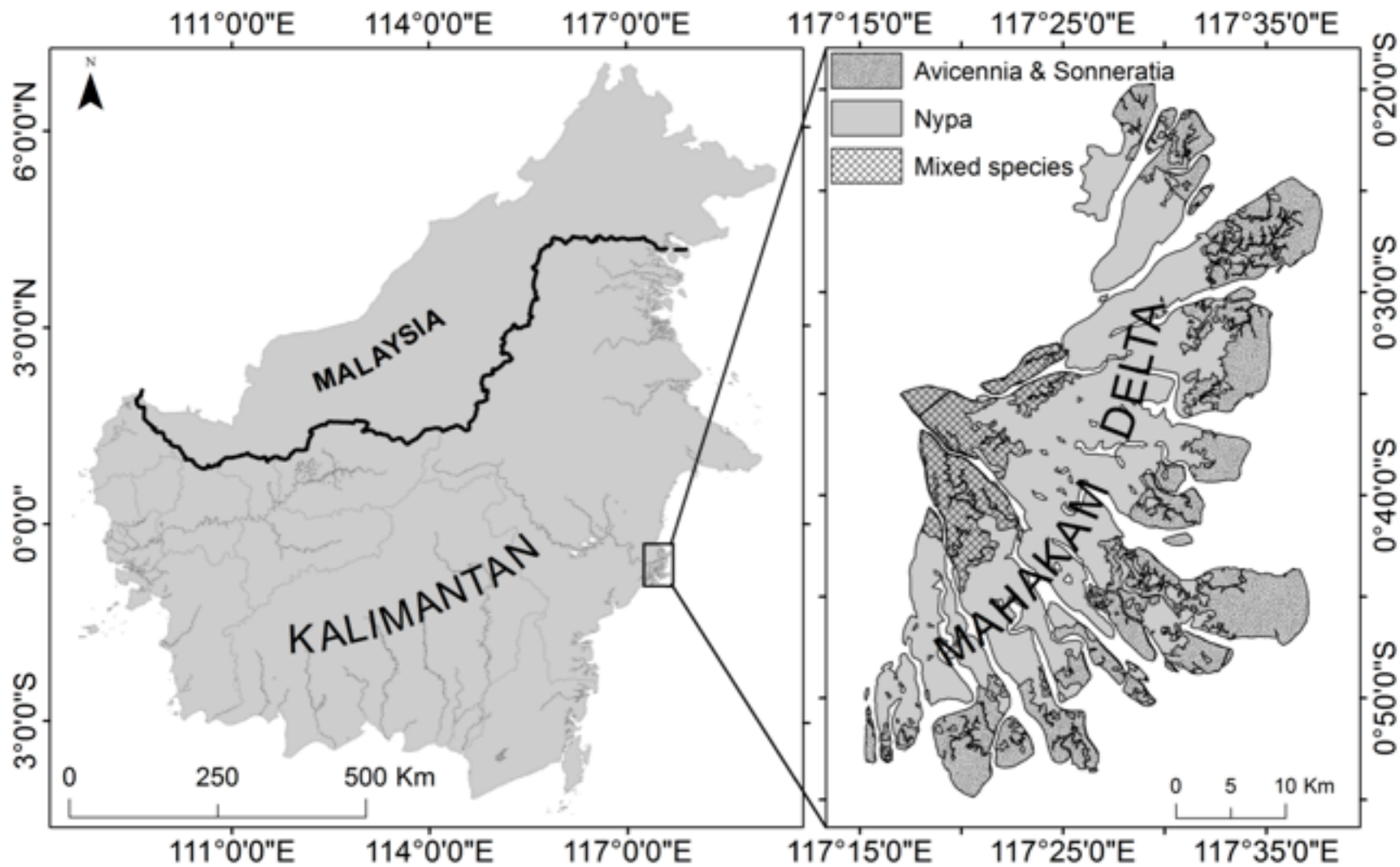
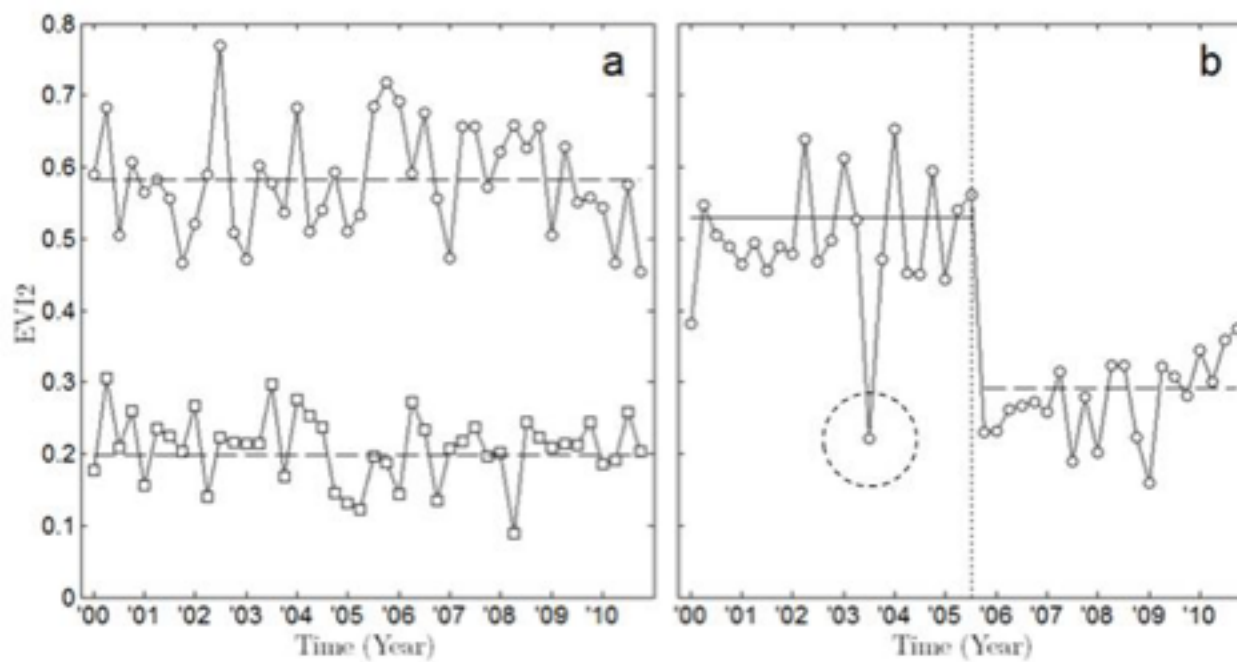


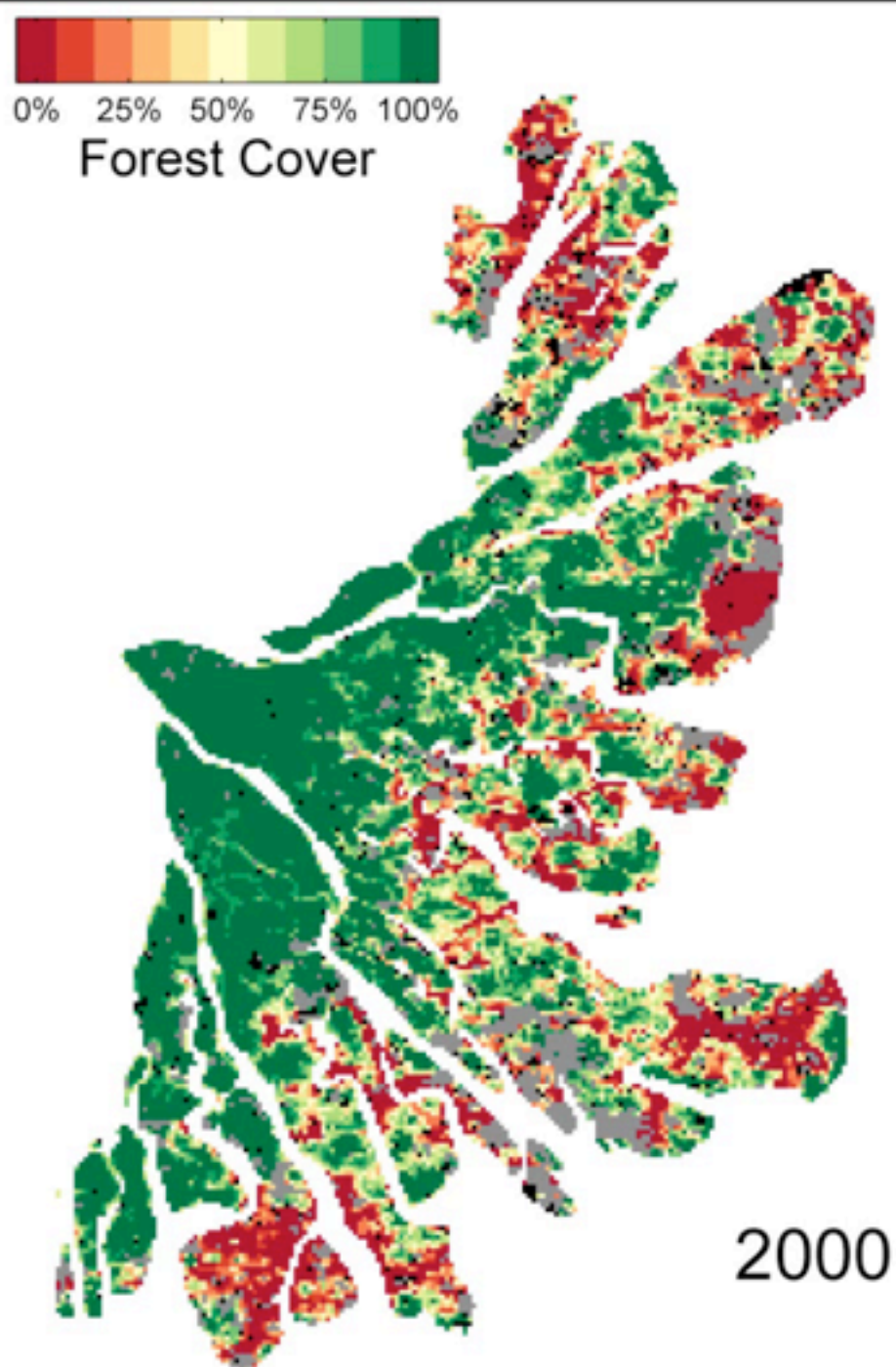
# Optical Remote Sensing for Estimating Mangrove Deforestation, Land Loss, Stress & Some Other “Stuff”



Faiz Rahman





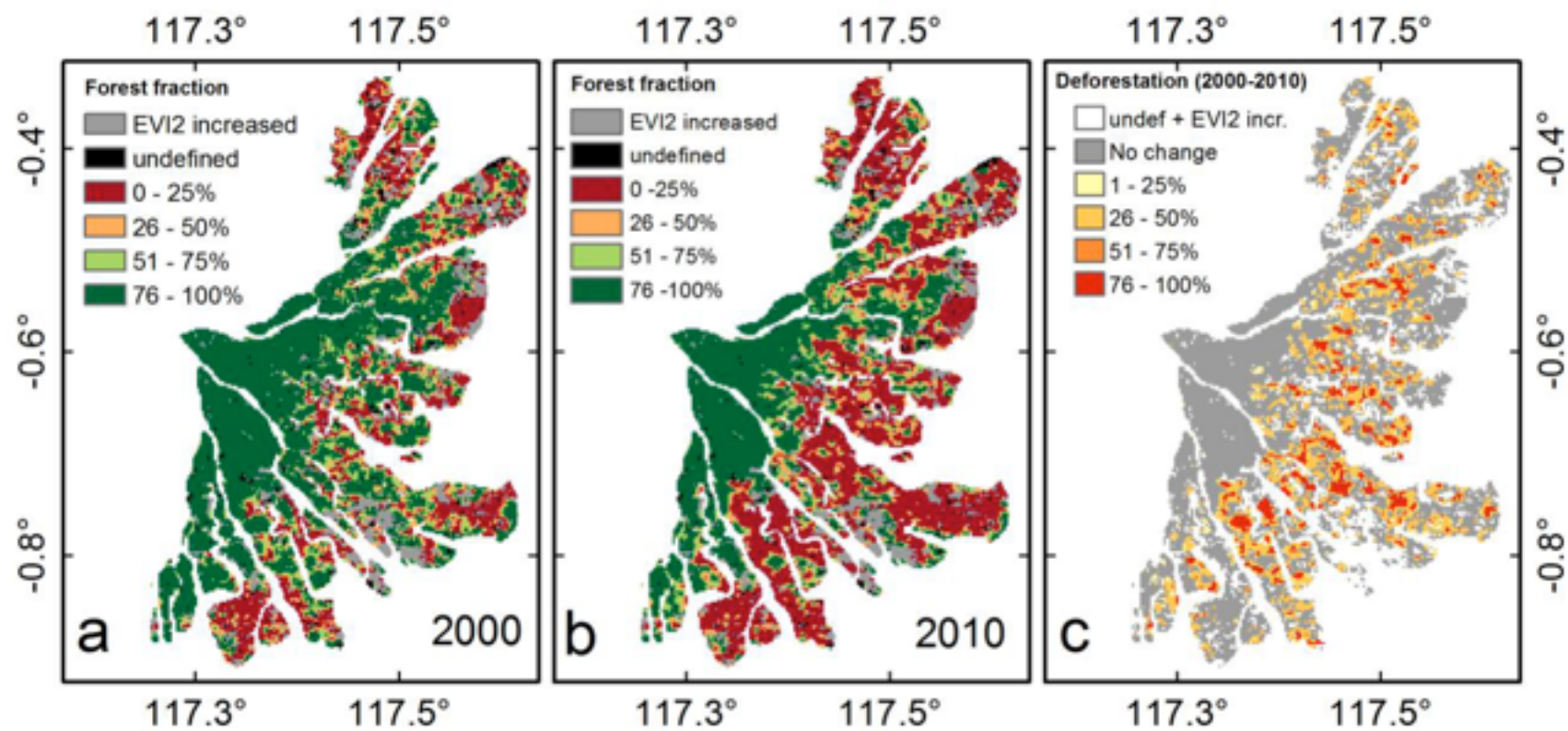




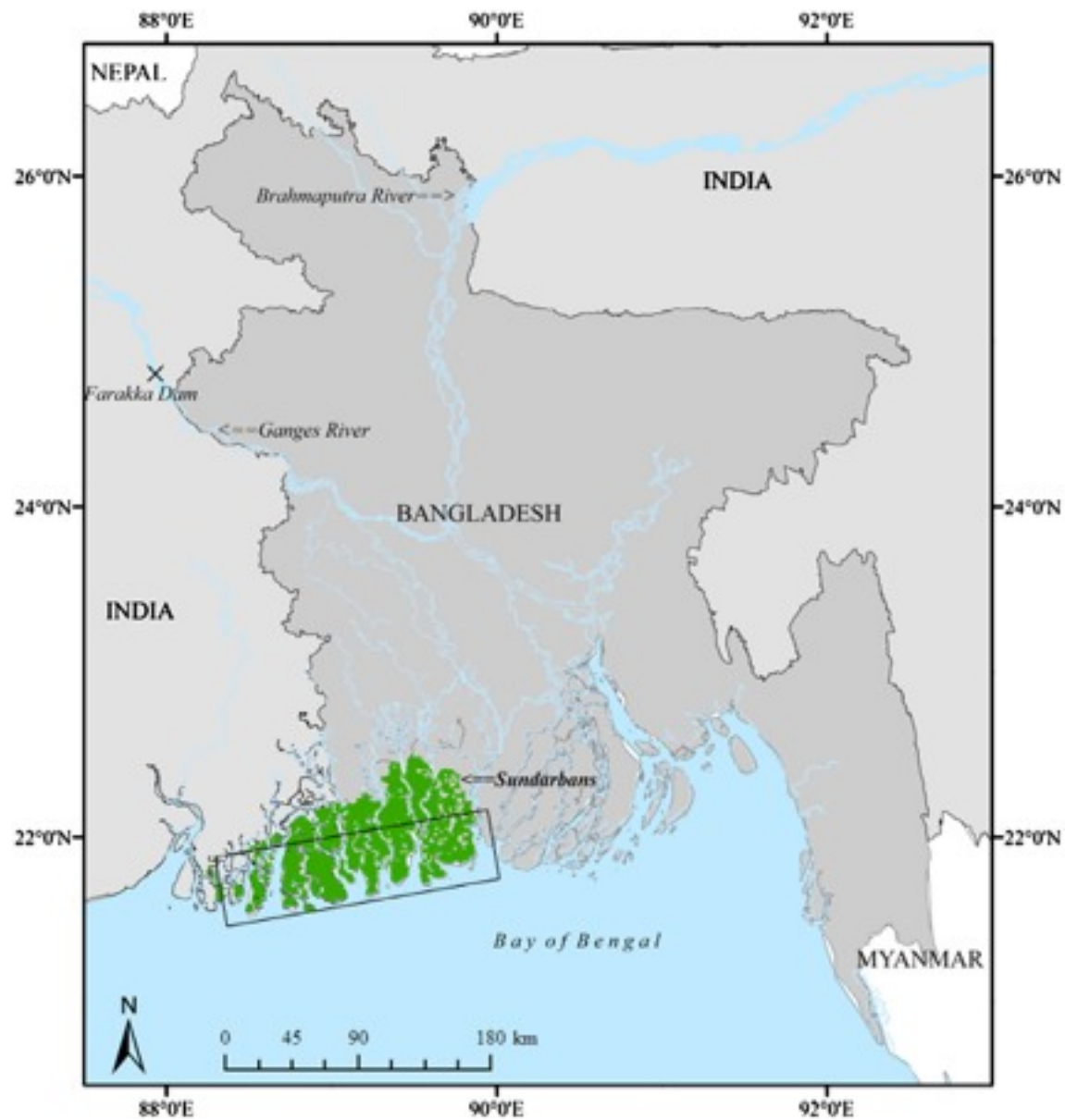
In 2000 - 2011 a total of  $21,000 \pm 152$  ha of mangrove were deforested & converted to shrimp ponds.

In 2000, deforested land covered 47% of the entire delta, while in 2010 it increased to 75%.

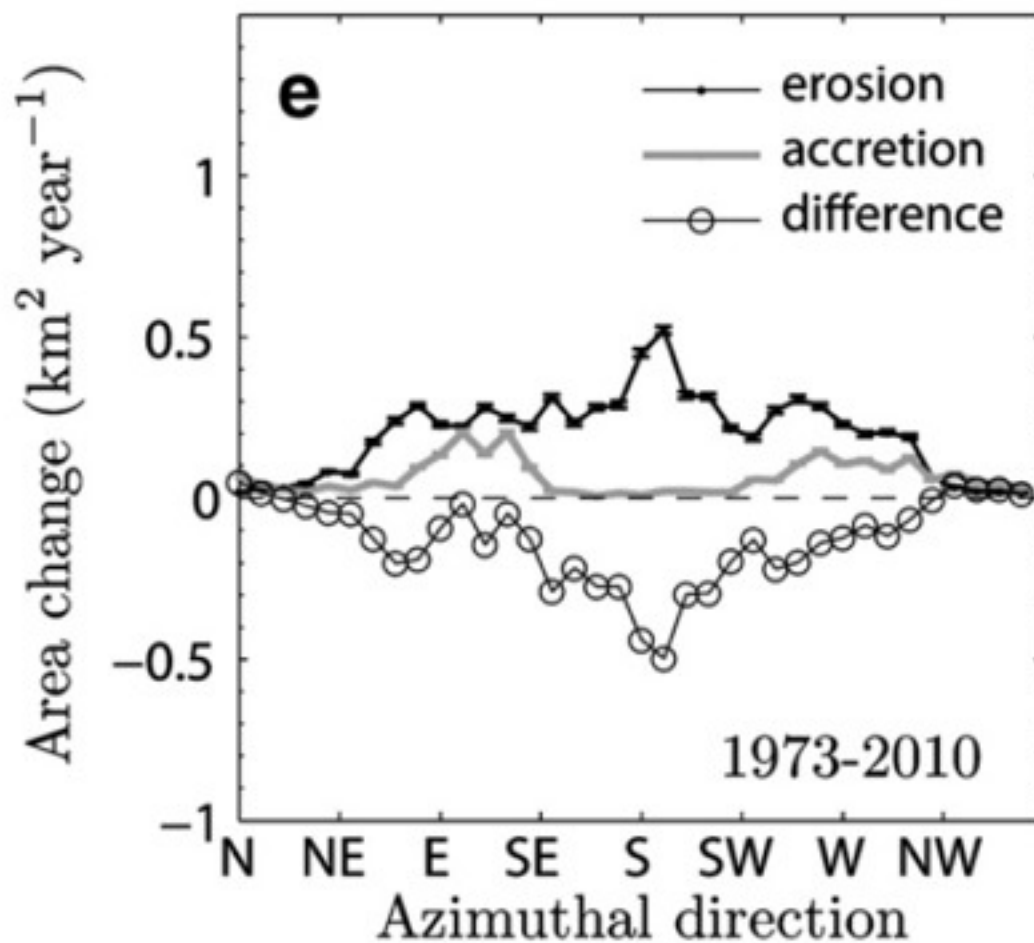
Deforestation rates varied in each year, but peaked in 2002 and constantly declined since then.

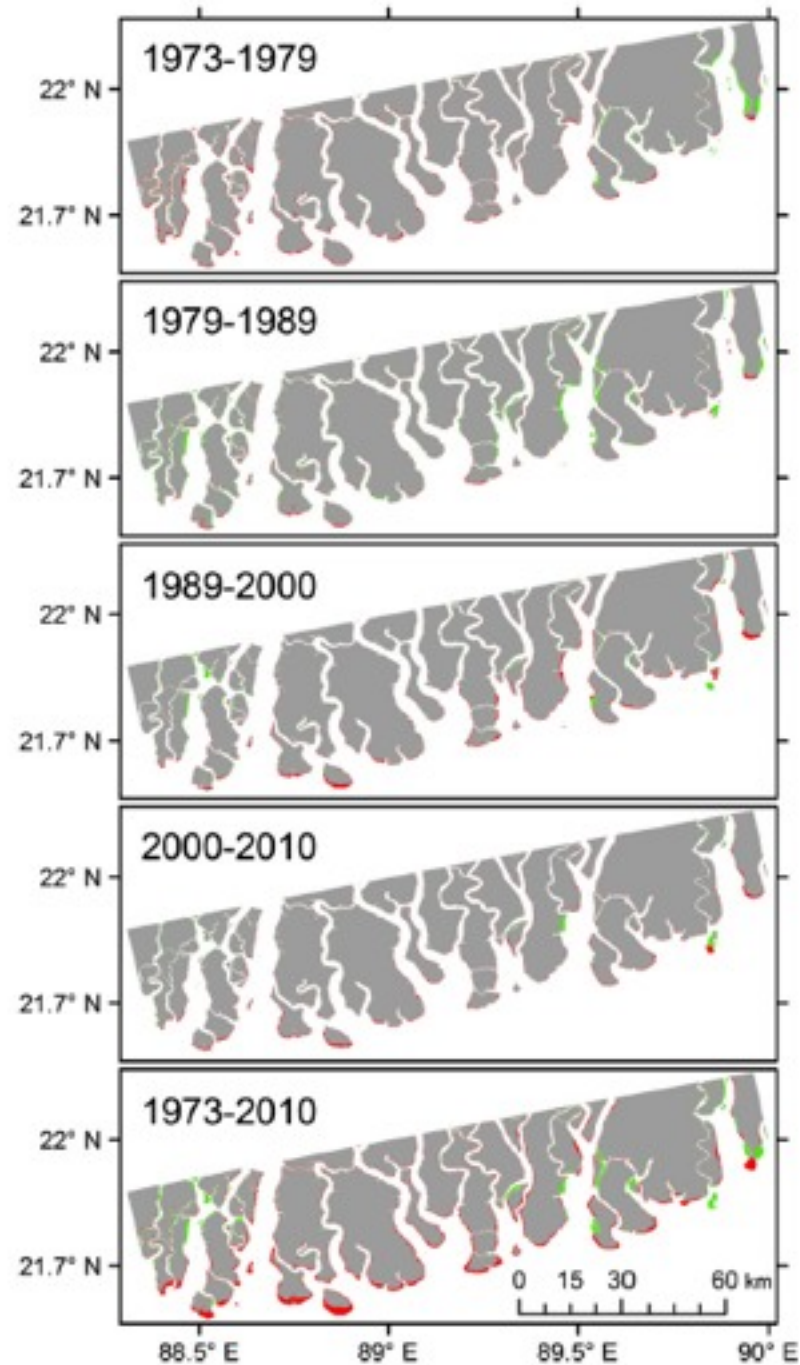












Erosion was the highest in the 1973–1979 interval, with  $23.2 \text{ km}^2 \text{ year}^{-1}$  of land loss.

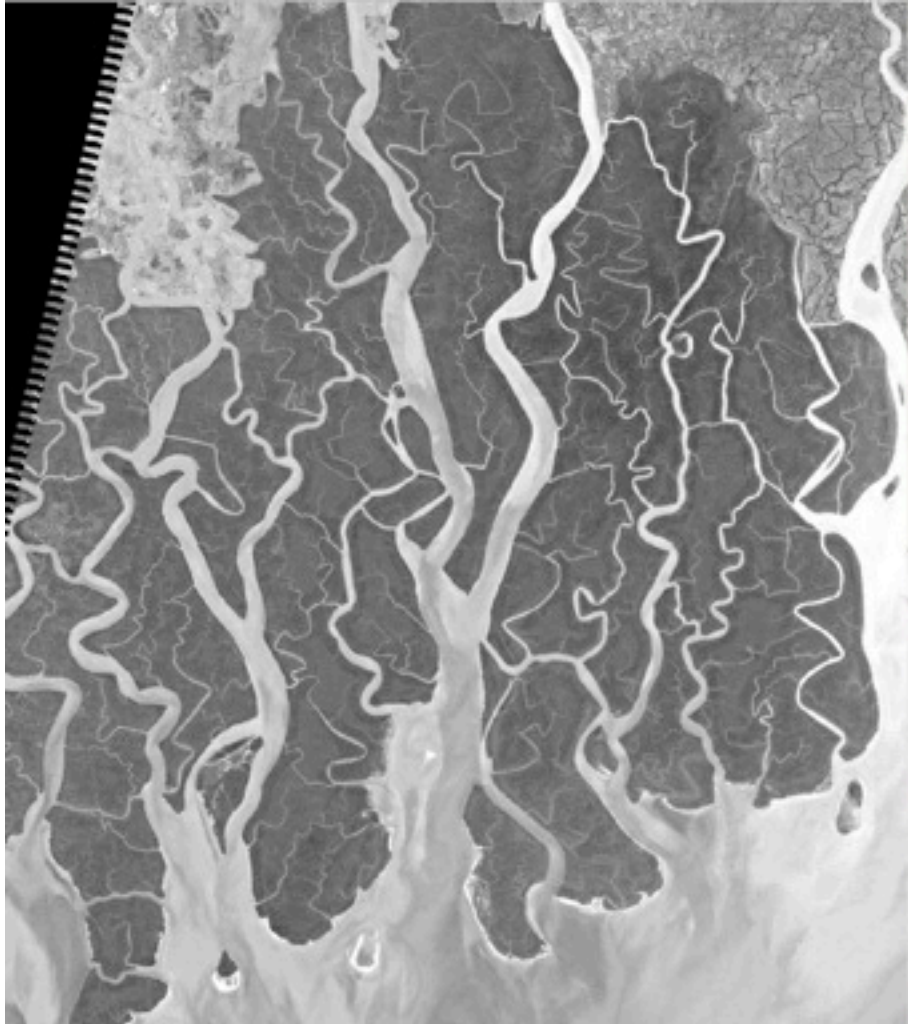
However, that rate substantially declined in the following periods, reaching a rate of  $7\text{--}10 \text{ km}^2 \text{ year}^{-1}$ .

Accretion showed a rate of  $10 \text{ km}^2 \text{ year}^{-1}$  between 1973 and 1989, but substantially declined to  $\sim 4 \text{ km}^2 \text{ year}^{-1}$  between 1989 and 2010.

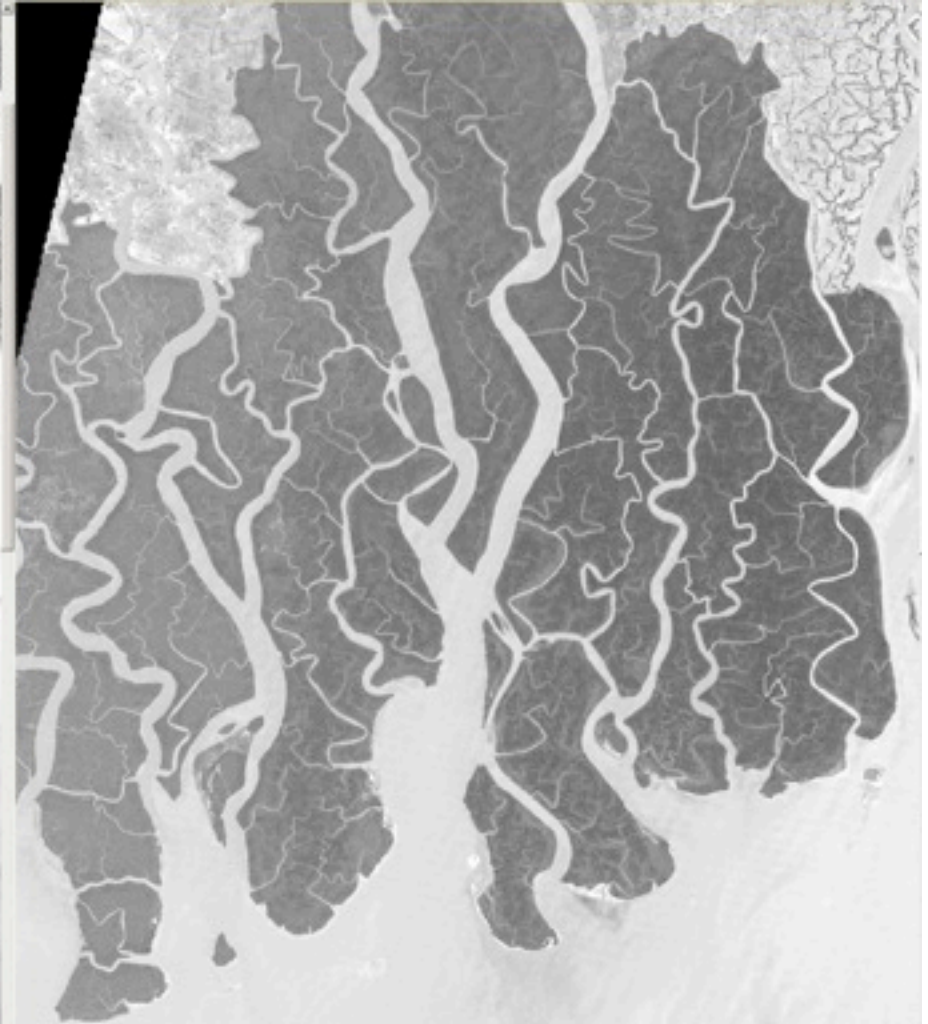
Accretion rate has declined in the recent years but erosion rate has remained relatively high.

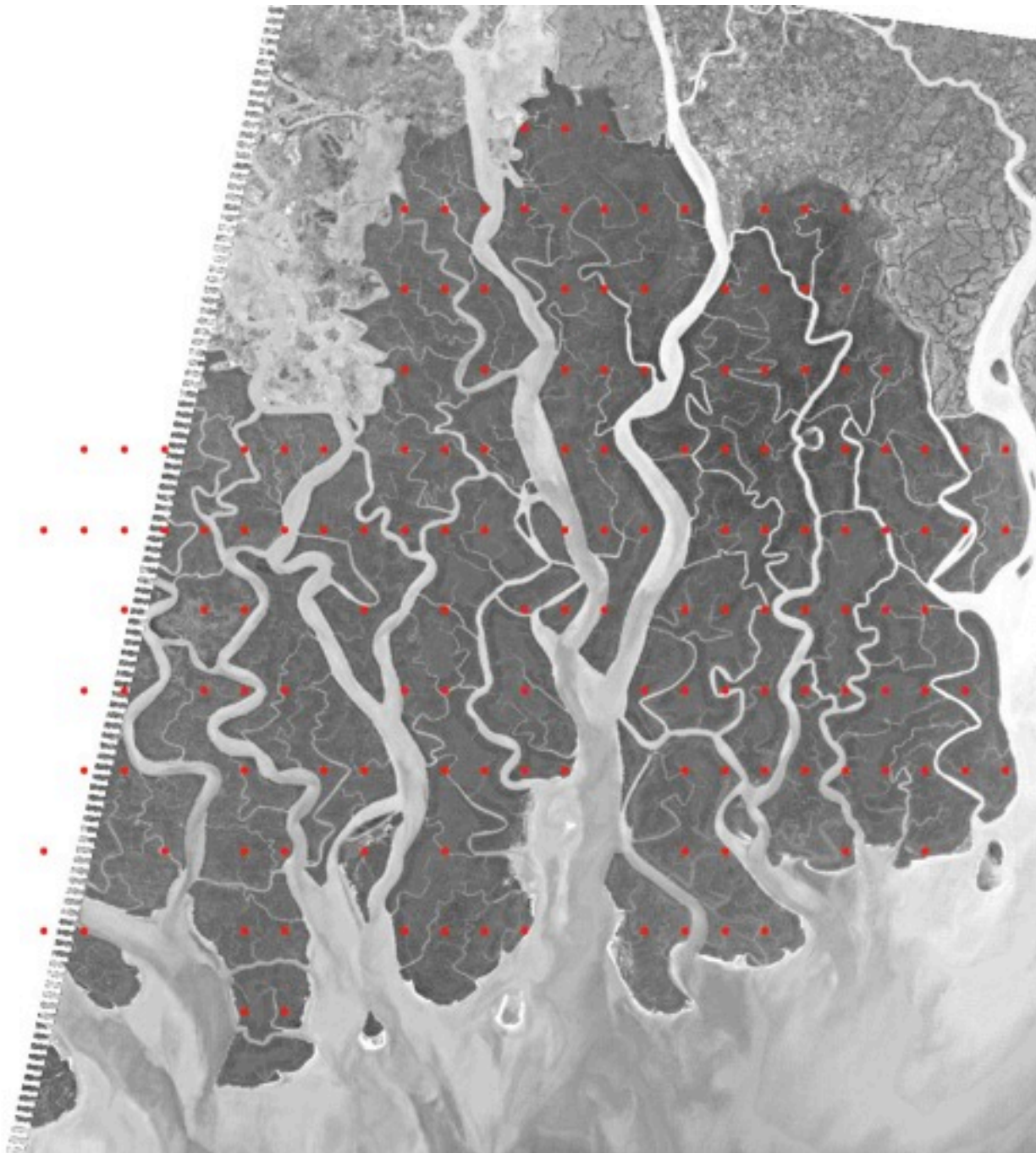
As a result the delta front has undergone a net erosion of  **$\sim 170 \text{ km}^2$**  of coastal land in the 37 years of our study period.

December 2009



December 1989





How the world's largest patch of  
mangrove forest  
shows its stress

Plots <-----> National  
Something in between?

And some “Meaningful Simplification?”

Albeit **Non**-Blue Carbon?

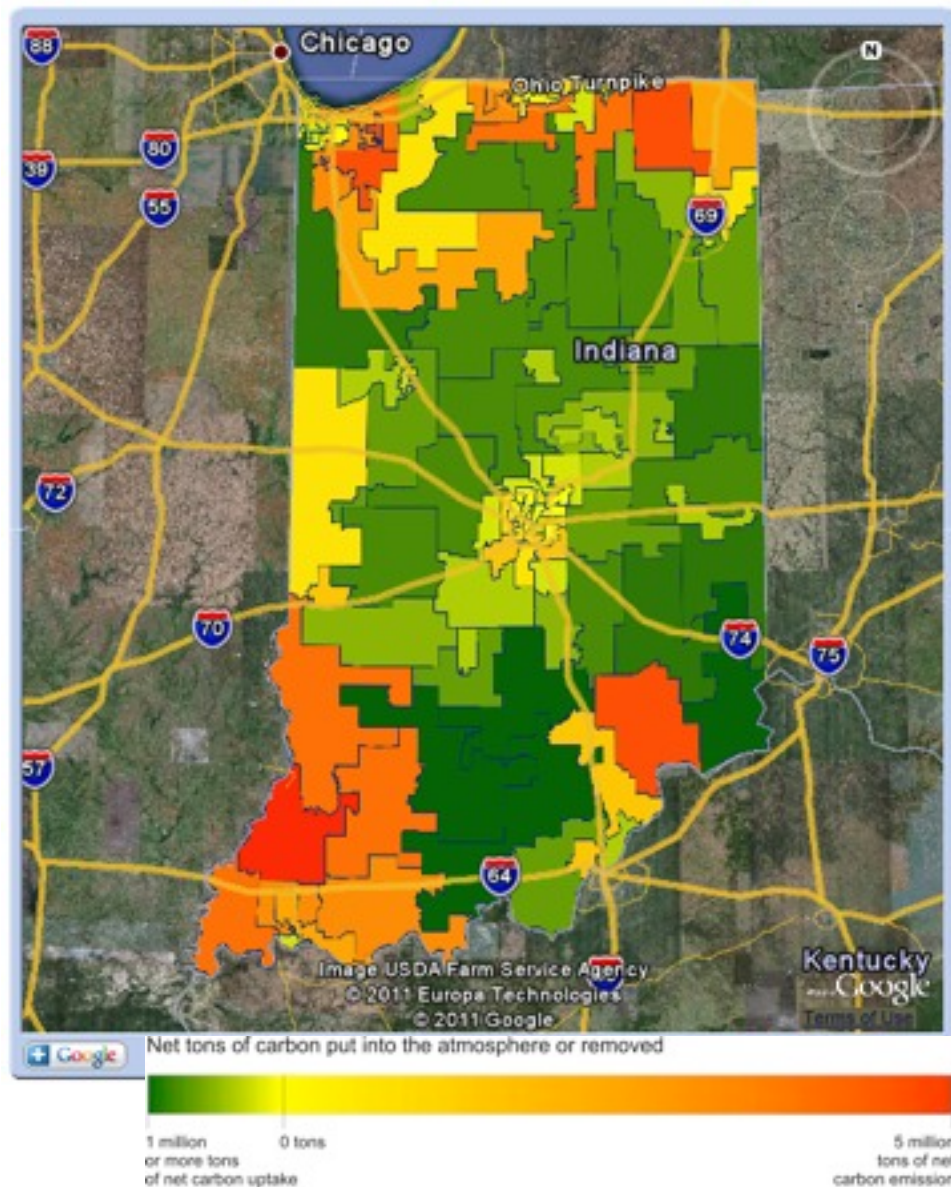


[www.indianacarboncycle.org](http://www.indianacarboncycle.org)



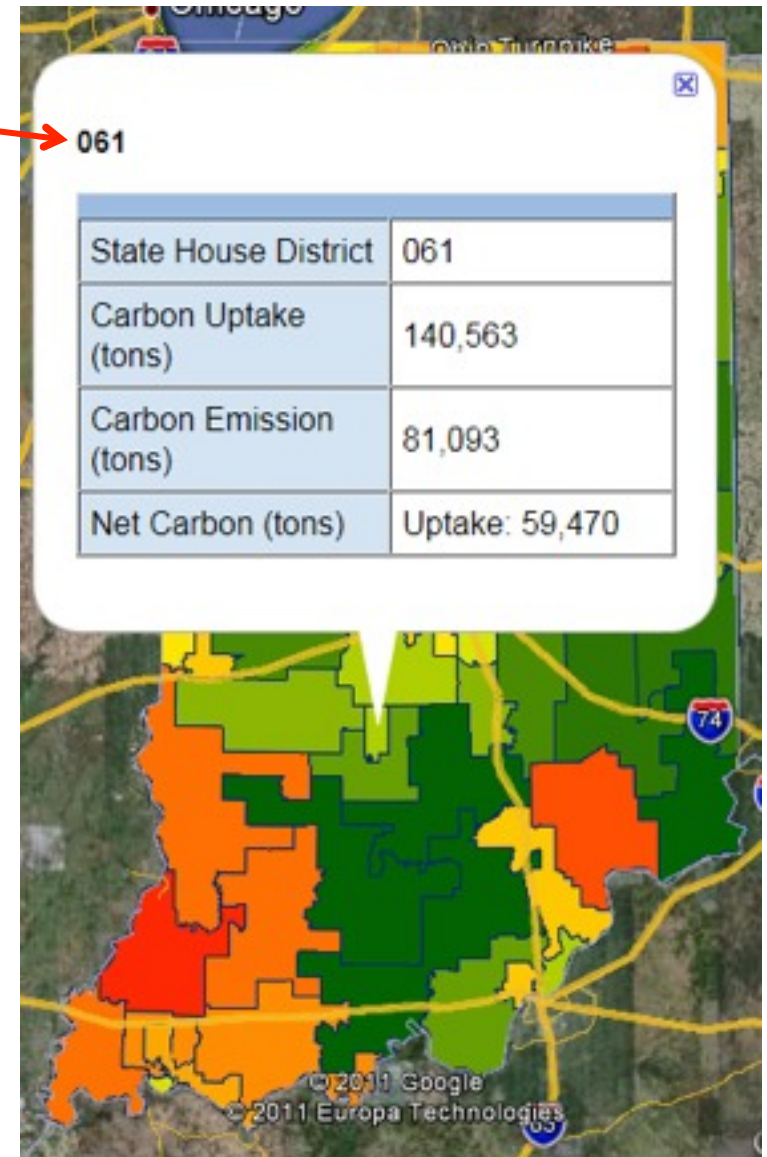
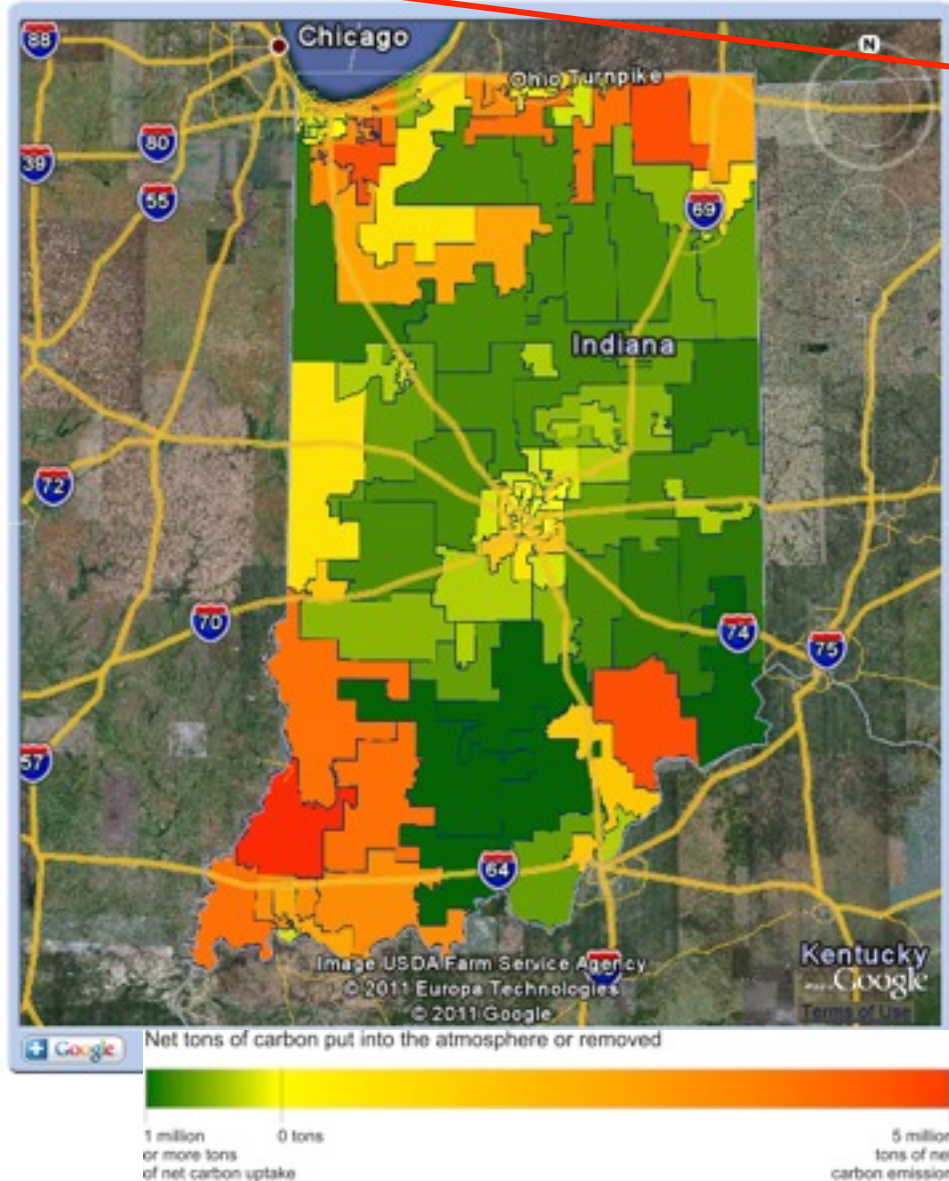
## Carbon emissions and uptake for each INDIANA HOUSE district.

Click on a House district to see the details.



## Carbon emissions and uptake for each INDIANA HOUSE district.

Click on a House district to see the details.



Questions? And, more importantly, any suggestion?