ETFRN NEWS 35: Innovative Financing Mechanisms for Conservation and Sustainable Forest Management

Organisations - Institutions - Programmes

IV FINANCING CARBON SEQUESTRATION SERVICES

This section is dedicated to the potential for financing carbon sequestration services, and presents some experiences in this area. Margaret Skutsch reviews financing options for community forest management under the Kyoto Protocol and UNFCCC. Peter May of the Brazilian NGO Pró-Natura describes a practical carbon sink project based on community forest management in Mato Grosso. The social meaning of carbon sequestration activities and the institutional capacity building aspects of this green market, are illustrated by Miriam Miranda and co-authors, in the case of another carbon sink project in Costa Rica. In their article, Bruno Locatelli and Guillaume Lescuyer evaluate the potential for payment of carbon services in support of sustainable forest management in Cameroon, and relate this to outcomes of economic valuation. Finally, we refer to the article by Carmenza Robledo in Section III on environmental shares, aimed at financing carbon sequestration and other services.

Access to finance for community forest management under the UNFCCC and Kyoto Protocol

By Margaret M. Skutsch

A previous article in ETFRN News reviewed the potential for funding for forestry under international climate agreements, particularly under the Kyoto Protocol (Skutsch, 2000). Since then, further negotiations have taken place and this article aims at giving an overview of the current situation.

Carbon mitigation projects

At the Conference of Parties in The Hague (COP6) in November 2000, the inclusion of sinks as a means of carbon mitigation was discussed. Despite initial opposition, this principle was accepted at COP6 part 2 in July 2001 in Bonn. On one hand, sinks have been accepted as a means of reaching CO2 reduction targets in the North (with caps limiting this). In developing countries, afforestation and reforestation projects can also be included and financed under the Clean Development Mechanism (CDM). These activities, referred to as ARD projects (Article 3.3 in the Kyoto Protocol), can be used to offset up to one percent of the carbon emissions of an Annex I country (UNDP, 2001).

Annex 1 (to the UNFCCC) is a list of all countries which have accepted carbon emission quotas, which include the OECD countries and Economies in Transition, Annex 11 countries are essentially the wealthier of this group including the EU countries, Switzerland, USA, Canada, Australia, New Zealand, Japan etc. The non-annex 1 countries are the developing countries that do not have emission quota (yet). 2 The IPCC's perferred definitions are - afforestation -"planting of new forests on land which, historically, have not contained forests" and - reforestation - "planting of forests on lands which have, historically,previously contained forests but which have been converted to some other use". What percentage of tree cover is recognised as "forest" is a thorny problem still.

Clearly, this provides scope for the financing of certain types of forestry projects in tropical regions. However, there are a lot of limitations. First of all, the modalities, rules and regulations as regards how a project can qualify for CDM status still have to be worked out, which will occur at COP9 in 2003. The peculiar situation has arisen that the decisions of COP7 in Marrakech in November 2001 give way for the immediate start of CDM projects, provided that these will meet the technical requirements to be decided upon in 2003.

Secondly, it is important how the terms ‘afforestation' and ‘reforestation', are interpreted. Article 3.3 is restricted to plantations and similar types of projects that involve a clear land use change, such as from non-forest use to forest, or from deforested areas back to forest. These definitions obviously leave room for multiple interpretations, which leads to continuous discussion (IPCC, 2001).
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Projects involving improved management of existing forest are at present not eligible for CDM status, as they are categorized as ‘additional activities' (Article 3.4 in the Kyoto Protocol). This means that for example Joint Forest Management, and community forest management or cooperative forest management projects, where the objective is usually sustainable forest management of existing but degraded or degrading forest, cannot be funded as CDMs, at least during the first accounting period (2008-2012). This is unfortunate as such projects often have direct benefits to the local population, and therefore contribute more to local development than plantation schemes that tend to involve mono-cultures of fast growing species. In some cases, plantation projects have led to total exclusion of local people from the forest area, to safeguard the carbon stock. Even though more participatory and environmentally sensitive approaches are of course possible in such plantation projects, it is unlikely that these will be used: obviously the primary investment criterion for most Annex I countries, who are providing the funding, will be least cost carbon sequestration. Most ARD types of projects will probably not measure up to the kind of standards for sustainable forest management under CDM as proposed by CIFOR (2000).

Thirdly, there is the question of the practical availability of funds for CDM. The development of the market for CDM is still hard to predict, in particular now that the USA departed from the Kyoto agreement.

Bio-energy generation
An alternative route for CDM financing might be to manage forests for bio-energy in order to replace fossil fuel consumption. A simple example is provided by dendro-thermal electricity production. Projects based on existing forest could perhaps qualify not as sinks per se but rather as a form of alternative fuel supply, although the rules for this kind of mechanism are far from being agreed yet. A more complicated case could be argued by developing countries that sustainable management of forest for the production of fuelwood and other benefits could in itself represent a powerful means of carbon mitigation. At least 2 billion people use firewood or charcoal as their primary cooking fuels. Provided it is produced in a sustainable manner, the main energy use of these people can be carbon neutral. If forests are depleted, this will lead not only to the release of additional carbon into the atmosphere, but inevitably also to a long-term shift to fossil fuel consumption which is inherently unsustainable. There is an urgent need for research aimed at developing the approach of forest management for bio-energy generation and to bring test cases to the UNCCC. Even if pilot projects are not accepted in the current accounting period, they can pave the way for inclusion in the second.

Adaptation funds
Because of the initial belief that CDM would be a big money spinner, many foresters placed their hopes for major support to forestry in that line. In the long run however, the ‘adverse effects' and ‘adaptation' articles of the climate treaties provide better opportunities as far as forestry is concerned. These articles are intended to support projects or programs that counteract the adverse effects of climate change, particularly aiming at the more vulnerable countries.

An Adaptation Fund to be paid for by a percentage levy on all CDM projects had already been agreed at Kyoto and was recently set at 2% of the value of the carbon savings in CDM projects. At COP6 part 2, two new funds have been set up under UNFCCC: a Special Climate Change Fund, and a fund for Least Developed Countries (mostly in Africa). These are complementary to existing GEF funds and

represent new money, that is to say money not already included in ODA budgets. The EU, Switzerland and Canada have pledged themselves to donate from 2005 onwards US$ 420 million per year to these funds, of which US$ 10 million is specifically to start up the Least Developed Countries Fund. However, contributions to these funds are made entirely on a voluntary basis.

The rules for qualification of projects as adaptation projects are even less defined than the rules for forestry under CDM but are likely to be much less stringent, as there will be no problems of leakage or lacking baselines, which have bothered the negotiations on sinks. Clearly all kinds of forest management activities could be justified in terms of adaptation to climate change, since forests can deliver such services as watershed protection and the regulation of hydrological cycles, diversification of local economies, etc. Projects that are primarily designed for adaptation are expected to fit better into the development policies of countries in the South and will probably get better accepted than CDMs, which are more demand-driven. Besides money for adaptation, the funds also cover technology transfer and assistance to various sectors. Although the funds on offer at this point in time are limited, the potential of adaptation projects certainly is worth exploring. Test cases need to be developed and submitted so that the boundaries of the possible become clear.

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CDM and sustainable land reform in the Brazilian Amazon

By Peter H. May

As a response to the landless peoples' movement that has aroused worldwide sympathy, thousands of families have received forest lots in the Brazilian Amazon over the past decade. But many of these projects constitute little more than land distribution. Settlers are rapidly cutting their lots into the wilderness, often many hours from the nearest road, school or health post. After exposing poor soils to intense seasonal rains, and lacking markets for their crops, many soon fail and move onward into the receding tropical rainforest, cutting and burning as they go. This process provokes CO2 emissions, contributing to global warming.

As part of the Kyoto Protocol, the Clean Development Mechanism (CDM) provides that appropriate land uses and particularly reforestation and afforestation may enable temporary storage of terrestrial

carbon, helping global society buy time to reduce fossil fuel combustion. Avoiding the polemic that surrounds this issue, a project underway in northwest Mato Grosso, Brazil, seeks to demonstrate that Amazon colonists can both store carbon and achieve stable and sustainable settlement. Rather than being part of the problem, they can become part of the solution to global warming.

Colonization processes in Mato Grosso

Today, nearly 100,000 people live in northwest Mato Grosso, an area of 108,000 km2, which is approximately the size of Panama. Until the late 1970s, only native Indians and rubber tappers occupied this region. The migrants were enticed to the region by colonization companies that offered cheap land and promised access to agricultural markets. But government road-building and technical assistance did not materialize. Most settlers soon converted their coffee plantations to pastures, and many abandoned their lots to look for work in a burgeoning but often destructive timber industry. Due to its similarity to other colonization areas along the Amazon rim the region was selected for project implementation by Pro-Natura, a non-profit global environmental organization founded in 1986 in Brazil. Since 1992, Pro-Natura has been engaged in this region in sustainable agroforestry demonstration and institutional strengthening, in support of local producer associations and municipal governments.

Innovations towards sustainable development

In late 1998, the French auto manufacturer Peugeot-Citroën announced its decision to invest about $10 million in a major commercial carbon sink in northwest Mato Grosso. Peugeot and its technical partner, the Office National des Fôrets (ONF), a French government institution responsible for managing public forests, chose this region at Pro-Natura's suggestion. The carbon sink is planned to cover 5,000 ha of degraded pastures and involves testing of large-scale reforestation with species native to this part of the Amazon, never before tried at this scale.

The carbon sink project complements Pro-Natura's continuous efforts to introduce sustainable agroforestry and forest management systems throughout the region. This complementarity was recognized by the Global Environment Facility (GEF) in its support to a seven-year program of partnerships led by Pro-Natura. The program is focused on bioregional planning and local capacity building for sustainable use of biodiversity, and totals over $6.5 million.

Stimuli toward local sustainability

Pro-Natura observed a number of important stimuli toward local sustainability that can be traced to the advent of carbon sequestration initiatives in this region:

- Transformation in the local land market: land values suddenly shifted and the real estate market became more flexible and competitive, as landowners began to respond not only to a local demand for beef and timber but also to global demand for environmental services;
- Creation of a market for native forest seed: small farmers and indigenous peoples found they could earn a complementary source of income by supplying quality seed to environmental reforestation projects – Pro-Naturafrtified this by training them as certified seed gatherers; and
- Expanded opportunities for local employment, e.g. in local nursery capacity, land preparation services, and reforestation consulting firms, and skill training in reforestation of degraded lands, including on-the-job training for field laborers in seedling preparation, planting, management, weed control, and fire prevention.

Not only did these stimuli promote efforts to restore degraded sites, but also led to an increase in the perceived value of the standing forest. Smallholders responded enthusiastically to donations of fast growing native seedlings from the project, and opted to establish their own agroforestry plantations, rather than engage in further deforestation.

Local income generation

Pro-Natura is now seeking ways to benefit its primary stakeholders directly by disseminating reforestation techniques for carbon sequestration and local income. Recent land reform beneficiaries in the GEF project region now number on the order of 10,000 households on over 250,000 hectares. Although some of these settlements were carved out of the tropical forest, others occupied large

ranches that were expropriated or sold to the government land reform agency, and composed large areas of degraded pastures in various stages of succession. Pro-Natura is hence working with associations of agrarian settlers to recover degraded sites within their common lands, with the objective of establishing permanent agroforestry and timber resources for local income generation. Responsibility for the conceptual basis and financial structuring for this effort lies with Eco-Carbone, an international services firm specialized in innovative landscape management for carbon capture and biomass energy throughout the developing world.

Carbon credits and other benefits
In today's risky carbon market, the project does not yet envisage sharing of eventual carbon credits as a means to convince farmers to participate. Instead, all tangible products of investment would accrue to a participating landowner /settlement association, while any ensuing carbon credits would be placed at the disposition of the external investor. These arrangements could change in future as carbon credits achieve greater credibility in the market. Costs of land preparation and seedlings are borne by the investor, but the landowner participates in the land preparation operations as well as in the maintenance and protection of the planted resources. Pro-Natura and the sister NGO Friends of the Earth-Amazonia are training settlers in forest fire prevention and combat, through municipal "protocols against fire". Carbon measurement, verification and certification are the domain of Eco-Carbone and its financial partners.

The project envisages that these replanted forests will achieve permanence in an emerging landscape mosaic of agroforestry, managed forests and intact biodiversity, providing clear benefits for local sustainability and the global climate.

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The social meaning of carbon markets Institutional capacity building for a green market in Costa Rica

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This article introduces the thesis that carbon markets must be turned into ‘green markets' in order to constitute a tool for local sustainable development. A successful green market is analysed: the implementation of the bilateral treaty between Norway and Costa Rica signed in 1997. This treaty combines the social ethic of NGOs and the commercial approach of business in a new kind of pragmatic consensus. Besides a review of secondary information, several interviews with main stakeholders and experts from different sectors were conducted in order to collect empirical data. The research is part of an ongoing PhD project entitled "Developing green markets: Institutional capacity building for carbon markets".

During the second part of the last decade, an international debate on advantages and disadvantages of Activities Implemented Jointly (AJI) and the Clean Development Mechanism (CDM) developed. These mechanisms were introduced aiming at the reduction of greenhouse gas emissions linked with objectives of sustainable development, and created a potential for carbon markets. Ethical, moral, economical and environmental arguments are broadly acknowledged. While some researchers regard AJI and CDM as win-win situations (Pearce, 1999; Richards, 1999), others strongly criticised them (Dutschke & Michaelowa, 1997; WRM, 2000).

Pioneer carbon market agreement
In 1997, Costa Rica signed a pioneer carbon market agreement with Norway. The Reforestation Conservation Activities Implemented Jointly Project (RFCAIJP) represents one of the first transactions on the emerging carbon market, between governments of a developing and a developed country (OCIC, 1996). It can be regarded a clear example of a green market (Rodriguez, 2001). The main goals of the agreement are to rehabilitate the degraded watershed of the Virilla River and to improve the efficiency of the hydro-energy power plant located at the Virilla River, through interactive involvement of stakeholders.

Implementation
The progress made to date is promising. After 4 years, 2500 hectares of forest area have already obtained a protection status, 83% of the final goal of 3000 ha to be reached in 2007. By the end of the year 2000, more than 783,000 trees of native species were planted on an area of 494 hectares. This is 49% of the number of hectares that should be planted in 2007.

The Costa Rican-Norwegian case illustrates that a carbon market can have a broader social meaning for a developing country, resulting in more benefits than carbon sequestration alone. Different stakeholder groups in this case benefit from the introduction of the carbon market.

New sources of income
Farmers benefit due to the extra and guaranteed income. Over a five year period they receive 45 US$/ha per year for conservation activities and 577 US$/ha per year for reforestation. They also received training to start a new economic activity and became familiar with measures to rehabilitate watersheds, to reduce water pollution and to plant and manage trees. So far, 27 farmers have signed contracts to start reforestation activities and 30 farmers concerning protection activities.

Multiple income streams from forests also developed for people outside the Virilla watershed. This is a common tendency in Costa Rica: economic activities such as eco-tourism, extraction of minor or non-wood products as fruits, plants, and flowers have brought new sources of income for thousands of Costa Rican families, thereby improving their quality of life.

Capacity building
As part of the implementation of the agreement, local communities participated in training activities. Five communities in general as well as 14 elementary schools, 54 teachers and 350 children have actively been involved in environmental education. Several training seminars on integral management of solid waste, recycling, production of organic fertiliser and lectures on watershed improvement were organised (PLAMA-Virilla, 2000).

Hydropower generation
Another important stakeholder that benefits from the introduction of the carbon market is the local electricity company. Thanks to foreign funding the electricity company could improve its efficiency and intensify its activities to improve the watershed. Trees were planted, thereby reducing erosion and improving water quality. As a result the company not only acquired a green image but was also able to produce far more hydropower. Since October 1999, the main Brasil plant produces 28 MW, about 27 times more energy than before. In the near future, six plants downstream-located might also enlarge their capacities. Now, the electricity company is an example for other private companies with similar ambitions, not only in Costa Rica but also in the Central American region.

Green market
The creation of a carbon market itself goes beyond the economics of exchanges of commodities. It includes a new kind of social organisation, regulated by more or less well-defined social rules, embedded within a larger social context. The construction of the market will depend on this context and also on its effects. In addition to carbon credits for one party and funds for the other party, performance consequences include new opportunities for investment. Through a carbon market a developing country might be able to both preserve its natural environment and, just by preserving it, to make this environment productive. This productivity should not be understood in economic terms only, but related to social and other environmental aspects as well. From our point of view, what initially might be labelled, as a carbon market might better be understood as a more encompassing ‘green market.'

Therefore, the traditional economic view on the construction of carbon markets is a too simplistic one, particularly because it neglects the social meaning of a carbon market for developing countries. From their viewpoint as suppliers of carbon credits such a market has a broader meaning. It must be seen as a social mechanism for improving both the living conditions of local people and a more encompassing improvement of the environment than climate as such.

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Carbon sequestration by tropical forest: Materialising an intangible benefit ?

By Bruno Locatelli & Guillaume Lescuyer

Over the past decade, the economic value of tropical forest has been much debated at the international level. On one hand, discussions focused on the concepts underlying the assessment of the value of this globally important ecosystem and on the valuation techniques to be used (e.g. contingent valuation, travel cost method). On the other hand, the application of these theoretical notions and tools to tropical forests gave rise to much controversy.

Valuation study in Cameroon

This discussion is resumed with a particular case study in the east province of Cameroon, where a cost-benefit analysis was conducted to design the optimal forest management scenario (Lescuyer, 2000). This semi-deciduous forest presents common features for Central Africa as it is claimed both by local populations for the purpose of "traditional" resource extraction activities and by a logging company to exploit timber resources. The applicability of the monetary valuation techniques in this context was evaluated through the calculation and estimation of direct use values of the forest (timber, traditional medicines and food products) and of indirect use and non-use values. The result indicates the advantage of a conservation scenario of the forest over a timber production scenario. This outcome can mainly be attributed to the high economic value of the benefits of carbon sequestration (net present value of 7.5 US$/ha) in comparison to the net present value of timber benefits of about 5 US$/ha, the other values being minor.

Limitations of monetary valuation

On the basis of this experience, two criticisms are developed. First, the application of monetary valuation techniques to societies with minor market relations requires making arbitrary and eventually misleading assumptions. For instance, beyond the technical difficulties associated with valuation of environmental assets, it appears that money is not an adequate indicator to reveal individual preferences in this context. Human behaviour regarding forest management can hardly be interpreted in terms of monetary mechanisms, as market relations are almost non-existent among villagers. Second, the estimated economic values are of little use in the decision-making process, as local

stakeholders neglect them in comparison to real financial incomes generated by forest use. An example is provided by the ecological function of carbon sequestration: according to the monetary valuation, this service appeared to represent the highest economic benefit. However, benefits from carbon sequestration are hardly considered when designing forest management plans.

Implications of recent CDM developments

The "Clean Development Mechanism" (CDM) as defined and promoted in the Framework Convention on Climate Change and the "Kyoto Protocol" provides a new possibility to translate the economic value of carbon sequestration into real financial benefit. Before the resumed session of the sixth Conference of Parties in Bonn (COP6 bis), CDM was expected to become a substantial source of additional revenues for sustainable tropical forest management. As a matter of fact, during the pilot phase of "activities implemented jointly", many conservation and management projects in relation to tropical forest were funded, aiming at sequestering carbon and testing the implementation of CDM. The review of such projects indicates a wide spectrum of assessed carbon sequestration costs, as they depend on the types of forest ecosystem, on the proposed activities (conservation, restoration or management) and on the methods used (Dixon et al., 1991; IPCC, 2000). Moreover, the concrete prices per ton of sequestered carbon are far below any theoretical assessment of its economic value estimated at 10-50 US$ (Lescuyer & Locatelli, 1999; Tol et al., 2000).

The Bonn conference halted the trend toward an extended CDM in relation to tropical forests (also see Skutsch in this issue). It was rather decided that CDM is limited to afforestation and reforestation projects, at least during the first commitment period (2008-2012). Thus, unexpectedly, this mechanism will not constitute an important contribution to financing sustainable forest management. Nevertheless, other funds such as GEF and the adaptation funds decided at the Bonn conference would deal with forestry projects where carbon sequestration is not the main objective but may be indirectly associated to biodiversity protection or local development. In this context, the role of economic valuation in tropical forestry will probably be limited, as these financing mechanisms are not explicitly aimed at capturing the intangible benefit derived from carbon sequestration.

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