

ECONOMIC ANALYSIS OF ARTISANAL FOREST

EXPLOITATION IN ORIENTALE PROVINCE, DEMOCRATIC

REPUBLIC OF CONGO: A BRIEF ASSESSMENT

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Objectives and main results

The aim of this socio-economic study was to establish how artisanal logging (formal and informal) is conducted in a relatively small area of Orientale Province of the Democratic Republic of Congo. A number of studies of artisanal logging have already been carried out in this part of Ituri, where such activities are particularly prevalent. However, the distinctive nature of this work was that it focused on the small-scale loggers themselves and analysed their activities in primarily socio-economic terms.

The results obtained largely reinforce the information already collected in this area by different organisations. Artisanal logging seems to be increasing in Mambasa Territory and it remains focused on the markets of Kivu and of neighbouring countries. The industry is characterised by the stranglehold which the Kivu traders have over the often indebted small-scale loggers. Prices are imposed on the local loggers that are highly unfavourable, despite the fact that market prices have been steadily increasing over the last few years. The price for a cubic metre of sawn hardwood now stands at around US\$ 160-180, and for softwoods or hardwoods of small diameter (rafters and planks....), at around US\$ 80/m³, these being sold primarily on the local markets. The variable production costs of small-scale timber processing are also increasing: for all species and products combined, they are estimated at around US\$ 110/m³. More than half of this cost relates to transporting the sawn timber out of the forest and then to the markets. Taxes and other bureaucracy represent around 10% of the total cost. The resulting profit margin for this activity is estimated at US\$ 18/m³ but this does not take into account the fixed costs relating to access to titles and resources.

Artisanal loggers have to cope with four main problems, all of which are linked more or less directly to their dependence on their Kivu “patrons”: (1) a lack of financial resources with which to improve productivity; (2) the costs of transporting the wood out of the forest, which is directly related to the size of the pieces of timber ordered by the buyers; (3) the low rate of wood processing, also linked to the need to produce only large pieces; and (4) the minimal returns for

local people, the result of a low sale price and the fact that the labour force is recruited from outside the felling area.

Despite these limitations, artisanal forest exploitation is an example of a profitable activity that can be implemented with resources that are available within these rural economies. Therefore if community logging is to be put in place in a practical way in the medium term a number of lessons need to be learned: felling in forests near to roads should be prioritised; existing markets should be targeted (whilst also trying to diversify); chainsaws should be used; and simple rules for felling and management need to be established.

Methodology

This socio-economic analysis was based on three survey methods: (1) open interviews about artisanal logging in Orientale Province; (2) semi-structured interviews to better understand these practices, both at the level of groups (“collectivités”) and individuals; and (3) questionnaires examining the economic costs and benefits of artisanal logging operations. One day was also devoted to a visit of a forest worksite. A number of reports on artisanal logging in the survey zone were collated and are listed in the bibliography.

Interviews were conducted with numerous people: 3 lecturers/researchers from Kisangani University, 7 representatives of civil society, 4 representatives of the administration, 2 representatives of artisanal logging associations, 4 members of a community management committee established by the Wildlife Conservation Society (WCS), and 28 artisanal operators (18 of whom were registered with the administration). Artisanal operators are considered here as those individuals who fell and process wood on their own account as well as those who operate one or more felling and sawing teams on the ground, the latter often being linked to external trade networks. The economic analysis focuses on 35 cases of sawing conducted in recent months in the survey zone, which included those with artisanal logging permits (19 cases), some with other

“authorisations” (7 cases), and some with no clear regulatory framework (9 cases).

In order to increase the number of surveys, two interviewers were involved part-time, one from Kisangani University and the other from the NGO OCEAN.

The work took place from the 11th to 24th May: in Kisangani (11th to 12th then 22nd to 24th May), Mambasa (13th to 17th May), Niania (18th to 19th May), and Bafwasende (20th to 21st May), in the districts of Ituri and Tchioppo of Orientale Province. It should be noted that the results and lessons learned from this work illustrate the situation of artisanal logging in this part of the DRC and cannot be extrapolated to other provinces.

General results & observations on artisanal logging

History of small-scale logging in the area

The interviews and reports consulted all indicate the same trend: manual sawing has existed for decades to provide local needs, but logging with chainsaws (“tronçonneuses”) appeared during the armed conflicts of the 1990s and 2000s, particularly with the establishment of Ugandan troops in the region (Makana, 2005). Today, pit sawing (“sciage de long”) virtually no longer exists and artisanal logging is based on the use of chainsaws for felling and processing. There are no mobile saws, such as the Lucas Mill, operating in the zone. Most sawyers currently working in the area have commenced or resumed this activity within the last five years (Umanay & Makana, 2009).

Presence of artisanal loggers

In all the communities interviewed, most sawyers seemed to be known to the administration and were often properly registered. They are grouped into more or less active associations. These associations operate as pressure groups, enabling them to enforce their demands on other actors, particularly the administration. They mainly comprise loggers who produce for export. Those operators who are authorised with the administration do not share any of their means of production: artisanal logging remains an individual activity.

	Mambasa	Niania	Bafwasende
No. of operators registered with the administration	56	6	4
No. of unauthorised operators	20	3	6
No. of processing workshops	5	6	1

Table 1: List of artisanal operators and processing structures

The number of sawyers known to the administration in Mambasa in 2010 was much higher than that estimated by Makana in 2005, indicating a substantial increase in the artisanal permits granted in this Territory in recent years. This trend is in line with the geographical shift of activities, these previously established primarily along the road to Beni but where marketable timber resources are probably now far scarcer (Nkoy Elela, 2007).

In addition to those operators that are known but working without authorisation, there are also sometimes sawyers operating without the knowledge of either the traditional authorities or the administration. Several cases were reported to us in which forest worksites had been discovered by chance, with no-one knowing who had been felling the trees. This anonymous felling makes it difficult for some local actors to exercise any real control over their customary lands, given their very large size and the lack of roads (Nkoy Elela, 2007).

There is also a specific class of occasional loggers, this made up of “rights holders” (Abdala et al., 2010). They comprise the traditional owners of the land on which the felling and processing of trees is more or less tolerated. In general, these small operators are mainly interested in the softwoods, these to meet local demand which is for low prices and at small-scale. They have few technical resources – spare parts for chainsaws are highly problematic – and very few links to external markets. Our research shows that the profitability of this activity is low, sometimes even negative.

There is little processing infrastructure and what there is, is not very sophisticated. It meets local demand and is not connected to export networks.

Legality of artisanal logging permits

A number of artisanal operators have official permits for undertaking logging. This does not mean, however, that these are in compliance with Congolese regulations. One reason for this, as also shown by Makana (2005), is that there is a wide range of documents being used to authorise logging that do not have the least legal basis. Numerous officials issue such documents in return for payment, these serving more or less to formalise artisanal logging, but such documents do not exist in current national or provincial regulations.

The second problem is linked to the actual implementation of official artisanal logging permits. Rather than renew them every year, operators instead request an annual allowable cut (“coupe annuelle”) for a small area of 5 or 10 hectares. The operator must pay US\$50 for each hectare, which explains the limited areas that are requested. It is highly unlikely, however, that logging activities are confined to this small area during the year. The only concession that we visited, accompanied by a “model” operator, clearly showed that the granting of an annual allowable cut enables felling to commence without any regard for the area or the volume noted in this document. Thus even if the operators hold legal documentation, the legality of the logging practices nearly always remain dubious. Moreover, the administration very rarely monitors this: in four years, the head of the Mambasa Environmental Department has not issued any infraction reports or penalties against artisanal loggers.

Destination of processed products

Most of the sawn timber products go east to supply large urban centres, above all, being exported to Uganda, Kenya, Rwanda and Sudan. This concerns primarily large, untreated hardwood products (with a unit volume over 0.1m³) such as sapelli, kossipo, acajou or iroko (Forests Monitor, 2007). These products are refined either in Uganda or Kenya to offer semi-finished products of a higher quality for the end buyers. An important share of the products value is added during this second processing (Forests Monitor, 2007; Umunay & Makana, 2009). All the logging that takes place in the area to the east of Niania is largely aimed at the export market.

Two kinds of product are offered on the local market: (1) small pieces, such as rafters, which are the by-products of production for export; (2) medium and small-sized pieces of softwood for construction needs or for manufacturing coffins. It is primarily these products that can now be found in the area of Bafwasende, where small-scale sawing primarily serves local demand. The zone situated to the west of Bafwasende is aimed more at the Kisangani market and, to some extent, that of Kinshasa via Kisangani.

Economic results

Thirty-five cases of artisanal sawing in the communities selected were analysed from a financial aspect. A summary of the results, along with a number of discussion points, are outlined below.

Sale price and volume

Products that are sawn artisanally can be sold either on the forest borders or from more or less formal urban depots. The sale price per cubic metre is higher when the wood is sold in town. These products may supply the local market or be for export, and in both cases, prices vary greatly. The sample was too small to be able to give a full list of the prices paid but, generally speaking, large pieces of hardwood are sold at around US\$160-180 per cubic metre in Mambasa and Niania when they are destined for the east of the country and beyond, and US\$20 less when they are destined for Kisangani (Tevó Ndomateso, 2007). Even while these sale prices are clearly higher than those noted in 2006 (Makana, 2006), they represent only half of the price these products fetch at the border and less than a third of the price in the foreign markets of Kampala or Nairobi (Nkoy Elela, 2007). Timber destined for the local markets are sold at very low prices: in Mambasa, for example, a cubic metre of rafter sells for around US\$80.

It has proven difficult for local operators to increase these prices. The vast majority of them are dependent upon traders established in Kivu, Uganda or Kenya who provide them with materials and funding (Umunay & Makana, 2009). This leads to spiralling debts for the operators, who are no

longer able to negotiate the price of the wood with their “patron”, and the price paid is used to pay off part (never all) of their debts.

Another effect of this asymmetrical patron-client relationship is the systematic under-estimation of the volumes being sold by artisanal operators. On the pretext that the pieces delivered will need to be reshaped and sometimes resized, the patron-purchasers apply fictitious cubage standards that reduce the real volume by between 30% and 60%.

The combination of a low purchase price per cubic metre and the under-estimation of volume is aimed at keeping artisanal operators under the thumb of the traders in Kivu and in neighbouring countries. Only those operators working to meet local demand manage to avoid these unfair practices: they are few, particularly in the areas that can export wood to the east, and represent only a small amount of the timber logged, particularly in Ituri.

Cost distribution

Artisanal operators have to pay fixed costs to be able to gain official access to the timber resources. These relate firstly to the formal and informal costs of obtaining a logging permit and, secondly, to meeting the terms and conditions agreed with the customary chiefs.

The cost of an artisanal logging permit is set by the administration: (1) US\$500 to obtain forestry profession approval (for 3 years); (2) at least US\$600 for the different local authorities to draw up the land vacancy notice issued for a specific “concession” (between 25 and 200 ha); and (3) US\$50/ha to log a given area in the concession for a year (operators generally request 5 or 10 hectares per year).

When a community grants a “concession”, they establish terms and conditions (“cahier des charges”) detailing what the operator must provide in kind to the population, this in fact nearly always going to the village chief and his family. The terms and conditions form a written document and a copy is generally kept by both the operator and the village chief. These terms and conditions are generally quite similar in their content: the provision of corrugated iron sheeting, bikes, motorbikes, spare parts and livestock... most often accompanied by a few hundred dollars. The total cost

incurred in meeting these terms and conditions seems to have increased substantially in recent years. It now stands at around US\$2,000 and is still rising.

The money to cover these fixed costs is generally lent in advance by the “patron”, the local operator rarely being in a position to pay out over US\$3,000 before even commencing work.

Once the concession has been obtained or the agreement made with the customary owner, the artisanal operators have to bear various kinds of variable cost: a fee for every tree felled (particularly if felled outside the concession), payment of salaries, taxes, intermediary inputs, equipment, transport, food for staff and so on. The total of variable operating costs and transport costs for artisanally sawn wood stands at around US\$110/m³ in the 35 case studies analysed. An estimate and breakdown of the different operating costs can be found in Figure 1.

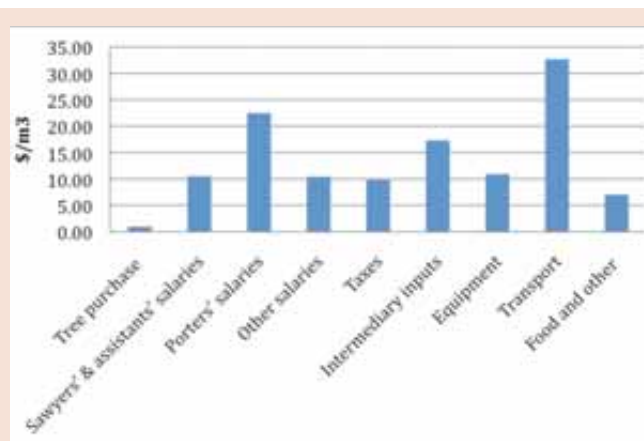


Figure 1: Estimate of the variable costs of artisanal logging

The purchase of trees is a negligible cost, and this seems to be for two reasons. Firstly, once a concession has been allocated to an artisanal operator, they no longer have to pay for tree felling, even if the felling exceeds the maximum volume noted on the permit. In fact, payment is only made for standing trees when there is a direct arrangement between the operator and a customary owner in either a legal (for example, forest clearance for farming) or informal context, apart from the establishment of “cahier des charges”. This set-up represents less than half of the cases

analysed. Secondly, standing trees are sold at excessively low prices, between 20 and 60 US\$ per trunk, particularly since these artisanal operators are often native to the area and so can easily come to an understanding with their family or acquaintances. These trees are generally of a large diameter and, on average, enable around 6.7m³ of sawn wood to be produced per tree. This amounts to a derisory average cost when compared to all the cases looked at.

Salaries paid locally represent a significant item of expenditure. In most cases, salaries are paid to workers from Kivu who come specifically to the area to engage in artisanal logging. It is surprising to note that, even for basic tasks such as portering, few employees are recruited locally and, when they are, their salaries are often less than those of the immigrant workers (Nkoy Elela, 2008).

There are a large number of taxes that artisanal operators have to pay in the area studied, as many as 34 according to Polepole (2008). Many of these did not exist in 2005 (Makana, 2005). Most of them are illegal and thus not systematically applied. An operator selling his wood on the forest edge generally avoids all taxation. Most of these taxes are levied on the volume of wood produced or transported and are paid at the place where the lorries are loaded with the sawn wood and along the route. For example, a lorry loading wood at Mambasa may pay up to US\$90/m³ at the time of loading. In most cases, receipts are not given for these payments and they do not reach the State Treasury.

The high level of expenditure on equipment and intermediary inputs can partly be explained by the isolation of the area: spare parts for chainsaws, fuels and lubricants etc., are extremely expensive here. Many sawyers regularly replace their chainsaws in order to reduce the costs of repair. This further reinforces their dependence on their patrons in Kivu or Uganda, as they provide them with relatively cheap equipment, deducting the cost from the value of the next delivery of sawn timber.

The transport of wood to urban centres is the biggest budget item, given the distances that have to be covered - 2,800 km to Nairobi for example - the informal taxes to be paid along the route and the generally bad state of the roads, bridges and transportation. It is these conditions that

explain why only hardwood products are sent to the east of the country, as their final price is sufficiently high to cover the transport costs.

Profitability

The average profit made per cubic metre of sawn wood is around US\$18/m³, according to the 35 case studies examined here, around the same as Makana's (2006) estimate of around US\$20-30/m³. This is the difference between the total received from selling the products and the sum of the variable costs. The average volume of wood sold was 22.5m³ - although the volume actually produced was 32m³ - for the 35 sawing operations. The total average profit from a sawing operation is thus around US\$400 per artisanal operator. At an average daily production of a cubic metre of sawn wood (Tevo Ndomateso, 2007; Ondoua, 2009), it would take around a month's work by one sawing team to achieve such a volume and such a profit.

It should, however, be noted that the fixed costs (requests for approval, artisanal permits, annual cutting request and compliance with the "cahier des charges") are not included in this calculation as they stretch over several years and/or over annual volumes and these have not been possible to estimate for this study. In general, a substantial proportion of the profit obtained by the operator is used to reimburse the patron (in eastern DRC, Uganda or Kenya) for the fixed costs that they paid up front. Many operators never manage to pay back all of the loans advanced by their patron, and this forces them to continually seek out more forest worksites so that they can pay off their debts.

A wider sample of people questioned would have enabled at least two categories of operator to be distinguished, for whom the costs and profits seem to differ significantly: (1) those focused on supplying urban centres in the east of the country and neighbouring countries; (2) those who primarily meet the local demand. While the operating costs are relatively low for these latter (few taxes, no transport...), the local prices are also very low and do not always cover the investment made. The level of profit seems to be clearly higher for operators who export their product to Kivu and beyond, even if they face significantly more complexities and red tape.

Two major problems encountered by artisanal operators

Financial dependence

The start-up costs for an artisanal operator are substantial and very few actors are capable of finding such funds in the current context of rural economies in the DRC. Most active operators thus find themselves linked to traders in Kivu, Uganda or Kenya. These traders loan them funds in advance and then perpetuate their indebtedness, enabling them to purchase wood very cheaply. To challenge this relationship of dependency now would seem very difficult given that these traders control the market and have preferential links with certain senior officials who have influence in the trade. It is likely that an operator wishing to start up in this activity independently and at his own cost to sell wood for export would face enormous difficulties. And yet if there is to be a better distribution of the income and profits generated by this sector then these political/trade relations have to change, to the benefit of rural economies and local populations.

Transportation of wood

Getting the sawn wood out of the forest and then to market is a major concern for artisanal operators in Ituri and the Kisangani region (Bugale Matenga, 2009). The trees are often very far from the road and once there, it is still a long way by road to the markets. Moreover, unlike salaries or the costs of sawing, transport costs are based on the actual volume transported, with a unit tariff, and not on the fictitious volume imposed by the patrons-traders. Unless there is a shift in demand towards smaller products and different species, it is hard to see how the transport distances by bike and the unit cost of transport could be reduced.

The state of the bridges is a major concern for a number of artisanal operators: as has been seen on two occasions in recent years (Ituri and Epulu), a bridge collapsing blocks the flow of products to Kivu. Most of the bridges in this area only officially support 25 tonnes and yet a number of 70-tonne lorries pass over them every day. Given this pressure, it is likely that more bridges will collapse very soon. This threat is, for example, known to operators in Niania and it undoubtedly limits any increase in their number in this

particular area. Consequently, it is likely that the renovation of the road in this region, initiated by the World Bank, will be a factor in the growth of artisanal logging in Ituri (Adebu & Kay, 2010).

Local ecological and socio-economic impacts of artisanal logging

Impact on the forest

The direct, and above all indirect, impacts of artisanal logging on the forest are generally criticised (Nkoy Elela, 2007; Brown & Makana, 2010; Adebu & Kay, 2010) but are as yet little documented. The modes of operating currently in use are related, in our opinion, to market demand, primarily that of Kivu, Uganda and Kenya, where large pieces of hardwood that will be easy to reshape and sell in the form of semi-finished products are much in demand. This commercial demand pushes operators to seek out above all the large-diameter hardwood trees (sapelli, kossipo, iroko, acajou), as noted by Makana (2006). These species make up more than 90% of the volume noted in our surveys. The average volume of sawn wood taken from these trees is 6.7m³/trunk – nearly double the average volume taken in Cameroon (Cerutti & Lescuyer, 2010) – this indicating the availability of large-diameter trees in these forests and the operators' clear preference for them. These trees are increasingly rare close to the exit roads, which encourages operators to penetrate more deeply into the forest. It is not uncommon to have to walk for more than an hour before reaching the trees to be felled. The other consequence of the focus on large-diameter hardwood trees is that smaller trees are often overlooked by operators, as are all species for which there is not a strong market in Kivu.

Another concern relates to the apparently low processing rate of rough timber into sawn wood, which results in an inefficient use of the raw material (Forests Monitor, 2007). This has not yet been confirmed by any reliable study in Ituri. It is nevertheless true that production of pieces of a large unit volume tends not to optimise processing: offcuts that are less than the required size are nearly always rejected when they could easily be used to produce rafters or planks of a smaller size, sometimes in large quantities.

Impact on the village populations

Relations between the local populations and artisanal loggers are a source of complaints from all sides (Nkoy Elela, 2007). Despite the formal commitments and payments made to the village – the expenditure incurred due to the “cahier des charges” is often close to US\$2,000 – the operators frequently have to deal with complaints from local communities, particularly when they remove a significant volume of wood from their concessions. Furthermore, the payments made by the operator typically only go to the village chief and his close family, and the workforce nearly always comes from North Kivu (Makana, 2006). Therefore, the impact of artisanal logging on the rural economy would seem limited (Forests Monitor, 2007; Brown & Makana, 2010). One measure often mentioned as a way to improve this impact is to establish a standard model for “cahier des charges”, including minimum standards for their content and the sharing of benefits (Nkoy Elela, 2007). It goes without saying that the village chiefs and artisanal operators are not very enthusiastic about standardising these arrangements. A further option would be to provide better training for young people from the village so that they can be hired by the operators, particularly as saw operators. However, there is a kind of solidarity among members of the Nande ethnic group who, from the patron to the lowest porter, have monopolised these jobs for years. It is unlikely that they will readily agree to step aside for the indigenous population, whatever their level of training.

Conclusion

The artisanal logging of timber in Ituri is largely criticised today without, however, a global evaluation of the trade or of the revenues generated having been conducted. This activity clearly contributes a significant volume of timber exports to neighbouring countries, although the State and the local populations benefit little from this activity. The Congolese government has, for the last two years, been involved in negotiations with the European Union to sign a Voluntary Partnership Agreement in the context of the FLEGT process which will involve, in the medium to long-term, establishing a system of traceability for all wood logged nationally. Artisanal forest exploitation, still largely informal, will thus need to be regulated, legalised, and placed on a more secure basis. A combination of regulations and incentives will probably be needed to achieve this objective. These will be all the more effective if they draw inspiration from the real practices of actors engaged in this industry. It would therefore seem necessary to improve understanding of how artisanal logging is conducted and of the legal, economic, social and political constraints it faces on the ground. These constraints will need to be overcome if the gradual formalisation of this sector is to be successful.

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