## Study of the Carbon Sequestration Potential of Sundarban Mangrove Forest, NE Coast of India

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Storing carbon in forest ecosystems and wood products could be a major weapon to mitigate climate change [Kooten et al, 2007]. Carbon (C) storage in forest ecosystems can offset 20% or more of countries' fossil fuel emissions include numerous components that consist of biomass C and soil C [Lal, 2005; Lal, 2004]. Attempt has been made to quantify the carbon sequestration strength in the world's largest mangrove forest. Net Ecosystem Productivity (NEP) for a biosphere is the measure of ultimate carbon sequestration estimated from the difference between day time photosynthesis and night time respiration. Net ecosystem productivity for the Sundarbans was found to be  $0.023\pm0.425$  to  $0.085\pm0.289$  mg C m<sup>-2</sup> s<sup>-1</sup> during September - December, 2009 and the production of biomass was partitioned into above ground biomass (AGB), 59.46±21.49 Tg and below ground biomass (BGB), 19.98±7.22 Tg. An allometric equation was derived from the correlation between weight of AGB and crown diameter, density and height of the sacrificed mangrove plants. Excellent agreement was obtained between the result obtained from regression model and observed values ( $r^2 = 0.994$ , p<0.001) The total organic carbon in the soil of Sundarban mangrove (4264 km<sup>2</sup>) was found to be 11.08 Tg . Rate of mangrove litter fall was ranged between 759.99 to 26502.49 gm dry wt m<sup>-2</sup> yr<sup>-1</sup> which played an important role in continuous supply of organic carbon both to the soil and surrounding water. Overall carbon sequestration in the Sundarban mangrove forest was critically examined in the perspective of world mangroves and Tropical forest.

## References

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