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A Feasibility Study for the Development of Forest Cooperatives in Ekeugba and Ngor-Okpala Areas of Imo State, Nigeria.

Onyema, M. C.[1]*, Ekwugha, E. U.[1], Uluocha, O. B.[1],Chikezie, C.[2] and Onyema, R. U.[3]

[1]*Department of Forestry and Wildlife Technology, Federal University of Technology Owerri, Nigeria.*
[2]*Department of Agricultural Economics, Federal University of Technology Owerri, Nigeria.*
[3]*Federal Cooperative College, Oji River, Enugu State, Nigeria.*
**Corresponding Author's Email: mac-anthony.onyema@futo.edu.ng*

Abstract

Unlike other cooperatives enjoyed by agrarian communities, forest cooperative is a novel terminology in Nigeria's forestry parlance. This study investigated the feasibility for forest cooperative formation in a developing society. Descriptive and logit models were used to analyse the field results obtained from 259 respondents administered questionnaires in forest communities around Ekeugba forest reserve and secondary forest areas in Ngor-Okpala. In the findings, while 84% of residents actively engaged in crop production and animal husbandry, a greater percentage (84.7%) of the same respondent population engaged in one form of forestry/agro-forestry based activities or the other ranging from mushroom gathering/trade (27.3%), honey processing/trade (13.8%) and Gnetum/other forest vegetables gathering/trade (12.2%). Again, respondents enjoyed active membership in non-forestry cooperatives (agricultural cooperatives 47.7%, market-based cooperatives 70% and thrifts 27.5%) and reposed willingness (48.6%) to collaborate/cooperate with others for mutual benefits: a signal for possible forest cooperative development. Access to forestry extension/training services (X^2=0.025), forest incentives (X^2=0.031) and improvement in public/institutional infrastructure (X^2=0.04) are factors reposed by residents which could further increase their interest to join forest cooperatives in the region. It is possible that forest planners, extension agents- and government could leverage on some of the findings of this papers to synthesize workable plans useful in stepping up forestry development in developing societies.

Keywords: Developing societies, forest communities, forestry development, willingness

1. Introduction

One way agrarian, peasant and low-class communities have gained economic power is through the formation of cooperatives. Operating forest cooperatives requires consideration of a little step further than pooling and sharing resources and profits as is the case in socio-cultural associations and groups (Lafleur, 2005; Dana, 2010). Experience and membership in the latter offer a strong basis to step up successful forest-based cooperatives in

developing societies especially among middle and low class members who dominate in most entrepreneurial and other production-based activities across developing countries.

Cooperatives exist and are run in different areas and sectors of human endeavour especially in the enterprise development sector of which southeastern region of Nigeria is identifiable with. We can find cooperatives in sectors such as health, agriculture, manufacturing, commerce etc. However, it is regrettable in Africa to note that amidst large percentage of forest dependent populations, forest cooperatives are not popularized (ILO, 2014a; Kyazze, 2010). Recent sectoral restructuring in Nigeria, for instance, have seen increasing attention and importance on the contribution of forestry to national development particularly rural sector development (Kalu and Okorjie, 2009; Oriola, 2015). This development is traceable to the documented statistics of increasing rate of people's participation in forestry and tree growing programmes and projects over the years especially from the period of agricultural development and intensification of the 1950s coupled with its sub-sectoral contribution to Gross Domestic Product.

As an instance in this departure, taking forestry experience in Edo State as one out of a couple of other salient instances, Ehiaganare's (2007) report reflects the placement of forestry department under a more viable Ministry (Ministry of Environment)in addition to the unusually improved budgetary allocation of the State to the subsector over the years when compared with the case in the 90s. These are visible instances and evidences that show a limp and boost in the sub-sector. Such rapid transformational impetus when evenly spread is sufficiently capable to reposition forestry at both local, regional and national levels which can make the sector robust, resilient, less prone to vagaries of recession and more result oriented (FAO, 2003).

Sub-sectoral forestry reports at the global and continental levels have noted increasing participation and involvement in different aspects of forestry and agro-forestry practices. However, these are largely on household, subsistence basis either in tree growing or non-timber forest products NTFP operations. Cooperative or group forestry potentially can undoubtedly, if in place, overshoot the current mark being recorded in the forest score card at local, continental and even global levels. To make this dream come alive, it is only apt to leverage on the pedestal that most developing countries including Nigeria have robust experience in agricultural cooperatives both in theory and practice (Develtere Pollet, and Wanyama 2008; Wanyama, 2012).

Across most communities (especially rural communities) in developed and even developing countries especially in Africa, forest cooperatives from inception of agricultural development of 1954 in Nigeria to date have persistently occupied shallow position mainly because of poverty, poor knowledge, low capacity as well as poor institutional and political will by successive governments. Given this trend, breaking this chain will require a group action which only cooperatives can stimulate and fast track (Sizya, 2001; Ezekiel, 2014). It is only on such a cooperative leverage that the vehicle for group action can be effectively mustered.

The geopolitical location of Nigeria in the tropical zone and the size of productive arable land available for forestry venture have made it possible for the growth and establishment of different forest types as well as support a variety of forest based ventures for public and private holders (Adeniyi, 2016). More so, the location of Imo State in the humid tropical zone

further broadens the above potential endowments. Nonetheless, the different agricultural zones in Imo State, for instance, show enhanced potential for a variety of agro-forestry products (Orisakwe and Ozioma, 2011). Aside the many agro-forestry practices engaged in by households across communities in Imo State, Ekwugha and Onyema (2014) and Ekwugha, Peter-Onoh., Nwaihu, and Njoku (2017) among many others have reported that an average indigene in the area is actively involved in extraction, utilization, market, processing and/or production of one form of forest goods/products or the other. Across the State, there is an appreciable adoption rate of agro-forestry practices and technologies by the residents in the State (Orisakwe and Ozioma, 2011).

Ekeugba and Ngor-Okpala are two agricultural communities in Imo State of Southeastern region of Nigeria. These communities are respectively located within Orlu and Owerri. agricultural zones of the State. The population density of the State is about 1,400 persons per km^2. This high population density has led to intensified agro-based activities with attendant increases in socioeconomic activities. Over the years, land across the region has managed to keep subsistence food and fibre production although within expanded limits which experts recommend can best be sustained with land fertilization (Onubuogu, Esiobu, Nwosu and Okereke 2014; Ukaegbu, Osuaka and Kolo, 2015). If the above scenario is something to go by, then the above condition could of necessity make the choice of long fallows and more importantly cropping in combination with trees and shrubs an option for households to minimize hunger and sustain food and fibre production limits.

There are three agro-zones in Imo State (Owerri, Orlu and Okigwe) and each of these is home to gazetted forestlands whose data are contained in the repository of the State Forestry Department. Some reports show that over 45% of households across the region have gained significant livelihood from production and trade in honey (Nwaihu*et al*., 2015). Given the foregoing, Mbah (2012) calculated in his study that for every ₦1 sale of honey by an apiculturist/honey dealer, ₦0.59 is returned to the beekeeper as net income. On forest product utilization, report from Adeyemi and Ibe (2014) signals that firewood utilized in Owerri agricultural zone consists of 96.2% *A. macrphylla*, 90.3% *M. ecxelsa*, 76.8% *D. guineense* and 67% *P. macrophyllum* all of which are from natural forest stand with little or nothing from planted/fallow lands. Again, there are over 69% of farm families in the views of Ekwugha *et al*, (2017) whose livelihoods are supported by breadfruit in which case they actively engage in different value chain activities from planting/production through processing up to trade and utilization. For instance, about 57.8% of households engage in breadfruit trade alone in Okigwe agricultural zone of Imo State and make returns of over N4000. Nzekwe, Ojeifor, and Nworie (2010) also identified that hundred breadfruit stands in the region can fetch an annual sum of about 811,340 Naira (N67,611 monthly) which is more than four times the minimum wage of an average Nigerian civil servant.

2. Materials and Methods

The study was carried out in two (2) agricultural zones of the State (Orlu and Owerri agricultural zones). The study randomly selected forest areas within the zones. Using a table of random numbers, Ekeugba forest reserve (Orlu agricultural zone) and Ngor-Okpala secondary forest (Owerri agricultural zone) were randomly selected. Reconnaissance surveys carried out prior to the study revealed that some perishable forest products (especially NTFPs) exploited from these selected reserves are being traded in local markets close to or within the communities around the reserves as well as in a few distantly located

markets beyond these locations. This shows a somewhat irregular stretch of pathway or movement of forest goods demanded and supplied across the study area and the State at large. Given the above pathway, systematic sampling was used to delineate three sub-locations/groups (A, B and C) which respectively located 50m radius of the selected forest area; 5km away further away from the above forest area and finally 15km from the forest area.

. For Ekeugba area, Ekeugba forest community (A) served as target location, Avu community located 5km from A above (representing B) was selected while Owerri municipal city which situates about 15km from A (Location C) were sampled while for Ngor-Okpala community, Ngor community (A), Chokoneze community (co-representative for B) and Ihitte-Afor Ukwu community (C) were respectively selected. This served to test for variation and/or similarity in the variables of interest across the sub-locations

Four hundred and twenty (420) structured questionnaires were designed for the study which were equally spread across the above two selected zones: two hundred and ten (210) for each agro-zone and seventy (70) for each of the above communities. Target respondents were residents within the delineated areas. Information obtained from questionnaire included background details of the respondents, occupational preferences, respondents' membership rate in existing cooperatives in their communities, their respective involvements in forestry/agro-forestry activities, likely factors that could influence forest cooperative formation by the respondents among others.

Out of the above number of research instruments administered directly to the respondents, 259 sets of the questionnaire were retrieved for analysis. Descriptive and inferential statistics were used in data analysis. Cross tabulation of selected background variables of the respondents revealed proportion of respondents who engaged in different forestry/agroforestry practices in the region while logit model was used to determine key factors which could promote forest cooperative formation in the region.

3. Results and Discussion

In the result (Table 1), all the respondents had completed one level of formal education or the other with majority (71%) attaining secondary education. This reflects the rate of literacy and exposure of the people and a reflection of their capacity to access livelihood and support for their daily needs. About 84.1% of the respondents engaged in one form of occupation or the other ranging from artisanship, livestock rearing, crop farming and public service. Similarly,, 86.7% of these same respondents engaged in some forestry/agro-forestry based activities ranging from oil palm production, snailery and trade in bitter leaf, fuel wood, honey, mushroom, breadfruit and forest vegetables.

Experience has shown that given the insatiability of human needs especially economic needs and increased quest for cooperation, people who tend to share a common vision and aspiration have a more united front to advance their cause irrespective of their history, education and class (Kareem *et al*, 2012). Modern realities especially from the result of this study show that human needs, preferences and affiliations tend to cut across bounds and categories of persons. The respondents engaged in various occupations (Table 1) top of which is trading (39%). Hence, they are involved in various aspects of buying and selling of goods and services which likely take them from one location to another. Nonetheless, a number of forestry-related activities as engaged by the respondents are prevalent in the

study area. These include wilding, processing and trade in mushroom (27.3%), honey business (13.8%), *Gnetum* and other forest vegetables gathering (12.2%), breadfruit trade (11%) and bitter leaf trade and marketing (9.7%).

Table 1: Background Information of the Respondents in the Study Area

Variable	Category	Percentage
Highest Educational qualification	None	-
	Primary	7.3
	Secondary	71.4
	Tertiary	21.3
Major occupations	Artisan	4.5
	Trading	38.8
	Livestock rearing	9.3
	Crop farming	18.1
	Home-based public servants	13.4
Forest/agroforestry-based activities engaged in	Snailery	7.4
	Oil palm production	4.6
	Bitterleaf trade/market	9.7
	Fuelwood trade	8.4
	Honey processing and marketing	13.8
	Mushroom gathering and trade	27.3
	Breadfruit processing/trade	10.7
	Forest vegetable gathering/trade e.g. *Gnetum*	12.2
Interest to mutually collaborate with others in prospective ventures	Yes	48.6
	No	11.3
Monthly income	<20,000	18.1
	>20,000 – 50,000	42.6
	>50,000 – 100,000	31.0
	>100,000	8.4
Mean	N27,682.09	

Table 2: Respondents' Membership Rate in existing Cooperatives in their Communities/Zones

Types of Cooperatives	A	B	C	Average % of Membership across the Zones
Agricultural Cooperatives	16(26)	12(28)	14(34)	47.7
Market-based Cooperatives	13(17)	13(18)	9(15)	70
Family thrifts	5(16)	8(29)	6(24)	27.5
Average % of Respondents' Membership within Communities	57.6	44	39.7	

Figures in bracket are estimates of total number of cooperative members in the respective cooperative types

Trading as a major economic activity cutting across different categories of residents in Imo State is glaringly manifestable in the result of the study even among forestry-based practitioners (Table 1). Apart from snailery and oil palm production activities, all the other forestry/agro-forestry based activities undertaken by the respondents cumulatively (82.1%) give a picture of a scenario that portrays residents of the study area as independent/yet-to-

be-recognised forestry business practitioners. This percentage shows that majority of the respondents (82.1%) even though they may not take trading as their major occupation, local forest trade is a venture which holds huge potentials if recognized and promoted. This is instructive as this can serve as vehicle for rural and socioeconomic development which aid-providing groups, concerned development agencies and government can cash in on to stimulate informal sector development. This is a stimulus for cooperative development.

The respondents (49%) reposed appreciable interest to cooperate/collaborate among themselves for common mutual benefits. Hence, they will not likely resist in joining to form cooperatives that will either improve their household welfare or benefit their livelihood base. Respondents' experience in existing cooperatives within their localities is an eye-opener that cooperatives is not new to them and that they already enjoy membership in different types of cooperatives. These include agricultural cooperatives, market-based cooperatives and family thrifts ((Table 2). This is against the backdrop that there is a low and insufficient ground for novel cooperatives development among rural residents to step up sustainable development (Kamar*et al.*, 2014). In Table 3, this could be the reason for the significant influence of respondents' membership in existing cooperatives in the area by different forestry-based operators (X^2=0.04, Likelihood Ratio=0.636). In Table 2, apart from family thrifts which respondents enjoy less than one-third of its membership in (27.5%), in other cooperative types (agricultural cooperatives and thrifts), there is a significant membership of between 48% and 70% of the respondents. We also see highest rates of respondents' membership in these cooperatives within forest reserves neighbourhood (57.6%) which decreased further away from the locations of the forest stocks. This shows tendency of higher organization and understanding among respondents especially in activities that are of likely economic benefits derivable in the existing cooperatives in the region.

Again, given that the respondents engaged in a variety of occupations as contained in Table 1 and from which they make mean monthly income of over N27,000 is indicative that more robust cooperatives could have even more positive influence on respondents' welfare particularly their income and livelihood. Findings reveal that trading (in mushroom, honey, breadfruit, fuel wood etc) assumed prominence as one major household enterprise of most households. Trading, as a flourishing occupation in SE Nigeria and beyond is one economic driver which Chete *et al*. (2012) and ILO (2014b) identified can drive sustainable economic growth if catalysed by cooperatives.

Table 3: Crosstabulation of forestry related activities with selected Background details of Respondents

Background Details		Forest/Agroforestry Activities				
	Category	Mushroom gathering/trade	Honey processing/trade	Breadfruit gardening/trade	Forest vegetable trade	Oil palm plantation/sale of palm oil
Gender	Male	42	46	25	62	33
	Female	49	27	36	7	7
Chi-Square=0.999 df=5 Likelihood Ratio=0.998						
Education	None	1	2	10	40	21

	Primary	2	4	25	39	14
	Secondary	3	4	73	50	1
	Tertiary	3	6	7	22	9
		Chi-Square=0.083	df=8	Likelihood Ratio=0.076		
Cooperative Membership	Agric. Coop	64	4	1	3	1
	Market Coop	73	3	1	1	4
	Thrift	3	138	8	2	4
		Chi-Square=0.662	df=7	Likelihood Ratio=0.636		
Respondent Groups	A	32	28	19	88	58
	B	11	13	30	65	47
	C	7	-	15	51	-
		Chi-Square=0.040	df=7	Likelihood Ratio=0.115		

The different groupings (A, B and C) for the study had significant influence in the result contained in Table 3. This provides justification for likely formation of cooperatives (X^2=0.040, Log Likelihood=0.115). Additional assets observed which are in forms of variety of resources from the forest, human capital, existing cooperatives etc will offer positive contributory influence in galvanizing group force for common development.

There are as stated earlier, some forms of cooperatives which are in existence in the area and which the respondents already enjoy different degrees of membership in. In Table 2, although agricultural cooperatives had highest rate of membership relative to others (16 respondent members out of 26 in their nominal role), it can be said that market-based cooperatives will tend to be generally appealing to residents in the two agro-zones and the State in general given its high membership rate (70%). Of particular note is that presence or absence of forest estates (reserves) across delineated communities did not adversely impact on the trend and acceptance of this type of cooperative by residents.

Operational markets where these forest/agro-forestry practitioners converge to buy and sell their produce would be potent ground to initiate forest cooperative proposal/plan to the residents. Again, the forest communities located within forest neighbourhood (A) will offer a mix of opportunities for forest cooperatives development given the high percentage influence members in this neighbourhood command (57.6%) in the existing local cooperatives. Similarly, given the finding from this study that residents in the study area practice one form of forestry/agro-forestry activity or the other, they will likely desire to unite under a platform which has direct bearing and focus to step up their forest-based trade. Agricultural cooperatives are statutorily coordinated by the State Ministry of Agriculture and Rural Development. The high membership result for agricultural cooperative portends viability for cooperative diversification around the region.

The results of the cross-tabulation (Table 3) revealed that forest vegetable trade was not directly linked to any educational level. Hence, residents across the area could more likely go into forest trading than even breadfruit gardening/trade. More so, existing cooperative membership among the respondents will have more positive influence on their desire to form forest cooperatives if any new forest cooperative proposal will offer benefits for mushroom trade. Those engaged in thrifts (138) in Table 3 endeared most in

apiculture/honey processing and trade and as such forest cooperatives which show benefits along these lines would stimulate their interest. The groupings/delineation of the study area showed comparatively highest levels for development of forest vegetable trade. These results will be useful to forest planners, extensionists (extension agents), managers, rural development experts as well as stakeholders and advocates of livelihood improvement.

Table 4: Likely Factors that could influence respondents' willingness in formation of cooperatives

	Estimate	Standard Error	Chi-Square Values
Constant	-1.186	0.371	0.922
Improvement in public infrastructure	0.662	0.636	0.0408*
Access to forestry extension and training services	1.681	0.308	0.0255*
Forest incentives	-1.060	0.331	0.0313*
Existing social/organizational structures within the community	0.515	0.314	1.224

Log Likelihood = 309.762
Chi-Square (4df)= 16.267
*Significant at p<0.05

There are ample indications that most persons join cooperatives for reasons which border on facilitation of access to soft loans, subsidy and quality inputs (Onyema, 2016). With government renewed interest in agriculture and informal sector development, of which forestry is key, cash grants and other support services in the past have significantly improved results (Oladele *et al*., 2013; Onyekuru and Marchant, 2014). The result in Table 4 observed that improvement in infrastructure (X^2= 0.0408), access to extension services (X^2=0.0255) and grant of forest incentives (X^2=0.0313) will significantly influence respondents' willingness to form and/or join forestry cooperatives in the study area. This is not same with the promotion of existing social structure within the area (X^2=1.224). There are reports of the impact of Bank of Agriculture (BOA) being felt across the States of Nigeria in the grant of soft loans (Olagunji *et al*., 2013; Okpodu and Ehirim, 2013).

Agricultural Cooperative members who are registered in Imo State are in principle and expectedly in practice too being lent loans at single-digit and most times at zero interest rate. Given the size of persons who engage in one form of production, processing and/or marketing of any aspect of forestry/agroforestry practice, there are perceivably more ample opportunities available within the sub-sector to tap by prospective members when forest cooperatives become popularized and recognised. In addition to agroforestry practices identified by this study as practiced by the respondents, Iwuji (1989) and Onyinye (2014) have documented on several other forest-based practices not identified in this study area which are prevalent in the region sufficient to attract the attention of government for promotion and development. Across the above study areas, these can be stimulated through cooperatives if the above identified significant factors are promoted.

In the result contained in Table 1 which reflects high interest of respondents to partner (collaborate) with others for development confirm the report of Ibem (2010) and Ajaero and Onukala (2013) that people in the region are eager to identify with one another,

groups and organizations which show promises of improving their lot economically. Their membership in market-based cooperatives and contributions in family thrifts further underline the foregoing (Table 2). Given the above, the Rural Development and Extension Unit of the Forestry Development which has the mandate to develop the informal sector forestry sector through cooperatives could be all the more spurred with this development.

In the study areas, there seems to be low evidence of timber-based practitioners as major occupational endeavour of respondents (Table 1). Majority of the respondents tend to directly or indirectly manage, use, market or generally trade on NTFPs at one time or the other. This particular study area under consideration has evidence of potential availability and climate which favour the production, market and trade of mushroom, snail, honey, forest fruits like breadfruit and walnut among several others (Onyinye, 2014; Mbano and Chikwendu, 2015). In breadfruit market stand/section across rural markets in the area, it is observable to find a chain of practitioners in the trade each of which involves one form of value addition of the product or the other. This gives ample opportunity for organization and development if such practitioners/operators have a common, united front through which aid can be accessed.

Most development programmes and projects in the communities and regions around the study area appear to be driven by the informal sector which cooperatives can stimulate and galvanize. Thus, programmes and policies of government for cooperatives are not being optimally accessed in the sector especially in the forestry sub-sector.

4. Conclusion

The establishment of Ekeugba forest reserve and Ngor-Okpala secondary forest reflect active and viable agricultural departments dealing with the subject of agricultural and forestry concerns. Again, the establishment and funding of forestry department in Imo State and in other States in Nigeria offer new hopes for improvement in the forestry subsector especially in cooperative development. Given the huge forest potentials available across the study area as well as the daily utility derived from forest and forest-related resources by residents, the formation of cooperatives could possibly be an executable project to consider in development effort in the region. In no time in the history of development in Imo Nigeria has attention especially in funding been paid to the forestry sub-sector than at the present time with comparatively high number of forest dependent populations, existing strong cooperatives in agriculture and allied associations of mutual benefits. Awareness, partnerships and collaborations are solicited in driving home the need to step up actualization of lofty national forestry objectives through cooperative development. Therefore, there is the feasibility of the respondents being ready to belong to foresty cooperative of convinced.

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