





Smallholder Planted Forest and Trees for Climate, Restored Landscapes and Livelihoods

Yale Forest Forum Series organized in collaboration with the FAO Forestry Division





Series Introduction and Overview

Thaís Linhares-Juvenal

Team Leader Sustainable Forestry, Value Chain Innovation and Investment Stream

FAO Forestry Division









UNITED NATIONS DECADE ON ECOSYSTEM RESTORATION 2021-2030







Demography of rural landscapes

<u>Forest-Proximate People:</u> Number of people living outside

urban areas and within 5 km of a \geq 1 ha of forest in 2019





People per km² ≤ 1 ≤ 5 ≤ 50 ≤ 300 ≤ 1000 ≤ 1500 ≥ 1501 No forests Forested areas with ≤ 0.1 people per km²

The designations employed and the presentation of material on this map do not imply the expression of any opinion whatsoever on the part of the Secretariat of the United Nations concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries.



Demography of rural landscapes

<u>Tree-Proximate People:</u> Number of people living outside urban areas and within 1 km of trees on cropland (excluding potential grazing land) in 2019





People per km² ≤ 1 ≤ 5 ≤ 50 ≤ 300 ≤ 1 000 ≤ 1 500 ≥ 1 501 Mo trees outside forests

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Smallholders

Definition:

2 ZERO HUNGER

Smallholders are small-scale farmers, pastoralists, forest keepers, fishers who manage areas varying from less than one hectare to 10 hectares. Smallholders are characterized by family-focused motives such as favouring the stability of the farm household system, using mainly family labour for production and using part of the produce for family consumption. (http://www.fao.org/3/i6858e/i6858e.pdf)

Definition used to monitor SDG indicator 2.3.1



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Smallholders

- Recent estimates indicate that:
 - Farms less than 1 ha account for 70% of all farms in the world, but only for 7% of food production.
 - Farms less than 2 ha account for 84% of all farms in the world, but only 35% of food production.
 - Farms less than 5 ha account for 94 % of all farms in the world that support crop and livestock production.
 - Small farms in low and middle income countries control larger share of agricultural land than in higher income countries.





Forest, trees and smallholders

- FAO (2009) reported 32% of planted forests ownership in 2005 held by smallholders.*
- Verdone (2018) estimated smallholders produced USD 2-4 billion in timber products per year.
- IUFRO (2020) suggests based on literature that harvest and sale of timber and other wood-related products increase smallholders income.
- Evidence from Uganda show that households who increased the area allocated to trees on farms had significant increase in their total consumption (IUFRO 2020; Miller et al. 2020).



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* Properties up to 100 ha.





SUSTAINABLE DEVELOPMENT GOALS

Forest Landscape Restoration and Agroforestry

- Of the 2.2 billion ha of degraded land identified as potentially available for restoration worldwide, 1.5 billion ha may be best suited for mosaic restoration combining forests and trees with agriculture.
- Commercial planting of forests and trees (pure or mixed-species plantation models can reduce cost of restoration per capita).





Cost data retrieved from the literature on forest restoration in tropical and subtropical countries (23 studies)

Intervention	Cost category	Cost range (USD/ha)
Assisted natural regeneration	Establishment	12–3 880
	Annual maintenance (years 1–5)	2–213
Agroforestry	Establishment (year 1)	125–1 240
	Annual maintenance (years 1–5)	5–720
Planted forests (for restoration)	Establishment (year 1)	105–25 830
	Annual maintenance (years 1–5)	167–2 421
Planted forests (commercial/monoculture	Establishment (year 1)	34–6 888
plantations)	Annual maintenance (years 1–5)	43–150

Source: FAO 2022 (based on Bodin, B., Garavaglia, V., Pingault, N., Ding, H., Wilson, S., Meybeck, A., Gitz, V. et al. 2021. A standard framework for assessing the costs and benefits of restoration: introducing The Economics of Ecosystem Restoration. *Restoration Ecology*).







Global forest sector outlook 2050

- The world will consume 31 billion m3 more of primary processed wood products in 2050 compared to 2020, i.e. an increase of 37%.
- Increase in industrial roundwood demand will range between 0.5 to 0.9 billion m3. Additional 199 MMm3 of primary processed wood products will be needed to substitute for nonrenewable materials.







Global forest sector outlook 2050: Sources of additional supply

□Naturally regenerated forests

- 54% of industrial roundwood supply in 2020
- □ Planted forests
 - 46% of industrial roundwood supply in 2020

It is estimated that at least 33 MMha of plantations will be needed to support wood consumption growth (8.3 m3/ha/yr productivity)





Planted Forest Trends





Source: FRA 2020





Planted Forest Trends

Decreasing global plantation forest growth rate



Source: FRA 2020



Global forest sector outlook 2050: Sources of additional supply

- There is potential to grow timber and fiber production from modern agroforestry systems and trees outside forests.
- Rising competition for agricultural land and increasing land prices make agroforestry and silvopastoril systems more attractive.
- ➢ Fuelwood woodlots of fast growing trees are critical to meet the additional wood fuel demand of 185 MMm3 in sub-Saharan Africa by 2050.



Smallholder Planted Forest and Trees for Climate, Restored Landscapes and Livelihoods – Series objectives:

- Build the case for including smallholders in forest-based ecological and economic interventions.
- □Bridge science with field experience on forest and tree planting.
- Demystify the role of planted forests in sustainable landscapes.
- Address some of the key factors for successful increase of smallholder forest and tree planting, including: *policies, markets, technology, and silvicultural practices*.







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Sessions

2- Policies, investments, and capacity development (Bob Kazungu, Uganda).

3- Research and Innovation (Stefano Bisoffi, Italy)

4- The role of producer associations (Geoffrey Wanyama, Kenya)

5- Access to financial services (Mariem Dkhil, Crédit Agricole du Maroc)

6- Carbon Farming (Jelmer van de Mortel, Rabobank)

7- Certification schemes (Richard Donovan, Rainforest Alliance)



Sessions

8- Forest Technology and risk management (Dianne Staal Wasterlund, Sweden)

9- Resilience to climate change (Stephanie Chizmar, US)

10- Fire management (Amanda Rau, TNC)

11- NGO Tree planting (Meredith Martin, US)

12- Forest restoration (Marlito Brande, The Philippines)

13- Agroforestry (Zoraida Calle, Colombia)

14- Wrap-up (Instructors)





Thank you!

Thais Linhares-Juvenal (Thais.LinharesJuvenal@fao.org)