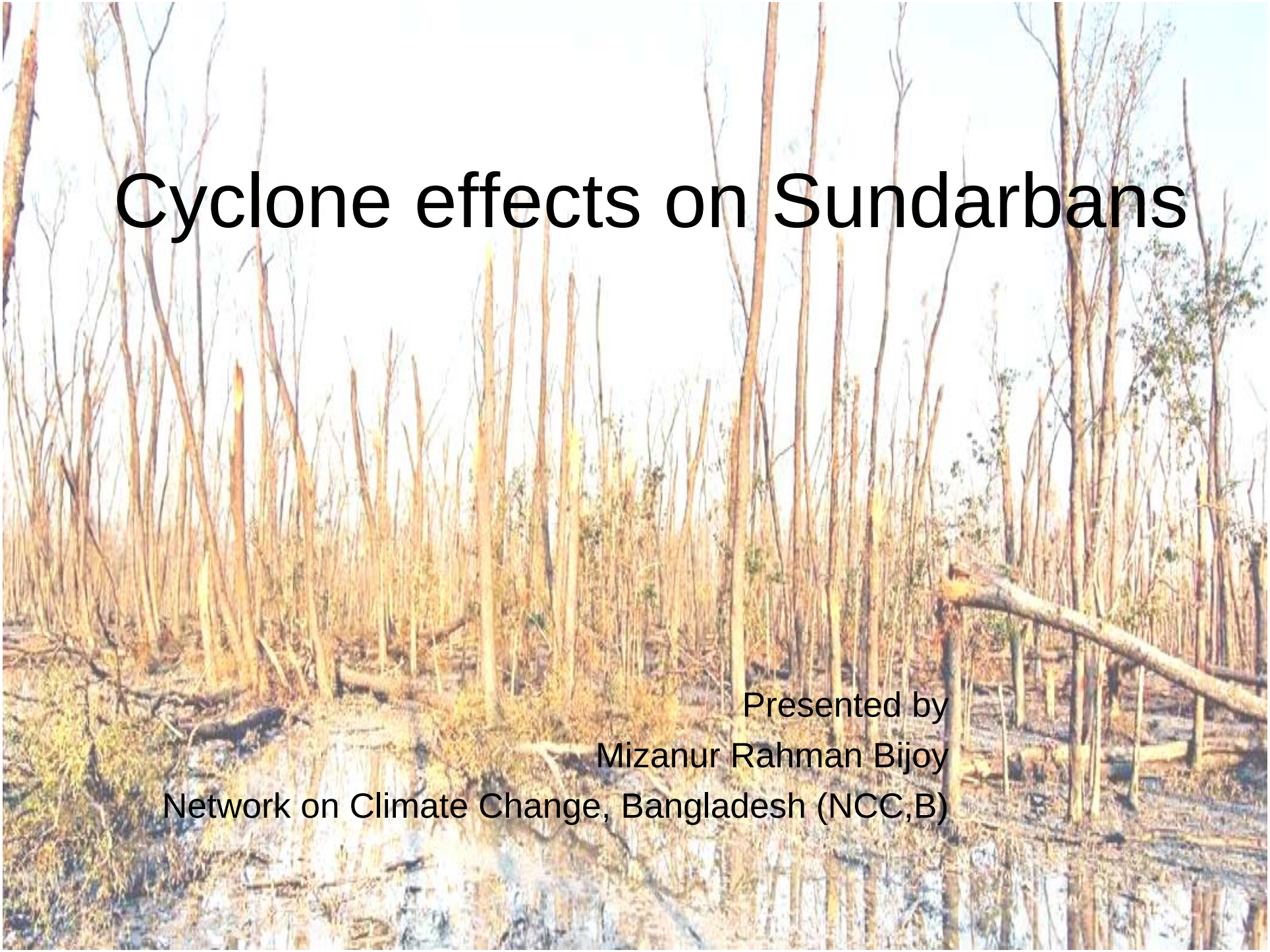

Cyclone effects on Sundarbans

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History of tropical cyclones in SW Cost in the last century

1909 (16 October) Khulna; cyclonic storm-waves; killed 698 people and 70,654 cattle.

1917 (24 September) Khulna; hurricane; 432 persons killed and 28,029 cattle lost.

1942 (October) sundarbans; severe cyclonic storm; number of human lives, exact figures of the loss of wildlife and boats are not available.

1961 (9 May) Bagerhat and Khulna; severe cyclonic storm with a wind speed of 161 km/hr, surge 2.44-3.05m; heavy loss of life in Char Alexander, 11,468 people killed.

1966 (1 October) Sandwip, Bakerganj, Khulna, Chittagong, Noakhali

1971 (28-30 November) Sundarban coast; cyclonic storm with a wind speed of 97-113 km/hr and storm surge of less than 1m;

1973 (6-9 December) Sundarban coast; severe cyclonic storm accompanied by storm surge; low-lying coastal areas of Patuakhali and adjoining offshore islands inundated.

1974 (13-15 August) Khulna; cyclonic storm with a wind speed of 80.5 km/hr; about 600 lives lost and number of cattlehead destroyed.

History of tropical cyclones in SW Cost in the last century

- 1975 (9-12 May) Bhola, Cox's Bazar and Khulna; severe cyclonic storm with a wind speed of 96.5 to 112.6 km/hr; 5 persons killed and a number of fishermen missing.
- 1977 (9-12 May) Khulna, Noakhali, Patuakhali, Barisal, Chittagong and offshore islands; cyclonic storm with a wind speed of 112.63 km/hr; exact figures of the loss of lives and cattle are not available.
- 1988 (24-30 November) offshore islands and chars of Barisal and Khulna; severe cyclonic storm with core wind speed 162 km/hr, storm surge of 4.5m at Mongla point; killed 5,708 persons and lot of wild animals - deer 15,000, Royal Bengal Tiger 9, cattle 65,000 and crops damaged worth about Tk 9.41 billion.
- 1998 (19-22 November) Offshore islands and chars of Khulna, Barisal and Patuakhali; cyclonic storm with maximum wind speed of 90 km/hr, storm surge of 1.22 to 2.44m.

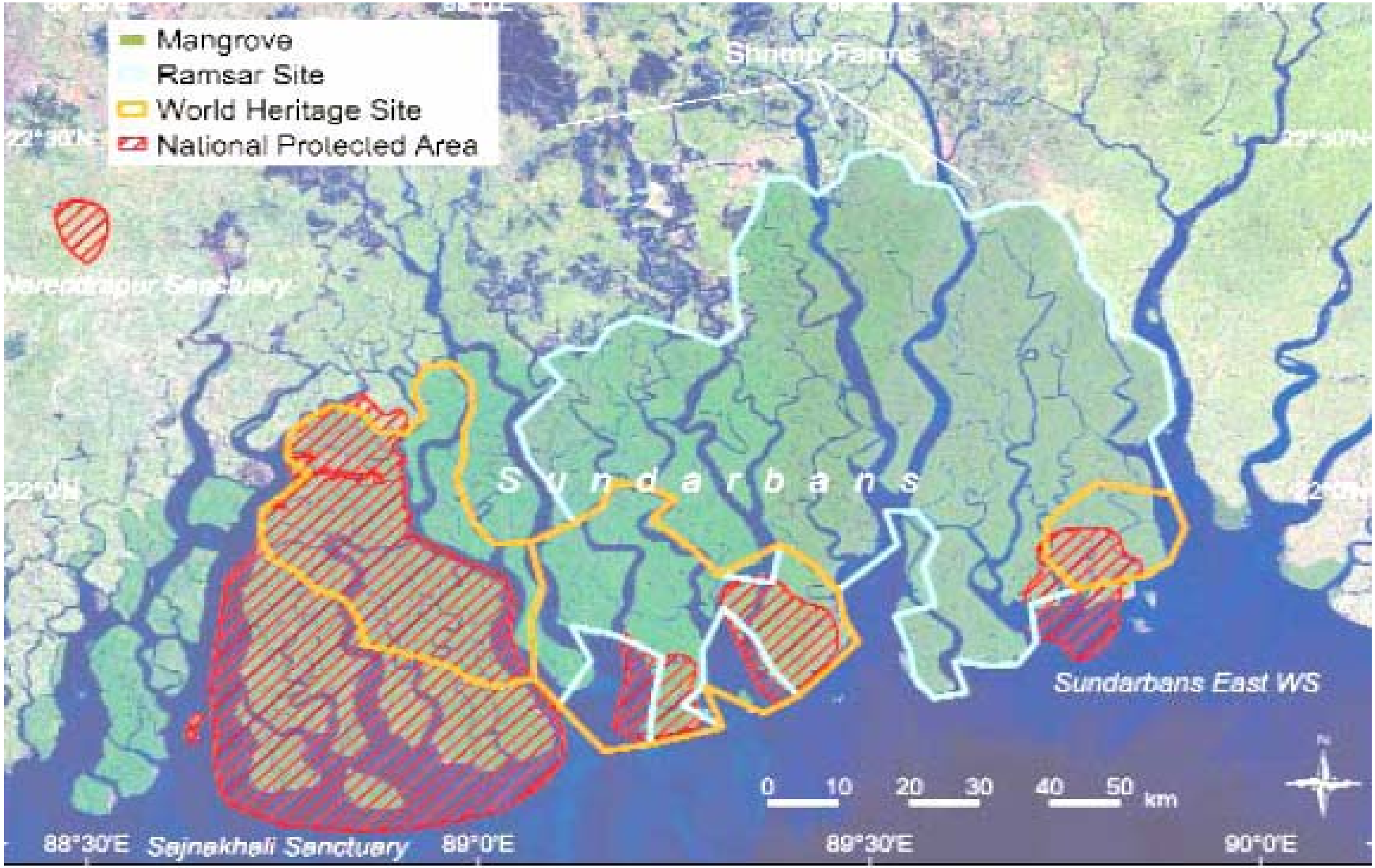
Natural disaster on southern frontier of Bangladesh

- Bangladesh has been experiencing more frequent and intense natural disasters since last few decades. Its southern frontier is one of the most vulnerable regions of the world, which is exposed to many damaging weather events as an effect of climate change and consequent devastation of nature

The Sundarban

- The Sundarban Reserved Forests (60% lies in Bangladesh) is the largest contiguous block of mangrove forest in the world. The Sundarban is a unique bioclimatic zone in a typical geographical situation in the southwestern part of the country facing the Bay of Bengal

Sundarban


Mangrove
Ramsar Site
World Heritage Site
National Protected Area
Shrimp Farms
Sundarbans
Sundarbans East WS
0 10 20 30 40 50 km
88°30'E
Sajnakhali Sanctuary
89°0'E
89°30'E
90°0'E

The Sundarban

- The Sundarban mangrove covers about 0.6 million hectares of land of the country. There are 334 plant species and more then 375 fauna species available in this mangrove forest. It is the homeland of Royal Bengal Tiger (*Panthera tigris tigris*).
- Forest inventory in 1998 estimates 12.26 million cubic meters of wood resources (dbh =15cm) in the SRF. Recent census of tigers (2004) estimated the existence of 440 tigers including 298 female, 121 males and 21 cubs in the Sundarban.

The Sundarban

- Population growth and economic development have brought immense pressure on mangrove wealth and its systems for firewood, timber, fishes, honey and thatching materials etc. About 3.5 million people directly or indirectly depend on the resources of Sundarban.

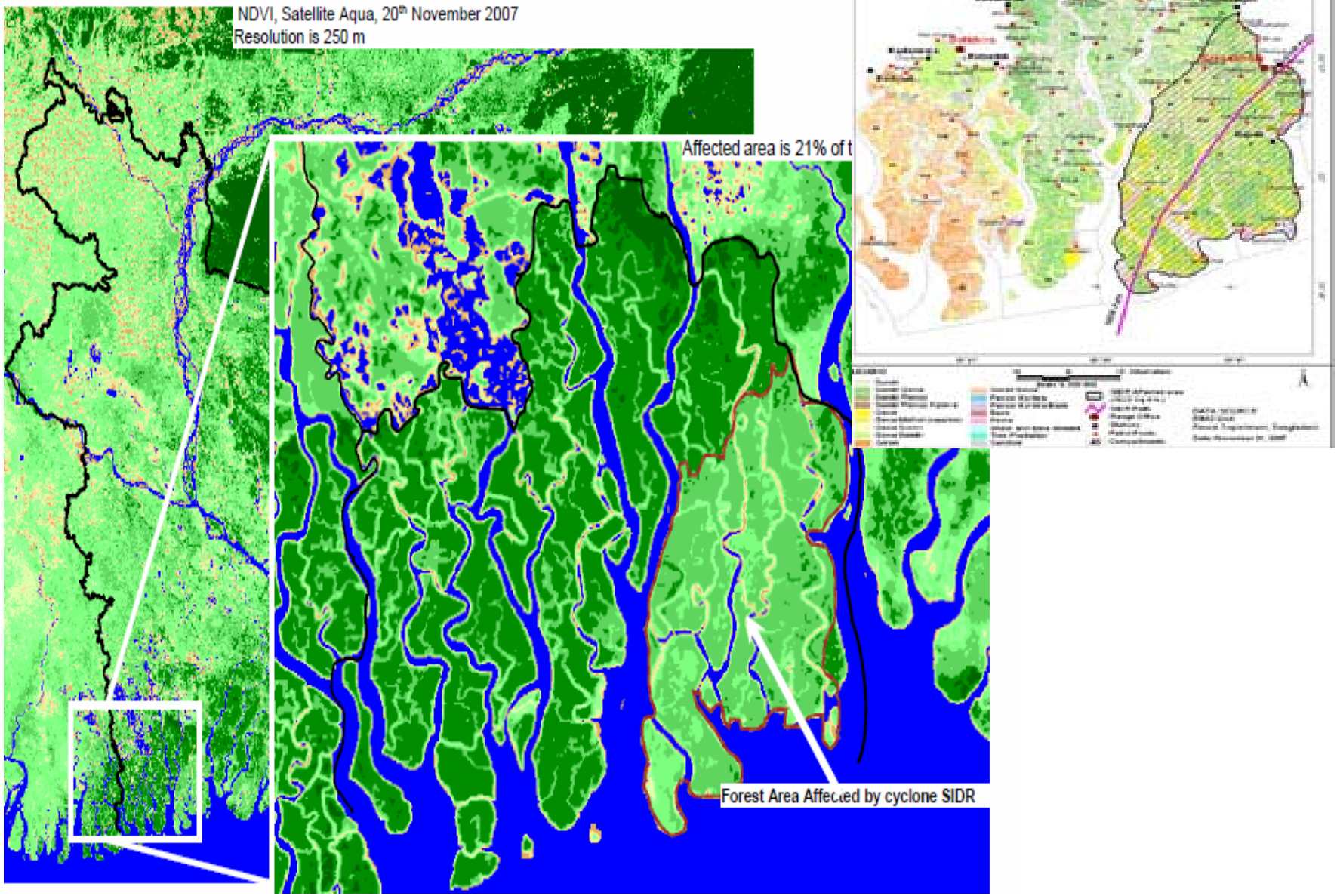
Effects of Disasters on Sundarban

- The *Sundarbans* is already affected by climate change, importantly from increasing salinity and extreme weather events like tropical cyclones.
- Some researchers predict that top dying of *Sundari* trees is likely to be the consequence of slow increase of salinity over a long period of time.

Super cyclone Sidr

- In 2007 super cyclone Sidr, originating in the Bay, ravaged the entire south and southwestern coast with peaking winds over 220km an hour on November 15,. This coastline is home of nearly 12 million people whereas Sidr caused human loss of about 5,000 and made the survivors homeless.

Impact of SIDR



SUNDARBANS TAKES THE BLOW


The Sunderbans absorbed the main blow of the Sidr, saving human lives by slowing down the nature's wrath. According to the forest department, One fourth of the Sundarbans forest area had been damaged by the cyclone Sidr. Eight to ten percent of the forest had been damaged completely, while fifteen percent has been partly damaged *(The Daily Star, 20 Nov'07).*

Damage of Sundarban Reserved Forests by the Cyclone Sidr 2007

	Physical Damage	Amount (lac Taka)
a.	**Damage of Forest Resources**	100,000.00
a.1	Heavily damaged forest 30,000 ha	
a.2	Partial damage of forest 80,000 ha	
	sub-total	*100,000.00*
b.	**Infrastructure (completely damaged)**	
b.1	Office and Residents - 126 nos.	900.00
b.2	Water Vessels - 50 nos.	198.84
b.3	Jetty and Poltoon - 59 nos.	146.32
b.4	Wireless tower, RT sets and Base set - 32 nos.	166.60
	sub-total	*1,411.76*
c.	**Infrastructure (partially damaged)**	
c.1	Office and Residents - 93 nos.	127.03
c.2	Water Vessels - 9 nos.	60.87
c.3	Jetty and Poltoon - 12 nos.	6.76
c.4	Others	393.58
	sub-total	*588.24*
	Grand total	**102,000.00**

- **Effects on infrastructures and water crafts**

- Cyclone Sidr caused devastation of existing infrastructures within the Sundarban by the Forest Department. Administrative offices namely Range, Station, Patrol posts and forest camps are severely damaged. Almost all the offices in the eastern part of Sundarban as well as the personal belongings of the staff members has been damaged. Thirty two communication towers and RT sets are damaged severely and consequently communication is disrupted. Important office documents have been washed off. This has created an immense loss to the government property. Immediate action is needed to re-establish the functionary of the field activities. Fifty nine watercrafts belong to the eastern part of the Sundarban has been destroyed. This has hampered the mobility of the forest staff staying in the remote areas of the Sundaban.

Effect on wildlife

- Cyclone Sidr caused tremendous disruption to wildlife. The loss of wildlife is either due washed away by the cyclone and tidal surges or fall under the broken trees. The Dead animals may cause environmental hazards to the remaining herbivores and other wildlife. The cyclone damaged and broken trees restrict the movement of wildlife caused scarcity of fodder due to loss of regeneration in the forest floor. As the existing ponds in the Sunderban have been infested with the salt water, safe drinking water for the animals is not available.



Effects on Eco-tourism

- In the recent past Sundrban attracted huge number of both local and foreign tourists. Private tour operators have also developed their infrastructures and facilities to accommodate extensive tours inside the Sundarban. Meanwhile the local tour operators, with the assistance of the Forest Department, have developed a systematic and structured tour system. Due to this cyclone existing facilities in the Sundarban has been completely damaged. This caused a huge loss in this sector.

Recommendations

- Coastal vulnerability and risk assessment due to climate change
- Integrated coastal and marine zone management
- Monitoring the impact of climate change on threatened species of Sundarbans Mangrove forest
- Strict control of poaching vulnerable species
- Facilitating natural regeneration and natural succession of native tree species
- Community based coastal afforestration
- Education on climate change, DRR and emergency preparedness
- Public awareness programme to save Sundarbans
- Protecting the Sundarbans against encroachment
- Initiation of International Conservation Programme to save the Sundarbans