Forest transitions in the tropics.
Are tropical forests on their way to recovery?

19 June 2008, Ede, the Netherlands

Seminar report

➔ Both national governments and local communities should be further supported to follow the best possible pathway to forest transition taking into account biodiversity level, socio-economic concerns, finance mechanisms, policies, law enforcement and data collection. ←

Reporters: **Sander van Andel, IUCN NL**
Pieter van Ginneken, Consultant
Cathrien de Pater, Ministry of Agriculture, Nature and Food Quality, Department of Knowledge
Pieter Zuidema, Universiteit Utrecht

1. Background, objectives and programme

Tropical deforestation has major negative impacts on biodiversity, climate and livelihood. For these and other reasons it is a major global concern. Despite growing scientific insights into the driving forces, deforestation continues at high rates in many tropical countries.

But is this the complete picture? Forest statistics now reveal that countries such as Costa Rica, India, China and Vietnam are actually gaining forest area, and apparently have gone through the transition to forest expansion. In the past, such transitions took place in many European countries, including the Netherlands.

So, what causes the forest transition? Scarcity of forest products? Economic development or government policies? Globalisation and the international forest policy dialogue? Or other factors? These are important questions if we are to understand and effectively promote forest transitions. It is also important to analyse the type and quality of the "new forests", in ecological and socio-economical terms.

Recently, studies on forest transitions have provided insights into tropical forest–cover dynamics. Their results add to the body of knowledge on tropical deforestation and mirror what can be learned from previous forest transitions in developed countries. Unfortunately, the science and policies that will promote forest transitions have received little attention.

This seminar aimed to:

1. Present and discuss recent scientific insights into tropical forest dynamics with special attention to the key driving factors and elements for success behind the transition from net deforestation to forest expansion.
2. Review the socio-economic and ecological qualities of the forests that are the result of these transitions.
3. Discuss the policy implications emerging from our new insights about forest transitions, including priorities for further work.

In this report we summarize the highlights of the presentations and discussions. We end with conclusions and recommendations for further research and action. The programme is presented in Box 1 below, and the participants are listed in Annex 1. Background literature on the subject is listed after the main text.

The summaries and PowerPoints of the presentations and other information on the seminar are available on the seminar website: www.tropischebossen,nl/studiedagen.

Box 1: Seminar programme

12.30	Registration with coffee
13.30	Welcome and introduction to Objectives and Programme by the Chair, Prof. René Boot (Tropenbos International)
13.40	Tropical Forest Transitions - Main concepts and overview – Prof. Eric F. Lambin (Catholic University of Louvain, Belgium)
14.10	Forest Transition or Stabilisation of Forest Margins. Towards forested landscapes - Dr. Freerk Wiersum (Forest and Nature Conservation Policy Group, Wageningen University)
14.30	Losses and Gains with Forest Transitions - Prof. Francis E. Putz (Utrecht University & University of Florida, USA)
15.00	*Coffee / tea break*
15.30	Policy repercussions.
	Forum and plenary discussion introduced and moderated by the Chair, Prof. Boot.
	Forum:
	Ir. Rob Busink (Ministry of Agriculture, Nature and Food Quality, Department of Nature)
	Dr. Antje van Driel (Ministry of Foreign Affairs, Department of Environment & Water)
	Drs. Paul Wolvekamp (Both ENDS)
	Prof. Bas Arts (Forest and Nature Conservation Policy Group, Wageningen University)
17.00	Closure

2. Highlights of the presentations

2.1. Tropical forest transitions: Main concepts and overview

Prof. Eric F. Lambin
Chair, Global Environmental Changes, University of Louvain, Belgium

Prof. Lambin started with defining forest transitions as “a change at a national scale from decreasing to expanding national forest areas”. He went on to present examples of this change from different regions. In earlier centuries forest transitions did take place in Europe and North America, but more recently they were also recorded in other regions including several tropical countries such as China, Viertnam, Costa Rica and Puerto Rico.. Although the change from deforestation to increased forest cover occurred in several countries, this does not imply that the causes of the forest transition are the same. Forest transition is not a matter of change in forest cover only, but of a change of equilibrium of the whole land use system leading to changes in the provision of ecosystem services. Nor is it a fixed or deterministic pattern. Forest transitions are highly contingent and there is large variability in specific trajectories. Factors such as land cover prior to transition and type of forest

established during the transition (natural forest regeneration versus plantation) should be taken into account.

Lambin distiguished **five pathways**[1] along which forest transitions can take place:

1. *Economic development path:* Economic development creates enough non-farm jobs to pull farmers off of the land, thereby inducing the spontaneous regeneration of forests in old fields;
2. *Forest scarcity path:* A scarcity of forest products and services prompts governments and landowners to plant trees and restore forests;
3. *Forest policy path:* Changes in national forest policies that are inspired by a conservationist approach, modify management practices of public and private forests;
4. *Globalization path:* Forests recover as a result of the impact of globalization processes such as
    - (i) Neo-liberal economic reforms: free trade, specialization;
    - (ii) Labour out-migration, remittances;
    - (iii) Growing tourism, land acquisition by expatriates;
    - (iv) Diffusion of nature conservation ideology;
5. *Plantation and agroforestry path:*
    - *(i)* This pathway is sometimes considered as an artefact of FAO's definition of forests, which includes exotic monoculture industrial tree plantations and tree crop plantations (gum arabic, rubber tree, oil palm...); the biodiversity and conservation value of these commercial tree crop plantations is generally low.
    - *(ii)* However, this pathway also includes diverse agroforestry systems in smallholder agriculture and 'anthropogenic forests' in the form of mixed fruit orchards, enriched secondary successions, mixed woodlots, etc. that have conservation value and provide ecosystem services.

Regarding the basic **explanatory frameworks,** Lambin discussed two fundamental forces driving multiple forest transitions:

1. *Negative ecological feedbacks* that arise once the flow of goods and services provided by forest ecosystems has severely declined. This has to do with endogenous or local factors and dynamics of ecological systems, e.g., land scarcity and agricultural intensification, and adjustment of land use.
2. *Socio-economic dynamics* that are not a direct result of local resource dynamics, but that are caused by exogenous factors from a higher organization level, such as economic modernization, global timber trade, change in land ownership regime, or diffusion of sustainable development ideology. These changes cause structural economic and political reforms which may stimulate forest extension.

Furthermore, he derived three **conditions** for transition to sustainable land use:

1. *Information:* environmental perception, information processing and transfer by agents;
2. *Motivation:* determinants of decision making and individual behaviour with respect to land management;
3. *Capacity:* portfolios of available and feasible responses for the different categories of agents.

The case of **Vietnam** was presented as an illustration of the influence of policy and other macro-economic factors driving forest transition. In this country, the rate of reforestation is twice the deforestation rate in previous years. This transition took place when 25% of the forest cover still remained. There are, however, still considerable edge effects due to fragmentation. Roughly 50% of the reforestation took place by natural regeneration, the other 50% through monospecies tree plantations. Interestingly, the transition took place while there was no decline in rural population.

In this case, forest transition is impacted by active land use policies, as follows:

1. Vietnam has for years actively allocated forest land to households in marginal regions. This led to decline of cultivation on hillsides which stimulated forest regeneration; this factor as well as population growth & land degradation led to increased land scarcity,

[1] In fact, the items 1 to 4 represent *drivers* for forest tranistions, while the fifth item represents possible *forms* in which the transition could take place (comment by Herman Savemije, LNV-DK).

which in turn stimulated increased labour inputs & crop frequency on mountain paddies (valleys) after decollectivisation; all this led to agricultural intensification + diversification.
2. The liberalisation of markets for agricultural inputs & outputs led to increased agricultural productivity on high agro-ecological potential plots.
3. Local scarcity of forest products and timber demand for urban and industrial markets provided an incentive for forest plantations in accessible locations.

According to Lambin, the case of Vietnam showed that policies *can* change behavior, and develop technology and institutions to reverse forest degradation. However, it is difficult to know the reasons behind the change in policies. Besides, in many places the result – reforestation –ultimately depends on local communities directly managing natural resources. They play a key role in land-use transitions and should therefore be provided with the necessary capacities.

Lambin concluded by discussing the prospects of accelerating land-use transitions in tropical forest countries by using global policy instruments such as REDD[2] and carbon credits for avoided deforestation. Such policies can potentially result in multifunctional forest ecosystems, provided that a variety of factors co-operate: state policies, international trade, the often high costs of implementation, factors of fairness and reward, etc..

Discussion
The following points were raised:
- The case of wood flows from Laos to Vietnam is a clear instance of leakage which need to be included in calculations
- Flow of goods and services is a third key category to identify forest transitions.
- It is unknown which countries are expected to go through a forest transition in the coming years.
- Deforestation is by far more studied than forest transitions. A meta-analysis by Lambin's group revealed appr. 700 studies on deforestation against about 10 studies on forest transitions.

2.2. Forest transitions or stabilization of forest margins: towards forested landscapes

K. Freerk Wiersum
Forest and Nature Conservation Policy group, Wageningen University

The starting point of Wiersum's presentation is where the former speaker ended, i.e. with the two different explanatory frameworks for forest transitions:
1. Transitions in land use: this approach studies structural changes in land use (of which forests are a part);
2. Forest transitions seen from the forest point of view, namely the turn-around from *de*forestation to *re*forestation (expanding forests).

The different views can be observed in, e.g., the Amazon forest. From a forest point of view, we can see the forest frontier gradually making place for agriculture, pasture etc. From a land use point of view, the gradual development of a differentiated landscape mosaic may be observed as demonstrated in a recent World Bank report which distinguished a core forest area, an edge forest area, and forest mosaic lands. The latter area included a mixed land-use system including a variety of agro-forest systems in which the local population creates livelihood for themselves. This points to a third explanatory framework complementing the other two, namely the co-evolution between ecosystem dynamics and social dynamics resulting in the creation of forested landscapes. This often involves the stabilization of forest margins. On the whole, studies on forest transitions and forest frontier stabilization are characterized by different assumptions, as is shown in Diagram 1.

[2] REDD = "Reduced Emissions from Deforestation and Forest Degradation". For more information on REDD, see http://www.fao.org/forestry/media/15280/1/0/ and http://cmsdata.iucn.org/downloads/climate_change_forest.pdf.

Research on forest transitions considers the processes of ecological degradation and ecological rehabilitation in the context of a forest – non-forest dichotomy, in which ecological processes prevail. It basically models the response of natural forests and forest plantations in respect to dynamics in population density and in macro land-use conditions.

In contrast, research on stabilizing forest frontier areas is mostly micro-scale focused and considers the processes of forest landscape evolution in the context of co-evolution between ecological and social systems. It considers the role of woody vegetation in developing local alternatives to forest reclamation practices in the form of adapted forest ecosystems; the latter become part of a mosaic landscape composed of various types of nature-analogue forest[3] and agricultural land-use systems.

Diagram 1.
Forest transition and Forest Margin Stabilization: two sets of assumptions

	Forest transition	Stabilization of forest margin
Basic process	Turn around from decreasing to increasing forest cover	Development of alternatives to forest reclamation
Basic perspective	Nature versus culture dichotomy	Co-evolution of ecological and social conditions
Major environmental process considered	Ecological degradation versus ecological rehabilitation	Adaptation of ecological systems
Main trends in vegetation dynamics	Deforestation: Loss of forest cover and biodiversity Reforestation: Increase in forest cover	Adaptation to human aspirations Emergence of forested landscape mosaics
Role of humans	Creation of starting points for vegetation dynamics	Conservation and modification of forests Incorporation of forests in local land-use systems
Main forest type considered	Early stages of natural forest succession Artificial timber plantations	Modified and enriched forests Tree-based land-use systems

The emergence of new antropogenic forest types at forest margins can be illustrated by a recent ICRAF publication (Van Noordwijk et al., 2003) in which five different alternative systems to slash-and-burn agriculture are distinguished:

1. disturbed, i.e. harvested natural forests;
2. secondary forests (early succession forests, sometimes enriched with valuable species);
3. complex agroforest systems (mix of economic plant species and tolerated selected/natural species; closed canopy; selective rejuvenation with rotations over 20 years)
4. simple agroforest systems (<5 economic spp. per plot; often open canopy and intercropping)
5. intensive tree crop plantations (mostly one dominant timber or cash-crop species)

Notably the difference between complex agroforests and natural forests is often difficult to observe (as demonstrated by research of Michon, CIFOR). The existence of different anthropogenic forest types illustrates that the often-prevailing view of a strict segregation between forests and cultivated areas is not correct, and that the process of domestication of forests includes much larger variety of forest types than only monocultural tree crop plantations.

[3] Analogue Forest is "a tree-dominated ecosystem that is analogous in structure and function to the original climax and sub-climax community" (http://www.biodiversitymanagement.com.au/design_of_analogue_forests.htm accessed on 15-07-2008)

To sum up, the viewpoints presented by Lambin and Wiersum complement each other and demonstrate that three major pathways in forest vegetation dynamics exist, i.e.:

- forest succession on abandoned agricultural lands;
- establishment of artificial forest plantations focused on commercial production of one dominant tree product; and
- development of mosaic landscapes including a variety of locally-evolved forests and agroforestry systems.

Discussion
Prof. Lambin explained that the two presentations are based on a different level of analysis. His presentation focused on macro-economic trends and processes, whereas Wiersum's presentation focused on local trends and processes. The two study approaches compliment each other. The macro-economic processes provide prerequisites for forest transitions. But as already mentioned in his own presentation local motivation and capacity to maintain forests are indeed crucial for actually stabilizing forest frontiers and extending forest areas.

2.3. Losses and gains with forest transitions

Prof. Francis E. "Jack" Putz
Utrecht University and University of Florida

In his presentation, prof. Putz discussed several critical issues related to the concept of 'forest transitions'. He discussed several problems. The first problem in using the concept of forest transitions is caused by the commonly-used definition of 'forest' by referring to a certain degree of tree canopy coverage. Such is the case with the definition as used by FAO and in the Kyoto Protocol defining 'forest' as *"an area of more than 1.0 ha with over 10-30% tree canopy cover, and a tree being defined as a plant that can grow more than 2-5 m tall"*. Using this definition 'forests' includes many different ecosystems and tree plantations without further considering ecological characteristics such as biodiversity and ecosystem functions. Obviously, these characteristics essentially differ between old growth forests and commercial tree crop plantations. When converting natural forests to, for instance, oil palm plantations, a great deal of ecological values are lost even if there is no net change in 'forest' cover.

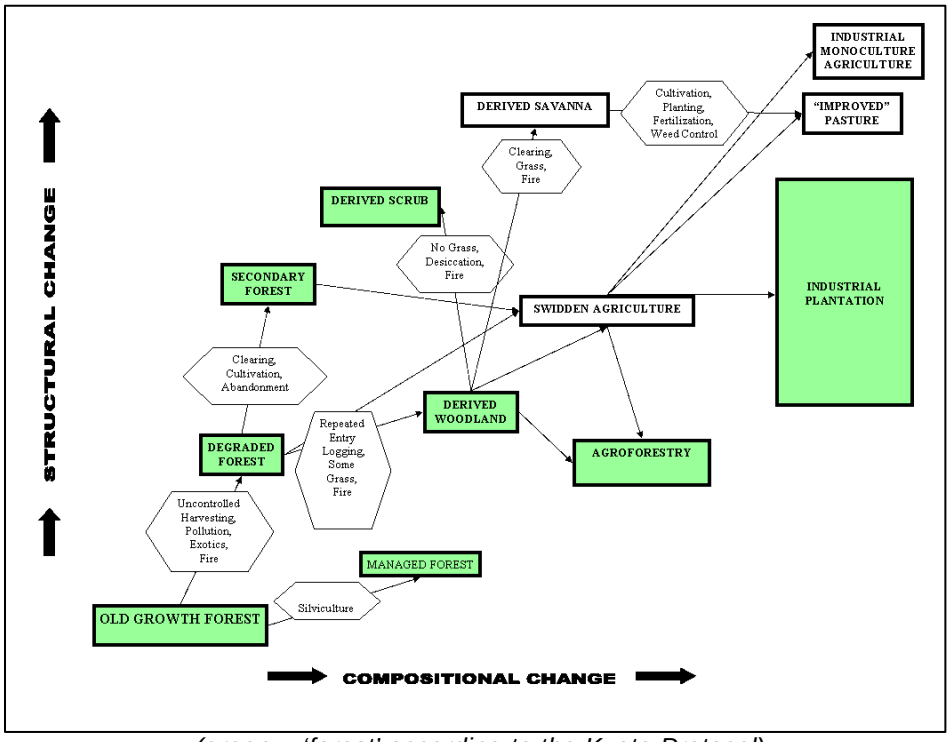
A second problem associated with the concept of forest transitions is the question of the ecological value of the new forests. By dividing terrestrial ecosystems into one of two categories -- forest or non-forest -- the impression is created that forests are the most desirable land-use systems and that many ecological values of other ecosystem types (e.g. savannas and scrubs) are disregarded. For instance, the definition in the Kyoto Protocol of 'afforestation' concerning: *"planting of trees in areas that have been without forest since before 1940"* may result in the creation of new tree plantations in areas historically covered by non-forest ecosystems. Prof. Putz warns against the hazard of forest transition through afforestation on such non-forest ecosystem lands such as *cerrado*, *pantanal*, *llanos*, *paramo*, savanna, grassland and tundra. The present schemes for afforestation as a strategy for carbon sequestration and payments do not consider the loss of original biodiversity in these transitions.

Another quality issue concerns the biodiversity status of the new forests. Prof. Putz proposes that in considering the quality of forest transitions old growth forests should be taken as reference point. Based on this principle, several stages in the path of change in forest composition and/or structure due to human interference can be distinguished (see Graph 1). For instance, through silviculture 'old growth' could become managed forest. But through uncontrolled harvesting, pollution, introduction of exotic species and/or fires 'old growth' would become degraded forest. Even further degradation results in 'derived woodland', 'derived scrub' and 'derived savanna'. These 'derived' stages should not be confounded with their natural namesakes. Another extreme change in forest structure and composition is the conversion of 'old growth' into industrial tree crop plantation. Each of the forest stages has a different value in terms of biodiversity with the old growth forest being most biodiversity, even though some taxa flourish better in other stages than in old growth. Putz emphizases that the interpretation given to the meaning and relevance of forest transitions differs in respect to

whether attention is given to canopy cover and biomass as emphasized in the Convention on Climate Change or to biodiversity as emphasized in the Conventions on Biological Diversity. What is good for carbon is not always good for biodiversity. In some forest transitions biodiversity will recover, but do we get back what we lost? Putz hopes that WWF's new 'Green Carbon Standard' will assist in addressing this issue; in this standard not only carbon and biodiversity are considered, but also social welfare.

A third problem associated with the concept of forest transitions is its focus on particular countries or regions without considering is the possibility of regional or international leakage. A positive transition towards more forest cover, or even increased biodiversity, at one place may have occurred only because the 'ecological footprint' and related deforestation practices have been extended to another region or country. For example, Massachusetts is 60% forested (up from 20% in 1870) but supplies only 2% of the wood products consumed; 98% is produced elsewhere[4]. The ecological footprint could well offset the optimism expressed in the conventional Forest Transition and Environmental Kuznet's curves.

Diagram 2.
Pathways of man-induced change in forest composition and structure



(green = 'forest' according to the Kyoto Protocol)

[4] Jan Joost Kessler presented a similar picture for the Netherlans at the VTB Annual General Meeting on 29 February 2008.

Box 2. Propositions by speakers and panel members

Erik Lambin

1. Globalization in its various forms has contributed to a forest transition in many countries, with some notable exceptions.
2. Local communities that are directly managing natural resources play a key role in forest transitions.
3. The focus of new global policy instruments such as REDD should be to initiate or accelerate forest transitions rather than halting deforestation.

Freerk Wiersum

1. Forest transitions may be caused by either forest or timber plantations regaining abandoned agricultural lands or by stabilization of forest reclamation and development of landscape mosaics. The first process involves forest vegetation recovering marginal agricultural lands, and the second process domestication of forests and their integration in rural landscapes. Regarding their social impacts the first process requires mitigating policies, while the second process requires facilitation policies.

Jack Putz

1. Given the wide disparities between what is lost due to *deforestation* and what is gained from *reforestation*, coupled with the dangers of international *leakage* (i.e., provoking deforestation in another country), renders dubious the entire focus on "forest transitions."
2. *Afforestation*, the planting of trees in areas that have not been forested since at least 1940 (according to the Marrakech Accords of the UNFCCC's Kyoto Protocol), is typically a biological anathema and should be deleted from the lexicon of conservationists.
3. Plantations may be forest-like in terms of tree biomass and canopy cover but otherwise differ substantially from forests.
4. The widespread disregard for *forest degradation* in negotiations related to "Reduced Emissions from Deforestation and Forest Degradation" (REDD) puts at risk a great portion of the value of forests.

Rob Busink

1. Good forest governance ànd law enforcement are basic requirements for positive forest transitions in countries.
2. Globalization of the tragedy of the commons is a main driving force of forest transition.
3. Forestry as a sector deserves more political attention, but it is the foresters' move to create this attention.

Antje van Driel

1. Countries can go through the transition to forest expansion by gradually transferring their ecological footprint abroad.

Paul Wolvekamp

1. In view of continuing forest fragmentation and deforestation, countervailing strategies are required which - alongside forest conservation – favour a mosaic landscape based on a diversity of land uses as an alternative to the further advance of monoculture tree crop plantations.

2. In view of a need to adapt to climate change, and to ensure continued land use based services, notably for rural populations, an era of restoration (or rehabilitation) of forests and forest ecosystem related landscapes (such as 'Analogue Forestry', 'Poli Culture' and 'agro-forestry' systems inspired by local traditions of land management) is essential.

3. In the face of forest degradation – a pretext for conversion to monoculture tree stands, policy choices in favour of rehabilitation of degraded (secondary) forest require to be supported. Hereby a stricter scrutiny of the definition of 'forest' is important - bearing in mind that forest statistics (e.g. based on remote sensing/satellite data) are easily subjected to misuse - in order to avoid confusion about what composes a 'forest ecosystem' in terms of biodiversity and ecosystem services and what not.

Bas Arts

1. What about data reliability?
2. When assessing the renevance of fores transitions, one shold not only include ecological quality indicators, but also policy quality indicators (e.g. good governance, smart regulation; see China and Vietnam)
3. Forest transitions take place under strong and/or legitimate states. In case of 'weak' states, one can simply forget such transitions..

René Boot

1. Monitoring forest cover has little meaning without knowing the proportion of old-growth forests, secondary forests and plantations.
2. High food prices and the production of biofuels arew likely to reduce forest cover in many countries oncludingthose that have witnessed fores transition in recent years.
3. To maintain or increase forest cover requires a broad policy response directed at old-growth forests, secondary forests and plantations.

3. Implications of forest transitions for policy. Forum and plenary discussion

3.1. Introduction of the forum members

After the presentations, a forum discussion was held on the basis of propositions made by the speakers and forum members. These propositions are presented in Box 2. The chairman, René Boot, first invited the forum members to introduce themselves, as follows:

Ir. Rob Busink, department of Nature, ministry of Agriculture, Nature Food Quality of the Netherlands (LNV) explains that recently, the Dutch government adopted the new policy paper *Biodiversity Works for Nature, for People, Forever*[5]. Priority themes are, among others, trade and illegal logging, and payments for biodiversity. In addition, LNV is heavily involved in the EU Forest Law Enforcement, Governance and Trade (FLEGT) programme.

Dr. Antje van Driel, Ministry of Foreign Affairs, Department of Environment and Water (BuZa/DMW) explains that with an annual investment of 70 million Euro, the Netherlands are the second largest donor in forestry development cooperation after Germany. Her department's forestry agenda focuses on: enforcement of forest laws, securing access to forests by local communities, e.g. in REDD negotiations. Changing forest cover may provide a hard-sought indicator for achieving the Millennium Development Goal on environmental sustainability (MDG 7).

Drs. Paul Wolvekamp, Both ENDS points out that his organisation maintains a network to assist NGOs in the South. He noted that the forest management discourse is increasingly complicated by discourses on commodities, REDD, communities, climate change etc..

Prof. Dr. Bas Arts, Forest and Nature Conservation Policy group, Wageningen University stated that one of the research topics of his department is the collision of different policies related to the forest sector.

René Boot, Director of Tropenbos International led the discussion around the following five themes derived from the speakers' and forum members' statements (see Box 2):

1. Selection and reliability of data
2. Globalization and forest transitions
3. Governance and law enforcement
4. Local livelihoods and communities
5. Global policy instuments such as REDD

3.2. Selection and reliability of data.

How important is data reliability for the study of forest transition? The discussion enfolding on this question revealed that opinions differed considerably on the use of forest transition data. An analysis by Grainger of the datasets underlying the FAO Global Forest Assessment shows that despite steady improvement and updating, there are still many errors, even to the extent that they exceed the figures on recent deforestation themselves. In Lambin's work, no single set of data is the truth but by combining the different sets one can still arrive at an acceptable level of truth. Anyhow, data provided by scientists may be used very differently by politicians. They can use data as a smoke screen, e.g. by portraying tree crops as 'forests'. FAO figures are derived from data provided by the member countries which is a major cause of inaccuracy (apart from the difficulty to compare countries). Before the emergence of the carbon market, there was no incentive for countries to come up with good data, but this has now changed. It was recognized that we now have reasonably good data on forest cover change available, even more than we presently use. Remote sensing has considerably improved; however, ground truthing - especially at grassroot level - will always remain necessary.

[5] Working title. English text in preparation; Dutch text, *Biodiversiteit werkt: voor natuur, voor mensen, voor altijd* available on: http://www.minlnv.nl/portal/page?_pageid=116,1640321&_dad=portal&_schema=PORTAL&p_file_id=28947

3.3. Globalization and forest transition

A lively discussion unfolded on Antje van Driel's proposition that countries can expand their forests by transferring their ecological footprint elsewhere (see Box 2). While the Dutch supported sustainable community forestry initiatives in developing countries, nearby forest was simultaneously cleared for timber exports to China where domestic logging was banned while demands increase rapidly.

It was further stated that countries may do the right thing at the national level, but not always at the subnational level. For instance, Colombia has security problems in part of their forests and can therefore not be held responsible for these parts. This is a problem in REDD discussions, since it touches on the sensitive issue of national sovereignty.

Others pointed out that leakage is not always negative. Whereas forest transition in the Netherlands was enabled by putting the ecological footprint on the colonies, Costa Rican forests for instance, benefit from the western countries' demand for ecotourism. The problem is when the leakage goes to biodiversity rich areas such as parks. Biofuels were considered to be controversial since biomass imports are increasing and countries try to solve their own environmental problem by creating problems abroad. The Netherlands, for instance, are now importing coal from Indonesia. A fair and inclusive type of accounting would therefore be necessary.

In this respect the audience welcomed the signing by minister Verburg (LNV) of the WWF-proposed agreement to stop deforestation worldwide by 2020; the Netherlands would thereby be accountable for all its footprints. Over 60 countries including Brasil and Indonesia signed the agreement. But what influence does WWF have in Brasil to hold them to it? It was put forward that Brasil is combating illegal logging among many other strategies to meet the 0% net forest loss. They cannot be taken to sanction by WWF but they do fear loss of image. This is a powerful negotiation instrument often effectively used by NGOs in the past.

3.4. Governance and law enforcement

Are good governance and law enforcement a prerequisite for forest transitions? The discussion started off with Statement 2 by Rob Busink (see Box 2). He emphasized that good governance is perhaps not needed to realise the transition, but it is very important for maintaining the forest cover afterwards. What is good governance? Most countries do not need new laws, they have them already. In practice, however, they do not really implement their own existing laws. FLEGT analyses together with governments such as Ghana and Malaysia which laws apply to the forest sector, and help set priorities, e.g. in trade. The FLEGT Action Plan aims at blocking timber imports at the European border when it does not have a FLEGT label. The USA has just adopted an amendment on the Lacey Act that prohibits the import of timber illegally harvested abroad according to local law. The next step is to address the domestic market as well. Ghana – assisted by the Dutch - has decided to implement FLEGT as a standard rule to its whole forestry sector. This is also happening in other countries.

The relevance of forest transitions should not only be assessed by ecological indicators, but also by policy quality indicators. This statement by Bas Arts (see Box 2) was backed by an evaluation study of the effectiveness of Vietnamese policies on forest cover. Although policies were found to be effective to some extent, critical points were raised as well. Especially the relation of forest policy with agricultural policies proved to be problematic. Some of the audience doubted whether the Vietnam transition is a success story at all, considering that 50% of the forest cover is plantation and deforestation of natural forest also still occurs.

How can organisations in the North establish good governance in the South? Both ENDS has adopted a 'sandwich approach': in addition to direct action, they support local NGOs to enable them to address their governments. For example, in the palm oil debate they have supported local NGOs to participate in the Round Table on Sustainable Palm Oil (RSPO) discussions. This was a long process: at first more political space needed to be created. Now

Indonesia and Malaysia have agreed to engage in further alliances between the government and the NGO community. Five years ago this would not have been possible. On the other hand, it was argued that many governments or companies hide behind simple governance regulations while continuing as unsustainable practices as before. Even the term 'forest transition' might be an excuse to continue destruction.

On this part of the discussion it was concluded that forest transitions have occurred indeed, for instance in the Netherlands. However, we need to carefully examine the quality of such forests in terms of ecology, biodiversity, and good data.

3.5. Local livelihoods and communities

The discussion of local livelihood departed from Lambin's second proposition (see Box 2) that processes of national or global scale will only work if these are developed and implemented in close cooperation of local actors. As a consequence, there need to be appropriate agents to capacitate communities in their forest transitions. The question arose whether it was positive that an increasing number of rural people are in fact economically engaged in urban activities. This would not mean that people are socially ready to abandon the countryside leaving it to new forests, as the fierce upheaval against the intended abolition of a Groningen hamlet recently indicated. In the South, over 200 million people still depend on forest. It is important to be more explicit in what forest transitions mean in terms of policy, the MDGs etc., in order to have more effect.

3.6. Global instruments, especially Reduced Emissions from Deforestation and Ecosystem Degradations (REDD)

it was stated that REDD[6] is the latest policy instrument to address deforestation and forest degradation. It would mean that forest transitions would not occur after complete deforestation but after, say, 30% instead of 5% forest cover left.

The real challenge is to keep degraded forest in the forest domain instead of it being converted. Foresters could develop sustainable forest management, but this is hardly receiving attention from funding agencies. The EU has no budget line for SFM, only forest budget lines on biodiversity and climate.

The discussion continued about communicating forest transitions to the public and to policy makers. Some participants see the message as unclear and dangerous. It should be more focused at the conservation of old growth forests. It is also feared that policy makers could interpret the curves in a wrong way, only going by area instead of quality. Others said that it is just a matter of correct communication. Every type of science can be misused, but that is not a reason not to carry out the research. In the end, however, there was some agreement that forest transitions is a container concept and should therefore be abandoned. It would give the idea that ecosystems are flexible while in reality ecosystems often transform into another state. Forest transformation could be a better term.

4. Summary conclusions and recommendations

The following policy considerations can be derived from the discussion:

- The term 'forest transition' refers to a positive change in forest cover and is open to different interpretations as to how it relates to forest quality. Opinions on the relevance of these changes depend on whether the focus is on carbon storage, biodiversity issues or livelihoods and on whether only regional trends or also trends in global 'ecological footprints' are considered. Although the occurrence of forest transitions indicates that it is possible to reverse deforestation processes, it should not be considered as providing a

[6] See note 1.

blueprint example for solving all problems regarding forest conservation. Nonetheless, examples of forest transitions provide excellent opportunities for better understanding factors stimulating forest conservation and extension and testing of whether the present policies for combating deforestation are on the right track or need to be further modified to reflect empirical realities.

- Forest transitions are driven by different drivers in different countries. The drivers for forest transitions in tropical countries are partly similar to the historic drivers for forest transitions in Europe and north America. However, in addition several new drivers have been identified related to both globalization processes and policy changes. As indicated by the present research findings, forests transitions are partly based on autonomous processes of socio-economic changes, including globalization processes. However, the processes can be significantly stimulated by policy changes, notably in respect to providing greater 'ownership' over forest conservation, use and management to local stakeholders and to arranging novel forms of payments and their equitable distribution to actual forest managers for forest products and services.
- In considering the relevance of forest transitions, it is important to consider the question of the quality of the new forests. In this respect two approaches are possible: (a) to identify forest quality from an ecological point-of-view taking old growth forests as hallmark, or (b) to identify forest quality from a socio-economic point-of-view with due consideration to the role of forests in local livelihoods and/or in global policies. Both the synergies and trade-offs between both approaches need to be considered.
- When considering the relevance of forest transitions, attention needs to be given to the precise nature of the new forests and their role in the rural landscape. Forest transitions can involve a variety of forest types. In considering the relevance of forest transitions care should be taken not to simply juxtapose old-growth forests versus commercial tree crop plantations, but rather to consider options for creating high-quality intermediate forest types and forested landscape mosaics.
- REDD might be a promising instrument to revert a continuing trend of deforestation. But it should not just be a niche for finance, it should also address governance, law enforcement and trade.

Background Literature

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