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Socio-economic characteristics of small-scale catfish farming enterprise in Obio/Akpor Local Government Area, Rivers State, Nigeria

AMACHREE Dokuboba[1], JAMABO Nene[2*] and JOSEPH Dorah E.[1]

[1]Department of Fisheries and Aquatic Environment, Faculty of Agriculture, Rivers State University, Nkpolu-Oroworukwo, P. M. B. 5080, Port Harcourt, Rivers State, Nigeria.
[2]Department of Fisheries, Faculty of Agriculture, University of Port Harcourt, Choba, Rivers State, Nigeria.

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The study of the socio-economic characteristics of any group is a requirement to a successful implementation of effective government assisted programme. The study examined the socio-economic characteristics, production processes and production constraints of small-scale catfish fishing enterprises in Obio/Akpor Local Government Area in Rivers State, Nigeria. Simple randomized sampling technique was used to select 60 small-scale catfish farming enterprises. Structure questionnaires were used to collect primary data from the respondents. The collected information were analyzed using simple descriptive statistics. The results showed that majority of the farmers were females (58%), married (74%), within the age group (31-40 years), Christians (92%), Igbo tribe (22%), and had university degree (58%) with household size (6-10). Majority have fish farming as primary occupation (32%), 1-5 years of experience, non-members of association (83%) and chose fish farming for profit maximization (50%). Based on this study, different aquaculture production systems were identified at the study area such as concrete tanks (34%), plastics tanks (20%), concrete+plastic (20%), earthen ponds (12%), earthen+concrete (8%), and earthen+plastics (6%). Respondents purchased land (66%), kept record (52%), used imported feed (52%), flow-through techniques (88%), monoculture as culture system (66%), stocked *Clarias gariepinus* (88%), bore-hole as water source (96%), procured fingerlings from private farms (84%) and personal savings as source of funding (86%). Some of the constraints like lack of extension service (76%), disease outbreak (52%), lack of capital (44%), lack of electricity (38%), preservation and processing (18%), lack of skilled human labour (10%), and lack of government assisted programmes (0%) were faced. In conclusion, catfish farming promises to improve in the area if there is adequate government assistance.

Key words: Catfish, *Clarias gariepinus*, production constraints, production processes, small-scale.

INTRODUCTION

In Nigeria, aquaculture ventures are mainly at the small-scale fish farming levels (Fagbenro, 2005) contributing

*Corresponding author. E-mail: nenejamabo@yahoo.com. Tel: + 234-8023126620.

the greatest percentage (80.4%) of the Nigerian's annual fish production output (FDF, 2008). However, since the inception of aquaculture in Nigeria, several efforts have been made to promote aquaculture practices by Organizations (Satia, 1990; NEPAD, 2005; FAO, 2005; FMAWR, 2008). Some of these provided subsidy for inputs and exemption from tax; distribution of free fingerlings to small-scale fish farmers; up to 50% subsidy of the cost of fingerlings for the large-scale farmers (FMAWR, 2008) and establishment of over 3,000 homestead fish ponds as well as hatcheries in each of the then existing states of Nigeria by the Directorate of Food, Road and Rural Infrastructure (DFRRI) (Satia, 1990; NEPAD, 2005). Despite these efforts the results were not satisfactory (Dada, 2004; Oluwasola and Ajayi, 2013). Thereby, increasing concerns effort to enhance fish production through small-scale fish farming might not be fruitful.

According to FAO (2005), the careful study of the socio-economic characteristics of any group is a prerequisite for good design and successful implementation of effective government assisted programme. Thus, the first step towards addressing the concerns is to have a considerable amount of information on the demographic and socio-economic characteristics of the small-scale catfish farmers as well as understanding the constraints in the areas where the farms are located. Reports on small-scale fish farming show rapidly expanding profitable venture with constraints responsible for low productivity. These constraints included: high cost of inputs (Oladejo, 2010; Olaoye et al., 2013; Oluwasola and Ajayi, 2013), poor extension services (Oluwasola and Ajayi, 2013); lack of trained personnel (Raufu et al., 2009); lack of credit facilities (Olaoye et al., 2013; Oluwasola and Ajayi, 2013); water pollution and epileptic electricity supply (Baruwa et al., 2012); shortage of inputs (fingerlings and feed), lack of knowledge resulting in poor management practices, inadequate funding and theft (Anetekhai et al., 2004).

The constraints also include the use of poor quality catfish seeds, inadequate information, poor storage facilities, traditional techniques and low capital investment (Ugwumba et al., 2006; Adeogun et al., 2007; Ugwumba and Nnabuife, 2008; Ugwumba and Chukwuji, 2010). According to Adeoye et al. (2012), poor production planning and inadequate technical know-how are the two major factors affecting the unprofitable operation of fish farms in Nigeria. A lot of research had been reported on the economics and socio-economic analysis of fish farming in some Africa countries. For example in Rwanda, fish farming was reported as the most profitable enterprise in agriculture (Nathanael et al., 1998). Although, Kenya has not fully harnessed the potentials of fish farming, it is considered high (Gachucha et al., 2014). Also, in Nigeria, examples include Anambra State (Ugwumba and Chukwuji, 2010), Kaduna State (Kudi et al., 2008), Oyo State (Oladejo, 2010; Olaoye et al., 2012), Lagos State (Raufu et al., 2009), and Osun State (Williams et al., 2012; Oluwasola and Ajayi, 2013). However, there is little or no report on the socio-economic characteristics of small-scale catfish farming in Obio/Akpor Local Government Area, Port Harcourt, Rivers State.

MATERIALS AND METHODS

Description of the study area

The study was conducted in Obio/Akpor Local Government Area (LGA), Rivers State, Nigeria with focus on small-scale catfish farmers. Obio/Akpor LGA is one of the two LGAs in Port Harcourt metropolis, Rivers State. Obio-Akpor is bounded by Port Harcourt (local government area) to the south, Oyigbo to the east, Ikwerre to the north, and Emohua to the west. It is located between latitudes 4°45'N and 4°60'N and longitudes 6°50'E and 8°00'E (Figure 1). Port Harcourt is the administrative capital of Rivers State, in the Niger Delta area of Nigeria. Port Harcourt lies between 4.75°N and 7°E with network of rivers and tributaries (e.g., New Calabar, Orashi, Bonny, Sombrero and Bartholomew Rivers) which provide great opportunity for fish farming (Ibemere and Ezeano, 2014). Obio/Akpor L.G.A is one of the Agricultural Zones of Agricultural Development Programs of Rivers State (Ibemere and Ezeano, 2014). Crop farming (e.g yam, cassava and vegetables) is the principal source of livelihood. There are also rivers, streams, and creeks which make fishing one of the occupations. These water bodies link the various communities to each other. More recently is the population increase triggered by urban sprawl and the infrastructural development (the tertiary institutions - University of Port Harcourt, Choba and Ignatius Ajuru University of Education, Rumuolumeni and two important jetties at Rumuolumeni and Choba, respectively) in the area.

Sampling techniques, frame and sample size

Simple random sampling method was used for the study. The sampling frame was obtained from the Catfish Farmers Association Nigeria, Rivers State Chapter. A total of 60 small-scale fish farms were randomly selected from Obio/Akpor LGA.

Methods of data collection

The selected small-scale catfish farmers were interviewed with the aid of structured questionnaires. The total number of questionnaires used for the analysis represented 83.8% (50) of the total number of sampled small-scale catfish farmers as 10 were discarded due to incomplete information (Adeoye et al., 2012). The structured questionnaires used for this study contained 46 questions under 4 sections, viz: (A) socio-economic characteristics of fish farmers; (B) production processes; and (C) production constraints of the small-scale fish farmers in the study area.

Criteria for selection of small-scale fish farm

The criterion for selection of small-scale fish farms used in this study was based on the categorization of the National Council of Industry, NCI. The NCI defined a small-scale industry as an industry with capital investment of over ₦1.5 million ($4166.67), but not more than ₦50 million ($138,888.87), including working capital but

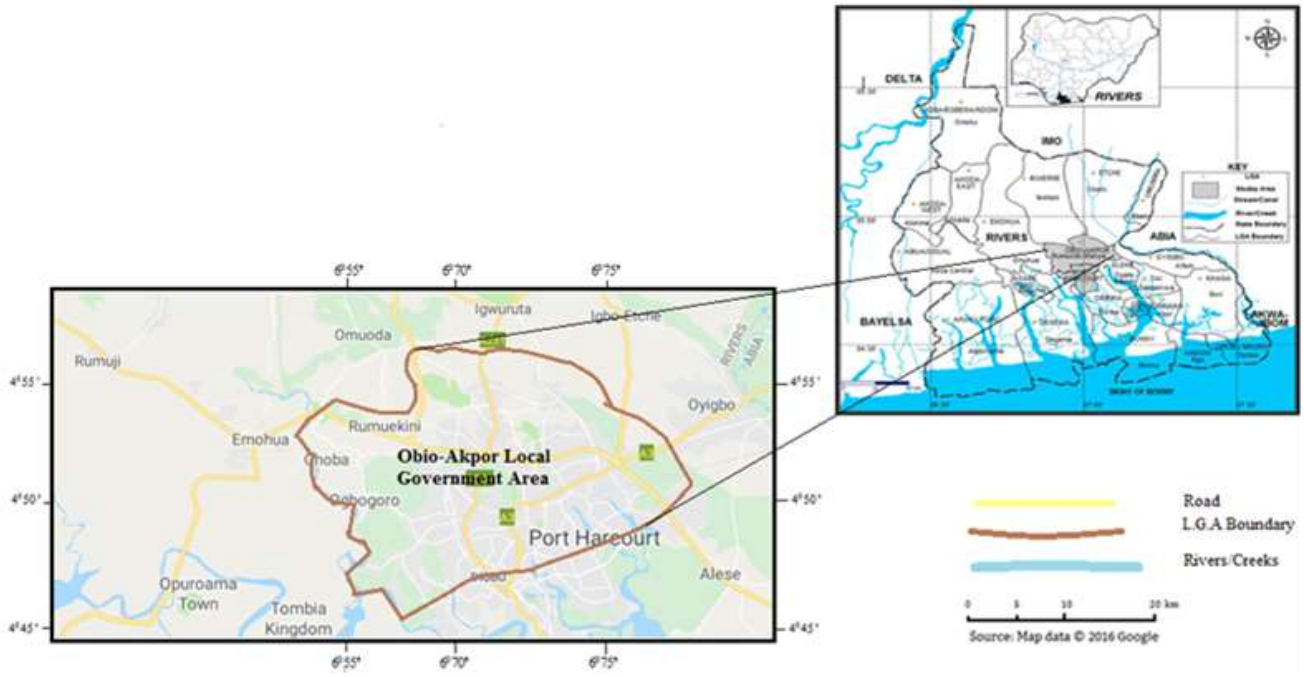

Figure 1. Map of Nigeria, Rivers State and Obio/Akpor Local Government Area.

excluding cost of land and/or a labor size of 11 to 100 workers (Aiyeloja et al., 2014).

Method of data analysis

The collected data was analysed using descriptive statistics (e.g. percentages, means, graphs and frequency tables) (Oladejo, 2010).

RESULTS AND DISCUSSION

Socio-economics characteristics distribution of small-scale catfish farming enterprise in Obio/Akpor L.G.A, Rivers State, Nigeria

Age distribution

Age is an important factor that affects overall stamina and level of productivity. The result on Table 1 showed the age distribution of the respondents. Majority of the respondents for the different production systems fall within the age group (31 - 40 years), apart from the earthen + plastic which fall within (41 - 50 years) (33.3%). Mean percentage distributions of the age group (31-40 years) were 33.3, 35.3, 50, 50 and 50 for earthen pond, concrete tank, plastic tank, earthen + concrete and concrete + plastic, respectively. Overall, 40% of the total number of respondents (n=50) operating in all production systems (Table 1) were within the age group (31-40 years), while the below 30 years (14%) were the least age group. These age groups were considered economically active, productive and signify better future for catfish production in the study area (NBS, 2016). The result of the present study was in line with those reported in other areas of Nigeria (Olowosegun et al., 2004; Adeoye et al., 2012; Olaoye et al., 2013). They reported the age group (31-50 years) and suggested that fish farming required youth that were strong and active because fish farming required adequate attention and a lot of responsibility.

Sex distribution

Sex played an important role in fish farming and agriculture, in terms of property acquisition (Olaoye et al., 2013). It also determined the ability to perform some physical work as it was generally believed that men were more efficient in activities than women. The result in Table 1 showed the sex distribution of the respondents. The mean percentage distributions of males in the different production systems were 66.7, 29.4, 60, 75, 33.3 and 50, while the females were 33.3, 70.6, 40, 25, 66.7 and 50 for earthen pond, concrete tanks, plastic tanks, earthen + concrete, earthen + plastic and concrete + plastic, respectively. The overall result showed more female (52%) than male (48%) in all the production system. The result is contrary to most reports where the males were dominated (Brummett et al., 2010; Adeoye et al., 2012; Olaoye et al., 2013). However, it is in line with Lahai et al. (2000) who suggested that women participated more than men in most farming activities.

Table 1. Socio-economic characteristics distribution of respondents (*n*=50) of small-scale catfish farmers in Obio/Akpor LGA, Rivers State.

Socio-economic	Earthen pond		Concrete tank		Plastic tank		Earthen + Concrete		Earthen + Plastic		Concrete + Plastic		Total respondents in all PS	
Characteristics	Frequency	%	Frequency	%	Frequency	%	Frequency	%	Frequency	%	Frequency	%	Frequency	%
Age group														
Below 30	1	16.7	2	11.8	3	30.0	-	-	-	-	1	10	7	14
31-40	2	33.3	6	35.3	5	50.0	2	50	-	-	5	50	20	40
41-50	2	33.3	4	23.5	2	20	-	-	1	33.3	3	30	12	24
51-60	1	16.7	5	29.4	-	-	2	50	2	66.7	1	10	11	22
Total	6	100	17	100	10	100	4	100	3	100	10	100	50	100
Gender														
Male	4	66.7	5	29.4	6	60	3	75	1	33.3	5	50	24	48
Female	2	33.3	12	70.6	4	40	1	25	2	66.7	5	50	26	52
Total	6	100	17	100	10	10	4	100	3	100	10	100	50	100
Marital status														
Single	1	16.7	3	17.6	4	40	1	25	-	-	2	20	11	22
Married	4	66.7	13	76.5	6	60	3	75	3	100	8	80	37	74
Divorced	1	16.7	-	-	-	-	-	-	-	-	-	-	1	2
Widowed	-	-	1	5.9	-	-	-	-	-	-	-	-	1	2
Total	6	100	17	100	10	100	4	100	3	100	10	100	50	100
Household size														
1-5	2	33.3	2	11.8	3	30	2	50	2	66.7	3	30	14	28
6-10	4	66.7	14	82.4	6	60	1	25	1	33.3	3	30	29	58
11-15	-	-	1	5.9	1	10	-	-	-	-	4	40	6	12
16 - 20	-	-	-	-	-	-	1	25	-	-	-	-	1	2
Above 20	-	-	-	-	-	-	-	-	-	-	-	-	0	0
Total	6	100	17	100	10	100	4	100	3	100	10	100	50	100

Marital status distribution

In Nigeria, marriage is sacred and confers some levels of responsibility on the individuals involved (Fakoya, 2000; Ekong, 2003). The result in Table 1 showed the marital status distribution of the respondents. Majority of people operating in the different production system were married, few are single, divorced and windowed (Table 1). For instance, mean percentage distributions of the married respondents were 66.7, 76.5, 60, 75, 100 and 80 for the earthen pond, concrete tank, plastic tank, earthen + concrete, earthen + plastic and concrete + plastic, respectively. The highest mean percentage of the married respondents was observed at the concrete tanks (76.5%) while divorced and widowed showed the least frequency (1 in each case). The overall percentage of marital status distribution in all production system combined in descending order was 74, 22, 2, and 2 for married, single, divorced and widowed respectively. This finding indicated that responsibility/commitment was in line with Adeoye et al. (2012) who reported 93.7% for

married in Ogun State large-scale aquaculture farmers.

Religion distribution

Religion is an important aspect in the life of most Nigerians. The result of the religion distribution of the respondents showed that majority of people operating in the different production systems were Christians, few Muslims and traditional (data not shown). For example, percentage distribution for Christians were 100, 88.2, 90, 100, 100 and 90% for earthen pond, concrete tank, plastic tank, earthen + concrete, earthen + plastic and concrete + plastic respectively. Overall, the percentage religion distributions in all production system were 92, 6 and 2% for Christians, Muslims and Traditional respectively. This might suggest the area as being dominated by Christians and was in line with Olaoye et al. (2013).

Household size distribution

Most of the respondents for the different production systems fell within the household size 6-10, very few within the 16-20 and none above 20 (Table 1). Overall, majority (58%) of the total number of respondents (n = 50) operating in all production systems were within the 6-10 household size. This implied a moderate household. There was the likelihood that the size of household may influence the number of hired labor thereby reducing cost (William et al., 2012).

Tribe distribution

The result showed the tribe distribution of the respondents. Majority of the catfish farmers in the study area for all the production systems were Igbos followed by Ikwerre, Ebonyi and Kalabari were the least (data not shown). The percentage distributions of the Igbos were 33.3, 23.5, 20, 50 and 10% for earthen pond, concrete tank, plastic tank, earthen + concrete and concrete + plastic respectively. There were no respondent recorded for earthen + concrete (0%). Overall, the percentage distribution for the tribes in all production systems were 22, 18, 4, 14, 8, 6, 2, 6, 6, 8, 2 and 4% for Igbo, Ikwerre, Andoni, Ahoada, Akwa-Ibom, Yoruba, Kalabari, Benin, Ogoni, Delta, Ebonyi and Bayelsa, respectively. The majority of the farmers were from the Igbo Tribe (33.2%), corresponding with the notion that the tribe is industrious, like business and anything that will generate income.

Educational qualification distribution

Majority of respondents in the different production systems had some form of education. For example, percentage distribution for university degree holder was earthen pond (33.3%), concrete tanks (52.9%), plastic tank (60%), while earthen + concrete (25%), earthen + plastic (66.7%) and concrete + plastic (80%). Overall percentage distribution showed the highest for university degree holders (58%) > secondary school (28%) > NCE/OND (12%) > primary and unable to complete primary school (2% each) and none was recorded for no formal education and unable to complete secondary school (0% each, data not shown). This meant that fish farming is dominated by the educated class and mostly by those armed with high level of education. This is so because fish farming required a lot of technical and scientific knowledge to be successful. The result is in line with those previously reported by Olaoye et al. (2013).

Primary occupation distribution

Majority of people operating in the different production systems are fish farming as the primary occupation, none was recorded for company workers. Percentage distribution for primary occupation as fish farming was 16.7, 23.5, 30, 50, 33.3 and 50% for earthen pond, concrete tank, plastic tank, earthen + concrete, earthen + plastic and concrete + plastic, respectively. Overall, the percentage distribution for primary occupation in all production systems was 32, 24, 20, and 24% for fish farming, business, civil servant and self-employed, respectively. None was recorded for company workers (0%). The result suggests there might be other sources of income for the respondents.

Years of experience distribution

Majority of the respondent for the different production systems were within 1-5 years of experience. Percentage distributions for the years of experience were 83.3, 41.2, 90, 75, 100 and 50% for earthen pond, concrete tank, plastic tank, earthen + concrete, earthen + plastic and concrete + plastic, respectively. Overall, majority (64%) of the total number of respondents (n=50) operating in all production systems were within 1-5 years, followed by 6-10 (34%) then 11-5 years (2%). None was recorded for 16-20 and above 20 years of experience. The result suggests that respondents were still new in the business and face risk. “As commonly said, experience is a good teacher” and experience enhances efficiency, respondents with the experience above 5 years of experience will have good skill and better approaches to fish farming business, they will be able to forecast market situation in which they sell their products at higher prices. Those with less years of experience, especially with less than 5 years faced many risks in the early days of their fish farming business (Olaoye et al., 2013). The idea is

also in line with Schumpeterian theory of economic development which suggested that technical efficiency was influenced by technical knowledge and understanding in addition to other socio-economic environment with which the farmers must take decision (Kalirajan, 1990).

Members of farmer association distribution

Membership of association involved a social participation that helped farmers to pool their resources, have access to inputs, government funding, etc. In the present study, the percentage distribution of respondents with no association was 83.3, 64.7, 80, 25, 0 and 60%, while members of the Catfish Farmers Association Nigeria (CAFAN) Rivers Chapter were 16.7, 35.3, 20, 75, 100 and 40% for earthen pond, concrete tank, plastic tank, earthen + concrete, earthen + plastic and concrete + plastic, respectively. Overall, 62% of the respondents were not registered member of any association while CAFAN members are 38% which might be the reason for them not benefiting from any sort of government assistance. This idea is in line with those reported in Akinbile (1998).

Why choose fish farming as an occupation distribution

The result showed that the fish farming was chosen for different reasons. The majority choose fish farming for profit maximization and as hobby. The percentage distribution for profit maximization was 50, 29.4, 40, 50, 33.3 and 60% for earthen pond, concrete tank, plastic tank, earthen + concrete, earthen + plastic and concrete + plastic, respectively. The percentage distribution for choosing fish farming as an occupation in all production systems was 42, 20, 20, and 18% for profit maximization, provision of family needs, hobby and employment, respectively. The result is in line with Olaoye et al. (2013), who reported 89.2% respondent got involved with farming for profit maximization.

Production processes of small-scale fish farming enterprise in Obio/Akpor L.G.A, Rivers State, Nigeria

Method of land acquisition distribution

The result showed that majority of land for fish farming were purchased, some inherited. For example, the percentage distribution of purchased land was 8 for 3.3, 58.8, 40, 75, 66.7, and 90% for earthen pond, concrete tank, plastic tank, earthen + concrete, earthen + plastic and concrete + plastic, respectively. Overall, the percentage distribution for method of land acquisition was 24, 8, 2, and 66% for inherited, leased, gift and purchased, respectively.

Record keeping distribution

The percentage distribution of respondents that keep records was 33.3, 52.9, 50, 66.7, and 60%, while respondents that do not keep records were 66.7, 47.1, 50, 50, 33.3 and 40% for earthen pond, concrete tank, plastic tank, earthen + concrete, earthen + plastic and concrete + plastic, respectively. In all, 52% of the respondents keep records while 48% do not.

Feed types distribution

The respondents used locally compounded feed, imported feed or both in the farms. Majority of the feed used were imported with percentage distribution of 66.7, 41.2, 40, 25, 66.7 and 80% for earthen pond, concrete tank, plastic tank, earthen + concrete, earthen + plastic and concrete + plastic, respectively. In all, 52% of the respondents used imported feed, 30% used both (locally compounded and imported feed) while the remaining 18% used locally compounded feed.

Source of labor distribution

The respondents used family, hired or both in the farms. For example, the percentage distribution of the respondents that used family were 66.7, 47.1, 70, 25, 33.3, and 10% for earthen pond, concrete tank, plastic tank, earthen + concrete, earthen + plastic and concrete + plastic respectively. Overall, the percentage distribution for sources of labor was 44, 46 and 10% for family, hired and both, respectively.

Production systems distribution

The result for the distributions of the various production systems used by the respondents, showed that majority of the respondents used concrete tanks. Overall, the percentage distributions for production systems were earthen pond (12%), concrete tank (34%), plastic tank (20%), earthen + concrete (8%), earthen + plastic (6%) and concrete + plastic (20%).

Production techniques distribution

The result showed the distributions of the various production techniques used by the respondents (Figure 2) indicating farmer's preference. Majority of the respondents used flow-through production technique with

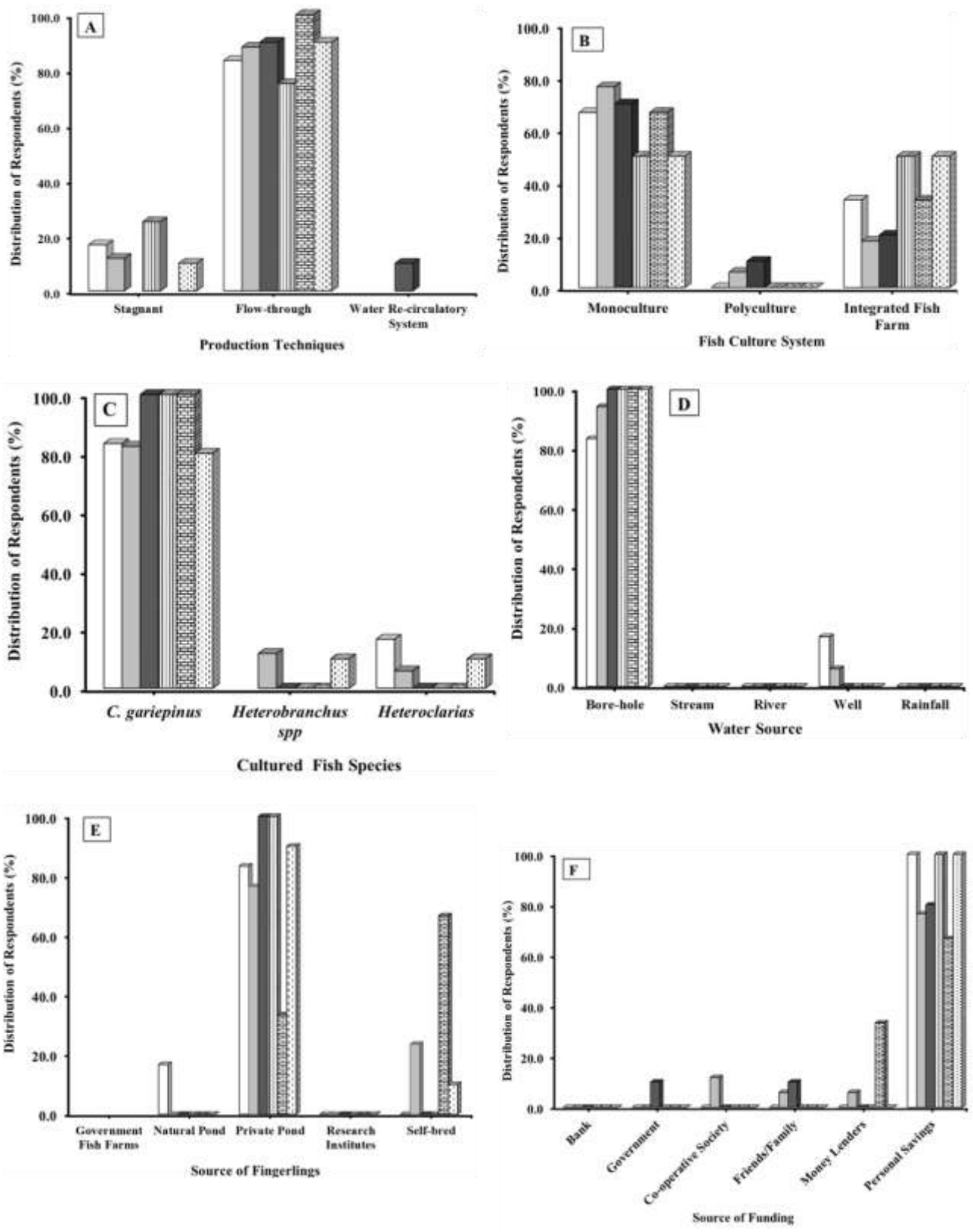

Figure 2. Percentage distribution of respondents on production processes (*n*=50) in Obio/Akpor LGA, Rivers State. (A) Production techniques; (B) Fish culture system; (C) Cultured fish species; (D) Water source; (E) source of fingerlings; and (F) sources of funding. The bars represent earthen ponds (white bar), concrete tanks (grey bar), plastic tanks (black bar), earthen + concrete (vertical lines), earthen + plastic (horizontal bricks) and concrete + plastic (dashed line), respectively.

percentage distribution for earthen pond (83.3%), concrete tank (88.2%), plastic (90%), earth + concrete (75%), earthen + plastic (100%) and concrete + plastic (90%). In all, the percentage distributions for production techniques were 10, 88 and 2% for stagnant, flow-through and water recycling system, respectively.

Fish culture system distribution

The result showed the distributions of the fish culture systems practiced by the respondents (Figure 2). Majority of the respondent practiced monoculture with percentage distribution for earthen pond (66.7%), concrete tank (76.5%), plastic (70%), earth + concrete (50%), earthen + plastic (66.7%) and concrete + plastic (50%). Overall, the percentage distributions for culture systems were 66, 4 and 30% for monoculture, polyculture and integrated fish farming, respectively. The result was in line with those reported previously (Rundquist 1984; Olaoye et al., 2013), who observed that fishes grew better when cultured individually under monoculture system and also helped the species to grew to its biggest size.

Fish cultured distribution

The result showed the distributions of the fish culture systems practiced by the respondents (Figure 2). Majority of the respondent cultured *Clarias gariepinus* while only few cultured *Herobranchus* species or Heteroclarias. Percentage distribution of respondents that cultured *C. gariepinus* in earthen pond (83.3%), concrete tank (82.4%), plastic tank (100%), earthen + concrete (100%), earthen + plastic (100%) and concrete + plastic (80%). Overall, the percentage distributions for fish cultured were 88, 6 and 6% for *C. gariepinus, Heterobranchus* spp. and Heteroclarias, respectively. This might be due to the fact that catfish appeared to be hardy and generally accepted by people, greater demand preferences, hardiness of the stock, fast growth, high feed conversion ratio, high survival rate under captivity (Olaoye et al., 2013; Jamabo, 2017).

Water source distribution

Source and quantity of water available are one of the most important factors to be considered when selecting a site for aquaculture practice. The quantity of water needed for commercial aquaculture varies with the production method employed, type of aquaculture chosen, scale of operation, and species cultured. The result showed the distributions of the water source used the respondents (Figure 2). The majority of the respondent used bore-hole, only few used well water. Stream, river and rain water were not used in the study area. Overall, the percentage distributions for water source were 96 and 4% for bore-hole and well water, respectively. No respondent was recorded for the use of water from river, stream and rainfall. It might be because bore-hole was more dependable and free of diseases and parasites (Williams et al., 2012).

Source of fingerlings distribution

Fingerlings were sourced from private farms, self-bred and natural pond. The majority was from private pond with percentage distribution of 83.3, 76.5, 100, 100, 33.3 and 90% for earthen pond, concrete tank, plastic tank, earthen + concrete, earthen + plastic and concrete + plastic, respectively (Figure 2). Overall, the percentage distributions for source of fingerlings were 84, 14 and 2% for private farms, self-bred and natural pond, respectively. There were no respondent recorded against government farms, and research institutes. The result suggests that respondents were not trained and lacked needed information. The fact was that the fingerlings sourced from fish farms were more likely to be healthier and well-bred (Olaoye et al., 2013).

Source of funding distribution

The result showed the distributions of the source of funding (Figure 2). Funding was mainly sourced from personal savings, few from government, co-operative society, friends/family, money lenders but none from bank. The majority of the funding was sources from personal savings with percentage distribution of 100, 76.5, 80, 100, 66.7 and 100% for earthen pond, concrete tank, plastic tank, earthen + concrete, earthen + plastic and concrete + plastic, respectively. Overall, the percentage distributions for source of funding were 0, 2, 4, 4, 4 and 86% for banks, government, co-operative banks, friends/ family, money lenders and personal savings, respectively.

Production constrains of small-scale fish farming enterprise in Obio/Akpor L.G.A, Rivers State, Nigeria

Constraints (Figure 3) in the study were presented under three categories (a) types of losses/disaster, (b) common problems, and (c) access to extension services. The respondent claimed they experienced several losses/disasters ranging from disease outbreak (52%), lack of government assistance (50%), lack of capital (44%), power failure (38%), predator (34%), pollution (14%), lack of skilled labor (10%) to flood disaster (4%). Also, respondents claimed to have experienced common problems ranging from financial problems (62%), post-harvest losses (38%), marketing problems (36%),

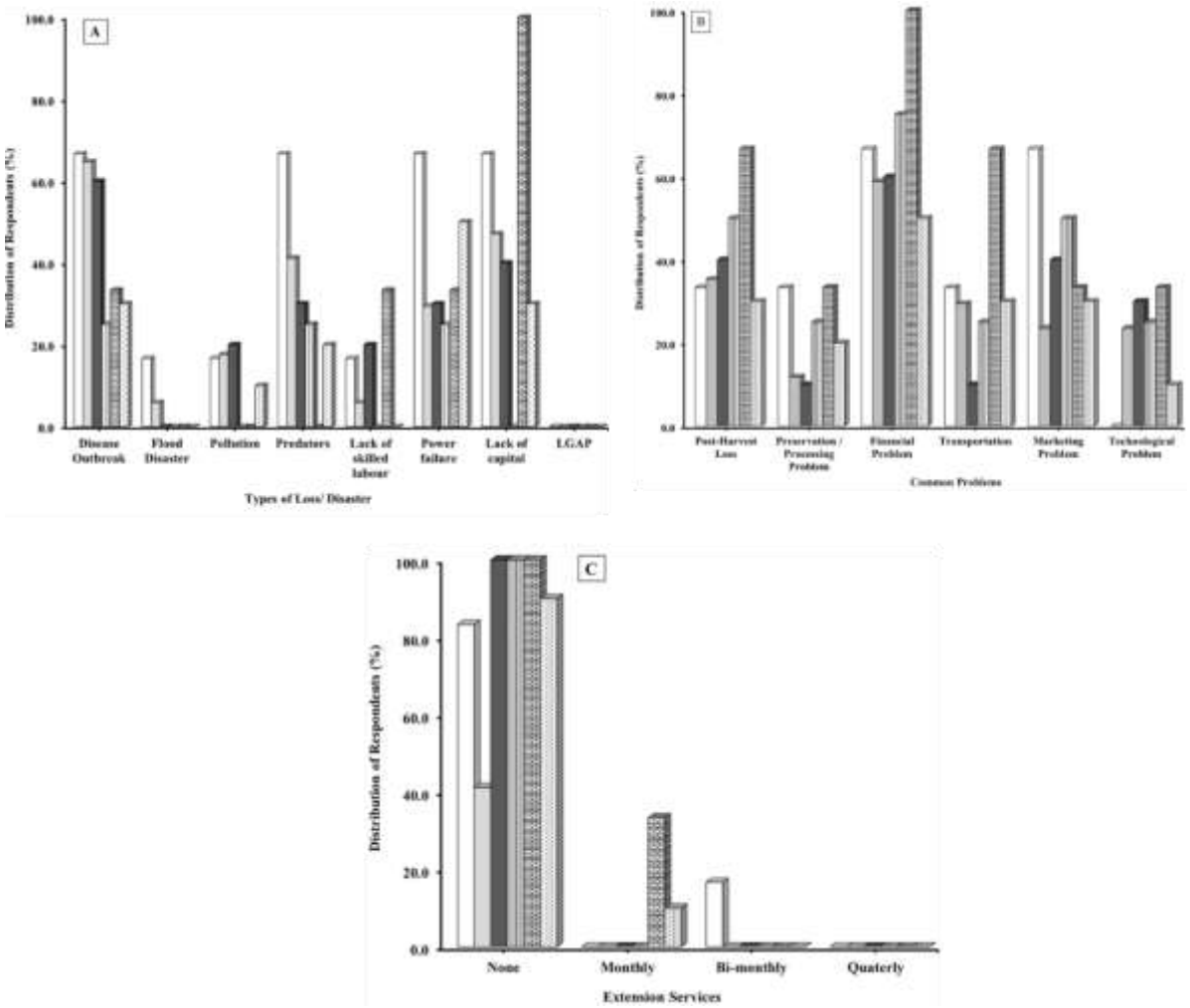

Figure 3. Percentage distribution of respondents on production constraints (*n*=50) in Obio/Akpor LGA, Rivers State. (A) Types of losses/disaster; (B) Common Problems; (C) Extension Services. The bars represent earthen ponds (white bar), concrete tanks (grey bar), plastic tanks (black bar), earthen + concrete (vertical lines), earthen + plastic (horizontal bricks) and concrete + plastic (dashed line) respectively. Note: LGAP represent lack of government assisted programmes.

transportation (28%), technological problems (20%) to preservation/processing problems (18%). For availability of extension services, 76% of the total respondents claimed they did not have any access to extension services, 4% get monthly while 2% gets bi-monthly extension services. Some of the constraints were in line with those previously reported (Ugwumba and Chukwuji, 2010; Adeoye et al., 2013). They reported in descending order of severity as lack of capital, disease outbreak, lack of modern technology, high cost of transportation and the least were post-harvest losses and poor storage facilities.

Government assisted programs for small-scale fish farming enterprise in Obio/Akpor LGA, Rivers State, Nigeria

The study of socio-economic conditions of any business is aimed at providing good design and successful implementation of effective assistance programmes. In the present study, government assisted programs were not available to the respondents in the study area.

Conclusion

Small-scale catfish farming enterprises were present in Obio/Akpor LGA and various production systems (concrete tanks, plastics tanks, earthen ponds, concrete + plastic, earthen + concrete and earthen + plastics) were adopted. Catfish farming promises to improve in the area if there would be adequate assistance from government. Catfish farmers faced different constraints ranging from disease out-break, lack of extension services to lack of government assisted programmes.

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