The role of Agroforestry in REDD+

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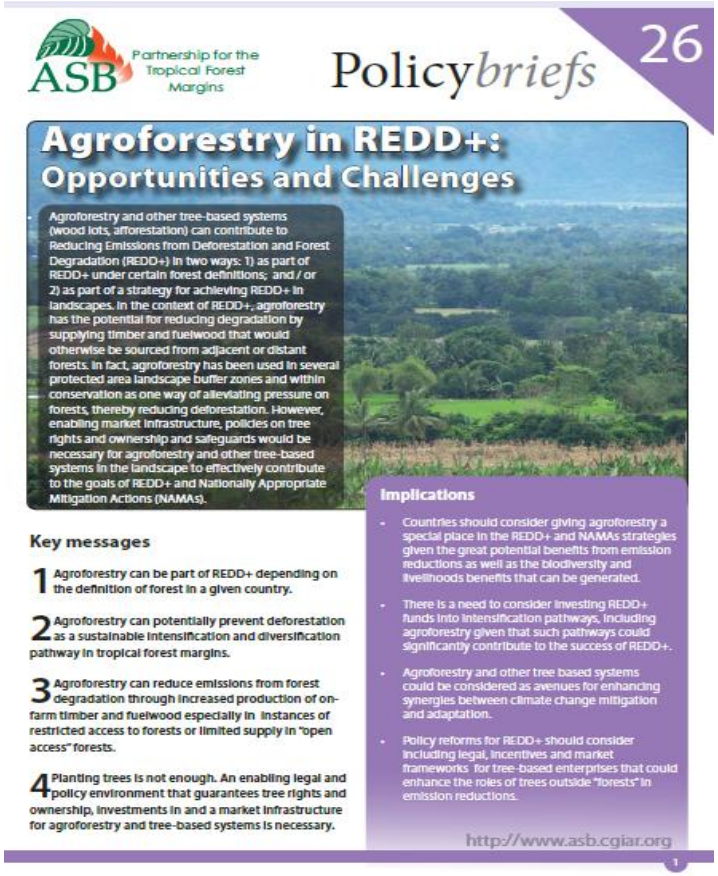
ASB Partnership at World Agroforestry Centre (ICRAF)

Convention of Biodiversity Workshop on REDD+ ,
Douala Cameroon

Discussion Point No 1



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Agroforestry in REDD+: Opportunities and Challenges

Agroforestry and other tree-based systems (wood lots, afforestation) can contribute to Reducing Emissions from Deforestation and Forest Degradation (REDD+) in two ways: 1) as part of REDD+ under certain forest definitions; and / or 2) as part of a strategy for achieving REDD+ in landscapes. In the context of REDD+, agroforestry has the potential for reducing degradation by supplying timber and fuelwood that would otherwise be sourced from adjacent or distant forests. In fact, agroforestry has been used in several protected area landscape buffer zones and within conservation as one way of alleviating pressure on forests, thereby reducing deforestation. However, enabling market infrastructure, policies on tree rights and ownership and safeguards would be necessary for agroforestry and other tree-based systems in the landscape to effectively contribute to the goals of REDD+ and Nationally Appropriate Mitigation Actions (NAMAs).

Key messages

1 Agroforestry can be part of REDD+ depending on the definition of forest in a given country.

2 Agroforestry can potentially prevent deforestation as a sustainable intensification and diversification pathway in tropical forest margins.

3 Agroforestry can reduce emissions from forest degradation through increased production of on-farm timber and fuelwood especially in instances of restricted access to forests or limited supply in "open access" forests.

4 Planting trees is not enough. An enabling legal and policy environment that guarantees tree rights and ownership, investments in and a market infrastructure for agroforestry and tree-based systems is necessary.

Implications

- Countries should consider giving agroforestry a special place in the REDD+ and NAMAs strategies given the great potential benefits from emission reductions as well as the biodiversity and livelihoods benefits that can be generated.
- There is a need to consider investing REDD+ funds into intensification pathways, including agroforestry given that such pathways could significantly contribute to the success of REDD+.
- Agroforestry and other tree based systems could be considered as avenues for enhancing synergies between climate change mitigation and adaptation.
- Policy reforms for REDD+ should consider including legal, incentives and market frameworks for tree-based enterprises that could enhance the roles of trees outside "forests" in emission reductions.

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- Agroforestry, through reforestation and afforestation constitute very relevant strategies for alleviating pressures on forests and significantly contributing to REDD+ in a landscape-based approach to REDD+.

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Why a Landscape Approach ?

- It is important to Reducing Emissions from All Land Uses - all transitions in land cover that have the potentials to sequester carbon

- Examples include like peat land, mineral soil, and agroforestry systems.

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Discussion Point No 2

- sustainable intensification pathways within agroforestry systems can contribute to REDD+

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What does intensification mean?

- Increasing yield per hectare(possibly with increase costs in labour and capital inputs;
- Increasing cropping intensity (i.e. two or more crops) per unit of land
- Change land use from low-value crops or commodities to high value market priced commodities (Pretty et al. 2011)

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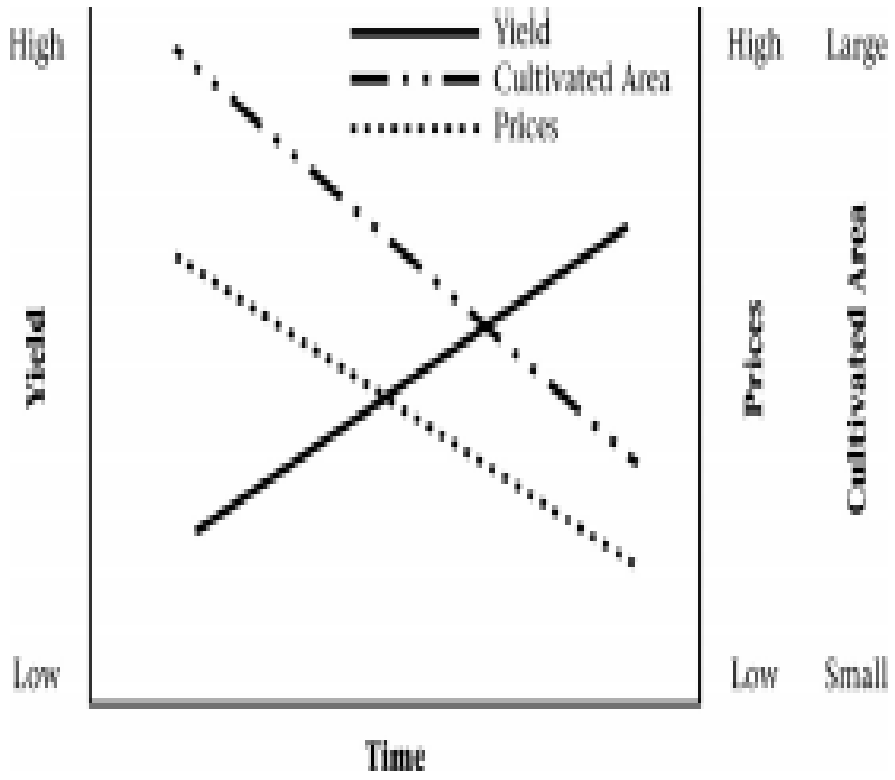
Can Intensification spare forests?



Rudel et al., 2009

- Higher Yield = more food on same land area
- Therefore sparing more land for forest conservation
- Therefore potentially contributing to REDD+

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Capacity building as an incentive for intensification of agroforestry systems in the Efoulan (3-13 May 2013)

Grafting

Marcotting

Cutting

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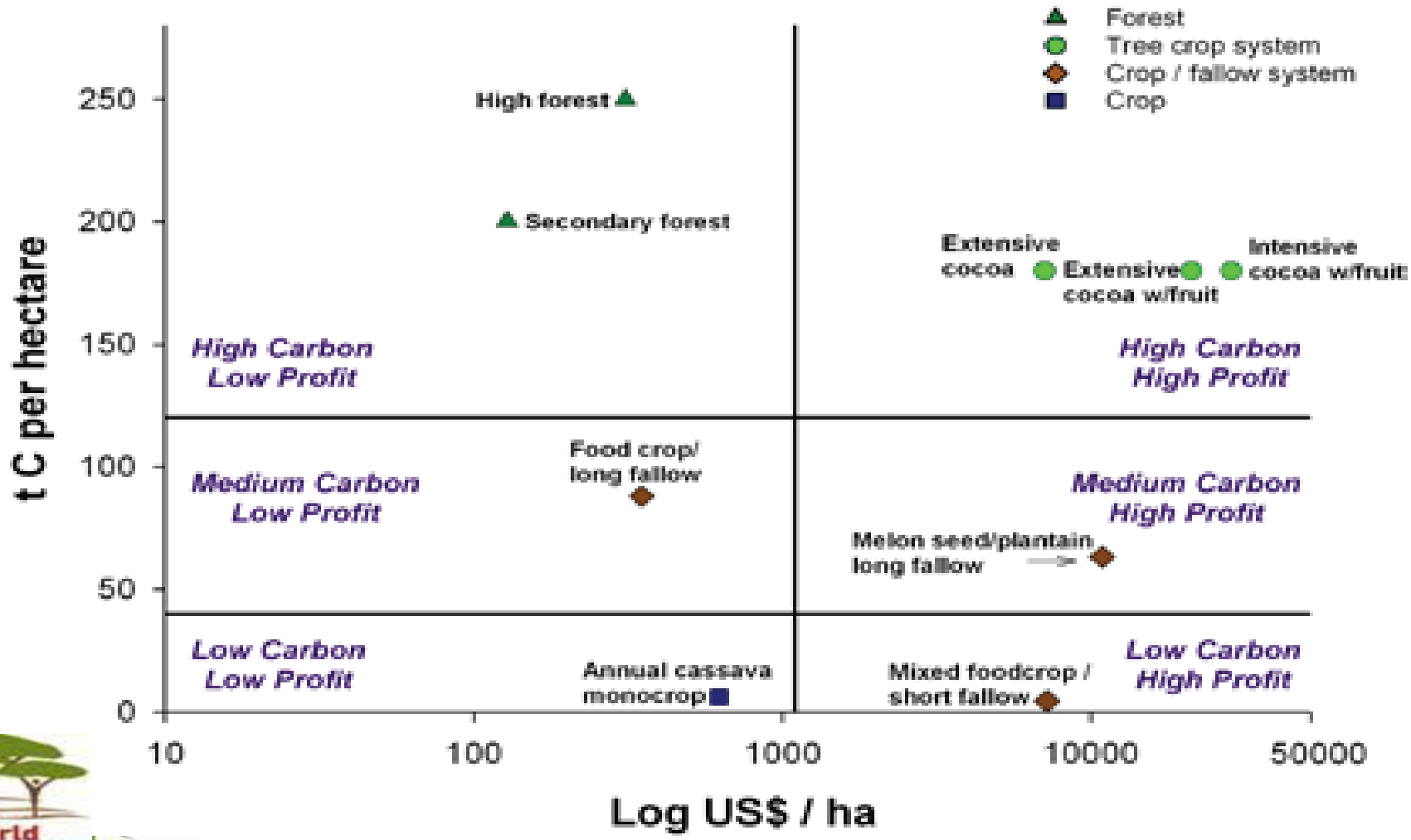
Discussion Point No 3. Intensified Agroforestry systems are profitability in Carbon



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National Capacity Building on Carbon Stock Assessment in Agroforestry Systems in Mbalmayo, Cameroon (20-23 May-2012)

51 persons were trained

- **University lecturers**
- **PhD students**
- **Staff of relevant Ministries (MINFOF/MINEPDED)**
- **Staff of local NGOs**
- **Staff of International NGOs**

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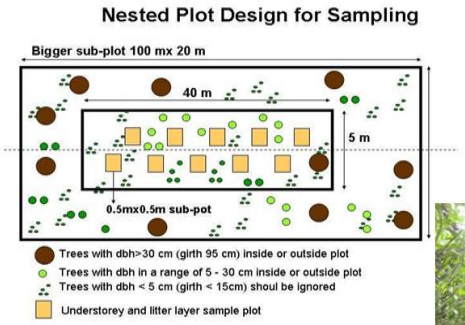
DEMONSTRATION OF CARBON STOCK MEASUREMENT

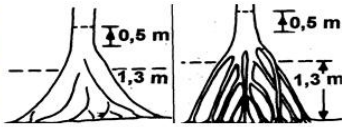
"Learning by Doing"

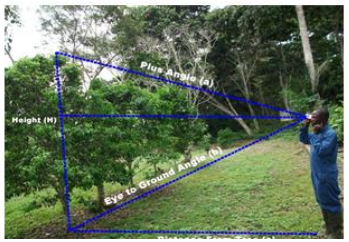
Theoretical Course



- **Cocoa agroforest**
- **Home garden**
- **Old fallow**

Practical Course





DEMONSTRATION OF CARBON STOCK MEASUREMENT

Key results obtained by trainees

	Cocoa agroforest	Old fallow	Home Garden
Above ground Carbon	89,13 tC/ha	118,73tC/ha	31,75 tC/ha

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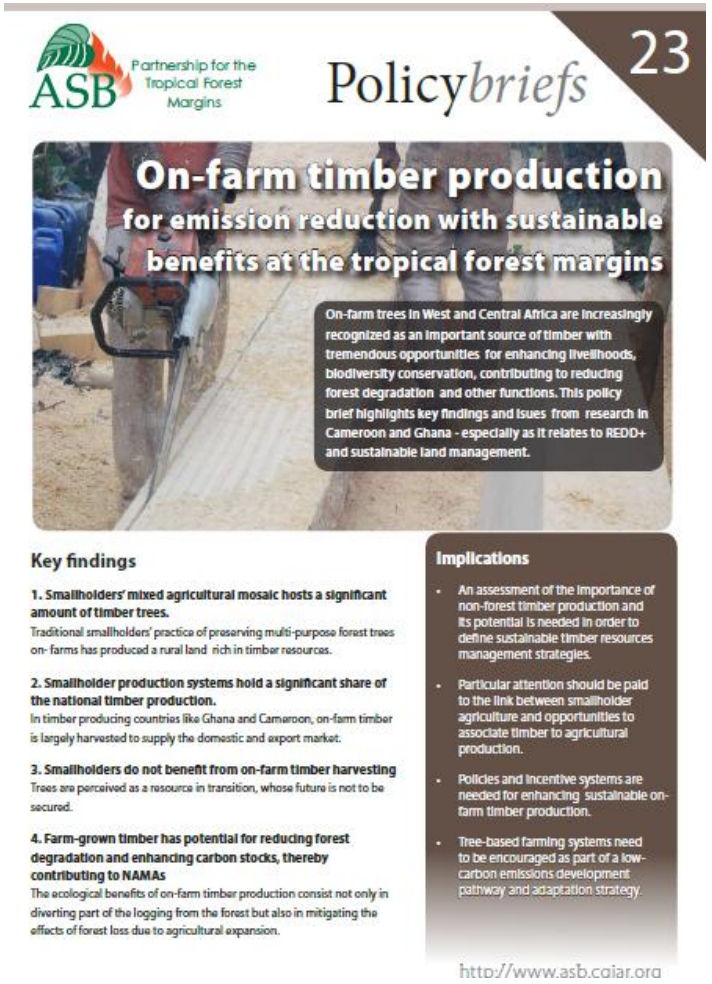
Discussion Point No 4

- Increased production of timber and fuelwood on-farm can potentially reduce emissions from forest degradation especially in instances of restricted access to forests



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On-farm timber production for emission reduction with sustainable benefits at the tropical forest margins

On-farm trees in West and Central Africa are increasingly recognized as an important source of timber with tremendous opportunities for enhancing livelihoods, biodiversity conservation, contributing to reducing forest degradation and other functions. This policy brief highlights key findings and issues from research in Cameroon and Ghana - especially as it relates to REDD+ and sustainable land management.

Key findings

1. Smallholders' mixed agricultural mosaic hosts a significant amount of timber trees.
Traditional smallholders' practice of preserving multi-purpose forest trees on- farms has produced a rural land rich in timber resources.

2. Smallholder production systems hold a significant share of the national timber production.
In timber producing countries like Ghana and Cameroon, on-farm timber is largely harvested to supply the domestic and export market.

3. Smallholders do not benefit from on-farm timber harvesting
Trees are perceived as a resource in transition, whose future is not to be secured.

4. Farm-grown timber has potential for reducing forest degradation and enhancing carbon stocks, thereby contributing to NAMAs
The ecological benefits of on-farm timber production consist not only in diverting part of the logging from the forest but also in mitigating the effects of forest loss due to agricultural expansion.

Implications

- An assessment of the importance of non-forest timber production and its potential is needed in order to define sustainable timber resources management strategies.
- Particular attention should be paid to the link between smallholder agriculture and opportunities to associate timber to agricultural production.
- Policies and incentive systems are needed for enhancing sustainable on-farm timber production.
- Tree-based farming systems need to be encouraged as part of a low-carbon emissions development pathway and adaptation strategy.

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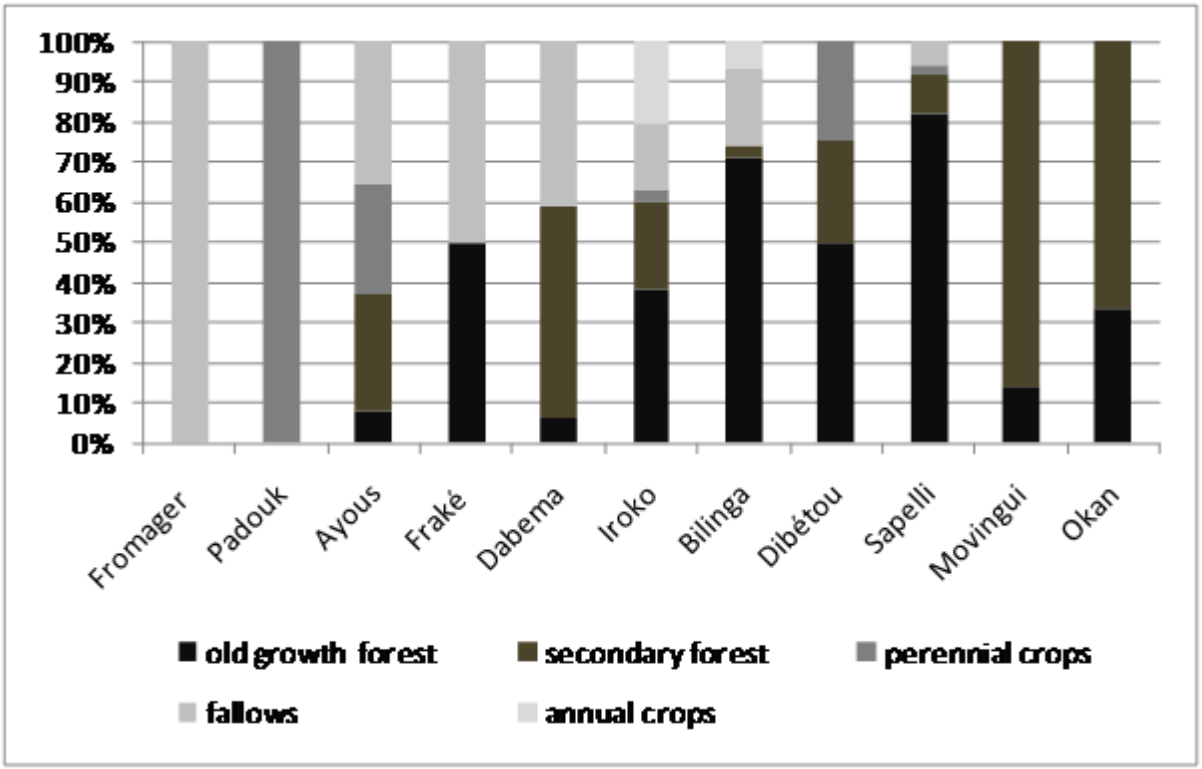
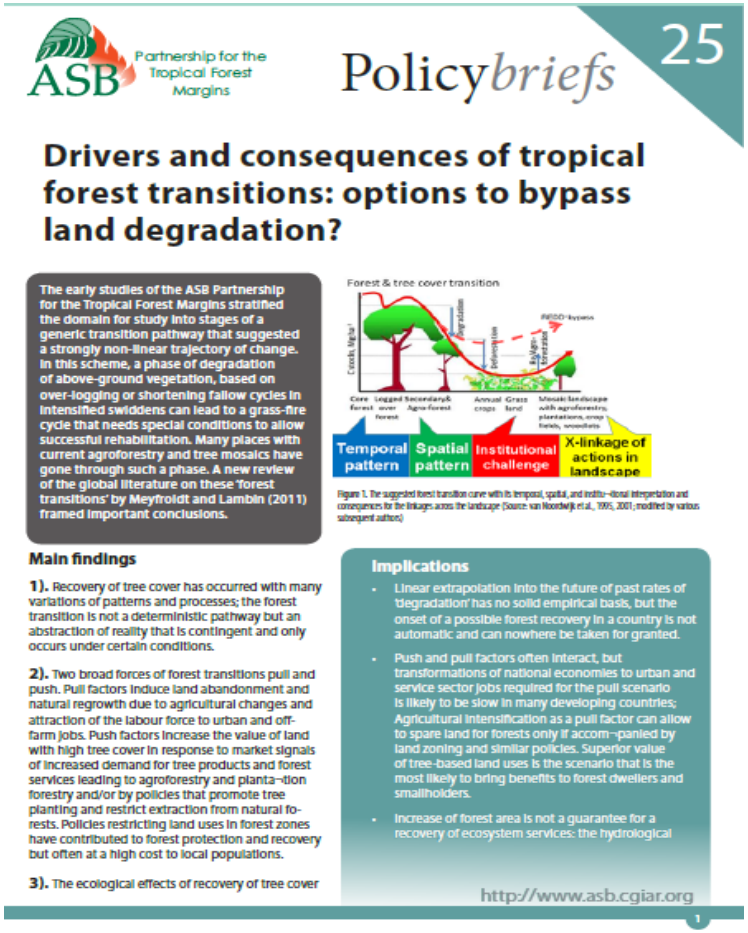


High value timber species in agrofrestry systems in Cameroon

Discussion Point No. 5



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Drivers and consequences of tropical forest transitions: options to bypass land degradation?

The early studies of the ASB Partnership for the Tropical Forest Margins stratified the domain for study into stages of a generic transition pathway that suggested a strongly non-linear trajectory of change. In this scheme, a phase of degradation of above-ground vegetation, based on over-logging or shortening fallow cycles in intensified swiddens can lead to a grass-fire cycle that needs special conditions to allow successful rehabilitation. Many places with current agroforestry and tree mosaics have gone through such a phase. A new review of the global literature on these 'forest transitions' by Meyfroidt and Lambin (2011) framed important conclusions.

Forest & tree cover transition

Temporal pattern | Spatial pattern | Institutional challenge | X-linkage of actions in landscape

Figure 1. The suggested forest transition curve with its temporal, spatial, and institu-tional interpretation and consequences for the linkages across the landscape (Source: van Noordwijk et al., 1995, 2001; modified by various subsequent authors)

Main findings

1). Recovery of tree cover has occurred with many variations of patterns and processes; the forest transition is not a deterministic pathway but an abstraction of reality that is contingent and only occurs under certain conditions.

2). Two broad forces of forest transitions pull and push. Pull factors induce land abandonment and natural regrowth due to agricultural changes and attraction of the labour force to urban and off-farm jobs. Push factors increase the value of land with high tree cover in response to market signals of increased demand for tree products and forest services leading to agroforestry and planta-tion forestry and/or by policies that promote tree planting and restrict extraction from natural fo-rests. Policies restricting land uses in forest zones have contributed to forest protection and recovery but often at a high cost to local populations.

3). The ecological effects of recovery of tree cover

Implications

- Linear extrapolation into the future of past rates of 'degradation' has no solid empirical basis, but the onset of a possible forest recovery in a country is not automatic and can nowhere be taken for granted.
- Push and pull factors often interact, but transformations of national economies to urban and service sector jobs required for the pull scenario is likely to be slow in many developing countries; Agricultural intensification as a pull factor can allow to spare land for forests only if accom-panied by land zoning and similar policies. Superior value of tree-based land uses is the scenario that is the most likely to bring benefits to forest dwellers and smallholders.
- Increase of forest area is not a guarantee for a recovery of ecosystem services: the hydrological

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- Planting trees is not enough. An enabling legal and policy environment that guarantees tree rights and ownership, by farmers is vital
- As Chhartre and Agrawal (2009) suggest, when communities have secured land and forest tenure, they are more likely to use their forest in a sustainable manner.

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Conclusion

- Find mechanisms to reward agroforestry through afforestation and reforestation for environmental services
  - Carbon sequestration
  - Watershed management
  - Biodiversity conservation

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