

# "Sustainable policy for the flood flow zone and effective Development Control Mechanisms: Dhaka City"

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Multi-Purpose Hall, Level 1  
ICCCAD, SESSION 5, LOSS AND DAMAGE

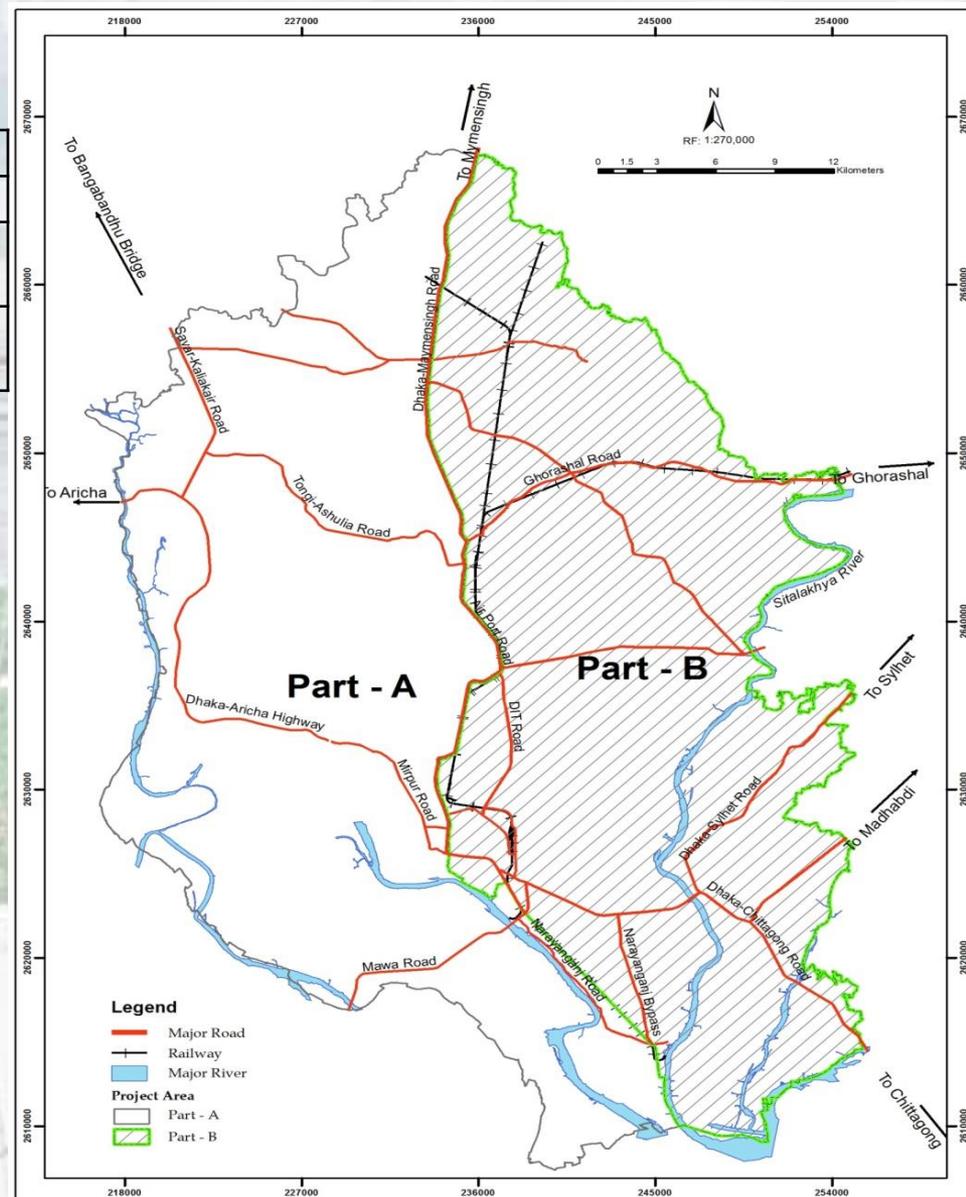
# Objectives:

- 1) Describe status of the Waterbody in Dhaka**
- 2) Describe human actions that threaten wetlands**
- 3) Identify causes of wetland alteration**
- 4) Major Effects of Waterbody Losses**
- 5) Sustainable policy for protecting the Flood zone and Effective Development of the Dhaka city.**

# Study Area

Name	Description
Districts	Dhaka (Part), Narayanganj (Part), Gazipur (Part)
Upazilas	NarayanganjSadar, Bandar, Sonargaon (part), GazipurSadar (Part),
City Corporations	DNCC, DSCC, Narayanganj and Gazipur (Part)

1. Gazipur City Corporation (eastern part)
2. Narayanganj City Corporation(part)
3. Dhaka North City Corporation (part) and Dhaka South City Copporation (part), Uttara Thana(part), Shyampur Thana (part), Demra Thana, Sutrapur Thana(part), Tejgaon Thana (part), Ramna Thana(part), Motijheel Thana, Sabujbag Thana, Khilgaon Thana, Badda Thana, Gulshan Thana, Kotwali Thana (Part), Lalbag Thana (part)
4. Narayanganj Thana (part)



# What is wetland?

Land consisting of marshes or swamps; saturated land

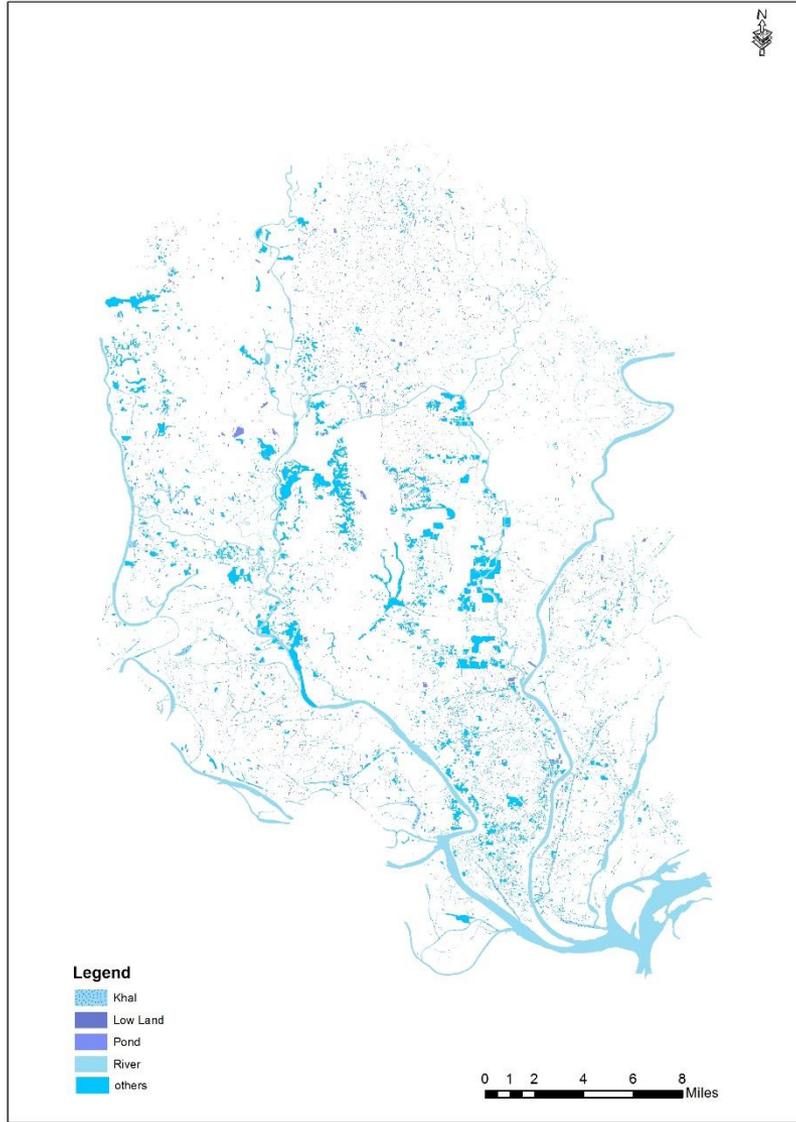


Among all type of water bodies marshy land has highest area coverage in the entire region. It has been found total 7320.73 acre (3232.54 acre in central region, 2219.48 acre in Eastern region, 775.43 acre in Northern region, and 1093.28 acre in Eastern region) of marsh land in the study area.

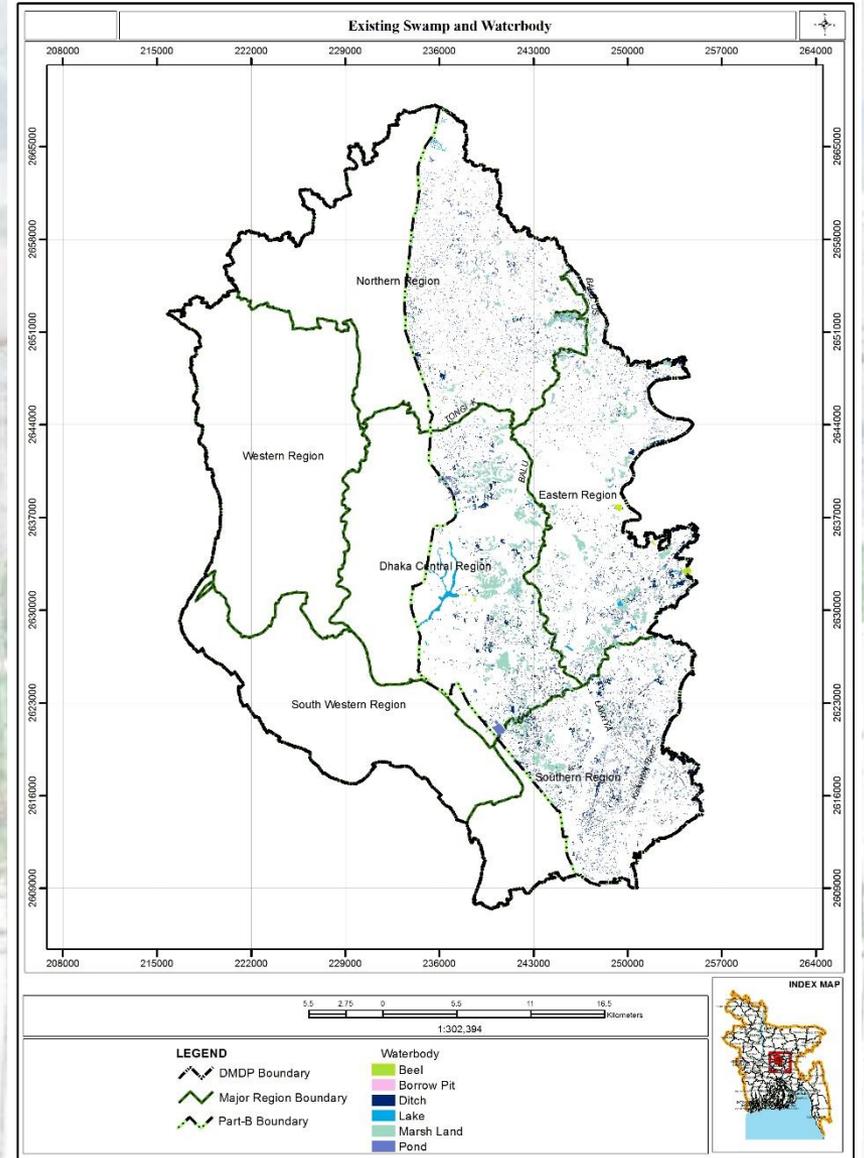


**Flood zones describes that land area in terms of its risk of flooding. Everyone lives in a flood zone—it's just a question of whether you live in a low, moderate, or high risk area.**

Waterbody in 2006

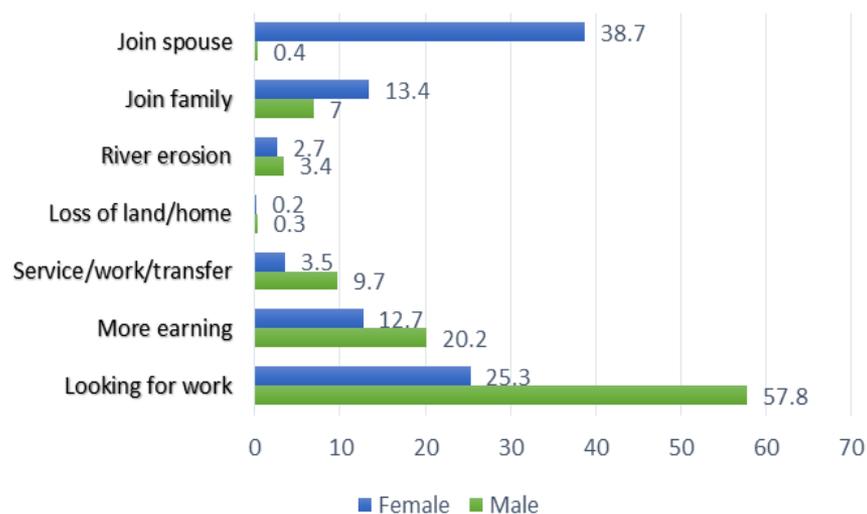


Existing Swamp and Waterbody

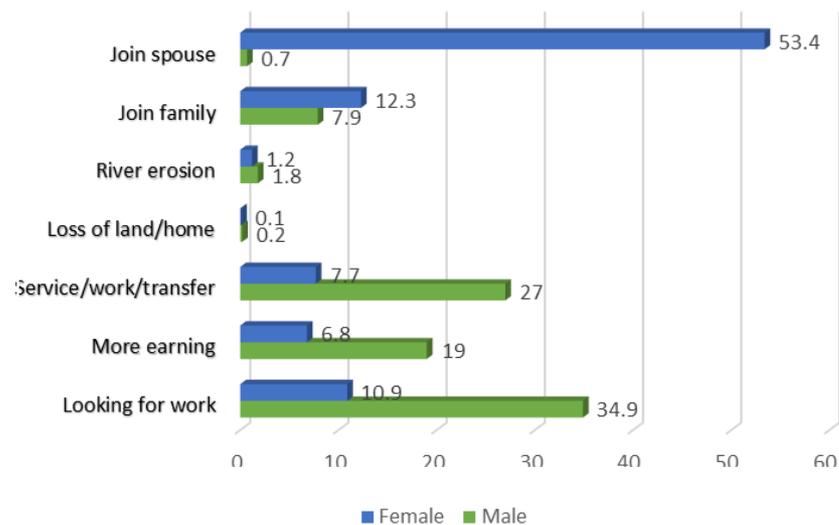


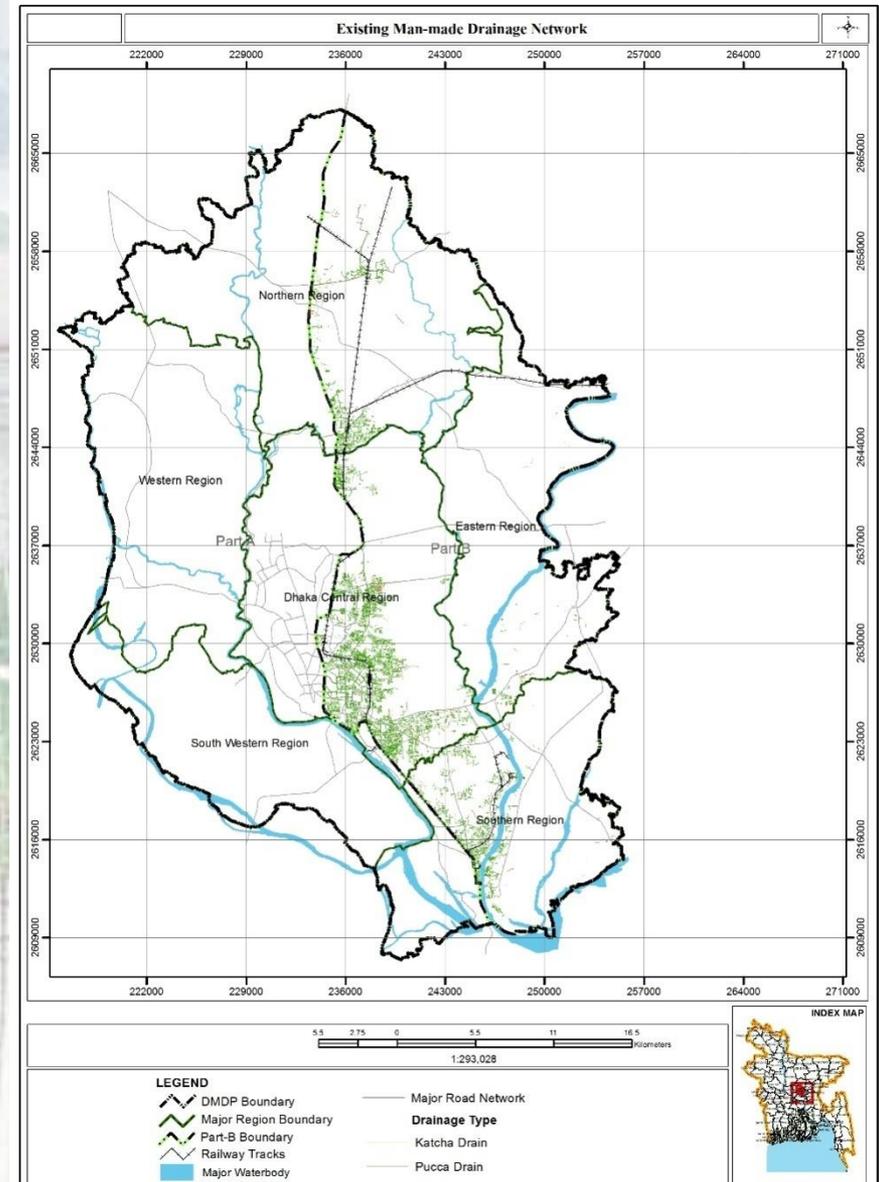
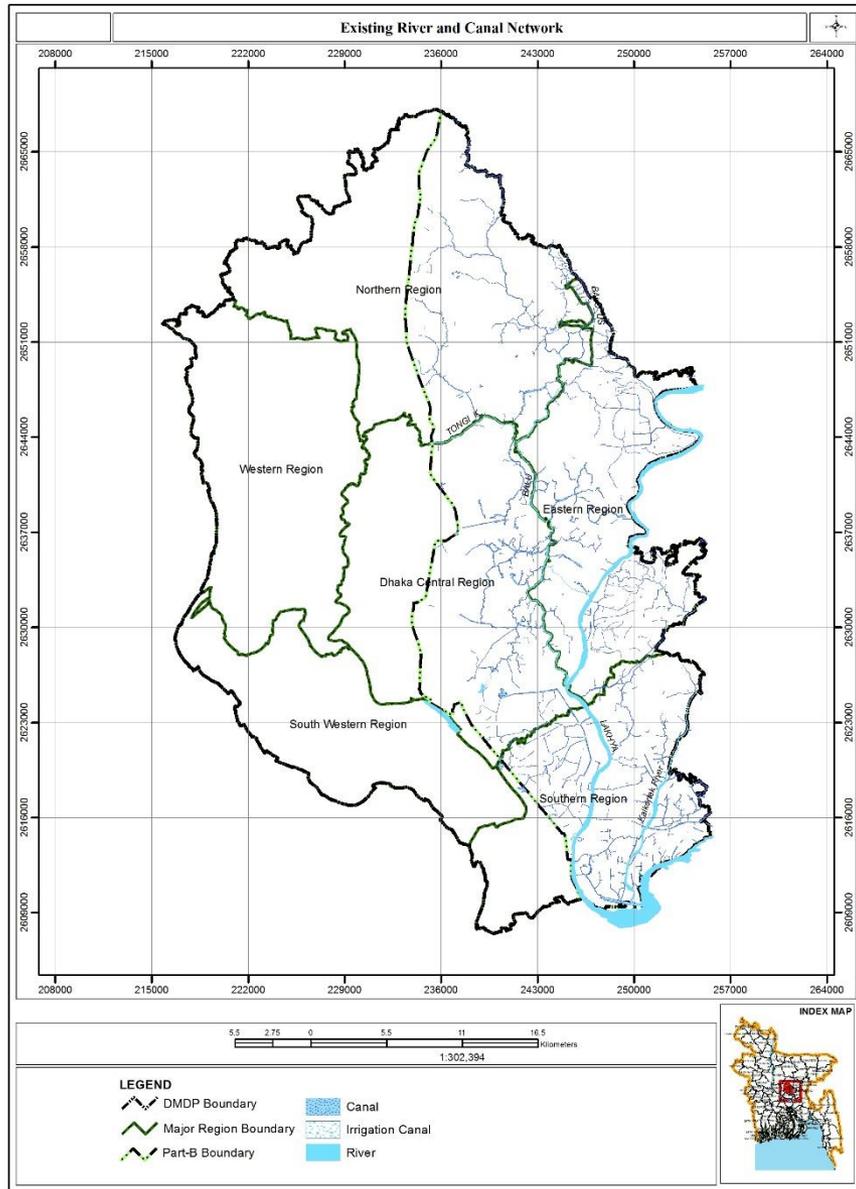
Year	Population	Growth Rate in Dhaka City (% per year)	National Growth Rate (% per year)	In Migration Rate (% per year)	Growth Due to In Migration (in %)	Growth Due to Natural Increase (%)
1941	2,39,728	4.14	-	-	-	-
1951	4,11,279	1.28	-	-	-	-
1961	7,18,766	5.18	-	-	-	-
1974	20,68,353	9.32	2.50	6.62	73	27
1981	34,40,147	9.94	2.32	7.62	77	23
1991	71,24,730	7.55	2.01	5.54	73	27
2001	1,02,53,992	3.71	1.58	2.13	57	43
2011	1,51,23,293	3.96	1.47	2.49	63	37

### Migration Reasons in Slums



### Migration Reasons in non Slums





Rain water of different zones is transported through the Khals and manmade drainage system to the rivers. Both manmade and natural drains of an urban ecosystem are important factors to be protected for well-functioning of the city. Natural wetland in the urban area is also another vital element to act as reservoir of water and to minimize the adverse impact of the sudden flood.

Name	Length (m)	Average Depth (m)	Area (km <sup>2</sup> )	Volume (m <sup>3</sup> )
Ramna Lake	400	4.5	0.03	90000
Gulshan-Banani Lake	3800	5.5	0.48	1200000
Hatirjheel Lake	3000	5.0	1.078	2160000
Gulshan-Baridhara-Badda Lake	4500	5.5	1.50	

## Major Rivers in the Study Area

River Name	Length (m)	Length (Km)
Shitalakhya River	30056.69923	30.06
Balu River	30419.15375	30.42
Balu Up-Stream	9911.497607	9.91
Tongi Khal (River)	8190.378086	8.19

The need for settlements for the ever increasing population and economic activities in the city influenced deforestation, encroachment on wetlands and agricultural land all around the city. Most of the lakes of Dhaka city are now more or less occupied due to both formal and informal settlements. Local influential people have also been occupying huge quantities of land reclaimed from lakes, canals and rivers. In fact, the wetland encroachment in Dhaka city has become a regular practice with influential people's demand for land, which is threatening the wetland ecosystem and biodiversity. According to WASA, only 26 canals out of the former 43 are recognizable now in Dhaka city and the rest are somehow encroached to an extent that severely decreased the drainage capacity of the city. The city is also expanding towards the north and the east, occupying agricultural lands. All these create difficulties in water logging during rainy season, reduction of agricultural production, threat to wetland ecosystem, reduced vegetation coverage and reduce recreation facilities

Name of the River	Place	Encroached area in Acres	Year	Length of study (miles)
Sitallakhya	Narayangan	11.061646	2002-2014	1.922839
Sitallakhya	Katchpur	12.769376	2002-2014	2.29768
Balu	Nandipara	2.009378	2002-2014	1.903298
Balu	Demra	6.814914	2002-2014	1.647296
Tongi khal	Abdullahpur (Tongi)	79.441066	2004-2014	2.898093

There are more than 40 canals within the study area that could have remarkable contribution in drainage service. The whole system is not functioning properly due to encroachment of these canals and improper management and overload of sewage. However, all the canals flowing through different areas finally join the river system i.e. Hatirjheel, Ramna and Basundhara. Mahakhali-Begunbari Khal joins the Balu River. The major lakes are Gulshan, Banani- Baridhara within the study area.





Encroachment of Banani Lake by Informal Settlements



Encroachment of Gulshan Lake by Formal Settlement

# Major Effects of Waterbody Losses

- **50% loss of spawning grounds for fish**
- **50% loss of waterfowl habitat**
- **50% loss of flood control capability**
- **50% loss of erosion control and sediment-trapping capability**

# Recommendation

Dhaka was inundated again due to flow of about 65 to 200cm above the danger level of the surrounding rivers. In July 2004, the highest flow of the Buriganga, Balu, and Shitalakhkha was 65, 195, 216 cm above the danger level respectively. This overflow of the rivers brought the most part of the Dhaka city under flood water of about 20 to 300 cm causing serious environmental damage. The wetland will fill up day by day by the Housing and Developer Company as a matter of fact the flood flow zone going to be reduced and one day wetland will be vanished and Dhaka's people will be more vulnerable which is the barrier for the Sustainable Development Goals (SDG). So we need effective waterbody preserve policy as well as wetland acquisition and preserve policy which implementing by the Government.

# Climate-resilient Bangladesh

Due to global climate changes, the urban climate of the city is regarded as an important issue to be seriously considered in the process of urban planning. Along with the urban disasters, whether exposed or potential, the degraded environmental issues, such as encroachments of rivers/cannels surrounding the city, water quality, particularly the water pollution, sewage treatment, solid waste management and indiscriminate land filling are also the major challenges to build a sustainable and livable city as well as “Climate-resilient Bangladesh”

## The message

**Save the **Waterbody,**  
create liveable city**



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