PROBABLE IMPACT ON BIODIVERSITY OF SUNDERBANS DUE TO SEA LEVEL RISE

"Royal Bengal Tigers may go extinct by turn of century - reveals study" *says a report by prominent English daily THE DAILY STAR, on 1st March'2010. The report also said, "The Royal Bengal Tigers, one of the world's largest big cat populations, could disappear by the end of this century as rising sea levels caused by climate change destroy their habitat along the Sundarbans coast."*

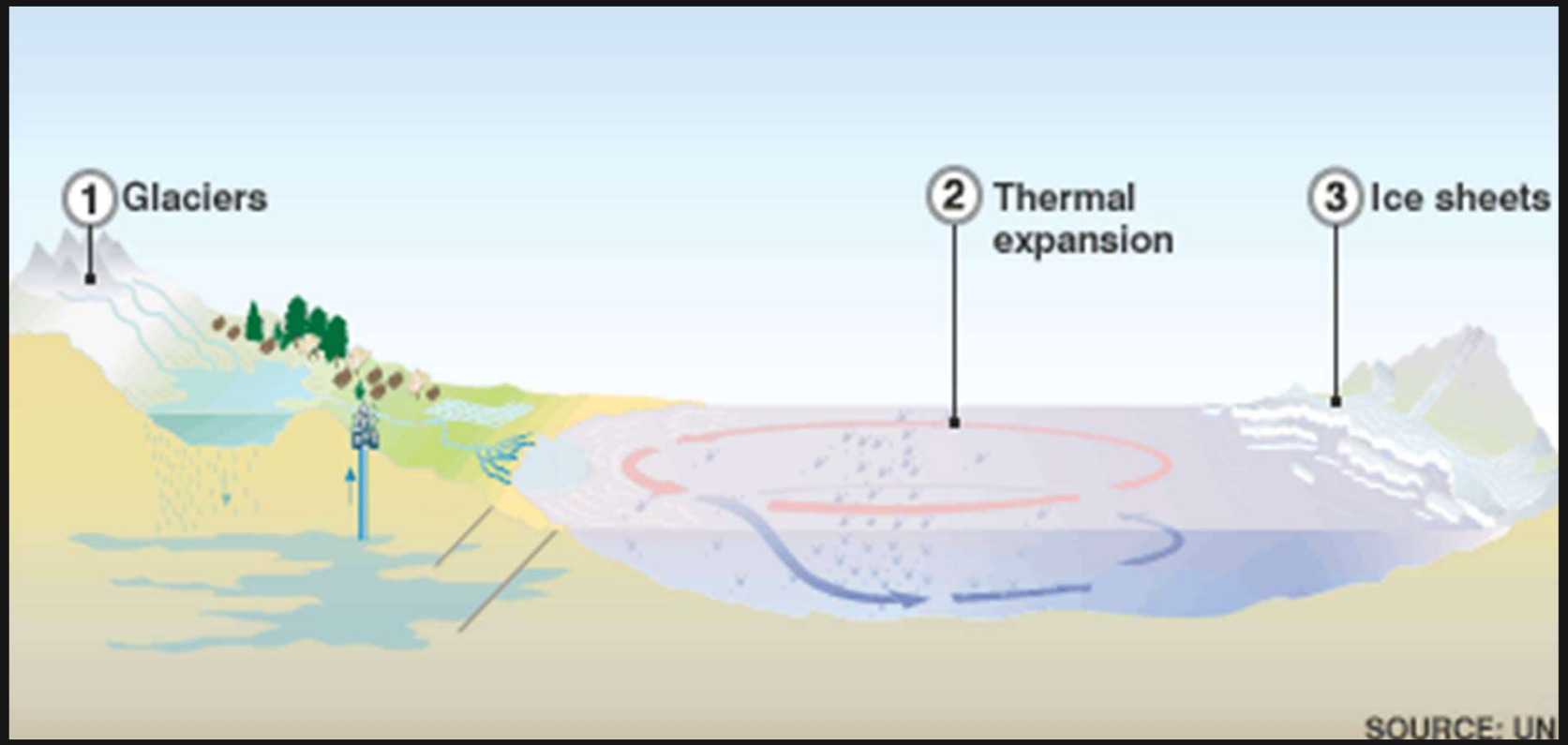
the Bangladesh and Indian portion of the forest are listed in the UNESCO world heritage list separately as the Sundarban i.e.the "beautiful forest" and Sundarban National Park respectively, though they are simply parts of the same forest.

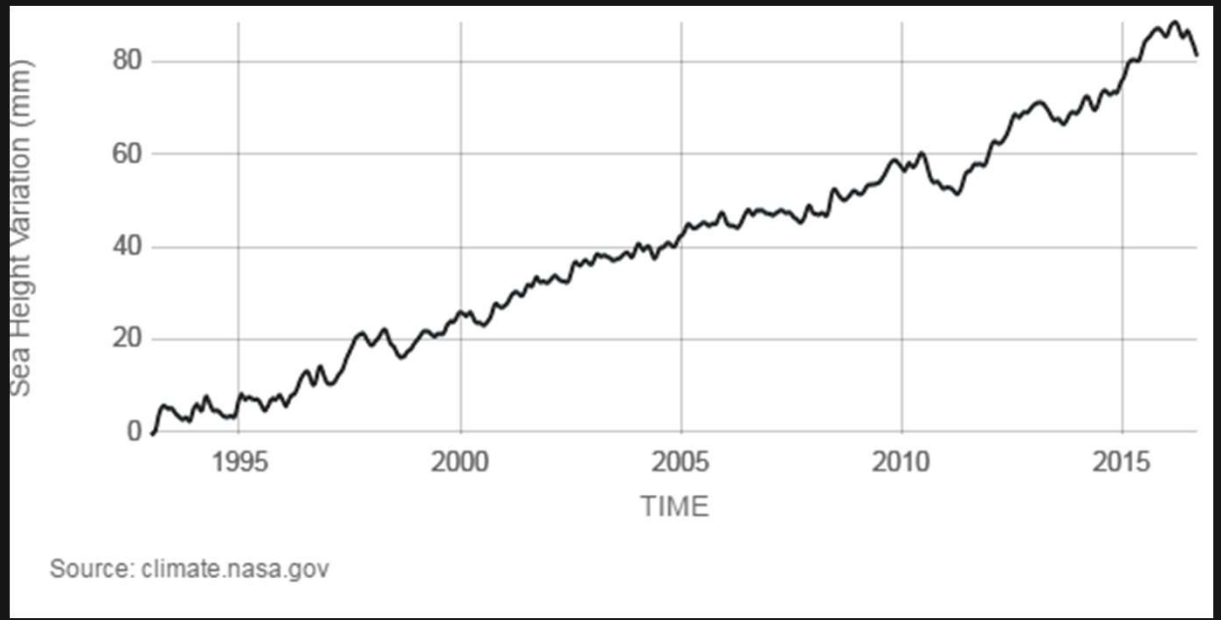
The Sundarbans, its wildlife and the natural resources that sustain millions of people may disappear within 50 to 90 years.

Lost Protection

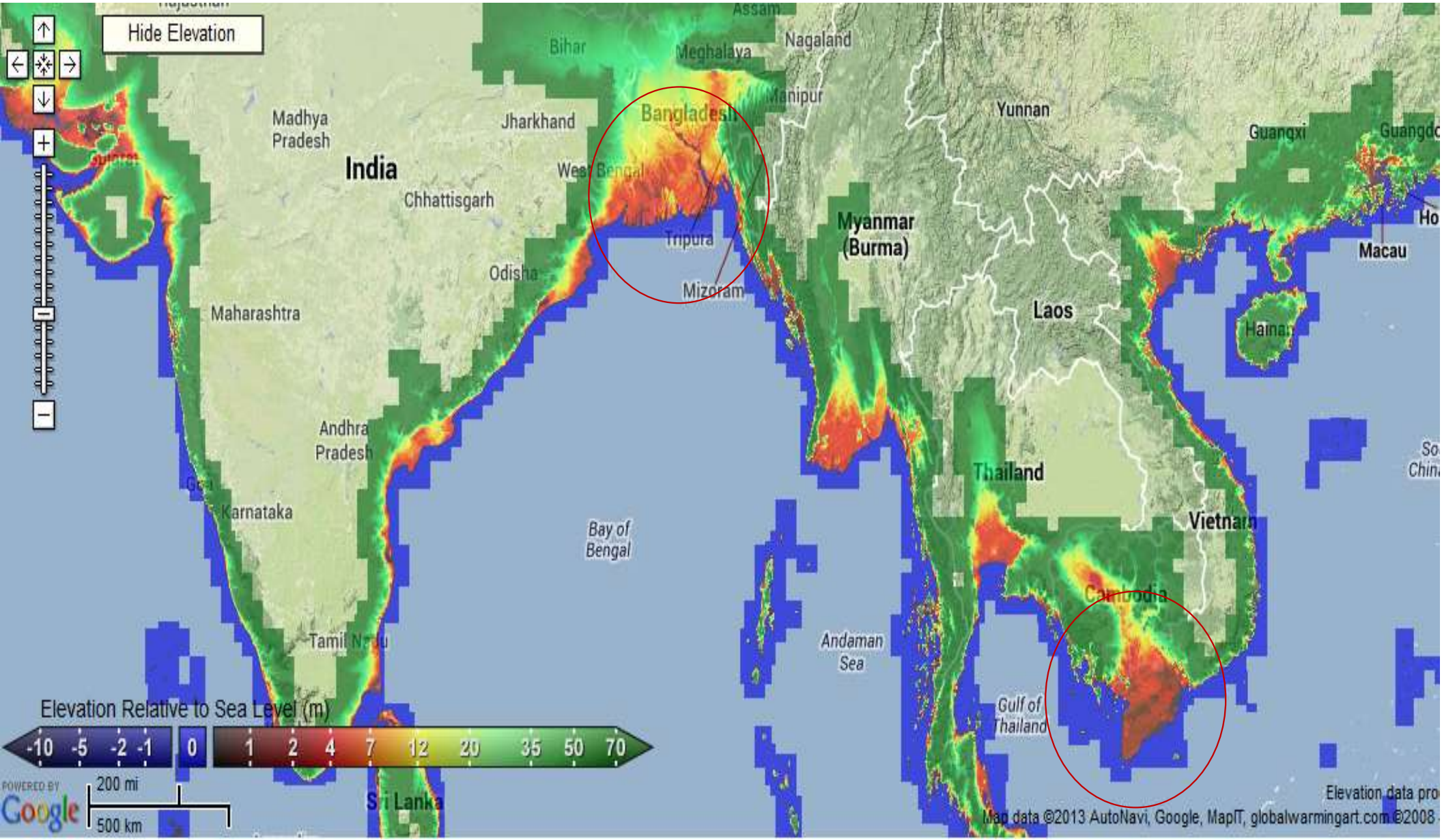
The Sundarbans spans nearly 10360 km2 of India and Bangladesh along the Bay of Bengal. The world's largest continuous mangrove forest, it's home to a wide variety of species. For the 7.5 million people who live in the region, the forest is a natural barrier against tides and cyclones. But as people cut the trees and rising seas bring saline waters, the forest and the land itself are shrinking. More than a million coastal residents have already migrated north.

Causes of Sea Level Rise





Sea Level Change in India, Bangladesh & Vietnam



Sea Level Rise in Bangladesh

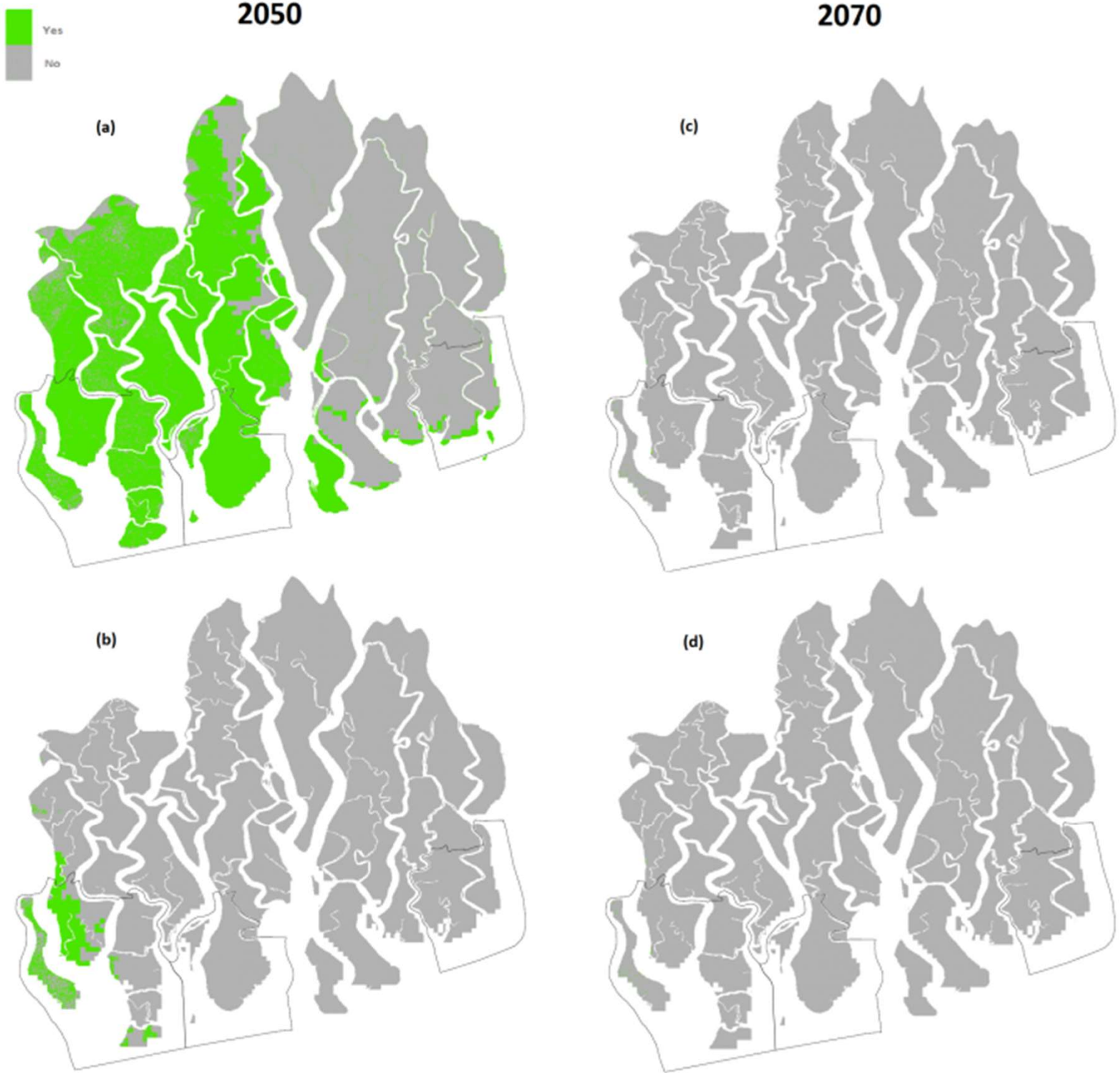
Sources: Dacca University; Intergovernemntal Pannel on Climate Change (IPCC).

Sea level rise

Sea level rise in Bangladesh and its potential impacts

Year	2020	2050	2100
Sea level rise	10 cm	25 cm	1 m (high end estimate)
Land below SLR	2 % of land (2,500 km2)	4 % of land (6,300 km2)	17.5% of land (25,000 km2)
Ecosystem	Inundates 15% of the Sundarbans.	Inundates 40% of the Sundarbans.	The Sundarbans wouldbe lost.
Salinity	Increase	Increase	Increase

Sea level rise	Potential impacts
10 cm	*will inundate 15% of the Sundarbans*
25 cm	*will inundate 40% of the Sundarbans*
45 cm	*will inundate 75% of the Sundarbans*
60 cm	*will inundate the whole Sundarbans*
1 metre	*will destroy the whole Sundarbans*


2050
2070
Yes
No
(a)
(b)
(c)
(d)

Impacts due to sea level rise:

The main impact of sea level rise on water resources is the reduction off fresh water available due to salinity intrusion. Both water and soil salinity along the coast will be increased with the rise in sea level

Increased salinity will change the habitat pattern of the forest. Sundari, the most typical kind of tree in the Sundarbans is thought to suffer from top dyeing disease because of increased salinity (Kausher et al., 1993).

The resultant increase in salinisation and accretion of sediments may alter vegetation composition.

Eventually the species offering dense canopy cover would be replaced by non-woody shrubs and bushes, while the overall forest productivity would decline significantly. The degradation of forest quality might cause a gradual depletion of rich diversity of the forest flora and fauna of the Sundarbans ecosystem

Natural habitat will be destroyed due to inundation

Bengal tiger could go extinct as Sundarban habitats entirely vanish by 2070 because of climate change

The reasons behind so many species of tigers dying out are:

Habitat loss
Poaching
Effects of climate change
Drastic reduction in breeding among different tiger populations as per genomic evidence

"Beyond climate change, the Sundarbans are under growing pressure from industrial developments, new roads, and greater poaching

So, tigers are getting a double whammy -- greater human encroachment on the one hand and a worsening climate and associated sea-level rises on the other,


2006

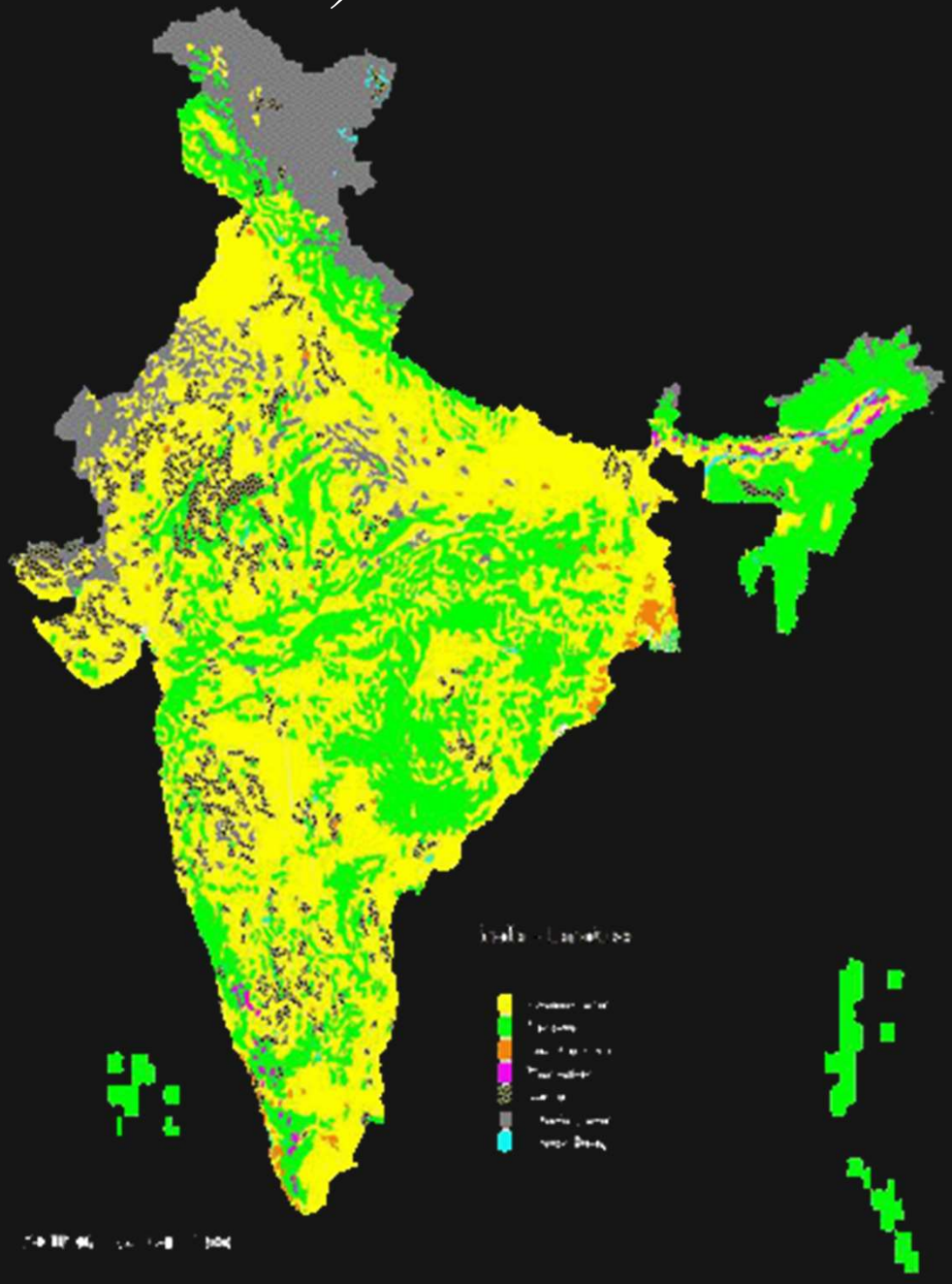
Climate change on Forests of India (Sukumar & Ravindran 1995)

Shift in vegetation type boundaries i.e in Western Ghats the moist forest species are shifting eastward.

Species of lower altitude migrating to higher altitude.

Mountain forests of Western Ghats would change into grasslands.

Increase in dry season length would increase the risk of forest fires in moist and dry deciduous forests.



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