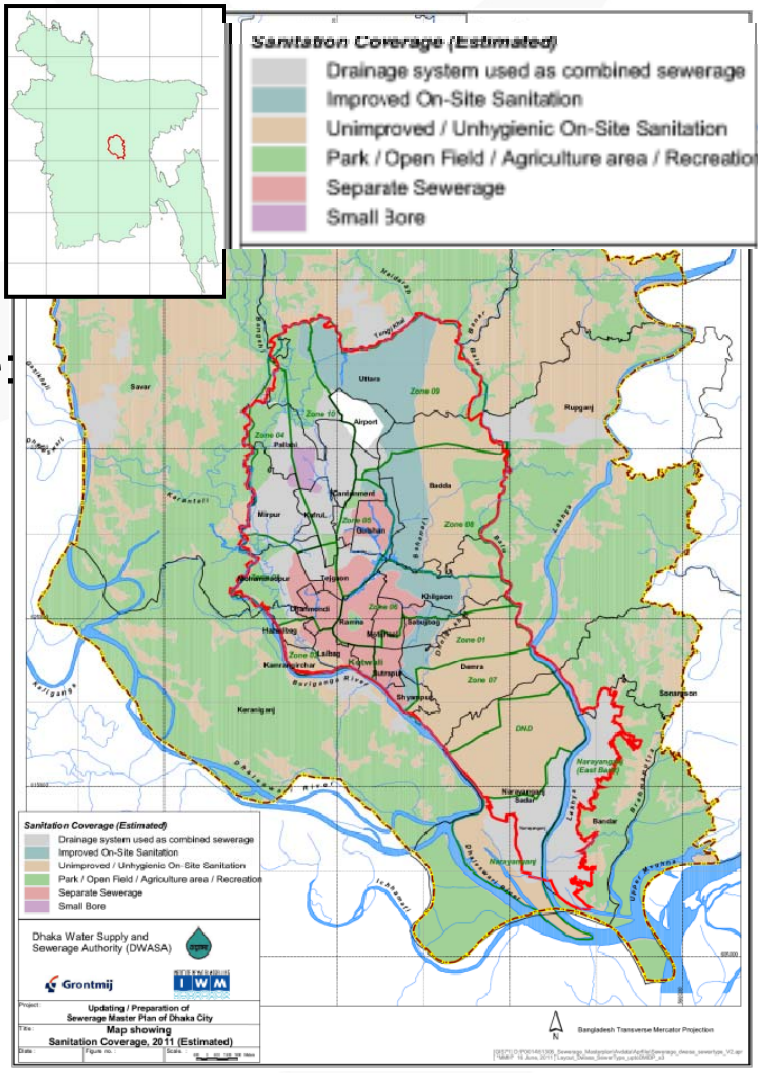
Dhaka Water Supply & Sewerage Authority
Dhaka City, Bangladesh

Promoting Innovations in Wastewater Management
Making Sanitation a Sustainable Business
29–31 January 2012 • ADB HQ, Manila, Philippines

City Wastewater: Performance

- Sewerage system: 880km of pipeline
- 24km of trunk sewers
- 27 lift stations and 1 main pump station (9 inoperable)
- Pagla STP (110ha, Design: 96MLD; average: 30-40MLD, poor)
- Small bore sewerage system in Mirpur inoperable

Existing sanitation levels in Dhaka city



City Wastewater: Performance

- **Current sanitation Coverage:**

	% Current Population Estimated to be covered by the various Sanitation Systems				
	Separate Sewerage	Combined Sewerage	Small Bore System	Improved On-Site Sanitation	Unhygenic Sanitation
2010 population	2,110,000	3,200,000	320,000	2,600,000	2,300,000
% of total population	20%	30%	3%	25%	22%

City Wastewater: Performance

- Goals & Targets

Agglomeration	Status of Settlement	Type of Sanitation Goals/Target
DWASA Service Area		
High Density (>30,000pop/km^2)	Formal Settlements	Water-borne sewerage. In specific situations, the use of combined sewerage may be required
	Informal Settlements	Communal septic tanks. "Small Bore Sewerage" or "Simplified Sewerage" may be suitable if settlements are located in proximity to sewer mains.
Low Density (<30,000pop/km^2)	Formal Settlements	Septic tanks and latrines with on-site soakaways. "Small Bore Sewerage" or "Simplified Sewerage" may be suitable if settlements are located in proximity to sewer mains.
Greater Area		
Urban agglomerations	Formal Settlements	Water-borne sewerage
Rural agglomerations	Formal Settlements	Septic tanks and latrines, or localised water-borne sewerage

Wastewater Policy and Planning

Existing Wastewater Policy

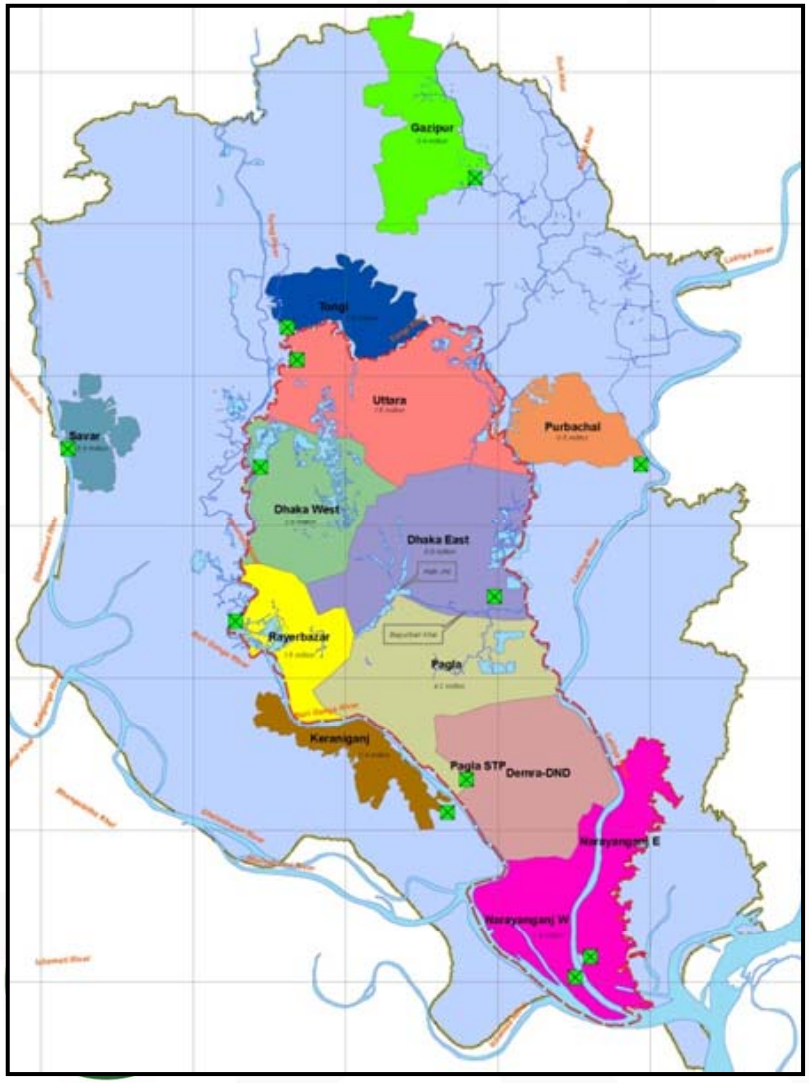
- The Bangladesh Environment Conservation Act of 1995
  - Department of Environment is the enforcing agency
- The Dhaka City Corporation Act of 1983
- The Water Supply and Sewage Act of 1996
  - All water and sewerage utilities operators within Bangladesh are primarily responsible for enforcement

- ❑ The stated laws do not have explicit discharge limits both for household and Industrial users.
- ❑ Though they have provisions for penalties for violation, they are rarely enforced.

Previous Master Plans

- JICA financed “The Study on the Sewerage System in North Dhaka in The People’s Republic of Bangladesh” (1998)

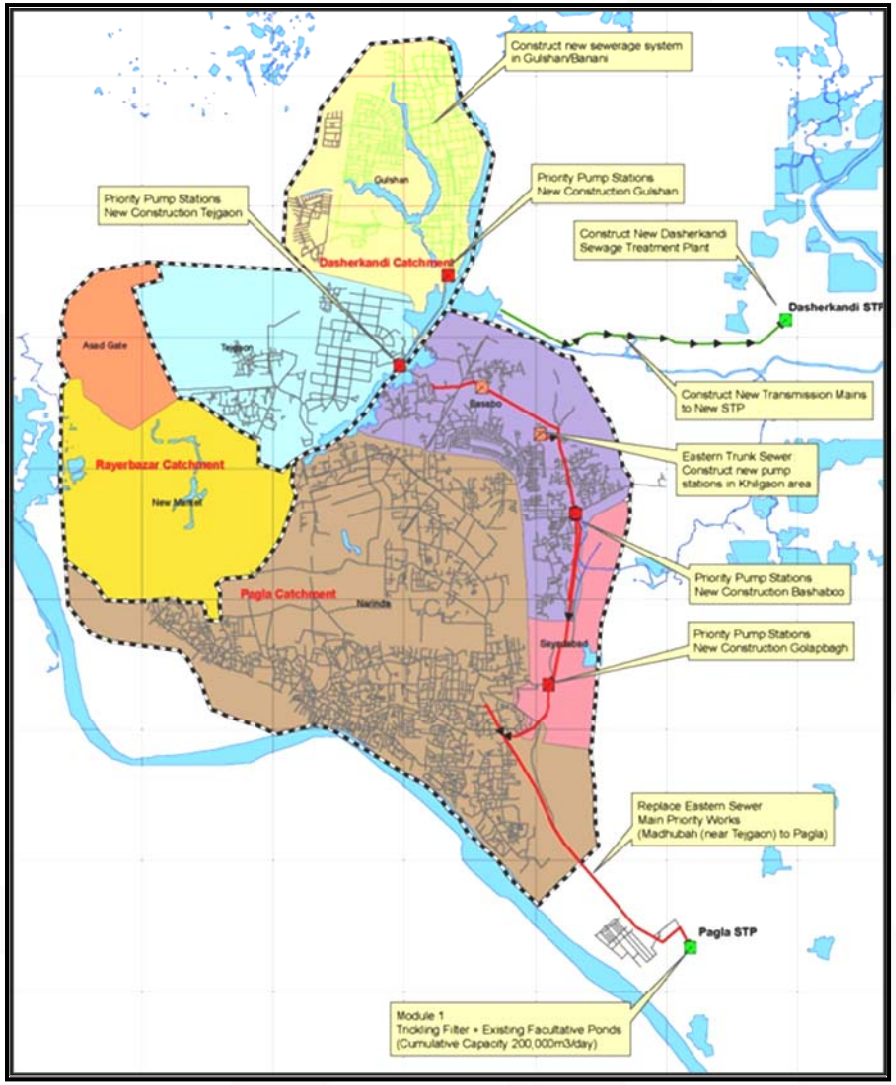
Master Plan



- Target Planning Area : DWASA Service Area (401km^2) as well as RAJUK DMDP Area – total of 1425km^2
- Design horizon: 2035
- Design population: 32 projected by 2035
- Focus Area: **urban growth centres** (predominantly within DWASA service area)
- Communal latrines in high density informal settlements
- Household level septic tank and latrine for low lying, low to medium density rural areas.

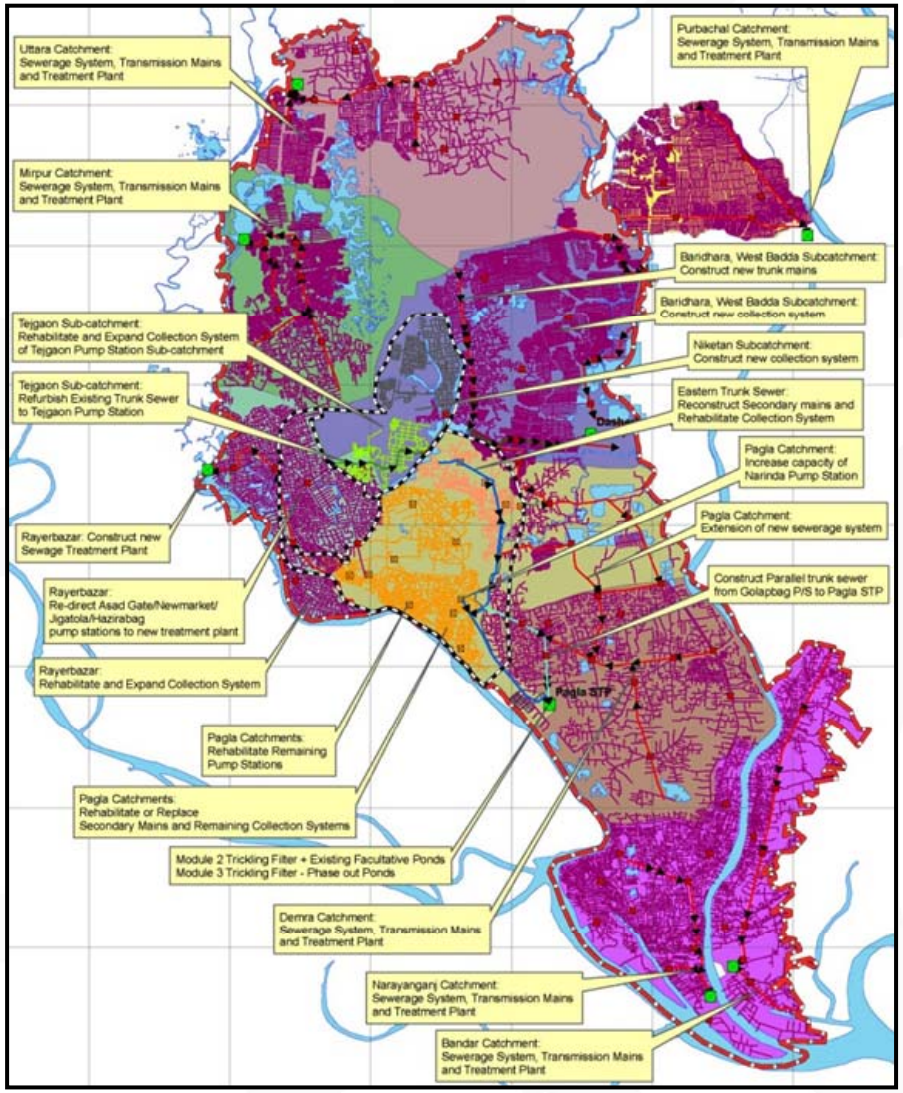
Objective: Provide new infrastructure to service greatest number of people per unit of investment

Phase – I Priority Works (2012-2015)



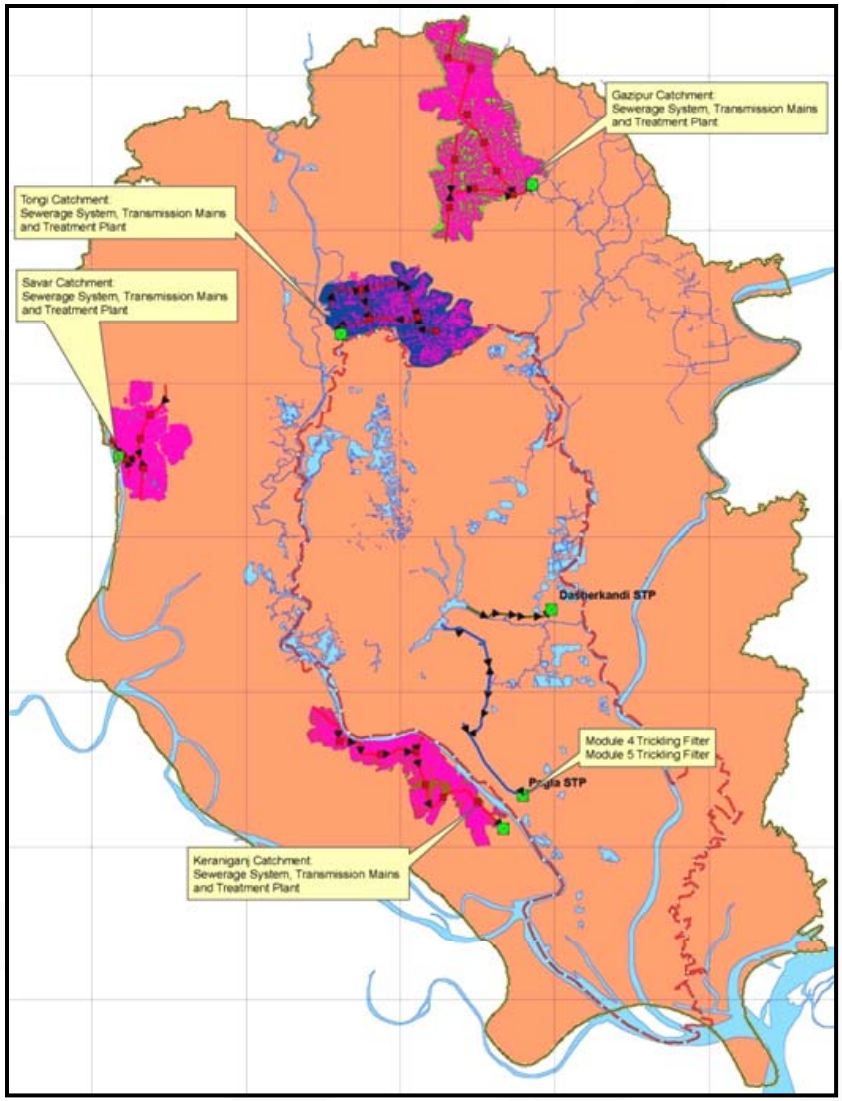
- **Rehabilitate Existing Infrastructure:**
- Pagla STP –Trickling filter system (phased modules of 100,000 m3/day)
- Eastern Trunk Sewer from Madhubag to Pagla
- Pump Stations at Tejgaon, Gulshan, Bashaboo and Golapbagh
- Gulshan/Banani Sewerage System
- Re-direction of sewage from Gulshan and Tejgaon to new Dasherkandi STP
- 3 new SPS in Khilgaon area
- Estimated Cost: **$US 69 Million**
- World Bank has committed **$US 43 Million**

Phase – II Priority Works (2016-2025)



- **Expansion of Existing Infrastructure:**
- *Dhaka South (Pagla) Catchment:* Construct 2nd and 3rd phase Pagla STP trickling filter system + Reconstruct secondary mains of Eastern Trunk Sewer + expand sewerage system + Refurbish Narinda SPS
- **New Sewerage Infrastructure within DWASA Service area**
- Dhaka East (Dasherkandi), DND-Demra, Dhaka North (Uttara), Dhaka West (Mirpur), Rupganj, Narayanganj, Rayerbazar Catchments
- Construct parallel trunk sewer from Golapbag SPS to Pagla STP
- Estimated Cost: **$US 1.2 Billion** (No funding commitment as of yet)

Phase – III Priority Works (2025-2035)



- ❖ **Expansion of Existing Infrastructure**
- ❑ **Dhaka South (Pagla) Catchment**: Construct 4th and 5th phases of Pagla STP trickling filter system (raising capacity at Pagla STP to 500,000 m3/day)

- ❖ **New Sewerage Infrastructure beyond DWASA Service area**
- ❑ Construction of Sewerage System, Transmission Mains and Treatment Plants at Gazipur/Tongi, Savar and Keraniganj Catchment

- Estimated Cost: **$US 433 Million** (No funding commitment as of yet)

Industrial Effluent Treatment

- The Master Plan requires enforcement of **'Polluters Pay Principle'**policy for industrial facilities.
  - Iindustries shall introduce their own industrial treatment facilities
  - The plant will be located at their factory compound
  - It will be constructed at their cost
  - Treat their wastewater prior to discharge into public water bodies so as to comply with the Environmental Quality Standard.

Barriers

Legal Barriers

- Greater pressure from DWASA on application of Environment Conservation Rules (DoE). Note: DoE to control discharges to Environment but DWASA to control discharge to sewerage
- Standards of Service (Citizen Charter) are limited in scope
- Limited private sector participation

Institutional Barriers

- No Water Sector Regulator for setting standards, monitoring service provision and tariff approval
- DWASA has limited control on tariff setting and investment planning
- Limited funds because tariff is low, and water takes precedence
- DWASA has limited skills in financial and infrastructure planning
- Weak inter-agency co-operation
- No capacity within DWASA to manage septic tank sludge

Solutions

- DWASA to prepare policy paper for RAJUK for development planning
- DCC Ordinance and DWASA to clarify roles, esp. for informal settlements
- DWASA to provide update for WS&S for Building Construction Rules
- DWASA Rules for Sewer Connections to be updated to include on-site sanitation criteria
- New developments outside DWASA reach should require developer to provide sewerage service
- DWASA mandate to extend its jurisdiction by amending DWASA Act
- Formal approach is required to co-ordinate the inputs from the various stakeholders associated with the wastewater sector

Conclusion

- Bring the whole service area into a co-ordinate Sanitation System.
- Intelligent, Judicious & pragmatic Planning & design is needed.
- Pagla STP improvement &Eastern trunk sewage reconstruction is needed.
- Mechanism has to be developed so that every industry introduce & maintain their own ETP.
- New urban development should provide sanitation system along with other utilities.
- A well-managed sanitation system will contribute to improve the environment.

Thank You All