



Capacity Building for Entrepreneurship Centered Around Trees Outside Forests

Module 4: Start-up Opportunities Based on Trees Outside Forest
in India

Lecture 1: Introduction to Trees Outside Forests in India

Introduction

- The concept of tree outside forest emerged in 1995 to designate trees growing outside the forest and not belonging to forest and not belonging to forest or other wooded land .
- Definition of tree outside forest varies country to country and international agencies. In India, It is defined as trees found outside the recorded area.
- FAO, defines it as Trees available on land which are not defined as forest or other wooded land
- They are found in diverse formation in rural and urban landscapes and n livelihood of rural and urban people of the country

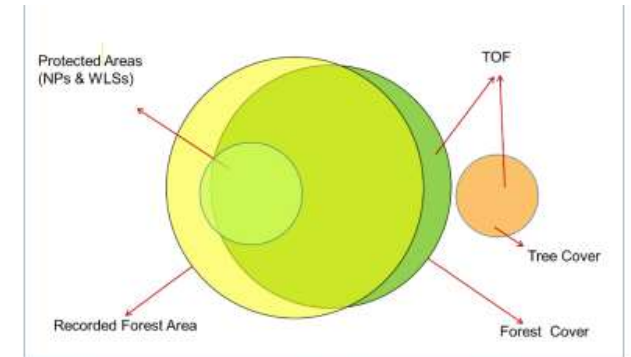


Figure 1: Concept of TOF and Tree Cover

Status of TOF

- Extent of TOFI 29.38million hectare which is 36.4% of country's total forest and tree cover (FSI, 2021).
- The extent of TOF (forest cover outside the RFA & GW and tree cover) has been found to be 30.70 M ha, which is 37.11% of the total forest and tree cover in the country (FSI 2023).
- The “Restoration Opportunities Atlas of India” developed by World Resources Institute India has identifies an area of 50 Mha opportunity for TOF.
- Maharashtra has the highest increase in growing stock in TOF, followed by Chhattisgarh, Karnataka and, Madhya Pradesh (ISFR).

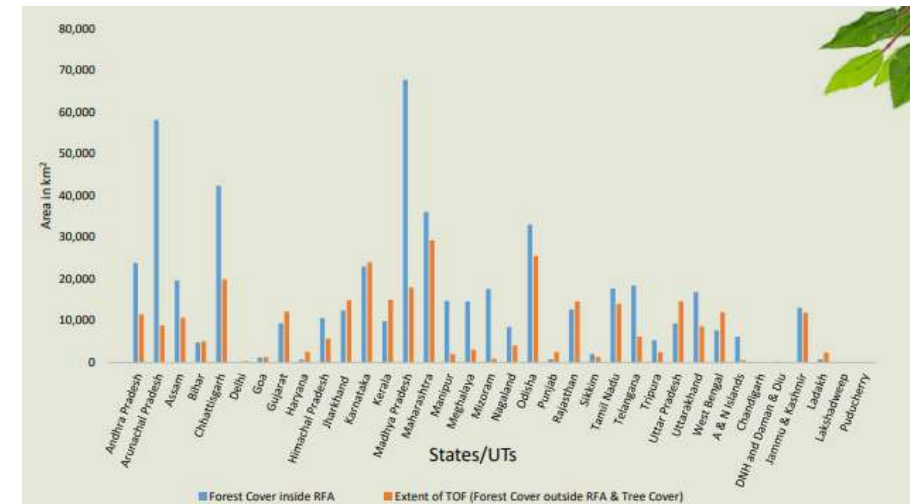


Fig2: States and UT's Forest cover (inside RFA) and extent of TOF (SFRI, 2023)

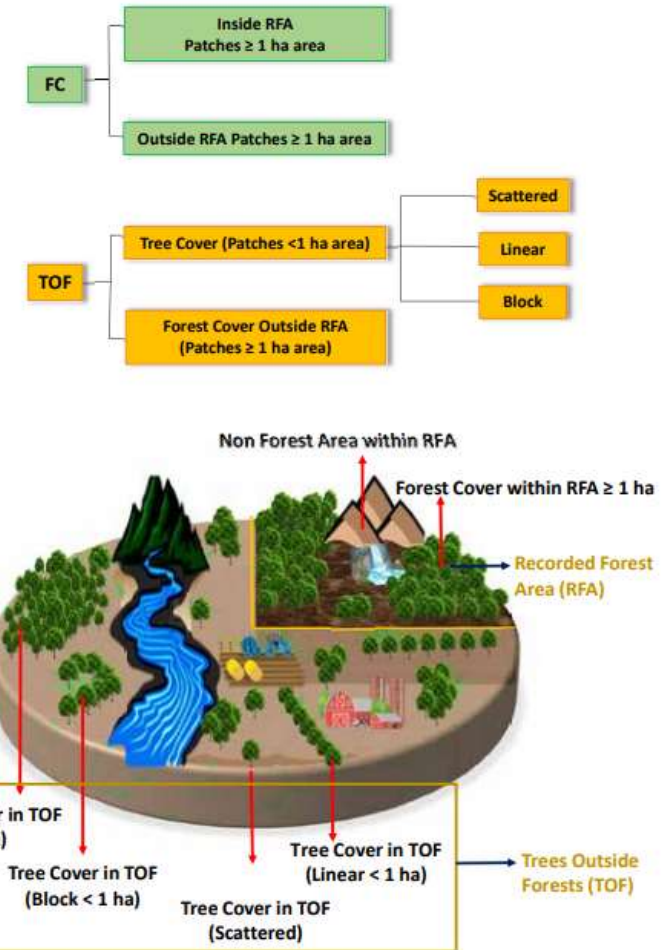
Classification



As per geometry		As per Land Use		
Isolated and scattered trees	Zonal trees	Trees with Settlements	Trees with Agricultural Lands	Trees along Manmade or Natural Features
Tress exist in scattered form	Trees in line			
	Trees in block	Urban	Agroforestry	Beside Railways
		Rural		Beside Roads
				Beside Canals / Rivers



Fig.3: Various forms of TOF



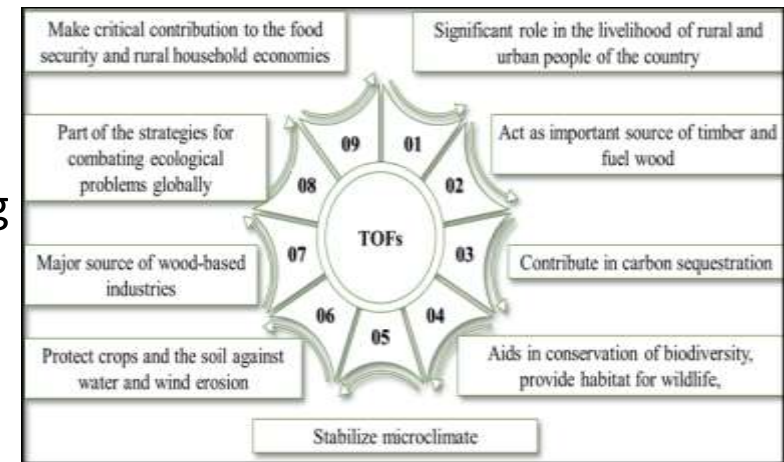
Scope



- TOF can be found on agricultural land, unproductive lands, roads etc. E.g.: Peepal, Banyan on temple premises, Gulmohar tree along roadside.
- Agroforestry, community forestry, farm forestry, social forestry and urban forestry are small scale tree planting efforts,.
- Agroforestry and farm forestry are backbone of TOF's.
- In India atleast 47 systems of TOF has been documented.
- Exapnsion of TOF can support India's international commitments, including NDC, SDGs, Bonn challenge etc.

Significance

- Sustainable agriculture, food security and diversification of household economies
- They supply many products and services
- Protect crops and the soil against water and wind erosion, thus combating drought and desertification and protecting water resources
- Major source of wood for wood based industries
- They provide shade and mark property boundaries
- Rich in significance from a cultural and social perspective



TOF as Source of timber



ISFRI, 2023

- In India, requirement of wood and wood based products to a great extent is met by TOF and it is more lucrative for the farmers.
- The total growing stock is estimated at 6,429.640Mm³. There is a total increase of 262.32Mm³ compared to 2021. Of this 90.92 Mm³ is from inside forest while 171.40 Mm³ is from TOF (ISFRI, 2023).
- The current estimates of annual potential production of Industrial wood as estimated under by ISFRI is 91.51Mm³.

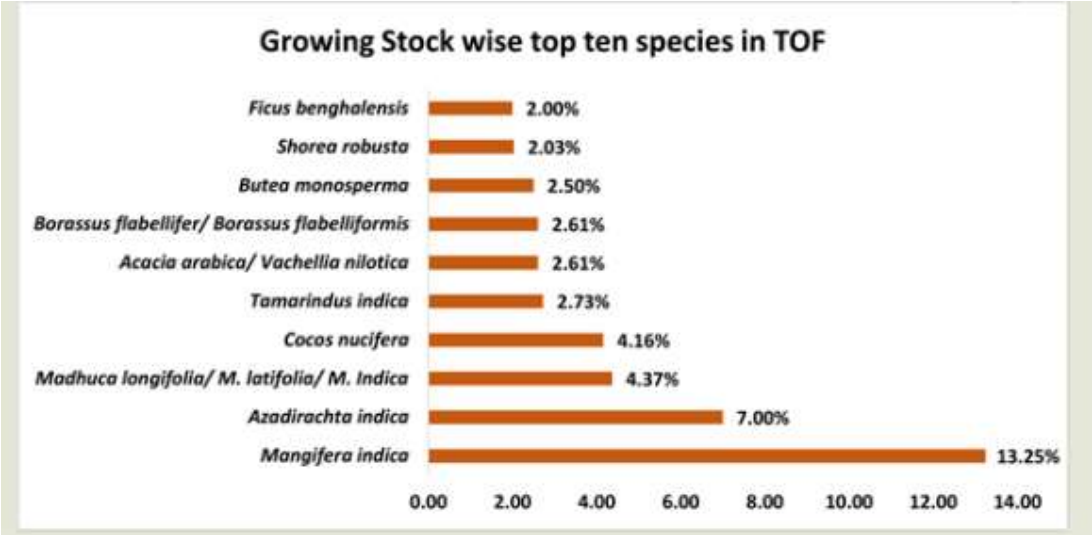
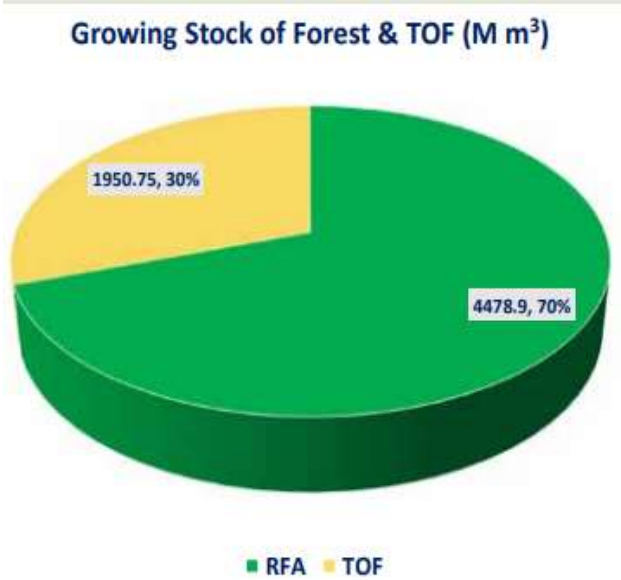


Fig. 4: Percentage of top ten species in growing stock in TOF



■ RFA ■ TOF

Regulatory and policy framework



- TOFs are managed differently among states under different state level acts and policies (Gol, 2012)
- India was the first country in the world to adopt a National Agroforestry Policy, in 2014, which led to the creation of the Sub-Mission on Agroforestry (SMAF) under the umbrella of the National Mission for Sustainable Agriculture (NMSA)
- ToF systems such as agroforestry, urban forestry, and linear plantations have been promoted through various national-level schemes and policies like the National Bamboo Mission (NBM), National and State Rural Livelihoods Missions, Mission for Integrated Development of Horticulture (MIDH), National Clean Air Programme, Green Highways Mission, and Nagar Van for urban forestry.
- The policies and schemes have been augmented with other efforts like the National Bank of Agriculture and Rural Development (NABARD)–supported Wadi program⁶, subnational initiatives through state governments’ social forestry schemes—as well as by projects by NGOs, the private sector, research institutions, and local communities.

For effective implementation of frameworks following are the factors underpinned:



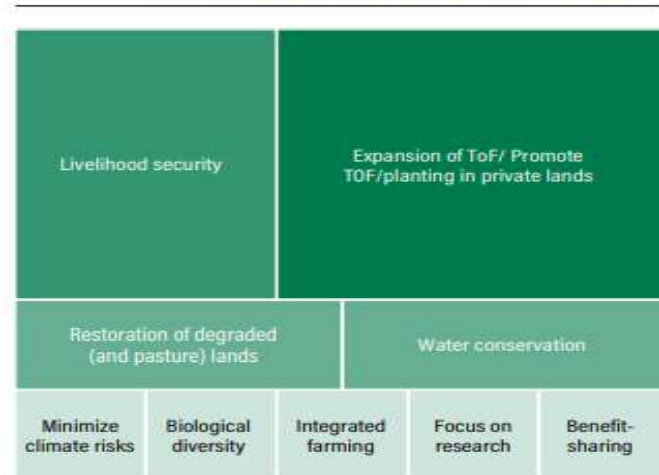
1. Political and bureaucratic will:

- Commitment to increasing tree cover is a key factor in encouraging farmers and other stakeholders to adopt ToF.
- States including Telangana and Maharashtra are implementing massive schemes such as the Telanganaku Haritha Haram (THH) and Mission Plantation, respectively, which emphasize ToF . Other states such as Karnataka have flagship missions like the KAPY to support agroforestry .

2. Convergence of state-level schemes with other national schemes/policies:

- Karnataka, implementation of KAPY converges funds from the MGNREGS and the Pradhan Mantri Krishi Sinchayee Yojana (PMKSY).
- Telangana also leverage MGNREGS for covering charges related to pitting, planting, and setting-up of nurseries.

Figure 8 | **Intended Goals of Policies/Schemes for Expanding Trees outside of Forests in India**



Note: The size of the cell indicates the number of times a particular goal is highlighted in the policy/scheme.
Source: WRI India authors.

	Provision	Key instruments/conditions
Monetary instruments	Subsidies	Subsidy for planting material Infrastructure subsidy
	Performance based payments	Payments based on survival rate of saplings
	Grants	Grants to farmers/farmer groups for taking up ToF
	Credit	Credit-linked back-ended subsidy Credit-linked loans
	Benefit-sharing	Benefit-sharing agreements
	Minimum support price (MSP)	MSP for ToF produce
	Insurance	Tree insurance for ToF systems Insurance for coconut and horticulture species
	Supply chain infrastructure	Cold storage for horticulture produce and bamboo
Non-monetary instruments	Regulatory incentive	Relaxation of transit permits Relaxation of felling regulations Permissions/Permits for harvest and transport
	Technical assistance	Capacity-building, technical capacity for planning ToF systems, awareness building or policies/incentives Extension services

Note: ToF = Trees outside forests.
Source: WRI India authors.



3. Decentralizing and farmer-focused implementation of ToF:

- Several states have decentralized the implementation of ToF schemes to the panchayat level to ensure healthy survival rates and flow of benefits directly to local communities.
- Government officials reported higher survival rates when farmers are allowed to choose their preferred tree species.
- In Telangana, as per the amendment made to Telangana Panchayat Raj Act 2018, gram panchayats are accountable for maintaining at least 85 percent survival of the plantations in each village.

4. Partnership with nongovernmental organizations:

- State governments and other government institutions have partnered with NGOs for building capacity and supporting farmers to successfully avail of policy incentives.
- The Wadi model spearheaded by NABARD, highlights the role of NGOs in capacity building and extension support.

5. Research institutions:

- Conduct research and demonstrate different agroforestry models to identify economically viable models that can be scaled to farmers.
- CAFRI has developed over 50 agroforestry models based on the agro-climatic regions. It has also developed a “FarmTree” app that provides information on 20 agroforestry tree species and their management practices

NATIONAL POLICIES AND SCHEMES

- National Agroforestry Policy, 2014
- Rainfed Area Development under National Mission for Sustainable Agriculture, 2010
- Sub-mission on Agroforestry under National Mission for Sustainable Agriculture (NMSA), 2016
- The Mahatma Gandhi National Rural Employment Guarantee Act, 2005
- Biological Diversity Act, 2002
- National Mission for a Green India, 2014
- Rashtriya Krishi Vikas Yojana, 2007
- Pradhan Mantri Krishi Sinchay Yojana (PMKSY), 2015
- National Rural Livelihoods Mission, 2011
- National Bamboo Mission, 2018 (restructured)
- Mission for Integrated Development of Horticulture (MIDH), 2014
- National Clean Air Programme, 2019
- Green Highways (Plantation & Maintenance) Policy, 2015
- Nagar Van Scheme, 2020
- Weather Based Crop Insurance Scheme (WBICIS)
- Coconut Palm Insurance Scheme (CPIIS)

Gujarat

- Rehabilitation of Degraded Farm Land (RDFL)
- Adivasi Vruksh Kheli Yojana
- Strip plantation
- Gram van
- Saurashtra Felling of Trees (Infliction of Punishment) Act, 1951

Karnataka

- Raising of seedlings for public distribution
- Maguvigonda Mara Salegonda Vana (A sapling for each child and a forest for each school)
- Krushi Aranya Pratsaha Yojana
- Karnataka Preservation of Trees Act, 1976
- Karnataka Forest Rules, 1969
- Karnataka Raitha Suraksha Pradhan Mantri Fasal Bima Yojana (KRS-PMFBY)

Maharashtra

- Kanya Van Samridhhi Yojana
- Atal Bamboo Samrudhhi Yojana
- Bhausaheb Fundkar Horticulture Scheme
- Green Maharashtra Mission
- Maharashtra Felling of Trees (Regulation) Act, 1964
- Maharashtra Forest Rules, 2014
- Maharashtra Project on Climate Resilient Agriculture (PoCRA)

Odisha

- Agroforestry Scheme
- Avenue Plantation
- Urban Tree Plantation
- The Orissa Timber and Other Forest Produce Transit Rules, 1980
- Horticulture schemes

Punjab

- Ghar Ghar Hariyali Scheme
- Greening Punjab Mission
- The Punjab Regulation of Wood Based Industries Rules, 2019
- Horticulture schemes

Telangana

- Telanganaku Haritha Haram
- Telangana Forest Produce Transit Rules 1970 (Notification dated 01.14.02.2016 [G.O.Ms.No.10])
- Horticulture schemes

6. Established value chains and private sector partnerships:

- ToF systems can be most effectively sustained in areas with established links to markets or the industry. The Karnataka State Bamboo Mission has made efforts to revive bamboo value chains by establishing holistic linkages by setting up nurseries for supplying planting material, rehabilitated bamboo artisans, linked farmers with artisans and established common processing centers to revitalize the entire value chain

7. Innovative business models around ToF:

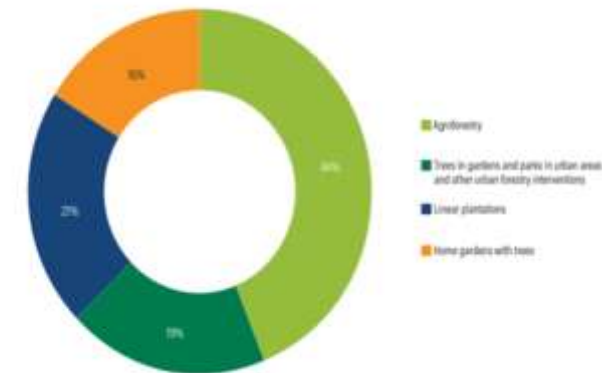
- Surat-based company Sparkle manufactures sanitary pads from locally sourced bamboo, banana fibre, and corn starch, thus supporting farmers with extra income.
- Naandi Foundation supported tribal communities with financial, technical, and market linkages in the Araku Valley to establish agroforestry systems with coffee and horticulture trees to rehabilitate the land and strengthen the livelihood of the communities

8. Monitoring:

- Expanding ToF requires survival and proper maintenance of trees.
- Monitoring mechanisms need to incorporate inclusive indicators such as biodiversity, water flow, soil health, jobs, and livelihoods in addition to the survival rate of saplings to assess the progress of ToF projects.
- In Telangana, a state-level committee headed by the chief secretary ensures coordination among the different government departments to implement plantation activities and monitor survival rates and outreach



Figure 7 | Types of Trees outside Forest Systems Supported by Reviewed Policies/Schemes



Source: Compiled from the reviewed policy documents by IIFR India authors.

Constraints to ToF:

- Lack of incentives for existing ToF and traditional practices
- Lack of extension services for supporting farmers
- Lack of quality planting material and standards
- Poor awareness and access to existing policy incentives
- Knowledge gaps on ToF models and tree species
- Gaps in regulatory environment
- Inadequate attention to land tenure and tree tenure
- Poor consideration around gender and social inclusion
- Lack of an enabling environment in ToF markets
- Lack of a landscape approach in restoration plans



Recommendation to scale ToF in INDIA