

COMMENT

Evolving perspectives of the 'difficult economics' of SFM and conservation

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SUMMARY

This Comment synthesises a PhD by Publications research narrative on the theme of economic incentives for tropical forest management and conservation. The narrative reveals an evolution from a focus on market incentives and non-market benefits to an increasing emphasis on governance and regulatory incentives in explaining stakeholder behaviour to the forest resource. It was found that in general market incentives for timber-based sustainable forest management (SFM) and conservation are weak. It is concluded that key missing ingredients for SFM and conservation are domestic and global governance, including regulations that create payments for ecosystem service (PES) markets and capture public good values, secure property rights for resident stakeholders and more appropriate extra-sectoral policies. Because of their global public good values, the survival of tropical forests is contingent on the actions of the international community and governments.

Keywords: SFM, economic incentives, participatory forest management, policies, governance.

Perspectives en évolution de "l'économie ardue" des gestions forestières durables et de la conservation

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Ce commentaire offre une synthèse d'un doctorat publié par les publications de recherche, sur le thème des motivations économiques pour la gestion et la conservation des forêts tropicales. Le texte révèle une évolution d'une concentration sur les motivations de marché et les bénéfices non-associés au marché, à une emphase grandissante sur les motivations de gestion et de régulations en expliquant aux parties prenantes comment se comporter vis à vis de la ressource forestière. Il apparut que les motivations de marché pour la gestion durable des forêts basée sur le bois (SFM) et la conservation étaient faibles. Il en est conclu que les ingrédients clé manquants pour la SFM et la conservation sont la gestion domestique et globale, dans laquelle sont incluses les règles qui génèrent des paiements pour les marchés de service de l'écosystème (PES), et capturent les valeurs positives du public, renforcent les droits à la propriété des autochtones et les lignes de conduite hors-secteur appropriées. Du fait de leur valeur positive publique, la survie des forêts tropicales est liée aux actions de la communauté internationale et des gouvernements.

Evolución de perspectivas sobre la 'economía difícil' del Manejo Forestal Sostenible (MFS) y la conservación

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Este artículo es la síntesis de una tesis doctoral investigativa sobre los incentivos económicos para la conservación en el campo de la gestión forestal tropical. El estudio describe una cierta evolución de actitudes entre los grupos interesados, desde una perspectiva que se centró en los incentivos de mercado y beneficios no comerciales, hacia un énfasis cada vez mayor en el buen manejo y los incentivos reglamentarios. Se ha establecido que los incentivos de mercado para un MFS basado en los productos madereros y la conservación son débiles, en términos generales. Se concluye que los elementos claves y fundamentales para el MFS y la conservación son los siguientes: un buen manejo a nivel doméstico y global, que incluya reglamentos que produzcan ingresos para mercados de servicio de ecosistemas y expresan los buenos valores públicos; seguridad de derechos de propiedad para grupos interesados residentes; y políticas extrasectoriales más apropiadas. La supervivencia de los bosques tropicales es un buen valor público a nivel mundial, y por eso depende de las acciones de la comunidad internacional y de los gobiernos.

INTRODUCTION

This comment summarises a ‘research narrative’ submitted to the University of Glamorgan for the degree of Doctor of Philosophy by Publication (Richards 2007). This traces the author’s research and publications between 1991 and 2006 on the ‘incentives’ for sustainable management and conservation of tropical forests (SFM for short). The research focus was primarily on natural forest management and conservation, as opposed to planted trees, and revealed a regional bias towards Latin America, although there were also papers based on forest management systems in West Africa and South Asia¹

In a PhD by Publication, the candidate is asked to show how their publications, individually and collectively contribute over time to a research hypothesis, to a personal learning curve and to broader understanding of the issues. The publications are also expected to conform to normal PhD requirements in terms of methodology, originality, etc. Much of this paper is based on the ‘reflective overview’ section of the PhD narrative. This involves bringing together the publications’ main findings with important recent literature and developments, for example, the emergence of avoided deforestation (AD) or ‘reduced emissions from deforestation and forest degradation’ (REDD) as a potential market-based instrument for compensating forest conservation.

An important initial clarification is use of the term ‘incentive’. This is often used to mean a ‘subsidy’, but here it is used in a broader sense to refer to the economic motivation of forest managers and other stakeholders to manage or conserve (or not) the forest resource in response to market, policy or institutional messages or signals received. A second clarification is the word ‘economic’. It is used again in a broad sense to refer to anything with a value (benefit) or cost to society, rather than in a narrow financial sense. Most papers on SFM start with a lengthy discussion of what it means. Due to space considerations, this is limited to the observation that SFM tries to optimise social, economic and environmental benefits for present and future generations. The rest of this paper provides a brief chronological ‘walk through’ the research and publications portfolio, a discussion of the ‘difficult economics’ of SFM and a synthesis of the ‘reflective overview’ section of the dissertation.

THE RESEARCH AND PUBLICATIONS BASIS

During the early 1990s, the research focus was mainly on market and policy (fiscal) incentives for natural forest management and conservation in Latin America and West Africa. Based on case study fieldwork, observations from project cycle missions and secondary data analysis, research was undertaken on the complexities of participatory forest management (PFM) in Latin America; on the social and

environmental impacts of commercial non-timber forest product (NTFP) extraction in the Amazon region; on challenges to concession-based SFM in Ghana; and on alternative ‘participatory’ and ‘regulatory’ strategies for forest conservation in Honduras.

In the mid-1990s an extensive review of forest sector institutional change in Latin America was undertaken. This included a study of change in common property resource (CPR) based forest management in response to market, demographic and other pressures, and a review of technical, policy and institutional interventions to stabilise colonist farmers in frontier zones (again mainly focused on the Amazon Basin). This was followed by a review of ‘innovative financing and incentives’ for SFM, and a research study exploring the potential of economics for improving the understanding of stakeholder incentives in PFM.

Later research and publications focused on different facets of forest governance, mainly using country case studies. Studies and publications included an empirical analysis of the impacts and costs of illegal logging in Central America; a study of the impacts of forest trade policies, especially trade liberalisation, on forest governance; and a review of the progress of forest management certification in weak governance environments.

THE ‘DIFFICULT ECONOMICS’ OF SFM AND CONSERVATION

The ‘difficult economics’ of SFM became apparent early on in the research. The first aspect of the difficult economics is market failure – this refers mainly to the absence of markets for environmental and cultural/spiritual benefits of forests, which many believe to be more ‘valuable’ (to society) than the marketed products. Where there are marketed values, as for timber and NTFPs, these have tended to be depressed due to policy or institutional failures. For example, illegal logging results in a high supply of timber relative to demand and depresses prices. In general weakly regulated market forces have resulted in forest degradation and negative equity impacts (e.g., due to elite rent capture).

This situation is compounded by the biological problem that trees grow slowly and in natural forests can take 80-100 years to reach a commercial size. The problem with this is the opportunity cost of forest investment – the compound interest that could be earned on an alternative investment. Time is effectively the main cost for forestry and has a major effect on its economic viability. Furthermore, the ‘difficult economics’ is more acute in more biodiverse forests due to diseconomies of scale for commercial species and because markets for lesser-used species are relatively undeveloped. A further problem for tropical forest hardwoods is increasing competition from hardwood plantations and chemically treated softwoods.

¹ As pointed out by the examiners, the geographical and forest ecosystem focus of most of the author’s publications presents some boundaries as regards policy generalisations.

Then there is the political economy complexity. Since tropical forests produce a range of good and services, there are many interested stakeholders, for example, indigenous peoples, colonist farmers, concessionaires, illegal loggers, absentee landowners, governments, donors, NGOs, pharmaceutical and ecotourism companies, mill owners, exporters, etc. Thus forest management or conservation often involves a complex set of trade-offs between the underlying interests, state policies over tropical forests are politically rather than technically determined and forest governance plays a key role in the distribution of benefits and costs.

REFLECTIVE OVERVIEW

Critique of market commodity-based approaches to SFM

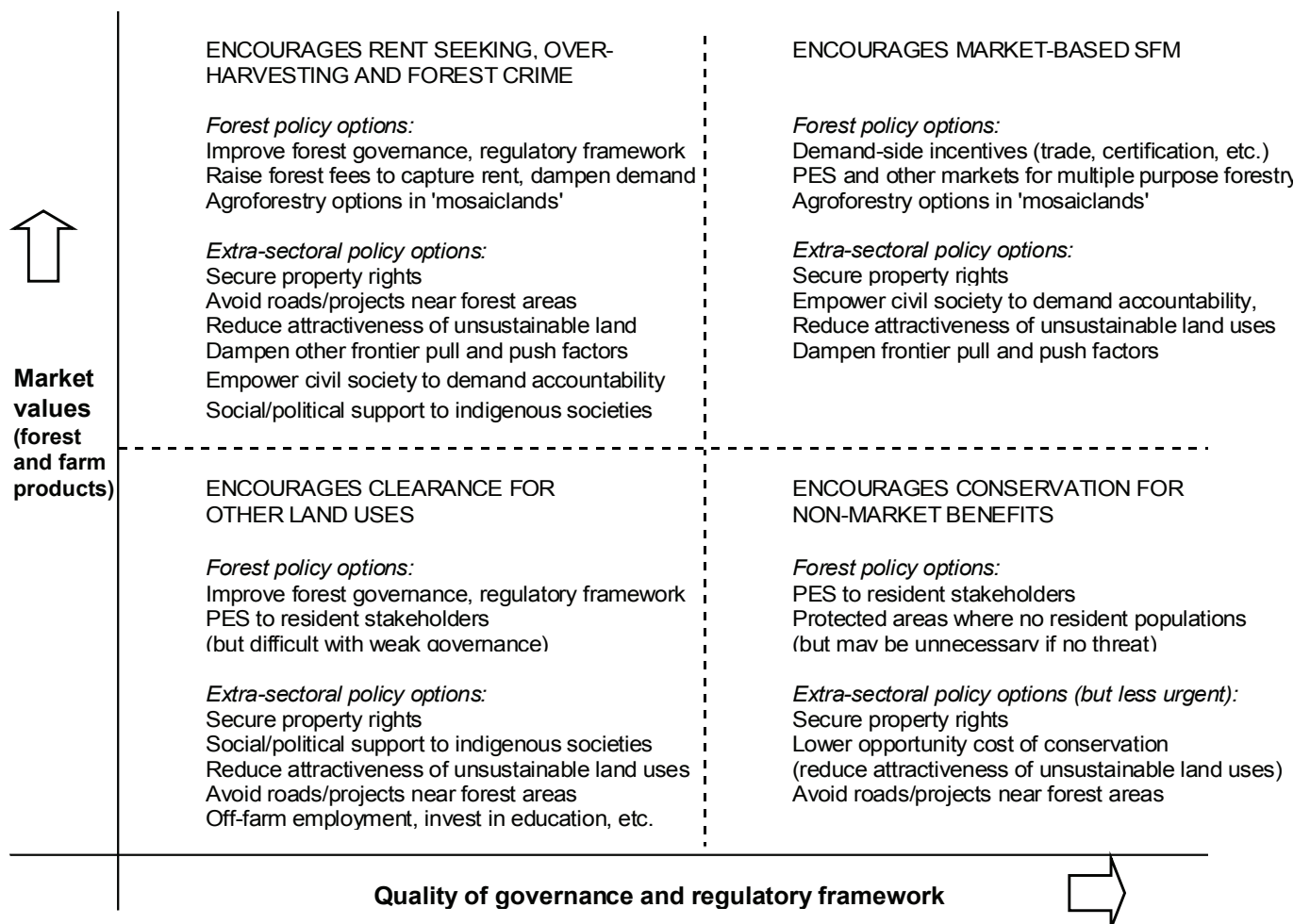
A prominent finding of the research was that commodity and market oriented approaches to SFM have tended to make both the resource and the forest-dependent poor more vulnerable. This is because SFM in the tropics generally takes place in a weak governance or regulatory environment in which 'cut and run' logging and/or clearance for other land uses is a more profitable (at least in the short-term) or less

risky option (while alternative land uses to SFM may be less profitable in the longer term, most actors who convert forests have short time horizons). This vulnerability is heightened when forest resources are more valuable, since they become more attractive to non-resident stakeholders. Figure 1 is a simplistic attempt to show some of the policy implications of the interaction of market values and forest governance (or the regulatory framework). The y axis includes forest and farm product values, since these tend to be correlated with distance to market, although a particularly high value timber or NTFP species can cause a remote but accessible forest to have a high stumpage value.

Where market values are high and governance or control is weak (upper left quadrant), forests are vulnerable to rent seeking, illegal logging and over-exploitation. In this situation, market-based incentives for SFM tend to cause unintended or perverse incentives, especially for local stakeholders. When both governance and forest values are low (lower left quadrant), the main threat is conversion to other land uses. A new road, for example, while it increases the stumpage value of forests, also stimulates farming, the arrival of colonists and ranchers, illegal logging and land speculation.

Where market values are higher and forest governance

FIGURE 1. Interaction of market values and forest governance in determining SFM incentives and policy options



is improving (upper right quadrant), the emphasis can shift towards market-based incentives for SFM. But market proximity or access also encourages other land uses. It therefore remains extremely important to dampen or counteract extra-sectoral policies that increase the opportunity costs of SFM. It can however be very difficult to do this due to the perceived or real development benefits, not to mention political economy constraints.

When market values are low due to accessibility and distance factors, and governance and control are improving (lower right quadrant), conservation rather than market-based SFM has a better chance of success. This is however the least likely situation, since governance tends to be minimal in remote areas, and an 'uncivil society' which may include illegal loggers and drug-traffickers (at least in Latin America) often fills the governance vacuum.

'Carrots and sticks': a question of balance

Another prominent finding is that getting the 'supply side' right is essential for SFM, and is a precondition for the effectiveness of demand-side incentives like payments for ecosystem services (PES), trade liberalisation and certification (Richards, 2000). But various papers also highlight the political economy constraints to effective legal, policy and institutional reform, and observe, for example, that excessive regulations impose heavy burdens on forest managers, encourage evasion and corruption, and are expensive to enforce (Richards, 2003b). Therefore 'command and control' approaches have been ineffective and one is left with an apparent 'Catch 22' situation.

Recent key literature (Chomitz *et al.* 2006; Colchester *et al.* 2006) encourages a more nuanced view of the 'supply side' agenda. This includes the potential for 'carrots' or market-based incentives to encourage or facilitate the 'sticks'. Thus market-based approaches, when combined with increased transparency, tend to increase the cost-effectiveness of legal compliance. Examples of this include:

- Brazil's 'Tradable Forest Conservation Obligations' cap and trade system in which landowners with less than the legal minimum of their landholding as forest (from 20% to 80%) have to compensate landowners exceeding the legal minimum for the opportunity costs of conservation;
- Auctions of area-based concession fees in Cameroon, Bolivia and other countries. This is reported to have increased the legal compliance of concessionaires.

There is still a 'Catch 22' with these market-based approaches, and other innovative incentives like performance bonds²: in order to be effective, demand-side instruments

require significant supply-side support in the form of forest governance and administrative capacity. A recent review of PES (Scherr *et al.* 2006) also observes that a strong and equitable legal and institutional framework is essential for pro-poor PES, again showing the importance of the supply and demand balance.

Another finding is that, due to the public good values at stake, PES are the most important type of demand-side incentive for SFM, and these require a regulatory basis (Richards, 2000). For public goods which are 'non-rival' and 'non-excludable', national and/or global governance or regulations are essential in order to generate willingness to pay for them. For example, Molnar *et al.* (2004) have called for a global forest convention and other mechanisms to recognise and support community conservation.

Carbon is the one forest-related public good for which global governance has created an international market for ecosystem services, even though tropical natural forests are currently excluded from the main regulatory agreements (the Kyoto Protocol and the EU-European Trading Scheme). However, with the support of high profile advocates like Stern (2006) and Stiglitz (2006), there is increasing momentum to include avoided deforestation (AD) or reduced emissions from deforestation and forest degradation (REDD) in the second accounting period of the Kyoto Protocol from 2012, and possibly before. According to Stern (2006), AD offers a relatively cheap³ and quick way of cutting up to a fifth of global carbon emissions.

A common aspect of the various AD/REDD proposals is that reduced deforestation is only possible through national programmes due to the 'leakage' problem (although leakage may still occur through international trade if some tropical forested countries decide not to participate). In order to reduce national deforestation rates, and once the relatively 'low hanging fruit' options like improved forest fire control and protected area management have been taken up, the main policy and institutional failures will need to be tackled. While there are several major challenges to REDD, not the least of which is that deforestation tends to be correlated with weak governance, it provides a unique opportunity as a market-based mechanism for tackling policy and institutional failures. It brings together the demand and supply sides of the problem: how to increase the returns to SFM by tackling the market failure problem and how to reduce its opportunity costs, which are determined by policies and governance. If it results in a stronger forest governance and regulatory framework, REDD could overcome the Catch 22 problem.

Less well-balanced strategies (sticks without carrots and *visa versa*) are more problematic. For example, unilateral approaches to improving forest governance are vulnerable to 'trade displacement', which is a kind of leakage. Thus Japan has had an enormous ecological footprint in Asia while

² These involve lump-sum deposits by concessionaires at the beginning of the concessions. These are gradually returned by the national forestry authority or other appropriate body to the concessionaires over several cutting cycles following an independent monitoring process.

³ Although some would argue that the costs of reducing deforestation were underestimated in the Stern Review.

keeping its own forests in pristine condition, and China's imports from the rest of Asia and Africa have increased enormously following its logging ban. On a smaller scale Costa Rica has a regionally low incidence of illegal logging. This has increased illegal logging pressures on its poorer neighbour Nicaragua, which supplies much of Costa Rica's domestic timber requirements (Richards *et al.* 2003b).

Another example of this lack of balance between 'carrots and sticks' is the unclear impacts of well meaning attempts to raise the bar in European import markets, for example, via government procurement policies. These clearly raise forest managers' compliance costs. Without a commensurate increase in 'forest gate' timber prices, this may have caused some African producers to switch to the less demanding China market (judging by some timber trade market reports). Ironically, much of this timber ends up in Europe as re-exports. While consumers are unwilling to pay a significant green premium, certification in tropical countries faces a similar problem, and has tended to be donor rather than market-led (Richards 2004). More broadly the challenge is how to bring the Forest Law Enforcement Governance (FLEG) and PES agendas together – the great hope, again, is that REDD can achieve this.

Participatory forest management – win-win outcomes?

Another major concern of the research was to consider the performance of PFM in terms of achieving win-win (environmental and poverty reduction) outcomes, since various donors and international NGOs have promoted market-based PFM as a win-win strategy. Also governments increasingly see the devolution of state forests to communities as a low cost strategy for SFM - about a quarter of the forest area of developing countries is now under community ownership or management, and this could double by 2050 (Molnar *et al.* 2004).

But there is considerable evidence of trade-offs between environmental and social outcomes in PFM; this reflects the multiple benefits and stakeholders in tropical forests and the problems of intra-community equity. For example, an economic study of community forestry in Nepal (Richards *et al.* 2003a) found that the benefits were skewed towards households with more cattle and agricultural land, and the poorest households were worse off than under previous open-access commons situations in which they had free access to most NTFPs, including firewood and grazing. Environment-equity trade-offs are also discussed at length by Chomitz *et al.* (2006) with the implication that they are more the rule than the exception. It has also been pointed out that forestry *per se* has relatively modest poverty reduction potential compared to sectors like agriculture and education (Wunder 2001).

It can be argued that there is an asymmetry in the distribution of costs and benefits in more market-oriented PFM which may explain why win-win outcomes are rare, and that where they occur they tend to require prolonged donor support. Most public good values from PFM accrue to national and international beneficiaries; and with marketed

forest products, most value is captured by downstream processors and traders. For local forest users, opportunity costs are often very high, including from limitations on their farming practices and forest product extraction. A cynical view might be that getting communities to engage with international commodity markets is a cheap way of obtaining global public goods.

While PES markets remain undeveloped, it is also a high risk strategy, especially for indigenous communities with limited international market exposure. A review of common-pool resource (CPR) forest management systems in Latin America revealed clashes between market and indigenous economic incentives, and that these tend to erode the traditional institutions underpinning CPR regimes (Richards, 1997). A problem of increased risk is that it raises discount rates, which directly reduces the viability of SFM. It is argued that the introduction of 'classical' market-based SFM regimes for timber production is particularly problematic for Amerindian groups (Richards, 2006). The emphasis should be more one on how to support and compensate traditional natural resource management systems for the public good values generated. Molnar *et al.* (2004) also suggest that secure property rights or contracts offering social services may be more effective incentive mechanisms than ones based mainly on financial payments.

Recent literature, like Chomitz *et al.* (2006) and Molnar *et al.* (2004), supports the finding that communities, and especially indigenous communities, are normally more effective than the state or private sector at managing or conserving the forest resource, largely due to differences in the underlying incentives. Since PFM with appropriate legal and governance support tends to be self-regulating, it is questionable whether community forestry enterprises (CFEs) should be subject to the same kind of rigour as regards legal compliance as industrial forestry concessions (Richards, 2004).

The limited success of Integrated Conservation and Development Projects (ICDPs) is also instructive. As found in Honduras (Richards 1996), ICDPs have been generally unable to reconcile conservation and development objectives, with conservation tending to lose out more (Chomitz *et al.* 2006). Even eco-tourism, a market-based approach rewarding conservation rather than exploitation, has had moderate success, with most benefits going to urban-based tourism companies, although with some notable exceptions (Bishop *et al.* 2006). One view is that ICDPs are only likely to succeed if *quid pro quo* payments are made to communities based on measured conservation outcomes (Chomitz *et al.* 2006). For indigenous conservation efforts, a PES or 'contract exchange' approach is more likely to secure win-win outcomes, and interferes less with traditional natural resource management systems (Richards 2006).

But a problem with PES markets is that they do not inherently favour the poor, since they prioritise environmental cost-effectiveness (as in the Clean Development Mechanism of the Kyoto Protocol), as well as due to legislative and governance biases. Another review (Scherr *et al.* 2004) concludes that PES markets are unlikely to contribute

substantially to poverty alleviation without subsidies. For example, pro-poor carbon forestry depends on donors or governments subsidising the very high transaction costs and diseconomies of scale for communities to engage in carbon markets – which is why very few have so far. As pointed out by Molnar *et al.* (2004), additional legislation is usually needed to ensure community property rights over ecological services, and institutional support is essential to channel PES to communities. Robust second order institutions will be essential for establishing and protecting property rights over ecosystem services, ensuring a fair negotiating platform, lowering transaction costs and attracting a range of essential support services.

Another common finding is that win-win outcomes are more likely to result from holistic or livelihoods-based approaches rather than through a narrow focus on timber or an internationally traded NTFP. For example, the broad livelihood mosaic of Mexican ‘forest *ejidos*’ has proved enduring in spite of weak forest product markets; Bray *et al.* (2004) report the development of ‘sustainable landscapes’ partly based on institutional innovation (the development of extractive reserves for NTFP management) and an emerging ‘forest transition’ process. In the subsistence-oriented PFM systems of South Asia, an important ‘win-win’ option is to foster farm-forestry linkages, for example, by upgrading dairy breeds and giving the poor access to cattle and farmland (Richards 2003a). The scope for PFM to move from a forest protection orientation to the promotion of sustainable livelihoods in agroforestry-based systems has also been observed (Arnold, 2001). These can take advantage of niche expanding PES markets, e.g., for shade-based, ‘bird friendly’ or organic cocoa and coffee.

CONCLUSIONS

As has been pointed out in this journal by David Kaimowitz, there is no simple solution to the ‘difficult economics’ of tropical forest management and conservation: “the more effective instruments tend to be controversial, expensive, difficult to implement, and/or contrary to the prevailing free market ideology ... there are few simple, cheap, first-best, non-market distorting solutions out there” (Kaimowitz 2000:230). In general market incentives for SFM and conservation are weak, especially in species diverse tropical forests; key missing ingredients of SFM are domestic and global governance, including regulations that create PES markets and capture public good values; secure property rights for resident stakeholders; and more appropriate extra-sectoral policies.

It can be argued that the biggest single challenge for SFM or conservation is how to constrain the rent-seeking strategies of vested interest groups. In weak regulatory frameworks, both the resource and resident stakeholders

are more vulnerable where forest values are high. This means that ‘green capitalism’ approaches to ‘saving the rainforest’ by giving it market value should be treated with great caution⁴. By contrast, more remote or less accessible forests with lower market values are more amenable to the multiple objectives of community managers, and tend to be less threatened by higher value land use alternatives.

Another central finding is the need for a balanced supply and demand (or market) side approach. Too much has been expected of market-based incentives or ‘carrots’ for SFM without effective sticks that reduce the opportunity costs (including the returns to ‘cut and run’ logging) and *visa versa*. Control of illegal logging, for example, could increase world market prices of wood products by up to 16% according to one study (Seneca Creek, 2004). But partly due to vested interests in weak forest governance, the ‘sticks’ have tended to follow rather weakly in the wake of the carrots. The opportunity cost problem for SFM has thus predominated.

As pointed out by Stiglitz (1998), institutional or governance improvements should precede market incentives like trade liberalisation, since governance quality is the main determinant of the social and environmental outcomes of market-based incentives. It is also clear that weak national and global governance has been the main cause of the high social and environmental externalities of market-based approaches (this observation is clearly not limited to forest sector). Most evidence also suggests a ‘Kuznets curve’ for forestry – that for lower income countries, increased income is correlated with increased degradation, but beyond an (unknown) threshold level it will begin to encourage SFM. Therefore progress towards SFM depends on broader economic and political progress, including the capacity of civil society to demand increased transparency and accountability of policy makers, the forest industry, the state forestry authority and the judiciary (Richards, 2004).

Another major concern of the research was the potential for ‘win-win’ outcomes. In general trade-offs between social and environmental objectives have been more common. While PES markets remain incipient the promotion of market-based PFM for indigenous societies in particular seems questionable. PES mechanisms may prove more compatible with indigenous value systems, but are unlikely to be pro-poor without considerable donor and state support, not least in the ratification and protection of property rights and creation of strong second order institutions.

It is difficult to conceive of an effective and equitable solution to what is essentially a public goods problem (ecosystem protection) without governments and the international community playing a much more effective governance and regulatory role than has been the case to date. While avoided deforestation or REDD will not be simple or cheap, it offers real hope for tropical forests since it represents a balanced ‘carrots and sticks’ response to the

⁴ Some similar concerns are being raised around the emerging PES markets – for example, that vested interest groups may attenuate the property rights of local stakeholders.

problems, and may be able to harness sufficient international political will to tackle the underlying political economy constraints to effective and equitable forest governance. In the final outcome, tropical forests will probably survive either because they are too remote or inaccessible to be worth exploiting, or because their ecosystem services are adequately compensated, as is the case of the heavily subsidised forests of high income countries.

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