Forestry assistance and tropical deforestation: why the public doesn't get what it pays for

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SUMMARY

Popular concern about tropical deforestation largely drove the rapid growth in forestry assistance in recent years. Nevertheless, forestry assistance has had limited impact on forest clearing and much of it has gone to address other problems. To reduce inappropriate deforestation requires a combination of a multi-sectoral approach, greater regulation, and payment for environmental services. Aid officials have been partially unwilling and partially unable to adopt these approaches. They have also been reluctant to clarify public misconceptions about deforestation and to devote their energy to convincing the public to support forestry assistance for purposes other than forest preservation.

Keywords: aid, conservation lobby, environmental services, multi-sectoral approach.

INTRODUCTION

For the last thirty years, the mass media in Europe and the United States have bombarded the public with images of endangered species, scenes of burning forests, stories about global warming, and predictions that all the rain forests will soon disappear. This has elicited a surge of support for efforts to save tropical forests from logging and conversion, reflected in public opinion polls and donations to conservation groups. Those groups, in turn, have been largely responsible for transforming forest—related foreign assistance from a marginal endeavour of interest mostly to foresters into a multi-billion dollar business.

The fruits of the public's desire to use foreign aid to protect forests have been rather modest, at least as far as deforestation is concerned. The – admittedly poor – available data suggests that global deforestation rates have not declined much in recent decades and may have even increased (WCFSD 1999). Deforestation rates rose in some countries and fell in others. But it would take a hardy soul or a strong imagination to argue that forestry projects had much effect on those outcomes. A recent World Bank evaluation of how the bank's lending affected forests during the 1990s concluded that 'Bank influence on containing rates of deforestation in tropical moist forests has been negligible in the 20 countries identified for Bank focus' (OED 2000: xii).[2] Ten years earlier, an evaluation of the global Tropical Forest Action Plan (TFAP) reached a similar conclusion (Winterbottom 1990). So did a study of six Finnish forestry projects implemented between 1988 and 1995 (Shepherd *et al.* 1998). One cannot completely rule out the possibility that deforestation might have been even higher without forestry assistance. But until now no one has come forward with any strong evidence suggesting that.

Efforts to protect specific forests have had only marginally better success. One can certainly point to cases where establishing protected areas helped shield forests from destruction. Econometric studies from several countries have shown that less forest clearing occurs in protected areas, even after accounting for factors such as climate, soils, topography, and access to markets (Chomitz and Gray 1996, Deininger and Minten 1997). Nevertheless, in most of the tropics protected areas face serious encroachment. Those that do not are often so remote that no one would want to clear them even if they were not officially 'protected'.

One might argue that curbing deforestation is not an appropriate goal. Undoubtedly, some land currently under forest could be better used for agriculture or other purposes. It would probably require much less than the current total forest area to conserve most of the world's biodiversity if one preserved the right forest. Forest clearing contributes much less to global warming than fossil fuels. Many forests provide limited hydrological benefits and little scenic beauty (Chomitz and Kumari 1998). In most developing countries,

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[2] Arnoldo Contreras correctly points out that one reason for this outcome in addition to the limited effectiveness of Bank efforts was simply that the Bank devoted fewer resources to addressing deforestation in these countries than initially anticipated (personal communication).

the most important forestry issues are poverty, human rights, and social justice; not aggregate deforestation rates.

Nevertheless, there are still strong reasons to believe that one should not simply allow the current deforestation rates to continue indefinitely. Forests provide a wide range of products and environmental services to local communities who often lack full tenure rights over them. Drastic changes in land use patterns around the world could fundamentally alter ecological processes in many ways we still do not understand. Often the land uses that replace forests have marginal economic value.

But posing the question in this way partially misses the point. For whatever reason, the public in the developed countries entrusted its government officials with a relatively clear objective: to preserve tropical rainforests. Moreover, most of these people probably did not have in mind preserving a small proportion of the rainforests in protected areas and allowing the rest to be destroyed.[3] Their officials have been largely unable or unwilling to achieve that objective, or both. Nor, for the most part, have they sought to convince the public it has a naive and inappropriate view on the topic. Instead, they and the multilateral institutions they control have side-stepped the difficult issues and/or taken advantage of the public's concerns to promote their own agendas. This is not because these officials are bad people or lack concern about the issues. In part it is because they rightly believe that reducing deforestation should not be the 'be all and end all' of forest policy but have had little incentive to make their case to the public. They also face strong institutional incentives not to propose solutions that call into question the broader economic, institutional, and politics contexts in which they operate.

This paper examines why forestry assistance has failed for the most part to meet the expectations of the North American and European public and reduce tropical deforestation. The following section links the recent growth in forestry assistance to pressure on northern governments by environmental organisation and public opinion to protect tropical forests. The next section analyses the causes of tropical deforestation and policies that might help reduce it, while the fourth section explains why international agencies and developing country governments have been reluctant to promote such policies. The fifth section discusses what they have chosen to do instead. Finally a sixth section concludes.

THE CONSERVATION LOBBY AND FINANCIAL ASSISTANCE FOR FORESTRY

Between 1978 and 1991, official development assistance (ODA) for forestry rose five-fold in current dollars (DAC secretariat 2000). Funding for biodiversity conservation and general environmental projects grew even faster. The World Bank lent 78% more for forest and forest component projects between 1992 and 1999 than between 1984 and 1991. The Global Environmental Facility (GEF) came into being in 1991 and since then it has committed $370 million to forest projects (OED 2000). In 1993, forest sector ODA stood at around $1.5 billion (Brown *et al.* 1999). But if one includes other official flows for forest activities, the money raised by international environmental NGOs, and environmental and conservation projects not accounted for in ODA statistics under forestry, total foreign assistance for forestry probably amounted to over $2 billion.[4]

This growth can be directly linked to the emergence of a massive environmental movement in the developed world during the same period. Except for major World Bank loans for reforestation in China and India, which were demanded by those two countries, popular concern about tropical deforestation in the North drove most of the growth in forest-related foreign assistance. During the 1980s, the size and strength of the US and European environmental organisations grew dramatically, as did their interest in developing countries. By the end of the decade, these organisations had more than thirty million members and budgets in the hundreds of millions of dollars (Bramble and Porter 1992). News reports of the giant fires in Indonesia in 1983 and in Brazil in 1987, the assassination of Chico Mendez in Brazil, the 1992 Earth Summit in Rio de Janeiro, and other events fuelled a rising popular upsurge of support for taking action to save the world's forests. The great increase in television coverage devoted to nature programmes and the global environment undoubtedly did their share as well.

Through the US Congress and courts and the European Parliaments the conservation organisations brought their weight to bear on the bilateral and multilateral financial agencies. US bilateral funding for conservation and forests rose rapidly after an out-of-court settlement of a lawsuit brought by conservation organisations in 1975 and heavy lobbying by these groups has helped maintain it (Ivory 1992). The World Resources Institute and other NGOs helped launch the TFAP in the mid-1980s together with FAO and the World Bank, whose most well-known stated objective was to curb tropical deforestation. Around the same time, other environmental NGOs initiated a big campaign to halt World Bank lending for projects that provoked deforestation. Thanks to their success in assembling an unusual coalition of liberal and conservative congressional representatives, they were able to exercise pressure on the bank's management

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[3] Unfortunately, in many developed countries the public also tends to be more concerned with the fauna and flora that live in these forests than with the people. This is reflected in the fact that public support for development assistance in many of these countries has declined while support for environmental projects remains high.

[4] No figures were available for how much groups like Birdlife International, Conservation International, Environmental Defence Fund, Friends of the Earth, Greenpeace, International Union for the Conservation of Nature, Rainforest Alliance, The Nature Conservancy, World Conservation Society, and World Wide Fund for Nature spend each year in developing countries for forest-related activities. However, these groups raise hundreds of millions of dollars annually from private sources.

(Nielson and Stern 1997). This gave them a strong bargaining position in the process leading to the adoption of the previously mentioned 1991 World Bank Forest Policy, which declared that reducing tropical deforestation was one of the Bank's two main forestry objectives. This activity also influenced the multilateral banks' subsequent decisions to stop funding certain controversial projects, institute environmental safeguard policies, and expand their forest conservation efforts. Later, interventions by international environmental NGOs and green parties in Europe led to the establishment of a specific line item for tropical forest programmes in the budget of the European Commission. They also influenced the dramatic growth in bilateral forest assistance by countries such as Germany and the Netherlands, which had traditionally spent little on such programmes (DAC secretariat 2000).

As a result of this dynamic, the overall forestry assistance portfolio has partially shifted away from traditional forest sector development, forest plantations, and agroforestry towards protected areas and conservation (Shepherd *et. al.* 1999, Ivory 1992, OED 2000). Nevertheless, as discussed below, to a certain extent traditional foresters have been able to piggyback on the general public concern for forests and the environment to promote their own agendas. A large portion of forestry assistance continues to focus on issues other than forest protection. However, the latter explains the bulk of the popular support for forestry assistance.

THE CAUSES OF TROPICAL DEFORESTATION AND THE POTENTIAL SOLUTIONS

People clear forest because they can profit from doing so. If others want them to stop they must either make forest clearing less profitable or give them more attractive alternatives elsewhere.[5] Lowering the prices producers receive, increasing their unit costs, and eliminating opportunities for capital gains can make forest clearing less profitable. Rapid growth of urban employment opportunities and policies that attract investment capital away from frontier areas can pull resources that might otherwise be used to clear forests into other pursuits (Kaimowitz, Byron, and Sunderlin 1998).

The principal agents involved in forest clearing vary greatly by region. In the Brazilian Amazon, Mexico, and Central America large and medium sized cattle ranches are the key players. Large mechanised farmers have cleared millions of hectares to cultivate soybeans in the Brazilian Cerrado, Paraguay, and Bolivia. In Southeast Asia, timber companies and large agro-industrial plantations account for a large portion of forest loss. Petroleum and mining companies have indirectly contributed to large-scale deforestation in the Andean countries. Small-scale shifting cultivators and tree crop producers dominate the scene in much of Africa and other areas.

A recent review of some 150 econometric models of tropical deforestation suggests that higher agricultural and timber prices, road construction and subsidised credit for agricultural activities in forested areas, and land tenure policies that offer opportunities for land speculation substantially contribute to forest clearing. Currency devaluations and trade liberalisation tend to improve the terms of trade in favour of agricultural and forestry products and depress urban job markets, at least in the medium run. Forest clearing may increase as a result (Kaimowitz and Angelsen 1998). Commodity booms frequently stimulate massive deforestation, particularly when a new opportunity arises to supply a large market with agricultural or forestry products and labour and capital constraints do not block further expansion. Unless it displaces labour, technological change in agriculture in already deforested regions typically alleviates pressure on forest cover, while technological progress in forested regions often has the opposite effect (Angelsen and Kaimowitz in press).

Some forest economists argue that policies that make forestry activities less profitable promote the conversion of forestland to agricultural use. They assume that timber production and agricultural activities are alternative land uses, rather than complementing one another. However, in many tropical regions logging paves the way for agricultural expansion by providing the necessary roads and capital. Moreover, most logging companies would probably not find it particularly profitable to manage their forests for long-term sustainable timber production even if the government stopped discriminating against timber production and provided secure tenure (Pearce, Putz and Vanclay 1999). Certainly the huge profits forest companies have obtained in many countries have not led them to protect their forests from destruction. Several recent studies based on simulations suggest that longer concession duration would not change that (Boscolo and Vincent 1998, Walker and Smith 1993). Moreover, outside Southeast Asia, Central Africa. and certain parts of the Amazon commercial logging plays too minor a role in land use dynamics for policies aimed at timber production to influence deforestation much.

Almost by definition, any regulatory policies that effectively prohibited or restricted the conversion of threatened forests to other uses could reduce tropical deforestation, at least in the specific location where they applied. Such policies might include establishing protected areas, forest concession agreements, and regulations requiring permits to convert forest to other uses. For these policies to be effective, whoever has to enforce them must have a good capacity to monitor potential infractions and be willing and able to impose sufficiently large sanctions on those who fail to obey. The groups that are supposed to obey these regulations must perceive the expected costs of being sanctioned to outweigh the benefits they could obtain by not

[5] The option of giving people more attractive options for their labour outside forest frontiers generally only exists in more developed countries that are in a position to provide relatively full employment (Neil Byron personal communication).

complying with the regulations. Up to now, these conditions have only applied to a small percentage of tropical forests.

Recent years have witnessed growing interest in the use of 'economic instruments', rather than command and control type regulatory methods, to convince landowners to maintain their land in forest and to use more sustainable approaches to timber production. These include payment for environmental services, measures to promote ecotourism, forest certification and sustainably harvested non-timber forest products, and taxes on forest conversion. Views differ widely regarding these instruments' long-term potential. So far, however, no one has applied them at a scale that could potentially affect global deforestation.

WHY THE POTENTIAL SOLUTIONS HAVE NOT BEEN APPLIED

As the foregoing discussion suggests, only three types of approach show real promise for significantly reducing forest destruction. One can use a multi-sectoral approach to make forest conversion less appealing relative to other options. One can impose strict regulations and strenuously enforce them. One can use public and/or private schemes to pay those that control the forests to conserve them. However, government officials and conservation organisations in both developed and developing countries have been reluctant to adopt any of these three approaches. Instead, they have taken a largely sectoral approach that focuses on forest and protected areas policies with no effective instruments attached, pilot projects that provide technical assistance to forest product harvesters and farmers, and localised short-term subsidies for sustainable forest management and sustainable agriculture. This and the following section examine why.

The multi-sectoral approach

Few things influence forest clearing more than relative prices, transportation costs, agricultural subsidies, employment opportunities outside forested regions, and energy and mining policies. Both the TFAP and the World Bank's 1991 Forest Policy explicitly recognised this and committed the parties involved to taking a multisectoral approach to reducing forest clearing (OED 2000, Winterbottom 1990). In practice, however, neither the multilateral nor the bilateral agencies have shown much interest in such an approach. The same could be said for most international NGOs. The international agencies stopped financing certain infrastructure and resettlement projects, set up an elaborate – and largely inoperative – system for environmental impact assessments of investment projects, and financed rural development components within Integrated Conservation Development Projects (ICDPs); but that was about all.

Both those outside the forest/environment/conservation 'sector' and those within have felt more comfortable with a mostly sectoral approach to forests. Those concerned with macroeconomics, trade, transportation, agriculture, energy, and mining do not want to be bothered with the problem. Outside a handful of countries where forest products provide a large share of foreign exchange and employment, forests typically appear rather peripheral to these people's central focus. They certainly do not want anyone to tell them that they have to break with their cherished notions of trade liberalisation, public deficit reduction, attracting private capital inflows, and export promotion to save some trees and animals. Even in situations where one might expect macroeconomists to sympathise with measures that reduce forest clearing, such as eliminating subsidies for agriculture on the agricultural frontier, they often still avoid the issue. The sums of money involved may strike them as too small, or they may view the political constituencies lobbying for those subsidies as too strong to merit the political headaches that trying to remove the subsidies might bring.

Those few economists in the international financial institutions that have seriously examined the issue acknowledge that macroeconomic, trade and sectoral reforms sometimes encourage deforestation. Still, they argue that it makes little sense to modify these policies to conserve forests. Governments should use specific environmental policies instead (Warford, Munasinghe, and Cruz 1997). This argument fails to take into account that macroeconomic, trade, and certain sectoral policies often have rapid and widespread effects on forests, while environmental policies take a long time to put into place and have proved difficult to implement.

Ironically, conservationists have also tended to favour sectoral approaches to the deforestation issue. Most come from biological or forestry backgrounds or the 'softer' social sciences, and often they do not feel comfortable with substantive discussions about economics. Perhaps more importantly, sectoral approaches provide their bread and butter. Giving responsibility for forest issues to sectoral entities, be they forestry or environment departments within funding agencies or government ministries or environmental NGOs, brings with it budgets, jobs, and other resources. If the foresters and biologists acknowledged that other types of groups and agencies could protect forests more effectively they might lose those resources. While a small cadre of environmentalists do focus on 'inter-sectoral' issues in both the multilateral and bilateral funding agencies and in the environmental NGOs, this group represents a tiny proportion of the total.

One further factor that weighs heavily against a multi-sectoral approach is the political benefits decision makers can derive from saying they have created a new conservation or forestry institution or project or have increased spending on conservation and forestry projects by such and such amount. The public takes this sort of step as an indication that something is being done about the problem. Concerned citizens generally find it difficult to understand or relate to the complex links between forests and broader economic, social, and political issues and taking measures that address those links provides fewer photo opportunities.

Finally, one should note that even if international agencies were fully committed to taking a multi-sectoral approach they

might not be able to convince developing country policymakers to follow their lead. The recent literature on attempts by international agencies to put conditions on their funding to press government into implementing certain reforms emphasises that such attempts are only likely to succeed if a well-positioned group already exists within the government that supports those reforms (Seymour and Dubash 2000). This may well not be the case in many developing countries with regard to forest conservation. Indeed, the previously-cited evaluation of the World Bank's forest activities concluded that one reason the Bank failed to reduce deforestation was that government officials in forest-rich countries believed it was in their countries' best interests to deplete their forest resources for the sake of economic development (OED 2000).

The regulatory approach

At least five factors keep the agencies that provide forestry assistance from rigorously pursuing a 'command and control' regulatory approach to restrict forest conversion and logging. First of all, government presence in many tropical forest regions is weak or non-existent. Many of these areas have remained what Scott (1998) refers to as 'non-state spaces', and in a fair proportion of these armed insurgents, drug dealers, and rogue logging companies have filled the vacuum left by the State's relative absence. Corruption in these areas tends to be rampant. Once this type of situation arises governments typically find it difficult and expensive to revert. Second, international funding agencies are quite reluctant to promote any major improvements in the conditions of public sector employees due to concerns of rising fiscal deficits and doubts about the efficacy of public entities. In addition, they avoid financing the salaries of large numbers of employees on the grounds that unless governments finance such recurrent expenditures from the outset, they are unlikely to be sustained. This applies to park guards and forestry officials as well as other types of public employees and practically guarantees that there will not be enough well-motivated and trained field staff to effectively implement strict regulatory policies. Third, international agencies have little stomach for governments taking repressive action in their name (Byron 1997). National governments also shy away from risking social conflicts by strictly enforcing their formal property rights over protected areas and other publicly owned forest land. In contrast, local groups whose livelihood depends on continued access to the resources governments want to limit access to have strong incentives to break the official rules. Finally, conventional wisdom now has it that command and control does not work, particularly if one does not find other equally profitable options for those negatively affected by the regulations (Wells and Brandon 1992). This comes partially from past experiences and partially from the prevailing free market ideology that has dominated international financial agencies in recent years. Whether or not this is completely accurate, it has definitely reduced the impetus for predominantly coercive approaches to forest management.

The payment for environmental services approach

Over the last ten or fifteen years, the international forestry and conservation community has shown growing interest in finding ways to make forest conservation and sustainable forest management profitable for landowners. The two main approaches discussed up to now have been either to promote economic activities that are compatible with forest conservation such as ecotourism or the sustainable harvesting of forest products or to provide direct payments to landowners for conserving their forest. So far, none of these schemes has been implemented on a large scale, although the extent of forest involved has steadily increased.

While some of these schemes have shown certain promise, the problem has been how to scale up to large areas. Ecotourism, non-timber forest products and bio-prospecting are unlikely to provide profitable alternatives for conserving forests on a large scale (Southgate 1998). Although the area of tropical forest that has been certified as being sustainably managed for timber production has increased rapidly in recent years, it remains a minuscule portion of the total. Almost all of these approaches assume that some party holds clear and widely acknowledged property rights over the forest involved; while in practice in large portions of tropical forest ownership is in dispute. Practically all of the so-called success stories have received major support from international agencies. But those agencies have proved unwilling to maintain that support over the long-run or to provide sufficient funds to incorporate a significant share of the forests (Campbell and Martin 2000). The way the agencies have designed most of these projects practically ensures that they will not expand beyond the pilot stage. The levels of technical assistance required to adopt the technical, organisational, managerial, and marketing techniques promoted by these projects is too expensive to expand the activities to large numbers of people and so far no one has attempted to do so.

With regard to payment for environmental services, in the case of the World Bank, which plays a leading role in international forestry and conservation debates, the previously mentioned evaluation of its forest-related activities concluded the following. 'The 1991 strategy recognised the need for international transfers to underwrite conservation of global value, but it generated no momentum for the design of a strategy to establish adequate mechanisms or finances for that purpose' (OED 2000: xiii). This remains equally valid today.

At present, payment for carbon sequestration constitutes the only case that stands any significant chance of making conservation profitable in large areas of forest. The signatories to the United Nations Framework Convention on Climate Change (UNFCCC) have yet to decide whether to allow developed nations to use payments for forest conservation and reforestation in the tropics to meet a portion of their commitment to reduce carbon emissions. At the time of writing the outlook for including forests within the so-called Clean Development Mechanism (CDM) did not look good. But that may change. For the moment, all one can say

is that payment for the contribution of forests to carbon sequestration remains localised and limited.

WHAT FORESTRY ASSISTANCE DOES INSTEAD

If the international agencies are not using forestry assistance for things that could have a major impact on tropical deforestation, what are they using it for? A large, but as yet unmeasured, portion of the total goes to what one might call symbolic activities. This includes the preparation of plans and programmes at the national, regional, and enterprise levels that have no instruments attached to them that can influence the behaviour of farmers and forest product harvests. It also includes conferences, courses, and seminars, public relations activities, and information systems that are not linked to concrete actions in the field. Few would question that such activities form a necessary part of any reasonable strategy for conserving forests. Unfortunately, however, international agencies often use such activities as substitutes, rather than complements, for the use of economic and regulatory mechanisms that are likely to influence behaviour on the ground.

The more effective instruments tend to be controversial, expensive, difficult to implement and/or contrary to the prevailing free-market ideology. Faced with that reality, the international agencies have sought to implement activities that give the impression that they are responding to the public's concerns over forest destruction. The truth is that within the framework in which they operate they have few options at their disposal that might really achieve results. There are very few simple, cheap, first-best, non-market distorting solutions out there.

In addition to being highly visible, the forest and conservation projects the international agencies have financed have several other characteristics that fit well within their institutional agendas. They typically have a large element of international technical assistance (Campbell and Martin 2000). This allows them to provide jobs for professionals from the countries that provide foreign assistance and to improve their relations with environmental NGOs, which might otherwise criticise their actions. Purchasing vehicles, satellite images, computers and software has the dual advantage of appearing as investments rather than recurring expenditures and of generating new markets for companies from Northern countries (Byron 1997). Constantly coming up with new themes allows them to gain greater visibility and hide the limited results of their previous efforts (Michael Spilsbury personal communication).

Traditional foresters have also taken advantage of the public concern about deforestation to finance various forestry projects that support the development of the commercial forest sector or social forestry. Probably the clearest example of this was the TFAP, which began as an initiative to control deforestation and ended up as a mechanism to finance commercial timber production (Winterbottom 1990). This is not to say that one could not justify support for the traditional forestry sector or social forestry on its own merits. Indeed, from this author's perspective it is fully justified to focus a large percentage of forestry assistance on activities that primarily promote poverty reduction and economic development. It simply points to the fact that monies that have their origin in the public concern over deforestation were diverted to other uses.

WHERE DOES THAT LEAVE US?

It is time to stop the game playing and tell the Northern public the truth. Completely stopping global forest destruction is an inappropriate and unrealistic goal and certain species will not be saved. Developed country governments and international environmental NGOs have a responsibility to explain that to the public. They also have a responsibility to convince the public of the importance of using tax payers' money to finance forestry assistance that pursues other goals, such as direct poverty reduction and economic development; goals this author firmly believes in. While it may be morally justified to take the money school children in developed countries think is going to save panda bears and orangutans and silence chain saws and bulldozers and use it to finance general forestry activities, it is not a viable long-term strategy.

At the same time, we really do need to slow the pace of deforestation, particularly in certain regions, and ensure that some basic environmental services are maintained. That will take more than hand waving, symbolic action, and projects designed to achieve other goals. It will require some combination of willingness on the part of governments to intervene in markets, stricter regulatory enforcement, and large sums of money, probably much larger than the sums allocated to-date. The public also needs to realise that. It may not be a fashionable thing to say, or what people want to hear, but it is the truth. Protected areas alone will not do the trick, and cannot be fully effective unless they are accompanied by much broader policy changes. Real attention must go into finding innovative ways to actually implement a multi-sectoral approach. To build effective regulatory systems will require strong, credible democratic and transparent governments that openly face the issues of corruption and governance in forested regions and that have reasonably paid and highly motivated civil servants that work well with civil society and local communities. But before that can happen foreign assistance agencies must cease both the extremes of simply responding to the requests of the existing developing country governments and of considering 'government' itself a dirty word. Substantial payments for environmental services will also be required, although many of the conflicts over forest tenure may have to be resolved first.

In the short-run it may be cheaper and easier to sell the public a product that claims to respond to its demands but really does not. Eventually though the truth will prevail. As an economist I am forced to assume that sooner or later people will develop rational expectations. They will not continue to pay indefinitely for something they don't receive.

REFERENCES

ANGELSEN, A. and KAIMOWITZ, D. (eds.) In press. *Agricultural technologies and tropical deforestation*.CAB International Publishers, Wallingford, U.K.

BOSCOLO, M. and VINCENT, J. 1998 Promoting better logging practices in tropical forests. The World Bank Policy Research Working Paper 1971, September.

BRAMBLE, B. and PORTER, G. 1992 Non-governmental organisations and the making of US international environmental policy. *In*: HURRELL, A. and KINGSBURY, B. (eds.) *The international politics of the environment.* Clarendon Press, Oxford, U.K., pp. 313-353.

BROWN, D., RICHARDS, M., SCHRECKENBERG, K. and SHEPHERD, G. 1999 *Getting aid delivery right: host country, donor, and international complementarity for greater aid effectiveness in the forest sector.* EU Tropical Forestry Paper 4. London, Overseas Development Institute and Brussels, European Commission.

BYRON, N. 1997 International development assistance in forestry and land management: the process and the players. *Commonw. For. Rev.* **76** (1):61-67.

CAMPBELL, J.G. and MARTIN, A. 2000 Financing the global benefits of forests: the Bank's GEF portfolio and 1991 Forest Policy. Processed.

CHOMITZ, K.M. and GRAY, D.A. 1996 Roads, lands, markets, and deforestation, a spatial model of land use in Belize. *World Bank Economic Review* **10**: 487–512.

CHOMITZ, K.M. and KUMARI, K. 1998 The domestic benefits of tropical forests: a critical review. *The World Bank Research Observer.* Vol. **13**, no.1: 13-35.

DEININGER, K. and MINTEN, B. 1997 Determinants of forest cover and the economics of protection: an application to Mexico. The World Bank, Washington D.C.

DEVELOPMENT ASSISTANCE COMMITTEE (DAC) Secretariat. 2000 Official Development Assistance to forestry 1973–98. Processed.

IVORY, M. 1992 The politics of US environmental assistance, 1976-86. *World Development* **20** (7): 1061-1076.

KAIMOWITZ, D. and ANGELSEN, A. 1998 *Economic models of tropical deforestation, a review.* Center for International Forestry Research (CIFOR), Bogor, Indonesia.

KAIMOWITZ, D., BYRON, N. and SUNDERLIN, W. 1998 Public policies to reduce inappropriate tropical deforestation. *In:* LUTZ, E., BINSWANGER, H., HAZELL, P. and MCCALLA, A. (eds.) *Agriculture and the environment, perspectives on sustainable rural development.* The World Bank, Washington D.C., pp. 303-22

OPERATIONS EVALUATION DEPARTMENT (OED). 2000 *A Review of the World Bank's 1991 forest strategy and its implementation, Preliminary Report.* The World Bank, Washington D.C., January 13.

PEARCE, D., PUTZ, J. and VANCLAY, J.K. 1999 Sustainable forest future? *CSERGE Working Paper* GEC 99-15, London.

SCOTT, J.C. 1998 *Seeing like a State, how certain scheme to improve the human condition have failed.* Yale University Press, New Haven.

SEYMOUR, F.J. and DUBASH, N.K. 2000 *The right conditions, The World Bank, structural adjustment, and forest policy reform.* The World Resources Institute, Washington D.C.

SHEPHERD, G., BROWN, D., RICHARDS, M. and SCHRECKENBERG, K. (eds.) 1998 *The EU tropical forestry sourcebook.* London, Overseas Development Institute and Brussels, European Commission.

SOUTHGATE, D. 1998 *Tropical forest conservation, an economic assessment of the alternatives in Latin America.* Oxford University Press, New York.

WALKER, R.T. and SMITH, T.E. 1993 Tropical deforestation and forest management under the system of concession logging: a decision theoretic analysis. *Journal of Regional Science* **33**: 387-419.

WARFORD, J.J., MUNASINGHE, M. and CRUZ, W. 1997 *The greening of economic policy reform.* The World Bank, Washington D.C.

WELLS, M. and BRANDON, K. 1992 *People and parks, linking protected area management with local communities.* The World Bank, Washington D.C.

WINTERBOTTOM, R. 1990 *Taking stock: the Tropical Forest Action Plan after five years.* World Resources Institute, Washington D.C.

WORLD COMMISSION ON FORESTS AND SUSTAINABLE DEVELOPMENT (WCFSD). 1999 *Our forests, our future, Report of the World Commission on Forests and Sustainable Development.* Cambridge University Press.