# WORLD SUSTAINABLE DEVELOPMENT SUMMIT 2022

## TOWARDS A RESILIENT PLANET: ENSURING A SUSTAINABLE AND EQUITABLE FUTURE

UN CLIMATE CHANGE CONFERENCE UK 2021
IN PARTNERSHIP WITH ITALY

UK Government

Bloomberg Philanthropies

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**Virtual Stakeholder Roundtable on 'Nature Based Solutions: an opportunity to be explored' for *COP26 Charter of Actions***

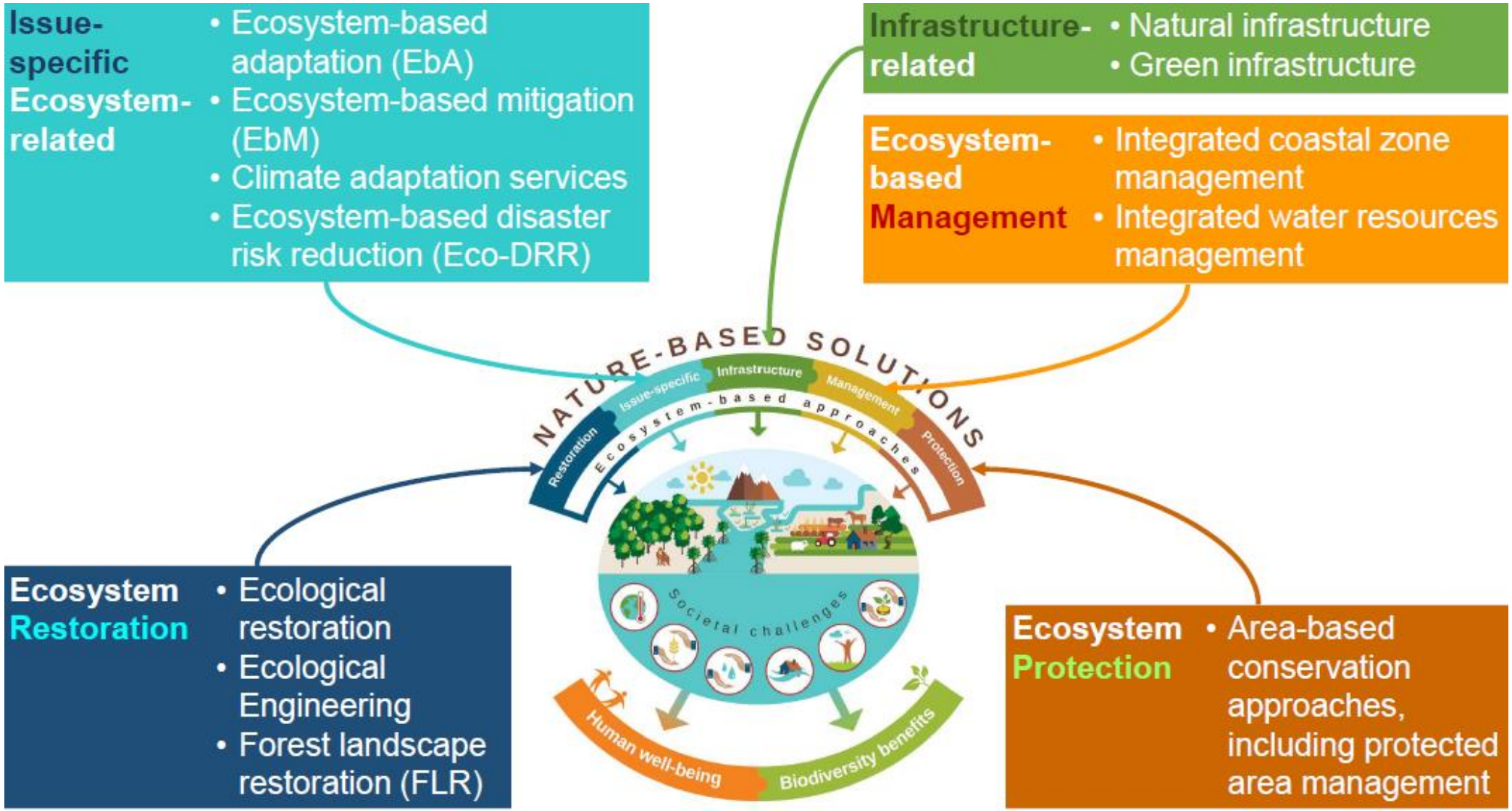
**Dr. J.V. Sharma | Dr. Yogesh Gokhale | Ms. Priya Sharma**

**Date:** 26th August, 2021 |**Time:** 3:00 PM to 4:30 PM | **Duration:** 90 minutes

# Nature-based Solutions (NbS)

- Technological solutions for mitigating and adapting climate change are expensive and are difficult for developing and poor countries to implement
- *"*Nature Based Solutions (NbS) are the **actions to protect, sustainably manage, and restore natural or modified ecosystems**, which address societal challenges effectively and adaptively, and provide human well-being and biodiversity benefits.*"*
- NbS are cost effective, sustainable and long-term solution to mitigate and adapt climate change, also built upon traditional ecological knowledge such as traditional techniques of water conservation, use of organic compost, and environment friendly life style and energy efficiency.


Cohen-Shacham, E., Walters, G., Janzen, C. and Maginnis, S. (eds.) (2016). *Nature-based Solutions to Address Global Societal Challenges*. Gland, Switzerland: IUCN. xiii + 97pp.

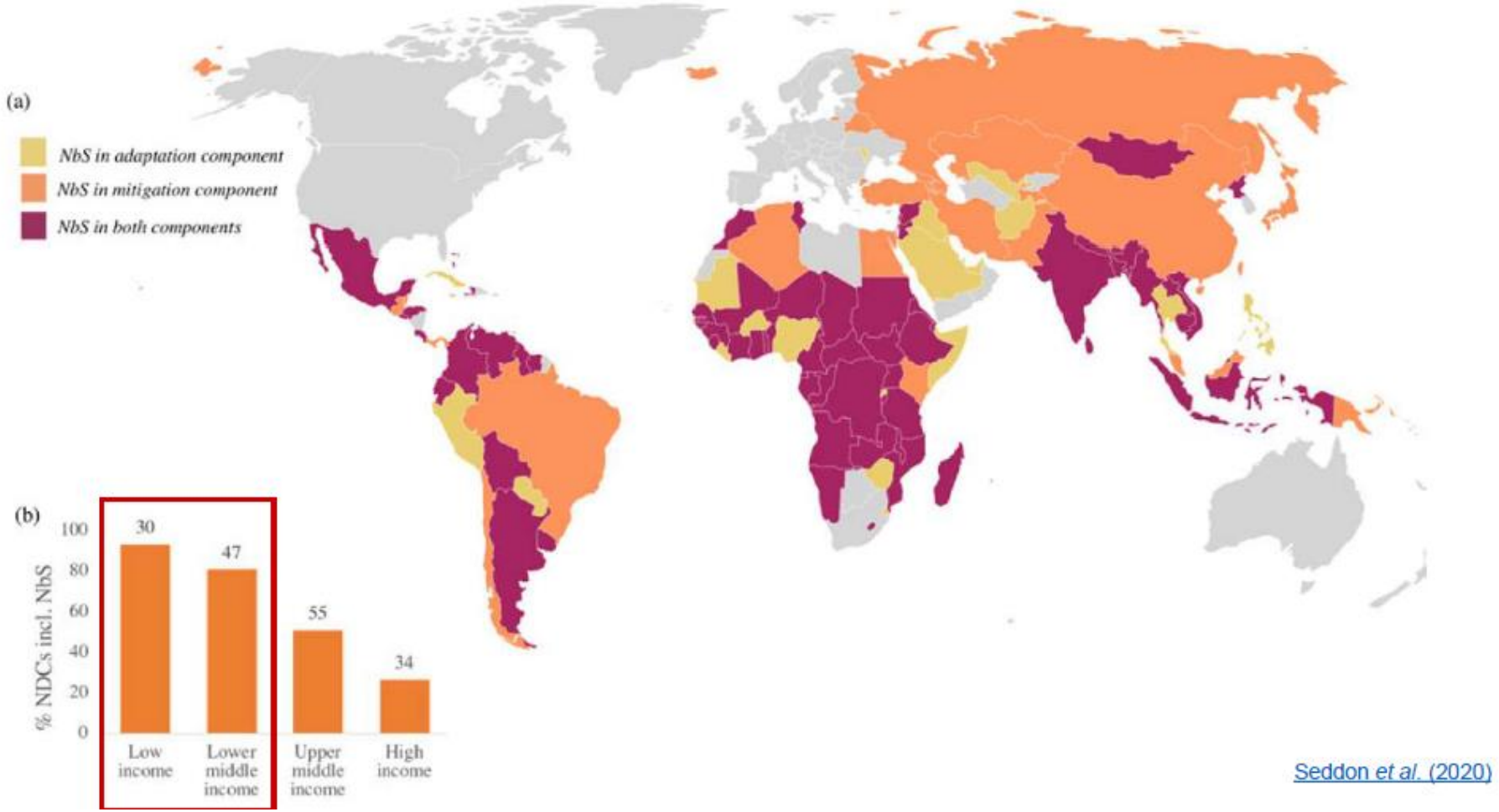



Cohen-Shacham *et al.* (2016)

# NbS as climate change mitigation options

- NbS can provide 30% of cost-effective mitigation needed by 2030 to stabilize warming to below 2°C
- NbS cost not more than $10 to mitigate one tonne of carbon dioxide and also deliver tangible impacts in a given time frame (PNAs, 2017)
- NbS account for one-third of the solutions for climate change, and provide $170 billion worth of benefits in ecosystem services by 2030 (IUCN, 2020)

# Global distribution of nations that include NbS in their NDCs




Seddon *et al.* (2020)

Most of the countries are following NbS to achieve mitigation &/or adaptation

# Global Climate Change Processes led by the UNFCCC

- 26th Conference of Parties to UNFCCC (COP26), 1-12 November 2021, Glasgow, Scotland [Originally planned for November 2020]
- **NbS** is one of the key themes of the COP26

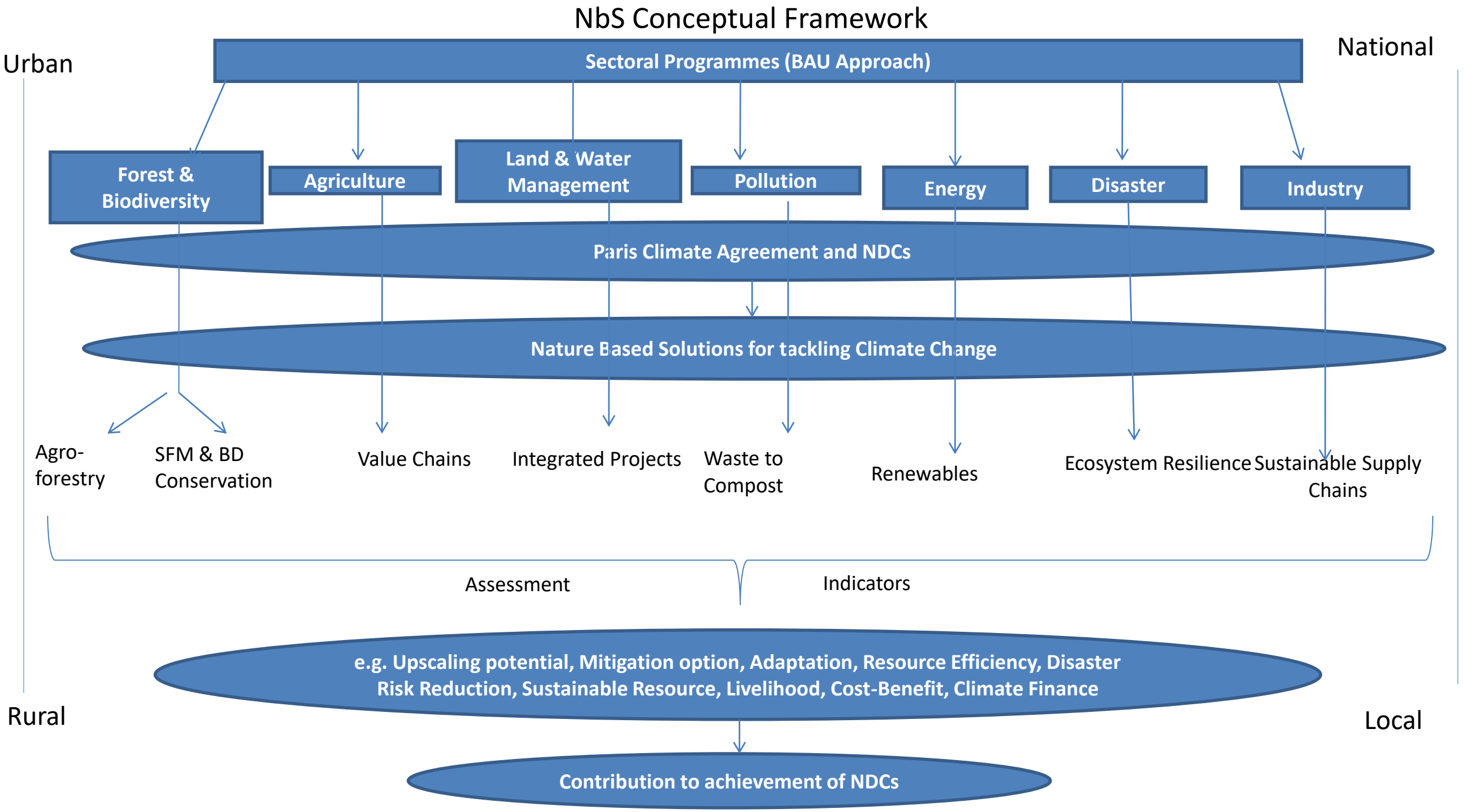
# Contextualising NbS for achieving NDCs in Indian context

***In 2015, India accepted commitments in form of NDCs un der Paris Climate Agreement as -***

To reduce the emissions intensity of its GDP by 33-35% from 2005 levels by 2030.

To increase the share of non-fossil fuel-based energy resources to 40% of installed electric power capacity by 2030, conditional on technology transfer and international climate finance support, such as the Green Climate Fund (GCF).

**To create an additional (cumulative) carbon sink of 2.5-3 GtCO2-eq through additional afforestation by 2030.**


NbS Conceptual Framework
Urban
National
Sectoral Programmes (BAU Approach)
Forest & Biodiversity
Agriculture
Land & Water Management
Pollution
Energy
Disaster
Industry
Paris Climate Agreement and NDCs
Nature Based Solutions for tackling Climate Change
Agro-forestry
SFM & BD Conservation
Value Chains
Integrated Projects
Waste to Compost
Renewables
Ecosystem Resilience
Sustainable Supply Chains
Assessment
Indicators
e.g. Upscaling potential, Mitigation option, Adaptation, Resource Efficiency, Disaster Risk Reduction, Sustainable Resource, Livelihood, Cost-Benefit, Climate Finance
Contribution to achievement of NDCs
Rural
Local

# Legislations in India supporting forestry NDCs

**Legislations related directly**

- Forest (Conservation) Act, 1980
- Indian Forest Act, 1927
- Compensatory Afforestation Fund Act, 2016
- Mahatma Gandhi National Rural Employment Guarantee Act (MNREGA), 2005
- National Forest Policy, 1988
- National Environment Policy, 2006
- National Bamboo Mission, 2003
- Wildlife (Protection Act), 1972
- National Agroforestry Policy, 2014
- Biological Diversity Act, 2002
- Panchayats (Extension to the Scheduled Areas) Act, 1996
- Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006
- Green India Mission (GIM)
- National Afforestation Programme (NAP)
- Financial allocation by Finance Commission
- National Biodiversity Action Plan, 2008
- Payment for Ecosystem Services
- Green Highway Policy, 2015
- Policy for Enhancement of Urban Greens

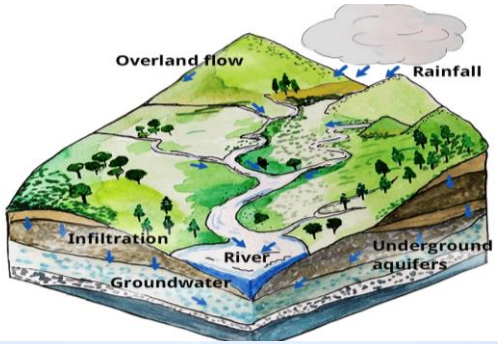
# Legislations in India supporting forestry NDCs

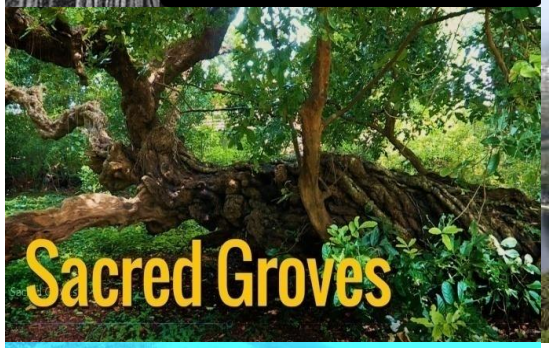
**Legislations related in-directly**

- National Rural Employment Guarantee Act, 2005
- Pradhan Mantri Ujjwala Yojana (PMUY)
- Pradhan Mantri Krishi Sinchayee Yojan (PMKSY)
- National Agroforestry Policy, 2014 and Sub-mission on Agroforestry
- Corporate Social Responsibility Rules, 2014
- National Agriculture Policy, 2000
- National Mission for Sustainable Agriculture, 2014–2015
- Rashtriya Krishi Vikas Yojana
- Integrated Watershed Managemen Programme
- Van Bandhu Kalyan Yojana
- Other schemes of Ministry of Environment, Forest and Climate Change, Ministry of Rural Development,
- Ministry of Panchayati Raj, Ministry of Agriculture and Farmers Welfare, and Ministry of Tribal Affairs among others

# Examples of NbS in Indian context

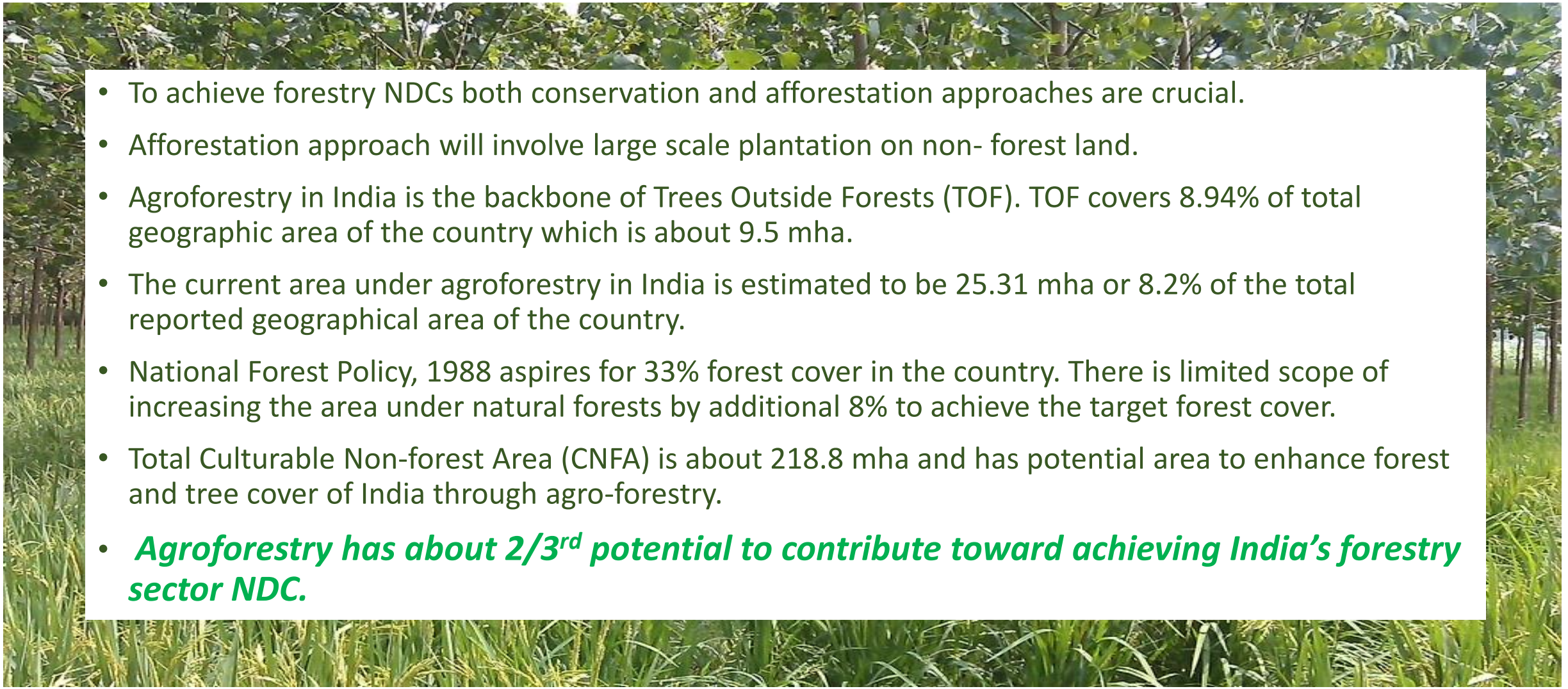
- Implementation of soil and water conservation over 60 million hectare since 1970s
- Network of over 755 Protected Areas covering ~ 4% of country's geographical area for biodiversity conservation
- Over 5000 varieties of rice across country
- Over 200,000 sacred forests across country
- Climate resilient Farming System

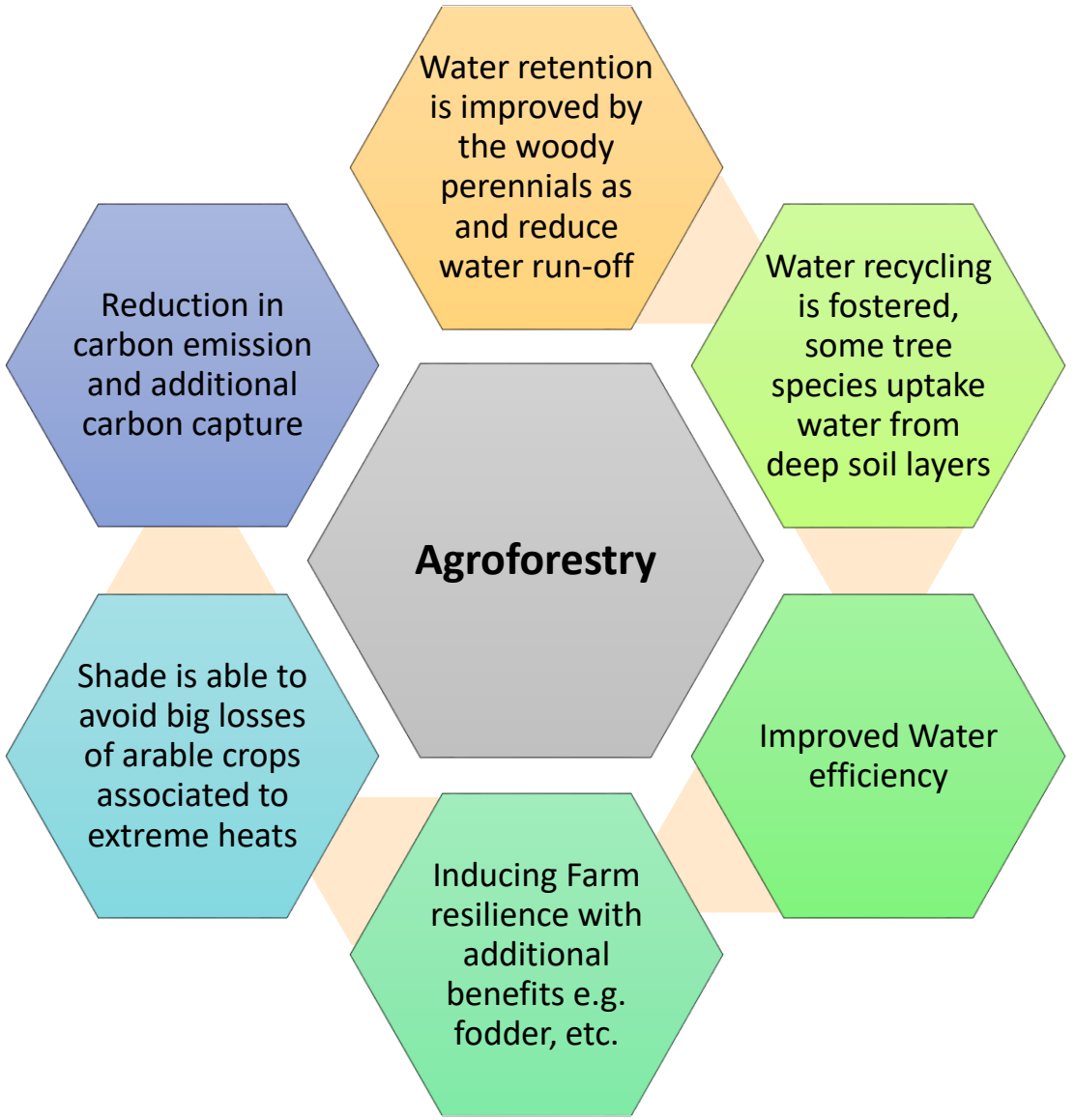


# Potential of Agroforestry as NbS for India



- To achieve forestry NDCs both conservation and afforestation approaches are crucial.
- Afforestation approach will involve large scale plantation on non- forest land.
- Agroforestry in India is the backbone of Trees Outside Forests (TOF). TOF covers 8.94% of total geographic area of the country which is about 9.5 mha.
- The current area under agroforestry in India is estimated to be 25.31 mha or 8.2% of the total reported geographical area of the country.
- National Forest Policy, 1988 aspires for 33% forest cover in the country. There is limited scope of increasing the area under natural forests by additional 8% to achieve the target forest cover.
- Total Culturable Non-forest Area (CNFA) is about 218.8 mha and has potential area to enhance forest and tree cover of India through agro-forestry.
- ***Agroforestry has about 2/3$^{rd}$ potential to contribute toward achieving India's forestry sector NDC.***

# Agroforestry and climate adaptation



# Contribution of Agroforestry to human well-being and livelihood security

**✓Subsistence agriculture especially in hills is substantially dependent on Tree crops but often undervalued**

**✓Small-holdings of less than 2 ha growing a combination of Acacia species and Oryza species (rice) in a traditional agroforestry system have been shown to have a benefit/cost ratio of 1.47 and an internal rate of return of 33% at an annual discount rate of 12% over a ten- year period (Singh and Pandey, 2011).**

**✓ In the Northeast Indian state of Meghalaya, an agri horticultural system based on *Psidium spp.* (guava) gave a 2.96 fold higher net return than a comparable system without trees (Bhattacharya and Mishra 2003).**

**✓Estimates of net present value for different agroforestry systems in Haryana modelled on a six-year rotation varied between Rs. 26,626 and Rs. 72705.ha-1.yr-1 (Kumar, Gupta and Gulati, 2004).**

# Issues and concerns in agroforestry sector in India

## Plantation

- Shortage of superior planting material
- Insufficient research on agroforestry models suitable for the diverse agro-climatic region
- Site specific selection of tree

## Harvesting

- Cumbersome legislation in respect of tree felling/harvesting which play a significant role in the minds of the farmer looking to adopt agroforestry

## Transit issues

- Over regulation often restricting access to markets for farmer-grown timber and tee products, partly because of rules intended to curb illegal from natural forests and govt. plantations.

## Marketing

- Limited marketing infrastructures for agroforestry produce in the country. Middlemen get major share in profit.
- Massive import of timber - 40,000 Cr / yr in India.
- Institutional finance and insurance coverage in agroforestry has not been at par with its potential due to lack of awareness of technical and economic data on different agroforestry models
- Tax is imposed at various stages of processing by multiple agencies.

## Pricing

- Due to lack of Minimum Support Price (MSP), whenever there is a glut in the market, farmers have to sell timber at throwaway prices.

# Strategies proposed in National Agroforestry Policy - 2014

# Future actions and recommendations

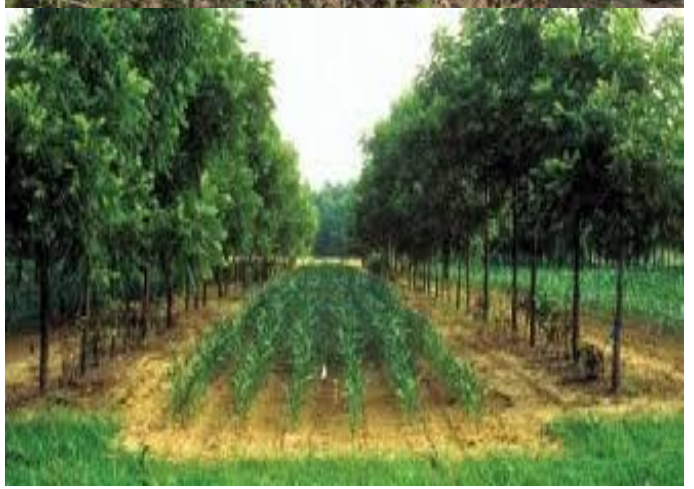
- State Agroforestry to be developed in consonance with the National Agroforestry Policy (2014)
- Quality planting material should be made available. Need to produce high yielding indigenous varieties of trees for commercial use.
- An accreditation system should be developed for nursery planting stock and working plans should be prepared for agroforestry.
- To sustain agroforestry Minimum Support Price is needed to safeguard farmers from vagaries of market.
- Need to build capacity of the farmers and also spread awareness regarding the different schemes and policies.
- Regular timber markets should be established to ensure transparent timber trade
- Need to develop innovative financial mechanism for obtaining forest based carbon finance by formulating carbon neutrality policy at national level.

# Future actions and recommendations

- Provisions for harvesting and transportation of agroforestry produce should be made less stringent so that farmers are encouraged to plant tree species and harvest and transport smoothly.
- Transit regulation is a key for chain of custody since more and more companies now purchase certified timber.
- Permission by DFO should be respected throughout the country and for the same the Government of India need to come up with a notification.

# Future actions and recommendations

- Development of Agroforestry technologies for arid and semi-arid zones and other fragile ecosystems such as Himalayan region and coastal ecosystems
- Focus on development and demonstration of Agroforestry models linked with market for small holding farmers
- Coordination between concerned Ministries of the Central and State Governments, Governmental agencies like ICFRE, ICAR, State Forest Departments, Agriculture Departments, NABARD, NGOs, farmers and private sector should be strengthened.



# THANK YOU

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