

COMMUNITY FOREST EXPLOITATION AND POVERTY
REDUCTION
IN THE LOMIÉ REGION, CAMEROON

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Abstract

This article aims at analysing the economic impacts of the community exploitation of timber on the riparian populations. Data were obtained from field survey which we carried out on 200 individuals in the Lomié area, East Cameroon. Using the tests of comparison of means, we observed that community forest exploitation is a provider of many small employments, not necessarily qualified, and that from those activities the incomes of villagers and their social expenditures have increased significantly.

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Key words: traditional exploitation, community forest, environment, monetary poverty.

1. Introduction

It is generally accepted that the industrial exploitation of timber in most African countries, though it has contributed to the growth of their respective Gross Domestic Products (GDPs), has practically not brought any benefit to the riparian populations of the zones of exploitation of the resource. This led Cameroon to adopt new forest legislation in 1994 in which the concept of Community Forest (CF) is put forward. Its main objective is to first of all benefit the local rural populations concerned through their participation in the conservation and management of their forest.

The forest is central to the life of the population of the East Province of Cameroon. The population lives in a natural dependence and even organic relationship with the forest through the exercise of their “rights of usage” on the forest resources.

The forest is among the largest renewable timber and non-timber natural resources of Cameroon. It occupies 60% of the national territory, being about 22 million hectares. Concerning timber resources, the national forest sector already contributed for 15% of international trade in 1995, which represented 6% of GDP (Fao, 1997). In the year 2000, forest exploitations in the country rose to 25% of exports, representing 7% of GDP (Fomete, 2001). On the fiscal side, from 2 billions in 1993, revenues from the forestry sector increased to 40 billion CFA F in 2001/2002, representing a growth of 95%.

Law n° 94/01 of 20th January 1994, regulating forest, wildlife and fishery in Cameroon, made provisions starting January 1999, for the stoppage of the exportation of timber of certain species called “traditional”. These species are those that are highly demanded. Also, there exist a less popular “intermediate” species and whose exploitation is in progression. The last category is that of “promotion” species which are not well known and that need advertising. In August of the same year, an Ordinance from the President of the Republic stated that 70% of timber will henceforth be transformed locally, for a period of 5 years, i.e. up to 2004. An exception is given to “promotion” species that can still be exported for five years after 2004, that is, normally up to 2009. Above this date, all species must then be transformed locally at 100%.

Traditional exploitation of timber in a community framework was therefore authorised parallel to classical industrial exploitation in order to respond to this exigency of domestic transformation.

1. Problem statement

Up to 1994, the date of promulgation of the new forest law and its decree of application (Decree n° 95/531/PM of 23rd august 1995), timber exploitation was essentially in the hands of industrial exploiters using heavy and expensive machinery. According to Nemb (1999), the search for profit made them practically destroy the resource by anarchically cutting the most demanded species while destroying on their way the less profitable ones. "The industrial exploitation of timber is based on the logic of profit maximisation linked to the exploitation of the timber resource which is in direct opposition with participative management and especially with the equitable redistribution of revenue" (Auzel and al., 2001). This rises at least one problem: that of the weak contribution of the exploitation of the resource to local development.

Actually, « the people living in forest zones are among the most marginalised groups in the Cameroonian society despite a favourable biophysical environment. The massive exploitation of their timber has brought little to them in terms of the amelioration of their living conditions. About 66% of Cameroonians resident in forest areas live below the poverty line.... » (Brown and al., 2002). Therefore, there exists a sort of paradox between the ecological wealth of the state and the economic poverty of dense forest populations (Buttoud, 1994).

In addition, most studies on the importance of the forest sector have been carried out in the macroeconomic view point. As such, they have always been satisfied with the contribution of the sector to economic growth. Nevertheless, due to the "unicity of accounts principle" in public finance, zones of forest exploitation and their populations do not always sufficiently benefit from development programmes of public authorities and forest exploiters during the redistribution of national wealth (Nkengfack, 2008).

To the best of our knowledge, little or no serious study has been carried out in order to analyse the impact of forest exploitation on the daily life of riparian populations, hence the interest of this study which examines the impact of traditional exploitation of timber on the revenue of the local population, on their expenditures on health, education, and feeding.

In Cameroon, in order to promote solidarity and participative development, laws on freedom of association, on cooperative society and Common Initiative Groups (CIG), and on Economic Interest Groups (EIGs) were promulgated in 1990, 1992 and 1993 respectively (Minef, 1998).

The Law¹ and its Decree of application make provisions for the putting in place of community forest defined as « a non permanent forest of the forest domain, managed through a convention between the rural population concerned and the administration in charge of forests. The management of the forest is left in the hands of the concerned local community with technical assistance from forests authorities» (Art.3, al. 11 of the Decree). Community forests can also be seen as a set of dynamic processes aimed at including rural populations in the management of forest resources, in order to contribute to the amelioration of their standards of living and to promote local development (Bigombé Logo, 2002).

Also, to reinforce this Law, it was instituted that community forestry has a right of precedence on forests over industrial forest exploitation. This privilege is called “pre-emptive right”. It was issued in 2001 by Arête n° 0518/MINEF/CAB of the Minister of Environment and Forestry and fixes the modalities of attribution, in priority to local riparian populations, of any forest susceptible to be made a community forest. Nevertheless, the first condition of application for the attribution of a community forest is that it should come from a judicial moral entity. The Decree stipulates that “the community must have a moral personality, in the form of an entity provided for in the legislation” (Art. 28, al. 3). According to the laws of 1990, 1992 and 1993, these judicial entities can take the form of an association, cooperative society, CIG or EIG.

2. Objective of the study

The main objective of this study is to investigate the impact of community forest exploitation on the welfare of the local population. Specifically, the study seeks to:

- analyse the impact of community forest exploitation on the activity and employment level of the people;
- analyse the effects of the exploitation activities on poverty indicators such as expenditure on health, education, food, etc.

¹ Each time we will be talking of law n° 94/01 of 20th January 1994, we will simply write « the Law » and « the Decree » whenever we will be talking of decree n° 95/531 PM of 23rd August 1995.

3. Hypothesis

The main hypothesis of the study is that traditional exploitation of timber by rural populations in a community framework is more likely to yield higher financial revenues directly perceived by them compared to classical industrial exploitation.

4. Methodology

To reach our objectives, we intended to identify the causal links that could exist between traditional exploitation of community forests and the level of economic welfare of the local population.

To do this, we elaborated a questionnaire that was administered to 200 households of three villages of the Lomié region of the East Province of Cameroon. The exploitation of the responses led to the construction of a model which reveals among others the preference of the local populations for community forestry.

A factorial analysis of multiple correspondences was done using the SPAD 4.0 software to determine the most discriminating variables that bring pertinent information to the model. Those variables are shown in Table 1. (See table 1).

After that, using the test of the comparison of means, we investigated whether revenues received by agents during the phase of exploitation of the community forest and their social expenses (health, education, nutrition) were significantly different from those received before. The test carried out was the following:

- Null hypothesis (H_0) : mean (variable 1 - variable 2) = 0 against
- Alternative hypothesis (H_a) : mean (variable 1 - variable 2) < 0,

where «variable 1» and «variable 2» represent the studied variable respectively before and after the beginning of the exploitation of the community forest. The data was analysed using Stata 8.0 software.

5. Results

The analysis consisted in comparing the amount of revenue generated by the different activities performed by the populations before

(marked by index 1) and after the phase of exploitation of the community forest (marked by index 2) and in testing if they are statistically different. It is carried out both on the global amount of revenues generated by the different activities and on each activity considered individually.

Concerning global revenues, the results of the tests on the means are summarized in table 2.

(See table 2).

From the table 2, we notice that on average, global revenues received with the exploitation of the community forest were significantly higher than those received before the putting in place of the community forest. Actually, a resident of the Lomié region received on average a monthly revenue of 31 254.25 CFA F before the setting up of the community forest against 44 041.6 CFA F after, representing a growth rate of 40.91%.

(See table 3).

As concerns the different activities taken individually, we notice that revenues earned from the cultivation of cash crops such as coffee and cocoa witnessed a slight drop. Actually, the fact that the population is engaged in community forestry activities and therefore has the possibility to earn higher revenue at all moments, coupled with the fall in the world prices of these products, discourages them from the production of these products. The same holds for hunting and fishing activities, and for « other activities » that witnessed a drop. On the contrary, revenues from the cultivation of food crops noticed an exponential growth. Reasons for this situation include the fact that the local population did not put in the same time for the production of cash crops with the advent of the community forest, revenues increased due to the expensiveness of these products which became insufficient to meet demand. In addition, the exploitation of the forest led to the construction of roads for the transportation of timber to points of transformation and as such also facilitated the movement of food crops towards urban centres.

The development of petty businesses like the sales of food and local drinks was also observed. With the aim of maximising income from community forests activities, villagers work until late in the evening and go back home exhausted. For breakfast and lunch, they prefer road side restaurants. Revenues from the production of « moabi » oil, the drying of mango seeds, the gathering of medicinal plants, etc., are more and more important. All these results are summarized in table 4.

(See table 4).

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Galati University Press, ISSN 2065 -1759

Incomes from classical activities (coffee and cocoa, hunting and fishing, food crop cultivation, gathering, petty trade, and other activities) hence forth produce a wage bill twice bigger; 2 735 293 CFA F against 1 358 019 CFA F.

Concerning activities directly linked to the community forest, we notice from table 5 that the profession of «Sawyer» generates a much higher average monthly revenue of 7 400 CFA F. It is a specialised activity and employs only a limited number of people.

(See table 5).

Unlike “Sawyer”, the profession of “Carriers” (transportation of sawed up timber on human backs), though generates a lesser revenue (6 779 CFA F), is a labour intensive activity. In effect, it’s the only one that does not require training. This is also why all alike, youths, men, women and old people carry out this activity each according to his physical aptitudes. It is through this activity that the population receives the highest amount of direct revenues generated by the community forest.

Another important result has been to note that the average monthly revenues of 33 658 CFA F generated by classical activities are still higher than those generated by activities directly linked to the exploitation of the CF, that is 27 932 CFA. This is due to the fact that the wage bill generated by timber exploitation activities is only 746 697 CFA F against 2 735 293 CFA F giving a contribution of only 21.45% of the global wage bill generated by the two types of activities.

(See table 6).

- A resident of the Lomié region received on average a monthly income of 31 567.57 CFA F before the putting in place of the CF against 61 589.99 after; representing an increase in revenue of 95.10% with respect to the initial period.

- The AMR emanating from classical activities before the CF of 33 657.98 CFA F still remain higher than those generated by activities linked to the exploitation of the community forest, that is 27 932 CFA F.

(See chart 1).

From the chart below, the first lessons drawn are that food crop cultivation remains the main activity of the populations. Sales from the products of food crop cultivation constitute 27% of revenues before the CF and 18% after. This makes of this activity the main one of the community, be it before or after the CF. Activities of the community forestry are not carried out throughout the year, they are carried out at irregular intervals. There is work when the timber has been sawed up; and considering the rudimentary tools often used, the exploitation is slow.

Activities of hunting and fishing also occupy an important place. It's the second activity in terms of importance with a 24% and 11% contribution to AMR before and after the community forest respectively. These results confirm the ancestral habits of the inhabitants of the Lomié region, which should be recalled, to live essentially of hunting and gathering. At last, despite the unfavourable international economic environment, revenues from the growing of cocoa and coffee constitute a non negligible source of income, with participation to revenue of 16 and 8 % before and after the CF respectively.

All these results allow us to state that all in all, the putting in place of the community forest has contributed to the amelioration of the revenues of the population of the Lomié region.

If we now turn to social expenditures made by individuals, we find out that they have also increased significantly suggesting to a certain extent the amelioration in their level of welfare.

(See table 7).

Table 7 summarises the results of the tests on means carried out for the main social expenditures (health expenditure, school expenditure on children and food expenditure). This table shows that these expenditures were higher with the advent of the CF. In details, expenditures on health, schooling of children and nutrition witnessed respective growth rates of 70.45; 29.82 and 56.21%.

6. Conclusions

Community forestry creates many small employments not necessarily skilled in addition to classical activities. Due to these activities, the revenues of villagers have increased and the average monthly wage bill was three times higher. With the introduction of the CF, revenues from the sales of cash crops reduced. On the contrary, those from the sales of food crops became more important. Also, despite the advent of the CF, the main source of revenues is still from classical activities notably from food crop cultivation. Finally, and in a global manner, even if the putting in place of the concept of community forestry faced management constraints, due notably to the lack of training of the population, the experience is to be encouraged.

Acknowledgements

PUBLIC ADMINISTRATION & REGIONAL STUDIES
2nd Year, No. 1 - 2009
Galati University Press, ISSN 2065 -1759

The authors thank the financial support from the "Eugen Ionescu Postdoctoral Scholarship Programme" put in place by the Romanian government through "Agence Universitaire de la Francophonie" (AUF).

They also thank Prof. Univ. Dr. Daniela Sarpe and Ph. D. Assistant Professor Violeta Puscasu, all from the "Dunarea de Jos" University of Galati, Romania.

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Ecological Economics (ISEE) Conference “Applying Ecological Economics for Social and Environmental Sustainability” held in August 7 - 11 2008, Nairobi, Kenya.

List of tables.

Table 1: Discriminating variables.

Variables	Signification
Rev_1 and Rev_2	Global revenue earned from all the activities before and after community forestry
Cofco_1 and Cofco_2	Revenue earned from coffee and cocoa cultivation before and after community forestry
Fishunt_1 and Fishunt_2	Revenue earned from fishing and hunting activities before and after community forestry
Gath_1 and Gath_2	Revenue earned from gathering activities before and after community forestry
Foodcrop_1 and Foodcrop_2	Revenue earned from the selling of food crops before and after community forestry
Petract_1 and Petract_2	Revenue earned from petty trade activities before and after the community forestry
Otheract_1 and Otheract_2	Revenue earned from other activities before and after the community forestry
Healthexp_1 and Healthexp_2	Health expenditures before and after the community forestry activities
Schollexp_1 and Schollexp_2	Scholl expenditures before and after the community forestry activities
Foodexp_1 and Foodexp_2	Food expenditures before and after the community forestry activities

Source: The authors.

Table 2: Tests of comparison of means for global revenues.

Variables	Number of observations	Mean in CFA F	Standard deviation	[95% Conf. Interval]	t-student	Level of significance
Rev_1	200	31254.25	35974.49	[26 238.03 - 36270.47]		
Rev_2	200	44041.6	37730.63	[38 780.5 - 49302.7]	-	***
Difference	-	-12787.35	31 101.63	[-17 124.11 - 8 450.5891]	5.8145	-

Source: Own calculations based on our survey dataset.

***: $p < 0.01$.

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Galati University Press, ISSN 2065 -1759

Table 3: Tests of comparison of means for individual activities.

Variables	Number of observations	Mean in CFA F	Standard deviation	[95% Conf. Interval]	t-student	Level of significance
Cofco_1	200	62 210	135 955.7	[43 252.56 – 81 167.441]	1.8145	**
Cofco_2	200	58 275	132 350.8	[39 820.22 – 76 729.78]		
Difference	-	3 935	30 602.18	[-332.118 – 8 202.118]	-	-
Fishunt_1	200	7 605.875	16 926.37	[5 245.689 – 9 966.061]	1.0340	**
Fishunt_2	200	6 915.858	14 448.6	[4 901.168 – 8 930.548]		
Difference	-	690.0167	9 437.446	[-625.9254 – 2005.959]	-	-
Gath_1	200	2 460.867	8 808.76	[1 232.587 – 3 689.146]	- 1.1316	***
Gath_2	200	2 712.517	9 069.31	[1 447.907 – 3 977.127]		
Difference	-	- 251.65	3 145.426	[-690.2431 – 186.9431]	-	-
Foodcrop_1	200	8 273.333	14 729.63	[6 219.457 – 10 327.21]	- 4.1344	***
Foodcrop_2	200	11 011.67	16 460.24	[8 716.476 – 13 303.85]		
Difference	-	- 2 738.332	9 366.793	[-4 044.422 – 1 432.241]	-	-
Petrad_1	200	1 650	6 477.25	[746.8227 – 2 553.177]	- 4.2810	***
Petard_2	200	4 535	11.752.48	[2 896.253 – 6 173.747]		
Difference	-	- 2 885	9 530.468	[-4 213.913 – 1 556.087]	-	-
Otheract_1	200	6 393.33	26 010.82	[2 766.427 – 10 020.24]	1.8784	*
Otheract_2	200	3 626.687	19 384.57	[923.7338 – 6 329.64]		
Difference	-	2 766.647	20 829.86	[-137.8357 – 5 671.129]	-	-

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 Galati University Press, ISSN 2065 -1759

Source: Own calculations based on our survey dataset.

***: $p < 0.01$.

** : $p < 0.05$.

*: $p > 0.05$. .

Table 4: Average Monthly Revenues (AMR) generated by different classical activities before and after the putting in place of the community forest.

Revenues Activities	AMR before the CF	Number of people in the activity	Wage bill before the CF	AMR after the CF	Number of people in the activity	Wage bill after the CF
Coffee and cocoa	5 184.16	63	326 602.08	4 856.25	59	286 518.75
Fishing and hunting	8 273.33	94	714 952.25	6 915.858	97	670 838.226
Food crop cultivation	8 273.333	105	868 699.965	11 011.67	120	1 321 400.4
Gathering	2 460.867	67	164 878.089	2 712.517	67	181 736.639
Other activities	6 393.333	17	108 686.61	3 626.687	17	61 653.679
Sub-total 1	31 567.57	-	1 358 019.03	33 657.98	-	2 735 292.69

Source: Own calculations based on our survey dataset.

Table 5: Average Monthly Revenues (AMR) generated by activities directly linked with the exploitation of the CF.

Revenues Activities	AMR generated by the CF	Number of people in the activity	Wage bill generated by the CF
Sawed up timber carriers	6 779	91	616 889
Sawyer	7 400	3	22 200
Assistant machine operator	4 775	8	38 200
Prospector	2 791.338	16	44 661.408
Track maker	3 880	4	15 520
Cube metering	2 306.67	4	9226.68
Sub-total 2	27 932	126	746 697.088

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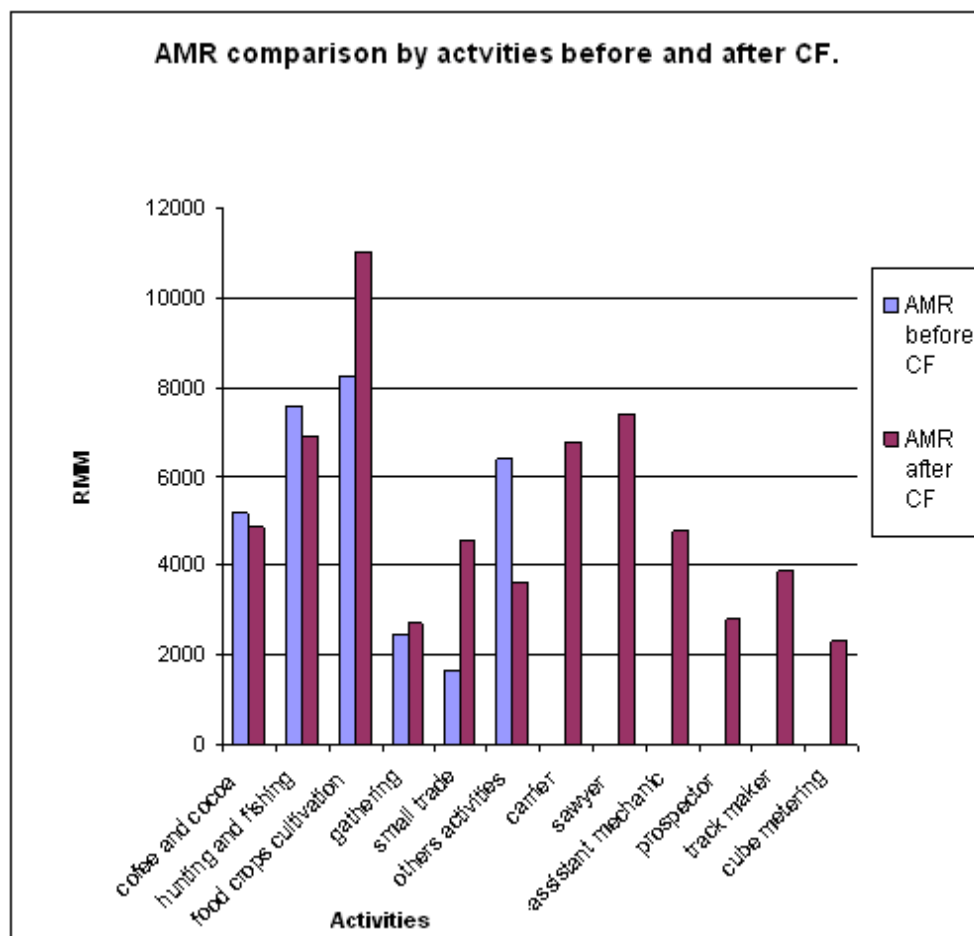
Source: Own calculations based on our survey dataset.

Table 6: Global revenues generated by the different activities before and after the putting in place of the CF.

Revenues Activities	AMR before the CF (in F CFA)	Wage bill before the CF (in F CFA)	AMR after the CF (in F CFA)	Wage bill before the CF (in F CFA)
Sub-total 1 (Phase 1)	31 567.57	1 358 019.03	33 657.98	2 735 292.69
Sub-total 2 (Phase 2)	0	0	27 932	746 697.088
Grand total (1+2)	31 567.57	1 358 019.03	61 589.98	3 481 989.778

Source: Own calculations based on our survey dataset.

Chart 1: Comparison of AMR before and after the CF.



Source: Authors.

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Table 7: Test on the means of social expenditures.

Variables	Number of observations	Mean (in CFA F)	Standard deviations	[95% Conf. Interval]	t-Student	Level of significance
Healthexp_1	200	9 535.5	22 834.47	[6 351.499 – 12 719.5]	-	***
Healthexp_2	200	16 253.5	37 587.91	[11 012.3 – 21 494.7]	3.2040	
Difference	-	- 6 718	29 652.82	[-10 852.74 – -2 853.259]	-	-
Schollexp_1	200	19 625	56 764.07	[11 709.91 – 27 540.09]	-	***
Schollexp_2	200	25 477.75	65 656.93	[16 322.65 – 34 632.85]	2.2569	
Difference	-	- 5 852.75	36 674.26	[-10 966.55 – -738.9505]	-	-
Foodexp_1	200	2 900	5 752.832	[2 097.834 – 3 702.166]	-	***
Foodexp_2	200	4 530.35	6 922.048	[3 565.151 – 5 495.549]	4.3763	
Difference	-	- 1 630.35	5 268.557	[-2 364.989 – -895.711]	-	-

Source: Own calculations based on our survey dataset.
 ***: $p < 0.01$.