Forests, Trees, and Agroforestry

More than a billion of the world's poorest people rely on forests and trees for their livelihoods. Tropical forests conservatively provide US$250 billion globally in various types of income from products such as timber, fuelwood, food, medicines and non-tree forest products. However, better management and governance can increase this figure (billions of dollars are lost each year to illegal logging in developing countries) and foster sustainable incomes for generations.

This CGIAR Research Program will:
- Reduce deforestation and forest degradation (and thus mitigate climate change)
- Conserve forest biodiversity
- Increase the productivity and value of forests, trees, and agroforestry
- Help forest-dependent communities adapt to climate change
- Improve the governance and management of forests, trees, and agroforestry.

Why focus on forests, trees, and agroforestry?

Forests underpin cultures across the world, providing the shelter, food and other resources that have allowed many societies to evolve and flourish. However, almost 13 million hectares of natural forests and tree cover are lost annually, with deforestation and land-use change contributing 12–18% of the world's total annual carbon emissions. A staggering amount of biodiversity is lost – sometimes forever – through deforestation and degradation. Also lost or degraded are the products and environmental services that forests and trees provide, such as water regulation and provision, nutrient cycling, and carbon sequestration.
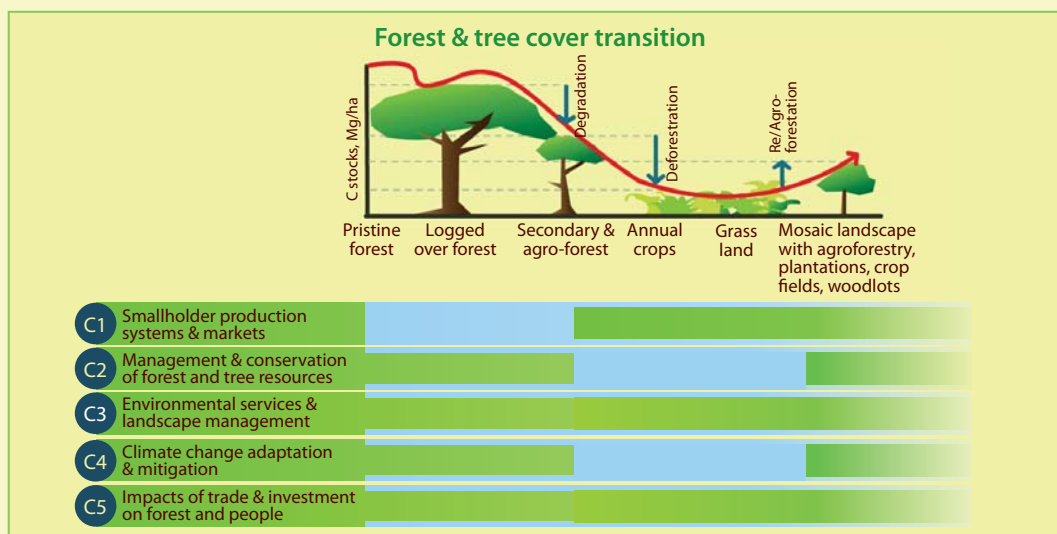
Research themes

Forests and Trees is built on a simple conceptual framework – the 'forest- and land-use transition curve' (see figure overleaf) – and is organized around five tightly interwoven research themes:

1. **Smallholder production systems and markets:** helping smallholders to improve the productivity of forests, agroforestry and trees, and to gain better access to markets for forest and tree products.
2. **Management and conservation of forest and tree resources:** conserving biodiversity, including tree genetic diversity, through sustainable management and conservation, and better governance.
3. **Landscape management for environmental services, biodiversity conservation and livelihoods:** maintaining or enhancing environmental services by developing and improving mechanisms (such as payments for environmental services) for

capturing services' value and for negotiating trade-offs among competing conservation and development objectives.

4. **Climate change adaptation and mitigation:** reducing greenhouse gas emissions through better management of forests and trees while increasing the resilience of people and communities through adaptation measures; and helping policy-makers and land managers to integrate forests, trees and agroforestry into adaptation and mitigation strategies.

5. **Impacts of trade and investment on forests and people:** promoting the positive impacts and reducing the negative impacts of global trade and investment as drivers of landscape change.

Forest & tree cover transition

C stocks, Mg/ha

Degradation
Deforestation
Re/Agro-forestation

Pristine forest | Logged over forest | Secondary & agro-forest | Annual crops | Grass land | Mosaic landscape with agroforestry, plantations, crop fields, woodlots

C1 Smallholder production systems & markets
C2 Management & conservation of forest and tree resources
C3 Environmental services & landscape management
C4 Climate change adaptation & mitigation
C5 Impacts of trade & investment on forest and people

Potential impact (after 10 years)

The program will target the world's forests – almost half the entire planet's forest cover, or around 1.8 billion hectares – as well as around 500 million people living in or close to forests in Southeast Asia, Africa and Latin America. The research will help:

• Save forests: between 0.5–1.7 million hectares of forest saved annually from deforestation.
• Mitigate climate change: reduce carbon dioxide emissions by 0.16–0.68 billion tonnes per year – equivalent to taking 29–123 million cars off the road annually.
• Improve forest management: ecologically and socially sustainable production and management practices being adopted in 9.3–27.8 million hectares, benefiting at least 3 million producers and traders and their families.
• Increase productivity: improve production and management technologies to raise the tree, land and labor productivity of target groups by at least 50%.
• Improve biodiversity: at least 2 million producers will benefit from increased conservation efforts.
• Reduce poverty: at least double the income from forest and agroforestry products for target households.
• Reduce gender inequality: improve women's access to benefits provided through forests and trees, ultimately aiming to ensure equal access by males and females.
• Increase incentives to conserve forests: improve the efficiency of the Reducing Emissions from Deforestation and Forest Degradation (REDD+; a scheme to pay forest users for their conservation efforts), resulting in an increased supply of REDD+ credits potentially worth more than $2 billion per year.

Partners

The CGIAR research program on Forests and Trees is an initiative of the Center for International Forestry Research, the World Agroforestry Centre, the International Center for Tropical Agriculture and Bioversity International.

Partners

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