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CASE STUDY

Roles of Cooperative Societies in Aquaculture Development: A Case Study of Some Local Government Areas in Rivers State, Nigeria

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ABSTRACT

The roles of farmer's cooperative societies in aquaculture development in two local government areas: Obio-Akpor and Port Harcourt Local Government of Rivers State were investigated, using randomly distributed questionnaires. The results indicated that most (70.0%) of the respondents were females, within the age bracket of 26–50 years (72.4%), and they are married (70.0%), with household size of 5–10 (68.75%). The results further revealed that majority of the respondents (97.5%) had formal education, with 1–10 years of experience as a cooperative member (75.3%). Culture of fish (40.0%) and marketing (25.0%) of fish were the major activities carried out by the cooperative societies. Analysis of the benefits derived from the society by the members indicated that the highest (42.5%) and lowest (3.3%) were in obtaining credit facilities and gaining access to land, respectively. The roles of cooperative societies in the development of aquaculture include accessibility to government intervention policies in aquaculture (33.75%), provision of subsidized input (6.25%), increased returns (25.00%), and improved culture techniques (6.25%). However, insufficient capital accumulation (43.75%) and communal crisis and mismanagement (30.0%) are the major constraints faced by the cooperative societies in discharge of their duties. In conclusion, continued existence and operation of cooperative societies have to be encouraged. Hence, more farmers should be encouraged to join, and the government should increase the supply of credit facilities to these societies for the sustainable development of aquaculture in these communities.

Key words: Aquaculture, cooperative, fish marketing, Rivers State, Nigeria

INTRODUCTION

Aquaculture is one of the fastest food-producing industries in the world.[1] Hence, understanding the basic principles influencing aquaculture production is of increasing importance for all those working in this industry. Aquaculture requires knowledge and skills in many aspects of production such as spawning, production of feeds, pond construction, and management.[2] Fisheries constitute an important sector in Nigerian agriculture sector, providing valuable food and employment to millions and also serving as a source of livelihoods mainly for women coastal communities.[3] Nigerians are high consumers of fish with a total current consumption of about 1.2 million/year, of which about 650,000 is imported.[4] This makes Nigeria the highest importer of fish and fishery product in Africa. With the recent determination of the government to diversify the economy and increase food production, aquaculture production has been encouraged by government and relevant agencies as a means of boosting fish production in Nigeria. In an effort to realize this goal, donor agencies and governments have re-emphasized cooperatives as a strategy to promote collective action to strengthen small holder's fish farmers across the state in the country.[5]

Cooperatives are defined as autonomous associations of persons who unite voluntarily to meet their common economic and social needs

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and aspirations through a jointly owned and democratically controlled enterprise.[6] Cooperatives are established by like-minded persons to pursue mutually beneficial economic interest and they provide a unique tool for achieving one or more economic goals in an increasingly achieving economy of size, improving bargaining power when dealing with other business, purchasing in bulk to achieve lower prices, and obtaining products and services otherwise unviable.[7] Cook[8] described cooperatives as a medium through which services such as provision of farm inputs, farm implements, farm mechanization, agricultural loans, agricultural extension, members education, marketing of members farm produce, and other economic activities and services are rendered to members. Farmers' cooperatives provide smallholder farmers with economics scale by facilitating cheaper and more efficient access to inputs, production technologies, marketing information, and markets.[9] The survival and operations of cooperative societies in any society in a country depend largely on the overall political and economic environment of such nation because cooperatives exist within the wider economy of the particular country where it operates.[10] The practice of cooperative has grown over the years across the globe either as formal or informal institutions. The regulation of farmers cooperative is a function of the roles they are expected to perform in any nation's economy, with regard to the level of economic development and poverty in such a nation.[11] Cooperative will track records of prudent management and cohesive membership stand to play a major role in agricultural and rural development in Nigeria.

The contribution of aquaculture and fisheries to the Nigeria economy is tremendous but not properly managed by the individuals as well as the government. Lack of cooperation contributed to the major problems of aquaculture in Nigeria. The level of fish production will increase if proper measures are taken. Therefore, this study is justified as it will provide an insight into the fish production, poverty level, and cooperative success of fish farm production in Rivers State using Obio-Akpor and Port Harcourt as case studies.

MATERIALS AND METHODS

The study area

This study was carried out in Port Harcourt and Obio Akpor Local Government Area of Rivers State, Nigeria. The state is bounded on the South by Atlantic Ocean, East by Akwa Ibom State, and West by Bayelsa and Delta State. Rivers State which is in the Niger Delta Area has topography of flat plain with a network of rivers and tributaries. These include New Calabar, Orashi, Bonny, Sombre, and Bartholomew Rivers. Rivers State lies between latitude five ($5S^1$) south of the Greenwich meridian.

Reconnaissance survey

A reconnaissance survey was carried out to familiarize the researcher with the study area and the activities of the cooperative societies as well as spot assessment of some phenomenon regarding the socioeconomic operations in the study area. It gave a firsthand knowledge about the study area. This was carried out in April 2016.

Data collection

In line with the stated objectives, the study collected data from the registered cooperatives represented by the executives and some non-executive members. Data collected for the study included:

i. Socioeconomic characteristics of the farmers' cooperatives in the study area;
ii. Reasons why farmers join cooperatives;
iii. Impact of farmers' cooperatives organization on aquaculture development;
iv. Constraints of the farmers' cooperatives to aquaculture development;
v. Attitude of farmers to farmers' cooperative in the area.

Source of data

The primary and secondary data are the sources of data used for this research project work.

Primary sources of data

The study made use of data from the questionnaire survey, and it constituted the major research instruments for this study; however, oral interview was conducted among the members of the cooperatives in the study area. Furthermore, focus group discussion was carried out to collect additional information on the research problem.

This was supplemented by the field observations which helped in the gathering of relevant data on the socioeconomic status of the farmers' cooperatives.

Secondary sources of data

The secondary data were obtained from related textbooks, journals, published articles, documented materials, magazines, conference proceedings, official gazettes, federal office of statistics, related ministries, and agencies. The ministries concerned are as follows: Rivers state agricultural development project (ADP), School to Land Project, and Rivers State Ministry of Agriculture and Rural Development all located in Port Harcourt, Rivers State, Nigeria.

Sample size and sampling technique

The population for this study compromised members of all the farmers' cooperative societies in Port Harcourt and Obio-Akpor Local Government Areas of Rivers State. The Chairman Secretary and other five members made up those selected for the study. A random selection of members was done. The criterion for choosing the cooperative members that made up the respondent was active membership measured by payment of dues and attendance at meetings, especially in the 2 years preceding this survey.

Method of data analysis

Descriptive and inferential statistics were used in the analysis of data. Descriptive statistics used include the mean, median, mode, standard deviation, frequency, and percentages. This was used to summarize the socioeconomic and demographic variable of the respondents.

RESULTS

Socioeconomic variables of respondents

The socioeconomic characteristics of the respondents are presented in Table 1. The female constituted about 70.0% of the population, while the remaining 30.0% were males. The age of the respondent indicated that majority (72.4%) of the respondents were within the age bracket 26–50 years, while others were either below 25 years (3.80%) or above 50 years (23.80%). The result further indicated that most of the respondents (70.0%) were married, with household size of 5–10 (68.75%). The educational status of respondents revealed that the majority of them (56.25%) had secondary education, while 27.5% and 13.75% had tertiary and primary education, respectively. None of the respondents were without formal education. Investigation into the years of experience and primary occupation of the respondents indicated that most of them (75.0%) had 1–10 years of experience as members

Table 1: Socioeconomic variables of respondents

Variables	Frequency (%)
Sex	
Male	24 (30.00)
Female	56 (70.00)
Total	80 (100)
Age (years)	
<25 year	3 (3.80)
26–50	58 (72.40)
Above 50 years	19 (23.80)
Total	80 (100)
Marital status	
Single	18 (22.50)
Married	56 (70.00)
Divorced/widow	6 (7.50)
Total	80 (100)
Household size	
1–4	15 (18.75)
5–10	55 (68.75)
Above 10	10 (12.50)
Total	80 (100)
Educational level	
Primary	11 (13.75)
Secondary	45 (56.25)
Tertiary	22 (27.50)
None	2 (2.50)
Total	80 (100)
Years of membership	
1–10	60 (75.00)
11–20	14 (17.50)
21–30	4 (5.00)
Above 30 years	2 (2.50)
Total	80 (100)
Primary occupation	
Trading/business	15 (18.75)
Farming	5 (6.25)
Artisans	6 (7.50)
Civil servant	35 (43.75)
Company worker	7 (8.75)
Unemployment	8 (10.00)
Retirees	4 (5.00)
Total	80 (100)

of the cooperative society and majority of them were also engaged in civil service work as their primary occupation [Table 1].

Aquaculture activities by the cooperative society

The aquaculture activities engaged by the cooperative society are shown in Table 2, and most of the cooperative (40.0%) society members were engaged in fish culture as their primary operation. This was closely followed by marketing (25.0%) and processing (23.75%) of fish. While lower values were recorded in activities such as: Pond construction (5.0%), fish breeding (3.75%) and fish feed production (2.50%).

Members reasons for joining cooperatives

Member reasons for joining cooperative society are shown in Table 3. The highest percentage (42.5%) of the respondents joined the cooperative so as to have accessed to loan and credit facilities. This was followed by those that joined because of government recognition (22.50%), while the lowest percentage of 2.50% was observed in those that joined cooperative because of access to land and good marketing strategies [Table 3].

Table 2: Aquaculture activities performed by the cooperative society

Activities	Frequency (%)
Fish culture	32 (43.3)
Pond construction	4 (3.3)
Fish processing	19 (18.3)
Fish breeding	3 (2.5)
Fish feed production	2 (1.6)
Marketing of fish product	20 (25.00)
Total	80 (100)

Table 3: Members reasons for joining cooperatives

Reasons	Frequency (%)
Access to loans	34 (42.5)
Access to input at cheap price	9 (11.25)
Sense of belonging	4 (5.00)
Access to training/workshop	4 (5.00)
Government recognition	18 (22.50)
Access to information/extension	4 (5.00)
Access to land	2 (2.50)
Good marketing strategies	2 (2.50)
Exchange of experience/ideas	3 (3.75)
Total	80 (100)

Effects of the cooperative society on the members

Analysis of the effects of the society on the members indicated that the highest effect 56.3% was recorded in changes in income, followed by changes in the level of production (27.50%), while change in diet had 15%. Those that believed that the cooperative has no effects on their lives were about 1.25% of the respondents [Table 4].

Annual income earned by the cooperative societies

The annual income earned by the cooperative societies ranged between N10,000.00 and a little above N2,000,000.00 per annum. Income of N201,000.00–N500,000.00 accounted for the highest percentage of 37.50%, while the lowest (6.25%) was observed in the income range of above N2,000,000.00 per annum [Table 5].

Roles of cooperative society in aquaculture development

The roles of cooperative society in aquaculture development are presented in Table 6. From the results, most of the respondents (33.75%) indicated that cooperative societies encouraged government intervention, while 28.75%, 25.0%, and 6.25%, of the respondents indicated that the society developed aquaculture through expansion of fish farms, increased financial returns, distribution of

Table 4: Effects of the cooperative society on the members

Effects	Frequency (%)
Changes in income	45 (56.3)
Changes in diet	12 (15.00)
Changes in production	22 (27.50)
None	1 (1.25)
Total	80 (100)

Table 5: Annual income earned by the cooperative societies

Income	Frequency (%)
N10,000.00–N200,000.00	8 (10.00)
N201,000.00–N 500,000.00	30 (37.50)
N501,000.00–N1,000,000.00	27 (33.75)
N1,000,000.00–N2,000,000.00	10 (12.50)
Above N2,000,000.00	5 (6.25)
Total	80 (100)

subsidized farm inputs, and improved the culture techniques, respectively [Table 6].

Level of satisfaction and constraints of cooperative activities

The level of satisfaction of cooperative activities by the members indicated that most of the members (81.25%) were satisfied, while 12.50% were not satisfied and about 6.25% were indifferent [Table 7]. The constraints faced by the cooperative societies in discharge of their duties are highlighted in Table 8. Insufficient capital accumulation (43.75%), leadership management (30.0%), communal crisis (10.0%), attitude of the members (8.75%), political instability (5.0%), and illiteracy (4.2%) were the constraints faced by the cooperative society in discharge of their duties in the study area.

DISCUSSION

The high percentage of female members recorded in this study may be due to the fact that cooperative membership is devoid of gender limitations, and women are more disposed toward associations than their male counterparts.[12] From this result, most of the respondents were within the economically active age. Gabriel *et al*.[13] noted that membership of cooperative society is for people who are economically active so that they can make contributions and engage in productive activities for the progress of the society. In this study, most of the respondents were married with household size of 5–10 persons. This result is in line with that of Odetola *et al*.,[14] on the impact of cooperative society on fish farming commercialization in Lagos State. These workers observed that most members of cooperative society members were married, with household size of 5–10 persons. This indicates that most of the cooperative society members were matured and responsible people.

The literacy levels among the respondents were generally high when compared with that of Ibitoye (2006) in the analysis of some cooperatives in participating in agricultural activities in Kogi State, Nigeria. This higher level of education may encourage active participation and acceptance of innovation that will enhance farm productivity and income of the society. In the years of membership experience, most members had between 1 and 10 years of fish farming experience. Indeed, experience goes along with skill acquisition, which is fundamental to efficiency and effectiveness in any job operations. The result implied that most cooperative society members had acquired reasonable years of experience in fish farming which could have spread effect on aquaculture development.[15]

On evaluation of the aquaculture activities performed by the cooperatives, the result revealed that most of them were actively engaged in fish culture. This result agreeds with the report of Odetola *et al*.[14] on the evaluation of the roles of cooperative society in five local government area of Lagos state. They noted that most of the cooperatives were involved fish culture and processing activities due to the fact that these activities were common in these areas and had the capacity to raise the finance of the society.

The responses of the respondents to the reasons for joining cooperative in the study area were ranked according to the degree of importance given by respondents for joining the society. Access to loans and credit facilities ranked first. The reason for this observation was based on the fact that credit facilities constituted a major facilitator for increasing

Table 6: Roles of cooperative society in aquaculture development

Roles	Frequency (%)
Increase financial returns	20 (25.00)
Distribution of subsidized farm inputs	5 (6.25)
Improved culture techniques	5 (6.25)
Expansion of fish farms	23 (28.75)
Encourage government intervention	27 (33.75)
Total	80 (100)

Table 7: Level of satisfaction of cooperative activities by members

Level of satisfaction	Frequency (%)
Very satisfied	23 (28.75)
Satisfied	35 (43.75)
Fairly satisfied	7 (8.75)
Not satisfied	10 (12.50)
Indifferent	5 (6.25)
Total	80 (100)

Table 8: Constraints to cooperative activities

Constraints	Frequency (%)
Mismanagement	24 (30.00)
Lack of capital accumulation	35 (43.75)
Political instability	4 (5.00)
Communal crisis	8 (10.00)
Illiteracy	2 (2.50)
Members attitude	7 (8.75)
Total	80 (100)

aquaculture production, given the role it plays in aquaculture transformation and rural development. In analyzing the effects of cooperative society on the members, most of the respondents agreed that the society affected their income status. This observation corroborated the findings of Odetola *et al*.,[14] who reported similar results in cooperative society in some coastal communities of Rivers State. The annual income range of the respondents indicated that their earnings were still meager for any meaningful aquaculture development.

On the roles of cooperative society in aquaculture development, government intervention, expansion of fish farms, and increase in financial returns of the cooperators were observed to be the major roles played by the society. This result was in line with the findings of Kareem *et al*.[16] in some cooperative societies from Ogun State, Nigeria. This could be due to the fact that financial enhancement of members was one of the major functions of a cooperative society in rural and communities of Nigeria. This observation corroborated that of Adekunle and Henson,[15] in some fish farmer's cooperative society in Osun State, Nigeria. This according to Odetola *et al*.[14] was that cooperative society is an association of many farmers pooling their resources together, so as to attract government intervention, as government agencies do not deal with farmers at individual level.

The level of satisfaction of cooperative activities by members in this study indicated that most members were satisfied with the activities of the cooperatives. This was because individual farmers had a need they want to satisfy through cooperative membership. The greater the extent to which the various farmers' cooperative societies as groups satisfy the needs of their members, the more they get involved with the groups. In assessment of the constraints faced by the cooperative society, insufficient accumulation of fund was observed to be one of the major constraints faced by the society. This was reported by Oluwatayo *et al*.[17] as one of the major constraints facing most cooperative societies in Nigeria and that without sufficient capital, their day-to-day activities are limited.

CONCLUSION AND RECOMMENDATIONS

Attempts were made in this study to assess the influence of the farmers' cooperatives on aquaculture development in Port Harcourt and Obio-Akpor Local Government Area of Rivers State. It becomes obvious that they influenced aquaculture development to some certain extent in terms of employment generation and boosting the condition of living of the members. It also becomes imperative to strengthen the existing cooperatives societies and make them more efficient in the discharge of their statutory roles. The level of educational attainment being crucial to the performance of the farmers' cooperatives it meant that efforts should be made towards training and re-training of the members for them to possess the skill and knowledge required for the organization to function properly. This could be achieved through the conduct of seminars, workshops, and conferences for members to be adequately impart upon. The continued existence and operation of cooperative societies should due to the derivable benefits be encouraged. More farmers should also be encouraged to join cooperative societies, and the government should likewise increase the supply of credit facilities to these societies for the sustainable development of aquaculture in these areas.

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