

Mitigation and Adaptation to Climate Change through Sustainable Rainforest Management

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Opinion Article

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INTRODUCTION

Since more than a century ago, "Sustainable forest management" has been considered, in temperate regions, as the concept for maximizing forestry benefits in a long-term perspective. Gradually, this concept was also introduced in the tropical rainforest although many foresters, environmentalists and politicians were sceptical about how it would function. The main challenges have shown not to be ecological issues, but social pressures, short-term economic goals, and lack of respect for laws and tenure. Deforestation in the tropics has led to many environmental problems long before it became common to talk about climate change. This article reviews six evaluation reports ^[1] on the quest to extract some common lessons learned for improving tropical forest management and assuring both local and global benefits.

CHALLENGES TO THE TROPICAL FORESTRY SECTOR

Deforestation is the second most significant contributor of carbon emissions worldwide after burning of fossil fuels, with 3 billion tons of CO₂/year ^[2]. Reducing emissions from deforestation and forest degradation is one of the most cost-efficient ways of mitigating climate change because the forest not only represents a huge carbon stock, but also yields a positive contribution through carbon sequestration. For that reason, increased international funding has been put into halting deforestation, especially through the mechanism Reduced Emissions from Deforestation and Forest Degradation (REDD+) that is recognised by the UNFCCC.

Despite international efforts, so far the results have been limited, with an important exception of Brazil. The main reason is that forest management and conservation cannot be seen isolated from the general development of the society. The really important challenges and opportunities for reducing deforestation have to do with the framework conditions for the forestry sector ^[3] compared with other types of land use. The Inter-American Development Bank developed a few years ago a Forest Investment Attractiveness Index (IAIF) ^[4], which considers a large number of supra- inter- and intra-sectorial factors, and makes it possible to compare countries. It is clear that local efforts to reduce deforestation would in the long run fail if a higher economic return can be expected from converting to agriculture, husbandry or other types of land use. There are however many other challenges that make it difficult to promote forestry in competition with other land use, where the important factors mentioned in most of the evaluation documents are

- Land tenure and forest tenure (lack of clear rights).
- Direct or indirect incentives (or disincentives) to agriculture, husbandry, mining, oil industry and other land uses compared with forestry.
- Bureaucratic rules and regulations for forestry permits (compared with e.g. agriculture) making it difficult to manage the forest legally.
- Few opportunities for long-term financing (forestry as mainly long-term investments).
- Quality and volume of public and/or private extension services for forestry (wood- and non-wood products) as compared with agricultural extension services.

- Public fiscal and trade policies, which affect the private sector.

Regarding the aspect of bureaucratic rules and regulations, it is worth mentioning that this is an incentive for corruption. Public officials in most developing countries have limited budget for monitoring and control, and even less for field inspections. When you give public employees a low salary combined with the excuse for not applying the intentions of the law, the corruption will be widespread. “But what about the indigenous peoples? They are the real protectors of the rainforest, right....?”. It is correct that indigenous communities have a different relationship with the forest: it is more holistic, and the forest serves for their environment, food, raw materials, health, income and culture. Indigenous territories have often less deforestation than national parks in the same region, like in Petén, Guatemala. That is one of the reasons why many NGOs are supporting indigenous groups as part of their strategy for rainforest conservation. The Amazon program of the Norwegian Rainforest Foundation benefits directly or indirectly a total population of approximately 261,000, or more than ¼ of the entire indigenous population of the Amazon rainforest, including the Guyana Shield (Bye & Norheim I.c.).

This approach is encouraging, but it is not so simple as to conclude that indigenous peoples necessarily means forest protection. First of all, the larger rainforest regions that still remain are often areas with less road infrastructure to take out timber and other natural resources. The low population density of mostly indigenous peoples in these areas assures that there will be no local overexploitation of the resources, but that doesn't necessarily mean that a more densely populated area with road access would be protected. Another issue is that indigenous communities and their leaders are vulnerable to threats from outside: Illegal loggers, gold mining, road and dam construction, influence of the market, biodiversity trafficking, bribery, etc.

Some indigenous peoples live in voluntary isolation, and should if possible be left that way. But for the rest, we should not have the illusion that they forever will be “forest rangers” for the world, because the pressure from outside is too strong. The international community in alliance with progressive governments and NGOs should take a more proactive role, supporting local communities and their micro enterprises in rainforest management and sustainable exploitation of forest products. That means management, use and sale of both wood- and non-wood forest products, in order to provide income that can support education, health and products from outside. Many environmental NGO's are afraid of supporting the cutting of trees, but the result can often be the contrary of their intentions. In most areas, the non-wood forest products would not give income that is comparable with those from wood. And if the NGO's don't want to support sustainable wood exploitation (or try to promote its prohibition) the result might be that the local population prefers other income generating activities, like agriculture and mining. That is why one of Latin America's most prominent forest experts, Ronnie de Camino, says: “To conserve the forest it is necessary to cut trees”.

PROJECT EXAMPLES

Despite all the mentioned challenges, there are many pilot projects and some regional programs that successfully support sustainable rainforest management. Many successful lessons in the field have been generated taking the watershed as a starting point in territorial planning processes, an approach that allows processes of action and results of the communities and families in a concrete manner and in their immediate environment. Forest conservation and reforestation activities are often focused on the upper watersheds, because actions there would have impact on lower elevations, e.g. mitigation of disasters like flooding and landslides.

One positive forestry program is Rainforest Alliance's regional program in Latin America for forestry conservation through certification, marketing and strengthening of small and medium forestry enterprises, which recently was mentioned as one of the most successful programs financed by the Inter-American Development Bank.

Important agro-forestry commodities are coffee and cocoa. Both have the characteristic that the better qualities are produced under trees (shade-grown). Cocoa is a very interesting product since it requires shade, and when the cocoa plants are ready for renewal after 15-20 years the trees have grown to sizes that often make it more profitable to maintain them as trees instead of renewing the cocoa plants. Coffee is the most important Central American agricultural export product, and the region's export of specialty coffee to the US has grown by 125% since 2001. Market analysis reveals that prices continue to grow because consumers gradually prefer more single origin and socially and environmentally grown coffee, like certified organic and shade-grown.

Another important commodity product in the international market is palm oil. The conversion of tropical forests and peat land to palm oil plantations has resulted in huge deforestation, especially in Indonesia and Malaysia. There are intents of reducing this trend and at the same time certifying existing palm oil plantations, e.g. through the “roundtable for sustainable palm oil” and the GEF program “taking deforestation out of commodity supply chains”. A dilemma with such approaches is that deforestation must have happened in the past to be able to “legalize” the production. So far it has been an uphill battle trying to halt deforestation through these measures. One completely different approach has been the prohibition of tropical palm oil for the Norwegian market since June 2016, a measure promoted since many years ago by the NGO Norwegian Rainforest Foundation.

Regarding carbon financing through REDD+ or similar mechanisms, in most cases these justify forest conservation and reforestation programs in a global perspective. Even though the carbon price has gone down after its peak in 2011, nearly all the current forestry programs would be economically feasible if this financing is used as one of the sources of income, in combination

with others. As an example, I found that the Baba Carapa forestry project in Bolivia would be completely justified in economic terms with a carbon price above US\$1.81/tCO₂e, considering the total project budget, and without taking into account other socioeconomic and environmental benefits. Carbon prices at the moment span from less than US\$1/tCO₂e to US\$131/tCO₂e in different emission trading systems (ETS), with about ¾ of the covered emissions priced below US\$10/tCO₂e.

One of the problems encountered for carbon financing in forestry projects is “leakage”, which refers to changes in anthropogenic emission reductions or removals of GHGs outside the accounting system that result from activities that cause changes within the boundary of the accounting system. Individual projects might have apparent impressive results in conserving forests, but the impact can often be that the agricultural frontier and illegal loggers move to other areas with less control, making it a net zero reduction in deforestation. For that reason, REDD+ uses the countries total land area as the monitoring unit.

Forestry projects have often been considered only as climate change mitigation, however they are nearly always a combination of mitigation (carbon conservation and sequestration) and adaptation (soil & water conservation, watershed protection). The most efficient projects are those that combine mitigation and adaptation, which is the case for forestry as well as for industries and transport. The reason is not only the concrete expected results, but also the sustainability achieved through the work with local stakeholders, who clearly see the advantages of adaptation but don't give much priority to global benefits through mitigation. In Bolivia, the Government has taken the consequence of this and established the “Joint Mitigation and Adaptation Mechanism for Integral and Sustainable Management of Forests and Mother Earth”. In the final document from UNFCCC COP21 the mechanism was accepted together with REDD+ as two different alternatives for forestry financing with climate change benefits.

The project “Integration of Climate Change Risk and Resilience into Forestry Management in Samoa” is the world's first UNDP-GEF project for climate change adaptation in the forestry sector. Situated in the Pacific, Samoa suffers climate change impacts like tree fall due to hurricanes, increased problems with invasive species, etc. An evaluation found that the most important impacts of the project were those that had to do with the national framework conditions, like policies, strategies and governance. A local best practice used is a Participatory 3D model of each village area prepared by the population that improves local ownership, as well as the understanding and quality of planning of natural resource management with a watershed approach.

OPPORTUNITIES

The mentioned project evaluations, as well as many other projects, clearly show that there are opportunities for tropical forestry development:

- Faster growing trees than in temperate regions.
- Markets for current and new non-wood forest products (rubber, nuts, natural oils, palm heart, fruit) and agro-forestry cash-crops like shade-grown coffee and cocoa.
- FSC forestry certification, organic certification, fair-trade and other types of certification to assure or maintain access to niche markets and improved prices.
- Value chain development with support to community enterprises.
- Public-private partnerships (PPP).
- Combined income from the same forest area (wood- and non-wood products, REDD+ and other carbon financing, payment for environmental services, eco-tourism, etc.), making the sum of these alternatives more attractive than change to non-sustainable land use.

Regarding value chain development, it is important to think about the whole chain from the forest to the end market for final products. Increased income and more secure niche markets due to certification should assure that money is channelled back to investments in the forest (sustainable rotation cycle). On the other hand, this vertical integration from the forest to the market should be accompanied by a horizontal integration between forestry producers on community- regional- and national levels.

I will also highlight the last bullet point. Due to the huge framework challenges to sustainable forestry in the tropics, it must be clear for the local population that forestry and agroforestry production is more economically beneficial than conversion to other land use, even in a short-term perspective. It is not enough with an economic calculation indicating that in the long run forestry would give more income than agriculture. Local communities need to think about this year, and even about tomorrow. They need food; other non-wood forest products; and short-term income to buy other products while the trees are growing.

Sustainable rainforest management requires a holistic approach where all major obstacles are handled because one negative factor might be enough to spoil all good intentions. That means a coherent national forest policy developed in collaboration with the private sector and civil society, and the resources to implement it. This policy must address the framework conditions for the sector, like tenure, and assuring respect for the law. However, policy regulations must be made simple to reduce corruption and make it easier to comply by the law than to do the opposite. It must be accompanied by sources of long-term financing for the forestry sector and fiscal incentives that are equal or stronger than those given to other land-use, combined with technical assistance.

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