

Urban Water Security: Challenges and Options

Example from the city of Dhaka

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Dhaka City

Dhaka (aged 400 yrs)- capital and largest city of Bangladesh ; 9th largest city in the world

Dhaka Statistical Metropolitan Area (DSMA) covers an area of 1528 km², of which Dhaka City Corporation (DCC) covers 147 km²

DSMA population :about 15 million and DCC population : 7.0 million as of 2013 (Source: Evolving Urban Form, 2013)

Population density : 45,000 km² , highest in the world (Source: Evolving Urban Form, 2013)

Population growth rate about 5 percent, one of the highest rates amongst Asian cities.

City area increasing at an annual rate of 3.5 percent (Islam et al., 2009).



Importance of Water

Water-

- constitutes two-thirds of human body
- inseparable part of every living organism
- part of a basic human right
- a crosscutting resource
- a driving force for sustainable dev.
- a strategic tool to fight against poverty



Water Security

- Availability of suitable water for different purposes i. e. drinking, household activities, irrigation, industry, navigation and ecological equilibrium of the environment ;
- Ensured easy access of all stakeholders to usable water for the purposes mentioned above
- Societies can enjoy urban water security when they successfully manage their water resources and services to develop vibrant, livable cities and towns.

Demand & Supply Scenario: Dhaka City

About 560 deep tube well (DTW) and 4 surface water treatment plants (SWTP) to supply water to the city

Daily total water supply 2087.50 million litre

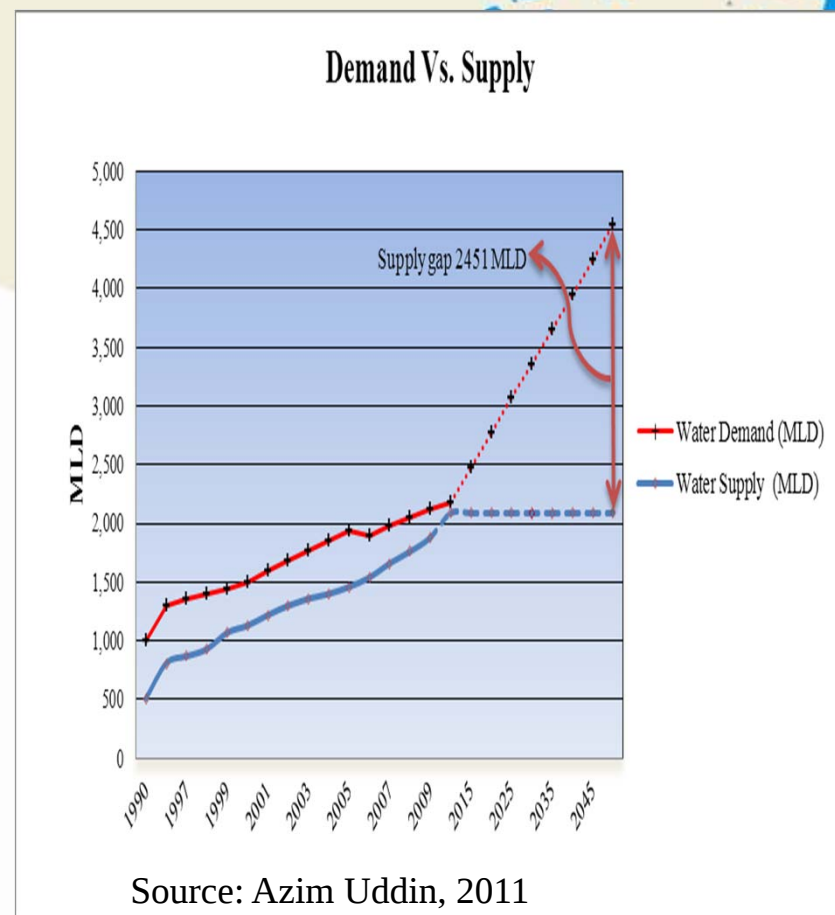
About 87.72% by DTW from ground water source and 12.28% by SWTP from surface water source.

At least 50 l/p/d of water considered as basic water requirement suggested by Gleick (1996).

Dhaka Water Supply Authority (DWASA) is the designated government organization to provide water supply to the city dwellers.

DWASA can provide 42.8 per cent of the city dwellers with the basic requirement of 50 l/p/d or more water. (Azim Uddin, 2011)

About 25% of the city dwellers has no direct access to potable water (Nishat, et. al., 2008)



Milestones: Efforts for Water Security

National Policy for Safe Water Supply and Sanitation, 1998: calls for nationwide access to safe drinking water & sanitation services at an affordable cost.

National Water Policy, 1999: The policy goals - developing water from all forms of surface and ground water sources and managing the sources in an efficient and equitable manner and ensure water availability to all section of society.

National Water Management Plan, 2001: emphasizes the equitable, safe and reliable access to clean water in sufficient and timely quantities for multipurpose use and objectives like production, health and hygiene & preservation of aquatic ecosystems.

Milestones: Efforts for Water Security (Contd...)

- **National Water Quality Monitoring:** On regular basis, DoE carries out water quality measurement and monitoring (city rounding rivers & wetlands)
- **Environmentally Critical Areas (ECAs) and Integrated Wetland Management:** rivers surrounding Dhaka city declared as ECA to save them from further pollution
- **Environmentally Responsibility Awareness Raising and Empowerment:** DoE carries out awareness raising campaign through mass media, seminar & conf. Its monitoring and enforcement wing drives against pollution, makes the polluters treat the waste water (through monitoring ETP establishment & running in industries) and fine the polluters as to the pollution for which they are responsible .

Challenges

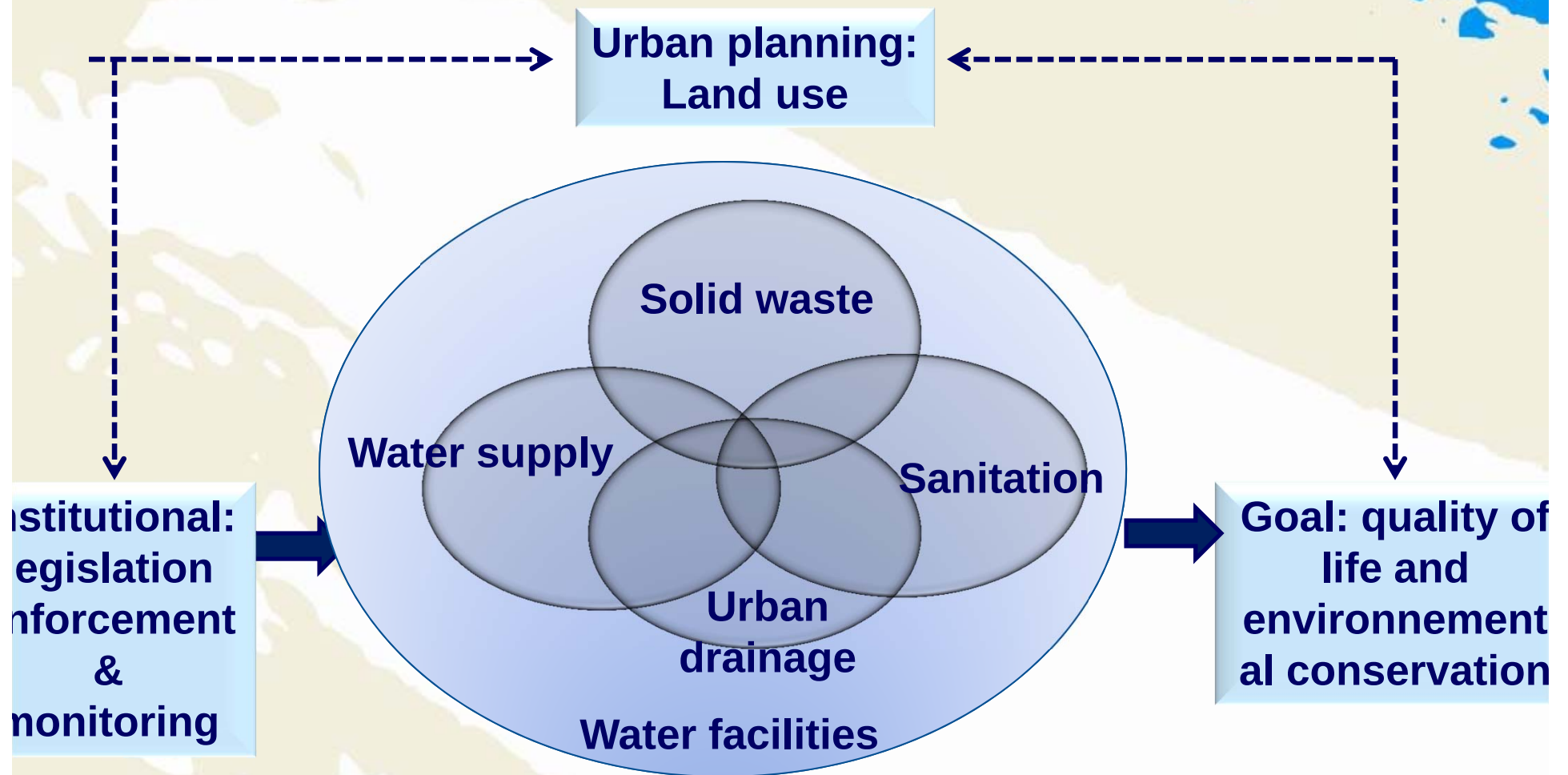
- ✓ Urban water bodies pollution from untreated urban waste and waste water disposal
- ✓ Water pollution increasingly limits the volume of usable quality water while water demand is increasing both by volume and use areas with time
- ✓ Water of rivers (Buriganga, Turag, Balu and Shitalakhkha) surrounding Dhaka City is too polluted to be used except navigation purpose.
- ✓ Polluted water- vector for disease and death.



Challenges (Contd...)

- ✓ Increasing dependency on ground water
- ✓ Filling of urban wetlands causing problem in ground water recharge
- ✓ Water table depletion at a rate of 3 meters/year with risk of land subsidence & water supply crisis in dry season.
- ✓ Increasing water business and ensuring quality of bottled water
- ✓ So, providing safe drinking water remains a big challenge

Integrated Urban Water Management



Options to Ensure Water Security

Awareness building on water conservation

• avoiding water overuse and abuse
• increase wastewater treatment and control
• wastewater discharge.
• protecting wetlands from filling and
• pollution for use surface water
• conserving sufficient open space for
• ground water recharge

Capacity Building in the following areas

• rain water harvesting
• economic and financial instruments for
• VRM (Water Financing)
• addressing climate change effects on city
• water resources

Information dissemination and collation

• awareness building campaign through
• mass media, social and cultural programs

Water For All

- 100% Access to Safe Drinking Water
- adopt corporate-style governance to improve urban water and wastewater services
- encourage utilities to make urgent investments to reduce non-revenue water.
- centralize flood management and comprehensive urban planning.

Use innovative technologies

- rainwater tank
- water efficient appliances
- tap aerators & flow restrictors
- low flush toilet

Conserve Value Enjoy

- water Recycling
- value of Water

Way Forward

In the future DWASA plans massive investment to replace dwindling groundwater resources with treated surface water from less polluted rivers (Shitalakhkhya and Meghna) located up to 160 km from the city. (Source: Taqsem Khan, 2011)

DWASA plans to undertake water purifying (affordable for all) program on larger scale to ensure safe drinking water for all sections of people.

The Government plans to boost bottled water service both by public and private initiatives so that people of all quarters particularly poor and under privileged ones can afford safe water for drinking and other productive and hygiene purposes.

A stylized map of South Asia, including India, Pakistan, and Bangladesh, rendered in light beige and white. The surrounding oceans are blue, and a sliver of green land is visible at the top.

Thank You