Virtual Expert Forum on SEEA Experimental Ecosystem Accounting 2020

VALUATION OF CARBON RETENTION ECOSYSTEM SERVICE

INDIA

KEY POINTS

- **Social Cost of Carbon(SCC)** approach has been used to estimate the value of carbon retention ecosystem service resulting from forests in India.

- Data Sources:

  - **Forest carbon stock:** India State of Forest Report(ISFR), Forest Survey of India(FSI)
    (If in case, carbon content is not available then carbon stock is calculated as
    Carbon Stock = 50% of biomass (based on IPCC default value of 0.5 * biomass))

  - **India's country-level social cost of carbon (CSCC):** As mentioned in Nature Climate Change article - Ricke, K., Drouet, L., Caldeira, K., & Tavoni, M. (2018). Country-level social cost of carbon. Nature Climate Change, 8(10), 895-900.

  - **Exchange rate:** Handbook of Statistics on Indian Economy, Reserve Bank of India

  - **Rate of return:** Taken as 3% (discount rate can be said to be the rate of return as mentioned in "Valuing Climate Damages: Updating Estimation of the Social Cost of Carbon Dioxide (2017)")

- Assessment Years used to estimate the value:
  - **2015-16**
  - **2017-18**

CLASSIFICATION OF CARBON STOCK IN FORESTS UNDER DIFFERENT CARBON POOLS

Pools		Description
Living Biomass	Above ground biomass (AGB)	All living biomass above the soil including stem, stump, branches, bark, seeds and foliage.
	Below ground biomass (BGB)	All living biomass of live roots. Fine roots of less than 2mm diameter (country specific) are often excluded because these often cannot be distinguished empirically from soil organic matter or litter.
Dead Organic Matter	Dead wood	Includes all non-living woody biomass not contained in the litter, either standing or lying on the ground. Dead wood also includes dead roots and stumps larger than or equal to 10cm in diameter or any other diameter used by the country.
	Litter	Includes all non-living biomass with a diameter less than a minimum diameter chosen by the country (for FSI 5 cm), lying dead, in various states of decomposition above the mineral or organic soil.
Soil	Soil organic matter	Includes organic carbon in mineral and organic soils (including peat) to a specific depth chosen by the country (for FSI 30 cm) and applied consistently through the time series.

METHOD OF ESTIMATION OF ECONOMIC VALUE

Total Carbon Stock = Above ground biomass + Below ground biomass + Dead wood + Litter + Soil Organic Carbon

Carbon dioxide = Carbon content * 3.67

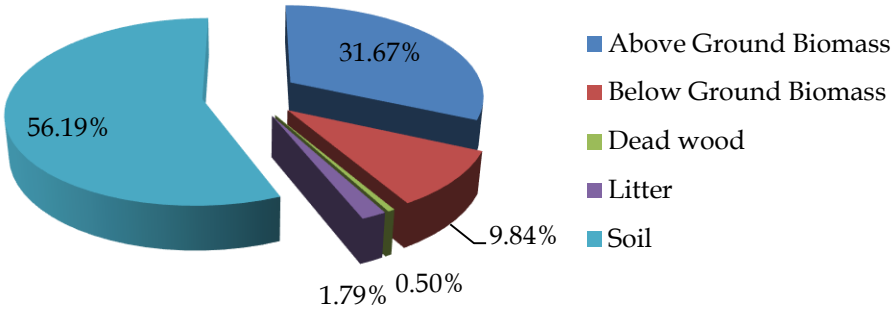
Value of carbon stock in US$ = Carbon dioxide * Social Cost of tonne of CO_2

Value of carbon stock in INR = value of carbon stock in US$ * Exchange rate

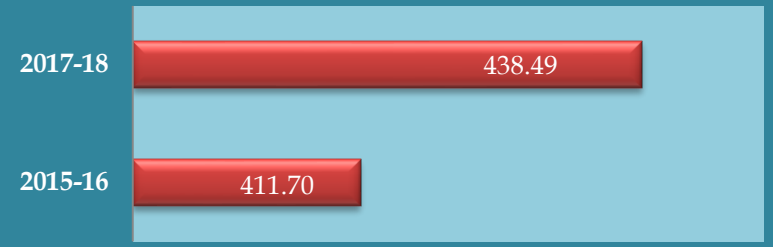
Value of Carbon Retention service = Value of carbon stock (as obtained in previous step) * Rate of return

RESULTS

Carbon stock in India's forests in 2017-18 (million tonnes)



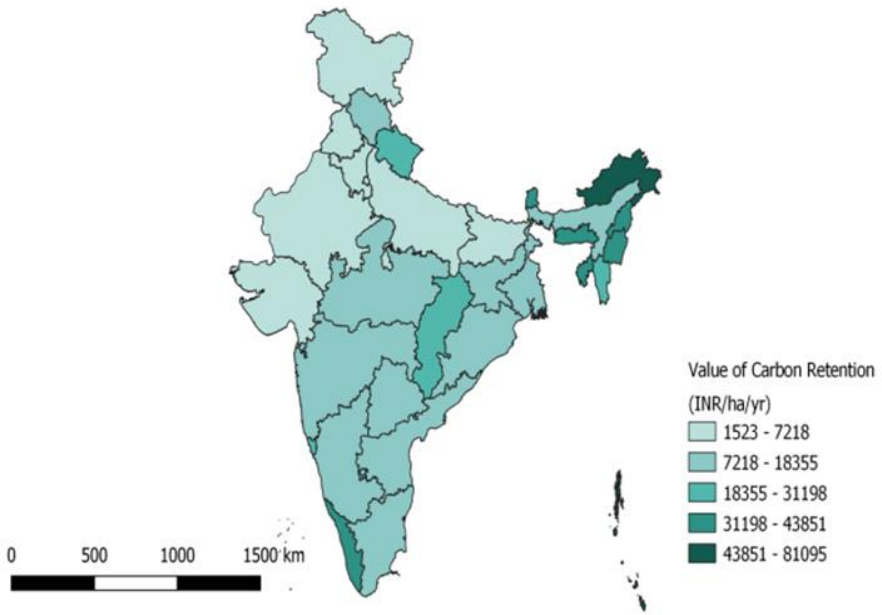
Value of Carbon Retention from forests in India (INR in '000 crore)



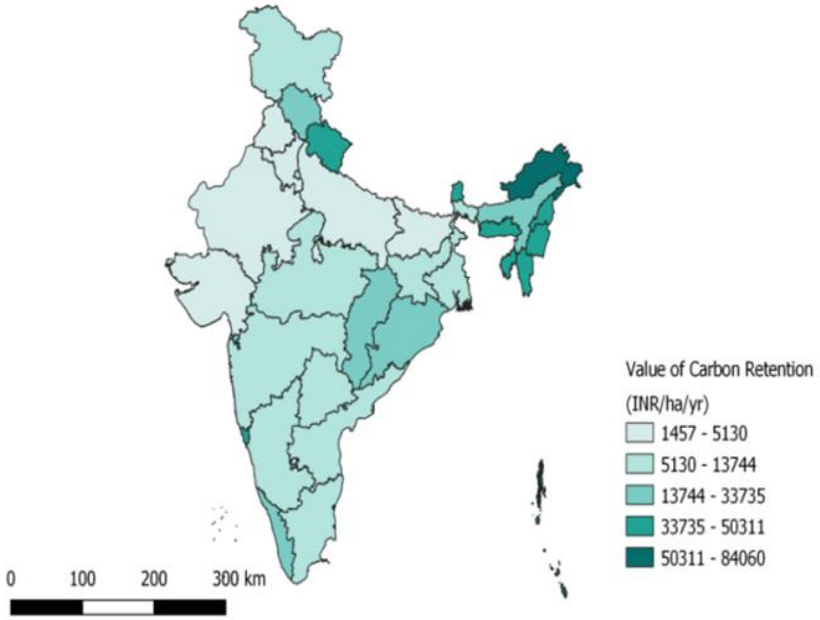
Assessment Year	2017-18
Value of Carbon Retention (INR in Billion)	4384.9
Gross Value Added (GVA) forestry and logging (INR in Billion)	1893.5
Value of Carbon Retention as % of GDP	2.58

VALUE OF CARBON RETENTION IN INDIA

ASSESSMENT YEAR: 2015-16



ASSESSMENT YEAR: 2017-18



THANK YOU