

Climate Change Versus Urban Drinking Water Supply and Management: A Case Analysis on Coastal Towns in Bangladesh

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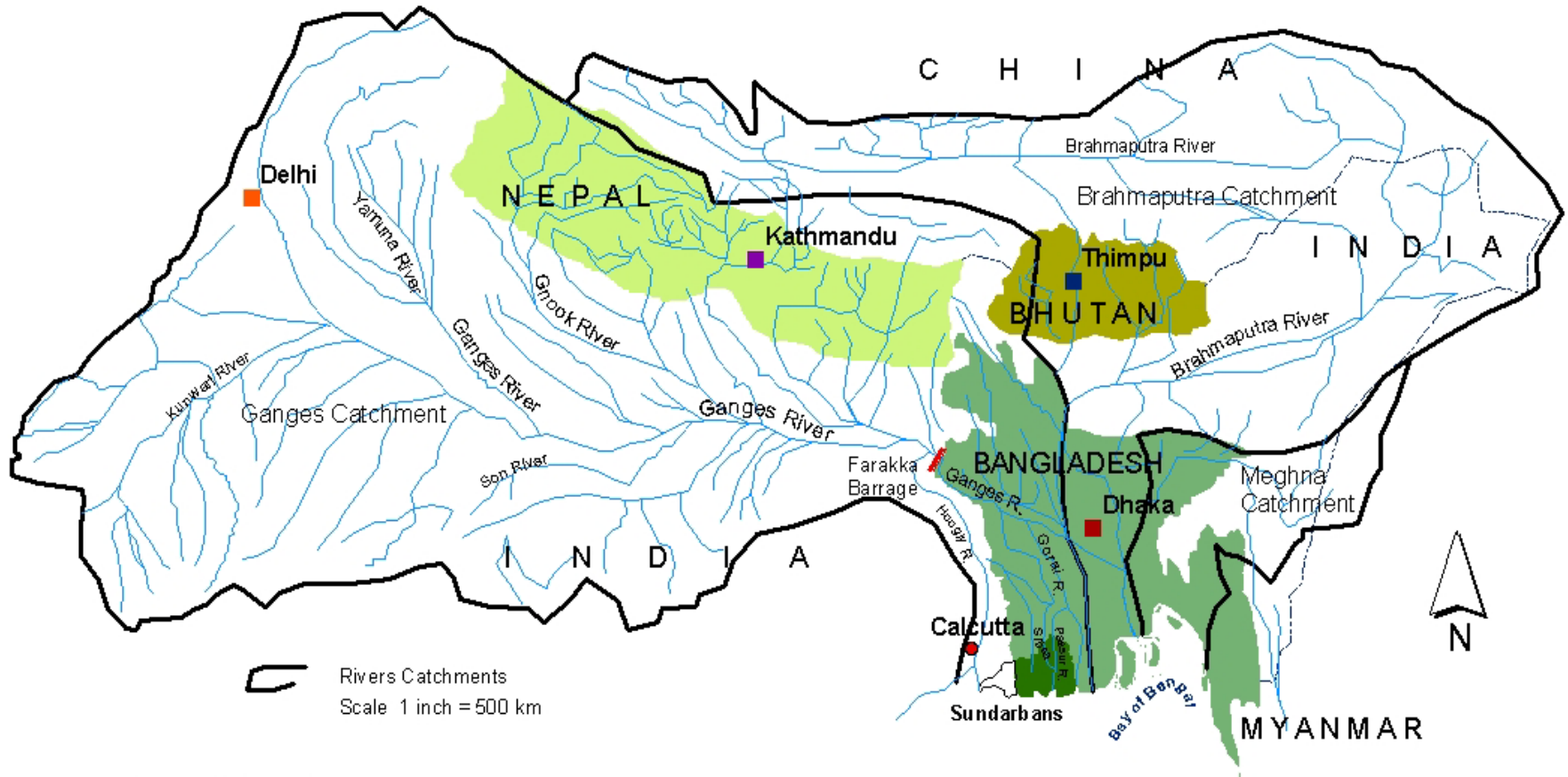
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1. Introduction

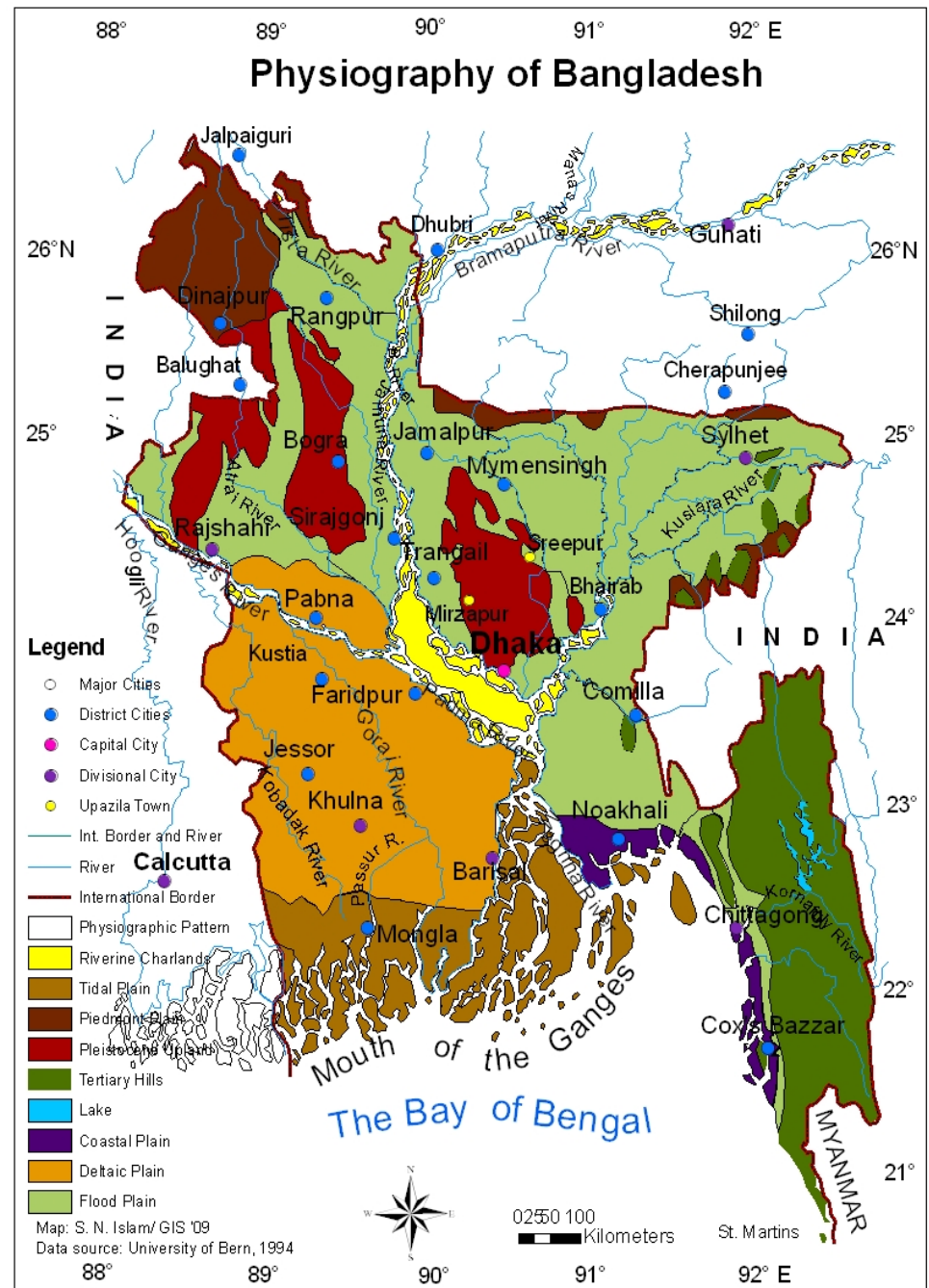


Map : S. N. Islam / GIS '07

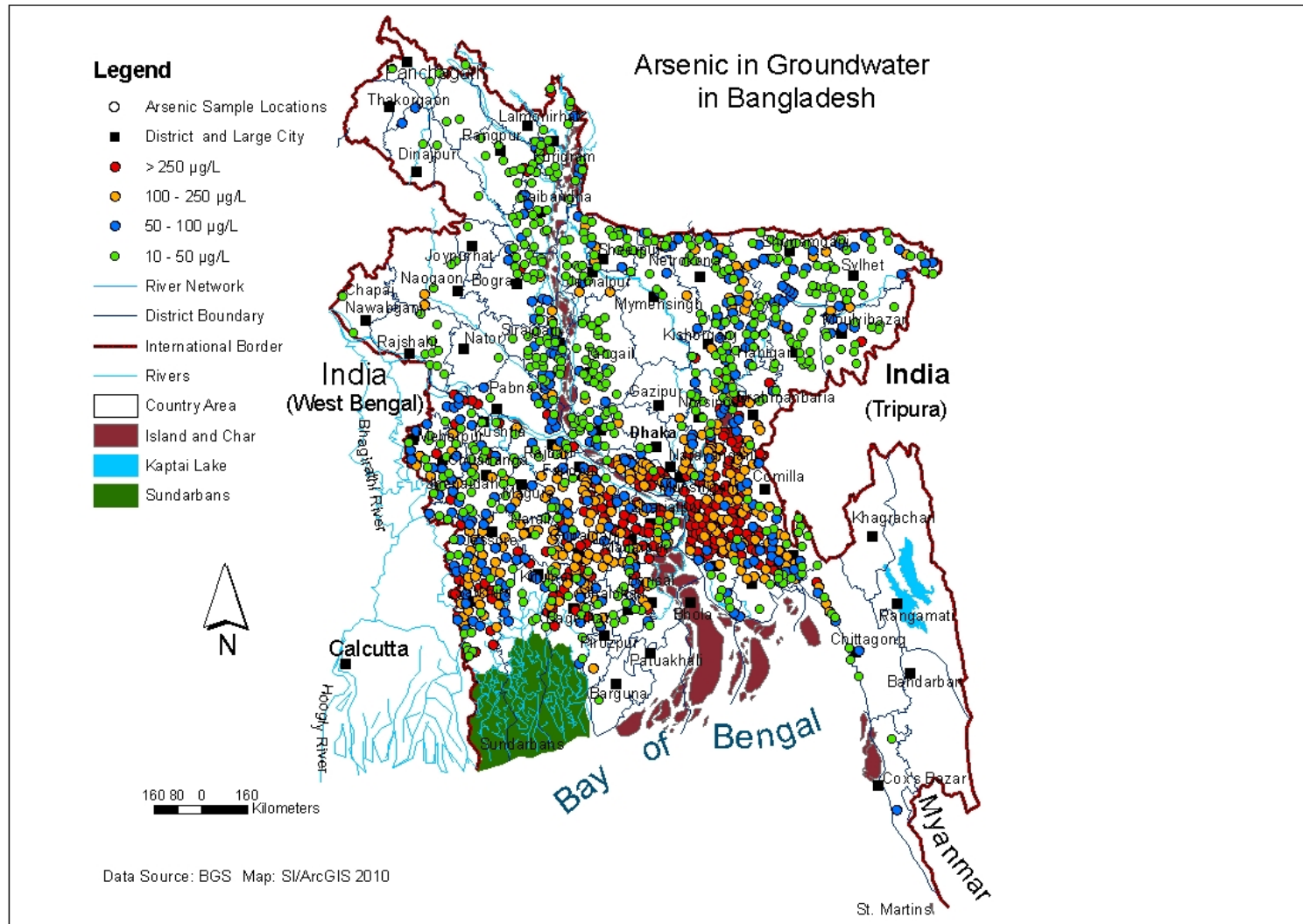
Bangladesh is located in the Ganges-Brahmaputra-Meghna Rivers catchments

Physiography of Bangladesh

The area is 144,570 km²,
 The coastal area is 36,500 km²
 Where 35 million people are
 living and fighting against food
 Insecurity and quality drinking
 water.



Arsenic in Groundwater in Bangladesh



A limited number of southern coastal towns are contraminated by Arsenic In ground water and 82% drinking water is collecting from ground water.

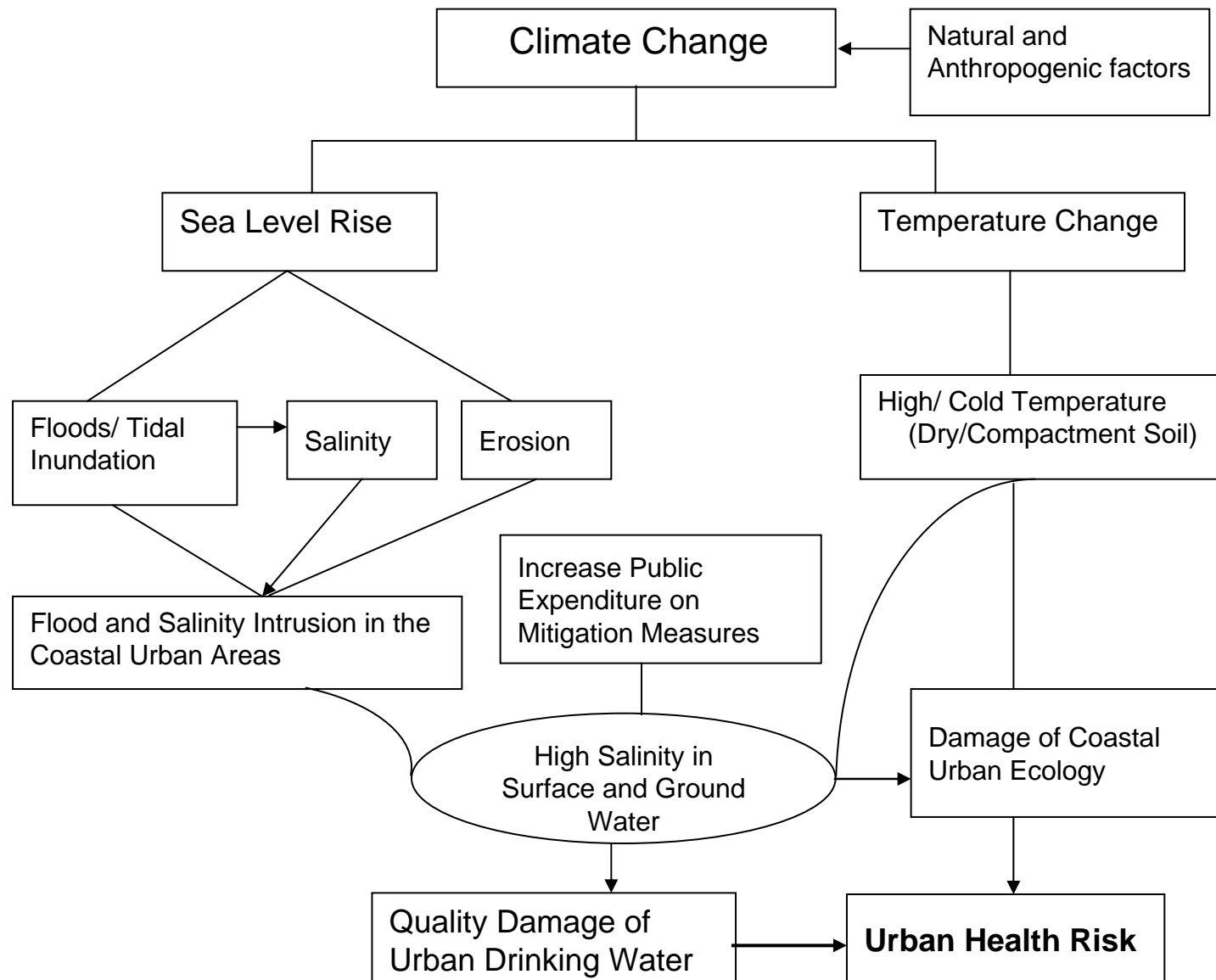
2. Research Objectives/ Data and Method

- The aim of this research is to develop a comprehensive integrated framework for strategic environmental planning that can meet needs of the present and future coastal communities in the Ganges Delta in Bangladesh
- The objectives of this research are the following:
 - Ensure food security
 - Quality drinking water availability
 - Protection of urban ecology of coastal towns
- Which could be useful to decision makers in Bangladesh, the international community, aid delivery organizations, local initiative groups and the local community of the coastal towns in Bangladesh.

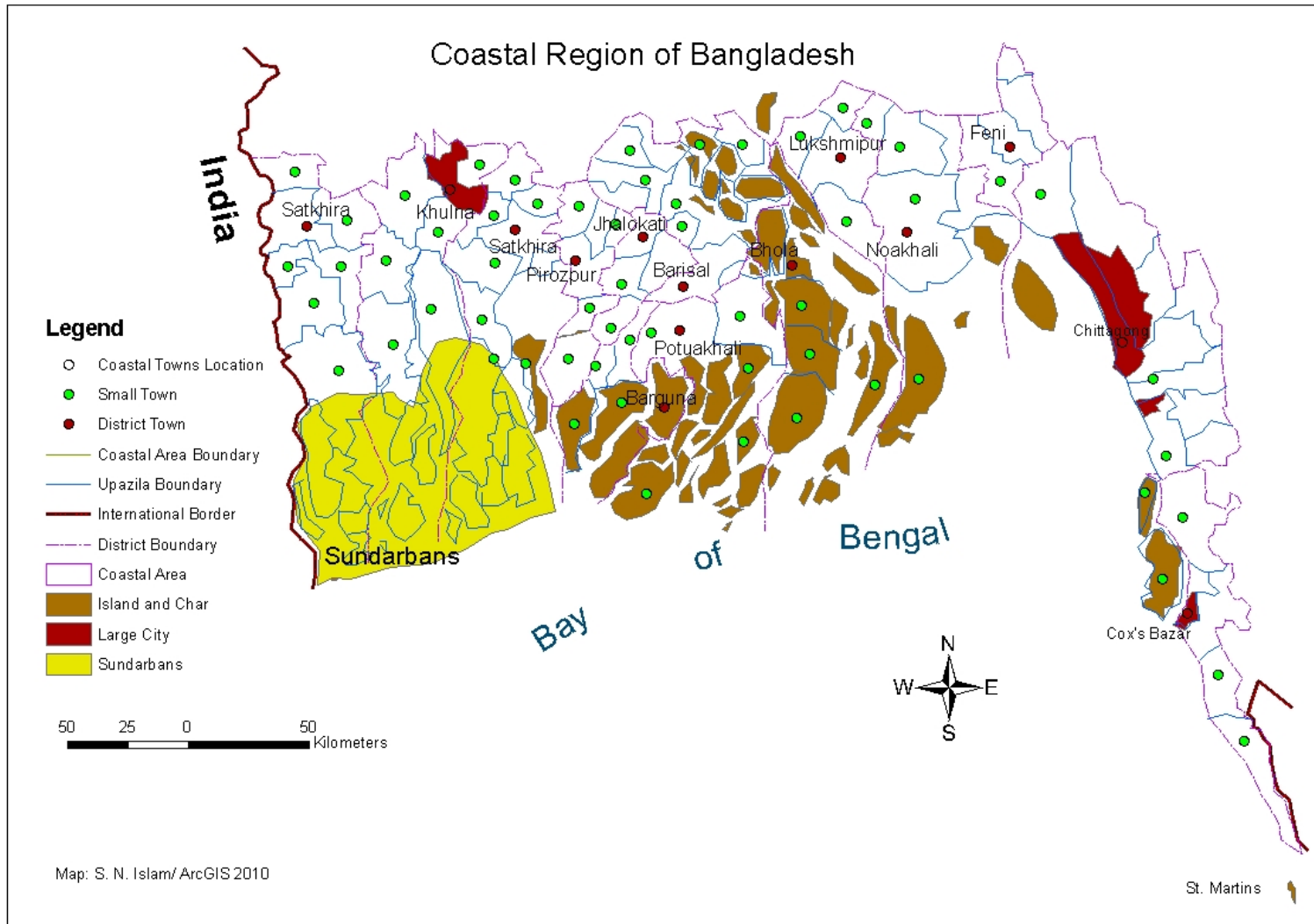
Data and Methodology

- Primary data on Water salinity were collected from 17 coastal towns in the southern part of Bangladesh and tested at the SRDI laboratory.
- PRA practices were arranged with the inhabitants of coastal towns and stakeholders to measure the drinking water quality, and information on climate change impacts on drinking water in the coast.
- All collected data and information has been analysed, visualized through ArcGIS 9.2 and other soft ware such as; SPSS, EXCEL, EVIEW and VENSIM.

3. Research Ideas



Location of Coastal Towns



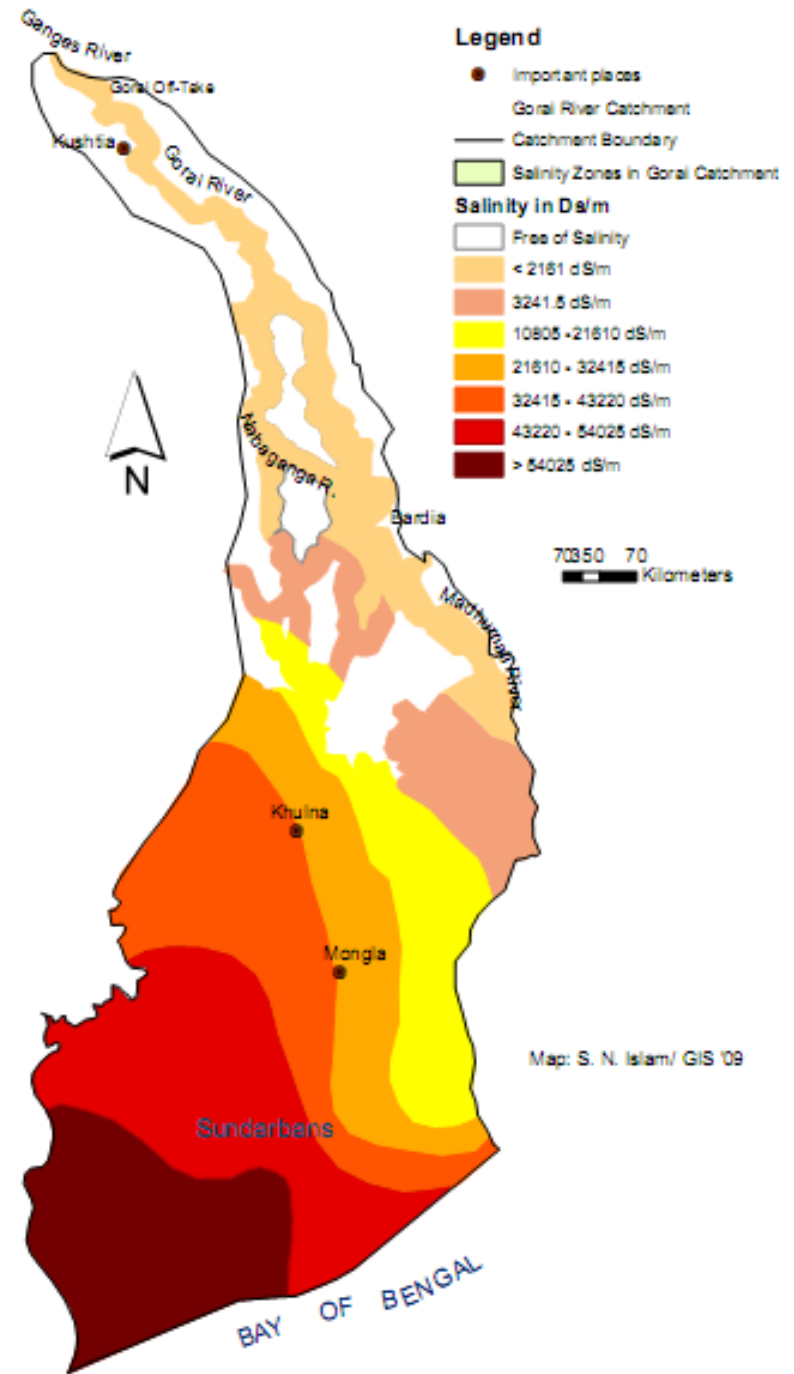
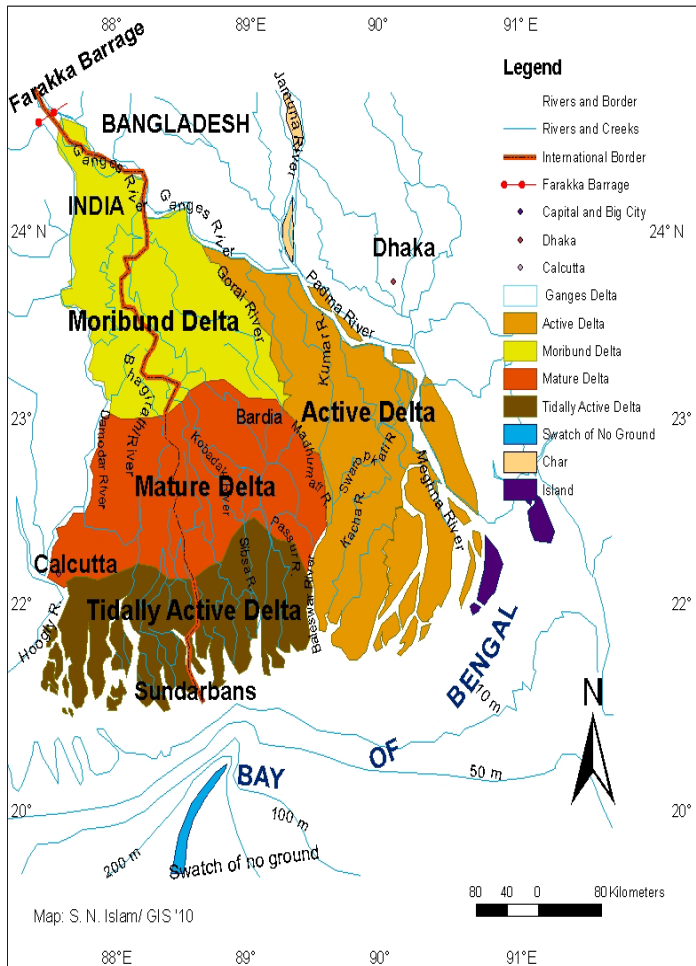
There are 101 coastal towns are located in the coastal region in Bangladesh, Where only 18% surface water is using as drinking water to the urban people

Drinking Water Crisis in the Coastal Towns



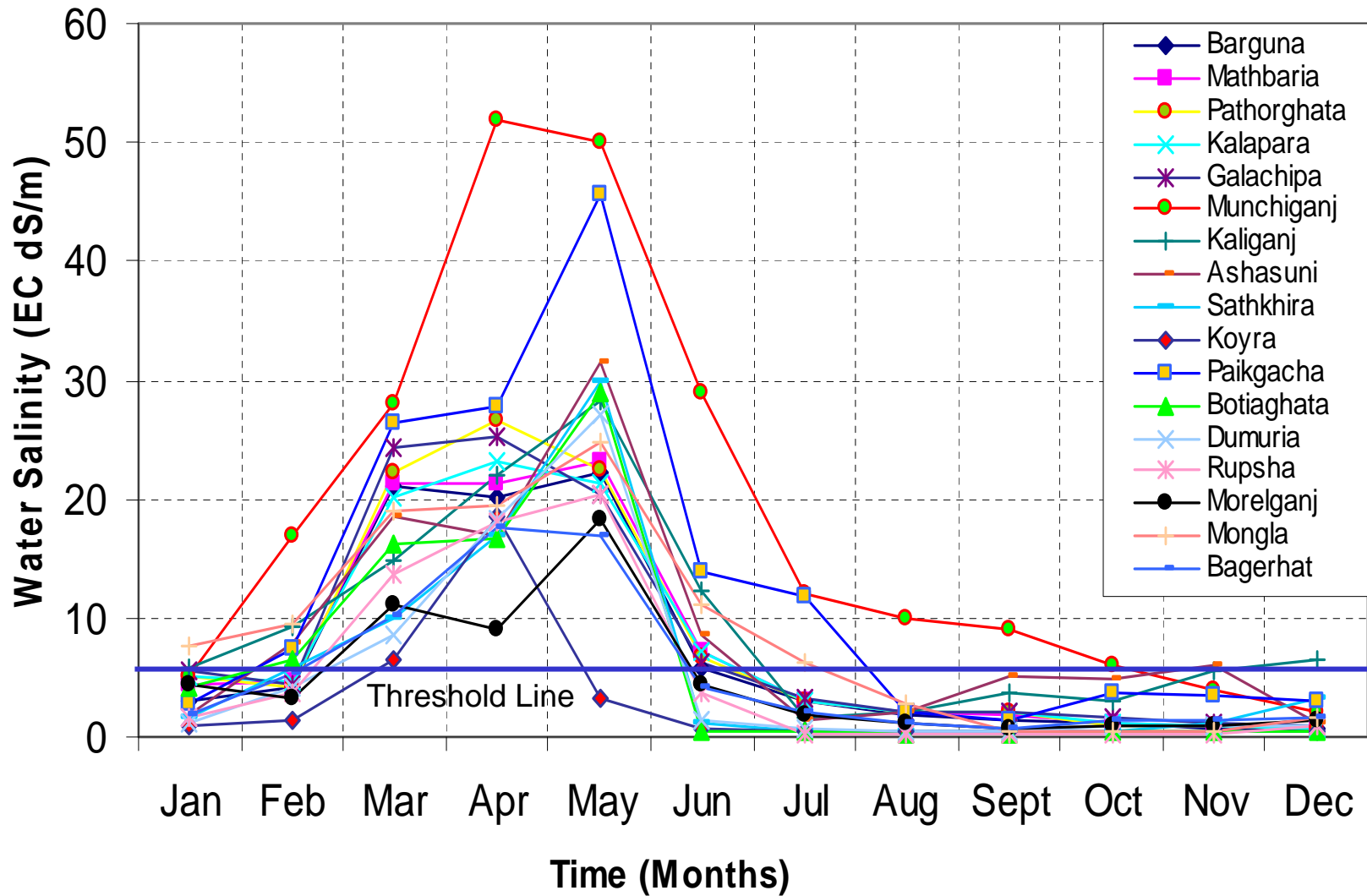
The three major rivers are carrying 100,000 to 140,000 m³/s upstream water and 1.8 to 2.4 billion tones of sediments loads are deposited on the bed and Bay of Bengal

4. Results



Salinity intrusion in surface and ground water
In the coastal towns of the Ganges delta

High Water Salinity in Coastal Towns



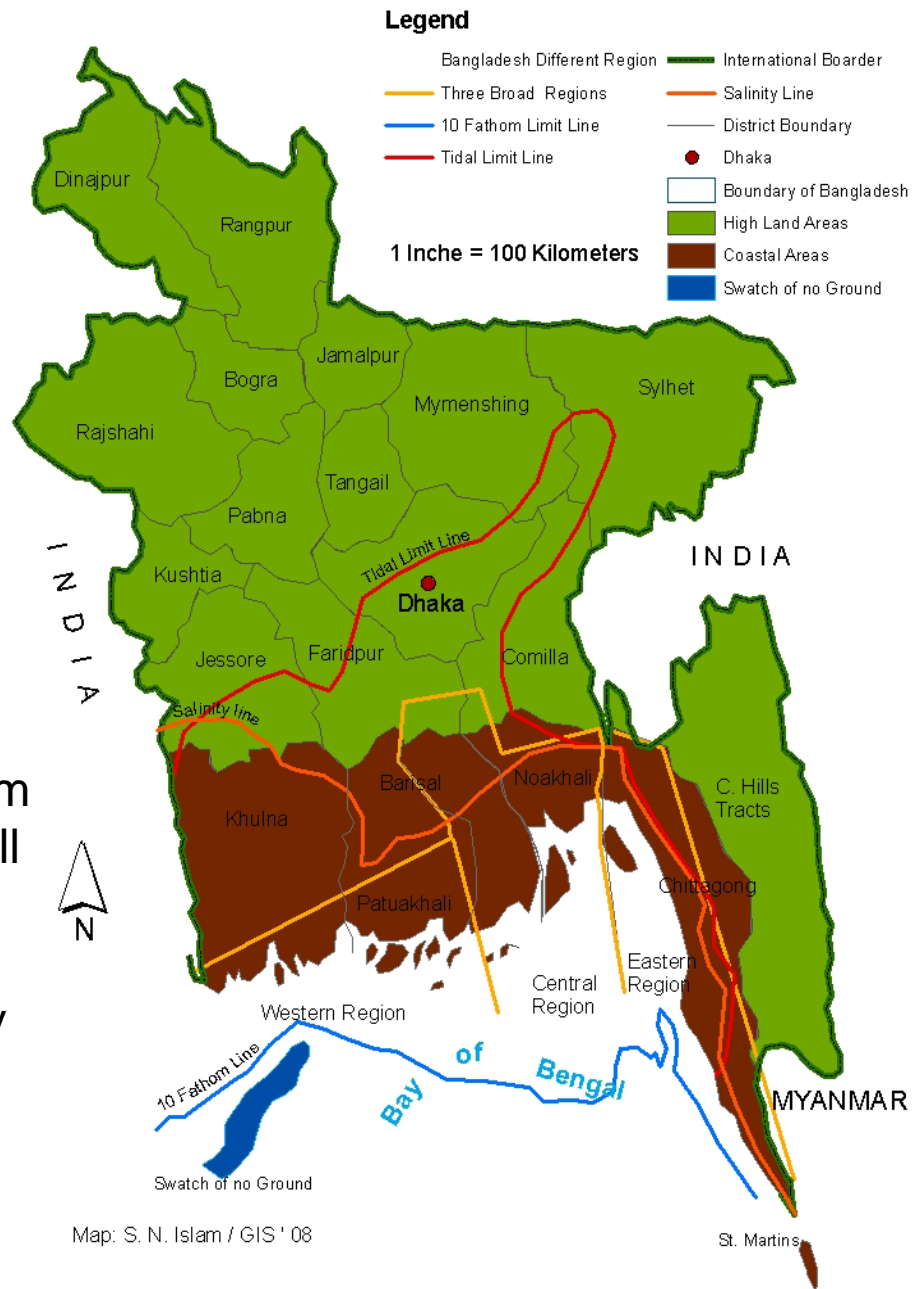
2 dS/m is the threshold value for potable drinking water in Bangladesh

Climate Change Impacts on Coastal Towns

Due to Climate change impacts with 1.5 m SLR about 17 million (15%) of people will be affected.

It has been estimated that 22,000 km² (16%) coastal land will go under water by 2050

Therefore almost 50 coastal towns are under threat in the Ganges delta



5. Conclusion

- The coastal towns (101) are very much important for the coastal urban inhabitants almost 8 million people are living in the coastal towns, therefore urban drinking water is a potential issue in the coastal region in Bangladesh.
- The upstream fresh water scarcity and tidal inundation due to SLR is a severe problem for maintaining quality of urban drinking water in the coastal region.
- Therefore ensure upstream freshwater supply and desalination technology could solve the drinking quality management in the coastal towns.
- Peoples participation, awareness education and applied research is necessary and it should be included in national urban water development programme to maintain drinking water quality, supply and management in the coastal towns in Bangladesh.

Thank You for Your Attention

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