

Improving WASH Infrastructure and Addressing Climate Change in Urban Areas: Mitigating the Health Risks of Unplanned Urbanization

November 05, 2024

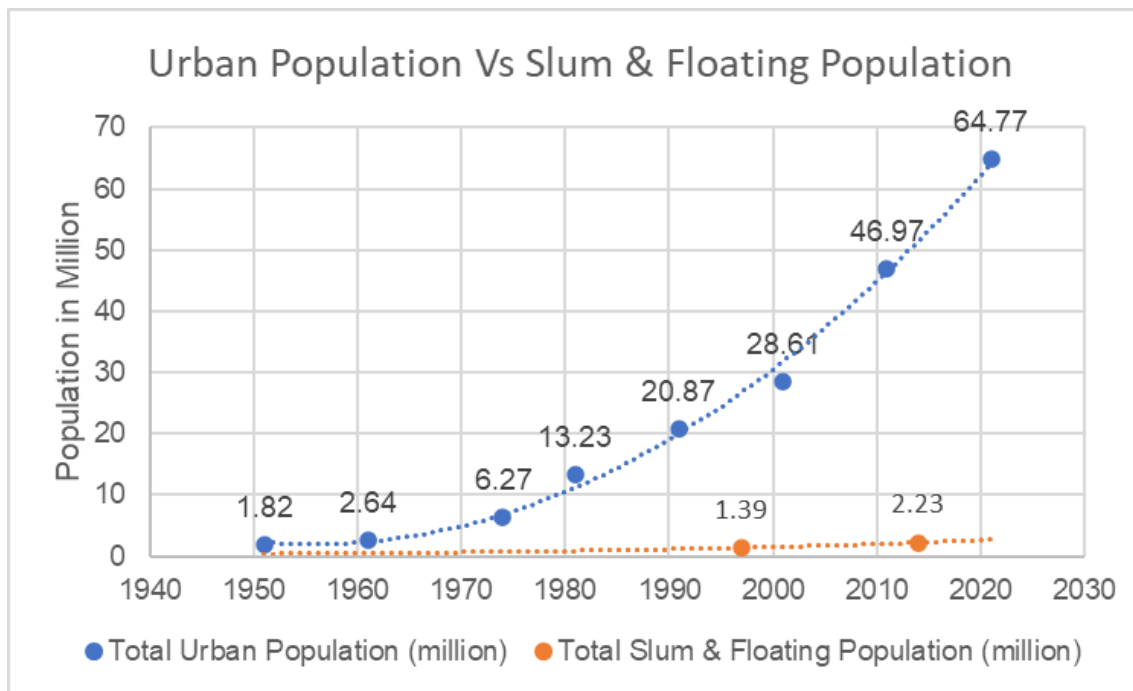
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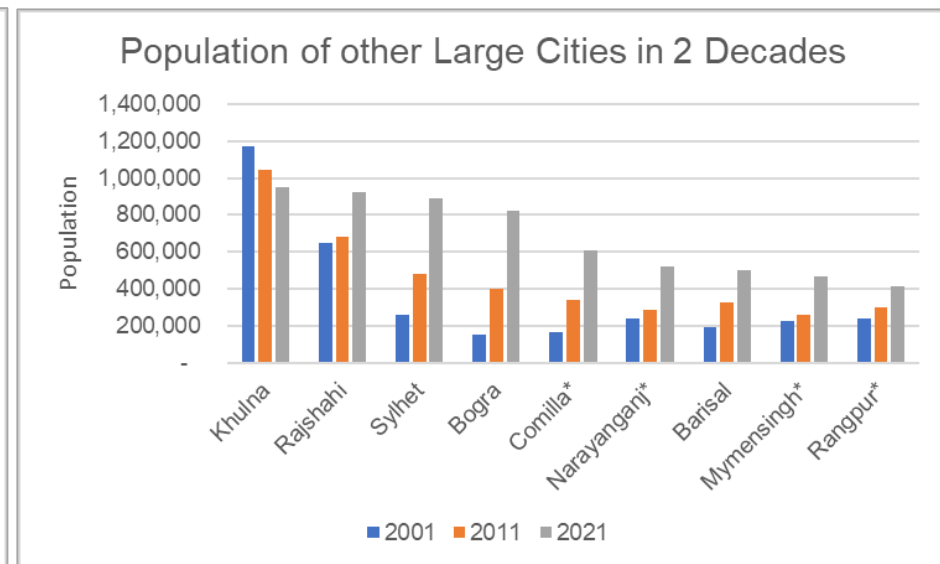
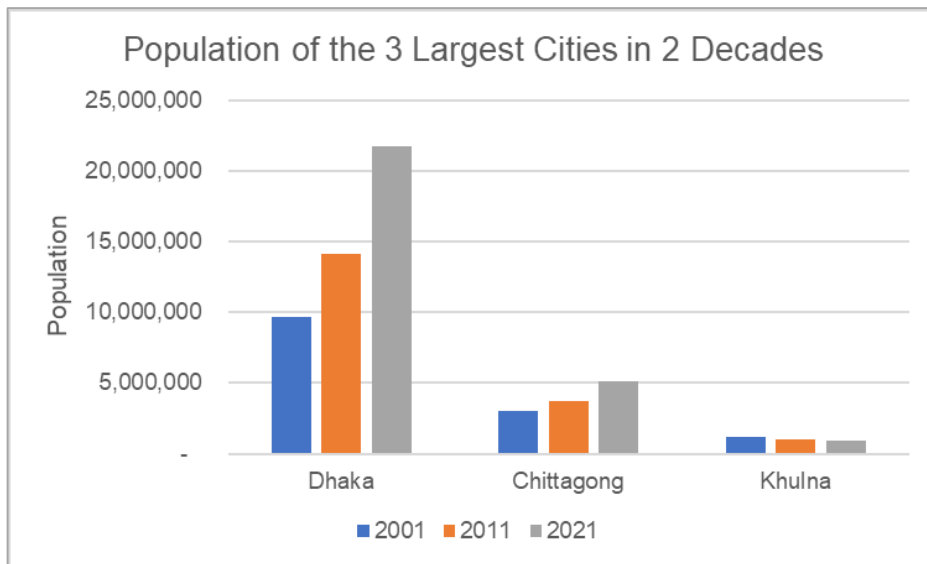
Urbanization Trends in Bangladesh

- Bangladesh is urbanizing quickly, with approximately 37% of its population now living in cities (*World Bank, 2023*).
- Bangladesh urban population: 1.82M (1951) - 64.77M (2021)
- Increasing slum population in the cities

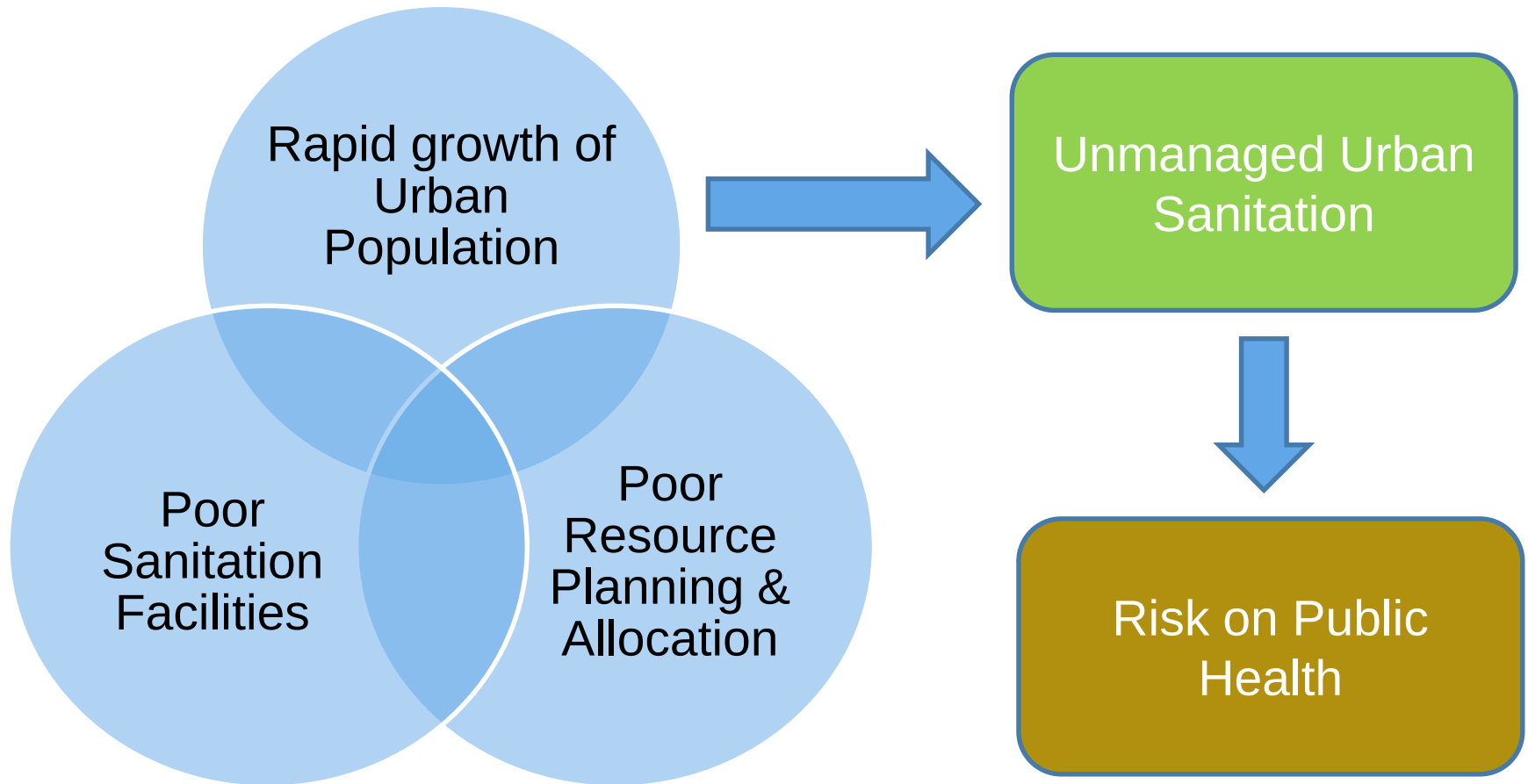


Growing Large Cities

- Rapid urbanization: last two decades
- Dhaka City's population doubled



Urbanization, sanitation and RPM



WASH challenges in Urban Bangladesh

- Bangladesh's cities, including Dhaka and Chattogram, have limited sewage coverage.
- Urban areas have a few water treatment plants, but they are frequently overburdened.
- Untreated wastewater is often discharged into rivers, contaminating local water sources and impacting downstream communities.
- Groundwater over-extraction in Dhaka and other cities leads to declining water levels, which also affects supply quality and availability.

Summary of Challenges in Urban Sanitation



Dense, booming cities

Challenges for urban sanitation.
Rapid urbanization and population growth, and the limited experience with quality on-site sanitation and fecal sludge management services are challenges for improved urban sanitation program
(photos by ADB, Isabel Blackett, and Penelope Dutton)



Lack of access to quality on-site sanitation services and fecal sludge management



High population growth



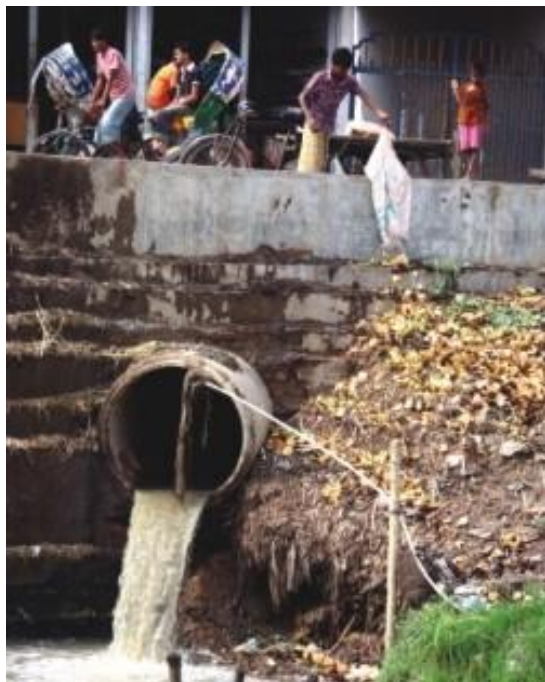
Historical focus on building centralized wastewater treatment facilities

Climate Change Impacts on Urban WASH

In urban Bangladesh, the impacts of climate change vary widely across different regions and socioeconomic groups

- **Increased Flooding and Water Contamination**
- **Salinity Intrusion in Coastal Areas**
- **Droughts and Water Scarcity**
- **Cyclones and Extreme Weather Events**
- **Increased Incidence of Waterborne Diseases**
- **Groundwater Depletion and Quality Issues**

Climate Change Impacts on Urban WASH



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Health Risks Linked to WASH and Climate Change

Public Health Impacts of Poor WASH in Urban Areas

- **Waterborne Diseases:** The lack of clean water and sanitation leads to diseases such as cholera, dysentery, and typhoid.
- **Respiratory Conditions:** Pollution and inadequate sanitation contribute to respiratory illnesses.
- **Mental Health and Quality of Life:** Residents of underserved areas experience stress and reduced quality of life due to poor living conditions.

Focus on Urban Slums and Informal Settlements

Critical Needs in Urban Slums

- **Disease Prevention:** Improved WASH infrastructure can help prevent the spread of communicable diseases in crowded informal settlements.
- **Improving Quality of Life:** Reliable access to water and sanitation services reduces daily challenges and health vulnerabilities.
- **Climate-Resilient Infrastructure:** Developing resilient WASH systems in these areas can protect residents from extreme weather impacts, such as flooding.

Cross-Sectoral Collaboration and Policy Recommendations

Building Partnerships for Sustainable Urban Development

- **Integrated Policy Making:** Collaboration between health, urban planning, and environmental sectors is crucial.
- **Flood and Climate Adaptation Measures:** Policies that mandate flood-resistant WASH infrastructure and resilient drainage systems.
- **Community Engagement:** Empower local communities in planning to ensure WASH systems meet their needs and are sustainable.

Innovative Solutions and Technologies

- Solar power water supply system
- Rainwater Harvesting
- Small Bore Sewer System
- Desalination water treatment

Climate Resilient Toilet

At Khulna



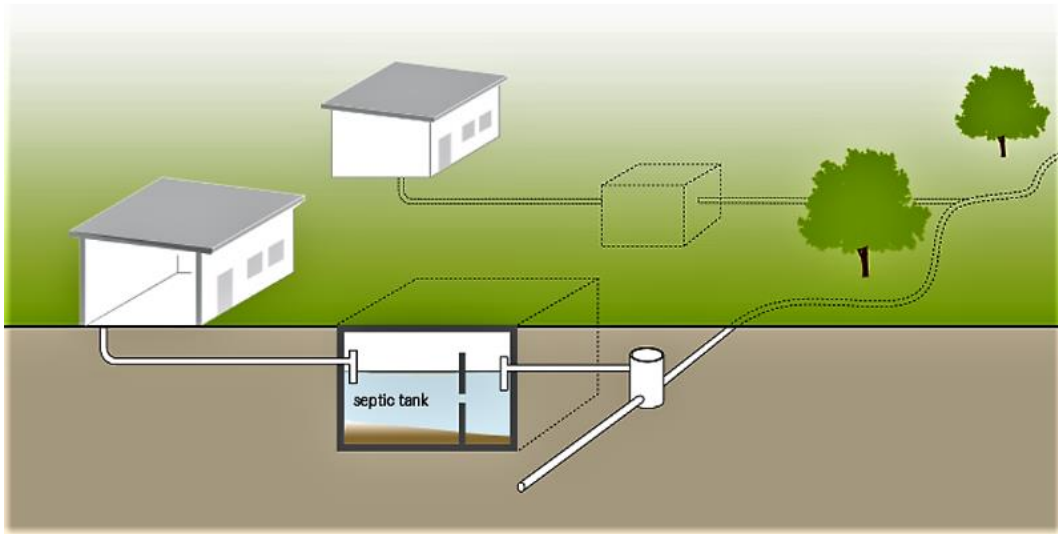
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Powered by NoteCam

Small Bore Sewer System

Bauniabundh, DNCC



Schematic diagram of a small-bore sewer system. Source: (Tilley, et al., 2014)



Baffled wall & piping



Pipe laying in the lane

Solar Powered Water Supply System

At Tripura para, Chittagong



Climate Resilient Desalination Water Treatment Plant at Somitipara, Cox's Bazar



Treatment Plant

Water ATM



Surface Water Treatment at Camp 22



Surface Water Treatment Works (SWAT)



Roikong Canal Intake Pipe



Tap stand

