

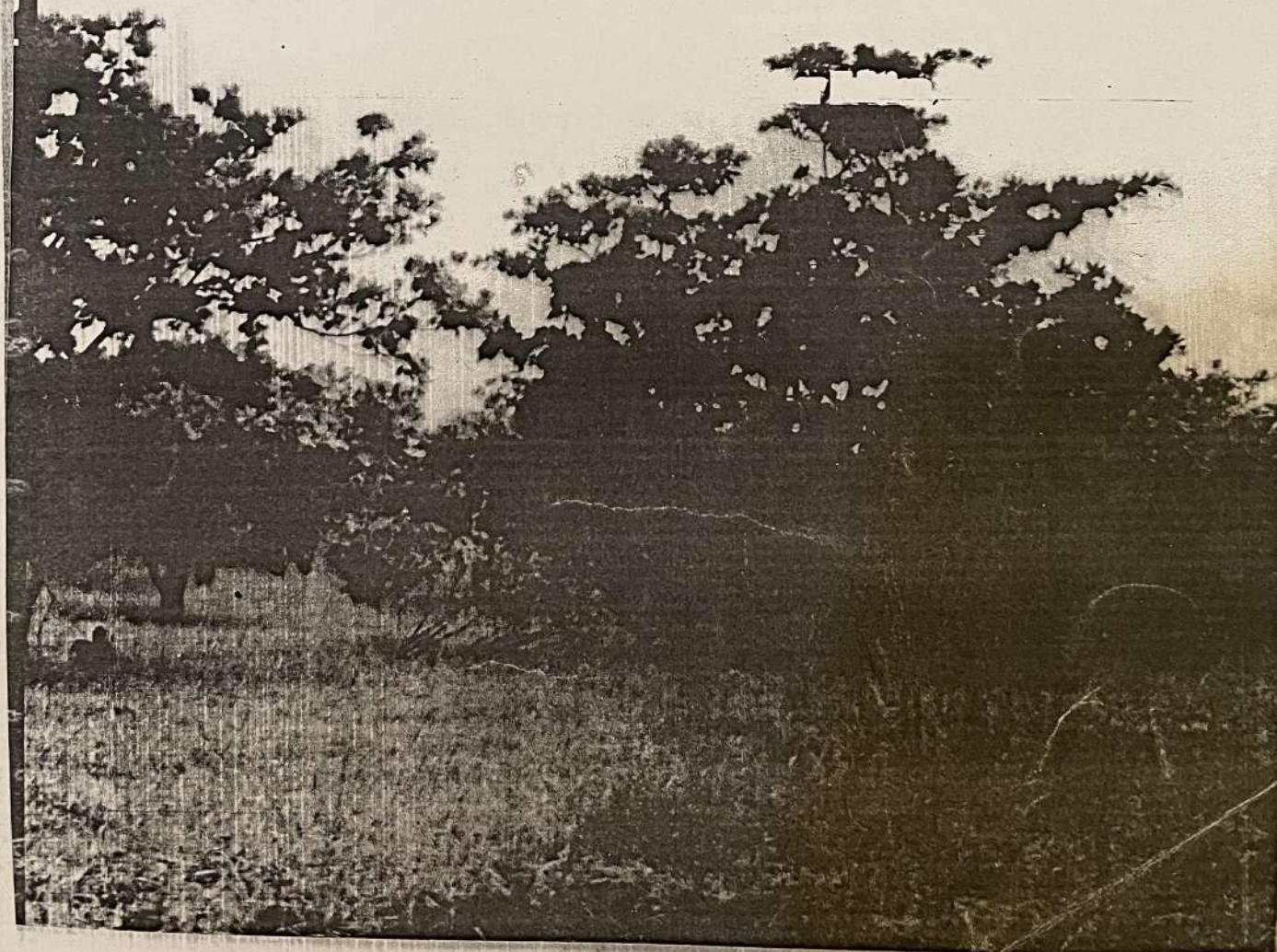
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Contributions of Bushmeat to Hunters' Household Income and its Implications on Sustainable Hunting in Rural Communities of Kwara State, Nigeria

By

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Abstract

This study based largely in Kwara State, Nigeria and utilized data collected using multi-stage sampling technique so as effectively select 200 respondents. Further, descriptive and inferential statistics were used to analyse the datasets. Subsequently, it has been observed that hunters were youthful with a mean age of 38 years, majority (84.0%) of the respondents fell below 51 years of age; an average monthly per capita income of N21,265.00 and had a fairly large household size (seven persons/household); average proceed from bushmeat was N4,838.00 per month during the hunting season, wildlife hunting accounted for 11.38% of the total annual income; hunters' marital status ($p < 0.05$) and educational status ($p < 0.05$) had significant positive influence on proceeds from bushmeat. The study concluded that hunters were participating in hunting to meet their income needs and recommended functional agro-forestry extension strategies to change the mind-set of the rural hunters towards sustainable hunting.

Introduction

Hunting is the act of following, pursuing or chasing wild animals by a person or group for capture or killing in the forest. The wild animal meat is often called bushmeat particularly in Africa, where forest is called bush and the animal from the bush is called bushmeat (DEFRA, 2006). In most of the rural communities of Nigeria, bushmeat hunting is taken as a livelihood activity by people of different socio-economic strata in the society as a means of physical fitness, acquiring metaphysical power, protein supplement, establishing contact with nature, cultural attachment, and income generation. The fact that majority the rural people are essentially poor in term of resources have probably made them to rely more on bushmeat as cheap protein source and for income. This situation had triggered unregulated hunting which constitute a major threat to the survival of wild species, the functionality of the entire environment, the food security and livelihoods of the rural poor (Nasi et al. 2008).

Bushmeat hunting contributes significantly to rural livelihoods during the off-season when active farming activities are considerably reduced to the minimum level. Lauren (2007)

observed in a study on wildlife hunting in Gabon that, less than 1% of men's time during the period of the study was spent in paid employment and as a result, 74% of village men are hunters. This shows that in some communities, rural people spend more of their time on hunting of wild animals than farming which is synonymous with rural life. In recent years, particularly in Nigeria, hunting is believed to have gone beyond the exclusive activity of rural farmers because other professionals including civil servants, artisans, traders, drivers and even students are now actively involved in hunting expedition.

Bushmeat currently, provide up to 80 percent of the protein and fat needs in the rural areas (Centre for International Forestry Research-CIFOR, 2008). The meat is not only consumed by rural dwellers as the only cheap or affordable animal protein, urban elites consider it a "special-meat" and pay heavily in the city restaurants to eat the meat, usually in form of "pepper-soup" or in take-away packs. Bushmeat sales under these conditions may sometimes be three times higher than the price of domestic meat substitutes (Bowen-Jones et al, 2003; Wabnitz and Carpenter, 1999).

While the contribution of bushmeat to the GDP is rarely appreciated, Local, National and Regional trade in bushmeat has become a significant part of informal sector's 'hidden economy'. CIFOR (2008) reported that, international trade in wild animal products has an estimated value of \$3.9 billion while (Davies, 2002) West and Central Africa (where Nigeria belongs) have estimates ranging from \$42 million to \$205 million a year. These statistics are still largely ignored in official trade and national policies regulating forest policy.

The huge contribution of bushmeat trade to the rural economy and livelihood has a tendency to make people think that all wild animals could be killed, whereas, large mammals like Elephant, primates and certain ungulates are less prolific because they are slow-reproducing species and highly vulnerable to unregulated hunting as it is being done presently. Hunting for bushmeat for income could negate the much talked about sustainable wildlife hunting as hunters are more likely to hunt desperately to meet their income generation desires rather than hunting for sustainability. In view of this concern, this study sought to: describe the socioeconomic characteristics of the people involved in bushmeat hunting, identify the types of wild animals being hunted in the study area and examine the percentage contribution of proceeds from bushmeat to hunters' income.

Materials and Methods of Study

This study was carried out in Kwara State, Nigeria. The state is geographically located between latitude $7^{\circ} 20'$ and $11^{\circ} 05'$ North of the equator longitude $2^{\circ} 5'$ and $6^{\circ} 45'$ East of the prime meridian (Ogunlade, et al, 2009). The rainfall is between 1000-1500mm while the average temperatures range from 30° Celsius. The dry season runs through the months of

November to April and during this period of the year, the state experiences the largest volume of bushmeat hunting (Kwara state Diary, 2010). The population for this study comprised of all bushmeat hunters in the 4 agro-ecological zones of Kwara State. Multi-stage sampling techniques were employed in the selection of the respondents. Purposive selection of two Local Government Areas (Kaima and Ekiti) from the four ADP administrative zones in Kwara State was carried out in order to allow for effective coverage of the varying ecological diversity in the State. The selection of the LGAs was also based on their proximity to the forest reserves in the State. Random sampling technique was used to select four major communities from each of the selected LGAs. The selected communities were Kemanji, Woro, Osi and Isolo-opin. The head-hunters in each of the communities were identified and each later used to identify 25 hunters in their respective communities giving a total sample size of two hundred.

Results and Discussion

Socio-economic characteristics of bushmeat hunters

Table 1: Socioeconomic characteristics of respondents

Variables	Frequency (N)	Percentage (%)	Mean
Age groupings			
≤20	18	9.0	38Years
21-30	48	24.0	
31-40	53	26.5	
41-50	49	24.5	
51-60	17	8.5	
≥61	15	7.5	
Total	200	100.0	
Marital status			
Married	137	68.5	
Single	40	20.0	
Widowed	3	1.5	

Divorced	20	10.0	7
Total	200	100.0	
Household size			
1-6	89	44.5	
7-12	99	49.5	
13-18	11	5.5	
19-20	1	0.5	
Total	200	100.0	
Educational status			
Non formal	56	28.0	
Primary	65	32.5	
Secondary	57	28.5	
Tertiary	22	11.0	
Total	200	100.0	
Hunting experience (yrs)			
1-20	115	57.5	20.3years
21-40	76	38.0	
41-60	8	4.0	
≥61	1	0.5	
Total	200	100.0	
Time spent per hunting day			
2-5	33	16.5	7.2hrs
6-9	126	63.0	

10-13	41	20.5	
Total	200	100.0	

Source: Field Survey, 2011

According to table 1, thirty three percent of the respondents were within the age bracket of $\leq 20 - 30$, 26.5% were within 31-40 while 24.5% were found to fall between 41 and 50 years. The remaining 16.0% had age brackets of 51-60 (8.5%), 61-70 (6.0%) and 71-80 (1.5%) respectively. The average age of bushmeat hunters in the study area was 38 years. The implication of this is that people tend to withdraw from active hunting as they grow older and less productive, leaving the younger population to continue with the trade. Tables 1 also showed that majority (68.5%) of the respondents were married while the remaining 31.5% were either single (20.0%), divorced (10.0%) or widowed (1.5%). Early marriage was found to be common among the respondents in the study area. The additional responsibility conferred on individuals by marriage may encourage respondents to participate in bushmeat hunting which may serve as a safety net. The table further showed that a large chunk (49.5%) of the respondents had 7-12 household size, 44.5% had a family size of 1-6 while the household sizes of the rest few 6.0% ranged between 13-18 and ≥ 19 respectively. The fairly large household size (7.4) observed may be accounted for by the fact that Muslims who constituted more than half (54.0%) of the respondents are spiritually allowed to practice polygamy. The table showed further that majority (60.5%) had less than Nigerian minimum educational qualification (i.e junior secondary school certificate), 28.5% had secondary school certificate while the remaining 11.0% had one form of tertiary education certificate or the other. Further analysis of table 1 showed that more than half (57.5%) of the respondents had 1-20 years of hunting experience while the rest 38.0%, 4.0% and 0.5% of them had 21-40, 41-60 and ≥ 61 years of hunting experience respectively. It could therefore be inferred that level of educational attainment and hunting experience among respondents are inversely related, thus, respondents with high hunting experience are more likely to have less educational attainment and vice-versa. The table also showed that majority (63.0%) of the respondents spent 6-9 hours on hunting per day, 20.5% of them hunted for 10-13 hours/day while the rest 16.5% of them spent 10-13 hours/hunting day. The mean hunting time among the respondents in the study area per day stood at 7.2 hours. This implies that, respondents who participated in both day and night hunting were not likely to be productive in their primary occupation (like farming) considering the man/hour or man/day been spent on wildlife hunting activities as they might have been exhausted after an active hunting sojourn and this could have negative implication on the productivity of the respondents.

Animals hunted in the study area

Table 2: Respondents' distribution based on wild animals mostly killed during the 2010/2011 hunting season

S/N	Respondents		Animal killed	Status
	Frequency (N)	Percentage (%)		
1	66	16.5	Antelope	-
2	127	31.8	Cane-rat	-
3	22	5.5	Bush-buck	-
4	6	1.4	Squirrel	Threatened
5	12	3.0	Chimpanzee	Endangered
6	82	20.5	Guinea fowl	-
7	13	3.3	Rabbit	-
8	40	10.0	Quail	-
9	20	5.0	Crocodile	Endangered
10	30	7.5	Giant-rat	-
11	8	2.0	Eagle	Endangered
12	28	7.0	Monkey	Threatened
13	5	1.3	Hippopotamus	Threatened
14	23	5.8	Cobra	-
15	27	6.8	Gorilla	Endangered
16	143	35.8	Porcupines	-
17	15	3.8	Kangaroo	Endangered
18	19	4.8	Buffalo	-

19	35	8.8	Deer	-
Total	756	189.5		

NB: Multiple Responses

Source: Field Survey, 2011

Table 2 showed that 20.6% of the respondents mostly killed endangered species of wild animals including Gorilla (6.8%), Crocodile (5.0%), Kangaroo (3.8%), Chimpanzee (3.0%) and Eagle (2.0%) in the course of hunting while 18.6% of them killed threatened species like Squirrel (1.4%), Monkey (7.0%) and Hippopotamus (1.3%). Multiple responses of the Majority (114.5%) of the hunters showed that they killed apparently prolific wild animals such as Porcupines (35.8%), Cane-rat (31.8%), Guinea-fowl (20.5%), Antelopes (16.5%), Quail (10.0%), Deer (8.8%), Giant-rat (7.5%), Cobra (5.8%), Buffalo (4.8%) and Rabbit (3.3%). This showed that the most frequently hunted species are those that can easily be sold in the market for consumption and species believed to be highly prolific in terms of reproductive rate other (e.g porcupine, cane-rat and antelopes) while wild species carrying religious taboo (e.g Monkey, Chimpanzee and Gorilla) may not attract much of the hunters' attention not because they are endangered or threatened species but due to their low market value. This finding is also supported by the studies carried out by Abernethy and Ndong Obiang (2010) and van Vliet et al (2010) in which it was found that rare and vulnerable species (e.g. great apes, elephants, okapi) usually represent a very small proportion (often less than 5%) of the total catch.

Proceeds from Bushmeat to Hunters' income

Table 3: Cross-tabulation of respondents' average monthly income and proceeds from bushmeat

Average monthly income (N)	Average monthly proceeds from bushmeat (N)						Total
	0-5,000	5,001-10,000	10,001-15,000	15,001-20,000	20,001-25,000	25,001-30,000	
5,000-10,000	27(14.0)	4(2.0)	0(0.0)	0(0.0)	2(1.0)	1(0.5)	34(17.5)
10,001-15,000	36(18.0)	8(4.0)	2(1.0)	3(1.5)	1(0.5)	0(0.0)	50(25.0)
15,001-20,000	33(16.5)	10(5.0)	1(0.5)	0(0.0)	0(0.0)	0(0.0)	44(22.0)
20,001-25,000	14(7.0)	9(4.5)	5(2.5)	0(0.0)	0(0.0)	0(0.0)	28(14.0)
25,001-30,000	11(5.5)	7(3.5)	6(3.0)	0(0.0)	0(0.0)	0(0.0)	24(12.0)
30,001-35,000	6(3.0)	2(1.0)	1(0.5)	0(0.0)	0(0.0)	0(0.0)	9(4.5)
≥ N35,001	7(3.5)	2(1.0)	1(0.5)	0(0.0)	0(0.0)	0(0.0)	11(5.0)
Total	135(67.5)	42(21.0)	16(8.0)	3(1.5)	3(1.5)	1(0.5)	200(100.0)

Mean monthly Income = N21, 265.00; Mean monthly Proceed from bushmeat (PFBM) = N4, 838.00

Source: Field Survey, 2011

Thus, Mean Annual Income = N21, 265 x 12 = N255, 180.00; Seasonal (November – April) Proceed from bushmeat = N4, 838 x 6 = N29, 028.00. Therefore, Mean Annual Percentage contribution of proceed from bushmeat to respondent's income = $29,028/255,180 \times 100 = 11.38\%$ (which represents 1/10th of respondent's annual income).

Table 3 showed that 17.5% Of the respondents had monthly income of N5,000 – N10,000 while the remaining 25.0%, 22.0%, 14.0%, 12.0%, 4.5% and 5.0% of them earned N10,001 – N15,000, N15,001 – N20,000, N20,001 – N25,000, N25,001 – N30,000, N30,001 and ≥ N35,001 respectively per month. The table showed further that majority (67.5%) of the respondents indicated average monthly proceeds from bushmeat Of 0 – N5,000 while the rest 21.0%, 8.0%, 1.5%, 1.5%, and 0.5% of them earned N5,001 – N10,000, N10,001 – N15,000, N15,001 – N20,000, N20,001 – N25,000 and N25,001 – N30,000 respectively from bushmeat sales. The interface between the two variables showed that there was a progressive increase in the proceeds from bushmeat as the respondents' average monthly income decreases across

board. For example, the respondents within the lowest average monthly income brackets (N5,000 - N10,000 and 10,001 - 15,000) who constituted 42.5% of the respondents indicated higher proceeds (returns) from bushmeat than those with relatively high average monthly income. This may mean that low income earners do engage highly in wildlife hunting to meet up with the shortfalls in the income from other occupational activities. The mean of average monthly per capital income of the respondents was N21,265.00 (US\$133.00) with mean monthly Proceeds from bushmeat among respondents averaged at N4,838.00. Further analysis of the table showed that on annual basis, proceed from bushmeat accounted for 11.38% of the income of a typical hunter and this represents about 1/10th of their per capital income. This scenario simply implies that the hunting population in the study area was living below the poverty line of one person per \$1.25 per day as benchmarked by the World Bank Report (2007) given a mean household size of seven persons among the respondents. The generally low income level of the wildlife hunters may encourage aggressive hunting which helps to contribute significantly to their income.

Table 4: Cross tabulation of respondents' occupation and percentage contribution of bushmeat proceeds on average monthly income

Primary occupation	Percentage contribution of proceeds from bushmeat to income					Total
	0-20	21-40	41-60	61-80	80-100	
Farming	49(24.5)	15(7.5)	16(8.0)	5(2.5)	2(1.0)	87(43.5)
Trading	15(7.5)	5(2.5)	8(4.0)	0(0.0)	0(0.0)	28(14.0)
Artisanal	26(13.0)	14(7.0)	4(2.0)	3(1.5)	0(0.0)	47(23.5)
Civil/S	20(10.0)	3(1.5)	2(1.0)	0(0.0)	0(0.0)	25(12.5)
Driving	4(2.0)	0(0.0)	1(0.5)	0(0.0)	5(2.5)	10(5.0)
Schooling	2(1.0)	0(0.0)	0(0.0)	1(0.5)	0(0.0)	3(1.5)
Total	116(58.0)	37(18.5)	31(15.5)	9(4.5)	7(3.5)	200(100.0)

Source: Field Survey, 2011

Table 4 showed that relatively large proportion (43.5%) of the respondents primarily engaged in farming while the remaining 14.0%, 23.5%, 12.5%, 5.0% and 1.5% of them indicated trading, artisan, driving, civil service and schooling respectively as their primary occupations. Similarly, above average (58.0%) of the respondents earned 0-20% of the their

monthly income from bushmeat while 18.5%, 15.5%, 4.5% and 3.5% of them earned 21-40%, 41-60%, 61-80% and 81-100% respectively of their monthly income from bushmeat. This implies that respondents who indicated farming as primary occupations (43.5%) were most likely to be more dependent on income from bushmeat and this may encourage them to concentrate more of their attention on wildlife hunting rather than farming.

Hypothesis of the Study

Percentage contribution of proceeds from bushmeat to respondents' monthly income has no significant influence on their socioeconomic characteristics:

Table 5 showed the result of Tobit regression analysis on the factors influencing percentage contribution of bushmeat proceeds to respondents' average monthly income. The selected variables were age, marital status, household size, time spent on hunting/day, educational status, hunting experience and position in group. Marital status ($p=0.027$) and educational status ($p=0.032$) (as predicting factors) were found significant at 0.05 which means there are more effects of these two factors on percentage contribution of bushmeat proceeds on respondents' average monthly income. Other predicting factors like age ($p=0.280$), household size ($p=0.869$) and hunting experience ($p=0.117$) were not significant. The overall regression is significant at 0.05. Therefore, from the estimates, the explanatory variables that significantly influence percentage contribution of bushmeat proceeds to respondents' average monthly income were marital status and educational status. Overall regression is significant at 5% level and the R^2 value of 53% indicates that the model is a good fit.

Table 5: Socio-economic characteristics influence on bushmeat proceeds income) of respondents

Variable	Coefficient	Standard error	T-value	P value
Constant	1.682997	1.553578	1.08	0.280
Age	-.0054427	.0162954	-0.33	0.739
Marital status	.5822902	.2606805	2.23	.027*
Household size	-.010959	.0661894	-0.17	0.869
Hunting experience	.2678986	.2768553	0.97	0.334
Educational status	-.3678174	.1703711	-2.16	0.032*
Time spent on hunting/day	1.14501	.7273743	1.57	0.117
*significant at 5%				
LR Chi2(11) = 54.34				
Pseudo R ² = 0.5305				

Source: Field Survey, 2011

Conclusion

Based on the findings of the study, bushmeat hunters in the study area were not only involved in wildlife hunting to meet the protein needs of their family members but also to generate income as well. Poverty could be identified as core driver of bushmeat hunting which had probably compelled hunters to seek additional income from sale of bushmeat which accounted for about one-tenth of their total annual income in the study area. The study therefore recommends that Agricultural Development Projects (ADPs) nationwide should look into the possibility of adding forestry extension into their schedule of agricultural extension activities so that professional advisory services and other relevant information on forest resources and the need to hunt for sustainability and not for income can be provided to bushmeat hunters in Nigeria.

References

- Abernethy, K. and Ndong Obiang, A. M. (2010): Bushmeat in Gabon/La viande de Brousse au Gabon. Technical report to the Directeur Generale des Eaux et Forets, President de la Comite Interministerielle de la Strategie Nationale de Gestion de la Viande de Brousse. Technical Report, Ministere des Eaux et Forets.
- Bowen-Jones, E; Brown, D; and Robinson, E. J. (2003): Economic Commodity or Environmental Crisis: An interdisciplinary approach to analyzing the bush meat trade in Central and West Africa. *Area* 35(4), 390-402.
- CIFOR (2008): African hunger for bush meat unsustainable. Centre for International Forestry Research. In *Agriculture and Environment: Food security Journal*. Available online
- Davies, G. (2002): Bushmeat and international development. *Conservation Biology* 16: 587-589.
- DEFRA (2006): Webpage: Facts about bushmeat (Department of Environment, food and Rural Affairs <http://www.defra.gov.uk/animalh/illegal/topics/bushmeat.htm>).
- Kwara State Diary. (2010): Bulletin on update of forest reserve status. Department of Forestry, Ministry of Environment Kwara State.
- Lauren. C (2007): Bushmeat hunting in Gabon: Socio-economic and hunter behavior. A Ph.D thesis (Submitted to Emmanuel College, University of Cambridge Imperial College London, May 2007. Available online: <http://www.coadphdthesisjan.2008/adobereader>).
- Nasi, R; Brown, D; Wilkie, D; Bennett, E; Tutin, C; and Christophersen, T. (2008): Conservation and use of wildlife-based resources: Bushmeat Crisis. Secretariat of Convention on Biological Diversity, Montreal, and Center for International Forestry (CIFOR), Bogor. Technical Series No. 33, 50 pages.
- Ogunlade, I; Oladele, O.I and Babatunde, A.O. (2009): Farmers' Attitude to Beneficiary Funding of Extension Services in Kwara State, Nigeria. *Journal of Human Ecology* 26 (3): 215-220.
- van Vliet, N., Nebesse, C. and Nasi, R. (2010): Dynamics of Bushmeat trade in the market of Kisangani, DRC. XXIII IUFRO Congress, 23rd -28th of August 2010, Seoul, South Korea.
- Wilkie, D. S; and Carpenter, J.F. (1999): Bushmeat hunting in the Congo Basin: An assessment of impacts and options for mitigation. *Biodiversity and Conservation*. 8(7), 927-955.
- World Bank Report (2007): Development and the next generation. The World Bank. Washington, D.C.