

Use of Forest Products (NTFPs) and Agricultural Products in the Socio-Economic Life of "Kumu-Mandombe" Households in the District of Tshopo/Po in the DRC

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Abstract

After those in the Amazon, the Congo Basin forests are the second largest of the world's dense and humid tropical forests. They extend from the coasts of the Gulf of Guinea to the west, to the Albertin rift mountains to the east, and open nearly seven degrees of latitude on both sides of the equator. For the most part, they belong to all Congolese Guinean forests, of which they constitute more than 80% of the total area. In western Cameroon and the eastern Democratic Republic of Congo they also include Afro-mountain forests (FAO, 2006).

The results obtained after the study reveal that the community of Bakumu-Madombe is familiar with the different NTFPs in its ecosystem. These NTFPs are able to provide the population not only with consumer products but also with recipes.

Indeed, hunting, fishing and trapping occupy the first place (43%) of global average receipts which are of the order of 45694.67 Fc. Second place goes to the caterpillars (35%) and finally the mushrooms come last with 22% of revenue. Among the most produced SAPs leaving their quantities in the middle Kumu; It appears here that *Scorodophleus zenkeri* is the most exploited, followed by *Solanum turvum* and *Anonidium manni*.

We see that SAPs, including NWFPs, generate their share of overall income. This share is on average for each household of the Community of 19446.67 Fc / year for Fishing / Hunting / Traps is 39%, 10182.67 Fc / year for Mushrooms (21%), 16065.3 Fc / period for caterpillars (33%) and 3410.89 Fc / period for SAPs (7%).

From the point of view of agricultural production, households produce and sell more cassava than maize and rice and therefore the income from this speculation is considerable.

However, cassava incomes are staggered over time whereas those of maize and rice can be realized in a short time following the harvest and the growing season. It is shown that in the household income wild food plants (PAS) represent a share of 2% followed by Livestock with 25%, other NTFPs with 29%, and Agriculture with 44%. Finally, this research has shown that forests are a source of food products in the environment and income. It is time to think about its protection and conservation by practicing sustainable agriculture for the maintenance of biodiversity and different ecosystems of Tshopo.

Key words: Forest Products (pfnl); Wild food plants (WFP); Agricultural production ; Kumu household; Tshopo / ground floor .

1. Introduction

After those in the Amazon, the Congo Basin forests are the second largest of the world's dense and humid tropical forests. They extend from the coasts of the Gulf of

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Guinea to the west, to the Albertin rift mountains to the east, and open nearly seven degrees of latitude on both sides of the equator.

For the most part, they belong to all Congolese Guinean forests, of which they constitute more than 80% of the total area. In western Cameroon and the eastern Democratic Republic of Congo they also include Afro-mountain forests (FAO, 2006).

The immense wealth of tropical rainforests is matched only by the complexity of their ecological mechanisms. Their luxuriance and fabulous diversity, however, go hand in hand with the rarity of many species and make us forget that some vital resources for life are sometimes very rare.

The result is an intense competition that engenders a host of survival strategies, some more ingenious than the others (VAN DE WEGHE, 2004).

The disturbing and post-conflict social and economic context exposes the forest to different types of exploitation in DR Congo in general and in Orientale Province in particular. In addition to the enormous mining, hydraulic and human resources, the forest is therefore a great economic potential for the country's development. However, even today, the country has not yet been able to adequately control this enormous potential for the benefit of its population, which continues to stagnate in poverty and poverty (CORNET and PASCAL, 1985).

1.1 Problem

In Kumu, as in any other community living in the forest, it has become more important since the earliest times; It responds to the activities of gathering (or gathering) the fruits, leaves and bark of wild plants, which is essential for maintaining the socio-economic life of the community. In the absence of regulation, the exploitation of natural resources is rampant, resulting in the continuation of deforestation, the loss of the components of biodiversity, the continued deterioration of the living conditions of the population and the worsening of degradation of natural resources and water. (UNDP, 2005). In DR Congo in general and in Orientale Province in particular, the forestry sector is characterized by:

- Irrational exploitation of biodiversity due to weak institutions in charge of forests, conservation and nature protection; - Non-application of the Forest Code and the Nature Conservation Act; - The immobilization of forest concessions for speculative purposes because of political patronage and the low surface area royalty; - Failure to comply with the regulations in force in the commercial exploitation of forests and protected areas; and - The exclusion of local communities in the management and sharing of general resources by the forest. Since the rural community is the first user of Non-Timber Forest Products (NWFP), it is important to study how to manage the forest in such a way as to preserve and improve the living conditions of the population.

For all that preceded, we were interested in the use of forest resources (NWFP) in the socio-economic life of households Kumu Mandombe, in the Territory of Ubundu, Province Orientale. Considering that at the micro-economic level, the forest is the first factor of production, we asked ourselves the following questions:

- Forest Resources (NTFPs) such as Wild Food Plants (PAS), caterpillars, mushrooms, etc. can they meet the needs of Kumu Mandombe households?
- In relation to agricultural activities, what is the share of SAPs in domestic revenue?

- How to make forest exploitation profitable in order to meet current and future needs?
- From a cultural point of view, is this forest important?

2. Hypothesis

The fight to save Congo's forests can no longer be limited to protected areas and requires financial and human resources that our country does not always have? All that remains is the recourse to international aid.

For this study, we believe that, apart from forest tree farms, knowledge of the different uses of PAS, caterpillars and fungi would contribute to meeting the needs of the inhabitants of Bakumu-Mandombe villages; Income from these resources would represent a significant share of agricultural production, as well as hunting and fishing for household income in these households.

For a good exploitation of this forest, the combination of international and institutional norms with the so-called customary ones would be desirable for a sustainable development of this part of the Territory of Ubundu; The Kumu Forest would play an important role in the practices and customs of this community.

2.1. NTFPs

They are defined as any animal or plant products other than wood products for industrial use, and are collected from the forest for subsistence or for marketing (ROSTONEN, 2000).

The importance of NTFPs is not limited to providing food and other services to rural households.

They also play a role in: - Household income: It has been shown that the vast majority of rural populations (66%) have at least one member who has activities based on the marketing of NTFPs (procuring, packaging, selling); And also for the heads of households, the only activity that brilliantly allowed (together with agriculture and hunting) to cover the annual expenses remains the extraction of wild palm wine (SCHRECKENBERG, 2000). Another study showed that 2/3 of total household income and 1/3 of the value of their production comes from game, fish and PAS (CIFOR, 2007).

- The presence of NTFPs can be used to justify the conservation of the natural environment; - Whether governments or conservation agencies: everyone seeks to increase the need to integrate local assets for development (including extraction of NTFPs) into conservation projects (NEUMANN, 1996). b. Use of NTFPs In this point, we reserve to name by name all the uses of NTFPs, however, we will give some estimates on the importance of the use of NTFPs in DR Congo, among others:

- KANKONDE and TOLLENS (2001) estimate that 40% of the animal protein consumed in DR Congo comes from caterpillars. Consumption of these at the national level is estimated at about 1340 tons / year, which represents about 80 million US dollars in market value (FAO, 2004 in CIFOR, 2007);
- Medicinal plants are essential products for the Congolese population; almost all urban and rural populations use these plants;
- A Congolese farmer consumes an average of 40 and 130gr of game / day, ie around 1.1 to 1.7 million tonnes of bushmeat / year. (MERODE et al, 2004 in CIFOR, 2007);

- Nearly 55% of handicrafts made in DR Congo come from NTFPs (CTB, 2008).

3. Methodological Approach

3.1. Brief Presentation of Bakumu-Mandombe

Community The Bakumu Mandombe Community is one of the communities of the Ubundu Territory in the Tshopo District in Orientale Province. It is located east of Kisangani City along the Kisangani - Ituri road from PK21 to PK 38 and from PK21 to PK89 on the Kisangani-Lubutu (RN3) road to the southeast. It is limited to: North by the community Obiatuku and to the West by the City of Kisangani, It covers 2,823 Km², with a large hydrographic network. (ZENGBE, 2004). The territory of Ubundu is located between 3 ° N, 5 ° S, 17 ° O and 28 ° E; The Bakumu-Kabalo grouping is between 25 ° 20'E - 25 ° 45'E and 0 ° 28'N - 0 ° 9'N (FRM, 2008).

4. Methods

4.1. Empirical sampling method:

Reasoned choice survey We used the survey combined with the quota method to obtain statistical units and achieve the purpose of this study. A survey consists in estimating the proportion of a population that verifies certain given characters and this from only a fraction of the sample population (BREMONT and GELDAN, 2002). Among the techniques used, we made use of focus group, observation and interview.

4.2. Determination of the sample

In our study, we considered the sample as a subset of the population studied, taken to retain the main characteristics of the study population. The dispersal of the Kumu tribesmen in the community has led us to choose Bamboundje I (or Granny), where the concentration of the Kumu population is high and where there is a large forest area. According to the quota method, and by the difficulties encountered, our sample is 30 households. This sample consisted of 4 women and 26 male heads of households. For the participatory surveys and the opinion poll, we worked with the 50 natural persons grouping together all categories of Kumu-Madombe social strata.

4. Results

Given the importance of Wild Food Plants in this environment, we will proceed with three forms of analysis: socio-ethnobotanical, socio-economic and econometric.

4.1. STATISTICAL ANALYZES

A. NWFP and PAS The following Table 3.1 presents the NTFP sales revenue in the Kumu-Madombe community.

Table 1: Non-timber forest products consumed and their incomes

CODE	Chasse/Pièges/Pêche		Champignons		Chenilles		Revenu global (Fc)
	Quantité(Kg)	Revenus (Fc)	Quantité(Kg)	Revenus (Fc)	Quantité(Kg)	Revenus (Fc)	
Σ	1590	583400	2100	305480	3384	481960	1370840
\bar{X}	53	19446,67	70	10182,67	112,8	16065,3	45694,67

Source: Personal calculation after survey (2008-2014).

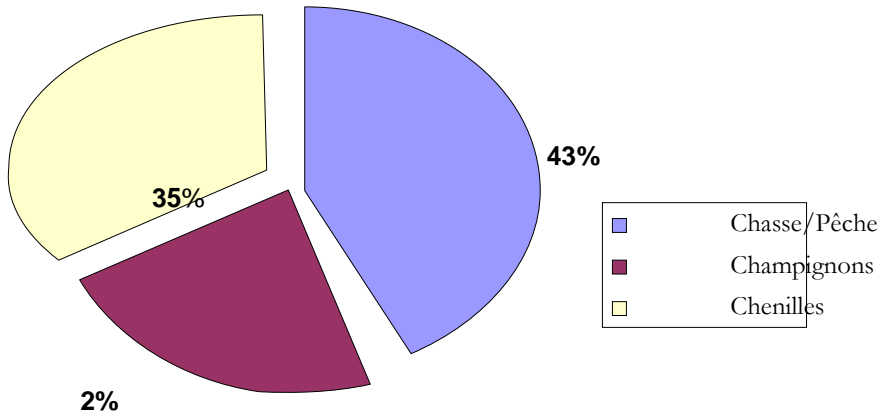


Figure 2: Revenue from NTFPs in Bakumu Mandombe Community

This figure shows that hunting, fishing and trapping occupy the first place (43%) of overall average receipts which are of the order of 45,694.67 Fc. Second place goes to the caterpillars (35%) and finally the mushrooms come last with 22% of incomes.

Table 2: Income from WFPS in KUMU Households

N°	quantity sold (Kg)	Prix Average (Fc)	income (Fc)
Σ	456	224,4	102326,7
Moy	15,2	224,4	3410,89

Source: Personal calculation after survey (2008-2014).

From this table 3.2. It appears that the SAPs are produced and marketed and give substantial income. In this environment, a household sells an average of 15.5 kg of SSPs, which provides an average household income of about 3410.89 Fc per period or season of abundance.

Table 3: Production of PAS in Kumu (Plants most consumed) Total (Kg)

N°	Scientific name	Vernacular name	Total (Kg)	Average / household
1	<i>Scorodophleus zenkeri</i>	BOYIYI	365,4	12,18
2	<i>Solanum turrum</i>	NGBAGU	273	9,10
3	<i>Anonidium manii</i>	EBOMBI	205	6,83
4	<i>Canarium schweinfurthii</i>	MBE	184,6	6,15

5	<i>Urera byselodendron</i>	AMANGIEDE	161,4	5,38
6	<i>Afromomum laurentii</i>	TONDO	160,5	5,35
7	<i>Solanum americanum</i>	TSHAKUTSHAKU	158,4	5,28
8	<i>Landolphia spp.</i>	ABAGALA	150,52	5,02
9	<i>Alchorea cordifolia</i>	MBONJEMBONJE	146,2	4,87
10	<i>Panda oleosa</i>	AUWA	122,4	4,08

Source: Personal calculation after survey (2008-2014).

In this table 3.3., We have taken over the most produced SAPs starting their quantities in Kumu medium; It appears here that Scorodophleus zenkeri is the most exploited, followed by Solanum turvum and Anonidium manni.

a. Importance of NTFP sales among KUMUs

We saw in Table 3.2 that SAPs generate revenue. Here we have taken over the most sold SAP in our environment starting from the income that they generate. We see that Landolphia spp. Can generate an income of 12600 Fc (or 10 US dollars) on average for a household during the period in which it is available.

From this Table, we see that PAS, including NTFPs, generate their share of overall income. This share is on average for each household of the Community of 19446.67 Fc / year for Fishing / Hunting / Traps, 10182.67 Fc / year for Mushrooms, 16065.3 Fc / period for Caterpillars and 3410 , 89 Fc / period for PAS.

The following figure makes it possible to clearly define the share of the PAS in the whole of the income coming from NTFPs:

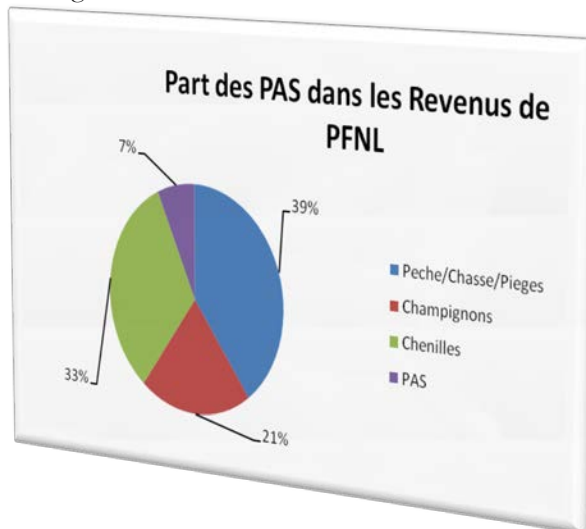


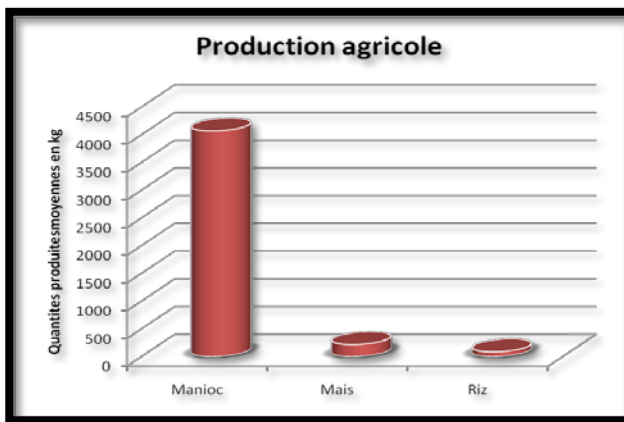
Fig. 3.: Share of Income from NTFPs at KUMU Mandombe.

It is apparent from this figure, compared to Figure 1, that hunting, fishing and trapping still occupy first place (39%) of overall average revenues of 49105.5 Fc. Second place goes to the caterpillars (33%), third

place is occupied by mushrooms with 21% of revenue. As for SAP, they come last with 7%, or 3410.89 Fc.

B. Kumu Agricultural Production

In our study environment, production is varied and diverse. we selected 3 main crops according to their importance, both in food and in marketing. In this zone of scientific investigation, we practice more itinerant culture and in association. The average area planted for each household is 0.94 hectares. As for production, each household is allowed to produce 4069.5 kg of cassava, 218.8 kg of maize and 87 kg of rice for each year of cultivation. The following figure 4, shows more clearly the differences between these productions at the level of each household in the Collectivity.



From this figure, it is shown that cassava remains the staple food par excellence in our study environment. Corn and rice are complementary and are produced in small quantities. this cultural practice does not destroy the soil or the forest in a significant way, because, there is the protection of the environment from the techniques used for a

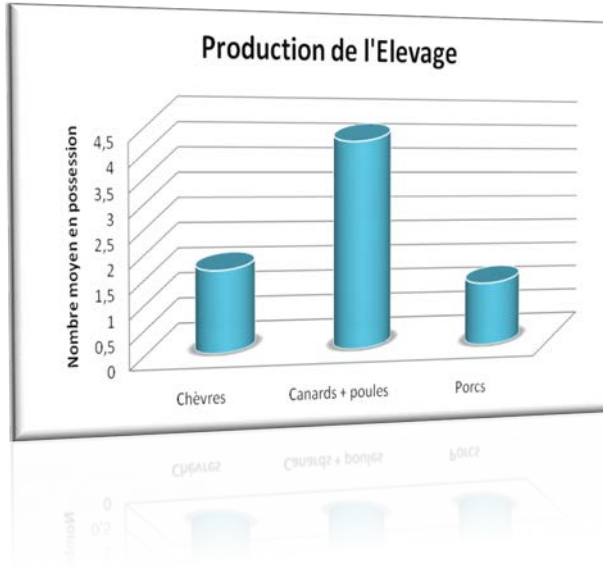
sustainable development of the region.

In our study environment, the population also practices breeding. The most commonly encountered species are the goat, the local breed hen, and the pigs.

On average in the Community, a household can have 1.67 goats, 4.27 chickens and 1.3 pigs for sale for one year. The income from this activity is distributed as follows: A household has the opportunity to have 24900Fc in the sale of goats, 6736.67Fc in the hen and 9100Fc for pigs. The average income from breeding which a household can dispose of is 40736.67 Fc.

The following figures illustrate the situation of livestock farming in the Bakumu-Mandombe Community:

From this figure above, we can point out that on average a Kumu household has more backyard birds compared to goats and pigs. It is also worth noting the small number of animals that can be explained by various causes,



including the problems of straying animals that destroy the cultures of other members of the community. Income from the sale of goats is higher in households than those from the sale of hens and pigs.

All income-generating activities related to the exploitation of the forest are shown. Indeed, it is shown that a household can have an overall average income of 160566.5 Fc from various major activities related to the forest. These revenues are distributed as follows: SAP with 3410,89Fc, Other NTFPs (Caterpillars, mushrooms and hunting / fishing / traps) with 45694,67Fc, Agriculture with 70724,3Fc and Livestock with 40736 , 67 Fc on average.

These incomes are represented as follows according to the following figure:

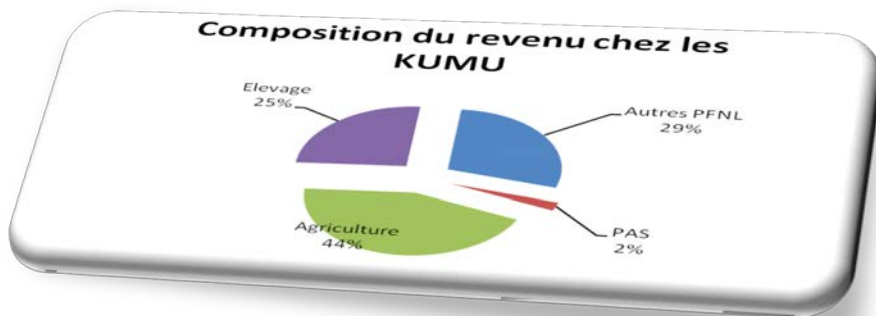


Fig.5: Steps in the composition of income among the Kumu in this figure, it is shown that in the wild food plants household income a percentage of 2% followed farming with 25 percent, with 29 percent other NTFPS, and Agriculture with 44%

4.2. Socio-Ethnobotanic Analysis

A. using NTFPS

Table 5: General characteristics of NTFPS

Item	Nombre d'espèces	%
A. Type physiologique	53	100
1. Herbe	12	22,65
2. Liane/Tige	20	37,73
3. Arbre/Arbuste	21	39,62
B. Partie utilisée	53	100
1. Fruits/graines	26	49,06
2. Feuilles/bourgeons	16	30,19
3. Tiges/écorces	5	9,44
4. Racines	4	7,55
5. Fruits/graines et feuilles	1	1,88
6. Fruits/graines et écorces	1	1,88
C. Type de consommation	53	100
1. Aliment nutritif	23	43,40
2. Aliment énergétique	10	18,87
3. Aliment de plaisir	20	37,73
D. Mode de consommation	53	100
1. Crus/frais (a)	22	41,51
2. Cuit/bouilli/grillé (b)	27	50,94
3. Les deux à la fois (a) + (b)	4	7,55
E. Commercialisés	53	100
1. Très bien	7	13,2
2. Moins bien	8	15,1
3. Pas du tout	38	71,7

It shows that: 22.65% steps are herbs, 37.73% are Creepers or 39.62% and stems are trees or shrubs. It also shows that the majority of the not used are fruits or seeds (49.06%) and leaves or buds (30.19%) then the stems or bark of plants (9.44%). the roots (7.55%) and other types of combinations of use are also recorded. As the type of consumption, the steps are most popular for their nutritional values (43.40%), energy (18.87%) values and their values of pleasure or amusement (37.73%).

The step are consumed mostly prepared cases i.e. 50.94% cooked boiled in water or grilled with oil. They are also consumed raw or fees (or 41.51%), as the case may be two patterns of consumption may apply for the same species of no. As for marketing, only 13.2% steps are very well sold. The others are mostly from autoconsommés cases.

B. Matrix operations-consumption of NTFPS

Table 6: matrix operating consumption of NTFPS at the Kumu

		Exploitation		
		<i>Well exploited</i>	<i>Average exploited</i>	<i>Little exploited</i>
Using	Well using	<ol style="list-style-type: none"> <i>Tetracarpidium conopborum</i> <i>Anonidium manii</i> 	<ol style="list-style-type: none"> <i>Pentacletra macrophylla</i> <i>Piper guineensis</i> <i>Sclerophleus zenkeri</i> <i>Solanum turvum</i> 	<ol style="list-style-type: none"> <i>Iringia spp.</i> <i>Chrysophyllum africanum</i> <i>Garcinia cola</i> <i>Ndjoombo (ni)</i> <i>Cissus sp.</i> <i>Solanum americanum</i> <i>Dioscorea spp</i> <i>Urera hyselodendron</i> <i>Erythrococca oleracea</i> <i>Alchorea cordifolia</i> <i>Cola congolana</i> <i>Alsodeiopsis poggei</i>
	Average consumed	<ol style="list-style-type: none"> <i>Panda oleosa</i> <i>Aframomum laurentii</i> <i>Landolphia sp.</i> 	<ol style="list-style-type: none"> <i>Synsepalum subcordatum</i> <i>Myrianthus arboreus</i> 	<ol style="list-style-type: none"> <i>Chasmanthera welwitschii</i> <i>Megaphrynium macrostachyum</i> <i>Erythrococca oleracea</i> <i>Ancistrophyllum secundiflorum</i>
	Little consumed	<ol style="list-style-type: none"> <i>Canarium schweinfurthii</i> <i>Cola acuminata</i> 	<ol style="list-style-type: none"> <i>Treculia africana</i> <i>Antrocaryon nannanii</i> 	<ol style="list-style-type: none"> <i>Trilepisium madagascariensis</i> <i>Ricinodendron heudelotii</i> <i>Gilbertiodendron devevrei</i> <i>Synsepalum stipalatum</i> <i>Upaca guineensis</i> <i>Mammea Africana</i> <i>Passiflora foetida</i> <i>Raphia spp.</i> <i>Baikiaea insignis</i> <i>Amaboo (ni)</i> <i>Anchomanes giganteus</i> <i>Alsodeiopsis sp.</i> <i>Cissus sp.</i> <i>Ambo (ni)</i> <i>Renealmia africana</i> <i>Obedje (ni)</i> <i>Gase (ni)</i> <i>Costus lucanusianus</i> <i>Piper ombilatum</i> <i>Discorea spp.</i> <i>Iringia gabonensis</i>

C. Periodicity of the NTFPS

Table 6: availability of the most exploited wild food plants (column 1 and 2 of table 2) during the year

N°	Species names	months											
		J	F	M	A	M	J	J	A	S	O	N	D
1	<i>Tetracarpidium conophorum</i>												
2	<i>Anonidium manii</i>												
3	<i>Panda oleosa</i>												
4	<i>Aframomum laurentii</i>												
5	<i>Landolphia sp.</i>												
6	<i>Canarium schweinfurthii</i>												
7	<i>Cola acuminata</i>												
8	<i>Pentacletra macrophylla</i>												
9	<i>Piper guineensis</i>												
10	<i>Sclorophleus zenkeri</i>												
11	<i>Solanum turvum</i>												
12	<i>Myrianthus arboreus</i>												
13	<i>Treculia africana</i>												
14	<i>Antrocaryon nannanii</i>												
15	<i>Synsepalum subcordatum</i>												

Source: focus group, 2016

The table6 above shows that most of the wild food plants (WFS) are available between July and September, especially the seasonal fruits and seeds. However, there are also steps that are available throughout the year, especially those consumed as vegetable leaves for most of the cases.

4.3. Exploitation of the forest and resolution of conflict in our community.

The forest is the most important resource; life is focused. The greater use of the forest's topsoil: so to address the issue of the exploitation and management of the forest, let's talk first about the access mode to land. According to custom, the forest belongs to the different clans constituting the community; She went back to an ancestral way where owners inherit the land and bequeath it to their children (BWAMA, 2007).In this way, access to land is hereditary for members of the clan and rentals for immigrants. In our study environment, it is especially the first mode which presents specific features such as access to land by marriage, purchase, donation, etc. In our environment, the forest belongs to the community. There is a clan management. Each clan has a scope where it can grow, hunt or trap are granted to individuals according to the ability of each to the fields (i.e. clearing, plant and harvest) and to use wisely the scope granted. Conflicts in relation to the exploitation of the forest are of several forms. We cite for example conflicts found in the environment during our investigations:-conflict on the clan boundaries; -Conflicts on a river, or a the stone quarry exploitation rights, etc. In a traditional setting, the resolution of conflict is very complex, particularly because of the coexistence of modern rights and traditional rights (BWAMA, 2007).

In our study environment, the conflicts are resolved in the ancestral wisdom. A parley is organized by the challengers in the presence of old and wise men appointed by each

party. If the out-of-court settlement was not conclusive, there is recourse to justice.3.4.la poverty: Multidimensionality of perceptions of poverty revolve around a few dimensions of living populations. Some of these dimensions are tangible and other intangible.

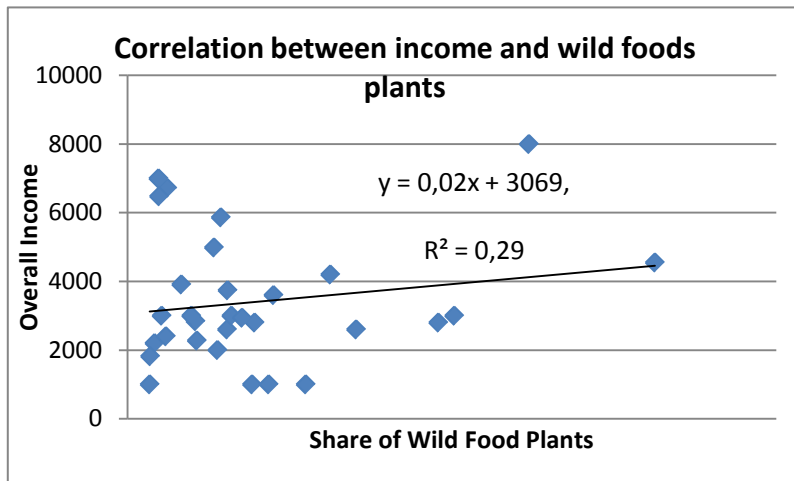
These include: - unmet basic needs; - deterioration of the factors of production; - lack of peace; - culture of impunity reinforcing corruption; - Injustice and exclusion; and - Low access to basic social services.

4.4. Econometric Analyses

4.4.1. Share of Wild Food Plants in Overall Income

For this analysis we proceeded by simple linear regression, considering the equation $y = ax + b$, with (x) as the production of SAPs and (y) as overall PAS incomes.

This curve is presented as follows:



This figure shows us that the production of the WFP is closely linked to the sale of the latter on the market with a coefficient determination of 29%.

We find that there is a weak link between WFP output and income. This situation may be justified in the sense that a large number of forest products consumers are in a low-income category. However, during the harvest period, these products contribute effectively to overall household income in these KUMU MANDOMBE households.

5. Discussion

5.1. Household income

It has been shown by SCHRECKENBERG (2000) that the vast majority of rural populations (66%) have at least one member who has activities based on the marketing of NWFPs (procuring, packaging, selling). Indeed, we found during our investigations that the households of BAKUMU MANDOMBE are interested in the marketing of SAPs in particular and NTFPs in general. However, from the point of view of consumption, we noticed that the most consumed parts are fruits or seeds (49,06%),

followed by leaves (or buds) that is 30,19%, then stems and barks plants (9.44%) and finally roots (7.55%) and other types of consumption (3.76%). The presence of NWFPs can be used to justify the conservation of the natural environment;

5.2. Whether governments or conservation agencies

Everyone seeks to increase the need to integrate local assets for development (including extraction of NWFPs) into conservation projects (NEUMANN, 1996). To fully understand the contribution of forest resources (PAS and NWFP) in meeting household needs, it was necessary to identify other sources of household income in order to compare. Thus, we selected agricultural production (maize, cassava and rice) and livestock products. Due to material difficulties, other sources of income were not taken into account.

We found that:

- With regard to the quantities of food available to households, we found that SAPs represent 5% of the total volume of production in the same way as maize and more than rice (2%);
 - In terms of income; SSPs have a 2% share of household income. Together with the other NTFPs (29%), they account for nearly 1/3 of the total household income.
- From the foregoing, we can say that the SAPs and other forest resources are able to support, quite importantly, the needs of the household in the Bakumu-Mandombe Community, which confirms our basic hypothesis.

6. Outlook For The Future

The future of WFPS and other NTFPs can be associated with the pursuit of profitable exploitation of sustainable forest management.

Indeed, the importance of the WFPS being no longer to disassemble:

- A good technique associating the valorization of SAPs, through domestication, the extension of crops in association with conventional agriculture and the creation of outlets would allow to increase even more the incomes of the households in our peasant circles and in our environment. in particular while retaining environmental and forest capital. This will result in additional income and food that once could be obtained through the irreversible destruction of the forest.
- The integration of SAPs in agriculture (intercropping or in alley), will promote better soil protection against erosion, crop protection against wind, ... in short, all the services that were once offered by wind breezes or other conventional protective crops used for crop protection and improvement.

Conclusion

As part of our final work, we are interested in the use of Wild Food Plants and other forest resources in the socio-economic life of the Bakumu-Mandombe Community, in the Ubundu Territory. in Eastern Province.

To verify our hypotheses, the data collected were analyzed by statistical methods, ethnobotanical analyzes, socio-economic analyzes and econometric analyzes.

From these analyzes, the following results emerged:

- With regard to SAPs and other NTFPs, we have seen that they are able to provide the population with not only consumer products but also revenues. The overall average household income for these activities is of the order of 49105.5 Fc; Fishing, hunting and trapping occupy first place with 39% of this revenue followed by caterpillars, 33%, mushrooms 21% and finally PAS 7%. This is explained by the fact that the majority of PAS production is self-consumed.
- In our community, a household sells an average of 15.5 kg of SIPs during the period or season.
- As for agricultural production, the average area planted per household is 0.94 hectares. The crop grades are cassava, maize and rice, there are also other corn crops not representative enough for our study.
- By aggregating all household incomes, SAPs alone contribute 2%, followed by livestock (25%), other NTFPs (29%) and agriculture (44%).
- By doing the same with production volumes, SAPs contribute 5% as much as maize, higher than rice (2%) and caterpillars (2%), and hunting / trapping / fishing products. mushrooms with 1%; This is important to emphasize because in rural areas most of the production is self-consumed.

In short, we think that based on our results, we can say that our assumptions are verified. We also found that SAPs are the essential elements of the population's knowledge of the forest. So a good association Promotion of SAP and sustainable management of the forest will be more beneficial in our environment. We found that forest management is under customary authority. By combining this type of management with management according to international and institutional standards, this will essentially lead to the sustainable development of our community.

Finally, we observed a difference in the knowledge and use of PAS. We have drawn a matrix that has cleared the most commonly used plants, and other parts that are known only to a few people. This allowed us to identify the plants that are the best known, most produced and most marketed. Among others: *Tetracarpidium conophorum*, *Anonidium manii*, *Panda oleosa*, *Aframomum laurentii*, *Landolphia* sp., *Canarium schweinfurthii*, *Cola acuminata*, *Pentaclethra macrophylla*, *Piper guineensis*, *Sclorophleus zenkeri*, *Solanum turvum*, *Myrianthus arboreus*, *Treculia africana*, *Antrocaryon nannanii* and *Synsepalum subcordatum*. Thus, our work allowed us to identify the socio-economic use of SAPs and other NTFPs in the socio-economic life of the Bakumu-Mandombe Community.

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