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Regulating industrial forest concessions in Central Africa and South America

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ABSTRACT

Tropical countries face special specific problems in implementing sustainable forest management (SFM). In many countries, questions are raised on whether tropical forests should be publicly, commonly or privately owned and managed in order to enhance sustainability. Other debates also focus on whether small-scale enterprises are better positioned than large-scale industrial concessions to reduce poverty and attain sustainable management. In countries where large tracts of forest are state-owned, concessions are viewed as a means of delivering services of public and collective interest through an association of private investment and public regulation. However, the success of an industrial concession model in countries with large forest resource endowment to achieve multiple goals such as sustainable forest management and local/regional development depends on two critical assumptions. First, forest functions and services should be managed and maintained as public goods. In many cases, additional uses – and corresponding rights – can take place alongside logging activities. Industrial concessions can be more efficient than other tenure models (such as community-based forest management and small-scale enterprises) in achieving SFM, add value to raw material and comply with growing environmental norms. This is especially the case in market-remote areas with low population density and poor infrastructure. Secondly, to achieve these different outcomes, any concession system needs to be monitored and regulated, especially in contexts dominated by asymmetrical information between regulating authorities and concessionaires. New institutional responses have recently been put forward in several countries, providing valuable materials to design a renewed policy mix which associates public and private incentives. This paper provides a survey of the experience of forest concessions in several Central African and South American countries. The concession system is examined in order to clarify the issues involved, the problems encountered, and what can be learned from the shared experience of these countries in the last decade. This paper argues that despite a sometimes patchy record, concessions can help promote SFM so long as they are packaged with a certain number of specific measures.

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1. Introduction

As illustrated by recent forest sector reforms in several forest-rich countries such as Brazil and Russia, concessions are currently a popular legal tool among forest policy decision-makers. In Central Africa, much of the forests have been under a concession regime for over a century. However, a distinction must be made between (i) the era of large concessions which took advantage of forced labour under colonial rule and (ii) current forestry and/or mining concession systems whereby companies also end up having to build up – often from scratch – local social networks and public

infrastructure in areas where the state cannot fulfil these functions.

In South American countries, industrial forest concessions have been present for over two decades, whereas Bolivia and Peru have just begun using a concession-based regime for managing and selectively logging their natural forests. Such a system is now increasingly questioned by Bolivia's current president Evo Morales. In Brazil, both public and non-governmental actors have overwhelmingly been in favour of the Law creating concessions as they believe that it could solve the Amazon Basin's land tenure problems. However, some fear that concessions could be given away at lower prices than their genuine value (Merry et al., 2003a).

The aim of this paper is to discuss the potential effectiveness of a forest concession regime to achieve sustainable management of forest resources in tropical countries. The broad definition of

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sustainable forest management (SFM) is adopted, as endorsed by the UNFF (United Nations Forum for Forests) which defines the concept as “the stewardship and use of forests and forest lands in a way, and at a rate, that maintains their biodiversity, productivity, regeneration capacity, vitality and their potential to fulfill, now and in the future, relevant ecological, economic and social functions, at local, national, and global levels, and that does not cause damage to other ecosystems” (www.un.org/esa/forests/faq.html). Such a definition underlines the need to balance the economic, social and ecological dimensions of sustainability, even though the acceptable trade-offs between the different components and viability thresholds of each one are subject to diverging appreciations (Wang, 2004; Luckert and Williamson, 2005; Karsenty and Gourlet-Fleury, 2006).

The conceptual framework of analysis is the principal-agent theory, whereby the contractor (in this case the timber company) should act in the best interests of the principal (the government) while the contractor retains an informational advantage over and has different interests from the principal. The case of Central Africa provides the main source of experience and lessons. A first section discusses briefly the rationale for concessions as a choice of forest land tenure by the governments, with respect to alternatives such as private forestry, small-scale enterprises and community forestry. A second section addresses the issue of asymmetrical information and the instruments that governments can use to capture a significant portion of the economic rent whilst enforcing sound management practices. A third section presents some alternatives to enhance the control of forest practices inside concessions. A fourth section focuses on the issue of delivering local public goods in a context of government failure and strong local claims, which could be analyzed as a “discharge” policy, but also within the perspective of corporate social and environmental responsibility. The last section discusses the risks associated with the adoption of a concession regime and some safeguards that could be considered regarding monitoring and control of illegal activities.

2. Are concessions effective in preventing land-use change and achieving sustainable forest management?

2.1. A conventional definition of forest concessions

According to FAO's *Land Tenure Thesaurus* (1999), a concession is a bilateral or unilateral legal act by which an authority grants a private or public person a use right or a privilege. Jurists usually consider concessions not as “dismemberment” of the public Estate, but simply as an “action of the government who confides a mission” to any incumbent he wishes (Legoux, quoted in Weiss, 1978). The incumbent is either an individual or a commercial company which benefits from an exclusive right of exploitation and disposal on the products, although not on the land. Concessionaires' obligations are registered into a “specifications book” (*cahier des charges*). The content of this book can be fully set by law (as in Congo-Brazzaville), and sometimes general law provisions are completed on a case-by-case basis (as in Gabon). It is a contract which contains general provisions for all the concessions and specific provisions for each concession. In the literature, there is a wide use of the term “concession” encompassing various situations where logging rights are granted by the State to a third party. However, concessions are usually associated with industrial logging, especially in Africa, while other timber permits or tenure arrangements granted by the State (short term permits, volume-based permits, community forests, local council forests, etc.) are rarely called concessions, even if they fulfil the FAO's definition quoted above. In Central Africa, the only exception is in DRC, where

the 2002 Forest Code made a provision for the creation of “concessions for local communities”, without having stated so far if these will have to fulfil the same obligations as industrial ones. In this paper, “concessions” refer specifically to industrial and large-scale enterprises (several dozen thousands of hectares and more).

Concessionaires' requirements include technical, economic, social, fiscal and environmental issues. Technical requirements include the preparation of a forest management plan and an annual logging plan according to given norms, technical guidelines and commitment. Economic requirements generally include building a processing unit of a specified size and the creation and maintenance of road networks of local and regional importance. Social requirements include job creation, the delivery of goods and services to local administrations, authorities or populations, and launching social projects and social investments for the local populations. Among fiscal requirements are specific fees and taxes to be paid in addition to the general fiscal regime. Finally, examples of environmental requirements include fighting poaching as well as setting aside protected areas inside the concession area. When the concessionaire fails to comply with the contract, especially if he makes himself responsible for significant forest crime, the concession may be withdrawn.

A recent question about forest concessions is their ability to provide the right incentives for SFM compared to other tenure regimes, such as community-based forest management. Recent papers (Mendes and Macqueen, 2006; Macqueen, 2006) have advocated the replacement of large forest concessions by small-scale forest enterprises. The authors suggest that this would create more jobs and added-value than concessions and that these small-scale enterprises could be considered as genuine model of “pro-poor” growth, unlike concessions (see also Hopley, 2007, on “pro-poor tenure models” for forestry).

2.2. Land-use change incentives under concession regimes and private forestry

The supposed advantage of private forestry is derived for the long term tenure security it gives to the landholder, which should be a good incentive to promote long term management including silvicultural investments to renew the forest resource. However, other factors complicate the picture. Using the classic Von Thünen framework, the respective rent frontier of different land uses can be mapped as follows (see Fig. 1) (see also Hyde et al., 1996, p. 226; Angelsen, 2007, p. 7).

Since sustainable forest management is in many places less profitable than alternative land uses, it is expected that private forestry will take place between the respective rent frontiers of extensive agriculture and industrial forestry under concession. But the evolution of relative prices (and other variables such as change in land-labour ratios or infrastructure) can be favourable to agricultural products against timber, shifting the agriculture rent frontiers to the right. Currently, the trend is characterized by a significant rise in the prices of agricultural products, outweighing that of timber, and this might continue with worldwide growing demand for biofuels (OECD-FAO, 2007). In addition, in timber-oriented tropical forestry, forest management norms tend to set up a felling cycle of 25–35 years with subsequent limitation of (legal) volumes harvested annually (the AAC or annual allowable cut). Thus, the net present value of the forestry land use under legal management systems tends to decrease as the rent frontier of agriculture approaches the forestry frontier. Individual forest owners thus have greater incentives to convert their land once they have benefited from the large timber volumes of the initial cut.

Of course, land-use regulations might impose restrictions: in the Brazilian Amazon, rural properties in forest areas must be kept

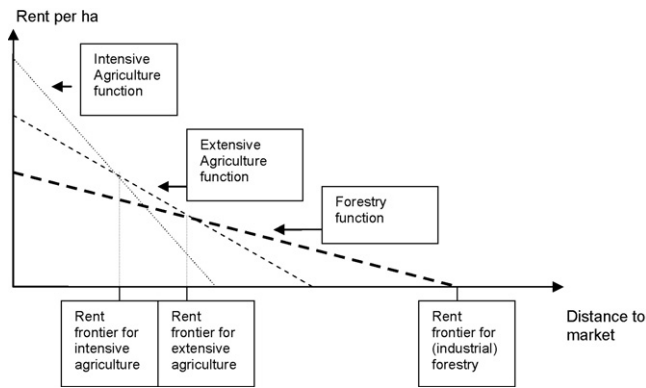


Fig. 1. The Von Thünen frontiers.

at 80% under forest cover. However, this regulation is generally not respected. Is the situation likely to be different under a concession regime? Public regulation and law enforcement are critical in favouring sustainable forestry over agricultural conversion. Yet, tenure arrangements also matter. Cancelling concession contracts in case of non compliance with SFM rules is an effective way of avoiding forest degradation and subsequent conversion whilst sanctioning a landholder is likely to be less dissuasive. Landholders are generally more numerous than concessionaires (making monitoring more difficult) and they still run their lands despite financial sanction (if enforced), while the prospect of contract cancellation represents a much higher risk for a concessionaire. The conditional use of the land stipulated by contract between the government and the concessionaire gives, in principle, additional security to a government willing to prevent forest conversion and enforce SFM, but with a limited capacity to fully enforce existing laws.

Another factor suggesting the usefulness of a concession regime with regard to risks of deforestation is linked to land tenure insecurity. As pointed out by Angelsen (2007), when land-use regulations are not stringently enforced (“tenure insecurity”), clearing forests is often a way of reducing tenure insecurity and paving the way for a further recognition of permanent land rights, including full ownership. Empirical data suggests that such a dynamic is observed in many tropical forests, whether in a “pioneer” context (such as in Brazil) or in regions where ancient customs favour it. In Africa, clearing the forest (a collective land reserve for the community) gives individual rights to community members who can claim their “fire or axe right” on the cleared land. Incidentally, it is also a way for individuals to move away from the constraints of the “forest regime” (especially once the forest is burned) and the grip of forest service agents. Clarifying land tenure by establishing forest concessions on areas where such “race for land” is likely to occur is a way of avoiding the *de facto* open-access situation entailed by unclear and/or badly enforced land tenure rights situations. This argument was extensively used in Brazil for promoting the creation and allocation of forest concessions in the Amazon. It is also probably the rationale behind the support granted by prominent environmental NGOs to this political decision, although some of them – such as Greenpeace – remain reluctant *vis-à-vis* industrial concessions in other countries (see Greenpeace, 2007).

When relative prices evolve unfavourably for forestry, private owners are more prone than concessionaires to drop sustainable forestry and convert their land to more profitable uses. Concessionaires are granted conditional rights of land use, which forces them to keep forests on these lands. Legislation might have provisions for such seizure of private property, but in practice this is rarely done in case of non-authorized land-use conversion.

2.3. Are small-scale enterprises more suitable than concessions for achieving sustainable forest management and “pro-poor” development?

A recent IIED Discussion Paper (Mendes and Macqueen, 2006, p. 18) focusing on Guyana’s forest sector suggested the promotion of small and medium-sized enterprises alongside the use of “portable technology” as an alternative to large-scale concessions and an “industry (...) concentrated on high volumes, low revenue primary products such as logs or large sawn baulks”. They advocate less “vertical integration” and more “specialisation” that could bring greater added value to timber production. It is well known that small-scale logging and processing generates, in populated countries, much more work than large industries concerned by productivity gains. In Cameroon, the formal sector (i.e., mainly concessions) employs roughly 13,000, whilst the small-scale informal sector, according to surveys by the National Statistics Institute (Karsenty et al., 2006), provides up to 150,000 jobs (more or less precarious). On the other hand, in countries with a lower population density and a greater propensity towards timber exports such as Gabon or Congo-Brazzaville, concessions provide far more jobs than the small-scale industry. Outside these social benefits, what are the limits of a “small-scale strategy”?

Currently, portable technology is used by chainsaw loggers to make wood boards sold mainly on the local market, more rarely for export. Such an activity has three main characteristics:

- The production is often more high-graded than among large concessionaires. As shown by economic studies in Central Africa (JMN Consultants, 2005; Djire, 2004; Karsenty et al., 2006), small-scale loggers concentrate on higher value species, since they are mobile and can look for a handful of species without the spatial constraints entailed by a forest management plan. This contradicts the efforts aiming at reducing the pressure on highest value species (generally over-exploited) and encouraging a shift toward lesser-used species. In a concession system, the reduced AAC entailed by management plans and certain certification requirements have forced concessionaires to undertake such a shift, at least in part.
- Recovery rates are low because the boards are made in the forest with a chainsaw (with a very low recovery rate) or with a mobile saw (such as Lucas Mills); in the latter case, the recovery rate on the main product (the standard-sized FAS board) does compare with the industrial one, but there is no use made of by-products (the “waste”) which makes all the difference between the common recovery rate of 30–35% and a 50–60% value corresponding to the combination of standard-sized boards and by-products such as non-standard boards, moulding, pieces for flooring, etc. It must be added that the peeling industry requires the transport of logs and is not compatible with portable technology. In countries such as Cameroon, CAR, Congo and DRC, greater investments in the peeling industry would help diversify the range of harvested species. Furniture construction, a high value-adding activity, seems more suitable for small-scale enterprises, as demonstrated by networks in Southeast Asian countries such as the Philippines, Vietnam, Thailand and Indonesia. However, furniture is only a segment of the timber market and some regions such as Central Africa have greater comparative disadvantages (labour skills and prices, distribution networks, etc.) than their Asian counterparts. Given the current conditions prevailing in Central Africa (limited domestic market and skills, difficult access to remote forest) and the sustainability constraint (need for harvest diversification and forest management rules), industrial concessions are better positioned than

small-scale logging units for adding value and coping with heterogeneous forest stands.

Due to inadequate regulations to fight illegal logging, in regions such as West and Central Africa, “illegal” is generally synonymous with “informal”. This means that small-scale loggers escape many of the formal taxes and lie outside the salary-based system. Such a situation could be reversed, but it would need a radical change in the public policies and a substantial decrease in the corruption which plagues the administrative system at all levels.

In many forest-rich tropical countries, a large share of the forest sector is export-oriented, with the largest part of the production (in value) still going to Europe and North America (although South–South timber trade is currently increasing). As a result, the issue of “environmental norms” (certification) – which includes legality requirement – should not be underestimated. Small-scale logging and processing is currently unable to meet these escalating requirements. Admittedly, these current handicaps can be overcome in the future and there are certainly valuable policy actions that ought to be undertaken without delay. It would require proactive training and technical support policies, combined with a

complete reorganisation of the credit system and a radical change in the law and administration practices.

Small-scale enterprises tend not to be adapted to landlocked, low population density, remote markets and high transportation costs. As shown in Fig. 1, small-scale enterprises are unlikely to be numerous close to the forest frontier rent, but can compete and replace forest concessions when public road infrastructures allows them easier access to the market. As noticed by Ezzine de Blas and Ruiz-Pérez (2006, p. 26) for Community Forests (CFs) in Cameroon: “the distance to port and markets limits available management strategies for communities. Far from the market or enclave forests are systematically being managed under agreement with an industrial logger, significantly limiting the income and development opportunities that communities can derive from them. Moreover, the potential empowerment process that a CF can induce is also greatly reduced”.

As a result of these shortcomings, large concessions seem to be a suitable tenure model in low-density areas where central or local governments are not capable of creating or maintaining adequate infrastructure to structure the regional economic tissue and where only large-scale companies have the potential to do so. This seems

Table 1
Comparison of tenure systems with respect to environmental and social criteria of sustainability (timber harvesting)

Forest tenure	Private property	Concession	Community forest	Small-scale enterprises (on public lands)
Strengths	Incentive for sustainable forest management if relative prices favour forestry land-use option The tenure security allows holder to potentially benefit from several assets (credit, insurances, development rights within a cap-and-trade scheme, etc.)	Possible cancellation of contract is an effective constraint to comply with regulations National law easier to enforce for labourers (if minimal political will of authorities) Growing impact of certification through increase of stock market share value (incentive for self-regulation) Concessions are also potential “resources” for local population for financial and economic opportunities (tax redistribution, financial compensations, social deliveries, employment ...) Potential capacity to comply with stringent environmental requirements through technical investments and surveillance	Collective social control can be efficient management tool and equity guaranteed Benefits can be high when production is carried out by members (self-management not objectively possible everywhere in the country)	Large potential for job creation, although precarious ones Develops self-reliance and entrepreneurship spirit Added value will depend on domestic market outlets (except furniture exports)
Weaknesses	Conversion to alternative land use likely if financial incentive through relative price change Political difficulty to enforce stringent management regulations even in case of government commitment Labour force condition might be precarious without strong effective legal framework	Highly dependent on government commitment to enforce regulations Likely negative impact on some resources used by local populations Generates patronage network systems rather than autonomous development of communities and local public entities	Self-enforcement of SFM depends on local collective choices and internal regulation capacities Ceiling in processing efficiency for commodities (sawnwood) Cannot develop autonomously when transport infrastructure is limited and market/credit access are difficult Risk of benefits capture by “elites”	More difficult to comply with national and international norms (legality and chain-of-custody, ecosystem maintenance...) Higher risks when valuable endangered species are present Ceiling in processing efficiency for commodities (sawnwood) Compliance with public regulation very sensitive to effective field control Can negatively impact the availability of resources for local communities, if “outsiders” Legal framework Regulating capacity of public authorities
Key variables	Relative prices	Enforcement of public regulations Market incentives	Collective choices Capacity to adopt and enforce collective decisions Market access costs	Legal framework Regulating capacity of public authorities

quite clear in low-populated areas of Central African hinterlands (Gabon, Congo-Brazzaville, Equatorial Guinea, DRC, CAR, and Eastern Cameroon) where industrial forestry is often the unique significant economic activity, synonymous with regional opening up and income opportunities for local populations (Table 1).

3. Allocating concessions through bidding processes

Concession allocation rules are of utmost importance as governments have to try to select timber companies that have a better chance of implementing SFM whilst having incomplete information on them. A double information asymmetry between the government and timber companies can be identified: (i) regarding the potential economic rent from selective logging, timber transformation and commercialisation; and (ii) concerning practices carried out by the company as part of the management plan that is usually legally required.

3.1. The issue of economic rent

Economic rent is defined as the fraction of profits above what would be strictly necessary for the capital to remain invested in a given economic activity (Bannock et al., 2003). To capture the economic rent associated with logging, governments use a range of fiscal instruments, such as forest fees, royalties on stumpage, on felled timber, on roundwood entering the mills and export taxes. The literature on forest economics describes in detail the different tax and fiscal systems (Amacher et al., 2001; Boscolo and Vincent, 1998; Hyde and Sedjo, 1992; Vincent, 1990; Repetto and Gillis, 1988).

Capturing economic rent in a natural resource sector is a common feature in government policies but its impact on loggers' behaviour remains uncertain. Moreover, it is likely to vary with the context and the characteristics of concessionaires, making this issue an empirical rather than a theoretical one (Hyde and Sedjo, 1992).

The practical experience of forestry tax systems reforms, as well as debates among specialists, show that each type of tax system has both specific advantages and drawbacks. Unlike what Grut et al. (1991) had suggested for Africa, it is not possible to conceive that area tax alone can fulfil a rent collecting function whilst remaining fair and encouraging better management practices. Admittedly, a single tax formula is easier to collect and manage and reduces the risk of tax fraud as well as discouraging area capitalisation and timber wastage. However, area taxes are known to have two major weaknesses. First, they do not take into account differences in commercial timber richness of different forests, although this is partly taken into account in the bidding process (see section below). Secondly, they constitute a fixed charge which does not depend on the effective production or the sale of timber and does not account for timber price volatility, generating a potential risk for the companies. For these reasons, a combination of taxes at different points of the chain of custody is generally considered more appropriate (Duscheneau and Méthot, 1993; Karsenty, 2002).

3.2. The bidding system and heterogeneity of forest stands

The problem of forest resource heterogeneity can be attenuated by public forest inventories which would provide a good idea of existing species in future concessions. However, the potential lack of precision of public inventories might give rise to complaints and make the taxing system ungovernable. In addition, the capacity to give economic value to a forest with heterogeneous composition will be based on the "industrial equation" of the company, i.e., its know-how in terms of logging, transformation and commercialisation of timber products. The traditional response of economic

theory to these questions has been to establish a bidding process. Since 1996–1997, Cameroon has experienced allocation bidding processes combining technical criteria (with elimination thresholds) and financial bids. Preliminary public inventories were carried out in the 1980s, and operators have been allowed to carry out their own surveys in forest management units (FMUs), which are to be allocated as concessions through the bidding process. The winning bid is the value of the annual area fee, to be paid annually on all the area granted. Some of the concessions are earmarked for competition between Cameroonian companies only, whilst others are open to all bidders. Concessions are granted for a once-renewable 15-year-period. However, it appears that the administration has recently found out a way of *de facto* removing competition through discretionary use (and abuse) of the eliminatory threshold associated with the "technical criteria" for at least one allocation round in 2005 (Karsenty et al., 2006).

By allowing competition among companies, the country's public administration thus solves the question of information asymmetry and considers that each company's own industrial equation will be reflected in the bids, used to fix the annual area-based taxes. However, the insufficiency or lack of reliability of publicly accessible information, as well as the cost of access to private information (surveys in certain areas), make competition uneven. A substantial level of risk also remains. The ability to adapt to a different type of resource from the one expected depends on various factors – capital available, accessible markets, industrial abilities, etc. – which companies themselves are not always able to control. They do not have perfect information and they also have sometimes limited forecasting abilities.

According to theory, if uncertainty remains about forest value, bidders should prevent the "winner curse" and will tend to lower their bids (Milgrom and Weber, 1982). Such a concern is discernible in Merry et al. (2003a, p. 8) who state that "*in the Brazilian case (...) there would be a considerable lack of information among bidders, and therefore added risk, leading to lower bids*". However, if bidders are "risk averse" (i.e., if their economic survival depends upon keeping the access to the resource), they should tend to increase their financial offer (Cohen and Mougeot, 2001). Moreover, if auction winners have the option to resign within 3 months after having won a concession, it cancels out the winner's curse phenomenon and can be considered as an incentive for bidders to raise their financial offers.

In Peru, where concessions have been allocated through bidding since 2002 (Galarza and La Serna, 2005), low bids took place and large companies offered low prices (US\$ 0.45 per hectare). This is mainly due to the limited reliability of forest inventories which, in some regions, were carried out in the 1980s. In Cameroon, the overall wood processing overcapacity is fuelling risk aversion for firms that are already set up. They need to secure timber supply, while "outsiders" can afford to be "risk neutral". Cases of high bids by firms already installed have occurred. In such cases, this can turn out to be financially unbearable if the firms are unable to actively seek an increase in logging and processing efficiency, or if the international timber market does fall significantly and over a long period of time. However, determining whether this is due to overbidding (the "winner curse") or just to a large reduction of the economic rent is a question that cannot be answered without taking into account the firm's specificities. Only if the firm is already on the optimal production path, high bids may result in "overbidding", as the margin for efficiency improvement would be very limited.

3.3. Bidding system and economic risk

The bidding system alone is far from being a perfect instrument for getting the right price of the allocated resource. It is severely

criticised by the private sector which claims that, tropical forestry is very unstable, making it impossible to force companies to “reveal their willingness to pay” (to quote terms used in economic theory) which would correspond to their expectations at a given moment on the economic rent they can hope for. However, some specific measures can be set up to limit risks. The area fee could be linked to tropical timber international prices, through the creation of a basket of forest products (logs, sawnwood, ply and sliced veneer, plywood) from different species on which a wood price index would be based, a process to be updated twice a year. Moreover, keeping a set of different taxes based on the current market price of timber extracted from the concession encourages bidders to self-limit their financial offers since they have to anticipate these other taxes paid on an annual basis.

The bidding process may also lead to the marginalization of national companies. As Merry et al. (2003a, p. 8) put it, “large international companies may be efficient harvesters, but fear of the internationalisation of the Amazon is very much alive and may present political problems”. In Brazil, this concern has been tackled by a clause which states that only companies whose headquarters are located in Brazil will be allowed to manage concessions. In Cameroon, some concessions have been earmarked for national bidders and the number of concessions managed by a single company has been limited. However, most national beneficiaries have subcontracted their concessions to foreign companies. In Peru, the new forest law and the forest concessions regulation released in 2000 allowed companies to bid for more than one concession area and to organize consortiums to apply for larger areas. In an attempt to provide opportunities for small to medium-sized companies, forest authorities earmarked smaller-sized concessions (around one thousand hectares). Yet despite this measure, small-scale loggers feared they would be unable to place bids that might compete with those of larger companies. WWF (World Wide Fund for Nature) thus decided to support 21 small-scale loggers in Madre de Dios province and thereby played a crucial role in offering financial subsidies. Thanks to this support, smaller companies were able to propose a higher price (US\$ 1 per hectare) to obtain concessions. However, by 2006, some small-scale loggers began to establish consortiums with medium and larger companies in order to improve their exploitation capabilities, especially as by then many of them were facing difficulties to pay area taxes (Corrales et al., 2005).

Despite these several bottlenecks, bidding potentially introduces a more transparent allocation system and decreases the risk of clientelism and concessions allocation to less efficient companies. Evidence from Cameroon shows that substituting a competitive bidding system to the previous discretionary allocation regime has resulted in a global enhancement of professionalism and efficiency of the forest industry. It has also undoubtedly increased transparency in the allocation of concessions in spite of some attempts to circumvent the system.

Taxation and concession reforms in Bolivia:

In Bolivia, the concession regime was reformed in the 1990s. One of the most controversial measures was the introduction in 1997 of a fixed area tax of US \$1 per hectare to be paid on the full concession area. Unlike Cameroon where the area fee is set up through a competitive bidding process, in Bolivia the same amount must be paid for all concessions. However, this tax level was unsustainable given the costs structure of forest companies and market constraints (Bojanic and Bulte, 2002).

Indeed, by 2000, at least 500,000 ha had been returned to the Public Domain. For some authors, the main positive impact of such a selection process was that only the most efficient companies remained active (Corrales et al., 2005; CFB, 2007). However, many companies simply do not pay the taxes and in 2002, cumulated unpaid taxes reached US\$ 9 million (Chemonics International, 2003). The government was forced to renegotiate companies' debts and only managed to recover US\$ 3 million without having resolved this issue of unpaid taxes. Recently, the government decided to restrict the \$1 area tax to the AAC. One might consider that this radical shift is perhaps, this time, simply detrimental to the Public Treasury and to the local councils and that several companies might have the capacity to pay higher tax rates. At least, one lesson can be drawn from this case: competitive bidding can help to set a more realistic and uncontested area tax than administrative decisions.

4. Controlling forest practices within a concession regime

Difficulties in controlling large tracts of land with limited and ill-equipped forest service staff are a common feature of densely forested countries in the tropics. The concession regime does not prevent public authorities from controlling activities in the field, but it does favour *ex-post* monitoring of the logging practices. In Central Africa, concessionaires are not free to harvest where they want and at their better convenience: the silvicultural system in force under the management plan is based on medium to long-term rotations (generally between 25 and 30 years) and the area allowed for annual harvesting is equal to $[1/\text{rotation length}]$, with limited flexibility. AACs are demarcated after a management inventory of the concession and sized according to the estimated commercial potential of the stand. National management norms in Cameroon, Gabon and Congo-Brazzaville request running a simulation of stand recovery after a rotation, based on the inventory, growth and mortality data. Minimum diameters of harvest are raised for species whose recovery prediction falls below a certain threshold. Once the AAC area has been harvested, it must be set aside for the length of the rotation. Whether this system allows sustainable management or not is a matter of debate, where the definition of sustainability itself is at stake (Karsenty and Gourlet-Fleury, 2006), but so far the AAC-based silvicultural system has not been a stumbling block for FSC certification. The growth of FSC in Central Africa's concession sector could be an indicator of progress toward sustainability: even though FSC's May 2008 database mentioned a total certified area of a mere 780,000 ha, the number of audits in progress and indications given by stakeholders suggest that up to 3 million hectares will probably be certified by 2010. IFIA (the Inter African Forest Industry Association) claims that 10 million hectares will be certified by 2012 in Central Africa.

In the case of short-term authorizations, loggers have been known to adopt a “hit and run” behaviour. In a concession system, a company is involved for at least the time of the rotation length, and generally must be given a yearly authorization to open new AACs as in Cameroon, which makes such behaviour less likely. Some forest economists are often reluctant to promote such an AAC regime, arguing that it limits the ability of companies to tune harvests with market fluctuations (Luckert and Williamson, 2005). Here, there is a clear discordance between (i) timber market optimal functioning and (ii) the fact that foreseeable logging

activities within an anticipated amount of time allows more effective monitoring and submits future operations to certain conditions.

Once a concessionaire has invested in management plans and processed timber facilities, and is committed to different collaborative schemes with NGOs and local populations (see section below), they might want to go one step further and seek timber certification – a clear asset for exports. Such a phenomenon is also predicated for Brazil by Verissimo and Cochrane (2003), despite the fact that some two thirds of timber produced in Brazil is consumed locally (Lentini et al., 2005). Across the border, Bolivia ranks on top in terms of FSC-certified surface area (2.2 million ha in 2005, much of which is in concessions). This situation has been favoured by a policy that imposes better management plans on concessionaires, the latter having also benefited from USAID's BOLFOR project. The Bolivian case provide an example on how a "voluntary" instrument such as certification can benefit from its use as a public policy target (Nebel et al., 2005).

4.1. The role of independent observers

Cameroon has followed the precedent of Cambodia by requesting the NGO Global Witness (now replaced with the NGO Resources Extraction Monitoring) to monitor forest exploitation jointly with forest services in and around the concessions, in coordination with the administrative control body. This project, funded by international donors, was also adopted in the Republic of Congo from 2005 and should begin soon in DRC. In Cameroon, the independent observer also monitors the allocation process and helps the government to improve rules and criteria over the bidding rounds.

Even if corruption and illegal logging have not disappeared with independent monitoring, the situation in terms of transparency and publicly accessible information has undeniably improved, allowing civil society to take advantage of disclosed information to pressure public authorities. The process of setting up an independent observer has initially created considerable tension between the donor community and the government of Cameroon (GoC) which proved reluctant to accept such "interference" – even though the observer is appointed by the government itself. Five years on, this is already no longer an issue as illustrated by the fact that the GoC made use of its "independent observers" in an argument with Greenpeace about the regularity of logging operations. The appropriation is genuine and has been relatively rapid when one remembers the crisis that this "conditionality" had provoked a few years back.

5. Concessions and the provision of local public goods

In Central Africa as elsewhere, concessions come with responsibilities related to forest and wildlife management. In most countries of the region, concessionaires have to prepare a management plan according to regulations established by the relevant public authority. Legislation often also requires a *cahier des charges* – either imposed or negotiated – i.e., a list of the company's obligations in terms of "social responsibility" including building schools and health centres, maintaining roads and bridges, setting up transformation units to provide jobs locally, creating facilities for farming for bushmeat, etc. More ambitious programmes aimed at fighting bushmeat trade are often added to this list when certification processes are involved.

Several large Central African concessions have reached agreements with conservation NGOs to enrich management plans with a section on wildlife management. Almost a dozen concessionaires have already adopted such programmes, sometimes with partial

financial help from donor organisations, and more companies are to follow suit (Vermeulen and Doucet, 2005). Concessions have thus become a focal point for agreements with the state, weakened by limited means of intervention in the field but willing to hand over the provision of local public goods to the private sector. Concessions have also evolved into opportunities for agreements to be reached between forest stakeholders of all shapes and sizes, whether they be conservation or local development NGOs, representatives of local communities or local public administrative bodies.

5.1. Redistribution of earnings or earmarked tax

Forest concessions cover vast tracts of forest land in Central Africa, sometimes reaching several hundred thousand hectares. Inevitably, concessions end up being superimposed on other types of land use, notably those linked to forest communities. Concessionaires have traditionally resolved this issue by informally providing local populations with goods such as building materials. Some concessionaires in Gabon and Cameroon have gone a step further and pay neighbouring communities a voluntary contribution of US\$ 1.20–1.60 for each cubic-meter harvested and sold (Massoukou, 2007). This type of practice mainly reflects the concessionaire's interest in maintaining a peaceful relationship with local populations, and is also an asset for certification. According to Freeman et al. (2008), this process seems satisfactory to communities in Gabon.

The taxation reforms in Cameroon during the 1990s have institutionalised money transfer in the sense that part of the taxes paid by companies are earmarked for local public bodies and villages. This seems also to be the option chosen by the Brazilian government who plans to redistribute part of the tax collected from the concessions to state and municipal administrations. Moreover, the Brazilian Forest Service announced that in the process of concessions selection, more weight would be given to proposals with larger developmental and environmental commitments.

The use of concessions as frameworks for the provision of local public goods has the main advantage of being efficient. Large forest companies are generally reliable in this regard with comparison to public administrations or even to some private companies with limited technical skills but good political ties to obtain public markets. However, this also poses the problem of the role and financing of local public administration, both real (communes in Cameroon) and potential (with current decentralisation policies). Optimally, the use of taxes that result from this situation would be the product of a negotiation process between stakeholders aimed at establishing each party's rights and duties within a joint participatory management framework. In Cameroon, a decree requires *communes* to set up management committees for each concession (*comités de gestion*) to decide how to allocate taxes earmarked for communities. In practice, however, many observers in the field claim that the process is dominated by local public administration at the expense of communities themselves.

In this respect, many NGOs – among others – have identified the balance between negotiators as a key issue in concession systems. In particular, in contrast to large companies, local communities often lack both the experience and the political unity that would provide them with adequate bargaining power. Recent decades have also seen the emergence of new political forces within local populations, leading to a weakening of traditional political structures. Moreover, confusion over political representation within communities also increases the probability of "chiefs" being bought off by companies with bribes. It is important therefore that, as a pre-requisite, both local governments and

populations be equipped with (i) a clear political structure with at least some legitimacy and accountability, and (ii) sufficient bargaining power to avoid losing out on the final terms of the contract with concessionaires.

Companies, local government and communities can thus decide together both the use of the income produced and what responsibilities each party will have to assume. Spelling out the roles of each party seems all the more necessary as forestry companies often complain about the “extra” demands that they are required to fulfil at the local level in terms of social activities whilst increasing taxes are levied. In brief, these taxes may constitute a powerful incentive for developing negotiated and contractual management initiatives as well as being a factor that structures and gives responsibility to village communities where traditional authority has often waned.

The Central African example thus shows that whilst on paper a concession results from an agreement between the state and a company, in practice it reflects an issue involving a wide range of actors, including local populations and, in some cases, conservation NGOs. Concessions have thus inevitably become a crossroad between timber production, local community and conservation issues. Yet, even in remote and sparsely populated forest areas, both communities and endangered species or ecosystems still exist. This suggests that the concession issue inevitably needs to take into account both conservation and community dimensions. Brazilian Law no. 11.284 does not specify the nature of the relationship that could be established between a concessionaire and the local populations residing in the vicinity of the concession (Brasil, 2006). However, the Law establishes (Chapter IX, article 31) the contractual concessionaires’ duties such as fixed social and environmental investments. Moreover, Decree 6.603/2007 (Chapter VII, article 46) stipulates that the government has to provide bonuses to concessionaires according to their social-environmental performance (Brasil, 2007). Thus, Central African examples might provide some inspiration to set up such a relationship.

5.2. Concessions and local public administrations

The question which remains to be asked is the following: does the *de facto* provision or maintenance of public goods by companies strengthen the ability of local public authorities to administer their respective areas? Or does it merely place them within the company’s clientelist network? In any case, one cannot rely solely on private interests to deal with social issues in forested areas. The balance of power between local public administration and the private sector thus constitutes an issue which will have to be monitored closely in the recent forest concessions experiences in South America.

In Cameroon, municipalities in forested areas receive 40% of the annual area fee (*Redevance forestière annuelle* or RFA, based on the concession’s area), the amount of which is established by the concession bidding process. These municipalities’ inhabitants – including those located in villages on municipal land – can thus expect to benefit from as much public infrastructure as local forest taxes can provide. The amount of money that, in Cameroon, has been poured to the 56 local councils is close to US\$ 9.9 million per year, plus an additional US\$ 2.3 million for the villages neighbouring the concessions (Karsenty et al., 2006). However, whether these funds have been allocated to local development projects remains a sensitive subject, especially as local governments are increasingly accused of embezzlements of RFA income. Whereas concessions should remain (or become) the centre of this redistribution process in other countries, the future public administrations borne out of decentralisation reforms risk ending up competing with this new form of transfer. What are the

implications for the functioning of the state and local governments?

Concession-holding companies tend to replace the state and local public authorities given that the latter often have a limited budget, are situated in isolated regions and generally depend on the company as a main source of income. Handing over the responsibility of certain public goods to the company might be perceived as a more efficient means to reduce poverty, but it also creates confusion as to the roles and responsibilities of each stakeholder. Companies that wish to focus primarily on harvesting may not find this spotlight easy to cope with, especially as harvesting norms are already numerous and complex. This in turn risks creating frustration among those who do not consider having benefited from the companies themselves. Moreover, it is difficult to imagine that companies would do more than a bare minimum to establish redistribution policies that respond to criteria such as fairness, efficiency and ethnic balance which state policies are typically said to respond to.

6. Risks under a concession regime

During the intensive debates in Brazil prior the approval of the Public Forest Management Law, Merry and Amacher (2005) identified three major risks associated with the concession regime in Brazil which, however, are not necessarily all a cause for concern.

First, after claiming that the tax collection system is weak in Brazil, the authors suggested that governments (both at federal and state levels) could be tempted to extend the areas under concessions in order to increase revenue collection: “*The consequence will be greater harvesting of forest stock to satisfy budget*” (Merry and Amacher, 2005, p. 26). Although this is consistent with rational public choices, it remains doubtful whether this argument is empirically verified.

Indeed, in Central Africa, the collection of taxes was extremely low before IMF and World Bank-driven reforms of the 1990s in Cameroon (and more recent reforms in other countries) despite the fact that governments in those times could be qualified as “rent-seekers”. It can be argued that the patronage system at the time managed to deal with a low tax rate collection, since public budget equilibrium was not the major concern of the individuals who controlled – and benefited from – the distribution of concessions. However, the situation changed in Cameroon during the structural adjustment process, when the Ministry of Finance, supported by the Bretton Woods institutions, took the lead over “technical” ministries. Despite this, however, the government decided to set aside nine forest management units totalling 867,000 ha of rich primary forest for conservation purposes (out of a national total of 12,000,000 ha of production forest according to CARPE (2006, p. 29), after the President expressed political commitment toward increasing conservation efforts at the 1999 Central Africa Head of States Summit. These FMUs were initially classified as production forest in the national forest zoning plan. Rent-seeking behaviour does not necessarily mean systematic tax-seeking.

Secondly, Merry and Amacher (2005, p. 33) suggest that “high bids may encourage concessionaires to over-exploit forests to cover costs, while low winning bids may provide windfall profits”. Such an argument has also led environmentalists to express reservations vis-à-vis policies aiming at rising taxes or introducing a bidding process for concession allocation. However, advocates of tax raises hope that it could lead to break off with high-grading harvests (“creaming”), with an incentive to turn to lesser used species (LUS) (Grut et al., 1991). The rationale is as follows: since loggers have to pay a (fixed) fee whatever they harvest, increasing the volume extracted diminishes the tax weight per volume unit.

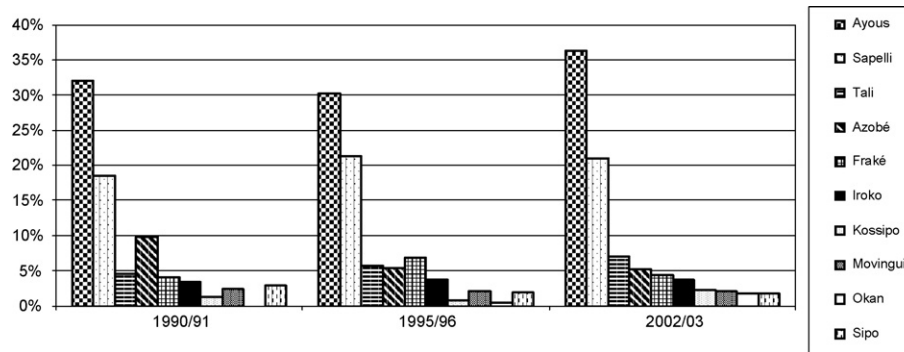


Fig. 2. Trend in harvest composition (Cameroon, formal sector).

However, “using LUSs” without significant changes in the organization of the commodity chain, technical innovation or specific and constant marketing efforts is a genuine challenge, which explains why LUSs are not used. In a paper expressing his scepticism about the economic viability of the concession regime in Peru, Ríos Torres (2003) points out the need to find outlets for Peruvian LUSs (such as lupuna and copaiba) to sustain a profitable logging after the first cut (i.e., after the removal of the “primary forest rent” derived from high volumes from over-mature trees).

Moreover, high taxes (or high bids) shift the economic frontier of rent. The economic frontier of the rent is the geographical point beyond which forestry generates lower returns than “normal profit” (for a theoretical discussion, see Hyde et al. (1991)). The Cameroonian case provides striking figures in this respect. Statistics produced by the forest information system reveal that the increase in the overall taxation burden (measured on a per m³ basis of logs or log equivalent) by a ratio of 1 to 2 for logs and 1 to 6 for sawnwood has reduced the “profitability perimeter” of logging and increased high-grading because loggers tend to concentrate on species that are both valuable and abundant, which means that they can afford to bear higher production costs (Karsenty, 2006).

Fig. 2 below compares the harvest composition in 1990/1991, 1996/1997 and 2002/2003. It shows that harvest selectivity has increased over time, with the top two harvested species (ayous and sapelli) accounting for 50% of harvested volume in 1990/2001, 52% in 1996/1997 and 57% in 2002/2003. Global production peaked in 1996/1997, due to a strong Asian demand, and dropped in 2002/2003 close to the 1990/1991 figure (around 2.5 million m³).

The fear that rising taxes might lead to over-exploitation is generally unjustified in a context of heterogeneous tree populations in tropical rainforests. In fact, the renewal of several commercial species in many tropical forests – including many within the Amazon Basin – could benefit from a certain degree of harvest intensification, as shown by Fredericksen and Putz (2003). Taxes that are too high certainly have additional adverse effects on forest management practices, such as less investment in training, careful operations planning or in updating processing capacities. This is especially the case for less capitalised companies. As a consequence, provided that companies effectively pay the fee, this will have the effect of driving less-efficient companies out of the business, as has been observed in Bolivia (Bojanic and Bulte, 2002) and Cameroon (World Bank, in press).

Thirdly, Merry and Amacher (2005, p. 35) have warned of concerns about the dual regime of Brazilian forest tenure. These authors warn that “concessions will cause a shift in the structure of the private forest industry; production will be diverted from medium-sized private landowners [the ones likely to suffer from the competition with new concessionaires] to smallholders, where incentives to innovate or adopt a reduced impact logging have been

shown to be lower”. Since small-scale loggers frequently act outside the formal sector, illegal logging could increase, and a drawback (or depressing) effect on the bid levels in the concession sector, inasmuch as timber could be extracted at lower cost and with less management constraints on smallholders’ lands.

Such a phenomenon has indeed been partially observed in Cameroon, albeit without a depressing impact on the bid levels since the overall processing overcapacities fuelled competition among industrial operators to secure their access to the resource (Karsenty, 2006; World Bank, in press). The introduction of a regulated sub-sector into a previously low-regulated sector often leads to a shift of activities away from the former towards the latter – at least at first. Whether this trend is pursued beyond an initial phase or not ultimately depends on public policies. In this respect, Merry et al. (2003a, p. 9) might be justified in claiming that “our suggestion, therefore, is that the concession program – including any pilot programs – be shelved, in favour of increased attention to the problems at hand of timber-harvesting on private lands”. This seems all the more justified since up to now the area reserved for concessions in the Brazilian Amazon will probably only cover a small part of the remaining forests and will be subject to very strict rules.

However, as mentioned above, governments do have the possibility of orienting the market through public purchase policies, whether local, federal or from outside the sourcing country if the timber is exported. Certification may also help to consolidate a regulated sub-sector to ensure a stable outlet for timber sources in well-managed concessions (or private forests), and a minimum price for this certified timber. Moreover, local and federal governments have direct economic and fiscal instruments that could encourage certification, such as tax cuts for certified forests, as proposed to the Cameroonian government by a 2006 economic study on the forest sector (Karsenty et al., 2006). Such a measure, if adopted, would play a role equivalent to the “price premium” which often remains unpaid by the markets for certified timber. If the international community recognises that well-managed production forests in the tropics is of collective benefit from both carbon and biodiversity perspectives, a budget compensation mechanism could be set up to refund governments for foregone taxes entailed by the development of certified areas.

7. Conclusion

The promotion of forest concessions has been challenged by several stakeholders of the global forestry debate who portray the system as unable to provide sustainable development, especially regarding social aspects. Many of these prefer alternative models of tenure such as community forests, small-scale enterprises or private forestry and argue that such arrangements are more

effective in fostering pro-poor policies, either by providing more employment at the local level or by providing local populations with increased revenue (or both). An intense debate took place when the Brazilian government decided to create concessions in the Amazon, some scientists arguing against such “a risky forest policy in the Amazon” (Merry et al., 2003b). However, those debates were not informed by a comparison with Central Africa, where a concession regime is ancient but has been deeply redesigned in the past decade with support from the international community and committed national reformers.

An important lesson from Cameroon in particular is that competition for concession allocation is not only a powerful tool for economic rent capture but also an effective means of selecting between forest enterprises as well as a strong incentive for them to improve their efficiency. Economic risk associated with bidding in a context of limited information on the resource and changing environment does exist for the industry, but can be mitigated by specific measures such as indexation on timber market prices. Brazil has decided to introduce competition, but has given priority to social and technical proposals rather than to the financial offer. This entails a risk of bringing back a patronage system into the allocation process, whilst the financial offer is the only criterion which can be assessed objectively and discriminate bidders.

Without appropriate mitigation measures, competitive bidding allocation can impose significant economic risks on the concessionaires, from the “winning curse” to the risk of concessionaires pulling out due to volatile timber market prices. Even though no industry-wide default has taken place in Cameroon, specific measures could be used both in Africa and South America to mitigate these risks without losing the benefits of competitive allocation. Consideration of such measures is what is at stake in future steps of forest fiscal and technical reforms in Cameroon. Bolivia and Brazil could also take advantage of these experiments.

Cameroon, and now Congo-Brazzaville, have benefited substantially from the introduction of an independent observer of the forest (at the allocation stage in Cameroon and for field control in both countries) in terms of transparency and improvement of their international image regarding forest management. For historical reasons and political sensitivity to what could be seen as an attempt to internationalise the Amazon forest, South American countries might be reluctant to introduce such a mechanism. However, it could be implemented without referring to international NGOs and would help to improve governance, public accountability and promote the rule of law in areas generally hard to govern.

As it is defined nowadays and despite a sometimes patchy record, the “modern” concession can also be viewed as a means of delivering services of public and collective interest through an association of private investment and public regulation. Such an “association” is nevertheless not exempt of ambiguity. The legal framework and governance at local level are essential components of this success. Each forest tenure regime is influenced by prevailing social norms: the mitigated experience with community forestry in Cameroon (Etoungou, 2003; Cuny et al., 2004; Bigombe Logo, 2004; Oyono et al., 2006) shows that local collective choices and behaviour are critical for outcomes regarding forest management and equitable benefit sharing. Small-scale enterprises are certainly sometimes more effective than concessions regarding pro-poor development, especially regarding employment, but in many countries they are synonymous with unregulated logging and, since the legal framework is often inappropriate, illegal harvesting.

The art of regulating and monitoring forest concessions remains a major challenge for many governments. Ultimately, what concessions can deliver will be linked to the prevailing “political economy” of the countries, and if governments fail to set up the

correct regulations and incentives, the outcomes will be disappointing from an SFM perspective. A number of measures can contribute to ensuring success. Forest certification under international schemes such as FSC could also provide some room for improvement in concession management. However, such a trend is likely to be restricted to a handful of companies exporting their products to environmentally concerned markets. So long as expanding timber markets are located in emerging countries like China and India (which so far have failed to show convincing willingness to encourage SFM despite the fact that they export processed timber products to developed countries), there is a rationale for using certification schemes as a public policy instrument at a national level rather than as a mere voluntary scheme for external markets. Bolivia provides interesting lessons in this respect. A powerful incentive would be to provide tax cuts for certified concessions. To encourage governments to go this way, financial compensation for the foregone taxes could be provided by international schemes devoted to fund environmental programmes in developing countries. The GEF (Global Environment Facility), or the new fund launched in late 2007 by the World Bank – the Forest Carbon Partnership Facility – could be used in such a way inasmuch as SFM is considered part of the package for preventing forest conversion.

As suggested by Brown et al. (2002), the forest sector illustrates many governance issues, both positive and negative and can play a role for reforming beyond the sector’s boundaries. In this sense, improving forest governance often begins with reforming the concession sector. It could also be argued that forest concession regimes with large management units have a *raison d’être* in low-density population areas where public infrastructure remains insufficient and small-scale alternatives are limited. In other places, forest concessions can, indeed, hamper the development of alternative tenure models able to foster more adequately local and more autonomous development. However, in a situation characterized by unclear land rights and subsequent risks of forest conversion to create *de facto* individual land rights, a concession regime can fill the vacuum created by a confusing land tenure situation in order to contribute to forest protection against conversion.

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