CHAPTER 5: ECONOMIC SUSTAINABILITY

Industrial logging has been justified on the basis of its economic benefits, and thus, it is widely promulgated as a means to promote development and reduce poverty. In this chapter, the three authors question this assumption. Thus, Mark van Dorp presents economic data for the major timber producing countries in Africa. He shows that overall economic growth and human development have declined in nearly all cases, despite the continued exploitation of these countries' forests.

A major factor preventing economic success is the failure of governments to capture an appropriate share of the value of their forest resources, for example, due to the non-payment of taxes. In Article 1.2, Stuart Wilson provides an analysis of the problems inherent to the forest concession system, based as it is on a structural imbalance of power between forestry authorities and the private sector.

Finally, Simon Counsell looks in detail at the purported benefits of logging, describing how these are often not delivered, and further, that these may be outweighed by the negative impacts of the industry, for example, on non-timber resources and health. All these articles highlight the need for a more comprehensive analysis of the costs and benefits of logging.

Batwa woman in Equateur, no timber forest products are an important aspect in the sustainable livelihoods in the region. Photo: Theophile Gata

5.1 ECONOMIC IMPACTS OF INDUSTRIAL LOGGING CONCESSIONS: WHAT ARE THE BENEFITS?

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Introduction

In terms of economic value, the logging industry has an important role to play in all tropical forest-rich countries. Most of these countries are low or middle-income countries with a high dependency on natural resources including forestry. The argument often used by the World Bank and IMF is that industrial logging is a quick and easy way of kick-starting moribund economies and generates much needed foreign income and jobs in rural communities. This paper examines these assumptions and looks at the economic issues around industrial logging concessions at local, national and international levels and at international market and trade issues. We will look primarily at the direct economic impacts of industrial logging, focusing on the benefits to the national economy. However, it is important to note that the "high dependency" mentioned above, applies above all to the rural poor using natural forest resources for subsistence purposes. These economic values are mostly not included within the national accounting figures because they are not part of the formal economic system, and therefore are not accounted for when they are lost or diminished as a result of the imposition of an industrial logging concessions system.

Economic and statistical data have been analysed for the last 15 years in the major timber producing and exporting countries in Africa. Sources used include policy reports, academic articles and statistical data. It should be noted that there is a serious lack of reliable data on the economics of logging. Available reports mostly deal with the national level, focusing on different indicators and using different methodologies for data collection. Therefore, the results are not suitable for cross-country comparison. Databases including worldwide data, like the online World Bank development indicators and the FAOSTAT database, are useful but often less accurate than national level reports.

A key concern of policymakers is how to ensure that forest resources are managed in an economically sustainable way. In the sustainable development paradigm, economic sustainability is defined as follows:[293]

> "To maximize the flow of income that could be generated while at least maintaining the stock of assets that yield these beneficial outputs."

For the purpose of this report, a breakdown into two sub-questions is useful:

1. What are the flows of income (and other economic benefits such as employment) from forest resources?

2. What are the optimal levels of stocks needed for sustainable production?

In this paper the focus will be on the first question, related to the economic impacts of forest exploitation. Economic impact will be assessed in terms of employment, tax revenues and value-added (production and exports) arising from the forest sector. This assessment includes only the direct monetary economic impacts from these activities.[294]

[293] Munasinghe, M. (2002) Macroeconomics and the environment. The International Library of Critical Writing in Economics. An Elgar Reference Collection, UK/USA. p.xiv;[294] Indirect economic impacts, such as the trickle-down effects to national economies, have not been included because they are extremely difficult to measure and thus beyond the scope of this review. The same goes for non-monetary impacts, including social and environmental impacts. The need to integrate these impacts into economic analysis will be explained further on in this report.

Economic indicators of timber producing countries in Africa

In 2004, the five largest timber producing and exporting countries in Africa were (in descending importance) Gabon, Côte d'Ivoire, Cameroon, Ghana and Congo-Brazzaville. The data presented in this chapter will focus on these five countries. The Democratic Republic of Congo, although relatively unimportant in terms of industrial logging, has been added as a sixth case study country because of the expected growth of the sector in the DRC.

In macroeconomic terms, the six countries show great variation in Gross Domestic Product (GDP) per capita (see Table 1), ranging from more than U.S. $6,000 for Gabon to less than U.S. $1,000 for Congo and DRC. Gabon's national income is elevated mainly due to high revenues from oil exports in relation to a small population. For the other case study countries, national income is mainly based on a mixture of agriculture (subsistence and cash crops), agro-business (rubber and palm oil plantations), forestry (industrial timber and non-timber forest products) and mining (gold, coltan, etc). Though at present DRC has the lowest national income level of the six countries, potentially it is among the richest countries in the world in terms of natural wealth.

Table 1: GDP (Gross Domestic Product, U.S. $) per capita for selected African countries.[295]

Country	1990	1995	2000	2004
Gabon	6140	6430	6130	5900
Cote d'Ivoire	1830	1570	1590	1500
Cameroon	2060	1670	1870	1900
Ghana	1760	1960	n.a.	2300
Congo	970	1220	960	800
DRC	n.a.	990	701	700

It has long been recognized that GDP per capita is an extremely limited indicator of economic wealth because it only shows productive capacity in the formal economy. In light of these criticisms, and coupled with the recognition that development extends beyond economic growth, various alternative measures that aim to incorporate social and political dimensions of development have been developed. One of the best-known is the Human Development Index (HDI), which measures three basic dimensions of social and political development.[296] This index shows strong differences in our six case study countries (see Table 2). The most striking feature is that, since 1990, in all countries except for Ghana (and possibly Gabon) the HDI has decreased, with DRC showing the steepest decline. It is also interesting to note the relatively high score of Congo-Brazzaville, which ranks 23 places higher in terms of HD compared to GDP; the other countries (with the exception of DRC) all rank lower in terms of HD compared to GDP.

Table 2: Human Development Index (HDI) for selected African countries.[297]

Country	1990	1995	2000	2003 (2004 figures n.a.)	Rank (in brackets: GDP per capita rank minus HDI rank)
Gabon	6140	6430	6130	5900	123 (-43)
Cote d'Ivoire	1830	1570	1590	1500	163 (-14)
Cameroon	2060	1670	1870	1900	148 (-19)
Ghana	1760	1960	n.a.	2300	138 (-11)
Congo	970	1220	960	800	142 (+23)
DRC	n.a.	990	701	700	167 (+6)

All the above countries, with the exception of Ghana, have declined in both terms of GDP and HDI over the last 15 years. In the case of Ghana, the improvements in GDP and HDI have at least partially come about as a result of improved national governance and social programmes, which included measures to improve forest governance.

[295] Source of figures for 1990, 1995, 2000: World Bank online database: http://www.worldbank.org; Figures for 2004: Central Intelligence Agency (CIA) (2004) The World Fact Book;[296] The HDI is a composite index measuring average achievement in three basic dimensions of human development: a long and healthy life, knowledge and a decent standard of living. The human development index values in Table 2 were calculated using a consistent methodology and data series. They are not strictly comparable with those in earlier Human Development Reports;[297] Source: United Nations Development Programme (UNDP) (2005) Human Development Report 2005.

It is interesting to note the structure of the forest sector in Ghana in which, in spite of significant illegal activity and almost a decade-long ban on chainsaw lumber production, production still persists and is thought to be on the ascendancy. From one perspective it has been noted that this has been detrimental to the national economy due to non-payment of stumpage and other statutory fees by chainsaw operators. Since 2003 about U.S. $12.8 million of forest revenue are lost annually through illegal chainsaw activities.[298] However, from another perspective, chainsaw milling has undoubtedly distributed benefits to the poor – the number of people indirectly involved in chainsaw milling is considerable, with estimates as high as 50,000 people. The transportation of lumber by head load fetches rates more than five times the daily minimum wage. Farmers often prefer instant payments for trees from illegal chain sawyers than promises from the forest sector institutions for benefits that are eventually distributed in a non-transparent way.[299]

The structure of the industry and distribution of the benefits needs to be examined more closely to determine if the predominance of the small-scale operators is a more effective mechanism regarding the alleviation of poverty as compared to the allocation of industrial forest logging concessions. The governance and management issues would however still have to be addressed, given the notoriously difficult nature of law enforcement with respect to chainsaw logging.

Economic impacts of the forest sector

Economic impacts of the industrial forest sector can be either positive or negative. The positive economic impacts include provision of employment, in both the primary and processing industries and generation of revenues from export and domestic industry activities.

Negative impacts of the industrial forest sector, including the loss of forest resources to local populations, are very difficult to quantify. It is increasingly realized that in the past, policymakers have focused too much on the tangible, monetary benefits that the forest industry creates, without giving due attention to the non-monetary or invisible impacts.

Employment

For the years 1990-2000, employment figures in the forestry sector are available from FAO (refer to Figure 1 below). For our six case study countries, employment figures have been estimated, since official statistics were not available or not reliable, due to weak statistical services in the countries concerned.[300] In forestry sector employment, four categories are distinguished:

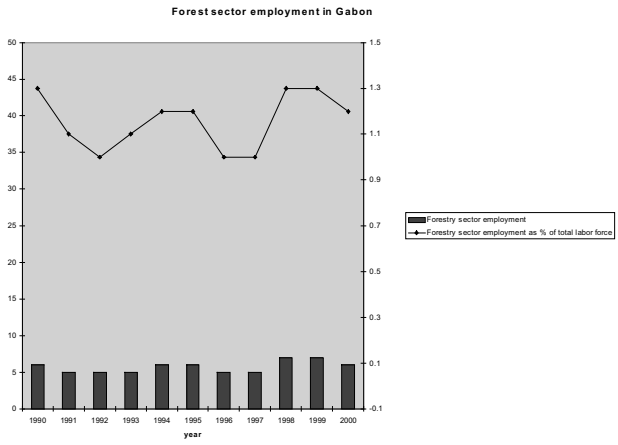
- Forestry
- Wood industry
- Pulp and paper industry
- Furniture industry

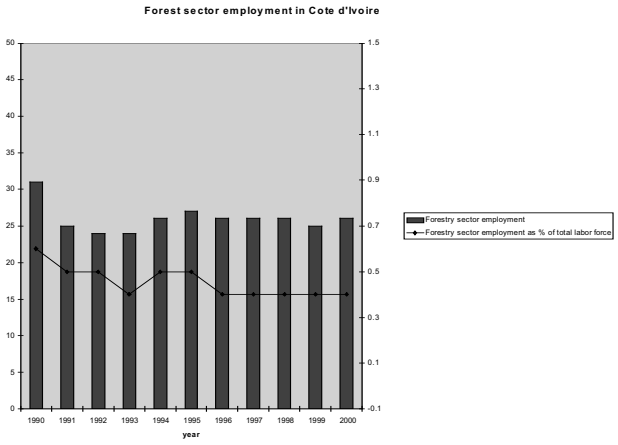
[298] World Bank cited in: FRP (n.d.) Country Report Ghana: Chain Saw Logging and Milling in Ghana: Background Study Report, FRP. R8509.;[299] Bird, N. *et al*. (2006) Ghana's experience in timber verification system design. Country Case Study 1, Verifor;[300] FAO (2004) Trends and current status of the contribution of the forestry sector to national economies. Working paper FSFM/ACC/07. Forest Products and Economics Division, Rome, Italy.

In our case study countries, employment mainly consists of the first two categories, forestry (timber logging) and wood industry (local processing). From Figure 1 below, the following conclusions can be drawn:

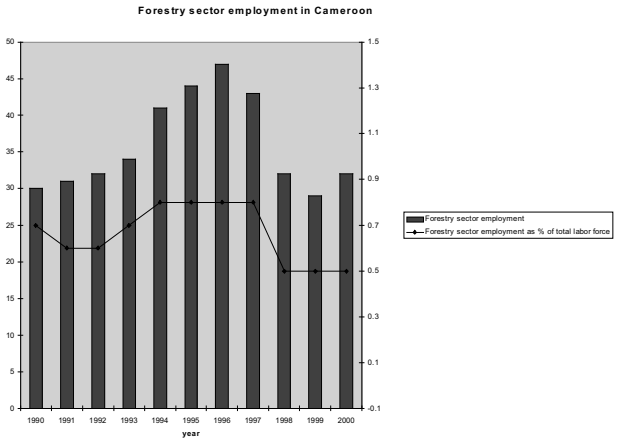
- In all the countries, the forest sector constitutes a very small proportion of total employment. Significantly, despite many years of attempts by international agencies and some governments to increase local processing and "value-added", the level of employment has not increased overall.
- In absolute numbers, Cameroon, Ghana and Côte d'Ivoire have the largest labour force in the forestry sector, each country employing between 25,000 and 30,000 people. In Cameroon, a sharp downward trend occurred between 1996 and 2000, with employment decreasing from over 45,000 to around 30,000. In the other three countries, employment has remained relatively low but stable (not exceeding 5,000).
- In relative terms, Gabon's forest sector performs best with 1.2% of national employment on average, although this is a reflection of the country's relatively small population and lack of large-scale industries. In the other 5 countries, employment in the forestry sector is less than 0.5% of total employment.

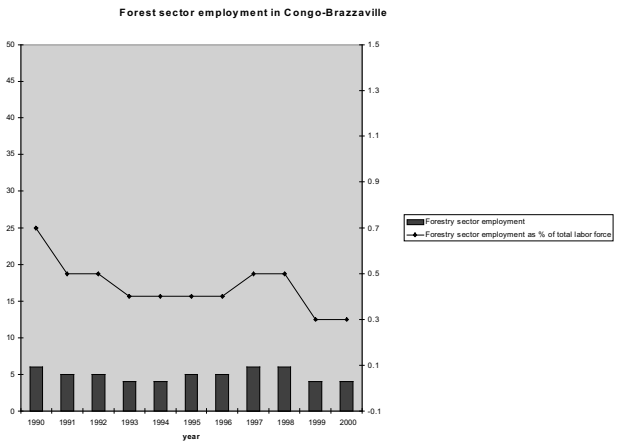
Figure 1: Forest sector employment for selected African countries, 1990-2000[301]
(All figures in thousands of person-years or as a percentage of total employment.)

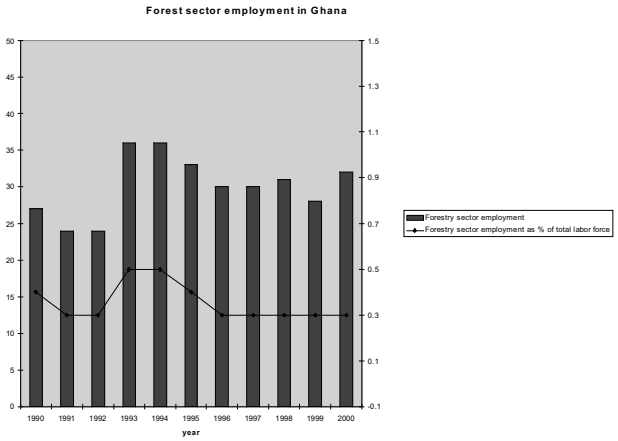


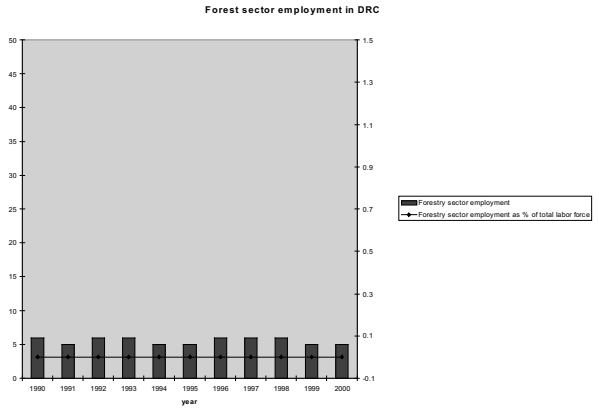


[301] FAO (2004) *op.cit*.


Forestry sector employment in Cameroon
Forestry sector employment
Forestry sector employment as % of total labor force
year


Forest sector employment in Congo-Brazzaville
Forestry sector employment
Forestry sector employment as % of total labor force
year


Forest sector employment in Ghana
Forestry sector employment
Forestry sector employment as % of total labor force
year


Forest sector employment in DRC
Forestry sector employment
Forestry sector employment as % of total labor force
year

Box 1: Employment and productivity of logging concessions in the Congo Basin

From a recent study by CIFOR on logging concessions in the Congo Basin (with the exception of Equatorial Guinea), average employment is estimated at 2.7 workers per 1,000 hectares.[302] Average productivity is estimated at 146 cubic metre /worker. Looking on a country-by-country basis, Congo, Cameroon and Gabon show higher productivity per worker, indicating a more modern and efficient industry, while DRC has very low productivity per worker. Another interesting observation is that while employment figures do not differ between national and foreign-capital based concessions, productivity figures vary significantly. It appears that foreign concessions are more efficient in exploiting the resources in terms of amount of timber produced per worker. It is also concluded that national concessions tend to have higher processing rates, reflecting the fact that, in many countries in the Congo Basin, foreign concessionaires export the majority of their production as logs to provide European or Asian based companies with raw materials.

It should be noted that the study, which looked at 30 concessions in 5 Congo Basin countries has one major weakness: the selection of concessions was done on the basis of their willingness to participate, accessibility and level of confidence in the data offered. Looking at the high level of illegal logging and corruption in the sector, this means that by definition, the study's results cannot be representative of the whole sector and so tend to present a rosier picture than if the least sustainable companies – who might also tend to be the least co-operative – would have been included.

Revenues and tax collection

Another indicator of economic impact at the national level is the revenue that the forestry sector creates, both for the National Treasury and for the local population (local communities' revenues). The argument often used by the World Bank to justify its involvement in industrial logging is that increased timber exports can increase foreign currency reserves. In reality, one of the key problems is the difficulty in collecting tax revenues from logging permits and timber harvests. It could be argued that the way the logging concession system is applied in most African countries directly contributes to this problem, because in reality the concession system is used by decision-makers as an important tool of political patronage and graft. This has resulted in a system in which the public "good" of forests is privatised and there are strong incentives not to collect revenues, as this would necessarily reduce the value of the concession as a means of patronage. It is estimated that the losses from failure to collect the revenues and royalties from legal forest operations amounts to U.S. $5 billion per year globally,[303] which equals the total GDP of a low-income country such as Mali or Burkina Faso.

In several African countries, initiatives have been developed to improve this situation. In 2000, the government of Cameroon introduced the "*Programme de Sécurisation des Recettes Forestières*" (Programme to Secure Forestry Revenues) under World Bank/IMF pressure.[304] Fiscal revenues from forestry have increased from 11.5 billion F CFA (= U.S. $21 million) in 2000 to 40 billion F CFA (= U.S. $74 million) in 2003. In addition, it has led to an increased level of local taxes for forest communities to 28 billion F CFA (= U.S. $52 million). However, according to the same report, there is still a long way to go in the fight against fraud and corruption, especially on checkpoints along the

[302] Ruiz Perez, M. et al. (2005) Logging in the Congo basin: A multi-country characterization of timber companies. Forest Ecology and Management 214: 221-236;[303] World Bank (2003) Proceedings of the international workshop on reforming forest fiscal systems to promote poverty reduction, and sustainable forest management. Oct. 19-21, 2003. Washington, D.C. p.vii;[304] *Ministère de l'Economie et des Finances du Cameroun* (MINEFI) (2005) *Audit du Programme de Sécurisation des Recettes Forestières – PSRF. Rapport final*. Yaoundé, Cameroon.

roads and at the entrance of processing factories. In addition, only a small share of local taxes is invested in local development, while the rest is used for the personal benefit of local elites.[305]

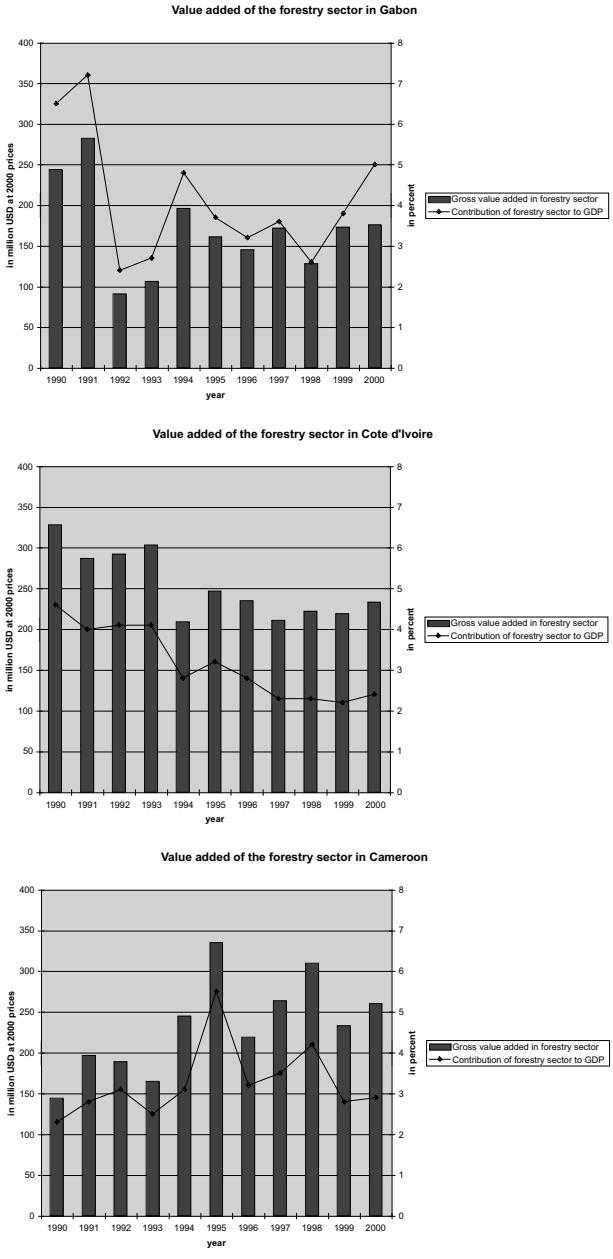
For Gabon, the estimated loss of fiscal revenues to the Treasury amounts to some 8 billion F CFA (= around U.S. $15 million), representing more than 60% of the logging concessions valid as of 1st January 2005.[306] Unfortunately, for the other four countries no estimates have been found on the contribution of forestry revenues to the National Treasury.[307]

Value-added contribution to the national income

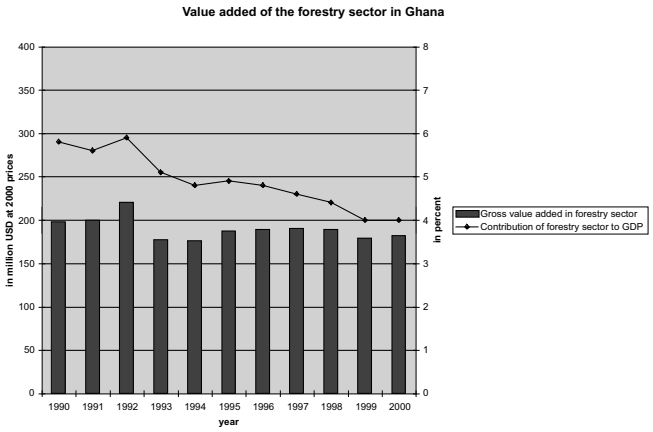
Another important indicator of the economic impact of the forestry sector is the value-added, defined as net profits plus labour costs of timber producers, processing industries or exporters.[308] Figures from FAO for the period 1990-2000 are given in Figure 2 below. The same remark applies as with employment figures regarding the limited reliability of the data. The following conclusions can be drawn:

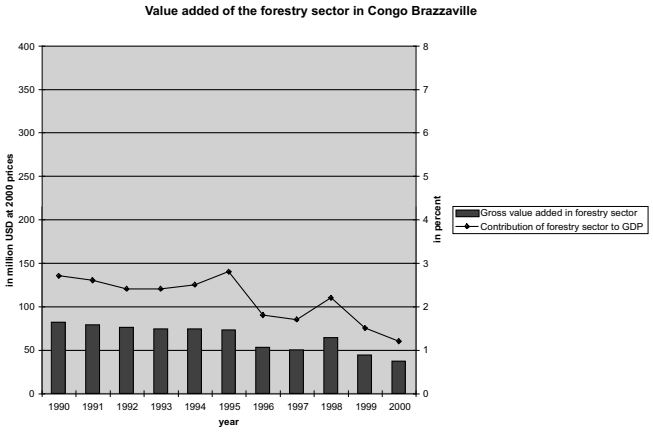
- In all case study countries, except for Cameroon, gross value-added has decreased between 1990 and 2000, indicating that in terms of monetary value the forest sector has gone through a period of stagnation. This downward trend is most pronounced in Côte d'Ivoire, where value-added fell from U.S. $328 to 233 million. In Cameroon, large fluctuations have occurred, with peaks in 1995 and 1998.
- On average, the contribution to GDP was largest in Ghana and Gabon (with 4.9% and 4.1% respectively of total GDP). Again, with the notable exception of Cameroon, the contribution of the forestry sector to GDP has decreased considerably between 1990-2000.

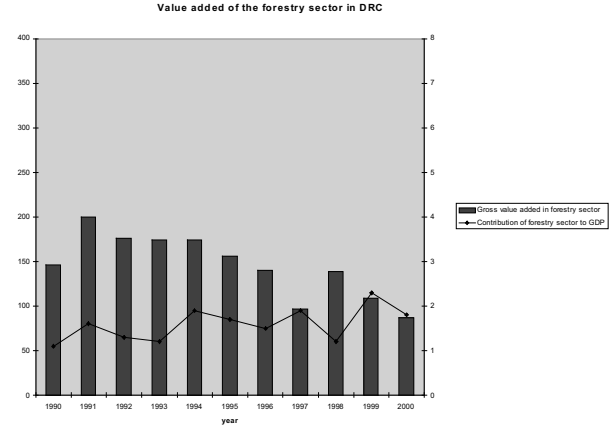
Figure 2: Value-added of the forestry sector for selected African countries, 1990-2000 (All figures in U.S. $ million at 2000 prices or as a percentage of Gross Domestic Product (GDP).)[309]



[305] Inter Press service (IPS) (2005) Corruption threatens Cameroon's forests. Mail & Guardian Online, 19 July 2005.Online: http://www.mg.co.za/articlePage.aspx?articleid=245789&area=/insight/insight__africa/;[306] Greenpeace (2005) Briefing on fiscal reform of Gabon's forestry sector;[307] Although it is beyond the scope of this report, for both Gabon and Cameroon, it would be interesting to compare the actual levels of Treasury receipts with the theoretical or possible levels. This would have to include some kind of assessment of stumpage tax levels, area fees and other taxes, and why exactly it is that they are so low in relation to the value of the final product;[308] The sum of all value-added generated by all production units of the economy equals the total production of the country, its national income measured as GDP (Gross Domestic Product) or GNP (Gross National Product);[309] Source: FAO (2004) *op.cit*.







Negative economic impacts

In addition to the positive impacts highlighted above, there are a number of negative economic impacts. The cycle that industrial logging sets in motion by opening up the forest has often led from forest degradation to deforestation, as can be observed in West Africa. This results in a loss of local subsistence and ecosystem values. It is highly problematic to quantify these losses, because they mostly concern goods or services that are usually not accounted for in National Accounts, such as:

- Subsistence production and local trade of forest products, including timber, fuelwood, bushmeat, fruits, medicines and other non-timber forest products;
- Environmental services for people directly depending on the forest (e.g. water retention) and people indirectly depending on a healthy forest ecosystem (e.g. carbon storage).

In the last two decades, numerous attempts have been made to quantify the value of non-timber forest products and environmental services to the economy. However, most of these studies focus on a few products only or different methodologies have been used, making it difficult to make cross-country or cross-time comparisons. Standardized data on the economic value of all forest products and services would enable a more realistic cost-benefit analysis of different forest uses. However, since such standardized data are currently not available, economic data on the negative impacts could not be included in this report

Economic developments in the major timber producing countries

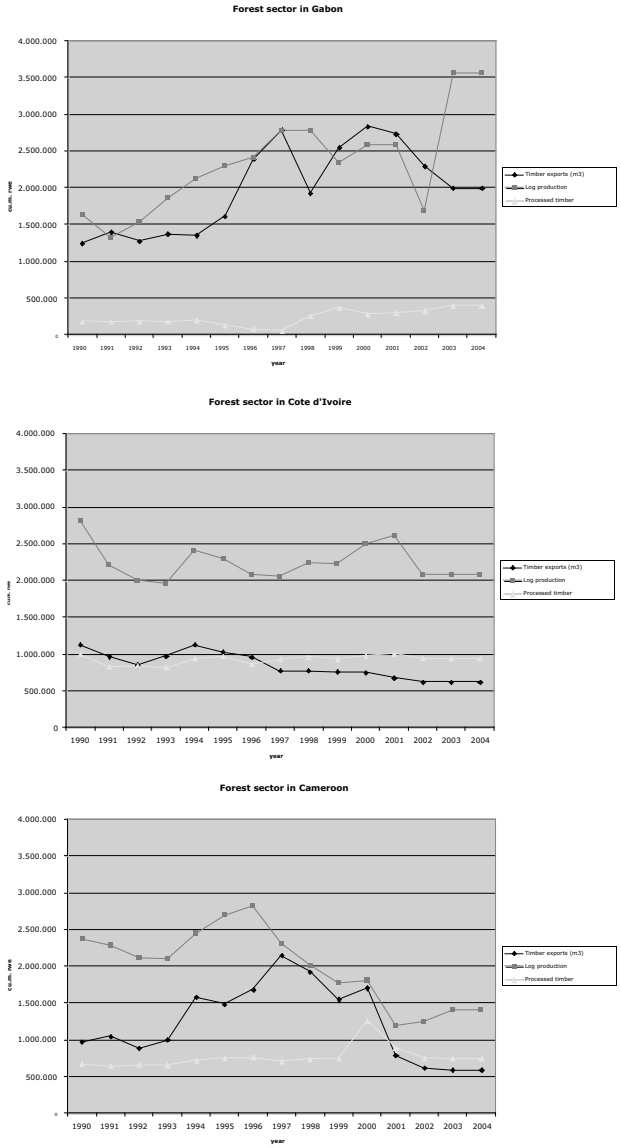
Production, processing and trade statistics for the forest sector

For the six case study countries, production and export figures are given in Figure 3 below. A number of interesting trends can be distinguished. Gabon has become the largest timber producer in Africa, with an annual log production of 3.5 million cubic metres. In Cameroon and Côte d'Ivoire, which have for a long time been the leading timber producing countries in Africa, log production has significantly decreased. Ghana and Congo have remained relatively small producers but stable in terms of production volume. DRC has seen a gradual decline in log production, from almost 500,000 cubic metres per annum in 1990 to an estimated 170,000 cubic metres in 2004.

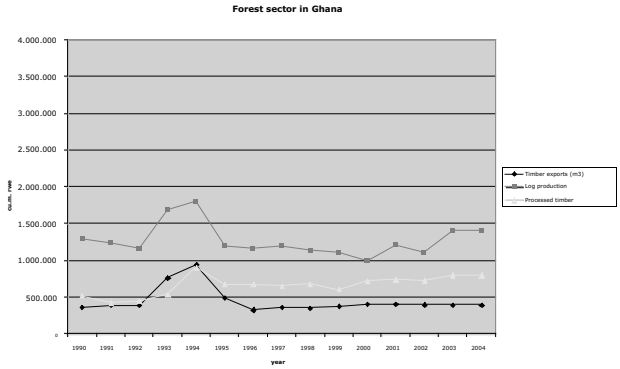
According to official figures, Côte d'Ivoire has remained the number one in terms of timber processing, with around 1 million cubic metres annually. In Cameroon, the short-lived boom in processing (2000-2001) was most probably caused by the new law of 1999 that prohibited the exports of raw logs, which significantly increased the average conversion rate of timber. However, because of decreased log production, in absolute terms, timber processing did not increase.[310] Gabon, Ghana and Congo all managed to increase timber processing, although their share remains relatively small. In DRC, only a small share of total production is processed.

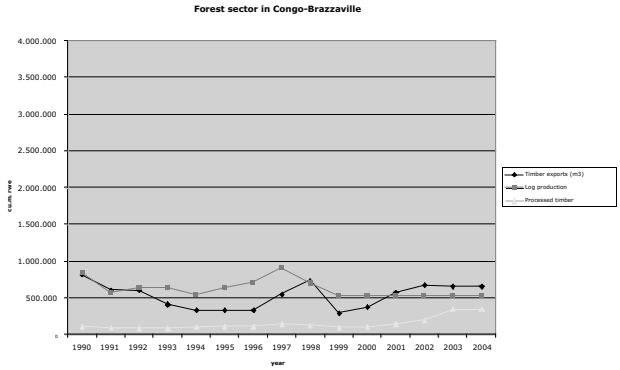
Gabon has become by far the number one tropical timber exporter in Africa, now exporting 2 million cubic metres annually, with more than 50% of exports destined for China. Exports for Cameroon and Côte d'Ivoire decreased sharply to around 0.5 million cubic metres. A notable development is that, as a result, Congo has now become the second largest tropical timber exporter in Africa, at 650,000 cubic metres annually. Ghana, Congo and DRC remained relatively stable in terms of exports.

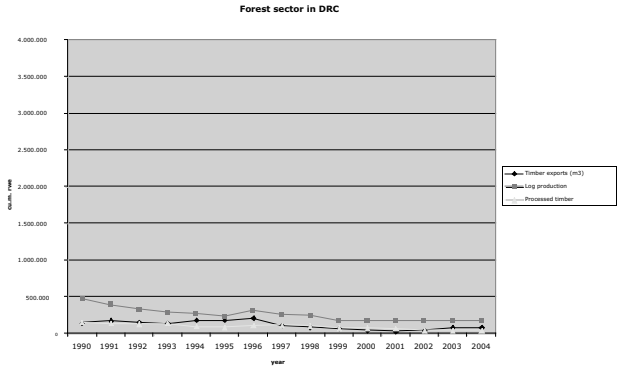
Figure 3: Timber production, processing & exports for selected African countries, 1990-2004. (All figures in million cubic metres rwe (roundwood equivalent).)[311]



[310] Refer to Box 2 for a more detailed analysis of the forest sector in Cameroon;[311] Source: FAO (Various years) Yearbook of Forest Products.







Regional economic trends of industrial logging in Africa

Based on the production and trade statistics presented above, a number of regional economic trends that have affected sustainability of the forest resource can be outlined for West and Central Africa. For the purposes of this analysis, the African tropical forests can be divided into three zones:

West African forest zone:

Industrial logging started in the 1950s and 1960s based on a concession system which was introduced by the former colonial powers of the UK (Nigeria, Ghana) and France (Côte d'Ivoire). Because of the lack of long-term forest management systems, combined with strong population growth and urbanisation (especially in the case of Nigeria) this has led to largely degraded forests and to deforestation. In the case of Côte d'Ivoire, despite still being the second largest timber producer in Africa, exports have halved over the last 15 years. This is largely due to unsustainable forest management - the most valuable species having been extracted, many foreign companies have moved their production sites to the Congo Basin. This means that, at present, production concentrates on less commercially valuable species.

In Ghana, despite the introduction of relatively progressive forest legislation, which obliges companies to work according to a management plan, the country has lost most of its primary forests as a result of weak enforcement and illegal logging. Only in those countries that have known extended periods of civil war, such as Liberia and Sierra Leone, have forests remained relatively intact. The timber exploitation that has taken place in these countries has left these countries with no tangible economic benefits because the profits

were completely absorbed by the warring parties while leaving the local population and the national treasury empty-handed.

Congo Basin coastal forest zone:

In the coastal areas of Cameroon, Gabon, Equatorial Guinea and Congo-Brazzaville, where transport costs are relatively low, industrial logging started in the 1970s and 1980s, following a decline in timber resources in West Africa. Many foreign (mainly French) companies formerly operating in Côte d'Ivoire moved to these three countries in the early 1970s. Similar to West Africa, the concession system introduced in the Congo Basin was focused on supplying demand without much consideration paid to the concept of sustainable forest management, nor to the needs and rights of forest-dependent communities.

Cameroon introduced a progressive new forest law in 1994 which formalised the industrial forest logging concession system and introduced the concept, if not the reality, of concession management plans. Subsequently, log production declined (considered in Box 2), although there was a short-lived boom in processing from 2000-2001 (see figure 3), probably caused by the new law of 1999 that prohibited the export of raw logs. New forest laws were introduced in Congo-Brazzaville in 2000 and in Gabon in 2001. Contrary to Cameroon, in Gabon and Congo log production has not diminished after the introduction of the new legislation. This has been attributed to the fact that the concession allocation system has not been significantly altered in either country.

Since the start of industrial forest exploitation in the Congo Basin's coastal zone, most commercially valuable trees have been extracted, mainly for export to Europe and Asia. This has resulted in a depleted forest resource and degraded forest ecosystem, both in terms of ecological and socio-cultural values. Consequently, logging activities are shifting from these coastal zones towards the inland forests of the Congo Basin, to make up for the shortfall in production.

Congo Basin inland forest zone

In the inland forest zones of the Congo Basin, mainly limited to the south-east part of Cameroon, the north of Congo-Brazzaville, the Central African Republic, the Democratic Republic of Congo and the south-western part of Sudan, the intensity of industrial logging has remained limited until recently because of high transport costs to the nearest seaport. However, as noted above, with the depletion of the coastal forests logging has increased in these areas, with the possible exception of DRC and Sudan due to conflict and the lack of infrastructure in these countries.

With the passing of a new Forest Code in 2002 and World Bank-initiated efforts to boost the logging sector in DRC, it is anticipated that there will be unprecedented growth in logging activity. Increasing political stability has already increased such activities in the country. This will potentially result in increased employment and revenues for the country. However, to achieve this, lessons need to be learnt from experiences elsewhere in Central and West Africa. Therefore, a number of recommendations for the establishment of an economically sustainable forest sector in the DRC are outlined in section 6 below.

Box 2: The case of Cameroon: what is in store for the DRC?

Cameroon makes an interesting case study for legislative development as there is a clear correlation between the policy measures taken and economic activity in the forest sector. This experience should be considered when making

proposals for the DRC, especially the workload implications in relation to the national institutional capacity and the government's ability to undertake the tasks that the international community and the private sector are urging them to take.

In Cameroon, prior to 1994 industrial concessions were allocated on a discretionary basis that did not ensure either adequate rent capture by the government, nor the companies' technical and financial means to carry out their operations.[312]

In 1994 Cameroon introduced forestry legislation, by which it became the first Congo Basin country to allocate concessions through open competitive bidding. In addition, management plans became obligatory for each industrial concession (Unité Forestières d'Amenagement), and possibilities were introduced for the local population to engage in community forestry. In 1999, a decree was passed that prohibited companies to export unprocessed logs. This measure was meant to stimulate local processing in order to add value to the timber exported. As can be seen in Figure 3, since the year 2000, timber exports have decreased significantly in Cameroon, indicating that the measure has had an impact. This decline is probably due to a number of factors, including increased law enforcement and fewer concessions being allocated. Although the system did not perform well from the outset, it can be argued that the new law has stopped "liquidation forestry" in Cameroon. On the other hand, the recent decline in production could also be due to exhaustion of the most commercially viable timber stocks. A likely scenario is that the degraded forest will become less interesting to logging companies, and that in the long term the opened-up forest will be invaded by migrants from ecologically less fertile parts of Cameroon, leading to a situation comparable to that in Nigeria.

Conclusions

Based on the available economic data of the forest sector in tropical Africa, the following conclusions can be drawn.

- Overall economic growth and human development have declined in all case study countries during the last 15 years, with the exception of Ghana, where GDP per capita has actually grown since 1990. In terms of economic performance, the forest sector in the six case study countries has not done well in the last 15 years. In most countries, its contribution to national income has declined, while the share of forest sector employment in the total labour force has also decreased. Cameroon is one exception, being the only country showing an increase in gross value-added of the forestry sector. In general, it can be concluded that the forestry sector has not contributed significantly to the national economies of these countries, despite large quantities of high-value timber being exported.
- The negative economic impacts of industrial logging, such as environmental degradation or decreased availability of non-timber forest products for subsistence or local trade due to deforestation, are difficult to quantify. It is increasingly recognized that these values need to be considered in the economic decision making processes for the forest sector.
- Since the introduction of the new forest law in 1994, timber production and exports from Cameroon have declined considerably. The new concession allocation system has stopped "liquidation forestry" to a certain extent in the short term and thus, it can be argued, has been a success. It has also increased the fiscal revenues from forestry

[312] Collomb, J.G. & H. Bikié (2000) 1999-2000 Allocation of logging permits in Cameroon: fine-tuning Central-Africa's first auction system. Global Forest Watch, Cameroon.

by the Treasury due to improved tax collection systems. On the other hand, the recent decline in production could also be due to exhaustion of the most commercially viable timber stocks because of unsustainable management. If that is the case, the forests of Cameroon are destined to go the same way as those in Nigeria, that is to say that they will be settled and progressively converted to non-forest land. This can be interpreted as a failure in management and the "permanent forest estate" concept.

- In due course the same is bound to happen to countries like Gabon, Congo-Brazzaville and the Democratic Republic of Congo if no appropriate measures are taken to ensure long-term sustainability, including a sustainable logging concessions system.
- As an overall conclusion, it can be argued that, in the short term, industrial logging concessions have at best made a limited contribution to the national economy in terms of employment, tax revenues, and gross value-added. Furthermore, it is doubtful that a significant share of these benefits has reached the people living in or near the exploited forests. In other words, there is little evidence that the forestry sector has made a significant contribution to poverty alleviation. Finally, the unsustainable way in which most industrial logging concessions have operated in the past seems unlikely to have contributed to the creation of a forestry sector that will make a lasting contribution to these countries' economies.

Recommendations

Governments of Central African countries should:

- Ensure fair and transparent collection of forest taxes and revenues.
- Introduce financial incentives to attract logging companies operating according to a sustainable management plan.
- Strictly prohibit companies operating in an unsustainable or illegal way.
- Review policies for setting up local processing facilities to be more in line with optimal harvest levels.
- Take into account non-monetary values (environmental services, non-timber forest products) in decision making processes for the forestry sector, to be able to better judge both positive and negative impacts of industrial logging concessions.

NGOs/researchers should:

- Further research the economic impacts of industrial logging concessions. What benefit has the forest sector delivered to the countries where it has almost completed its cycle of exploitation? How has this benefit been distributed?
- Lobby the World Bank and IMF for making further loans in the forestry sector conditional on reform towards a more sustainable forest sector.
- Strengthen the capacity of forest communities in DRC, raising awareness of the impacts of industrial forestry, especially at the local level, and ensure that they will be allowed to play their part in the decision making process.

International donor community should:

- Put pressure on the World Bank and IMF to make further loans in the forestry sector conditional on reform towards a more sustainable forest sector.
- Put pressure on the European Union, North America, China, and other large importers to avoid buying timber from illegal logging activities, in order to increase revenues for timber exporting nations and to increase sustainability of the forest sector.

5.2 ECONOMIC THEORY AND JUSTIFICATION FOR THE INDUSTRIAL FOREST LOGGING CONCESSIONS SYSTEM

STUART WILSON, FORESTS MONITOR, UK

Introduction

Three possible broad models for formal forest management have been identified:

- Privatisation of the forest resource;
- Devolved management responsibilities to local communities or the private sector;
- Increased government capability to manage the resource.[259]

This article does not attempt to compare theses different forms of management, but rather analyse the industrial forest logging concessions system as a method of devolving forest management obligations, particularly as previously applied in the Congo Basin[260] and now incorporated into many of these countries' forest laws. This paper is primarily concerned with the nature and implementation of forest policies in states where there is weak governance. We propose alterations to the legal and policy framework for the forest sector that might be applicable in these situations.

The search for alternative arrangements for forest administration has been ongoing for many years and diverse situations have lead to many different conclusions. An attempt to address these issues was made in a World Bank Technical Paper,[261] in which consultants recommended that the logging concessions system be replaced with forest management concessions, i.e. areas of forest where concessionaires would be required to care for the forests in their concession area, not just to harvest them. The paper goes on to present a method for converting standard logging concessions into forest management concessions over time. No examples were given in Western and Central Africa where the logging concession system works, yet the authors of the report provide detailed descriptions of where, how and why the system is failing.

Nine years later, a subsequent World Bank Technical Paper[262] again highlighted the same problems in the same countries, yet still suggested that forest concessions managed by the private sector can bridge the gap in forest management in countries where governments lack the capacity or will to do so effectively. The example provided by the Bank in support of their position was, in fact, a state corporation, *Perum Perhutani* in Indonesia. Providing this company as a positive example is unfortunate. *Perum Perhutani* has a long and well-documented history of human rights abuse and poor management. For example, over 20 people have been killed as a result of the company's actions (see Box 1), and it is also one of the few companies to have had a certificate from the Forest Stewardship Council withdrawn.

Box 1: Perum Perhutani, Java, Indonesia.

Perum Perhutani (PP) is an Indonesian state-owned forestry company responsible for the management of the state-owned forests on the islands of Java and Madura. As well as managing the forest, PP is charged with the implementation of social welfare services for the local communities and supporting national economic and development policies.

In Java province, it was estimated that 95% of the 34 million people living in forests are living on less than 1 dollar per day.[263] Forest exploitation has not benefited local communities and has created conflict between those communities who log illegally in order to survive. Some communities are forced into working for PP, without a guaranteed income,[264] trapping them into a poverty cycle.

Indigenous people, who have lived with the forests for centuries, are being denied access to resources required for their every day life.[265] Furthermore, they have been subject to

[259] Adapted from: Barbier, E.B. et al. (1994) The Economics of the Tropical Timber Trade. EarthScan Publications Ltd.;s[260] The Congo Basin here includes: Cameroon, CAR, Congo, DRC, Gabon and Equatorial Guinea;[261] Grut, M. et al. (1993) Forest Pricing and Concession Policies, Managing the High Forests of West and Central Africa. World Bank Technical Paper, No. 143;[262] Gray J. (2002) Forest Concession Policies and Revenue Systems, Country Experience and Policy Changes for Sustainable Tropical Forestry. World Bank Technical Paper No. 522;[263] Guizol et al. (n.d.) Le teck javanais : de l'exploitation illégale au boycott dramatique. CIRAD UPR40 Working Paper 40397.;[264] Down to Earth Newsletter, No. 63, November 2004. Available at: http://dte.gn.apc.org/63HAL.HTM;[265] Down to Earth Newsletter, No. 60, February 2004. Available at: http://dte.gn.apc.org/60LET.HTM

violence. Between 1998 and 2003, at least 36 people were wounded and 12 people were killed at the hands of the security forces employed by PP to patrol the forests under their control, actions that were subsequently denounced by PP.[266]

Moreover, the logging activities in Central Java are unsustainable and have increased ecological risks. Although PP was certified under the Forest Stewardship Council scheme in 1995, the company's teak plantation certificates were suspended in 2001 by the Rainforest Alliance Smartwood programme, because it was considered that the long term sustainability of the plantation resources was at serious risk.[267]

In December 2005 a mudslide in the central Javan town of Banjarnegara killed 77 people. The Indonesian government blamed the coffee plantations in the surrounding areas , as many trees have been felled to make way for the plantations.[268] However, to local environmentalist, it was clear that logging activities were the main cause of the disaster.[269]

CIFOR has posed the question; "Can forest-service payments help reduce poverty?"[270] This is a particularly relevant question as the World Bank Technical Reports cite the contribution to poverty alleviation as one of the fundamental justifications of the industrial forest logging concessions system.

Logging has traditionally yielded few direct benefits to the poor, due to anti-poor policies as well as certain production characteristics.[271] It has been argued that trickledown economics is the basis for economic development in the short term, bringing such benefits as employment. However, the quality of this employment may be very poor: an unskilled chainsaw operator in Cameroon may receive 25,000 CFA (U.S. $40) per month; in DRC logging employees are paid as little as U.S. 50 cents a day.[272] Benefits can arise from the construction of roads by logging companies, if these are built to last, providing better access to education and health facilities, as well as helping to develop local markets.

Various policy proposals have been made which would ensure a more equitable distribution of benefits to the poor. These include:

- Increased local control over natural resources;
- Smallholder tree growing; and
- Development of small-scale wood based enterprises.[273]

Since the Earth Summit in Rio de Janeiro in 1990, community-based forest management has been promoted not only as a way of improving local livelihoods and of recognizing local claims to rights over forest resources, but also as part of a worldwide move towards devolving or decentralizing various governance functions. It is now broadly recognized that without local people having a significant stake in the management of local forest resources, the efforts of understaffed and poorly financed forest officials to protect forests will often be futile.[274] Despite this, local people continue to be marginalized, as the industrial forest logging concessions system has been replicated across the tropical world in recent decades.[275]

Industrial forest logging concessions: a dominant policy and legal framework

Industrial forest logging concessions, also called forest resource utilization contracts, are the arrangement whereby the forest's owner, usually a government, agrees with another party, usually a logging company, to log and manage an area of forest for a specified period

[266] Down to Earth Newsletter, No. 60, February 2004. Available at: http://dte.gn.apc.org/60LET.HTM;[267] Down to Earth Newsletter, No. 51, November 2001. Available at: http://dte.gn.apc.org/51FSC.htm;[268] Hopes fade after Java landslide, BBC news website, Thursday, 5 January 2006.http://news.bbc.co.uk/1/hi/world/asia-pacific/4582988.stm;[269] Disasters a result of 'disregard' for land use allocations. Tb. Arie Rukmantara, The Jakarta Post, Jakarta. National News, January 10, 2006;http://www.thejakartapost.com/detailnational.asp?fileid=20060109.C01;[270] Angelsen, A. & S. Wunder (2003) Exploring the Forest-Poverty Link: Key Concepts, Issues and Research Implications. CIFOR Occasional Paper No. 40.
[271] Angelsen & Wunder (2003) *op.cit.*;[272] Keith Harmon Snow (December 2005) Personal communication;[273] CIFOR (2003) Infobrief No. 7. Based on Angelsen & Wunder (2003) *op.cit.*;[274] Lindsay, J. *et al*. (2002) Why law matters: design principles for strengthening the role of forestry legislation in reducing illegal activities and corrupt practices. FAO Development Law Service. Cited in: FAO (2002) Law and Sustainable Development since Rio - Legal Trends in Agriculture and Natural Resource Management. FAO Legislative Study. No.73. Rome;[275] See: Gray (2002) *op.cit*. p.8 and references cited therein, for the evolution of various country laws and forest policies.

of time. The model of forest management has come in for much criticism, including from its proponents (see Box 2).

Box 2: Commonly cited reasons for the failure of industrial logging concessions to deliver sustainable forest management.

One key deficiency in resource utilization contracts has been the failure of governments to capture or collect an appropriate or "fair share" of the value of the forest resource (the economic rent). These failures have resulted from a number of factors: inaccurate appraisal of resource values prior to contract signing; low forest fees; poorly designed forest revenue systems; and haphazard collection of resource levies due to negligence or corruption of government officials. In fact, much evidence from West-Central Africa suggests that such shortcomings are inherent where there is strong "political intervention" in the concessions system which, in effect, is used as a means of transforming public resources into private wealth.

A second common problem with resource utilization contracts results from conflicts over unresolved forest ownership rights. Throughout the world, the rights of aboriginal, indigenous or first nation peoples and their traditional use of forest resources and forest lands, have not been adequately recognized in forest utilization contracts or, more usually, have been ignored altogether. Failure of governments to identify prior claims and overlapping claims to resource rights, and to resolve these conflicts prior to the granting of resource utilization contracts, has led to conflicts and difficulties in the administration of the contracts. Recognition and resolution of land claims and resource use rights is a key first step in planning resource development. As above, such conflicts appear to be inherent where the concession system is essentially used by political elites as a means of capturing valuable public resources for their own personal benefit.

A third common problem experienced with resource utilization contracts and goods and services procurement contracts is non-compliance with contract terms, often the result of inadequate monitoring and weak or non-existent enforcement. Governments frequently fail to allocate sufficient financial and human resources to these activities, and consequently, contract holders can operate unchecked. In addition, contract holders often lack the expertise required for planning and executing the required forest management practices because of insufficient staffing or trained personnel. Contract violations can lead to severe degradation of the residual forest, irreversible environmental impacts (e.g. from poorly planned logging operations and poor road construction), loss of biodiversity, and loss of forest revenues. Again, in the frequent cases where political elites (and their families and associates) have used the concession system to gain control of forest resources, there are likely to be strong incentives and pressures on the forest administration to not enforce utilisation contracts, as this would tend to diminish the private value of the concessions to those who hold them.[276]

Lost revenues through illegal logging alone costs governments between U.S. $10 and 15 billion annually.[277] The environmental and social costs, though more difficult to quantify, are clearly immense.[278] It is evident that there is systemic dysfunction of the forest administration structure with respect to the stated forest policy objectives in many of the most significant timber producing countries. Many of the countries where these losses are incurred are in the developing world.

Given the above situation it is questionable whether forest concessions have been

[276] Adapted from: FAO (2001) Governance principles for concessions and contracts in public forests. FAO Forestry Paper 139;[277] Contreras-Hermosilla, A. (2002) Policy and Legal Options to Improve Law Compliance in the Forest Sector: Draft Issues Paper. FAO.;[278] Lindsay et al. (2002) *op.cit*.

successful in encouraging or discouraging forest based industrial development. Any industrial benefits have often come at considerable cost in terms of other forest outputs and other benefits. Often the economic and financial benefits from these rich tropical forests have been less than expected.[279]

One of the most revealing problems with regard to the industrial forest logging concessions model is the lack of positive examples, with demonstrated economic and social development and sustainable environmental management; arguably, there are no such examples anywhere in developing countries. Those examples that appear to demonstrate some elements of sustainability have received considerable external support, including subsidies for the preparation of management plans. This can be taken as indicative of the structural failure of the contractual arrangements to effectively deliver government and international policy goals for forests.

Dysfunction of the Principal-Agent relationship in the industrial logging concessions model

The World Bank, and other international development agencies have advocated the establishment of industrial forest logging concessions in Congo Basin countries and elsewhere for many years. The World Bank is an institution that has been involved at a detailed level in providing support to the drafting of forest laws in many countries, including those of the Congo Basin. The DRC forestry code, prepared with the support of the World Bank, "reflects international best practice, to attract foreign investors". Ironically the sentence continues, "in sectors where widespread corruption has prevailed for several decades".[280] This is, in part, the cause for the current questioning of the policy itself.

We turn to the World Bank literature for a justification of the model and the theoretical grounds for it. In their 2002 Technical Paper, it is clearly stated that:

> "The theory of contracts and principal-agent relationships provide the basis for the design of forest concessions as proposed in this study".[281]

It has been stated that the allocation of concessions falls under the Principal-Agent (P-A) relationships model and this relationship is at the core of the forest concessions policy and the design of the concession terms and conditions.[282] The model, as interpreted from economics literature, is presented in Box 3.

Box 3: The Principal-Agent model[283]

The aim of looking at the contractual relationship in Principal-Agent terms is to highlight the difficulties that arise in this as a result of an unequal distribution of information, in favour of the agent. Two notable problems are:

- Adverse selection - the principal, responsible for recruitment, is unable to observe directly and, therefore, assess the knowledge or skill possessed by the agent; and
- Moral hazard - the agent enjoys superior information, not only about his or her own preferences and abilities, but also about the tasks assigned to him or her, and his or her own actions, which are not usually observable to the principal.

In addition, and perhaps of most interest, the asymmetry of information may allow the agent to engage in opportunistic behaviour – shirking – that is costly to the principal, but difficult to detect. The likelihood of shirking is increased by "slippage", when the very structure of

[279] Gray, J.A. (2000) Forest Concessions: Experience and Lessons from Countries Around the World. Presentation at IUFRO International Symposium. Integrated Management of Neotropical Rain Forests by Industries and Communities. Belém, Pará, Brasil. December 4-7, 2000;[280] Report No. T7601-ZR, Technical Annex for a proposed grant for U.S. $164 million and a proposed credit of U.S. $50 Million to DRC for an Emergency Economic and social reunification Support project. August, 2003. p.24;[281] Gray (2002) op.cit., Box 2;[282] Gray (2002) op.cit., p.12;[283] Adapted from: Kassim, H & A. Menon (2002) The Principal-Agent Approach and The Study Of The European Union: A Provisional Assessment. The European Research Institute, Working Paper Series.

delegation "provides incentives for the agent to behave in ways inimical to the preferences of the principal".

Assuring control and limiting shirking is the "principal's problem". The challenge for the principal is to find ways of ensuring perfect compliance, through reducing the costs of measuring the characteristics and performance of agents, who may otherwise act contrary to the principal's preferences. Economists' have focused on incentive structures that discourage opportunistic behaviour on the part of the agent. Contractual restrictions on the agent's operational purview or monitoring the agent are alternative possibilities, but can be costly and their effectiveness is limited by the extent to which actions can be observed.

In economic theory, the Principal-Agent model emerged in the context of an attempt:

> "to move beyond the neoclassical theory of the firm, which assumes away all organisational considerations, to a theory of economic organisations that can explain why firms, corporations, and other enterprises behave as they do".[284]

It is ironic in this case that the Principal-Agent model, designed to go "beyond" the neoclassical theory of the firm, has been cited[285] as the basis to justify logging concessions' contracts. These contractual arrangements apparently ignore the reality of the weak forest governance situation within which they are supposed to work.

Poor performance of industrial logging concessions as explained by the Principal-Agent model

Several problems can be highlighted by the analysis of industrial forest logging contractual arrangements from the perspective of the Principal-Agent relationship.

Adverse selection, moral hazard, shirking and slippage all seem to occur in abundance within the forest sector, especially in weak governance situations. The proposed industrial logging concessions system, and the contract structures that have been identified and recommended in great detail by the FAO,[286] do nothing to address the structural imbalance of power that exists between under-funded forestry departments and the private sector. The imbalance of power can be expected to continue for the foreseeable future in the Congo Basin, especially as the international community does not seem determined to tackle bad governance, even in the forest sector (see Chapter 1).

It has been widely recognised and accepted that the "principal's problem" exists. Effective law enforcement is a pre-requisite recognised by the World Bank, FAO and others for logging concessions contracts to deliver policy objectives. Effective law enforcement presupposes good governance, the absence of corruption, and at the very least, the absence of war in the national territory. Attempts have been made to counter some of these problems in the P-A model. Some examples are presented in Box 2 above, these corresponding to the first three difficulties identified in table 1 below. These attempts can be said to have had limited success.

[284] Moe, T.M. (1984) The New Economics of Organization. American Journal of Political Science 28: 739-77. Cited in: Kassim & Menon (2002) *op.cit.*;[285] See: Gray (2002) *op.cit.*;[286] FAO (2001) Governance principles for concessions and contracts in public forests. FAO forestry paper 139. Section 7.

Table 1: Problems and solutions in the P-A models applied to forests

Identified Difficulties	Forest sector problems	Proposed Solutions
Adverse selection	Non-competitive and diret agreement concession allocation	Concession allocation commissions, closed envelope bidding procedures
Moral hazard	Better technical know-how and access to logistical resources of logging companies	Training and capacity building programmes for forest departments
Shirking	Illegal logging, transport and associated trade	Increased law enforcement and independent monitoring of law enforcement
Slippage	Delegation structure where the concessionaire has reasonable assurance the forest departmentisuale to enforce the concessions contract	Forest management concessions (see below, section 4)

In fact, most of the "proposed solutions" above have been tried unsuccessfully in countries such as Cameroon (see Article 3.2 of this report). This is because they have failed to recognise the nature of, and address, the political problems whereby individuals within government and the administration, in effect, act as both principle and agent. It is also unfortunate that the solutions that have been proposed for the "slippage" difficulties have been the least explored despite being recommended many years ago. As can be seen in Table 1, there are a number of technical solutions that can be adopted to tackle the problems presented in the first three rows of the table. Slippage, however, underpins progress in all areas and if it goes unaddressed then reforms elsewhere are likely to be limited and unsustainable.

Forest Management Concessions

Forest management concessions (FMCs) have been proposed as an alternative to straightforward forest logging concessions and combine forest utilization and goods and services procurement contracts. They provide rights to timber, but also require the concessionaire to undertake a variety of forest management activities.[287] Caution is needed, however, as there are relatively few references to FMCs in the literature and the concept has not been clearly defined or well developed. In this paper, three models are presented, one in which the FMC is allocated to a private sector logging company, another where the FMC is allocated to communities and finally where the contract is allocated to non-logging interests.

Forest Management Concessions and the private sector

To implement a policy of allocating lands to forest management concessions controlled by logging companies, countries will still need the capacity to implement the policies proposed to: evaluate potential concessionaires; carry out auctions of concessions; negotiate with powerful and experienced forest companies; and monitor and supervise forestry and logging activities on concessions, or delegate this to an independent organisation.[288] Comparing the forest management and forest logging

[287] FAO (2001) *op.cit.*;[288] Gray (2000) *op.cit.*

concession systems, essentially there is no structural change within the relationship between the government as principal and the concessionaire as the agent and their respective objectives and motivations. Therefore similar results can be expected in terms of contract performance, with similar dire results for the forests in question.

Forest Management Concessions, local communities and the alignment of Principal-Agent objectives

Taking the point made above, that it is futile to expect under-funded forestry departments to effectively manage forests without the involvement of local peoples,[289] choosing a more appropriate agent whose interests for forest management concessions are aligned more closely with the principal's would cut the enforcement burden. There are examples where allocating forest management concessions to local communities has proven productive in terms of progress towards more sustainable forest management (see Box 4).

Box 4 — Community Concessions in Guatemala[290]

The Mayan Biosphere Reserve is the largest area of natural forest in Guatemala, but encroachment and illegal logging have long been major threats to the Reserve. In 1998, the National Council of Protected Areas (CONAP) issued at least four forest management concessions to local communities that were supported by partner NGOs, these providing technical, administrative and community organising expertise. The concessions range from 7,000 to 55,000 hectares. Timber and non-timber resources are managed under a single plan.

Timber is sawn on site to increase local employment. Experience has been varied but generally positive. One community's operation produced a net profit of U.S. $89,500 for the first year in operation, roughly equivalent to U.S. $318 per hectare or U.S. $4,400 per family. Satellite images recently revealed that illegal logging and the agricultural frontier have continued to expand in other protected areas, while in the community concession areas, logging has decreased.

The reasons for the apparent success of the Forest Management Concessions model presented in Box 4 may be due to the fact that in this example the resource rights allocation was to communities themselves. This may be the significant factor in its success, rather than the conditions of the contract itself. The underlying reason for this is that, along with the allocation of rights provided by the contract, responsibility for the manner in which the resources are used has also been passed to the communities concerned. The community institutions that benefited from these FMCs have apparently proven strong enough, in some cases, to take on the challenge and respond appropriately. A key motivational element here is that if the contractual and institutional arrangement had failed, it would be the communities themselves that would have suffered the consequences.

In effect there is no motivation on the part of the communities (the agent) for "shirking" as they have a vested interest in the contract's success. Furthermore the cost of contract enforcement has been internalised by the communities, thus relieving a financial burden from the state. Any agent internalisation of enforcement costs may also be a result of a high degree of alignment between the objectives of the principal and the agent. This assumption should be investigated further, however.[291]

[289] Lindsay *et al*. (2002) *op.cit.*;[290] Ortiz, S. (2000) Community Forestry for Profit and Conservation: A successful community management experience in timber production and marketing in Guatemala. Tropical Forest Update. ITTO. Cited in: White, A. & A. Martin (2002) Who Owns the World's Forests? Forest Trends. USA & Center for International Environmental Law, USA.;[291] The authors welcome collaboration to look further at this aspect of the FMCs and their application with relevant partners.

Before promoting this method of forest management widely there are many other variables to consider, including the skills, level of community co-ordination, and willingness to take on such an undertaking and to implement it successfully. However, it should be noted that throughout large areas of the tropics, including most of the Congo Basin, informal, but nevertheless broadly sustainable, forest management has been undertaken by countless local communities, prior to the advent of modern state assumption of control over those forests. Any proposed changes in forest or land rights allocation, process or management institutions should consider this fundamental observation at the outset.

Forest management concessions and non-logging forest management companies

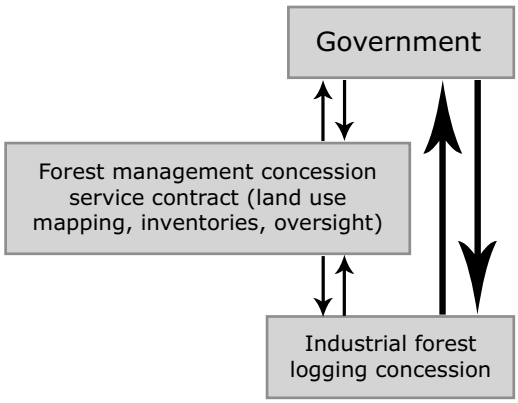
An alternative approach to the "principal's problem" is to consider a different contractual arrangement, also taking into consideration the costs and real potential of solving the contract enforcement problem. The current theoretical economic framework for decision-making has provided detailed analysis of decision making related to the transaction costs of forest concessions contracts, including those of enforcement.[292] What we are concerned with here is a contractual arrangement that may promote the real possibility of forest policy delivery, assuming that the cost is acceptable. It is important here to distinguish between the delivery of *forest policy* versus *forest law enforcement*, specifically where solely focused on forest logging concessions.

Increasing forest policy implementation

Forest sector industries have significant influence on policy development and its wider implementation. From the situation outlined above it is clear that generally, companies with a primary interest in the logging industry cannot be expected to deliver significant improvements in forest management without there being considerable investment in enforcement. Given the absence of real capacity in many government departments, and the extended time that this would take to put in place, additional capacity should be sought from elsewhere.

Wider forest management and oversight capacity does exist and is rapidly being built in the NGO sector. Other private sector players such as certification companies, that have been expanding with the increased application of non-state market driven (NSMD) approaches, could also be considered as being suitable for this role. In the latter's case, however, potential conflicts of interest with companies' logging concerns should be carefully considered. The contractual arrangements that might harness this capacity could then take the form presented in figure 1:

Figure 1: Alternative employment of the Principal-Agent model to increase successful forest policy implementation.



[292] See: Leffler & Rucker (1991) Transaction costs and the efficient organisation of production: A study of timber-harvesting contracts. The Journal of Political Economy 99(5): 1060-1087

The detail of the contracts themselves, together with the structural arrangements within which the contracts are placed, are essential to rectify the problems embodied in the Principal-Agent relationship model, and so improve contract enforcement. Firstly, forest management concessions' contracts would take the form of a service contract and therefore would have to be financed by the government or from elsewhere. It is envisaged that the funds spent would be recovered through the increased policy application, more efficient use of forests and increased revenue collection. Donor support for this type of service contract may also deliver better returns than supporting individual contracts with logging companies, e.g. financing management plans, or improved performance in individual logging concessions.

The preconditions for bidders might include that no company operating a forest management concession could participate in forest resource exploitation. Functions to be included in the service contract might be: land use mapping; drafting zoning plans; technical support to concessions allocation processes and management plan approval; concession management oversight, including scheduled and unscheduled (i.e. investigative) inspections; and procedural compliance monitoring and revenue assessment. Transparency is a key issue in improving governance in the sector and the publication of reports resulting from the service contracts should be an element of the contract details. This would also establish a record of implementation by the holder of the service contract. Service contracts for management expertise are particularly important here as it enables a separation of the oversight and management function from the forest exploitation function, and establishes a dynamic tension between the two. The oversight and management companies would then have no interest in liquidation, and profiting from illegal forestry operations would mean the loss of the service contract. This point reduces slippage, and therefore the likelihood of shirking as identified above. The forest management concessionaire is recruited to achieve the objectives of the Principal in the P-A model and importantly, brings the resources and expertise with them to effectively implement their own service contract, including oversight of logging concessions' operations.

Many other contract conditions would be required to make the system work in practice, including:

- Bidders for forest management concessions contracts should be assessed to determine their reputation in the field. Certification companies would be ideal in this new role and should be engaged with to confirm their interest.

- Short-term (3 year) service contract renewal should be based on an external assessment of the implementation of the company's obligations.

A principal concern over the implementation of forest policy is the land use planning or zoning process that takes place prior to the allocation of logging concessions. The application of a system of forest management concessions would bring additional capacity to the land use mapping process that informs zoning. Methodologies, or a process for developing a methodology for zoning, would have to be clear for the process to be included in a service contract.

Roles that might rest with the government are: final decisions on zoning and concession allocation; prosecutions based on the information provided through the service contractors and verified with government agents; and receipt of tax revenue from private sector logging operations.

The service contract might cover a significant area of forest and be based on a contiguous landscape block, covering a complex area of potential community mapped lands, forest management concessions allocated to communities (see Box 4), protected areas and a number of industrial forest logging concessions.

Oversight of industrial logging operations may also be a significant part of such service contracts, where these are not thought to be part of a separate agreement or subject to an "Independent Monitoring of Forest Law Enforcement" type arrangement. Such additional operational capacity provided by the service contracts could be employed by the state, while the state itself retains the role of law enforcement through normal judicial processes.

Forest management concessions of this nature could be seen as temporary. Contracts would not be renewed at the point where government departments were in a position to take on the roles provided by the service contractors effectively.

Conclusions

Continued support for the industrial forest logging concessions system is difficult to justify given the absence of data showing that the approach delivers real sustainable and equitable benefits. The World Bank, a major proponent of the system, has also criticised its implementation. What is alarming therefore is that, in spite of this, the World Bank is apparently rushing to expand the forest logging concessions system in the Congo Basin and in particular in DRC. Governments and international organisations should recognise that most African governments themselves do not currently have the capacity to implement effectively the policies, laws and contractual obligations in industrial forest logging concessions agreements. Action should be taken based on this recognition.

There are clearly capacity problems within many developing country governments. It may not be that states are incapable of managing their own forests. Rather, the system of forest management and the institutional arrangements that have been, in many cases, forced upon developing states, may not be appropriate and could inhibit capacity building. The industrial forest logging concession system itself, as it has been implemented and is currently proposed in DRC, may well engender corruption within governments, making forests the subject of a patronage system and perpetuating their failure to address the system's inherent "moral hazard".

Some positive benefits have been claimed, including improved access to health and education services through the opening of roads to isolated areas, employment and the distribution of forest industry rents and taxes. However, no serious analysis of the costs and benefits of the industrial forest logging concessions system has been undertaken, despite repeated recommendations to explore alternative forest policy systems.

The problem with the industrial forest logging concession system currently being proposed in the Congo Basin, and particularly in DRC, is a structural one. In particular, there is a failure to address the problems created by the proposed contractual arrangement, as identified using the Principal-Agent model. The same structural problems of slippage arise with forest management concessions, when these are allocated to companies with a vested interest in the logging industry.

Recommendations

A gradual approach to forest management planning should be implemented, setting clear and fair procedures that follow international best practice and including comprehensive participatory mapping for the allocation of land tenure and forest use rights in advance of the allocation of forest logging concessions.

Forest concessions should only be allocated after competing tenure issues have been resolved, and existing forest use and land rights have been assessed. Rights allocation should be based on locally adapted international best practice, where this exists.

Forest concessions should not be allocated within a framework of weak governance and weak law enforcement capacity, where the contractual arrangements allow for the perpetuation of the Principal-Agent problem and where safeguards against adverse selection, moral hazard, slippage and shirking are not already in place.

Forest management concessions allocated to communities should be further explored as an alternative to forest logging concessions subject to community capacity assessments.

Forest management concessions, separating the functions of forest management (including defined oversight and administrative functions), should be considered as an alternative contractual arrangement in the Congo Basin and elsewhere, while there is weak governance.

An independent international body should be tasked with evaluating the impact of logging concessions on the rural poor, indigenous and forest-dependent peoples.

An independent comparative analysis of the industrial logging concessions system, compared to alternative forest policy models, should be undertaken from the perspective of the rural poor, indigenous and forest-dependent peoples' perspectives. This study should include broad socio-economic data from before, during and after logging.

5.3 FOR RICHER, FOR POORER: LOGGING AND LIVELIHOODS IN THE CONGO BASIN

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There has been a growing debate about the role of industrial logging as a provider of developmental benefits in Africa. Essentially, the debate boils down to whether the potential benefits (both direct and indirect) are ever actually delivered, and secondly whether the potential or actual benefits outweigh the known "dis-benefits", or developmental costs. This short paper attempts to review some of the main issues in this debate, with reference to the existing literature.

What are the potential developmental benefits of logging?

The potential economic benefits of commercial logging are summarised in the table below.

	Direct benefits	Indirect benefits
Type of benefit	Employment Compansation payments	Infrastructure (especially roads) and free transport Demand for locally produced goods and services "Trickle down" effects from national economic growth

Each of these is considered in turn below, with an assessment of whether these *potential* benefits are likely to be realised in practice.

Employment

As noted in Article 5.1 of this report, employment levels in the logging industry in the Congo Basin are very low in terms of the overall size of the workforce; the highest proportion is found in Gabon, but logging workers there still represent only 1.2% of all workers. Logging work is sought after by forest dwelling people, but this in a context where there may be no other paid work available. In practice, logging work tends to be very poorly paid, short-lived and highly dangerous.

Often, logging companies bring with them their own workers. One study in a well-established concession in Gabon found that, of the 2,000 people resident within three logging camps, not a single one had been employed from the local village, which had 120 men of working age.[313] The concession holders, SHM, moved their workforce around with them, and found it more economical to keep the best staff rather than train local people. Such immigration of cash-earning immigrants (often of a different ethnic group to local communities) can cause social problems and conflicts.

As noted in Article 4.4, logging work everywhere in the world is considered as one of the most dangerous occupations. In Africa, this is especially so, as safety equipment is generally unavailable or discarded (most logging safety clothing, for example, is designed for use in cool temperate or boreal regions, and is insufferably hot when used in the tropics).

The high incidence of accidents causing debilitating injuries, which by their nature can often be difficult to treat, can have serious consequences for families dependent on logging income. Compensation payments for injuries are likely to be very low or non-existent, especially for local workers employed on an informal basis. Because logging operations also promote the conditions for *Anopheles* mosquitoes to breed, and workers are usually accommodated closely together in rudimentary housing, malaria can be a serious problem in logging camps. (See also Article 4.4 for a discussion of the various health consequences of logging).

Probably one of the major sources of employment and distribution of cash from logging centres into the local economy takes place through the sex trade. According to one study conducted in Cameroon, an estimated 40 female sex workers were permanently living in the logging camp. In addition, approximately 100 women arrived at the camp from towns or

[313] Lawrie, J. (2004) The Minkebe Expedition 2000: Gabon, A Research Project on the Effects of Logging, University of Leicester.

neighbouring villages at the time of salary distribution (twice a month), to trade or offer paid sex. However, this also has the highly negative impact of spreading sexually transmitted diseases, including HIV-AIDS, into the surrounding population. Neither the economic "benefits" of the sex trade in logging camps, nor the costs, have been adequately assessed.

Compensation payments

One of the main arguments used to justify the development of forest industries in the Congo Basin has been that it generates revenues which can promote local development and infrastructure. However, the growing consensus is that, in the Congo Basin region if not more widely, this has rarely if ever actually occurred. In fact, the timber industry uses as one of its main self-justifications that it provides infrastructure and services in the absence of any state provision of services.

Cameroon has been the regional forest "test bed" for policies to try and "reform" the concession system and use logging as a means of stimulating local development. As noted elsewhere in this report, in 2000, the government of Cameroon introduced the "Programme to secure forestry revenues", under World Bank/IMF pressure.[314] Fiscal revenues from forestry have increased from 11.5 billion F CFA (= 17 million €) in 2000 to 40 billion F CFA (= 60 million €) in 2003. Under the Cameroonian forestry law, 50% of the forestry area tax (1,500 FCFA, or around €2.25) payable by concessionaires is supposed to be returned by the national treasury to local authorities for development purposes, and one-fifth of the returned amount is supposed to be distributed down to the local communities themselves. Due to pressure from the World Bank, there is reported (by the Cameroonian government itself) to have been an increase in the payment of taxes back to local authorities, from close to nothing in the late 1990s, to 28 billion F CFA (~ €42m) in 2003. Local communities can also, in theory, benefit from a payment of 1000 FCFA (about €1.50) per cubic metre of timber felled through short-term sales of standing volume ("*vente de coupe*") contracts.

However, a study carried out for the World Bank recorded, somewhat laconically, that "although concrete social achievements are sometimes visible in the areas benefiting from [forestry taxes], the goals of these taxation instruments are far from attained in the areas supposed to benefit from them".[315]

Another study has indicated where some of the problems in the current system lay:

> "The system by which the RFA is transferred from the Tax Department to local councils is clearly not working properly: the 10% intended for the forest-adjacent communities is frequently withheld in the council accounts…The impact of the decentralised taxation system is on the whole negative, and very far removed from its original aims. In the case of both the "FCFA 1000 tax" and the [repayment of the forest area tax], it is estimated that less than 20% of the revenue is actually used to fund social projects or collective services to the benefit of the councils and the rural populations. The payment of a tax for the implementation of social projects is considered by many economic operators to annul other provisions in the conditions of contract. Hence many loggers have stopped road construction and other social works over the last three years, except when these are necessary for logging."[316]

[314] Ministère de l'Economie et des Finances du Cameroun (MINEF) (2005) Audit du Programme de Sécurisation des Recettes Forestières – PSRF. Rapport final. Yaoundé, Cameroon;[315] Mbianyor, T. et al. (2003) Cameroon background paper. In: World Bank (2003) Proceedings of the international workshop: reforming forest fiscal systems to promote poverty reduction, and sustainable forest management. Washington, D.C.;[316] Fomété, T. (2001) The Forestry taxation system and the involvement of local communities in forest management in Cameroon. Rural Development Forestry Network, ODI Network Paper 25b, London.

Because of the failures of (corrupt) government, local communities in Cameroon have a direct incentive to engage in or support illegal logging activities: studies have shown that communities are able to earn as much from direct "compensation" payments from illegal loggers as they could potentially earn from legal logging.[317]

The evidence from the Congo Basin region is consistent with evidence from other regions, such as in Papua New Guinea, where the Government's own 2001 review of the forest sector found that "most stakeholders we consulted were of the view that most of the payments to landowners had been wasted and those from logged areas were made worse off by logging".[318]

Infrastructure

The "dis-enclaving" effect of logging infrastructure is frequently cited as bringing important positive developmental benefits.[319] There is little doubt that new and improved roads, and occasional free transport, are welcomed by many villagers within the Congo Basin. Mobility and access to education and health services - where they exist - can be increased. But generic claims that roads act as "avenues towards economic growth (they facilitate the marketing of cash crops and raw materials, notably timber) and decentralisation"[320] have to be treated with caution. In theory, road building in many locations should improve access to markets and thus promote development. But in reality, the development of logging roads takes little account of whether, for example, local markets for cacao or coffee are in fact in structural decline (due, for example, to global gluts or disease), or whether the market centres served by logging roads are the same as those used for trading other commodities. Studies in Cameroon have shown that logging infrastructure, related as it is to the largely arbitrary pattern of concessions, tends to develop in a chaotic manner, which may also duplicate parts of the planned state road system.[321]

As can be seen from the quote above, in terms of the relationship between logging concessions and road building, the argument can become somewhat circular: logging requires the development of roads, which in turn help to promote more logging and thus more roads. Given that the developmental benefits of roads are largely unproven or uncertain, the economic value of the logging-roads-logging "feedback loop" thus depends on the economic benefits of logging – and, as noted elsewhere in this study, the evidence mostly seems to suggest that logging has negative economic impacts. The net economic impact of logging infrastructure may thus be negative if it serves simply to promote more logging. Where road infrastructure is not deliberately built to accommodate logging vehicles, it can quickly be destroyed, as has been observed repeatedly in Cameroon.[322]

In a study in central Gabon, "public services had not improved since the arrival of the logging concession": although the nearby town of Ovan has capacity for electricity generation, and a "full range of street lamps", electricity is only available on one day per year, Independence Day; the local school and hospital are very poorly equipped and the town's only transport route, the main road from Mokokou to Libreville, had frequently been rendered unusable because of the log truck damage to bridges.[323] The quality of the road had not improved since the arrival of the logging company SHM, and there was constant danger due to large log vehicles passing through the centre of villages.

Furthermore, the uncertain economic benefits of logging infrastructure can be outweighed by

[317] Fomété (2001) *op.cit.*;[318] Forest Trends (2006) Logging, legality and livelihoods in Papua New Guinea: synthesis of official assessments of the large-scale logging industry, Volume 1.;[319] Trefon, T. & P. de Maret (n.d.) Road building in Central Africa: foolproof development or a good way to get stuck in the mud? ULB-APFT briefing.;[320] Trefon & de Maret (n.d.) *op.cit.*;[321] See for example Global Forest Watch, Cameroon Interactive Map, http://www.globalforestwatch.org/english/interactive.maps/cameroon.htm;[322] Trefon & de Maret (n.d.) *op.cit.*;[323] Lawrie (2004) *op.cit.*

the known negative impacts, which can include the exacerbation of "social problems such as prostitution, Sexually Transmitted Diseases, alcoholism, acculturation, resettlement, etc. They also provoke serious ecological imbalances like forest fragmentation, erosion, biomass loss, species depletion, commercial hunting, etc".[324] Importantly, logging infrastructure increases the chances of complete forest cover removal, and thus the loss of non-timber forest products (NTFPs) (discussed in Articles 4.1 & 4.3).

Demand for locally produced goods and services

Logging camps can provide a valuable market for local communities. Logging workers require feeding, and most logging centres in the Congo Basin will attract new farmers to produce carbohydrate crops such as plantain, cassava, maize and taro, or will provide outlets for existing farmers within the vicinity. The availability of heavy equipment and chainsaws means that fields can be more quickly cleared and planted.

However, there is little information about this process, or quantification of the local economic value, available in the literature. There also appear to be structural reasons why such benefits might be less than expected, as well as there being evidence of contradictory consequences.

Logging in the Congo Basin region could be broadly described as falling into two categories: "predatory, unsustainable and itinerant" (characterised, perhaps, by the *vente de coupe*, or sales of standing volume system in Cameroon, or illegal logging within the concession system), or "managed, (relatively) sustainable, and sedentary" (characterised by companies with long-term concession agreements or access to sufficiently large areas of forest that even unsustainable forestry practices still allow them to maintain a relatively stable base).

In the case of "predatory, unsustainable and itinerant" logging, it is clear that any demand for local goods is likely to be short-lived. Contracts for standing volume of timber-type operations, or illegal operations in concessions to take advantage of "grace periods" before management plans have to be developed, typically run for about three years or so. Because of the "cut and run" nature of these operations, existing local producers would barely have sufficient time to increase production, which might require the difficult manual clearing of extra areas of forest.

In the case of "managed, (relatively) sustainable, and sedentary" logging operations, the opportunities for local producers to benefit will be much greater. Larger logging centres can grow to populations of several thousand people, generating their own markets and stimulating growth in local production of foodstuffs, as well as some other goods and services. For example, when *Congolaise Industrielle des Bois* (CIB) established its base at Pokola, northern Republic of Congo, in the early 1980s, the village had 150 people;[325] it is now a town of some 15,000 people. However, there is some evidence that such developments may bring limited benefits to local people; larger centres of employment tend to attract immigrant workers, who bring with them their own cultural values and preferences, and may commence their own production, displacing local farmers. Longer-lived logging camps eventually tend to become self-sufficient in basic agricultural foodstuffs though, importantly, not in sources of protein.[326]

The growth of larger logging centres within the Congo Basin is invariably accompanied by significant increases in collection of bushmeat from the local forest. This in itself can be an

[324] Trefon & de Maret (n.d.) *op.cit.*;[325] Amman, K. (2004) Pers comm.;[326] Lawrie (2004) *op.cit*.

important source of new income for local people. However, it can also be a non-sustainable means of income which disrupts traditional means of managing wildlife on a broadly sustainable basis, quickly depleting animal populations. Around CIB's operations at Pokola, for example, according to one report, "wildlife has been largely decimated in a 20km band".[327] The construction of logging roads and tracks has facilitated access into the forest for hunters, and logging company vehicles have been used to transport hunters and their prey. This would have serious implications for the area's original inhabitants, especially hunting and gathering communities (even though they themselves might well be involved in hunting to satisfy the demand for protein from logging workers). Large logging centres can thus undermine local livelihoods.

"Trickle down" effects from national economic growth.

In terms of "trickle-down" effects, the main way this can happen is through private re-investment of forestry "rents" into other productive sectors which then have further developmentally beneficial consequences. Concerning this, Angelsen and Wunder acknowledge that "Historically, the forest industry has only reached high GDP share and contributed heavily to the economic development and poverty reduction in a limited number of countries, such as Finland, Norway, Sweden and Canada."[328] Although the authors nevertheless assert, rather hopefully, that "it seems obvious that in a timber rich country like Indonesia, some proportion of the billions of dollars of timber rents that have been cashed in since the mid-1960s must have been invested into the rapidly growing urban sectors", they also admit that "unfortunately, we are not aware of any study that has quantified this process".[329]

Anecdotal evidence suggests that, because the large-scale logging industry in the Congo Basin is heavily dominated by foreign interests, much of the "rent" potentially available for reinvestment is, in fact, repatriated to other countries. Studies for international agencies have repeatedly found that the level of revenues actually accruing to governments from logging industries are only a small fraction of what is theoretical possible (or legally required).[330]

Loss of, or damage to, livelihoods

There are many ways in which logging can have indirect, but nevertheless critically important, negative impacts. Some of these are considered in turn below.

Non-timber forest products (NTFPs)

The greatest negative impact of industrial logging on livelihoods is likely to be through damage to, or destruction of, non-timber forest products and the environmental services provided by forests. An estimated 1.6 billion people worldwide depend to some extent on forests for their survival,[331] so the potential for changes to livelihoods from changes in use of forests is great.

Despite this, there is relatively little detailed information about the non-timber values of forests, and even less about the relationship between this and exploitation of forests for timber (though see the paragraph below, "The Case of Moabi"). A "meta-study" of the relationship between livelihoods and "forest environmental income", conducted for the World Bank,[332] reviewed the results of 28 household income studies on forest-based income, covering eastern and southern Africa,

[327] World Bank (2002) CEO Initiative and Sustainable Management of Production Forests: A preliminary Assessment of CIB – POKOLA (Congo Brazzaville), World Bank, Washington, D.C.;[328] Angelsen A & S. Wunder (2003) Exploring the Forest Poverty Link. CIFOR Occasional Paper No. 40, Bogor.;[329] Angelsen & Wunder (2003) op.cit.;[330] See for example, World Bank (2006) Weak Forest Governance Costs Us$15 Billion A Year. Available at: http://web.worldbank.org/WBSITE/EXTERNAL/TOPICS/EXTARD/EXTFORESTS/0,,contentMDK:21055716~menuPK:985797~pagePK:64020865~piPK:149114~theSitePK:985785,00.html ;[331] FAO (2001) How forests can reduce poverty. FAO brochure, Rome.;[332] Vedeld, P. et al. (2004) Counting on the environment: forest incomes and the rural poor.

Asia and Latin America, and both wet and dry forest areas. The study indicated that 22% of total income in the households surveyed was derived from forests and, of this, the great majority (70%) was from the sale of wild foods and fuelwood. Timber accounted for only 2.3%. The relative dependence on forest income increased according to how poor the households were, with the poorest obtaining about 32% of their total income from forest "environmental resources".

Much of the debate on the damage to, or loss of, forest-based livelihoods as a result of industrial logging relates to the collateral damage that timber felling can cause to NTFPs. Such effects have been well reported, including:

- the loss of trees which produce food products which can be important as subsistence resources or as traded goods in local and international markets;
- the loss of plants of medicinal value;
- the indirect loss of bushmeat resources due to increased hunting pressure by logging workers or their suppliers;
- damage to water courses, including fish resources and water needed for crop irrigation;
- loss of fuelwood;
- loss of, or damage to, "forest gardens" or fallow fields.

The question this raises is "what impacts on livelihood can such damage have"? Angelsen and Wunder have summarised many of the issues concerning the relationship between NTFPs and livelihoods by asking the question, "do [non-timber] forest resources act as a poverty safety net or a poverty trap"?[333] The authors conclude that, for various reasons, "although most NTFPs are poor instruments for poverty *reduction*, some are important for poverty *prevention*". In short, few people seem to escape poverty through the exploitation of NTFPs, but this exploitation allows many people to at least maintain their incomes at or above poverty level.[334] According to one study, most NTFPs in DRC appear not to be particularly profitable.[335] However, other studies in the region have shown that the exploitation of NTFPs can be particularly important in maintaining household incomes during lean periods "when agricultural products are scarce and households are at their most vulnerable to food shortages".[336]

The case of moabi, given below, illustrates how logging can serve to undermine livelihoods derived from NTFPs. The impacts of logging can be catastrophic for individuals, such as when the noise and disturbance due to logging causes forest elephants to invade and destroy agricultural areas, as has been reported from Gabon.[337]

Logging and health

The relationship between health and poverty alleviation has been well documented:[338] clearly, the ability of people to provide for themselves is reduced when they are incapacitated with malaria or other serious ailments.

As is noted elsewhere in this report, logging can directly cause increases in human disease in its operational areas and more widely. However, where logging damages medicinal plant resources, it can have the "double-whammy" effect of reducing peoples' ability to cure themselves at the same time as promoting an increase in disease. Studies in Equateur and Bandundu provinces in DRC have found that 85% of people surveyed in rural areas rely on medicinal plants to treat common

[333] Angelsen & Wunder (2003) *op.cit.*;[334] Angelsen & Wunder (2003) *op.cit.*;[335] Bauma, I.L. (1999) A preliminary market survey of the non-wood forest products of the Democratic Republic of Congo: the Beni and Kisangani markets. In: Sunderland, T.C.H. et al. (Eds) Non-wood forest products of Central Africa: current research issues and prospects for conservation and development. FAO, Rome.;[336] Bamoninga, B.T. (2002) *Utilisation des feuilles de Gnetum sp. dans la lutte contre l'insecurite alimentaire et la pauvrete du Bassin du Congo, cas de la Republique Democratique du Congo; De Merode et al.* (2004) The value of bushmeat and other wild foods to rural households living in extreme poverty in Democratic Republic of Congo. Biological Conservation 118: 573-581; Ndona Guley, J.C. (2004) Contribution socio economique du gibier dans la lutte contre la pauvrete et l'insecurite alimentaire a Kinshasa (RDC). University of Dschang, Cameroon.;[337] Lawrie (2004) *op.cit.*;[338] See, for example: OECD (2003) Poverty and Health in Developing Countries: Key Actions. Policy Brief, Organisation for Economic Cooperation and Development;

ailments, including malaria.[339] One study in Cameroon has shown that more than half the tree species exploited for timber by commercial loggers are also used by local communities for medicinal purposes.[340] Species such as padouk (Pterocarpus soyauxii), iroko (Milicia excelsa) and azobe (Lophira elata) are important for their medicinal uses, but have become scarce or even locally endangered due to selective logging.[341]

In some cases logging serves to open up new habitats for NTFPs. However, because of the heavy reliance of local peoples on medicines derived from tree species, it is likely that the net effect of logging is to reduce local peoples' ability to treat themselves for illness, and thus to worsen their livelihood potentials.

The case of Moabi

Few comparisons have been made between the economic benefits of exploitation of timber with the benefits of managing the same resource for NTFPs. Moabi, Baillonella toxisperma, one of the most important timber species in the region, has been the subject of such a comparison (see also Article 4.3 on moabi). According to this study[342] carried out in Cameroon and published in 1995, the market value of a moabi tree of minimum legally exploitable diameter of 100 centimetres, yielding 9 cubic metres of timber, was around €1,350. But the moabi tree is also highly valued by local communities (especially Baka "Pygmy" women), for producing edible fruits with nuts that yield oil used for cooking and lighting. A tree can yield around 150 litres of oil per 3-year fruiting cycle, which would sell for around €1.8 per litre, or €270 in total. Thus, the total market value of the oil alone, produced over a 15-year period, would be greater than that produced from felling what would probably be at least a 260-year old tree. In addition to its oil-producing value, moabi also provides a range of other locally valued products, including 50 different medicines.

But the Cameroonian concession system, attributing felling rights to logging companies, has been imposed with little or no consideration for local uses of moabi or other trees. Hence the "rents" from moabi accrue to logging companies, not to local communities; a proper comparison of the local economic effects would therefore be to compare the local economic benefits of €270 per tree per 15 year period, with the approximate revenues obtained from logging. On the basis of 10% of forest area taxes (legally supposed to be returned from central government to local communities) of €2.25 (FCFA 1,500) per hectare per year, and assuming a density of one moabi tree per 5 hectares, local communities would receive, over the same period, around €16.90, or one-sixteenth of the value of the moabi oil they could sell. In practice, as noted above, local communities almost never actually receive any forest area taxes, so they effectively get nothing for the felled moabi trees.

According to Schneemann, moabi logging practices are generally unsustainable and the species may disappear in a large part of its original areas of distribution in 10 to 20 years.[344] One report notes that "The seed of *B. toxisperma* [is]…today so scarce, it is rarely sold in markets since local communities prefer to keep what they can collect for their own use."[345] It thus seems clear in this one particular case that local livelihoods are being materially damaged by commercial logging.

Conclusions – is industrial logging inherently anti-poor?

The fact that logging concessions have tended not to deliver community economic (poverty alleviation) benefits has been widely recognised. Gray, for example, stated that "because most forest concessions agreements

[339] Ndoye, O. & A. Awono (2005) The markets for non-timber products in the provinces of Equateur and Bandundu, DRC. CIFOR, Yaounde;[340] Laird S A, (1999) The management of forests for timber and non-wood forest products in Central Africa. In: Sunderland, T.C.H. *et al*. (Eds) Non-wood forest products of Central Africa: current research issues and prospects for conservation and development. FAO, Rome;[341] Laird (1999) *op.cit.*;[342] Schneemann, J. (1995) Exploitation of Moabi in the Humid Dense Forests of Cameroon. Harmonization and improvement of two conflicting ways of exploitation of the same forest resource. *BOS NiEuWSLETTER* 31 vol. 14 (2): 20-32.;[343] Les Amis de la Terre (2006) *Moabi: arbre de vie ou de profit?* Campaign document. Paris;[344] Schneemann (1995) *op.cit.*;[345] Laird (1999) *op.cit.*;

in the past have focussed on timber production, forest uses by forest dwellers and forest communities have been ignored. […] In addition, forest communities often derive little benefit, employment, or revenues from forest concessions".[346] As with many other commentators, Gray's proposed response to this problem is a "technical fix", in which "it is possible to redesign concessions agreements, the forest management requirements and procedures to incorporate community forest uses and increase community benefits from forest concessions".

In practice, however, the concession system, especially in Africa, has proven stubbornly resistant to any such technical fixes. As Angelsen and Wunder have noted in their study for CIFOR, the poor have generally not benefited from the timber industry, because "there are some fundamental characteristics of timber planting, harvesting and processing (and some features of trees as assets) that prove to be "anti-poor" in that they require capital, skills, land tenure, technology, production systems and time horizons that do not favour poor people".[347]

In fact, there are reasons to believe that the timber industry is inherently anti-poor: "Without being a deterministic feature, an economy built around a leading timber producing sector is unlikely to be particularly advantageous for its poor people".[348] The authors continue: "Timber values tend to accrue in the hands of a few companies and the interest groups they are allied with".[349] One of the consequences of this, as is explored in more detail elsewhere in this report (see Chapter 1) is that "high profits from timber can also promote corruption, which can jeopardise the integrity of national institutions", which can also have a wider negative impact on poor people.[350]

The authors of the CIFOR study ask "How valuable is timber in the hands of poor local people, with the same political power and access to capital and markets [as market oligopolies and policy-created monopolies]?" Sadly, the authors are unable to answer this important question. In addition, as is explored elsewhere in this report, whilst forestry institutions remain focussed on lucrative anti-poor timber exploitation, they are not properly equipped or inclined to develop more pro-poor forestry initiatives, such as community forestry.

There is empirical evidence that neither governments nor the private sector have reinvested significant levels of timber rents back into developmentally beneficial initiatives. There is no empirical evidence from anywhere in the world, let alone the Congo Basin, that there are significant "trickle down" effects of overall economic growth as driven by the timber sector. It has also been noted that the timber industry can contribute to the destruction of NTFPs which help to prevent already poor people from falling into poverty.

Taken together, this suggests that the putative economic rationale for agencies such as the World Bank to "develop" the timber industries in the Congo Basin and elsewhere as a means of alleviating poverty is entirely unsupported by any credible evidence. As the UK Department for International Development and the UN FAO have pointed out:

> "A people-centred approach can further increase the impact of forests and trees in reducing poverty. What is needed is the removal of barriers that prevent forests and trees from contributing to the livelihoods of the poor as well as support for emerging opportunities".[351]

At present, in the Congo Basin, the largest "barrier" would seem to be the industrial logging concession system, and the anti-poor institutions which service it.

[346] Gray, J. (2000) Forest Concessions: experience from countries around the world. IUFRO international symposium, integrated management of neotropical rain forests by industries and communities, Belem, Brazil.;[347] Angelsen & Wunder (2003) *op.cit.*;[348] Angelsen & Wunder (2003) *op.cit.*;[349] Angelsen & Wunder (2003) *op.cit.*;[350] Angelsen & Wunder (2003) *op.cit.*;[351] FAO (2001) *op.cit*.