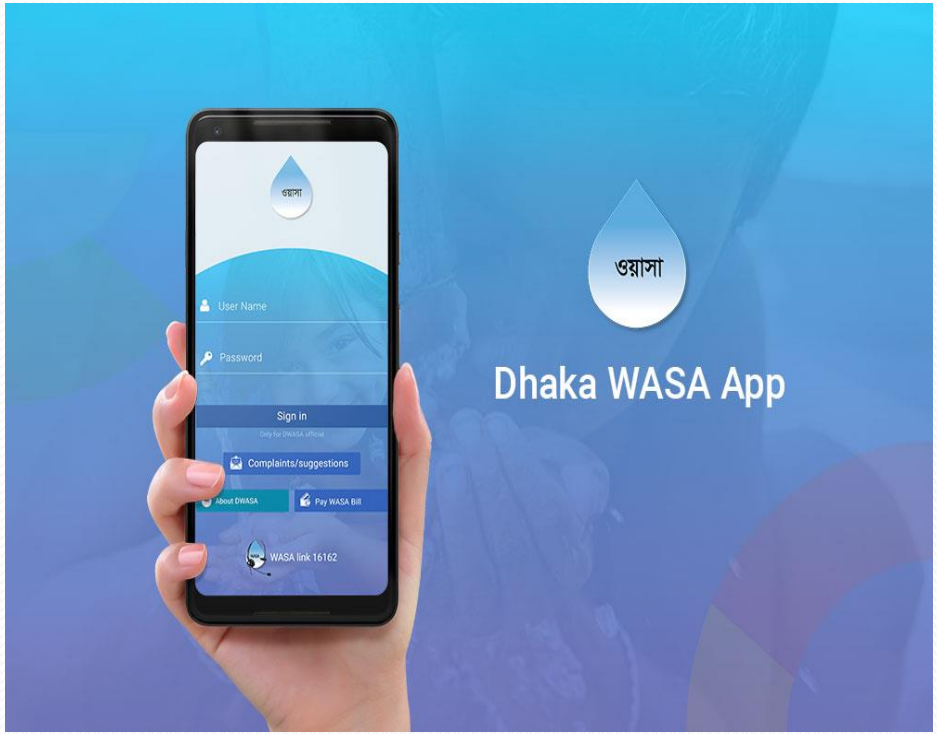
DHAKA WASA launched Water ATM for citizen

DHAKA WASA produce

7 size "shanti" bottled water under strict quality control, Ultraviolet, Reverse osmosis (RO), Ozone system total 13 steps followed for purification.

 # Non Stop Bangladesh, Non Stop Dhaka WASA

DWASA introduced mobile apps & online/paper less billing



Dhaka WASA future plan SWM

1. Construct IoT (Internet of Things) platform with large data center.
2. Integrated SCADA system (DMA network, Pump Station, Water Treatment plant & Sewerage Treatment plant, etc.)
3. 100% Automation of service meter (SMART water meter) with real-time billing.
4. Construct Online Service operation center for remote operation.

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TEAM INDIA REST IN-FORM VIRAT KOHLI FOR T20 SERIES AGAINST SRI LANKA 19

PM'S TOTAL ASSETS OVER ₹1 CRORE; HAS JUST ₹4.7K IN HAND 11

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Learn from Dhaka to reduce water loss

George Promises Action, But Fixes No Deadline

TIMES NEWS NETWORK

Bengaluru: The Bangalore Water Supply and Sewerage Board (BWSSB) which loses 44% of its water to pilferage and leakages, has a lot to learn from Dhaka. For, the Bangladesh capital has reduced losses and achieved exemplary water management by simply replacing old pipes.

Participating in the International Water Loss Summit 2016 being held in the city, Taqsem A Khan, MD and CEO of Dhaka Water Supply and Sewerage Authority (WASA) on Monday said: "We replaced 47% of the old pipelines in the network with the first phase of funding from international agencies. With that, we could reduce the water loss to 29% from 53% between 2003 and 2010 and further to 22% by 2015. We have reduced the loss due to pilferage to 15%. By 2021, we have set a target to treat all ground water and surface water as environmentally sustainable."

The three-day summit is organized by the International Water Association.

Taqsem said the company would be legalizing/authorizing water supply in slums that house about 25% of Dhaka residents by 2016. The city has further computerized the entire water supply network except reading of meters and aims to reduce manual labour on that too shortly. He attributed the achievements to political will and bootstrapping finances.

Here in Bengaluru, the BWSSB loses 44% of water to pilferage and leakages in the system. Besides, the board has yet not been able to cater to the entire city and serve only 95 lakh consumers.

Bengaluru development minister KJ George announced that the BWSSB would reduce its water loss to 30% but fixed no deadline for the board to achieve the target. He rather blamed the city's population and economic growth. "We could not cope with the pace of the city growth and that is why the water board is still to supply water to all and manage water as is being done in many cities that have water scarcity," he said.

MN Thippeswamy, member of the scientific community of IWA, said, "Nothing has been done to create awareness on saving water. Imagine if 58 lakh vehicles in the city are wasting 30 MLD of fresh water in a month on an average! There is no mandate from the municipality that a new layout or building will be permitted only if it has treatment plant and uses grey water for non-potable purposes," he told TOI.

NOT UP TO MARK: BWSSB loses 44% of water to pilferage and leakages

TIMES VIEW

It's a strange predicament that the India's IT powerhouse is struggling to reduce water loss due to pilferage and leakage and still persisting with decades-old pipelines. While Dhaka took a step in the right direction over a decade ago by replacing old pipelines, Bengaluru seems to be in mood to look at that move, which is a sure-shot way to reduce leakage. The main problem is knee-jerk reactions and sudden announcements by the authorities and politicians without looking at permanent solutions. Bengaluru minister George, who said the loss would be reduced to 30%, should at scientific systems of water management that will help the city in the decades to come.

A HOLISTIC APPROACH OF REFORM

"DHAKA WASA TURNAROUND PROGRAM"

Asian Development Bank (ADB) has published a book titled "The Dhaka Water Services Turnaround" including the achievements of Dhaka WASA under its "Turnaround programme" initiated in 2010. ADB also branded Dhaka WASA as "One of South Asia's Best Public Water Utilities."

What..... Turn-around

- Mind Set Change
- Transparency, Accountability
- Cost Effective Management
- Customer Service Excellence
- Institutional Reform for Capacity Building

Why ....Turn-around

- Sustainability of utility organization
- Large investment
- Environment friendly & sustainable water management system
- Access of water to the poor people
- Establish Good Governess

Thank You All