ACCESSIBILITY OF NON TIMBER FOREST PRODUCTS (MEDICINALPLANTS) COLLECTORS TO INFORMATION AND COMMUNICATION TECHNOLOGIES IN GAMBARI FOREST RESERVE, OYO STATE, NIGERIA

Adeoye, A.S.[1*] and Oke, O.O.[1]

[1]Department of Agricultural Extension, Federal College of Forestry, Forestry Research
Institute of Nigeria. P.M.B. 5087, Ibadan, Nigeria
*Corresponding author:*samalaba77@gmail.com*; +2348037657876; +2347036335225

ABSTRACT

Information and communication technologies are germane to dissemination of vital information to human development. Therefore, they are veritable tools for passage of innovation and market information that will enhance livelihood activities among the non timber forest products collectors in the study area. This study was carried out in Gambari forest reserve, Oluyole Local Government area to assess the accessibility of non-timber forest products (Medicinal) collectors to information and communication technologies (ICTs). A well-structured questionnaire was used for the collection of data through systematic sampling procedure to select a sample of 75 collectors. The data for the study were analyzed with both descriptive and inferential analytical tools. The findings of the study showed that both male (53.3%) and female (46.7%) genders respectively were involved in collection of NTFPs, and were in the age range of 31-40years (30.7%), and were married (53.3%). The result showed that there is significant relationship between accessibility to ICTs and marital status (x^2 = 19.073, p< 0.005), age (x^2= 13.339, p< 0.005), educational level (x^2 = 21.083, p< 0.005), Household size (x^2 = 17.128, p< 0.005) among the collectors. The result further revealed that availability of ICTs has positive influence on the NTFPs collectors (r = 0.242, p< 0.05), and correlation between frequency of use and availability of ICTs among collectors (r = 0.624, p< 0.05). In conclusion it is shown that majority of the collectors indicated that medicinal products are available and useful domestic and commercial purpose. The study provided data about awareness through ICTs on non- timber forest products collection. It is therefore recommended that government need to provide advocacy through the medium of ICTs especially radio, and power and communication infrastructure. There is need also to involve extension agents to using extension methods for relevant information dissemination among NTFPs collectors in Gambari Forest Reserve, Oluyole Local Government Area of Oyo state.

Keywords: Accessibility, Non Timber Forest Products, collectors, ICTs, Gambari Forest

INTRODUCTION
Information and communication technology (ICT) is a relatively new means of disseminating information among people worldwide. ICTs are defined as processing and transmission of information by electronic means such as radio, television, telephone (fixed and mobile), computers, pocket PCs and the internet (CTA, 2013). ICTs are usually used in exchange of information in agriculture by stakeholders, namely, farmers, extension agents, researchers, administrators, policy-planners, non-governmental organizations (NGOs) and other agents (FAO, 2011). Information and communication technologies (ICTs) are new techniques that cannot be ignored in Africa especially for development in all aspects, this is because ICT is one of the main driving force that can bring about development and change in this present digital age (Olubiyi *et al.*, 2015). Chadwick (2003) asserted that the ICTs use implies the level to which potential information technology devices are harnessed for information generation and

ACCESSIBILITY OF NON TIMBER FOREST PRODUCTS (MEDICINALPLANTS) COLLECTORS TO INFORMATION AND COMMUNICATION TECHNOLOGIES IN GAMBARI FOREST RESERVE, OYO STATE, NIGERIA

27

transfer. Therefore, ICTs capacities relate to knowledge and skills required for effectively utilizing communication equipment and correctly receiving and transmitting information. However, in Nigeria Akpabio *et al*., (2007) observed low level of utilization of ICTs among farmers due to poor infrastructure especially, electricity, high cost of broadest equipment, poor connectivity, high cost of access, high charges for radio/television programme, lack of interactive communication and preponderance of power driver not user- driven. Other were poor enabling environment, lack of access and high level of computer illiteracy among farmers. The role of Non timber Forest Products (NTFPs) for sustainable forest management and poverty reduction has received increased attention for many past years (Sheil and Wunder, 2002). They play an important part in supporting household livelihoods and therefore can be used to raise the perceived value of forest resources (Arnold, 2001). In economic terms, NTFPs contribute substantially to national economic growth and international trade. For example, wild plant resources contribute an income of around US$1200 per household per year in Southern Africa (Shackleton *et al* 2001). Likewise, Jimoh and Haruna (2007) reported that the NTFPs have potential total contribute around 68% of total monthly household income within Gambari Forest Reserve, Nigeria. Non timber forest products (NTFPs) in broad sense are any biological resources called wild by rural people for direct consumption/income generation on a small scale. They include such as wild edible foods, medical plants, and floral greenery, and horticultural stocks, fiber of plants, fungi, resins, fuel wood, small diameter wood use for poles, carving etc.

However, dearth of relevant information on improved practices to non-timber forest products collectors' isa nagging issue in the non-wood forest practices. Spore (2007) stated that lack of information or poor communication scheme is one

factor responsible for low production. About 80% of Nigerians live in rural areas are predominantly poor NTFPs collectors of whom about 90% are illiterate (Fonta *et al*., 2013). The interpersonal communication is more prevalent among the rural dwellers based on their education level. Therefore, this study seeks to assess accessibility of non-timber forest products collectors to ICTs in Gambari forest reserve of Oluyole Local Government Area, Oyo state.

MATERIALS AND METHODS
The study was carried out in villages around Gambari Forest Reserve, Oluyole Local Government Area of Oyo state. Systematic sampling procedure was used to select 20 from Aba-igbagbo, 10 in Akintola, 15 in Ajibodu,15 in Okeseyi,15 in Lagunju all in Onigambari axis. The differences in the number of respondents selected per villages are due to the difference in the number of collectors in these villages. In all, 75 collectors were selected for the study. The non-timber forest products (medicinal plants) collectors were interviewed by means of a well-structured questionnaire. Data collected were analyzed with descriptive statistic such as frequencies, simple percentages, whereas chi-square and PPMC as inferential statistical tool to test for relationship between the dependent and independent variables.

RESULT
Personal characteristics of the collectors
Table1 reveals that both male (53.3%) and female (46.7%) genders respectively are gatherers or collectors of the medicinal plants. Also 30.7% of the collectors were within the age range of 31-40 years. The result further shows that majority of the respondents (33.3%) have primary education in the study area. Majority (65.3%) of the NTFPs medicinal collectors were involved in farming. Also, the majority (33.3%) of the respondents has income of < 25,000.

Table 1: Collectors selected personal characteristics distribution (N = 75)

Variable	Frequency	Percentage
Sex		
Male	40	53.3
Female	35	46.7
Age		
21-30	15	20.0
31-40	23	30.7
41-50	22	29.3
51-Above	15	20.0
Marital Status		
Single	18	24.0
Married	40	53.3
Divorced	9	12.0
Widow	8	10.7
Religion		
Christianity	35	46.7
Islam	29	38.7
Traditional	11	14.7
Educational Level		
No formal education	19	25.3
Adult Education	14	18.7
Primary Education	25	33.3
Secondary Education	8	10.7
Tertiary Education	9	12.0
Other Livelihood		
Farming	49	65.3
Lumbering	9	12.0
Hunting	7	9.3
Fishing	3	4.0
Trading	7	9.3
Household Size		
≤ 3	4	5.3
4-6	25	33.3
7-9	19	25.3
10-12	17	22.7
> 12	10	13.3
Income earned		
≤ 25000	25	33.3
26000-40000	23	30.3
41000-80000	11	14.7
81000-95000	12	16.0
> 95000	4	5.3

The result from table 2 showed that Heckel, Ginger, Awopa, Chev, Benth, Bullock, Garlic are available for medicinal purpose in the Onigambari forest reserve. This further shows that Coral plants (69.3%) and (60.0%) of Cotton leaf are also available for medicinal purpose in the study area.

ACCESSIBILITY OF NON TIMBER FOREST PRODUCTS (MEDICINALPLANTS) COLLECTORS TO INFORMATION AND COMMUNICATION TECHNOLOGIES IN GAMBARI FOREST RESERVE, OYO STATE, NIGERIA

29

Table 2: **Available medicinal leaves, barks and roots collectors by the respondents (N=75)**

Variable	Scientific name	Not available	Available
Tonka bean (cumuru)	*Dipteryx odorata*	43(57.3%)	32(42.7%)
Giant snail (Igbin)	*Achatina achatina* L.	52(69.3%)	23(30.7%)
Locust bean (igi iru)	*Parkia biglobosa*	26(34.7%)	49(65.3%)
Cut leaf Cherry (Koropo)	*Physalis angulate*	18(24.0%)	57(76.0%)
Iyeye	*Spondia mombin*	16(21.3%)	59(78.7%)
Bullock (Ogbo)	*Parquetina nigrescens*	16(21.3%)	59(78.7%)
White weed (Imiesu)	*Ageratum conyzoides*	28(37.3%)	47(62.7%)
Heckel (Orogbo)	*Garcinia kola*	4(5.3%)	71(94.7%)
Satinwo	*Terminalia ivorensis*	10(13.3%)	65(86.7%)
Schumach (Ajinrin)	*Momordica foetida*	18(24.0%)	57(76.0%)
Beau (Jenjoko)	*Cissampelos owariensis*	21(28.0%)	54(72.0%)
Benth (Oruwo)	*Morinda lucida*	11(14.7%)	64(85.3%)
Ginger (Ata ile)	*Zingiber officinale*	9(12.0%)	66(88.0%)
Awopa (Yaani)	*Enantiachlorantha*	21(28.0%)	54(72.0%)
Shea tree (Ori)	*Butyrospermum paradoxum*	18(24.0%)	57(76.0%)
Girdle pod (irawo ile)	*Mitracarpus scaber*	22(29.3%)	53(70.7%)
Moringa(ewe ile)	*Moringa oleifera*	8(10.7%)	67(89.3%)
Mint leaf (Ewe minti)	*Mentha X piperita*	13(17.3%)	62(82.7%)
Coral plant (Ogege)	*Jatropha multifida*	23(30.7%)	52(69.3%)
Cotton leaf (Botuje pupa)	*Jatropha gossypifolia*	30(40.0%)	45(60.0%)

Figures in parentheses are percentage

Table 3 showed that majority of the collectors (68.0%) has access to radio in the study area. Table 4 showed use frequency of ICTs that majority of the collectors (70.7%) in Gambari forest reserve frequently use radio daily than other ICTs facilities. Furthermore, it revealed that 28.0% of the collectors frequently use mobile phone daily in other to have good communication between the collectors and the buyers in study area.

Table 3: NTFPs Collectors accessibility to ICTs (N=75)

Variable	Not accessible	Rarely accessible	Easily accessible	Not affordable	Affordable
Radio	10(13.3%)	2(2.7%)	51(68.0%)	7(9.3%)	51(68.0%)
Television	12(16.0%)	1(1.3%)	7(9.3%)	25(33.3%)	30(40.0%)
Mobile phone	12(16.0%)	3(4.0%)	12(16.0%)	19(25.3%)	29(38.7%)
Internet	24(32.0%)	13(17.3%)	12(16.0%)	19(25.3%)	7(9.3%)
Print media	41(54.7%)	7(9.3%)	10(13.3%)	14(18.7%)	3(4.0%)

Figures in Parentheses are percentage

Table 4: Use frequency of ICTs among collectors (N=75)

Variable	Occasionally	Monthly	Weekly	Daily
Radio	16(21.3%)	2(2.7%)	4(5.3%)	53(70.7%)
Television	33(44.0%)	5(6.7%)	16(21.3%)	21(28.0%)
Mobile phone	19(25.3%)	5(6.7%)	16(21.3%)	21(28.0%)
Internet	41(54.7%)	20(26.7%)	5(6.7%)	9(12.0%)
Print media	56(74.7%)	5(6.7%)	9(12.0%)	5(6.7%)

Figures in Parentheses are percentage

Table 5 revealed that there is significant relationship between accessibility to ICTs and age (χ^2= 13.339, p< 0.038), marital status (χ^2= 19.073, p < 0.05), educational level (χ^2= 21.083, p < 0.05), and household size (χ^2 = 17.128, p < 0.05).

Table 5: Chi-square distribution

Variable	χ^2-value	p-value	Decision
Sex	0.472	0.790	Not significant
Age	13.339	0.038	Significant
Marital status	19.073	0.004	Significant
Religion	6.320	0.176	Not significant
Educational status	21.083	0.007	Significant
Other livelihood	10.349	0.241	Not significant
Household size	17.128	0.029	Significant

Level of significance at p< 0.05%

Table 6 revealed that there is significant relationship between accessibility of the NTFPs collectors and the availability of ICTs in the study area (r = 0.242, p <0.05). Table7 revealed that there is a significant relationship between accessibility of the NTFPs collectors and use frequency of ICTs in the study area (r = 0.624, p<0.05).

Table 6: Pearson product moment correlation (PPMC) analysis distribution

Variable	r-value	p-value	Decision
Availability of ICTs versus Accessibility	0.242	0.036	Significant

Table 7: Pearson product moment correlation (PPMC) analysis distribution

Variable	r-value	p-value	Decision
Frequency of use versus Accessibility	0.624	0.000	Significant

DISCUSSION
Personal characteristics of NTFPs collectors in the study area
The distribution implies that NTFPs collection is dominated by male and female respondents in the study area. Roland *et al*. (2014) asserted that both male and female are involved in NTFPs collection in the forest environment of Eastern Cape Province of South Africa. The age range from distribution implies that middle-aged persons were more involved in NTFPs collection. The collectors' level of education from the distribution is in line with the assertion of Ofuoku and Agumagu (2008) that most of the respondents were not literate. The distribution from table 1 show that majority of the NTFPs medicinal collectors were involved in farming. This implied that most of the NTFPs collectors practiced farming as the major source of their livelihood. This concurs with Azeez *et al*. (2010) that majority of dwellers in forest environment practiced rainfed farming and depends on forest for other livelihood activities. The majority of the respondents have income of < 25,000 from the distribution. The implication is that most of the collectors earned average income from their respective farms and collection of medicinal herbs. This is in line with the assertion of Oluwatayo (2013), that rural dwellers income is usually low, and might not be able to afford or access new ICT facilities.

Availability of medicinal leaves, roots, and barks in the study area
From the distribution in table 2 majority of the respondents also say that Moringa, Mint leaf, Pawpaw, Lettuce, Sweet yam, Shenocentrum, Girdle pod, Guava, Cut leaf cherry, Castor bean,

ACCESSIBILITY OF NON TIMBER FOREST PRODUCTS (MEDICINALPLANTS) COLLECTORS TO INFORMATION AND COMMUNICATION TECHNOLOGIES IN GAMBARI FOREST RESERVE, OYO STATE, NIGERIA

31

Creeping cocks, Dry zone cedar, Coral plants, Cotton leaf are available for medicinal purpose in the study area. This implies that there abundant medicinal plants in the study area.

NTFPs collectors' accessibility to ICTs
The results from the distribution in table 3 about collectors' accessibility to ICTs imply that radio is the easiest and fastest source of accessibility among other information and communication technologies used by the respondents. The accessibility of rural people to ICTs with the exception radio may be as a result of respondents' education status and low level of awareness as reposed by Agbelemoge *et al.*(2013). This is in line with Familusi *et al.* (2014) which submitted that radio is more of the most important media of transmission and information to the grass root in Nigeria.

Use of frequency of ICTs among collectors
The use frequency of ICTs among collectors from distribution in table 4 is in line with Familusi *et al.* (2014) which say radio is one of the most important media of transmission of information in Nigeria. From the distribution, it further revealed that 28.0% of the collectors frequently use mobile phone daily in other to have good communication between the collectors and the buyers in study area.

Hypotheses testing
$H_0 1$: From the distribution in table 5, it implies that age, marital status, household size, and educational level positively influence their active involvement in farming, collection of NTFPs, and use of ICTs to a meaningful extent. This is in line with Deji and Koledoye (2013) who stated that there was significant relationship between socioeconomic characteristics of the rural dwellers and their level of technology adoption in practice.

$H_0 2$: From the distribution in table 6, it implies that availability of ICTs has positive effects on the respondents and their accessibility of the NTFPs collectors in the study area.

$H_0 3$: From the distribution in table 7, it implies that accessibility of NTFPs collectors and frequency of use of ICTs has positive impact on the collectors' livelihood in the study area.

CONCLUSION
The study revealed that the NTFPs (medicinal plants) are sufficiently available in the Gambari forest reserve, and are useful for domestic and commercial purposes. However, apart from accessibility of the NTFPs collectors to radio, their access to other information and communication technologies (ICTs) is very low in the study area probably due to the collectors' level of education and income.

Recommendations
The government needs to provide advocacy through the medium of ICTs especially radio, and power and communication infrastructure. NTFPs should form cooperatives society and pull their resources together to harness the opportunities provided by modern ICTs. There is need also to involve extension agents to using extension methods for relevant information dissemination among NTFPs collectors in Gambari Forest Reserve, Oluyole Local Government Area of Oyo state.

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