Sustainable Management of Cameroon Forests Resources: Providing timber waste to the poor populations as alternative source of energy.

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Abstract

Cameroon is covered by about 20 million hectares of forests. Timber exploitation is the second source of external income after petroleum. Besides, Cameroon's forest has several other functions. Yet the threat to the very existence and survival of this forest is rapidly increasing due to overexploitation by logging companies and for firewood. Despite its usefulness, a substantial volume of the wood felled by timber exploiters is abandoned as waste to rot. This waste can be used as firewood by households even for building and making of furniture by small-scale users like carpenters if they had access to it.

This paper encourages the use of timber waste as an alternative to kerosene, which has become very expensive and unaffordable due to the general rise in the price of petroleum products in recent years. The overexploitation of forests can therefore be limited by putting the waste timber into use. It will go along to reduce freshly cut wood which is usually cut illegally and uncontrollably and which is a major source of depletion of forest resources. This project, once achieved will forever last because it will always generate revenue to the groups involve in the collection and the distribution of forest waste which will make money from sales even if they were to sell cheaper since the major cost is transportation and the waste wood is also cheap to obtain from the logging companies or even costless since they have less interest in it.

1. Introduction

The tropical forests throughout the world are gradually threatened to disappear and thus constitute one of the major environmental problems in both developed and developing countries. In the decade 1980-1990, an estimated 137.3 million hectares of tropical forest were cleared, about 7.2 per cent of the total that existed in 1980 (FAO,1996).

In Africa between three and five million hectares of tropical forests disappear each year, an area greater in size than the country like Togo and larger than several European countries (FAO, 1996). Compared with other regions, Africa has been the most affected with an annual deforestation rate of 0.7 per cent (Marcoux, 2000). Cameroon is not left behind and it is covered by about 20 million hectares of forest. Timber exploitation is hereby the second source of external income after petroleum.

Cameroon is also one of the Sudano-Sahelian countries in Africa that shows sign of some desertification (Cleaver, 1992). It appears therefore that deforestation in Cameroon should be the preoccupation of policy makers because of its threat to ecological sustainability and to socio-economic development in the long run.

The high speed of annual deforestation in Cameroon accelerates degradation of forestry resource and environment. In a total surface area of 475, 105 ha, forest covered an area of 280.25, 105 ha in 1965. This forest area dropped to 233,

105 ha in 1980 (World Bank, 1992). Meanwhile in 1995, the extend of Cameroon forestland came down to 195.98, 105 ha, that is loss of 37.02, 105 ha (16 per cent) of forest compared with 1980. This forest-clearing process was at different rates from one period to another. Thus between 1980 and 1985, the World Bank (1992) estimated an annual forest loss rate of 110, 103 ha. This rate rose to 122, 103 ha during 1980-1990, to 190, 103 ha from 1990 to 1995, and finally to 205, 102 ha between 1990 and 2000 (World Bank, 1995; FAO, 2001). Generally deforestation rate estimates in Cameroon range from 80,000 to 200,000 hectares per year (Ndoye and Kaimowitz, 2000). However, Laporte et al, (1990) made the most serious effort to measure deforestation and found that an average of 130,000 ha of forest was cleared each year from the mid 1970s.

This accelerated rate of deforestation is facing a rather mediocre regeneration effort estimated at 1,000 ha per year (World Bank, 1995). This is why the identification of factors leading to the halting of forest disappearance has become a priority (Gbetnkom, 2005). A step toward this aspiration was recently made by revising the forest policy in order to promote sustainable use of forest resources. This has resulted to the creation of "Office Nationale de Développement des Forêts" (ONADEF) in 1990 and the Ministry of the Environment and Forest (MINEF) in 1992. Regulation governing the entire forestry sector has also been significantly modified with the creation in 1995 of the National Forestry Action Program (NFAP). However, the pressure on forest area is not yet reduced, indicating the need for further investigation of the causes of deforestation.

This threat to the very existence and survival of Cameroon's forest is rapidly increasing due to overexploitation by logging companies and by household for building and for firewood. Unfortunately, the activities of these two agents on the very forest are not synchronized. The first agents abandon a sustainable volume of the wood as waste to rot in the forest whereas the second agents, instead of using waste wood will rather illegally and uncontrollably cut fresh young trees.

By the way, it's estimated that for 1m3 of log remove from the forest, loggers abandon 5 m3 of wood as waste, which is constituted by rots and branches. Therefore, the main goal of this paper is to create a framework that would encourage the use of timber waste by poor population as an alternative to kerosene that has become very expensive and unaffordable due to the general rise of petroleum product in recent years. These will go along to eradicate extreme poverty and hunger and ensure environmental sustainability, which constitute the first and the seventh MDGs (Millennium Development Goals).

The remaining part of our analysis will be centered on three points. Section 2 presents the literature review, section 3 the implimentation and the results of our proposition and section 4 covers the conclusion.

2. Literature review

The rhythm of evolution of desert in the world has once more put on scene the problem of deforestation. This problem urges researchers to look for causes of accelerated clearance of tropical forests. Debates on this issue have resulted to abundant theoretical and empirical literatures as well.

Theoretical literature

As far as theoretical literature is concerned, the tropical depletion relies principally on two different approaches, namely the population

(subsistence) approach and the open economy (market or profit-maximizing approach)[1].

The subsistence and market approaches refer to different assumptions made about household behaviour and the labour market, the latter being the most important (Angelsen et al., 1999). In the first approach, no labour market exists, whereas a perfect labour market is assumed in the open economy approach, where any amount of labour can be sold or hired at a fixed wage.

Compared with the population approach, the market approach has a different way of reasoning, although the key change in the underlying model assumptions is only the introduction of a labour market where labour can be sold at a fixed wage. This wage rate gives the opportunity costs of labour used in agriculture.

The forest clearing decisions can then be examined as a profit-maximizing problem. However, this does not mean that the household's overall objective is to maximize profit. The perfect labour market assumption implies that production decisions can be separate from the consumption and labour supply of the household (Angelsen et al., 1999).

Empirical literature

According to the empirical literature, causes of deforestation have been attributed to several factors. In Sudan, Stryker et al. (1989) found that increased producer prices of export crops encouraged woodland clearing for crop cultivation and this resulted in significant deforestation. Based on the market theoretical approach, Angelsen et al.'s (1999) statistical analysis in Tanzania showed that the increase of agricultural output prices, in particular annual crops, is a major factor behind deforestation. The results of these authors were confirmed in Ivory Coast where the effects of price increase of export goods contributed to deforestation but to a lesser extent than the lack of a consistent and secured land tenure system (Reedy, 1992).

Asare and Asiedu (2000) found in Ghana a long-run equilibrium relationship between the producer prices, and agricultural credit, on the one hand, and deforestation, on the other hand. According to the findings of these authors, higher levels of fertilizer prices, food crop prices and coffee producer prices stimulate in the long-run higher level of deforestation whereas higher levels of agricultural wages precipitates lower levels of deforestation. Other empirical works reveal that devaluations undertaken in Ghana at the beginning of 1980s motivated forest exploiters to intensify tree felling for more exploitation of timber and woodwork. This ended up accelerating deforestation (World Bank, 1994; Pimentel et al., 1991). These results were confirmed in Malawi (Cromwell and Winpenny, 1991), and in Botswana (Perrings et al., 1988).

Although Cameroon is situated in the tropical area and especially in the Congo basin, very few studies on the causes of deforestation and sustainable management of its forest resources are available. Ndoye and Kaimowitz (2000) looked at the influence of macroeconomic and agricultural policies, market fluctuation and demographic changes on the humid forest zone of Cameroon between 1967 and 1997. To capture deforestation, they used increases in perennial crop area and in the combined area of annual crops. The results indicated that, after the oil boom, the Structural Adjustment Program (SAP) and the devaluation of

[1] However, other approaches such as the Chayanovian or the general equilibrium approach can yield hypotheses that are consistent with both approaches that we mentioned.

the CFA franc in 1994, the net effect of cocoa, coffee and food production increased the pressure on forest areas.

A study of deforestation in the area around Ndelélé in the east province based on remote-sensing analysis points to a market increase in deforestation after the economic crisis in the mid 1980s (Mertens et al., 1999).

The impact of SAP on forests is also addressed by Kaimowitz et al., (1998) using a comparative analysis between Cameroon, Bolivia and Indonesia. The results indicate that forest clearing for food crops increased under SAP. Nkamleu et al. (2002) examined fuel wood consumption in households of forest zones in Cameroon. The results confirmed the importance of fuel wood as a source of energy, and the econometric analysis showed a negative correlation between income levels and fuel wood consumption. Finally, a series of papers focusing on these causes of deforestation confirmed the high rate of forest clearing in Cameroon and concluded with the necessity of some well-elaborated protection policies (Cleaver, 1992; Besong, 1992; Toorntra et al., 1994).

Comparing with the studied reviewed above, our paper is revolutionary as it has two specific novelties. First, it combines both approaches in other to synchronize their actions while reducing the forest clearance. Hence, the two categories of agents could satisfy their needs focusing on the same area. In the same vein, households, especially poor ones would use the wastes of the logging companies as an alternative to kerosene that is becoming more and more unaffordable by these latter. Secondly, these categories of population generally rely but on agricultural sector and would use these available land for this purpose instead of clearing new forest land as they used to do.

3. Implementation and results

Implementation

In this project, four different actors will be involved with mutual benefit for the protection of the environment: first, the local council authorities within the east and south provinces, also logging companies, then group of distributors of waste timber most of who will be common initiative groups (CIG) and lastly the households. Our main goal is to put them together for the environmental sake that is to harmonize their actions in other to reduce forest depletion. Therefore:

- We shall concert with the local council authorities especially those of the south and east provinces because three quarter of our forest is located in the latter province and almost the one quarter in the south province. Consequently, these areas are under the control of these authorities;
- We shall equally negotiate with logging companies to allow distributors to have access to the waste in various sawmills and even in forest concessions where these wastes are dumped and at times hinder their works;
- We shall suggest the creation of groups of distributors most of which will be CIG as it is a more holistic and participative approach to the protection of the forest and the sustainability of energy. This will go along creating job opportunities to lots of jobless young people within villages and cities. Then we shall identify the various locations where the distributors will be based;

- Finally, we shall sensitize the households that are represented by the population mainly the poor ones who rely from the wood to do lots of things especially to have fire. This shall be done throughout various ways including media or forums like this where we shall easily inform them why they should get firewood from the distributors and why this is important for the sustainability of our forest endowments.

Unlike most projects, this one will financially be self-sustainable because after its implementation, the project will generate revenue from sales. Besides, since the waste wood is cheap to obtain from the logging companies who have less interest in it, the various groups involved in distribution will make money from sales even if they were to sell cheaper since the majors costs they will have to incur is transportation. Therefore, revenue from sales will be devoted to sustain the project and pay profits to the distributing groups involved.

By so doing, we are not encouraging over exploitation done by logging companies. In the contrary, we propose that government should increase costs and risks of production associate with deforestation and ban exploitation from protected areas and also forbid inappropriate deforestation. Consequently, substantial increase in taxes and charges set by government for the exploitation of natural forests might reduce logging in inappropriate areas and marginalize some of the least efficient operators from the industry, who may also be amongst the most destructive. Besides, this forestry exploitation needs to be well organised in other to provide enough funds through taxes to the government for nation building and fight against poverty.

Results

From this analysis, we can have several outcomes:

- The first one consists of providing access to low cost energy source to the poor population in order to help them to achieve one of the Millennium Development Goals (especially MDG 1) which is the reduction of poverty;
- Secondly, the project will help in curbing poverty by providing jobs to the members of the common initiative groups involved in the project;
- The third outcome consists of discharging the logging companies from the burden of such timber waste;
- The fourth one will help in reducing forest degradation or excessive exploitation of forest resources (MDG 7);
- The fifth outcome is that this project will go a long way to reduce tensions or conflicts of interest between the logging companies and the local communities and will generally help in the sustainable and rationale use of these resources.
- Finally, the waste timber will also be made available for building and making of furniture by small-scale users like carpenters.

4. Conclusion

In other to protect the remaining forest area with the high speed of deforestation noticed nowadays, a state of awareness is necessary. Therefore, government has to put lots of efforts to protect reserve areas and to ensure proper management of the non-reserve one by making sure that all the forest products are rationally used from logs to wastes. Hence, it's good that government should increase monitoring by increasing awareness of

population through sensitization on programs for sustainable use of environment, forums, local radio station and even by threat or punishment if anyone is caught selling wood that is not collected from waste.

Any region in the country that has forest resources which are being exploited or in any other part of the world could benefit from the implementation of our project. Most countries in the developing world particularly those around the tropic with abundant forest resources but which stands the chance of been overexploited either for logging purposes or fuel can benefit enormously because this project addresses a pertinent issue that could be common to different countries with the same characteristics. The methodology processes and lessons learnt from our project will be applicable to a broad range of countries irrespective of their situation. Such benefits could be maximized and extended through coverage in local, regional and international Medias.

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