



# Farmers' Participation in Community Based Organizations; Implications for Increased Productivity in Edo, Delta and Bayelsa States in Niger Delta Area, Nigeria

F. Okwukenye Goddey<sup>1\*</sup> and E. O. Akintoye<sup>1</sup>

<sup>1</sup>Department of Agricultural Economics and Extension, Faculty of Agriculture, Ambrose Alli University, PMB 14, Ekpoma, Edo State, Nigeria.

## Authors' contributions

This work was carried out in collaboration between both authors. Both authors read and approved the final manuscript.

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## ABSTRACT

The study examined participation of farmers in community based organizations and its implication for increased productivity in Edo, Delta and Bayelsa States in Niger Delta, Nigeria. The objectives of the study include to examine the socio-economic characteristics of farmers and non-farmers community based organizations in the study area, determine the level of participation of the farmers in CBOs activities, examine the effects of farmers participation in CBOs activities on their farm income and to identify possible factors limiting farmers participation in the group's activities. The study was carried out with the use of structured questionnaires administered on the respondents of the study. Primary data were sourced from 590 respondents, comprising of 295 CBO farmers and an equivalent size of non – CBO farmers spread across three states of the Niger Delta region of Nigeria. The study was carried out between 2013 and 2014. Data from respondents were analyzed using percentages and means. Llikert scale was used to analyze the farmers constraints in their CBO groups. Multiple regressions were used to analyze the hypotheses of the study. Results showed that CBO farmers participated very well in most of their activities (mean  $\geq 2.5$ ), they also

\*Corresponding author: E-mail: [okwukenyegoddy@gmail.com](mailto:okwukenyegoddy@gmail.com);

like to participate in CBOs activities for reasons such as, it has helped to increase their knowledge of farming practice, improved their income and standard of living. It was also revealed that the difference (US\$1,039.55) in farm income between CBO farmers members (\$1,573.45) and non-members (\$533.90) was significant ( $P < 0.05$ ). Result as well showed that such socio-economic characteristics of CBO farmer member as age ( $b = -0.090$ ), education level ( $b = 1.179$ ), farming experience ( $b = 0.230$ ) as well as CBO group characteristics like membership supportiveness ( $b = 4.056$ ), democratic nature of leadership selection ( $b = 4.357$ ), and CBO membership experience ( $b = 0.680$ ) were significant variables ( $P < 0.05$ ) affecting farmers level of participation in CBOs activities. The study concluded that participation of the farmers in CBOs has enhanced their farm income. The study recommends that CBO leadership should actively seek and incorporate members' views in designing activities for the group, ensure that benefits accruing to the group are equitably distributed and be seen to be transparent by being financially accountable to its members.

*Keywords: Rural sector; agricultural production; agricultural output; farm income; farm revenue; characteristics farmers; group characteristics; small scale farmers.*

## ACRONYM

*CBOs: Community based organizations,  
LGAs: Local government areas,  
ADPs: Agricultural development programme.*

## 1. INTRODUCTION

The rural sector is very essential in the economic development of many countries (Nigeria inclusive). This is due to the various contributions (like provision of food, raw material for industries, employment, savings to the government and tax revenue to support the development of other sectors of the economy and generation of foreign exchange to the government) of the sector to the populace. The above mentioned importance of the rural is more pronounced in underdeveloped countries [1]. [2] noted that the importance of the rural sector mentioned above is majorly the preoccupation of farmers most of whom live in the rural areas. The concern for the necessity to increase the quality and quantity of food production has led to efforts targeted at either small scale or large scale farmers. [3] noted that the small scale farmers dominate the agricultural production landscape and for this reason advocated that they should be targeted for the country's (Nigeria) increased agricultural production. This assertion was supported by findings of [2] which advanced that small scale farmers can achieve higher farm yields and meet up with the increased demand of food quality and quantity if they play down on traditional practices and adopt recommended scientific farming techniques. These small-scale farmers are characterized by a strong dependence on agricultural labour market, little or no forms of savings or storage facilities, and the cultural

practices they adopt are highly labour intensive [1]

Despite the level of commitment of small scale farmers to their farming activities, they still find it difficult to individually break away from the vicious cycle of dependence and poverty [2]. Acknowledging this limitation, the authors [2] suggested that it is only through collective efforts of the poor farmers and their community based organizations that they can help themselves overcome the myriads of problems plaguing them as well initiate a course of participatory and self reliant development. In line with this thought, farmers participation in community based organizations has been reported by [4] as a key factor worthy of impacting on their level of adoption of improve farm practices and consequently on their farm income thus engendering development. Where sustainability of the development is concerned especially in a contemporary society like Nigeria (a developing country), it is pertinent to initiate development from the rural sector where a greater proportion of the population live and where also the productive base of the economy which is agriculture and its associated activities is located.

More recently, the use of local or Community Based Organizations (CBOs) has been advocated by several development agencies as a strategic means of gaining local support and promoting rural as well as agricultural output, income and development [5]. [6] pointed out that unless farmers play important role in enhancing production and income, the potential and essence of forming CBO can never be realized. Previous studies on farmers' participation have focused on agricultural programmes such as

Fadama III and Youth Empowerment, while others have focused on factors influencing participation in groups [7]. However, none seem to have been directed on possible impact of participation of farmers in CBOs on farmers' output and income level. This study hopes to bridge this research gap. Currently, there is no much data on farmers' participation on CBO and its impact on farm revenue and income. This study examined those factors that encourage participation in CBOs and therefore recommends on how to build on them. Against this background, the study is considered as an important and timely one.

## **2. OVERVIEW OF COMMUNITY BASED ORGANIZATIONS IN NIGERIA**

Community based organizations is a voluntary, non-profit, non-governmental and highly localized or neighbourhood institutions whose membership is placed on equal level and whose main goal is the improvement of the social and economic wellbeing of every member [8]. There are several types of community based organizations that are prevalent in rural areas. Some of the common objectives that run through most of them according to [9] are; to increase the productive efficiency of members, to institute innovations in terms of making new and improved farm inputs available to farmers, to develop leadership qualities among members, to establish an organized and significant local group through which government rural development programmes can be transmitted readily to reach a large numbers of people, to encourage savings and the accumulation of capital among rural people and to establish a wide range of credit facilities for members thereby enhancing more investments on the farms.

Garcia and Poole [10] identified two types of local organizations. They are; local development associations and Cooperatives and interests associations. [9] categorized local organizations into two different forms. They are according to size, where he noted that the groups could be small or large, and, according to their composition and function. Under this category, local groups can be categorized as: instrumental social groups and expressive social groups.

Atlee [11] spelt out some of the characteristics guiding farmers' organizations to include; Openness to interested persons that are willing to participate in the group, its openness to using the full range of action strategies to work towards

the long-term sustainability and well being of the people and the community, the group's promotion of active and representative participation towards enabling all members to meaningfully influence the decisions that affect their lives, simple engagement of members in learning about and understanding organization's issues, and the economic, social, environmental, political, psychological, and other impacts associated with alternative courses of action and members working actively to enhance the leadership capacity of organization members, leaders, and groups within the environment. [12] adduced that community based organizations are formed based on the belief that there is no government however benevolent, paternalistic or well meaning, which can boost of the capacity to provide all the multifarious needs of all its citizens. The community based organizations therefore help to bridge this gap. It is on this axion, the authors [12] noted that community based organization stands the surest and quickest way through which sustainable rural development and agriculture can be achieved.

## **3. ECONOMIC IMPORTANCE OF CBOs IN NIGERIA**

The importance of Community based organizations according to [13] are; The group offers economic gains to the members, it helps to accomplish some tasks which the individual alone may not be able to accomplish e.g. farmer's cooperative societies, it enhances individual's prestige that is when the organization is a prestigious one in the locality provide community people's access to friends and other persons in the community they want to identify or associate with and it may sometimes help link stakeholders of the group, or serve as stepping stone to some higher status or gains

Pretty [14] gave a list of the importance of local groups to include; the group assists members to have access to productive source and secure sustainability in already acquired resources, the group helps to provide frame work for cooperative action by organizing people to generate and use their own knowledge and resources to advocate for their own rights in their local community, it enables the people to organize and mobilize for labour and materials resources needed for more credit, savings and marketing and the groups help to provide and improve access of the rural people to information that would help to better their lives. [14] also acknowledged that, the local groups help to

provide and improve (where it existed before) social cohesion among the people and this make it possible for them to belief in themselves, cooperate and pull their resources together for their common benefit.

#### **4. CBOs POLICIES IN NIGERIA**

CBOs in Nigeria are guided by some policies. Notably, [9] indicated that CBOs are social units or human groups deliberately formed to achieve specific goals. That is to say it is goal driven. As a matter of policy, the organizations are formed for the purpose of protecting and promoting common interest of the members which they wouldn't have been able to achieve individually. The main thrust of CBOs is to address local needs, they are formed on voluntary basis and are self funded [15].

#### **5. OVERVIEW OF FARMERS' PARTICIPTION IN CBOs IN NIGERIA**

Sidorenko [16] defined participation as a process of taking part in different spheres of social life: political, economic, social, cultural and others. A key element in participation according to [9] is the process in which the poor gain greater control over their own lives in a collective effort, through likeminded groups. Participation at the community is seen as the coming together of the people in the community to take part in the community projects that are aimed at solving problems that bother them and improving their wellbeing.

Sidorenko [16] opined that participation of farmers in organizations can take place in four different forms. The forms are: direct form, representational form, political form and information based form. [17] acknowledged three kinds of local participation. These are: community participation, local organization development and indigenous local participation.

Some of the benefits of CBOs were pointed out by the reports of [13]. It noted that participation in groups would ensure that stakeholders are involved in the formulation of development policies and strategies and in the analysis, planning, implementation, inventory, monitoring and evaluation of the group's activities. [18] observed that genuine participation in a group is an opportunity for members to better their own lives in particular and the community in general, motivates people to work together because it

inculcates in them a sense of community and recognize the benefits of their involvement. In addition, genuine participation may bring about remuneration in cash or kind to members.

Indicators of participation according to [19] report are of two categories. They are quantitative and qualitative indicators. Quantitative indicators include; levels of input committed at different levels to community projects, increased reliance on members finance, frequency of attendance to meetings, levels of participation by members to community projects, existence and abiding to the set of rules, extent of contribution of resources by members to community projects and involvement of members in key decision making process. On the other hand, the qualitative indicators are of three folds namely; organizational growth, group behavior and group self-reliance

Damar [18] identified some of the problems faced by farmers in participating in local organizations to include; high illiteracy rates and poor living conditions among the rural people, lack of leadership and inadequate access to credit, agricultural inputs and other services.

#### **6. STUDY OBJECTIVES AND HYPOTHESES**

The overall aim of this study is to assess farmers' participation in community based organizations: its implications for increased productivity in selected states in Niger Delta, Nigeria. The specific objectives were to

- i. examine the socio-economic characteristics of farmers and non-farmers community based organizations in the study area.
- ii. determine the level of participation of the farmers in CBOs activities..
- iii. examine the effects of farmers participation in CBOs activities on their farm income
- iv. identify possible factors limiting farmers participation in the group's activities

The following null hypotheses were tested:

- Ho<sub>1</sub>. CBO farmers' socio-economic and group characteristics have no significant influence on their level of participation in CBO activities.
- Ho<sub>2</sub> There is no significant difference in farm income of farmer members and non-members of CBOs.

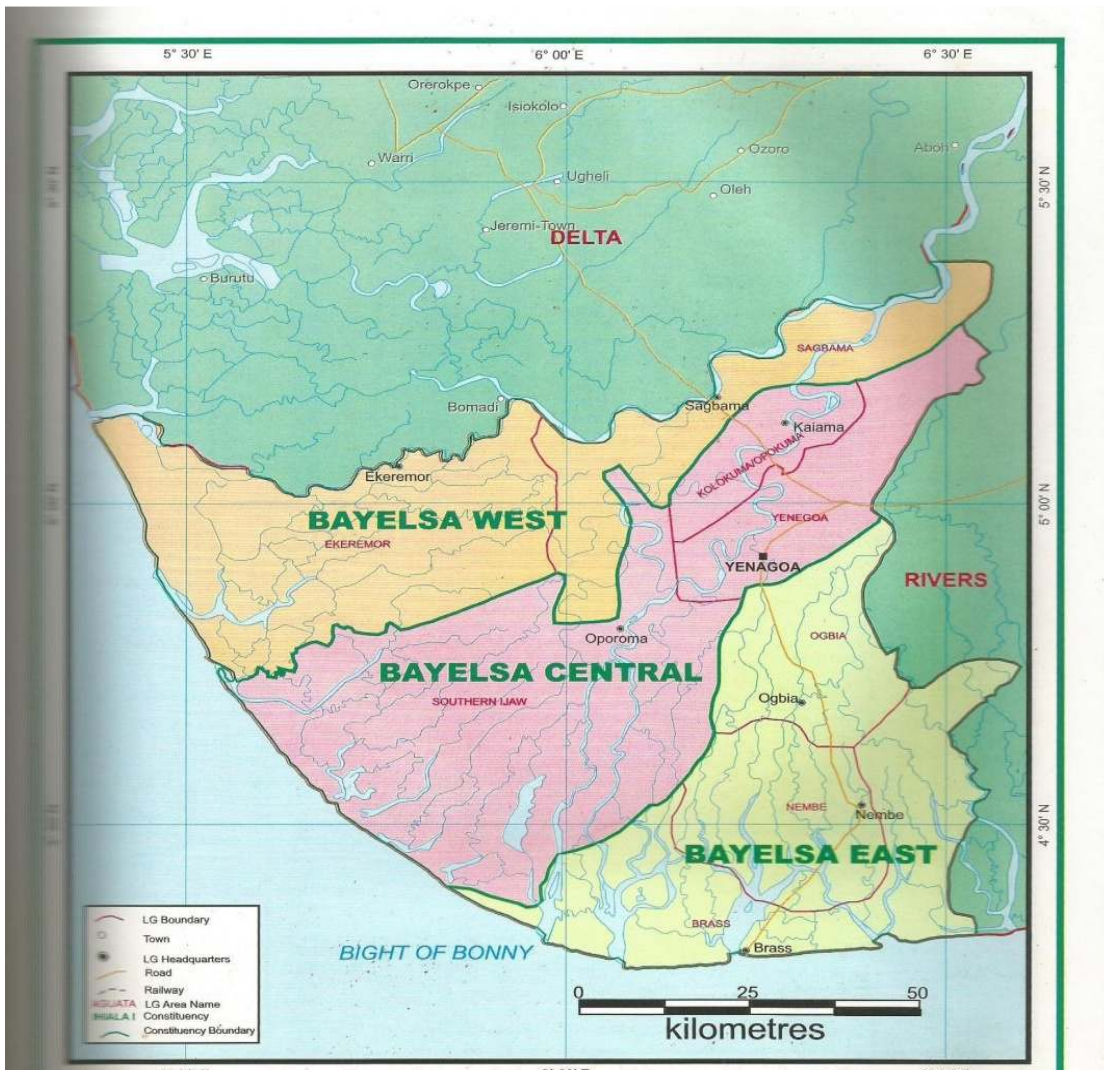
## 7. RESEARCH METHODS

The study was carried out in three contiguous states, namely, Edo, Delta and Bayelsa States in the Niger Delta area of Nigeria. They are Bayelsa, Delta and Edo States.

### 7.1 Bayelsa State

Bayelsa State is oil rich state located in the Niger Delta region of Southern Nigeria. It is geographically, located within Latitudes 4°15' and 5°23'N and Longitudes 5°15' and 6°45'E. The State is bounded to the north by Delta State, to the East by Rivers State, and to the south and west by the Atlantic Ocean. The State has 8 local

government areas, a population size of about 1.7million people (2006, census) and it occupies a land area of about 21,000 Km<sup>2</sup> with its capital city at Yenagoa. Her major language is Ijo (Izon), other widely spoken languages are Nembe, Ogbia and Epie-Atissa [20]. The local population engages mostly in fishing on both subsistence and commercial levels. Other major occupations in the State are farming (growing of crops and rearing of animals). Commercial and industrial activities in the State revolves around oil and gas sub-sector [20]. The report also noted that Bayelsa State has a wide variety of customs, festivals, music, arts, crafts, folklore, artifacts, museums and monuments.



Map 1. Map of Bayelsa State showing LGAs used for the study

Source: NAEC, [20]



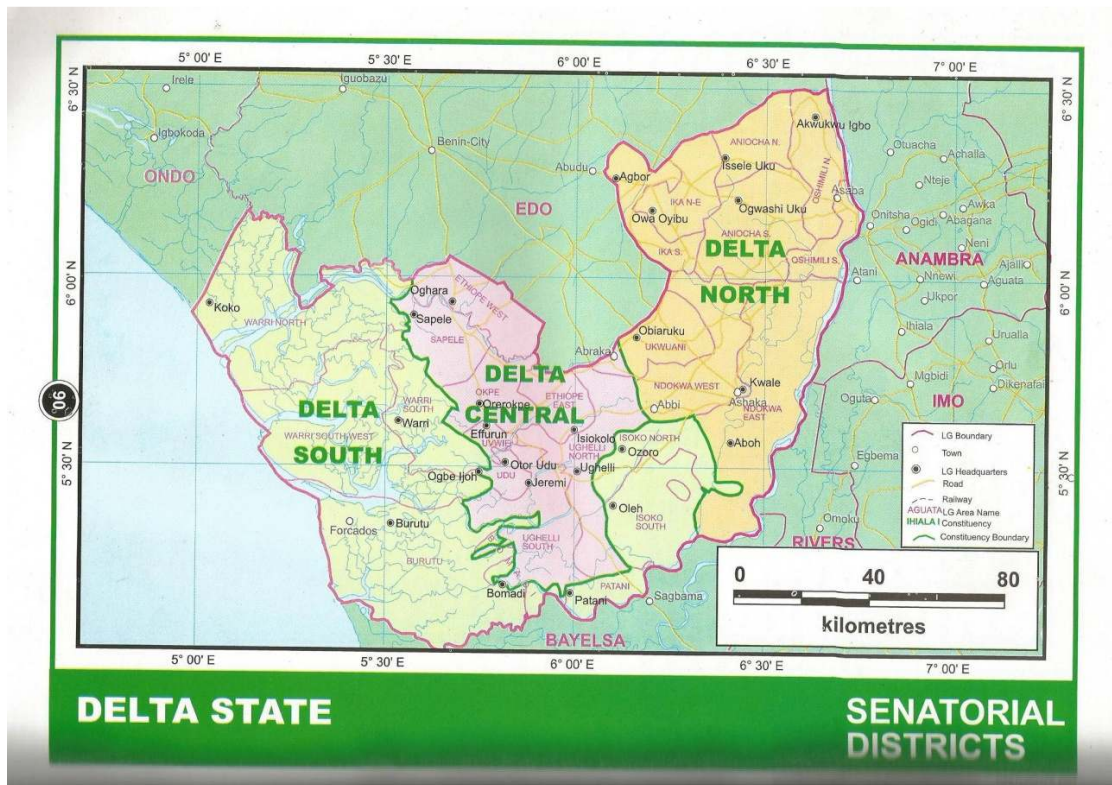
## 7.2 Delta State

Delta State is one of the six states in the South – South geopolitical zone of Nigeria and was created from the defunct Bendel State on 27<sup>th</sup> August, 1991. It has 25 Local Government Areas with the capital city at Asaba. The state has a total land area of 17,698 square kilometers and a population of 4,170,214 based on the 2006 census figure [21]. Geographically, the state lies between Longitude 5°00" and 6°45" North and Latitudes 18° and 23°South. The state is flanked by Edo state to the North, Ondo State to the South West, Anambra State to the East and Bayelsa State to the South-East. Its climate promotes the production of crops, fish and livestock for food and industry [22]. Major ethnic groups are the Isoko, Ika, Urhobo, Itshekiri, Izon, Ukwuani and Aniocha speaking people. The people's predominant occupation is farming (cropping, fishing and animal rearing), oil prospecting, civil service, trading and commerce [21]. The State is divided into three senatorial zones, namely Delta North, Delta Central and Delta South. The state is characterized by

mangrove forest. Its climate is marked by two district seasons, the dry and rainy seasons.

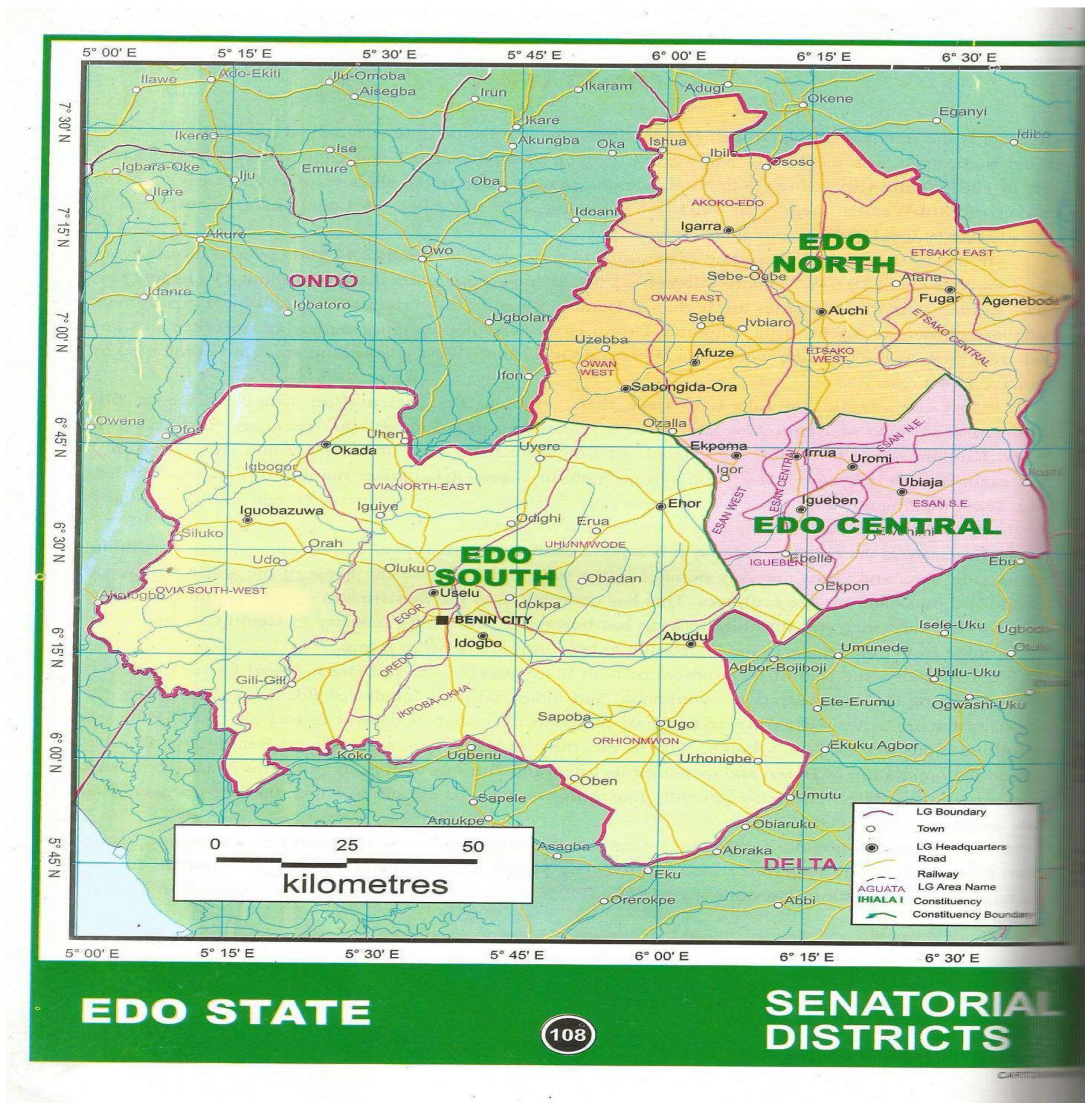
## 7.3 Edo State

Edo state is one of the states of the nine states of the Niger delta area of Nigeria. It is the remnant of the defunct Bendel State after the Delta State was carved out in August 1991. The state has a land area of over about 19,639.7 km<sup>2</sup>, and presently has 18 local government areas with its capital seat at Benin City. Its population size according to the 2006 population census is 3,218,332 people. Their main spoken language is Edo, with its various dialects and lingua franca which is pigeon English, the official language is English Language. Edo State is rich in culture and can boast of the world best wood carvers, and bronze sculptors all of these have contributed to the tourism and creation industry in the State. Major crops grown in the State include, rubber, timber, oil palm and cocoa. The state is endowed with several minerals like quartzite, marble, limestone, lignite, gold. Petroleum is found in Ovia and Orhionmwon areas of the State [20].



Map 2. Map of Delta State showing LGAs used for the study

Source: NAEC, [20]



Map 3. Map of Edo State showing LGAs used for the study  
 Source: NAEC, [20]

### 8. SAMPLING TECHNIQUE AND SAMPLE SIZE

The population of the study was made of farmers and non-farmers of community based organizations. A multi-stage random sampling technique was adopted for selecting the respondents. The method involved, first, a random selection of three (Edo, Delta and Bayelsa states) out of the nine states (Abia, Akwa-Ibom, Bayelsa, Cross Rivers, Edo, Imo, Delta, Ondo and Rivers states) constituting the Niger Delta States. Secondly, two (2) out of the three senatorial zones were randomly selected per state, thus bringing the total number of

senatorial zones used for the study to six. Thirdly, two (2) local government areas (LGAs) were randomly selected from each sampled senatorial zones and this brought them to twelve (12) LGAs (see Table 1). Important to mention here that, the list of registered CBOs were obtained from the LGAs secretariat and the States Ministry of Agriculture. Fourthly, three (3) of the CBOs out of those available that were registered and active and have existed for at least two years were randomly sampled for the study. This together brought the total number of CBOs used for the study to thirty six (36). Lastly, a proportional random sample of 50% of farmers of the sampled CBOs were taken and



administered with the question instrument. Proportional sampling was adopted since the groups had unequal membership size. Membership size in the sampled groups was five hundred and ninety (590). This comprised of two hundred and ninety five (295) CBO farmers (appropriately 50%) and for comparative purpose as the study demands, an equivalent number of non-farmers CBOs were also randomly sampled per community.

Data used for the study were sourced directly from the farmers through the use of validated questionnaire and interview schedule administered to the literate and illiterate farmers respectively. The validity of the instrument was guaranteed by experts in the field of Agricultural Extension, while the reliability was ascertained using the Cronbach Alpha method. The reliability coefficient obtained for the test instrument was 0.82. The research instrument (questionnaire and interview schedule) was administered by the researcher. Trained enumerators, staff of sampled LGAs and staff of Agricultural Development Programme (ADP) were equally used for data collection purposes.

Data were analyzed using descriptive and inferential statistics. The former involved use of percentages and means, while the later involved the use of multiple regression which was specifically used to determine socio-economic factors and groups characteristics that affect the level of farmers participation in community based organizations. The variables in the model are explicitly stated as;

$$Y = a + b_1X_1 + b_2X_2 + b_3X_3, \dots, + b_nX_n + e$$

Where:

- Y= dependent variable (level of participation)
- a = the coefficient of the constant term
- b<sub>i</sub>= the coefficient of the independent variables
- X<sub>i</sub>= the independent variables
- e= error term

The variables in the equation are defined below as:

- Y= Level of participation (participation score measured as a percentage index)
- X<sub>1</sub>= Gender (dummy: male = 1; female = 0)
- X<sub>2</sub>= Age (years)
- X<sub>3</sub>= Educational status (years)
- X<sub>4</sub> = Household size (number of people living and feeding together)

- X<sub>5</sub> = Farming status (dummy: full time = 1; part time = 0)
- X<sub>6</sub> = Farm size (ha.)
- X<sub>7</sub> = Farming experience (years).
- X<sub>8</sub> = Income (₦) (\$1 = ₦180)
- X<sub>9</sub> = Years of residence in community
- X<sub>10</sub> = CBOs membership experience (years)
- X<sub>11</sub> = Members cooperativeness (ordinal: Strongly Agree = 4, Agree = 3, Disagree = 2 and Strongly Disagree = 1)
- X<sub>12</sub> = Demographic nature of leadership selection (ordinal: SA = 4, A = 3, D = 2 and SD = 1)
- X<sub>13</sub> = Sincerity of leadership (Strongly Agree, Agree, Disagree and Strongly Disagree)
- X<sub>14</sub> = Members supportiveness (ordinal: SA = 4, A = 3, D = 2 and SD = 1)
- X<sub>15</sub> = Equitable/fairness in the distribution of work and benefits in the group ((Strongly Agree, Agree, Disagree and Strongly Disagree)

Four functional models were tested to determine the best fit model that explains the relationship between the dependent and independent variables. The functional forms are;

1. Linear :  $Y = f(X_1)$
2. Exponential:  $L_n(Y) = f(X_1)$
3. Semi-log :  $Y(L_nX_i)$ , and;
4. Cobb-Douglas  $L_nY = f(L_nX_i)$

The linear function was adopted as the lead function. The criteria for adoption of the function were based on the probability level that shows level of significance of the variables been tested, number of significant variables, signs of the estimated coefficients of the independent variables and the magnitude of the adjusted R<sup>2</sup> [23]. T-test statistics was used to analyze the difference in farm income of farmer members and non-members of CBOs. T-test is a statistical technique used to determine if a significant difference exist between two variables or groups [24].

Respondents' participation in their activities and factors limiting farmers' participation was measured on a 4-point Likert scale. While the former ranged from, "Very frequently" (coded 4), "frequently" (coded 3), "sometimes" (coded 2) and "Not at all" (coded 1), the later ranged from, Strongly Agree (coded 4), Agree (coded 3), Disagree (coded 2) and Strongly Disagree (coded 1). Respondents' level of participation in each activity and factors limiting participation in group's activities were analyzed using mean. The weighted mean score of 2.50 was used to



**Table 1. Communities with CBOs with sample size**

S/n	State	Senatorial zone	L.G.A	CBO communities	Sampled size	
1.	Bayelsa	Bayelsa West	Ekeremor	Fiekoro	5	
				Isampou	5	
				Ekeremor	5	
				Sagbama	Osekwenike	9
				Sagbama I	7	
		Bayelsa Central	Kolokuma/ Opokuma	Sagbama II	5	
				Odi	6	
				Kiama	5	
				Okologba	6	
				Yenagoa	Akenfa	5
				Songhai	7	
		Amasoma	6			
2.	Delta	Delta North	Ika North East	Ute-Ogbege	12	
				Ute-Okpu	15	
				Boji-Boji Owa	13	
				Ndakwa East	Afor Town	13
				Okpai-Obeze	10	
				Iselegu	14	
		Delta South	Isoko South	Oleh	13	
				Olomoro	12	
				Emede	13	
				Bomadi	Bomadi I	13
					Bomadi II	11
					Bomadi III	12
				3.	Edo	Edo North
Okpella I	7					
Weppa	6					
Etsako West	Jagbe	6				
Aviele	5					
Auchi I	7					
Edo South	Oredo	Ugbague	7			
		Urubi	6			
		Iweben	6			
		Uhunmwede	Ehor			6
			Uhi			5
			Egbele			6

*Communities with CBOs, 2014*

determine if their participation in the activity was high (i.e. if mean  $\geq 2.50$ ) or low (if mean  $< 2.50$ ). [25] used a similar scale in assessing the level of participation of extension agents in special government programmes in Enugu State of Nigeria. The weighted mean was determined as follows:  $[4 + 3 + 2 + 1] / 4 = 2.50$ .

## 9. RESULTS

### 9.1 Socio-economic Characteristics of Respondents'

The socio-economic characteristics of the respondents' are shown in Table 2. The majority

(68.1%) of the farmers CBOs were males while 31.9% were females. Males equally dominated (68.8%) the non-farmers CBOs, while females formed the minority (31.2%). The result infers that males were major participants in CBOs and this probably suggests a poor response of females to farm-based community development groups. The low participation of females could be adduced to the fact that in most communities of Nigeria, women are rarely allowed to take part in social organizations, hence their low participation. Similar result regarding low female participation in social organization was reported by [26].

**Table 2. Demographic characteristics of respondents'**

Characteristics	Categories	CBO members (n = 295)			Non-members (n = 295)		
		Freq	%	♂	Freq	%	♂
Years of residence	<5	43	14.6		37	12.5	
	5-9	49	16.6		47	15.9	
	10-14	49	16.6		68	23.1	
	15-19	65	22.0		91	30.8	
	20 & above	89	30.2	14	52	17.6	13
Sex	Female	94	31.9		92	31.2	
	Male	201	68.1		203	68.8	
Marital Status	Single	60	20.3		45	15.3	
	Married	208	70.5		211	71.5	
	Divorced	19	6.4		30	10.2	
	Widow (er)	8	2.7		9	3.1	
Age (years)	<30	11	3.7		11	3.7	
	30-39	99	33.6		28	9.5	
	40-49	111	37.6		146	49.5	
	50-59	73	24.7		58	19.7	
	60 & above	1	0.3	43	52	17.6	49
Education	No formal education	2	0.7		58	19.7	
	Primary education	19	6.4		138	46.8	
	Secondary education	103	34.9		82	27.8	
	Post-secondary educ.	171	58.0		17	5.8	
Religious Affiliation	Christian	259	87.8		252	85.4	
	Muslim	19	6.4		30	10.2	
	Traditional	-	-		1	0.3	
	Others	17	5.8		12	4.1	
Household size Range	1-3	67	22.7		92	31.2	
	4-6	133	45.1		167	56.6	
	7-9	85	28.8		35	11.9	
	10-12	4	1.4		1	0.3	
	13 & above	6	2.0	5	-	-	4

Most farm based CBO members and non-members were within the age bracket of 40 – 49 years. The mean age of CBO members and non-members was about 43 and 49 years respectively indicating that majority of the respondents were within the economically active age categories. Similar result regarding the younger age of members of CBOs was reported by [27]. The authors noted that age of participants negatively correlates with level of participation in groups.

A larger proportion of the farmers CBO members (70.5%) and non-farmers CBO members (71.5%)

were married. Participation in CBOs may be perceived by them as a means of supporting their families. This finding is supported by the results of [28]. They noted that participants in community organizations are mostly married people and they participate in them to improve on their economic livelihood. The educational distribution of the respondents indicated that almost all the respondents had formal education (99.3% for CBO farmers and 80.4% for non-CBO farmers). Being literate endows them with mental capacity to participate effectively in the groups they belong. Studies of [4] stressed that most participants in community based organizations

have formal education and that this characteristics enhances individual capacity to handle agricultural innovations.

The modal household size of farmers CBO members (45.1%) and non-members (56.6%) was 4 – 6 persons. The mean household size was 5 and 4 for the farmers CBO and non-farmers CBO groups respectively. The result suggested that the farmers had people depending on them and which they need to cater for. This accounts for why they would want to participate in CBOs in order to have their productivity and income improved upon. The result is in consonance with that of [7] who reported similar household range for members of community based groups.

Majority of farmers CBO members (30.2%) and non- farmers CBO members (30.8%) had more than 19 years and between 15 – 19 years of residence respectively. Respondents' average length of residence was 14 and 13 years for farmers CBO members and non-members. The result shows that most of the respondents have been residing in the community for a long period of time and this perhaps account for why they participate in CBOs. Results of [29] stressed that the longer farmers/local people reside in a particular locality, the more willing they would want to belong to local organizations in the community.

**9.2 Respondents' Participation Level in CBOs Activities**

Table 3 shows respondents' participation level in farmers CBOs activities. The participation level of respondents was presented in the order of their

mean size. Respondents' level of participation was highest for payment of monthly contribution ( $\bar{x} = 3.61$ ). Studies of [30] found payment of monthly contribution/dues as a regular activity of farmers in their farmers' local organizations. Abiding by the rules of the group ( $\bar{x} = 3.56$ ) was also a regular activity carried out by farmers CBO members in the study area. The results of [31] support this finding as he noted that a major activity of famers when in groups is abiding by the rules stipulated by the group.

In addition, attending association's meetings ( $\bar{x} = 3.39$ ), participation in group's training and members' ceremonies ( $\bar{x} = 3.17$ ) and contribution to group's discussions ( $\bar{x} = 3.03$ ) were other regular activities carried out by members. Similar results regarding regular activities carried out by members of groups were noted by [32]. He actually acknowledged regular attendance to meetings, contribution of levies to members in special need and going out to actually work (through meaningful discussion) for the group.

The commitment of personal resources to group's activities ( $\bar{x} = 2.93$ ) was also a regular activity of CBO members. This report is in line with that of [18] who noted that participation in group involves contributing ideas and resources as well as taking responsibility for actions that concern and affect the well-being of the group.

**9.3 Effects of participation in CBOs**

Table 6 shows the annual farm income of the respondents'. It revealed that most (50.5%) farmers CBO members earned an income of between ₦200,001 (\$1,111.12) – ₦300,000 (\$1,666.67), while most (63.7%) non-farmers

**Table 3. Respondents' participation level in CBOs activities**

Areas of participation	Bayelsa		Delta		Edo		Pooled	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Payment of monthly contribution/dues	3.68*	0.47	3.60*	0.50	3.55*	0.50	3.61*	0.50
Abide by the rules of the group	3.66*	0.56	3.58*	0.55	3.40*	0.62	3.56*	0.57
Regular attendance at meetings	3.42*	0.65	3.42*	0.57	3.29*	0.63	3.39*	0.61
Participate in group's training	3.08*	0.69	3.14*	0.67	3.30*	0.59	3.17*	0.66
Contribution to group discussions	3.10*	0.64	3.05*	0.63	2.90*	0.82	3.03*	0.68
Commit personal resources to group's activities	2.99*	0.73	2.89*	0.73	2.96*	0.68	2.93*	0.71
Invite/introduce new members to Association.	2.61*	0.84	2.42	0.89	2.42	0.90	2.46	0.88

\*Regular (mean > 2.50)

CBO members earned ₦100,000 (\$555.56) and below. The average annual earnings of both groups was ₦283,220.34 (\$1,573.45) and ₦96,101.69 (\$533.90) respectively. The difference (₦187,118.65 = \$1,039.55) (in favour of farmers CBO members) suggest that participation in farm-based CBO projects had indeed enhanced farmers income. Similar results have been reported by [4]. They noted that participation in groups has a positive impact on farmers' productivity and consequently their income.

#### 9.4 Constraints to Respondents' Participation in CBOs Activities

The factors limiting respondent's participation in farmers CBOs activities are shown in Table 7. The factors with means of 2.50 and above were "agreed" by the respondents to be the factors limiting their participation in CBOs activities. These included poor access to credit and other agricultural inputs ( $\bar{x} = 3.07$ ) and poor participation of farmers in executive positions ( $\bar{x} = 3.02$ ). Some of the farmers claimed that most of the affairs and executive positions are being hijacked by few of the members of the group and this makes it difficult for other members to step into any of such executive positions. Other limiting factors include failure to address/pursue member's needs ( $\bar{x} = 2.96$ ), members refusal to repay loans ( $\bar{x} = 2.96$ ), lack of government/NGOs assistance ( $\bar{x} = 2.95$ ) and poor leadership style of the organization's executive ( $\bar{x} = 2.91$ ). As revealed through personal communication, some of the members (farmers) stressed that their consent is never sought before embarking on projects by the executive and this only make their leadership style to be autocratic instead of been democratic.

In addition to the factors mentioned above, corrupt and dishonest leadership ( $\bar{x} = 2.81$ ) and hijacking of benefits and affairs by few privileged members ( $\bar{x} = 2.78$ ). These findings are supported by the results of [18] and [33]. The authors identified lack of knowledge of subject matter among members, poor participation in the economic affairs of their agricultural cooperatives and inadequate access to credit as some of the problems faced by the farmers in participating in CBOs. Reports of [18] further revealed unavailability or inadequate agricultural inputs and other agricultural services together with poor leadership style of the organization's executive coupled with unfair/bias in the distribution of works and benefits among farmers as important participation constraints.

#### 9.5 Influence of CBO Farmers' Socio-economic and Group Characteristics on Level of Participation in CBO Activities

Multiple regression was used to analyze the relationship between socio-economic characteristics of CBO members' and CBO group characteristics on level of participation in CBO activities (see Table 8). Linear regression model was adopted as the lead equation because it had more number of significant variables, largest adjusted coefficient of determination ( $R^2$ ), and the calculated  $F$ -value for the regression model (12.75) which is significant at the 5% level (critical  $F$ -value = 2.62) indicates that the model is appropriate for the test. The adjusted  $R^2$  is about 0.711 and this implies that the explanatory variables explain about 71.1% variation in participation in CBO activities. Farming experience, education and age were the socio-economic characteristics that were significant, while the group characteristics that were significant included democratic nature of leadership selection, CBO membership experience and members support for each other. The coefficient for members support for each other is positively correlated ( $b = 4.056$ ) and significantly related to farmers participation in their group's activities. It implies that the more CBO members assist/support each other, the higher their level of participation in CBO activities. This finding is corroborated by [13] which reported that members' assisting one another is an important factor for increased participation of farmers (who are members) in CBO activities. The democratic nature of leadership selection ( $b = 4.357$ ) showed positive relationship. The result is positive, suggesting that democratic style of leadership will result in higher level of farmers' participation in group activities. This is in agreement with the assertion of [34] who reported that farmers are bound to participate more in group activities when members exercise as much democratic power as possible in the course of pursuing group's objectives and goals. Length of membership or membership experience was also positively signed ( $b = 0.680$ ) and significantly related to farmers participation in their group's activities. The positive sign indicated that farmers with longer membership experience tend to participate more in group activities. The result aligns with the report of [35] which stated that farmers that have spent more years in their group do have more interest in group's activities and tend to participate more in group affairs.



Farming experience (b = 0.230) was positively related with farmers participation in group's activities. It implies that farmers', who have put in more years in farming, participate more in group's activities. [8] findings support this result. He noted that farming experience of the farmers participating in CBO was directly related with their level of participation in group's activities. Education (b = 1.179) of the farmers was positively signed and significantly correlated with the level of participation in groups activities. Reports of [33] agreed with this finding. He asserts that the higher the level of education of group participants, the more likely would be their level of participation in the group they belong. Age of the respondents (b = -0.090) was negatively and significantly related to the level of farmers participation in their groups activities. The negative sign means that younger members tend to participate more in group's activities than older members. The reason for this could be adduced to the physical weaknesses associated

with advanced age which limits activity level of those concerned. Findings of [33] support this result. The author acknowledged that farmers' level of participation in groups is low for farmers who are beyond the active age group (i.e. 40 – 50 years).

**9.6 Test of Difference in Income of Farmers and Non-farmers of CBOs**

The test of difference in farm income of farmer members and non-members of CBOs is shown in Table 9. The results showed that the average income of farmers CBO members was higher (N283,220.34 = \$1,573.45) than that of non-farmers CBO members (N96, 101.69 = \$533.90) suggesting that farmers CBO members earned higher income compared to non-members. The difference (N187, 118.84 = \$1,039.55) in the revenue of farmers CBO members and non-members was significant since the calculated t-value (27.324) was greater

**Table 6. Farm characteristics of respondents'**

Characteristics	Categories	CBO members (n = 295)			Non-members (n = 295)		
		Freq	%	$\bar{x}$	Freq	%	$\bar{x}$
Income range (N)	100,000 & below	1	0.3		188	63.7	
	100,001-200,000	44	14.9		83	28.1	
	200,001-300,000	149	50.5		21	7.1	
	300,001-400,000	66	22.4		1	0.3	
	400,001-500,000	27	9.2		2	0.7	
	>500,000	8	2.7		-	-	
	Total	295	100.0		295	100.0	

*Mean farm income for CBOs = N283,220.34 = \$1,573.45, non-CBOs = N 187,118.65 = \$1,039.55 (\$1 =N180)*

**Table 7. Constraints to respondents' participation in CBOs activities**

Constraints	Bayelsa		Delta		Edo		Pooled	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Poor access to credit & other agric inputs.	3.08*	0.73	3.07*	0.65	3.05*	0.57	3.07*	0.65
Poor participation of farmers in executive positions.	3.03*	0.61	3.03*	0.59	2.97*	0.60	3.02*	0.60
Failure to address/pursue members needs.	3.04*	0.76	2.93*	0.66	2.96*	0.61	2.96*	0.68
Members refusal to repay loans.	2.97*	0.58	2.91*	0.58	3.03*	0.55	2.96*	0.57
Lack of government/NGOs assistance.	2.94*	0.53	2.90*	0.51	3.07*	0.54	2.95*	0.53
Poor Leadership style of organization's Exco.	3.06*	0.75	2.85*	0.66	2.88*	0.71	2.91*	0.70
Corrupt and dishonest leadership.	2.75*	0.79	2.84*	0.76	2.82*	0.73	2.81*	0.76
Hijacking of benefits & affair by few privileged members.	2.79*	0.65	2.72*	0.60	2.89*	0.61	2.78*	0.62

\*Agreed/Accepted (mean ≥ 2.50);

**Table 8. Relationship between respondents' socio-economic and group characteristics on participation in CBO activities**

Independent variables	b	T	Prob. level
(Constant)	40.689	7.890	0.000
Sex	1.530	1.616	0.107
Age (years)	-0.090*	-1.681	0.094
Education	1.179*	1.754	0.081
Household size	0.114	0.645	0.519
Farming status	-0.476	-0.473	0.637
Farm size (ha)	-0.285	-1.153	0.250
Farming experience years	0.230*	3.006	0.003
Income range (₦) (\$1 = ₦180)	-0.397	-0.795	0.427
Years of residence in community	0.071	1.100	0.272
CBO membership experience (range)	0.680*	4.711	0.000
Members are cooperative	0.955	1.082	0.280
Leadership is by election	4.357*	5.438	0.000
Leadership is sincere	0.163	0.376	0.707
Members assist each other	4.056*	6.233	0.000
The group is fair in her distribution of works and benefits	0.126	0.230	0.818

*F = 12.75 (p<0.050), Adjusted R square = 0.711; \*Significant at 5% (critical t value = 1.645)*

**Table 9. Effects of participation in CBOs on income level of respondents' (t-test)**

CBO membership status	n	Mean income (₦ or \$)	Difference	t
Farmers CBO Members	295	283,220.34 (\$1,573.45)	187,118.644	27.324*
Non-farmers CBO members	295	96,101.69 (\$533.90)	(\$1,039.55)	

*\*Significant at the 5% level (critical t- value = 1.645) (\$1 = ₦180)*

than the tabulated t-value at the 5% level (1.645). Based on this, the null hypothesis was rejected in favour of the alternative hypothesis which states that, there is a significant difference in farm income of farmers and non-farmers of CBO.

The result suggests that participation in CBOs enhances farmers economically. This finding is supported by [4]. Their studies confirmed the positive role of farmers CBOs in enhancing farmers' productivity and income. According to the authors, high participation in CBO activities enhances the individual capacity to handle agricultural innovations/technologies and that these abilities and skills acquired translate to or result in a positive impact on farmers' productivity and income.

## 10. CONCLUSION AND RECOMMENDATIONS

Based on the findings of this study, the following conclusions were made:

Firstly, the level of participation of farmers in CBOs was high. This participation had a positive effect on their productivity and income

level. Farmers' participation in CBOs was influenced by several factors which included both the personal characteristics of the farmers as well as the characteristics of the CBOs themselves. However, farmers' participation in CBOs could still be enhanced as the study found some important constraints limiting their level of participation. Based on the findings of the study, the following recommendations were made:

- The tendency of CBOs to pursue goals that are not of particular or immediate interest to members was noted. There is a need for the group leadership to seek and incorporate members' views in designing activities for the group. This will ensure that as much as possible the needs/interests of group members are incorporated in the group plan.
- The leadership of CBO should ensure that benefits accruing to the group are equitably distributed. This will curb the tendency to favour some or a situation where the benefits are hijacked by a few.
- CBOs should encourage leadership accountability. This will help to portray

the group as transparent and the leadership as being honest. To this end, members should be encouraged to vote for those who they consider to be trustworthy. Also, there should be in place a good and standard auditing practice that will help check and reduce to the barest minimum the level of corruption and dishonesty among the leadership.

- Strategies should be put in place by the CBO leadership to ensure that loans collected by members are paid back and efforts should be made that the payment is done at the appropriate time.
- There is a need for leadership training on the best style of leadership. The leaders of the groups should be encouraged to be democratic, and not autocratic, in the exercise of their leadership.
- Non-assistance by the government/NGOs was identified as a major problem faced by farmers' CBOs and this problem was also found to have adversely affected level of participation in groups. In order to correct the situation efforts should be made by the government to help increase or improve on the assistance (both in cash and kind) given to farmers in their groups.

### COMPETING INTERESTS

Authors have declared that no competing interests exist.

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