Approaches for the Improvement of the Economic Sustainability of Natural Forest Management in the Tropics

Policy Brief · Thünen Institute for World Forestry

PUBLISHER

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DEFINITIONS

ECONOMIC SUSTAINABILITY

The use of various strategies for optimally managing forest resources so that a responsible and beneficial balance can be achieved over the long term.

SUSTAINABLE FOREST MANAGEMENT

The stewardship and use of forests and forest lands in a way, and a rate, that maintains their biodiversity, productivity, regeneration capacity, vitality and their potential to fulfil, now and in the future, relevant ecological, economic and social functions, at local, national, and global levels, and that does not cause damage to other ecosystems.
(MCPFE 1993, FAO FRA2000)

FOREWORD

The German Federal Ministry of Food, Agriculture and Consumer Protection, Division "European and International Forest Policy", mandated the Thünen Institute for World Forestry to study approaches for the improvement of the economic sustainability of natural forest management in the tropics for its international forest-related negotiations.

This policy brief provides an overview and status of the project "Approaches for the Improvement of the Economic Sustainability of Natural Forest Management in the Tropics" scheduled for the period 2011 to 2013 with pilot studies in 2009/2010. The project is based on desk and field studies in tropical countries of Asia, Africa, Central, and South America.

With this policy brief we describe our numerous field activities, first results, preliminary recommendations and our scientific involvement in international forest related political processes and initiatives.

Project Sites

OBJECTIVE

The project's objective is to evaluate measures for an improved economic sustainability of natural forest management in the tropics. For this, we investigate the implications of a broad spectrum of forest management options and socio-economic aspects in the tropics to derive recommendations for political decisions.

The overall objective of the project is to promote the implementation and improvement of sustainable forest management of natural forests in the tropics in the light of the United Nations Forum on Forests and its Four Global Objectives, the Ecosystem Approach of the Convention on Biological Diversity, REDD+ of the Framework Convention on Climate Change, and of other international forest-related political processes and initiatives.

SYLVICULTURA OECONOMICA

Hauswirthliche Nachricht und Naturmäßige

Anweisung

zur

Wilden Baum-Zucht

oder

Gründlicher Darstellung

Grossen Holz-Mangel

Gefundenen Turf

Heinrich Cotthen Lüneburg

300 YEARS OF SUSTAINABLE FOREST MANAGEMENT FROM SUSTAINABLE WOOD PRODUCTION TO GLOBAL MULTIPLE FUNCTIONALITY

Today's guiding environmental principle of sustainability has its origins in forestry. In 1713 Hannß Carl von Carlowitz published his book Silvicultura Oeconomica and explained that the conservation and growing of wood should be undertaken in a continuing, stable and sustained way, thus counter-striking the prevailing dramatic depletion of forests in Central Europe. The Nachhaltigkeit (Sustainable Forest Management – SFM) paradigm was the start of professionally driven forestry, which expanded from Central Europe around the world, especially during the colonial period in the 19th and 20th century. It were mainly British, Dutch, French, and German foresters who disseminated and implemented the concept of SFM in many tropical countries.

Nowadays Carlowitz's heirs, forest politicians, and forest scientists, are challenged to integrate the concept of SFM and the multiple functionality of forests into international forest related processes with respect to maintenance of biodiversity, climate protection, deforestation, and forest degradation.

BACKGROUND

20 years after the UN Conference on Environment and Development (UNCED) in Rio de Janeiro in 1992 about 13 million hectares of global forests are still deforested and converted to other land uses annually. About 10 million hectares of those are natural tropical forests. The main drivers of deforestation and forest degradation are the conversion into non-sustainable forms of land use due to securing livelihoods of the poorest of the poor, or the short-term expectation of profits. These developments create an environment for biodiversity loss, climate change, deterioration of livelihood, and the increase of humanitarian needs. A possible alternative to counteract those developments is the improvement of the economic sustainability of forest management in the tropics. This approach is in line with the Global Objectives on Forests (UNFF 2007) and the Millenium Development Goals (UN 2012).

GLOBAL OBJECTIVES ON FORESTS

Member States rearm the following shared global objectives on forests and their commitment to work globally, regionally and nationally to achieve progress towards their achievement by 2015:

GLOBAL OBJECTIVE 1

Reverse the loss of forest cover worldwide through sustainable forest management, including protection, restoration, afforestation and reforestation, and increase efforts to prevent forest degradation,

GLOBAL OBJECTIVE 2

Enhance forest-based economic, social and environmental benefits, including by improving the livelihoods of forest-dependent people,

GLOBAL OBJECTIVE 3

Increase significantly the area of protected forests worldwide and other areas of sustainably managed forests, as well as the proportion of forest products from sustainably managed forests,

GLOBAL OBJECTIVE 4

Reverse the decline in official development assistance for sustainable forest management and mobilize significantly increased new and additional financial resources from all sources for the implementation of sustainable forest management.

THE MILLENNIUM DEVELOPMENT GOALS

adopted by the UN Millennium Summit in 2000, commit the United Nations to a "new global partnership". Out of eight goals, three are related to forestry issues:

GOAL 1:

Eradicate extreme poverty and hunger,

GOAL 7:

Ensure environmental sustainability,

GOAL 8:

Develop a global partnership for development.






CHAPTERS

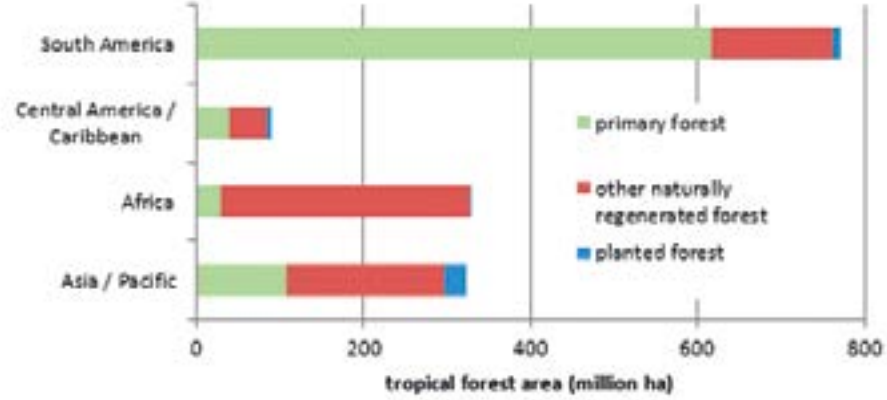
FOREST MANAGEMENT OPTIONS

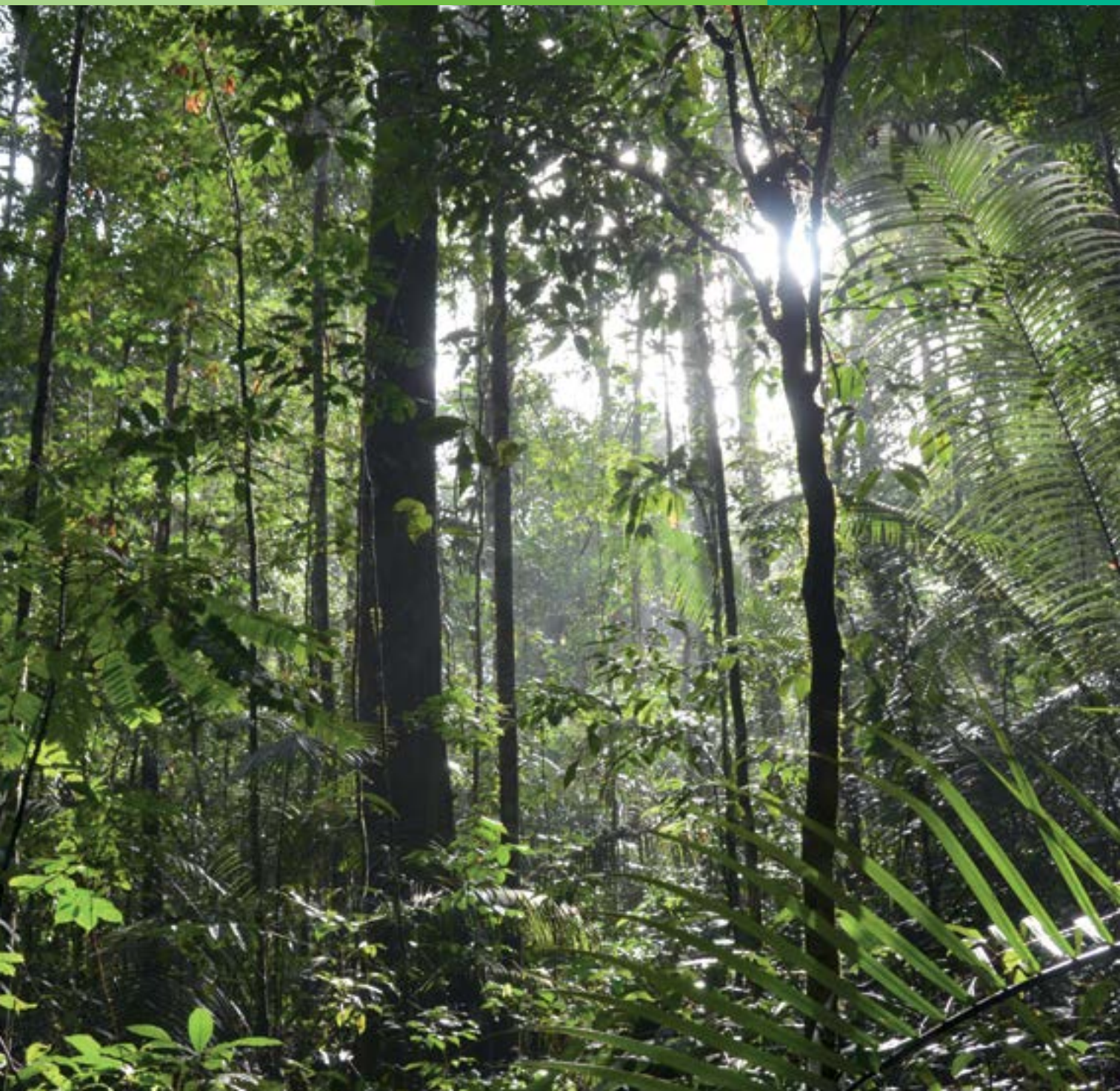
SOCIO-ECONOMIC ASPECTS

LINKS TO INTERNATIONAL PROCESSES

CHARACTERISATION OF TROPICAL FORESTS

Tropical forests comprise about 1.735 mio ha (43% of the global forest area) and represent a continuum from primary forests with no – or no visible – indications of past or present human activity to intensively managed planted forests of introduced species. FAO (2010) divides forests in three classes in relation to their „naturalness": primary forests, other naturally regenerated forests, and planted forests: primary forests are characterised as 'forests of native species, where there are no clearly visible indications of human activities and the ecological processes are not significantly disturbed', other naturally regenerated forests are 'forests of naturally regenerated native species where there are clearly visible indications of human activities', and planted forests are 'predominantly composed of trees established through planting and / or deliberate seeding'. On average, primary forests represent about 52,6%, other naturally regenerated forests 44,6% and planted forests 2,8% of the tropical forest area.





LONG-TERM GROWTH AND YIELD EXPERIMENTS FOR IMPROVED SILVICULTURAL TREATMENTS

Incomplete knowledge exists about the long-term effects of silvicultural interventions in natural forest ecosystems in the tropics. A long-term forest growth and yield experiment, which was established in Suriname`s tropical moist forest in 1978, offers the unique opportunity to study growth patterns and species abundance three decades after interventions.

The experiment includes 3 different exploitation levels and 3 subsequent thinning regimes. The resulting nine treatment combinations were realised in a randomised block design with 3 replications. In addition 3 plots in untreated natural forests were installed as control. In the scope of this project the experimental plots were re-measured in close cooperation with the Surinamese research institute CELOS and Tropenbos International Suriname. The data provide a time series which allows the assessment of the long-term growth reaction and shifts in species abundance with respect to the different treatment combinations.

The preliminary results of the analyses show the long-term impact of logging and thinning intensities on commercial tree species and their growth patterns. Further analyses will provide information for the determination of the allowable cut and the appropriateness of prescribed cutting cycles, thus contributing to the improvement of the sustainable forest management of natural forests in the tropics.

REDUCED IMPACT LOGGING – ENHANCING SUSTAINABLE FOREST MANAGEMENT

Tropical forests are mainly managed by the sale of timber harvest rights (concessions) to private companies. The concessionaire is assigned the right for logging a defined forest area over a certain period. Contrary to an often environmentally harmful conventional logging (CL) the approach of Reduced Impact Logging (RIL) minimizes the disruptive impact of forest harvest. RIL describes a set of technical measures in forest harvesting operations in the tropics which focus on minimal degradation of the forests while ensuring work efficiency through planning, monitoring, and evaluation. Adequate felling and skidding techniques reduce timber waste, damage to the logs as well as to the residual stand and enable a faster regeneration of the ecosystem.

The financial implications of RIL gained specific attention by the forestry sector as lacking information on costs and benefits prevented a broader adoption of this type of improved harvesting practice. There is no common understanding of the additional costs involved in RIL compared to CL. In a comparison of ten harvesting cost studies in the Brazilian Amazon costs for CL varied between 7,68 US$/m^3 – 37,69 US$/m^3 while costs for RIL ranged between 17,28 US$/m^3 - 39,87 US$/m^3. First results from our studies indicate that the harvesting cost under RIL regime are influenced by a set of variables and are not necessarily higher than for CL.

Environmental Impact Assessments proofed that RIL causes less damage to the residual vegetation and soil and consequently forms an important part of sustainable forest management. Thus, RIL should become the state-of-the-art of logging practice in tropical forests.

REDUCED IMPACT LOGGING COMPONENTS

- **Pre-harvest inventory and mapping of individual crop trees**
- **Pre-harvest planning of roads, skid trails and landings**
- **Pre-harvest liana cutting in areas where lianas interconnect tree crowns**
- **The use of appropriate felling and bucking techniques, including controlled felling**
- **Construction of roads, landings and skid trails that adhere to environmental design guidelines**
- **Winching of logs to planned skid trails and ensuring that skidding machines remain on the skid trails at all times**
- **Conducting a post-harvest assessment**

POTENTIALS IN THE VALUE CHAIN OF WOOD

Timber related creation of value along the entire value chain is to a large extent realized by timber processing. However, concepts for sustainable forest management usually concentrate on timber production inside forests, but do not extend to the timber processing sector. In an ongoing study conducted in Suriname losses of harvested timber along the wood value chain were studied in order to identify options for reducing the losses of timber.

Besides logging residues left in the forest poor recovery rates in timber processing are prevailing. First results show that approximately 70 percent of the harvested timber is lost throughout the utilization and processing chain. This clearly indicates the need to improve recovery rates by e.g. minimizing harvesting and processing residues, changing the organizational and technical levels, or utilizing residues for derived timber products or energy.

This study underlines that efforts to improve the economic sustainability of natural forests in the tropics need to take into account the value adding from harvesting to processing.

VALUE ADDING BY CONSIDERING TIMBER QUALITY

In tropical forestry the determination of the allowable cut is usually based on the occurrence of commercial tree species and stand volumes but neglecting the timber quality. As pricing of marketed timber is ruled by species, volume and quality, the disregard of timber quality results in a substantial underestimation of the economic value of forests.

A case study conducted in concession forests and sawmills in Suriname exemplary revealed the value destruction caused by the disregard of timber qualities. Logs, suitable for high value products such as veneer, were cut into low priced construction timber or boards.

Therefore straightforward methodological approaches were developed for the assessment of the timber quality of standing trees and for the grading of logs.

Including timber quality in the assessment and mapping of forests and in the determination of allowable cut offers the potential for a substantial increase in the economic benefits from timber utilization. Simultaneously this approach can reduce the ecological impacts of logging by decreasing the number of extracted trees. Thus taking timber quality into consideration allows a major improvement of the economic and ecological sustainability of forest management.

FOREST PLANTATIONS - EMERGING ROLE FOR WOOD SUPPLY

By 2030 the world population will account for 8.2 billion people. The population growth will come along with an increased demand for wood and wood products. At the same time less forest area will be available for timber production and the wood supply from natural forests will decline. This will result in a severe shortage of wood unless intensive wood production origins from other resources like forest plantations.

Today planted forests cover 6.6% of the global forest area, but account for 20% of the worldwide timber production. In 2010 the extent of planted forests in the tropics was assessed with app. 60 million hectares with a strong increasing trend. Most of them are fast growing industrial wood plantations preferably using exotic tree genus like Eucalypt or Pine. An enormous growth of up to 50 m^3 per hectare and year enable short rotation periods for the production of mainly pulpwood, the raw material for the paper industry or charcoal for energy purposes.

Such intensively managed stands often imply disadvantageous ecological features or may have even resulted in the conversion of natural forests. However, recent developments in the forestry sector lead to an expansion of socially or environmentally oriented forest plantations.

Beyond timber production plantation forestry offers other valuable assets: timber plantations serve as effective sink for carbon, thus mitigating global warming. Furthermore – due to their production function - they reduce the pressure on remaining natural forests and protected forest areas.

FOREST PLANTATIONS - PROTECTION OF NATURAL FORESTS, BIODIVERSITY AND CLIMATE

A relatively new approach is the establishment of forest plantations with mixed high value native tree species, mainly hardwoods, thus imitating heterogeneous forest ecosystems as a tool for rehabilitation of degraded sites. Although this type of plantation is demanding attentive management, it has a great potential to cover the growing demand for ecologically sound produced timber.

Patterns of mixed forest plantations have a potential for sustaining biodiversity in deforested landscapes when corridors for the migration of organisms are established.

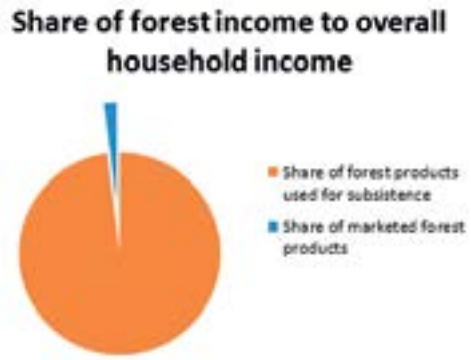
High value timber plantations of teak or other hardwood species only have a limited extent in the tropics due to increased production risks and slow growth. Nevertheless the economic importance of such stands is growing with the increasing demand for high quality sawn and veneer timber.

FOREST DEPENDENCY AT THE FOREST MARGIN

Forest dependency of rural communities at the forest margin is, among others, a widely acknowledged cause for forest degradation and deforestation. A case study was conducted in Northern Vietnam where forest degradation is mainly driven by fuel wood extraction and uncontrolled livestock grazing leading to the depletion of the natural capacity of forest regeneration. In contrast, deforestation is directly associated with land use change induced by agricultural expansion either caused by local population growth.

Especially in remote areas lacking sufficient infrastructure for income alternatives, local communities rely on subsistence economy for their livelihood. In the Vietnamese Din Hoa District 69% of the population is involved in forestry, agriculture and fishery. Forest products generate only a marginal share of 2% to the local households' income.

Due to the high costs for rural communities to access the market, subsistence economy is still the only option to maintain livelihoods without market access and alternative income sources.



COMMUNITY FORESTRY ENHANCED SUSTAINABILITY THROUGH THE INVOLVEMENT OF LOCAL STAKEHOLDERS

Insecure tenure rights are widely considered as a major threat to sustainable forest management. Experiences from Nepal prove that under community forest management degraded forests and deforested lands can be successfully reforested and improved in quality. The restoration of forests ensures a basic supply with forest products for the user groups. A survey conducted in the scope of the study revealed that 43% of the interviewed households reported positive effects from a membership of a community forest user group, whereas only 4% stated a negative effect.

Members of community forest management groups are obliged to follow their rules for control and restriction of the resource utilization. This applies in particular to fuel wood extraction and tree fodder removal.

Daily livelihood commodities need to be partly substituted to guarantee adherence to rules on resource restrictions. Therefore people use homegardens for the supplementation of forest products, especially fuel wood and tree fodder. Household's fuel wood demand for cooking can be covered by this substitution by approximately 34%. This is a valid alternative for forest resource utilization and supports the acceptance of user restrictions.

BUFFER ZONES CONTRIBUTE TO THE SURVIVAL OF TROPICAL FORESTS

Buffer zones are protective belts of various vegetation types which surround forests or other high value areas. Efficient buffer zones ideally provide the same functions as forests. The demand of local people for forest commodities and land reserves for agriculture can be satisfied within the buffer zones and the core zones remain unaffected.

During a forest management project in Ghana frequent wildfires originating from shifting cultivation destroyed valuable forests. Local farmers became activiely involved in the implementation of strategies to maintain and enhance natural forests. Tracts of land around the forests were assigned to individual farmers where they planted high-yielding fruit trees together with their usual staple crops like maize and yams. The farmers immediately stopped the use of fire for land clearing as they did not want to jeopardize their fruit trees. After a few years additional household income could be generated from the sale of the high quality fruits from the buffer zones. Subsequently interest in this type of land use could be initiated.

An additional component of the forest management project was a hardwood growing initiative. Interested farmers were encouraged to plant forest trees on their fields in the buffer zones and to take care for them until they reach maturity for harvest. On a contract basis a buy-off for the timber was guaranteed by a local sawmill that intends to cover part of its raw material demand from nearby resources in the future. This component became extremely popular in the project area. An increasing number of farmers joined the activity, organized village nurseries for seedling production and created a basic financial system. As a consequence fire was kept out of the buffer and the core forest zone.

The project results show that forest protection initiatives are successful if the local population can be actively involved and supported. The buffer zone approach is transferrable to other tropical regions with similar problems. Thus, it offers a great potential to contribute to the protection of tropical forests.


2005


2011

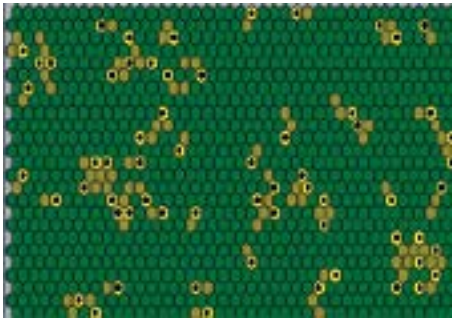
PREREQUISITE FOR SFM: THE UNDERSTANDING OF SOCIAL, ENVIRONMENTAL AND ECONOMIC INTERACTIONS LEADING TO DEFORESTATION AND FOREST DEGRADATION

Analyzing the direct and underlying causes of deforestation and forest degradation is a key requirement to obtain knowledge about how SFM can be achieved. Adapted and viable SFM activities should be developed on the basis of the understanding
1) of the drivers of deforestation and forest degradation,
2) of the needs of the local population which results in deforestation and forest degradation processes.

In Madagascar, national political and economic instabilities favor illegal logging and poverty. In this country, composed of various ecosystems and inhabited by eighteen ethnic groups, causes of deforestation and forest degradation are different across the regions.

In the moist forest of the east coast, slash and burn practice leads to deforestation due to uncontrolled fires, migration and lack of arable land. However, slash and burn plays an important role in the region to get access to land ownership. In the dry forest of the south, forest degradation through cattle grazing is influenced by traditional structures and local economy. Cattle constitute the capital of the owner and demonstrates his social status. In the highland region, the population pressure combined with low forest cover explain the high regional deforestation rate. In this area the establishment of Eucalypt (*E. robusta*) and Pine (*P. patula*) plantations supply the rural and urban populations with timber for construction and charcoal production.

SUPPORTING DECISION MAKING FOR THE DESIGN OF ADAPTED INCENTIVES AND ALTERNATIVE LAND USE SCHEMES



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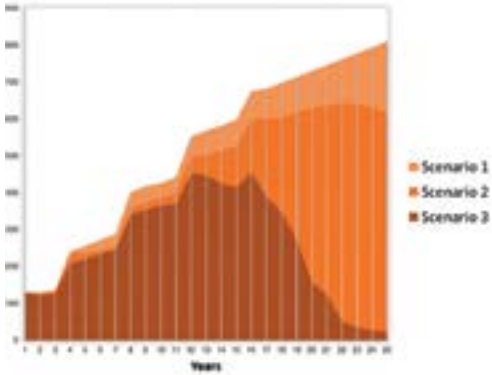

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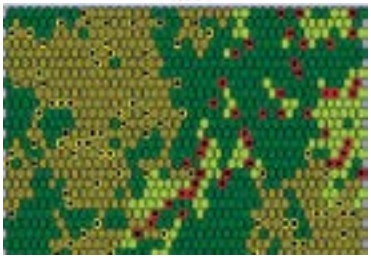

Decision making rules and interactions between the stakeholders and the land use dynamics. Impacts of the introduction of incentives and alternative land uses simulated according to different scenarios e.g. land cover evolution. **Fig. 1**: Evolution of the fallow area according to 3 land use scenarios. **Fig. 2**: Spatial representation of the land cover and the actors: Dark green = forest, light green = fallow > 15 years, brown = fallow, red = alternative land use, black = farmers are assessed.

Measuring potential impacts of incentives and alternative land uses over time is essential for the development of viable and sustainable activities aiming at the reduction of deforestation and forest degradation. A method was developed and tested in Nicaragua to observe the evolution of spatial, environmental, and economic indicators linked to SFM under different land use scenarios. The evolution of these indicators is compared with those evolved under the traditional use of the forest. Depending on the design of the incentive and the probability of its adoption, indicators pertaining to e.g. fragmentation processes, compensation values, and the deforestation rates in the study area can be simulated. The expected result is an operational method which

- helps evaluating the impacts of incentives and alternative land uses prior to their implementation,
- includes social, economic and environmental interactions in a resilience-based framework, and
- includes the participation of the stakeholders.

REDD+ : A NEW MECHANISM TO MAINTAIN TROPICAL FORESTS

Deforestation and forest degradation not only affect the quality of life of people that are directly dependent on forests, but also have an enormous influence on global climate change. The immediate release of carbon originally stored in the trees of previously deforested areas as CO_2 emissions contributes to about one sixth of the global human induced greenhouse gas emissions.

While further deforestation, forest degradation, and the application of poor forest management increase these CO_2 emissions, sustainable forest management, afforestation, and rehabilitation of forests can conserve forest carbon stocks and thereby actively mitigate climate change. In this respect, it has been widely noted that preventing deforestation is a highly cost effective mitigation option as it reduces the release of carbon emissions into the atmosphere.

Nevertheless the role of forestry in climate change mitigation suffers from the high economic attractiveness of other land uses – like e.g. palm oil production, industrialized farming or cultivation of energy crops. To confront this existing problem a new and aspiring approach to Reduce Emissions from Deforestation and forest Degradation in developing countries is presently negotiated under the UNFCCC: REDD+.

REDD+ aims at assigning an economic value to the carbon that is stored in forests. Thereby additional revenue can be gained by above mentioned forest management techniques that have a positive mitigation momentum, thus offsetting returns of initially more attractive land uses. The idea of REDD+ was first introduced at the UNFCCC negotiations by the Coalition of Rainforest Nations in 2005. Since then it has been discussed and shaped by policy makers, scientists, and relevant stakeholders to enable a transparent and effective implementation.

SCIENCE BASED CLIMATE CHANGE POLICY DECISIONS

Scientifically sound REDD+ methodologies are closely linked to the project "Approaches for the improvement of the economic sustainability of natural forest management in the tropics".

The high complexity of REDD+ implementation renders a focused approach necessary that concentrates on four main components:

- The development of a Measuring, Reporting and Verification (MRV) system,
- an assessment scheme for the human impact on forest, i.e. the identification of drivers of deforestation and forest degradation,
- the development of a baseline or reference emission level against which future emissions are set off, and
- the development and implementation of locally adapted incentive schemes to generate alternative incomes for forest dependent communities.

A pilot study in Madagascar and simulation studies demonstrated the capabilities and deficiencies of present integrated forest inventory schemes for the assessment of (reduced) emissions from deforestation and forest degradation. The studies also highlighted the complexity related to the construction of baselines suitable for different forest types or countries with varying rates of deforestation and forest degradation.

The study also provided measures for the assessment of drivers of deforestation and forest degradation. The approaches elaborated in the aforementioned project support and enhance these findings. They show the importance of a local perspective on the direct processes that threaten forests as well as the consideration of the indirect causes that need to be tackled on various levels.

All approaches provide valuable insights in the various options that exist for the construction or support of measures for incentive schemes. Referring to sustainable management of forests, improved silvicultural treatments, and RIL, as well as the possibilities of forest plantations are important measures to facilitate and support a REDD+ implementation. Payments for carbon storage, as the major pillar of REDD+, can be supplemented by a multitude of co-benefits resulting from a comprehensive implementation of REDD+, which includes SFM. The inclusion of forest communities and adapted management strategies as well as the enforcement of buffer zone management provide alleviation for threatened forests and involved stakeholders. As such the approaches contribute to the still ongoing discussions of how to build up a transparent, effective and suitable REDD+ mechanism.


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PROMOTING SUSTAINABLE FOREST MANAGEMENT IN THE TROPICS THE INTERNATIONAL TROPICAL TIMBER ORGANIZATION ITTO

The intergovernmental organization ITTO, established under the auspices of the United Nations in 1986, promotes the conservation and sustainable management, use, and trade of tropical forest resources. ITTO supports tropical member countries by developing internationally agreed policy documents and by funding over 1000 projects in order to assist countries in adapting such policies and implementing them according to local conditions.

The ITTO report 'Status of Tropical Forest Management 2011' presents a wealth of information on forests in ITTO member countries which comprises 85% of the global tropical forests. The third report of this kind is again structured by the criteria and indicators framework that ITTO pioneered more than two decades ago. Since then, there has been significant improvement in the information submitted by ITTO producer member countries. However, regular forest inventories are still an exception in tropical countries and the data available for the survey must often be viewed as still unreliable or inconsistent. Nevertheless, some broad legitimate conclusions can be drawn on the status of tropical forest management and on the changes that have occurred since 2005.

A key finding of the report states that the area of tropical forest considered to be under SFM has increased by around 3 million hectares per year in the past five years in all three tropical regions in production as well as in protection forests. Though the share of sustainably managed permanent forests of the total tropical forest resource is still less than 10%, there is a clear increasing trend.

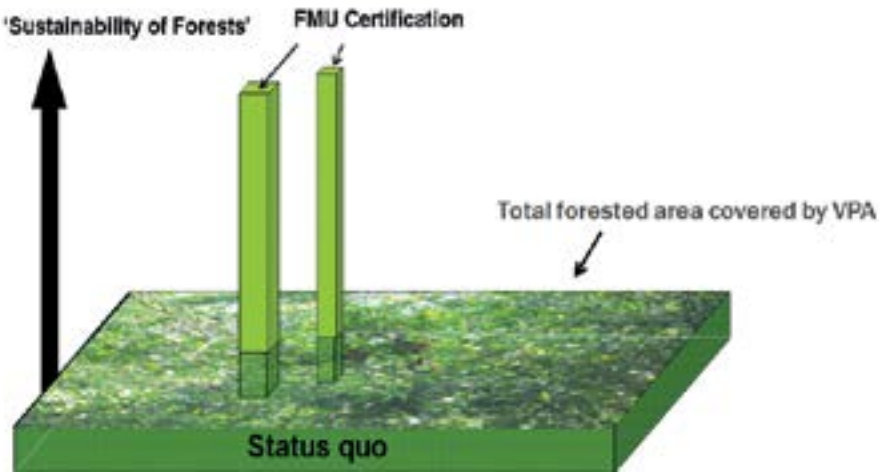
Still, every year millions of hectares of tropical forest continue to be lost or are seriously degraded by alternative land uses due to economic and social pressure. Markets to remunerate ecosystem services such as soil and water protection, biodiversity conservation or carbon sequestration develop only slowly. It is essential that all the values of tropical forests are recognized and compensated to promote their retention and sustainable management.

FLEGT VPAs: AN APPROACH TO COMBAT ILLEGAL LOGGING

The European Union (EU) launched in 2003 the Forest Law Enforcement Governance and Trade (FLEGT) action plan to combat illegal logging and associated trade of timber and wood products. Core elements of this action plan are the so called Voluntary Partnership Agreements (VPAs) between the EU and timber producing countries. VPAs aim to promote policy and legal development, good governance and transparency, capacity building, improved control, and verification of legal compliance in terms of better international market access. However, VPAs once ratified are legally binding for the involved partners.

Due to the claim of the implementation of a legal framework, which can deliver important components of sustainable forest management FLEGT VPAs can sustainably contribute towards sustainable development in timber producing countries. At present VPAs are agreed and partially ratified between the EU and Cameroon,

Situation with poor governance



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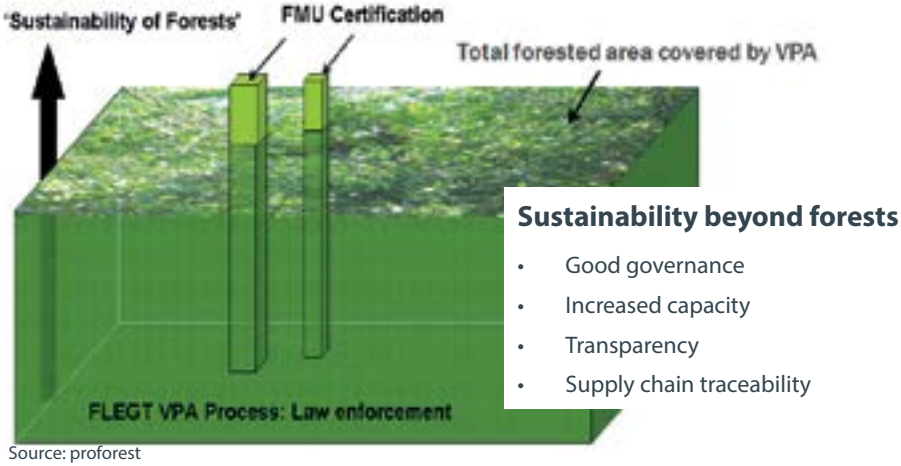
Situations with improved governance



Source: proforest

Central African Republic, Ghana, Indonesia, Liberia, and The Republic of the Congo. Further eight countries are at negotiation or pre-negotiation stage. First shipments of FLEGT licensed timber to Europe are expected for 2013.

A further component of the EU-FLEGT action plan is the EU- Timber Regulation (EUTR) which prohibits the import of illegally produced timber and wood products into the EU market. The regulation lays down the obligations of operators who place timber and wood products for the first time on the EU market i.e. to operate a due diligence system to minimize the risk of illegially harvested timber and associated trade. The EUTR was adopted in October 2010 and will be applicable from March 2013.

Comparable international efforts against illegal logging are the amendment of the US „Lacy Act“ (2008) and the Australian "Illegal Logging Prohibition Bill" which will probably be adopted in December 2012.

LESSONS LEARNED AND OUTLOOK

Forests in the tropics and subtropics are decreasing at an alarming rate. The main causes for deforestation are land use change by non-sustainable agriculture, human settlements, infrastructure projects, and mining as well as timber extraction. The motivation for deforestation and forest degradation is either the desire to increase profits by alternative land uses or the need of local populations to secure their food supply. In those situations initiatives focusing on the mere conservation of forests proofed to be non-purposeful.

The topical issue for the forest sector policy-makers is to enhance economic potentials of tropical forests so as to make sustainable forestry economically more attractive and competitive with a range of seemingly more profitable land uses. Enhanced economic potentials reduce deforestation and forest degradation in the short run and improve sustainable tropical forest management in the long run. Economic sustainability can only be met through the development, adoption and implementation of forest management approaches and appropriate silvicultural activities suitable for forest owners or local communities.

The forest management approaches must create additional income sources integrating the value of forest ecosystem services and functions into local, national and international markets. The situation demands pragmatic information on values, incentives, and options of forest management and solutions that address improved forest management, socio-economic, ecological, and biophysical impacts, institutional and managerial capacities, and forest governance.

Our case studies covered a wide range of socio-economic and forest ecosystem situations, including subsistence and community forestry. The preliminary results of our project indicate that approaches for maintaining the integrity of forests cannot be generalized but need to take into account the specific local conditions. However, the greatest potentials to improve the economic sustainability of natural forests in the tropics were found in the forest management sector. The project identified the need to provide policy-makers with information and recommendations focusing on four broader aspects of forest management:

- improved forest management (costs and benefits of different forest management approaches, costs associated and benefits from various silvicultural measures),
- forest products (income from tangible forest products, costs for and benefits from forest product optimization, competitiveness of the income with other land use systems),
- markets (value-chain, potentials for revenues from Payments for Environmental Services), and
- restrictions (productivity of natural forests and plantations, opportunity costs of SFM).

PROJECT PARTNERS

Nepal

- Ministry of Forest and Soil Conservation (MFSC)
- Institute of Forestry (IoF)
- District Forest Office
- Friends of Nature (FON)
- Thünen Institute of Forest Economics
- Green Governance (GG)
- Department of Forest Research and Survey (DFRS)
- University of Western Australia, School of Agricultural and Resource Economics

Vietnam

- Ministry of Agriculture and Rural Development (MARD), Hanoi, Information Center for Agriculture and Rural Development
- Thai Nguyen University, (TNU)
- District Agriculture and Rural Development (DARD)
- Forest Inventory and Planning Institute (FIPI)
- International Centre for Advanced Research on Global Change (ICARGC), Vietnam National University (HNU)
- Center for Research and Educational Cooperation (CREC)

Suriname

- Foundation for Forest Management and Production Control (SBB)
- Center for Agricultural Research in Suriname (CELOS)
- E-Timberindustry Suriname
- Greenheart Group
- Tropical Wood Company
- Tropenbos International Suriname
- Anton de Kom University
- University of Hamburg, Section Worldforestry

Madagascar

- Ministry of Environment, Water, Forests and Tourism (MEEFT)
- Graduate School of Agronomic Sciences (ESSA-Fôrets)
- Federal Ministry for Economic Cooperation and Development (BMZ)
- German Agency for International Cooperation (GIZ)
- HELVETAS Swiss Intercooperation
- Swiss Agency for Development and Cooperation (DEZA)
- Thünen Institute of Forest Economics

PROJECT PARTNERS

Nicaragua

- Ministry of Environment and Natural Resources (MARENA)
- University of the Autonomous Regions of the Caribbean Coast of Nicaragua (URACCAN)
- National Institute of Forestry (INAFOR)
- German Agency for International Cooperation (GIZ)

Ghana

- Centre for International Cooperation and Development (CIM)
- DUPAUL Wood Treatment (GH) Ltd.
- Federal Ministry for Economic Cooperation and Development (BMZ)
- Foundation for Nature Conservation in Africa
- German Agency for International Cooperation (GIZ)

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