

# HAZARD OR RISK –WHAT SHOULD WE CONSIDER IN ADAPTATION PLANNING?

Momtaz Jahan and Rubaiya Kabir

Institute of Water and Flood Management

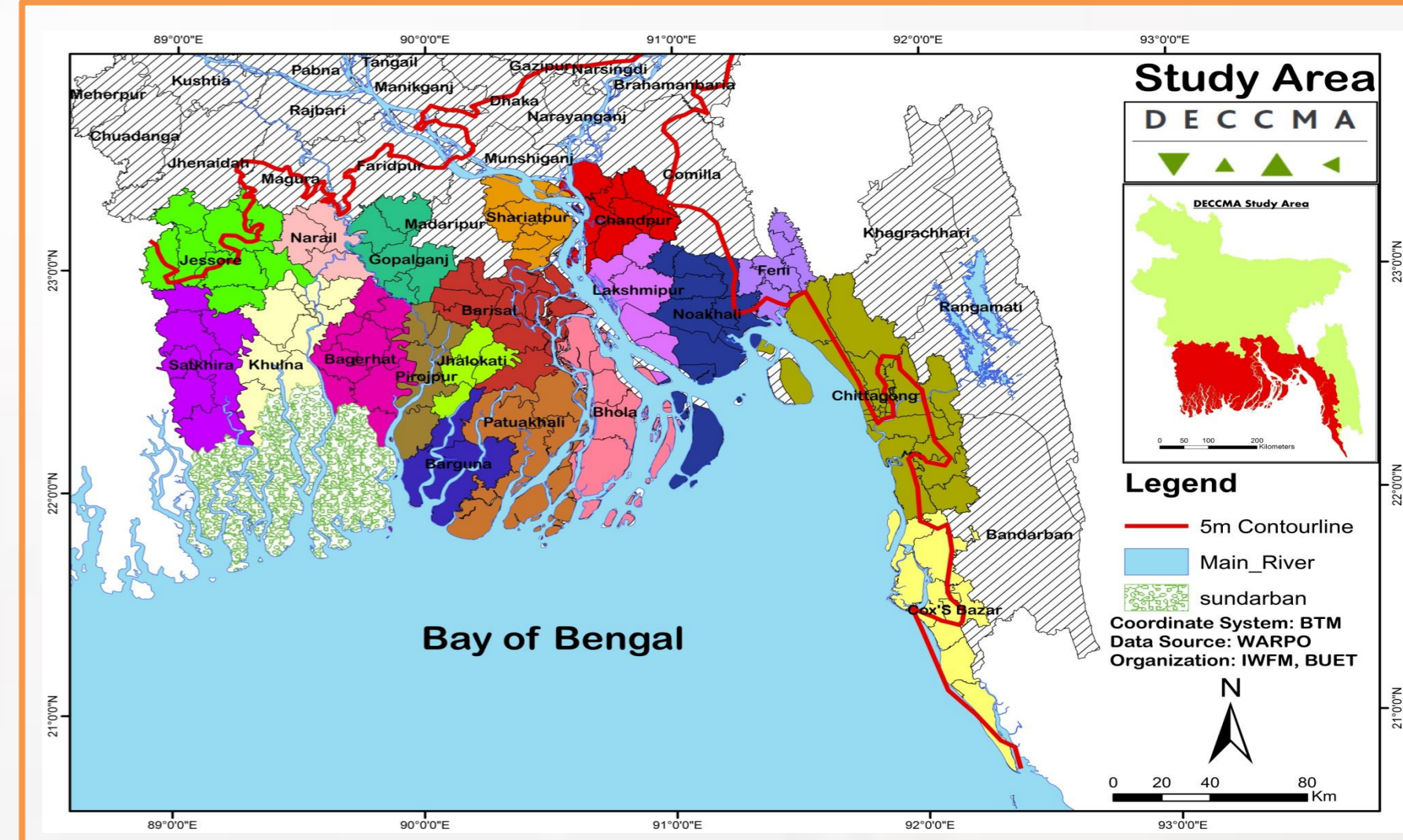
Bangladesh University of Engineering and Technology, Bangladesh



## Introduction

## Study Area

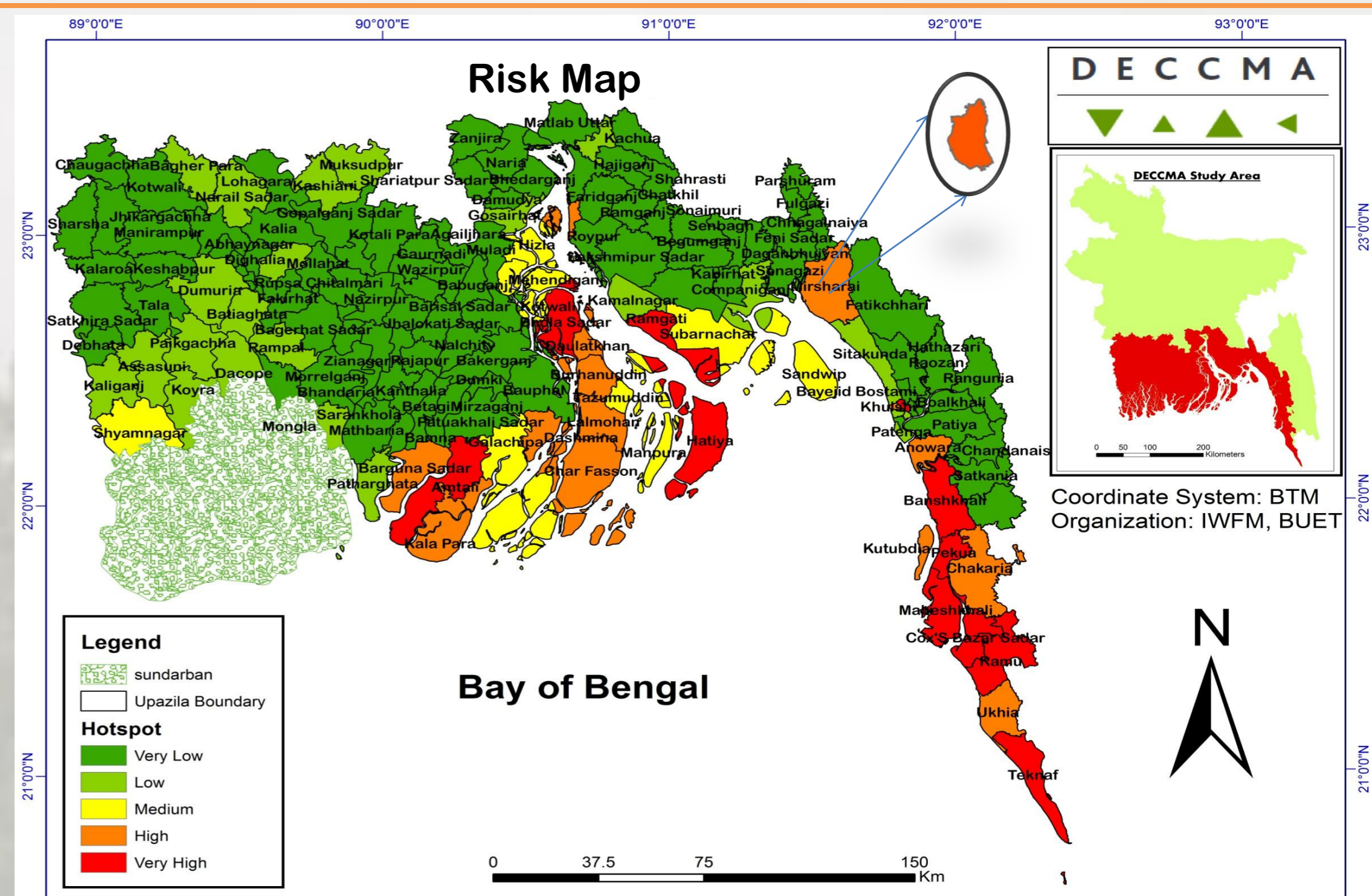
- The dominant hazards in Bangladesh coastal area are cyclonic storm surge, fluvio-tidal flood, salinity intrusion and river bank erosion.
- Multi-hazard map is prepared using the dominant hazards and risk map is prepared using IPCC AR3 approach. Vulnerability indicators are selected based on literature review and expert opinion.
- A particular area might be in a high hazard zone but depending on its vulnerability conditions it might not be at high risk.
- Vulnerability is the function of exposure, sensitivity and adaptive capacity. So a particular area might be at risk if it has high hazards, exposure or sensitivity; but high adaptive capacity will reduce risk of that area.



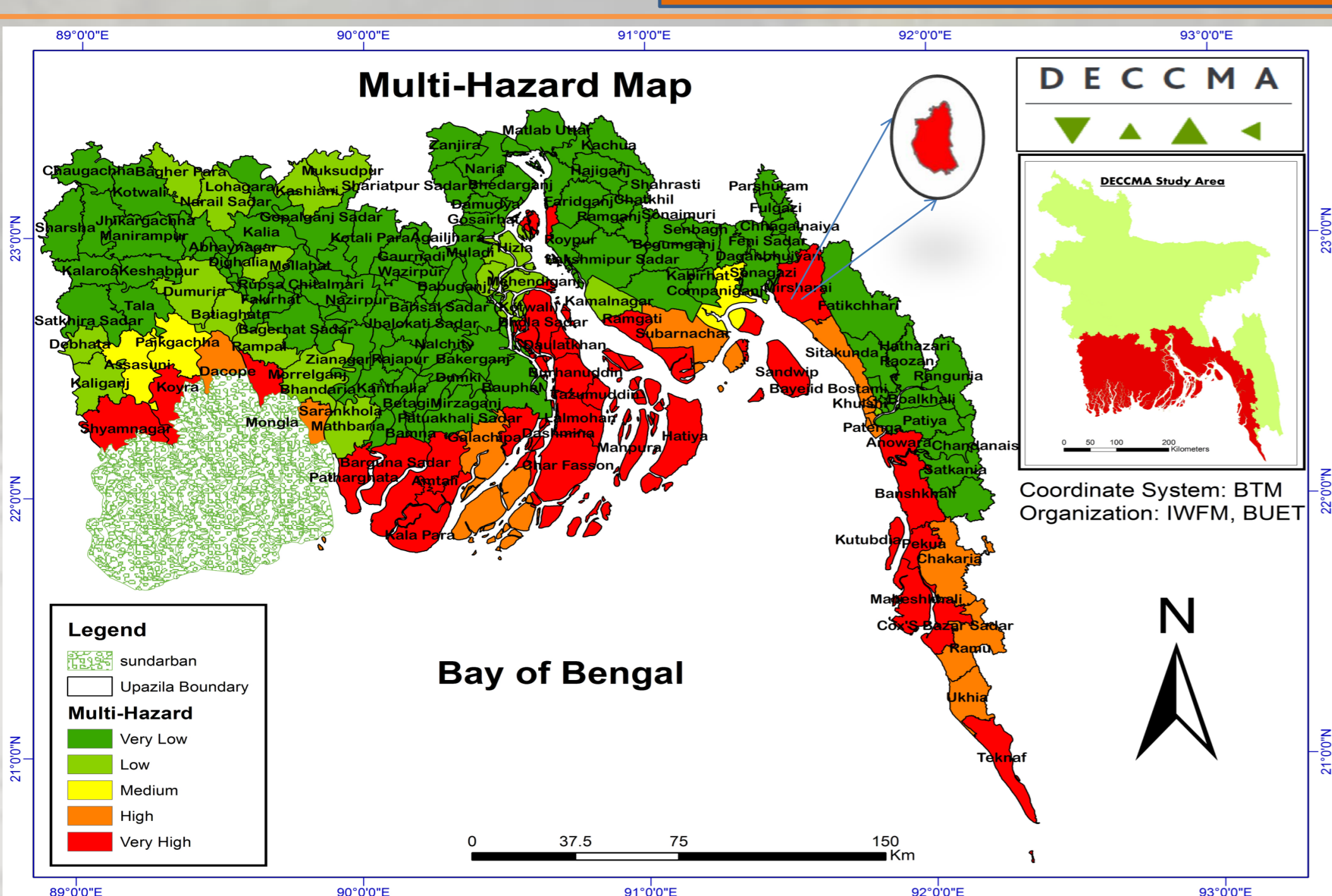
## Methodology

## Risk Map

Exposure (E)	Multi-hazard = $\sum$ Hazards
Population Density	Major hazards
Water Supply	• Storm surge
Number of Household	• Flood
	• Erosion
	• Salinization
Adaptive Capacity (AC)	Risk = Probability * Hazard * Vulnerability
Road Density	Vulnerability = $\int$ (E, S, AC)
Literacy Rate	Sensitivity (S)
Cropping Intensity	Proportion of Crop Land
Cyclone Shelter	Type of Household
Polder	Women, Children and Elderly Population
Land Accretion	



## Multi-hazard Map



District	Upazila	Score	Rank	District	Upazila	Score	Rank
Cox'S Bazar	Teknaf	100.000	1	Patuakhali	Kala Para	69.236	11
Cox'S Bazar	Cox'S Bazar Sadar	97.867	2	Barguna	Amtali	68.286	12
Cox'S Bazar	Maheshkhali	88.799	3	Satkhira	Shyamnagar	68.083	13
Chittagong	Sandwip	84.229	4	Bhola	Burhanuddin	66.932	14
Bhola	Manpura	80.505	5	Khulna	Koyra	66.015	15
Lakshmpur	Rangati	73.588	6	Barguna	Barguna Sadar	65.992	16
Cox'S Bazar	Kutubdia	72.313	7	Chittagong	Banskhali	65.585	17
Cox'S Bazar	Pekua	70.516	8	Chittagong	Anowara	65.278	18
Bhola	Char Fasson	69.962	9	Bhola	Tazumuddin	64.407	19
Noakhali	Hatiya	69.804	10	Bhola	Daulatkhani	64.079	20

## Conclusion

- Mirsharai upazila of Chittagong district is in high hazard zone but not in the high risk zone. Increasing adaptive capacity reduces its vulnerability.
- Risk, not the hazard, is the key determinant expressing perception of comfort and security for a community.
- For adaptation planning, risk map should be considered. Hazard map will be misleading in this context.

## Acknowledgement

District	Upazila	Score	Rank	District	Upazila	Score	Rank
Cox'S Bazar	Teknaf	100.00	1	Cox'S Bazar	Ramu	61.00	11
Lakshmpur	Rangati	90.84	2	Cox'S Bazar	Ukhia	59.17	12
Cox'S Bazar	Maheshkhali	82.19	3	Chandpur	Haim Char	59.11	13
Cox'S Bazar	Cox'S Bazar Sadar	75.09	4	Bhola	Burhanuddin	58.53	14
Noakhali	Hatiya	69.61	5	Cox'S Bazar	Kutubdia	55.36	15
Bhola	Bhola Sadar	68.67	6	Bhola	Char Fasson	55.09	16
Cox'S Bazar	Pekua	67.94	7	Barguna	Barguna Sadar	54.84	17
Chittagong	Banskhali	63.97	8	Patuakhali	Kala Para	54.43	18
Chittagong	Khulshi	62.77	9	Chittagong	Anowara	52.85	19
Barguna	Amtali	62.35	10	Bhola	Lalmohan	52.57	20

