

Developing an Integrated Wastewater Management Plan for Coastal Bangladesh

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Background

- Coastal region of Bangladesh is highly vulnerable to climate change. At the same time urbanization induced environmental pollution is threatening the access to good quality and quantity drinking as well as irrigation water.
- World Bank study on the climate change effect on Bangladesh estimated that by 2050 the river water resource for agricultural irrigation will shrunk by 29.7 percent.

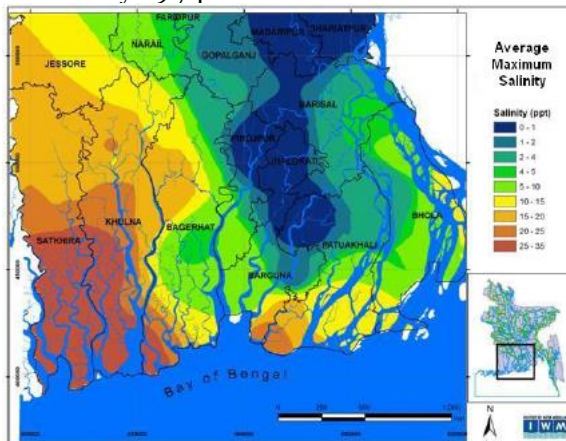


Figure 1: Average Maximum River Salinity in the Southwest Region of Bangladesh (World Bank, 2015)

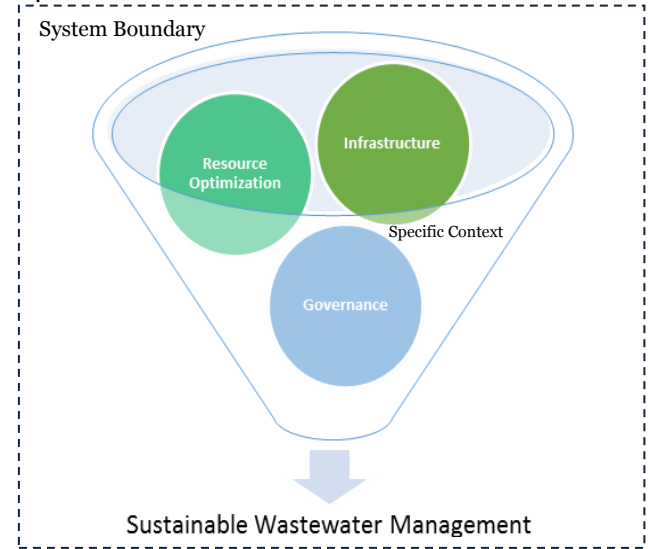
Motivation

- Water re-use in Bangladesh is yet to be realized due to a number of reasons including inadequate knowledge on proper reuse practice, inadequacy of wastewater infrastructure resulting poor quality wastewater, policy regulations etc.
- Annually urban areas of Bangladesh generate 725 million m³ of wastewater which can be an alternative as future irrigation source.

Aim

The aim of the project is to develop a sustainable wastewater management plan integrating risk mitigation strategies for safe re-use in agriculture.

Operational Framework



Methods

- Wastewater quality/quantity analysis
- QMRA-Monte Carlo Simulation
- Stakeholder mapping and perception analysis
- Spatial Analysis
- Scenario Planning and MCA

Expected Outcome

- Seasonal variation in wastewater quantity/quality and associated health risk for reuse
- Framing stakeholders perception towards planned wastewater re-use in agriculture
- Understanding of spatial and temporal dynamics of wastewater flows facilitating better urban-rural infrastructure linkage
- Scenarios for wastewater treatment options facilitating re-use in agriculture



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Research Interest: Water re-use, urban-rural linkage, spatial planning

