



Negotiation-support toolkit for learning landscapes

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38 | Why No Tree? (WNoTree) Analysis of agroforestry constraints

Meine van Noordwijk, Endri Martini and Suyanto

A Why No Tree? (WNoTree) analysis examines five constraints to a re-greening revolution based on agroforestry.

- 1 Property rights linked to land tenure and land-use restrictions.
- 2 Lack of access to high quality planting material of proven suitability.
- 3 Inadequate management skills and information often constrain production for high market values.
- 4 Over-regulation often restricts access to markets for farmer-grown timber and tree products, partly due to rules intended to curb illegal logging in natural forests or government plantations.
- 5 Lack of reward mechanisms for the environmental services provided by agroforestry and/or high discount rate and lack of investment.

■ Introduction

Agroforestry provides productive and protective forest functions, such as sheltering biological diversity, keeping ecosystems healthy, protecting soil and water resources and storing carbon. Yet, the trees planted in agroforestry systems are excluded from formal definitions of 'forest' and are often overlooked in legal and institutional frameworks for sustainable forest management.

The relationship between agroforestry and plantation forestry can be complementary, neutral or competitive depending on the effectiveness of policies supporting forest functions. Substantial government subsidies favouring large-scale plantations reduces the capacity of agroforestry to provide ecological benefits and services (Figure 38.1).

■ Objectives

WNoTree surveys generally have three objectives.

- 1 To identify the most significant constraints to tree management and domestication (including planting and harvesting) in the local context through focus-group discussions with farmers and local government agencies.
- 2 To test the hypotheses that emerge from these consultations, in combination with spatial analyses of actual tree presence in the landscape, through follow-up surveys.
- 3 To address the primary constraints and test the preceding analysis by engaging in action research with local communities and governments.

■ Steps

1: Checklist of issues to pursue in focus-group discussions

LAND TENURE AND LAND-USE RESTRICTIONS

- Physical or economic access to land for tree planting is linked to use rights over tree products; a lack of clarity on future use rights stops farmers from planting trees.
- Conflicts over land may enhance the use of fire in the landscape and/or create a reluctance to protect trees that are not bringing direct benefits.

LACK OF ACCESS TO HIGH QUALITY PLANTING MATERIAL OF PROVEN SUITABILITY

- Inadequate high-quality planting stock adapted to soil, climate, pests and disease, intercropping systems, local preferences and markets.
- Poor delivery mechanisms for high-quality planting material.

MANAGEMENT SKILL AND INFORMATION OFTEN CONSTRAIN PRODUCTION FOR HIGH MARKET VALUES

- Underperforming trees due to drought, floods, grazing animals, pests, diseases, suboptimal thinning and pruning.
- Lack of knowledge, labour or inputs for managing tree growth in intercropping or on monoculture plantations.

OVER-REGULATION OFTEN RESTRICTS ACCESS TO MARKETS FOR FARMER-GROWN TIMBER AND TREE PRODUCTS, partly due to rules intended to curb illegal logging from natural forests or government plantations

- Lack of local demand and/or physical and institutional access to markets for tree products.
- High transaction costs (permits, formal and informal taxes) for harvesting trees and tree products.

LACK OF REWARD MECHANISMS FOR THE ENVIRONMENTAL SERVICES PROVIDED BY AGROFORESTRY

- Lack of perception and appreciation of non-economic or cultural benefits.
- High opportunity costs: treeless land-use options are more profitable than tree-based ones; in fact this may be the only 'economically valid' reason for a lack of trees in a landscape unless high discount rates and lack of investment are the primary hurdles to otherwise profitable tree-based land use.

An example of WNOTree analyses for Indonesia and the Philippines is provided in Roshetko et al 2008 and van Noordwijk et al 2008.

2: Detailed surveys to test hypotheses generated in Step 1

Box 38.1. Analyzing underlying causes of fire

After the 1997/1998 forest fires in Indonesia, a rapid analysis suggested that ‘fire as a tool’ and ‘fire as a weapon’ were major reasons behind the conflagrations (Tomich et al 1998a). Subsequent research tested these hypotheses and documented location-specific causes (Chokkalingam et al 2005, Suyanto 2005). One of the case studies, which studied the fires in Trimulyo, West Lampung (Suyanto et al 2004), found that, even with the use of military force, forest policy and management had largely failed to protect forest resources when local communities were not involved. The burn scar pattern in 1994 was similar to the burn scars in 1997; both scars were very large and contiguous. A major reason for the 1997 fires had been tenure conflicts: fires had been intentionally caused by discontented villagers as revenge for government efforts to relocate them. Since then, the area had been an unproductive grassland (*Imperata cylindrica*) that was prone to annual fires. The analysis suggested that providing more secure land rights through which livelihoods’ expectations could be realized could lead to more sustainable land management by local communities. Subsequent experience has confirmed this hypothesis. Burn scars became small, indicating fire control.

3. Action research engagement to address constraints

Box 38.2. Lessons learnt from national tree-planting campaigns

The Indonesian movement for forest restoration and tree planting, *Gerhan*, has provided substantial funding for tree planting in areas identified as ‘critical land’. Implicit in the program design has been the recognition that the lack of trees derives from a lack of availability of tree seedlings and other planting material. The limited success rate for tree survival and establishment suggests that other reasons for the lack of trees in the landscape are at least as important. The success rate for tree planting under conditions where land tenure and future benefit flows are clear is substantially higher than in conditions where the trees are seen either as public or as a government controlled good on land that has multiple claims of ownership and use rights.

Box 38.3. Experience in stability of a forest–village gradient in Batang Toru

Positive incentives for appropriate land management are needed to counter incentives for damaging the landscape. Working with community members and other local partners to develop new ways for them to earn income without disturbing the forest or its inhabitants may provide a win-win solution in the orangutan conservation program in Batang Toru, Indonesia. Results of surveys by the World Agroforestry Centre and Winrock International identified a number of non-timber forest products that were produced in Batang Toru which have the potential to diversify and secure viable livelihoods in a landscape with orangutans and other biodiversity. In all the land-use systems (mixed tree gardens, agroforests and natural forests), planning and management are limited. Improving crop management and developing market links could benefit the productivity, profitability and sustainability of these systems. Community strategies were developed to provide technical approaches that enhanced the productivity and/or profitability of non-timber forest products in agroforestry systems while protecting orangutan habitats and helping the communities to market those products. A series of training events built the farmers’ capacity to manage their agroforests in more productive, market-oriented and environmentally friendly ways (Martini et al 2008, Roshetko et al 2007).

Trees farmers want

Agroforestry at landscape scale

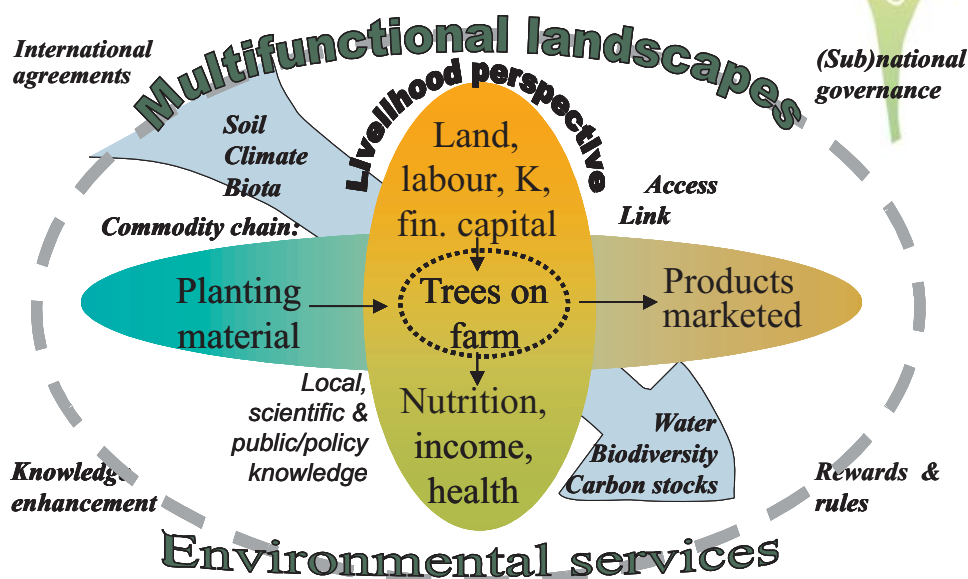


Figure 38.1. Interrelationships in a landscape that bear on farmer's decisions to manage trees or not

Barrier analysis

In technical terms the WNoTree protocol clarifies the 'barriers' that an external support project can address in forms of the Clean Development Mechanism of the United Nations. Removing a barrier provides for 'additionality' of landscape carbon stocks.

Key reference

Roshetko JM, Snelder DJ, Lasco RD, van Noordwijk M. 2008. Future challenge: a paradigm shift in the forestry sector. In: Snelder DJ, Lasco RD, eds. *Smallholder tree growing for rural development and environmental services*. New York, USA: Springer Science and Business Media. p. 453–485. <http://www.worldagroforestrycentre.org/sea/Publications/searchpub.asp?publishid=2044>.



The landscape scale is a meeting point for bottom–up local initiatives to secure and improve livelihoods from agriculture, agroforestry and forest management, and top–down concerns and incentives related to planetary boundaries to human resource use.

Sustainable development goals require a substantial change of direction from the past when economic growth was usually accompanied by environmental degradation, with the increase of atmospheric greenhouse gasses as a symptom, but also as an issue that needs to be managed as such.

In landscapes around the world, active learning takes place with experiments that involve changes in technology, farming systems, value chains, livelihoods' strategies and institutions. An overarching hypothesis that is being tested is:

Investment in institutionalising rewards for the environmental services that are provided by multifunctional landscapes with trees is a cost-effective and fair way to reduce vulnerability of rural livelihoods to climate change and to avoid larger costs of specific 'adaptation' while enhancing carbon stocks in the landscape.

Such changes can't come overnight. A complex process of negotiations among stakeholders is usually needed. The divergence of knowledge and claims to knowledge is a major hurdle in the negotiation process.

The collection of tools—methods, approaches and computer models—presented here was shaped by over a decade of involvement in supporting such negotiations in landscapes where a lot is at stake. The tools are meant to support further learning and effectively sharing experience towards smarter landscape management.

