

Forest Solutions: Climate and Water Crises in India

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India's Unique Dilemmas

- 2.5% land area - only 24% forest and tree cover
- 17% human population - per capita forest one-tenth of world average
- 18% cattle population
- Very high dependence of communities on forests for subsistence and livelihood
- Community participation
- Definition of forests
- Biodiversity
 - Floral (16 broad forest types)
 - Faunal (Wildlife conservation)

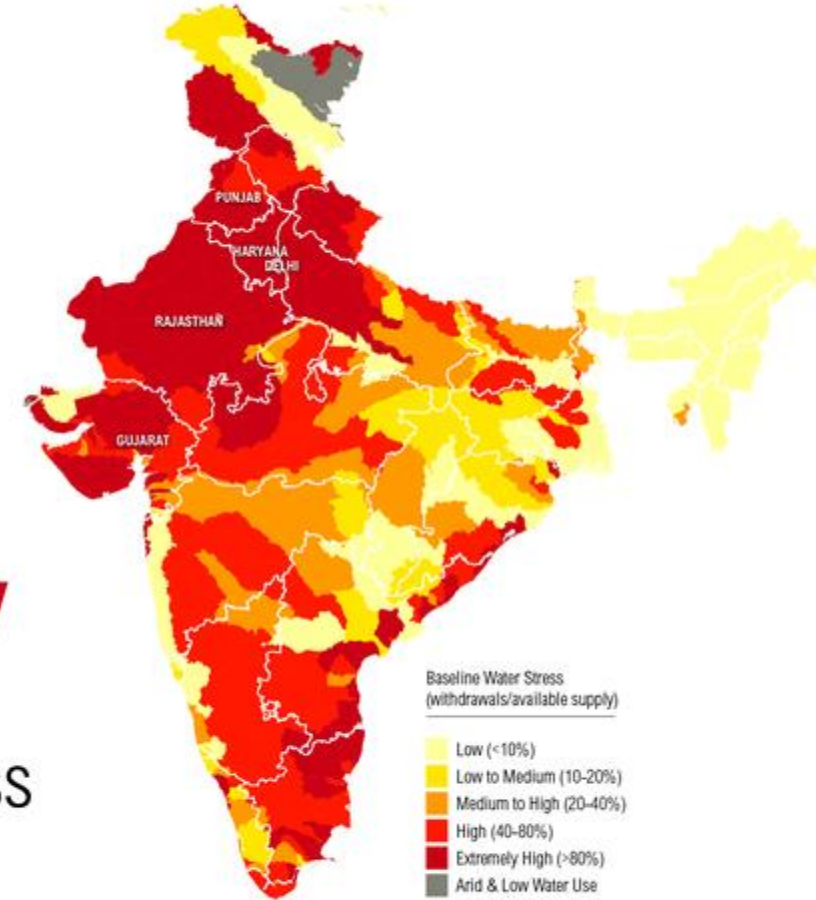
Forest Governance in India

- 1864- 1980: Sustained Yield Management
- 1980: Sustainable forest management
 - Conservation Forestry
 - Social Forestry
 - Joint Forest Management
- Current scenario
 - Ecosystem services
 - Stakeholders' participation
 - Carbon sequestration
 - Hydrology

Hydrological crisis in India

- Deeply water stressed
- Groundwater depletion
- Higher catchments- mostly legal forests- often degraded
- Floods and drought cycle- intensifying with changing climate

54%
of India
Faces
**High to
Extremely
High**
Water Stress



India's INDC Commitments: Meeting the Target

- Country's INDC commitment: Additional 2.5 to 3.0 BT of CO₂ by 2030
- Addition of CO₂ at present rate: 1.92 BT of CO₂ by 2030
- Short fall in target: 0.6 to 1.1 BT of CO₂

STRATEGIES

- **Landscape based Catchment Treatment and Restoration**
Addressing the water crisis while increasing carbon stocks in legal forests, and improving ecosystem services
- **Extending Tree Cover outside Forests**
Quantitative increase in tree cover for direct sequestration of Carbon and forestry production

Landscape based Catchment Treatment

- Degraded river catchments leading to very high peak flows and silt loads - floods interspersed by dried up rivers
- Major water crisis across the country
- Retain precipitation in the catchment
 - Vegetative measures
 - Mechanical measures
- Augmentation of Natural Regeneration- restoring catchment area forests
- Recharging of Ground water
- Increase in carbon sequestration in soil and trees
- Addressing Forest Fires
- Man- Animal conflict Resolution

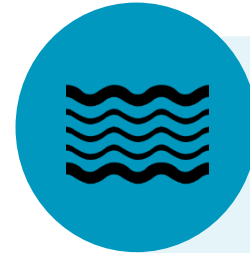


CATP PREPARED BY FRI

Forest Research Institute (FRI) Dehradun has prepared comprehensive CATP for River Ganga:



Covers Catchment in
Uttarakhand



River-scape in UP, Bihar,
Jharkhand and West
Bengal



Project Cost:
Rs.2300 crore (\$350
million)



Implementation period:
5 years



Treatment Proposed:
Landscape based



Work is in Progress

CATP FOR ALL MAJOR RIVER SYSTEMS

CATP for all the Catchments:

- Anticipated Project Cost: Rs.30 to 50 thousand crore (\$5-\$7 Billion)
- Coverage area: 20-30 million ha.
- Period of implementation: 10 years
- Possible source of funding: National budgetary provisions, External funding agencies
- Mobilise communities using legislations like Forest Rights Act to restore catchments

CARBON SEQUESTRATION: TREE OUTSIDE FORESTS



National Forest Policy
Envisages 33% of area
under Forest Cover



Currently about 24%
area has green cover



May not be possible to
extend area of
conventional forests



Most feasible option:
Trees outside Forests

WHY TREES OUTSIDE FORESTS?

- Large tracts of government and private low productivity lands
- Net annual import of wood & wood-product is Rs.42,000cr (\$6.5 Billion)
- 70% of wood requirement met from farm forestry and agroforestry
- Estimated production 2011 from TOF: 42.77 million m³
- An additional 10 mha. of non-forest tree plantations/agroforestry by farmers by 2030 - incomes and CO₂ sequestration of over 1 billion tonnes
- Enhanced incomes for farmers- development strategy



THANK YOU

Questions and Suggestions: dgfindia@nic.in