Money doesn't grow on trees: a perspective on prospects for making forestry pay

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Incentives, innovative marketing and redistribution of costs and benefits are examined for their potential to make forest management more profitable.

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A well-known reply, when demands for expenditure seem unrealistic or wasteful, is that "money doesn't grow on trees". Ironically, investing in forest management is one area where this is particularly true. Apart from a few exceptions, trees grow relatively slowly compared with other crops, timber harvests are infrequent, and forest product prices are held down by competition from other materials. Furthermore, because of the long-term nature of forest management, the risk of such investment can be a major deterrent to potential investors. Given these characteristics, the challenge of making a profit from forest management is daunting.

Yet it is commonly believed that forests are valuable, and there is growing concern that the world's forests are gradually disappearing or suffering from increased levels of degradation. Evidence of this concern is reflected in the growing debate, in both national and international fora, about how to protect and manage forests sustainably.

The contrast between the high value attributed to forests in public debate and the relatively low returns received from forest management can be explained by the many and diverse non-financial benefits that forests can provide. It has long been recognized that forests protect watersheds, provide habitats for wildlife and are used by local communities for the collection of wood and non-wood forest products. More recently, the value of forests for recreation and as carbon sinks has grown in importance. However, these benefits are rarely captured by forest managers as financial returns on their investments, which leads to "market failure" and a tendency to degrade or clear more forests than is optimal from the broader social, environmental and economic perspective.

This article examines three mechanisms for solving the problem of "market failure" in forestry. The first of these is incentives, where the forest manager is paid by the State to engage in certain types of forestry activities. The second is the creation of markets for forest products and services, in particular some of the previously non-commercial outputs of forests. The third is redistribution of the costs and benefits of forest management among different stakeholders; failure to do so can also be considered as an example of "market failure" when forest managers do not consider the opportunity costs (to local people) of keeping land under forest cover.

FORESTRY INCENTIVES

Many kinds of incentive have been used to increase the profitability of forestry, including grants, cheap loans, favourable tax treatment, the provision of below-cost or free materials and/or advice, the provision of public goods, and supportive policy measures.

Historically, the State has been the main source of forestry incentives and these have mostly been used to encourage the establishment of forest plantations. Countries that have provided incentives for forest plantation development include Argentina, Australia, Brazil, Chile, China, India, Indonesia, New Zealand, the United Kingdom and the United States. Indeed, probably most of the world's privately owned forest plantations have been established with an incentive of one sort or another at some time. In most cases, grants, tax rebates or free goods and materials have been used to lower the costs of forest plantation establishment and thus raise the rate of return on the investment in tree planting. In New Zealand, however, subsidies to the forest processing industry were also used as a measure to support the development of the forestry sector. (See article by Enters, Durst and Brown in this issue.)

The use of incentives to encourage improvements in forest management is less

common. However, a number of countries (e.g. the United Kingdom) have started to develop and use more sophisticated incentive regimes to encourage changes in the way that existing forests are managed and to target new planting into areas where this is a priority.

Besides the State, other institutions may also use incentives to encourage certain types of forestry activities, where these are in line with their aims and objectives (see Box below).

Forestry incentives are potentially a very powerful mechanism for encouraging afforestation and improved forest management by increasing the profitability of such activities. However, they can result in unintended consequences if they are not well designed, particularly if they encourage tree planting without much consideration of other social and environmental consequences. Tax incentives in particular have tended to lead to problems in this respect, because they are so difficult to target. For example, afforestation supported by tax incentives in Chile and Indonesia has been criticized for not taking into account local land-users' rights, and in Indonesia and Scotland such afforesta-

Some examples of forestry incentives

WOODLAND GRANT SCHEME, UNITED KINGDOM

The Woodland Grant Scheme offers payments to landowners to plant and manage forests in accordance with the objectives of forestry policy in the United Kingdom (Forestry Commission, UK, 2001). The scheme is financed by the government (with cofinancing from the European Commission) and administered by the Forestry Commission. Most grants are paid for the establishment of new forest plantations, and different levels of grant are awarded depending on location, the type of land, the types of tree planted and the size of the plantation. The different amounts granted are based in part on the variation in costs of different types of planting, but they are also designed to encourage certain types of planting. The scheme also includes grants to encourage different types of forest management, such as the development of recreation facilities and measures to enhance forest conservation.

FLORESTA'S AGROFORESTRY REVOLVING LOAN FUND

Floresta is a religious charity based in the United States that works in the Dominican Republic, Haiti and Mexico (Floresta, 2003). The Agroforestry Revolving Loan Fund was first introduced in the Dominican Republic and has now been extended to Haiti. The fund provides poor hillside farmers with a loan of several thousand dollars over seven years. These loans are used to establish agroforests consisting of fast-growing trees that are harvested for wood products, as well as fruit-trees and more traditional short-term crops, produced using sustainable techniques. Farmers begin to pay back their loans with their first tree harvest, and this money is used to enable additional farmers to enter the programme. The programme offers significant economic gains to the farmers (often up to a 500 or 600 percent increase in income) while reclaiming degraded hillsides. In addition, applicants for microcredit to support other activities must also plant some trees as a condition for receiving a loan.

SAPPI'S PROJECT GROW

Project Grow is an example of an outgrower scheme (Mayers, Evans and Foy, 2001). Started in KwaZulu Natal, South Africa, in 1993, the project is funded by Sappi, a large South African forestry company, as part of its corporate social responsibility programme. The project provides small interest-free loans and technical assistance to encourage small farmers to plant eucalyptus trees on their farms. The farmers then sell the wood to Sappi as part of the agreement. Farmers are encouraged to use household labour and low levels of inputs and to plant the trees on land that is less useful for them (e.g. steep slopes).

GRANTS-IN-AID SCHEME FOR VOLUNTARY AGENCIES, INDIA

The National Afforestation and Eco-development Board (NAEB) was established in 1992 and is responsible for promoting afforestation, tree planting and ecological restoration in India (NAEB, 2003). It can give grants for tree planting and a variety of related activities (e.g. seedling production, soil conservation activities, training and extension activities, small water development projects and development of fodder production). One of NAEB's grant schemes targets voluntary agencies and non-governmental organizations. Under this scheme, equity is important and applicants for grants must show that at least 50 percent of the benefits from such support will go to particular castes or "disadvantaged sections of society". Grants are paid on the basis of reimbursement of costs, subject to cost limits and quality controls that are set out in NAEB funding guidelines, application forms and allocation criteria which are all publicly available.

The effect of poorly targeted tax incentives: the case of the "flow country" in Scotland

Throughout much of the 1980s and 1990s, forest plantation establishment in the United Kingdom was encouraged by very favourable tax treatment. During the early stages of the rotation, investors effectively received a tax rebate on their establishment costs. Taxes were not (and are still not) levied on the income from timber sales, so the taxes paid were based on the rental value of the land. Given the low value of most land used for forestry, the amounts due were generally so low that it was not worthwhile for the tax authorities to bother collecting them.

This favourable tax treatment encouraged tree planting to reach a level of 30 000 ha per year. However, it had an unintended consequence. It encouraged forest plantation establishment on the cheapest land available, which was often land in remote areas that had potentially high wilderness and conservation value.

Public dissatisfaction was raised when large areas of the "flow country" in northern Scotland – an area identified as of high importance for conservation, and not even suitable for commercial tree cultivation – were drained and planted with even-aged monocultures of non-native tree species, primarily Sitka spruce (*Picea sitchensis*). Recognition of these problems, and of the fact that only rich people tended to benefit from the arrangements, led to the removal of the tax incentives in the 1990s and their replacement with an improved forestry grant scheme.

tion has been criticized on environmental grounds (see Box above).

IMPROVED MARKETING OF FOREST GOODS AND SERVICES

Two main approaches can be used to try to improve the marketing of forest outputs so that they reflect some of the non-financial benefits of forests. The first approach is to try to market renewable and sustainably produced goods that reflect social and environmental values. The second is to sell some of the outputs from forests that are not currently traded in the marketplace.

Marketing sustainable forest products

An early example of the marketing of an environmentally friendly forest product is the marketing of paper made from recycled fibre. Recycled fibre has been used in the paper industry for many years, but in developed countries the use of recycled fibre has grown rapidly since the 1980s, when paper companies started to promote the recycled fibre content of their products to take advantage of the growing interest in environmental issues.

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In later years, this trend was reinforced by laws and regulations to promote recycling (e.g. EU, 1994) and improvements in technology and paper recovery systems.

The example of recycled paper is interesting because although these developments may have improved the environmental performance, profitability and sustainability of the forest processing sector, they may have actually made it more difficult to make forestry pay by reducing the demand for pulpwood (a main product of thinnings and final fellings in many temperate and boreal forests) (see Bourke, 1995).

A number of marketing campaigns that follow a similar approach are promoting the use of wood as a renewable product that has a minimal impact on the environment. Examples include "wood – for good" in the United Kingdom

(www.woodforgood.com) and the Wood Promotion Network in North America (www.woodpromotion.net). Such campaigns are based on the premise that stressing the environmental benefits of using wood rather than competing products will help increase consumer demand and increase or maintain the market share held by wood products, thus making it easier to make forestry more profitable.

A more recent, more sophisticated example of this approach is forest certification. Forest certification is a process whereby forests are inspected and evaluated against a set of criteria intended to encapsulate good forest management practices. If the forest scores well, it can be certified and the products coming from it (including processed products) can be certified as coming from a well-managed forest. Most certification schemes have developed labels ("ecolabels") or allow their logos to be used in promotional campaigns.

A number of different certification schemes have been developed with varying characteristics (Hansen and Juslin, 1999). However, although certification has been quite widely adopted in the temperate and boreal forest zones, the impact of certification on tropical forest management has not been as great as was initially hoped (Ebaa and Simula, 2002). Furthermore, current evidence suggests that certification mostly helps companies to increase or maintain market share but does not tend to result in the payment of higher prices to producers of certified forest products, except in niche markets (Vilhunen *et al.*, 2001; UNECE/FAO, 2002). Thus, as a mechanism to improve the profitability of forestry and encourage sustainable forest management, certification has achieved only limited success to date.

Marketing of previously non-commercial forest outputs

The attempt to increase the profitability of forestry by capturing direct payments from consumers for forest outputs that are not currently commercialized is often referred to as "innovative financing".

Of these outputs, the one with the longest history of commercialization is forest recreation. Specialized recreation activities in forests, such as hunting, shooting and fishing, can in some circumstances provide a source of income for the forest manager that is higher than the production of forest products. Indeed, in many European countries, large areas of forest are managed specifically for these purposes (UNECE/FAO, 1993).

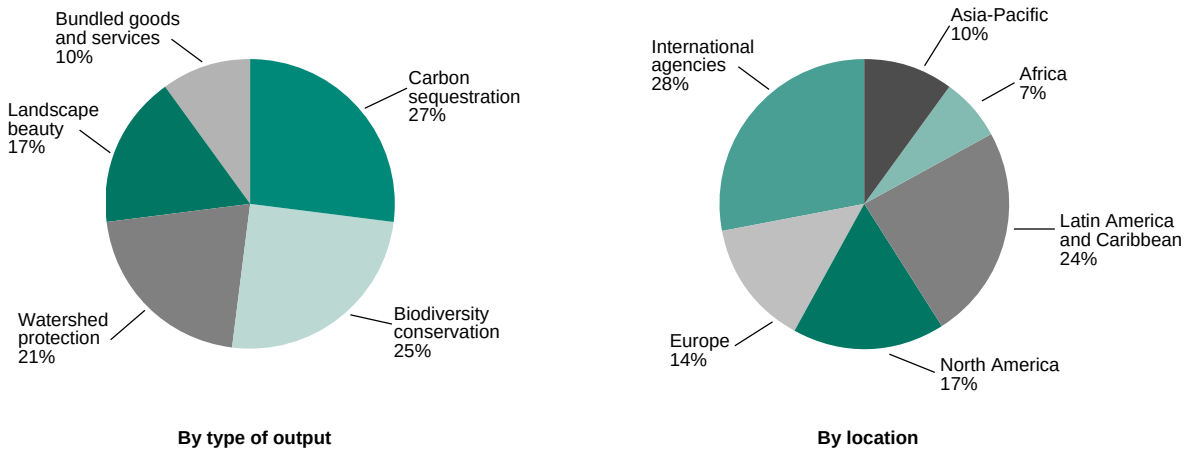
In recent years there has also been a trend in developed countries towards the commercialization of more general types of forest recreation. Entry fees, car parking charges, payments for permits for wilderness recreation, and paid photography and cycling excursions in the forest are all mechanisms that have been introduced to try to raise revenue from forest recreation (see article by Leslie in this issue).

Some developing countries have also started to raise revenue from forest recreation. Perhaps one of the best examples is the Parc National des Volcans in Rwanda, which is the last remaining home of Africa's mountain gorillas. Given the uniqueness of this site, the Government of Rwanda has been able to increase the entry charges to the park to US$250 per tourist per visit, and the revenue from these charges is now a significant source of income for the park. Conservation organizations, governments and development agencies are starting to recognize the tremendous potential of this source of income in protected forest areas and are working to help forest managers realize this potential (IUCN, 2000).

Markets are also currently being developed for other important forest outputs that have historically been treated as non-commercial outputs: biodiversity conservation, carbon sequestration, watershed or catchment protection and landscape and amenity services (see articles in this issue by Trexler; Rodriguez Zuñiga; and Walsh, Barton and Montagu). These outputs can be sold separately or bundled

B. MOORE

Forest recreation has a relatively long history of commercialization



Source: Landell-Mills and Poras (2002).

Current state of markets for forest environmental services

together, sometimes also with forest recreation. For example, it may be difficult to separate biodiversity, landscape and amenity outputs from forest recreation.

A review of 287 cases of markets developed for forest environmental services (Landell-Mills and Porras, 2002) showed that, according to the information available in the literature on this subject, markets have been developed almost equally across a broad range of different types of forest output. The Latin America and the Caribbean region has been at the forefront of the development of markets for such services, while other developing regions such as Africa and Asia have made much less progress in this area (see Figure).

A wide variety of different mechanisms have been used to manage the transfer of money from users to providers of these services. Many different stakeholders can be involved in the production and payment for such services, and the production chain can involve a large number of intermediaries. Landell-Mills and Porras (2002) stressed the importance of secure land tenure, good governance and a strong legal framework to provide an "enabling environment" for the development of such markets (as in the case of forest products that have been commercialized for a long time).

Markets for forest environmental services are developing at an increasing rate all over the world, but most of the reported examples are relatively small and localized cases. A major obstacle to making a profit from these services is the high transaction costs involved (see Box below). It thus appears that there is still a long way to go before "innovative financing" can make a significant contribution to the profitability of forestry on a broader

Transaction costs

Transaction costs are the costs of bringing together buyers and sellers in the marketplace in order to sell a good or service. Although many surveys may indicate that forests can produce outputs with high non-financial values, and although economic theory shows that these values should be reflected in the utilization of the forest resource, the cost of trying to create markets for these outputs will have a major effect on whether such attempts will work or not.

Potential purchasers of the non-commercial outputs of forests are often numerous and may be located far away from the forest. On the supply side, the protection and production of many of these outputs may also require the concerted action of many individuals. Furthermore, many of these outputs have the characteristics of "public goods" and are subject to the "free rider" problem, in that it is extremely difficult to prevent someone who has not paid for, say, biodiversity protection, from benefiting from it.

scale. In addition, a number of issues remain to be addressed, in particular with respect to the effect of these developments on the poor.

BENEFIT SHARING

In most cases, the economic benefits from forest management accrue to only a small number of people (i.e. forest owners and managers). This can be a problem in countries where public or communal landownership is common. If local people living in and around the forest do not receive a share of the benefits from forest management and they believe that they have some rights over this land, they may be tempted to clear the forest to use the land for their own purposes.

In many cases, such land clearance may make economic sense (i.e. where the value of the alternative land use is higher than the value of retaining forest cover). However, in cases where high-value forest cover (including forest with high non-commercial value) is replaced with a lower-value alternative land use, the problem is not so much that forestry does not pay, but rather that it does not benefit the local people who can make more money from alternative land uses.

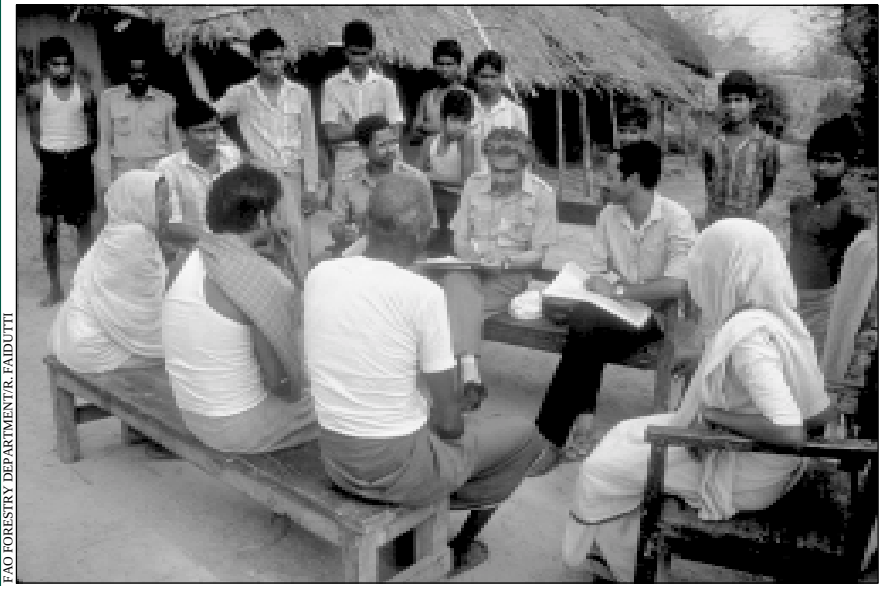
Benefit sharing encompasses a variety of measures aimed at altering the distribution of the benefits from forest management among different stakeholders. At a broad level, this includes community forestry and initiatives such as Joint Forest Management in India, where local communities are given rights to access and use forest areas that were previously controlled by the State. In such cases, communities and individuals become the managers of the forest and share both the costs and benefits of management with the State. On the whole, many of these initiatives have been successful and have resulted in improved forest management and greater forest protection (e.g. FAO, 1997).

Another common approach to benefit sharing is to continue to allow forestry companies to harvest products from concessions awarded by the State, but to share the revenues from these concessions with local people. A variety of institutional arrangements have been used to distribute such funds. Payments may be made to local authorities, traditional leaders or special funds established specifically for such purposes. In some cases, benefit sharing has been taken a step further and local people have also been involved in the awarding of concessions and the collection of revenue. As elsewhere, the success of such schemes depends partly on the honesty and accountability of those receiving the money. The complexity of such arrangements and gaps in institutional capacity can also present challenges. For example, a recent review of revenue sharing in Africa showed that it is becoming more common but that success in most countries has been limited to date (FAO, 2003).

Benefit sharing can also include requirements for forest concessionaires to invest in local community infrastructure or to engage in other local development projects.

Local people are sometimes allowed to plant crops between the trees in immature forest plantations ("taungya"), and this can also be considered as a type of benefit sharing. Generally, such arrangements tend to be less than successful because of the divergent objectives of forest managers and local people.

A final example worth noting is the development of fair trade certification of non-wood forest products (NWFPs). Typically, collectors of NWFPs receive only small payments for the products that they collect. These products may even-



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Benefit-sharing mechanisms include community forestry, in which local communities and individuals become the managers of the forest and share both the costs and benefits of management with the State

tually be sold at prices that are many times higher, particularly if they are exported from developing to developed countries. Fair trade certification and other types of certification have been used to try to redistribute some of these benefits back down the production chain, to increase the profitability of NWFP collection, raise the incomes of local people and help to protect forest areas. As with wood certification, such arrangements may have the potential to increase the profitability of forestry for local people, but they currently account for only a small share of total NWFP production.

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Products from non-wood forest resources, like these cosmetics from Burkina Faso, may eventually be sold at prices much higher than what collectors receive, especially if they are exported; certification may be a way of redistributing the benefits

SOME FINAL THOUGHTS

As the review above has shown, numerous different approaches have been tried to bridge the gap between the financial profitability of forestry and some of the wider benefits of forests. Of all of these, forestry incentives have the longest history and would appear to be the most effective to date.

There is less experience with most of the more innovative approaches, but it seems unlikely that they will have a significant impact across large areas of the world's forests, partly because of the high transaction costs involved. The traditional approach to dealing with this problem is for the State to take measures to protect and provide the non-commercial outputs of forests. This may be why, historically, forestry incentives have had more of an impact on the development of forests than any of the other approaches. However, even forestry incentive schemes may suffer from the problem of high transaction costs.

Of all the different approaches, the one most likely to have an impact in developing countries is community forestry or joint forest management: taking forests out of the hands of the State and giving them back to the people, thus improving people's financial benefits, may lead to improved management of large areas of forest. However, as people in developing countries get richer and their expectations change, it remains uncertain whether simply redistributing the benefits of forestry will be enough to continue to result in good forest management.

Two questions are at the root of the issue of making forestry pay: Are forests valuable enough to be worth protecting for their non-commercial outputs? Are incentives needed to make forestry pay and ensure their protection? The answers to these questions have profound implications for the future of forestry, particularly in developing countries. Although most developing countries have tried to provide forestry incentives in one form or another, they have not generally been very effective; and whether for reasons of cost or lack of political will, these countries are unlikely to develop new incentive schemes in the near future. Thus, if these forests should be protected, a mechanism will be needed to enable those that value these forests most highly (who usually live in developed countries) to support forestry incentives in developing countries.

Most studies of the value of non-commercial outputs from tropical forests show that very high values are usually site specific and are not generally applicable to large areas of the world's forests (Bann, 2002). These studies have produced a huge range of value estimates. Many have indicated that, after wood production, carbon sequestration is the most valued output from forests, while the total value of all the other non-commercial outputs might range from zero to about 30 to 50 percent of the value of wood production in all but the most exceptional circumstances. Others (e.g. Kaimowitz, 2002) propose that the value of forests may be much higher than these results suggest.

Given that wood is still the most valuable output from most forests, the question of whether incentives are really needed also depends on whether more money can be made from wood production. For the past two decades, numerous studies have questioned the low stumpage prices in natural forests set by governments, particularly in developing countries (FAO, 1983; Repetto and Gillis, 1988; Grut, Gray and Egli, 1991; Karsenty, 2002; FAO, 2003). It remains questionable whether incentives are really needed.

Until some of these questions concerning forest valuation and stumpage prices are resolved, it seems unlikely that there

will be much political support around the world for the widespread use of forestry incentives in developing countries. Thus, a solution to the problem of how to make forestry pay seems a long way off. ◆

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