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Assessment of Marketing Constraints to the Development of Aquaculture in Ado – Ekiti, Ekiti State, Nigeria

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Abstract:

This study was set out to examine the socio – economic profile of people involved in the marketing of aquacultural products and to identify the basic problems affecting the marketing of aquacultural products in Ado – Ekiti, Ekiti State, Nigeria. Method used was the distribution of questionnaires to fish marketers and fish farm owners/managers. The questionnaires were designed to record responses to specific questions on the socio – economic profile of people involved in the production and sales of aquaculture products and assessing constraints affecting their business.

The results of the analyses show that the majority of the fish farmers were male constituting 83.33% while ratio of male: female for fish marketers was 26.67%:73.33% and 80% were in their youthful age from 31 –50 years.

Constraints to fish products sale on the part of the farmers were: poor transportation to the market and the activities of thieves/poachers ranking the highest while on the part of the marketers, they include: lack of electricity supply for preservation, high rate of loss due to spoilage and poor transportation to the market.

It is recommended that Government should assist fish farmers and marketers with loans to enable them to carry out their aquacultural projects and make it possible for them to get basic tools and implements and other rearing and selling inputs at subsidized prices.

Keywords: Marketing, Aquaculture products, constraints, socio-economic profile

1. Introduction

Aquaculture is the rearing of desired aquatic organisms (plants, fin or shell fish) under controlled or semi-controlled conditions (Harrell, 1991) carried out in water holding facilities such as earthen ponds, concrete tanks, etc. for social and economic benefits.

In the evolvement of the commercial fisheries of any country, the role of product markets is a leading and decisive one. The initiation, adaptation and expansion of fisheries production is constrained by opportunities for the sale of products that may be derived from cultured and resource stocks available to the country's fisheries industry. Specification of products with respect to type, form and quality is established by market requirements – ultimately in accordance with the preference of consumers served by the marketing system (MacKenzie, 1992).

The fisheries sector in Nigeria is divided into two categories: Captured fisheries (artisanal and industrial fisheries) and Cultured fisheries (Aquaculture). Artisanal fishery consists of small-scale, low-technology, low-capital, fishing practices undertaken by individual fishing households characterized by high labour intensity and low productivity (Anon. 2008). Industrial fishery is characterized by its high intensiveness, its modern infra – structural facilities and its high productivity, big boats that are worth many millions of dollars are used and often are equipped with technology capable of efficient, giant catches (WFT, 2008). It is composed of distant water trawling, coastal trawling or inshore trawling and shrimping. While Aquaculture can be extensive, semi-intensive or intensive, depending on the level of input and output per farming area and the stocking density. Intensive aquaculture involves intervention in the growing process, involving heavy inputs (high protein pelleted feeds, fertilizers and water aeration etc.), high stocking rate and improved pond management; resulting in high yield per unit area whereas extensive aquaculture is characterized by low inputs, low stocking density and no supplemental (or artificial) feeding or pond fertilization, it allows the stock to grow on its own, using natural food sources and conditions hence the yield per unit area is low (DAWR, 2016). This type of culture is carried out in the reservoirs and undrainable ponds. Mean yield from such reservoirs in the tropics range between 50kg – 200kg per hectare (Tobor, 1992).

In semi – intensive culture, the ponds are fertilized with organic or inorganic fertilizers, supplemental feeding, if applied, is given in small quantities and occasionally and generally consists of locally available materials in form of cereals, agricultural and fishery by-products, kitchen waste, rice bran, brewery waste etc. The yield is intermediate between those obtained from intensive and extensive cultures. Most aquaculture activities in the tropics are of this (semi-intensive) nature.

Aquaculture, irrespective of whether intensive, extensive or semi – intensive may be carried out in fresh water, in brackish water or in sea water. Aquaculture could serve as a method of bridging the gap of supply deficit of fish.

Ado-Ekiti is the capital of Ekiti State, Nigeria which was created in 1996. Ekiti State is a land-locked area with several fish farms owned by private individuals and government, as well as seven reservoirs which are state-owned and located in different parts of the state. Constraints militating against marketing of aquacultural products in Ado-Ekiti was assessed, taking into consideration the fish produced in some fish farms in Ado-Ekiti, and marketers of aquacultural products in the town. Possible solutions were proffered and it is hoped that these solutions could be implemented which will go a long way in reducing the problems faced by fish farmers and marketers in the town in particular, and the state as a whole.

2. Methodology

2.1. The Study Area

The study was carried out in Ado – Ekiti, the State capital of Ekiti State in Southwest Nigeria. The State is bounded in the east by Edo State, in the south by Ondo State, in the west by Osun State and in the north by Kwara and Kogi States. The population in 2006 was 446,749, the people of Ado – Ekiti are mainly of the Yoruba ethnic group. (Daramola *et al.*: 2007).

Farming is the major occupation of the people and agricultural production in the region generally revolves round multi – cropping and also aquaculture. Among the major food crops grown in farms are yam, cassava, maize, plantain, beans and vegetable.

2.2. Fish Farms in Ado - Ekiti

30 Fish farms were identified and sampled in the study area. They were the farms found functional among those listed by the Ministry of Agriculture and Rural Development, Fisheries Department, Ado – Ekiti, and new ones identified during the course of study. These farms were owned by government and private individuals.

2.3. Ado – Ekiti Markets

There are two distinct market types in Ado – Ekiti. These are periodic markets and daily markets.

- Periodic Markets: - Within Ado – Ekiti are a number of periodic markets and market rings. e.g. Oja Bisi.
- Daily Markets: - Most of the markets in Ado – Ekiti are daily markets. They are of three types namely: the morning, day and evening markets e.g. Oja Okela, Oja Mojere, Oja Oba, Oja Irona, Oja Ajowa, and Polyside market. The seven markets in Ado – Ekiti were used for the purpose of this survey.

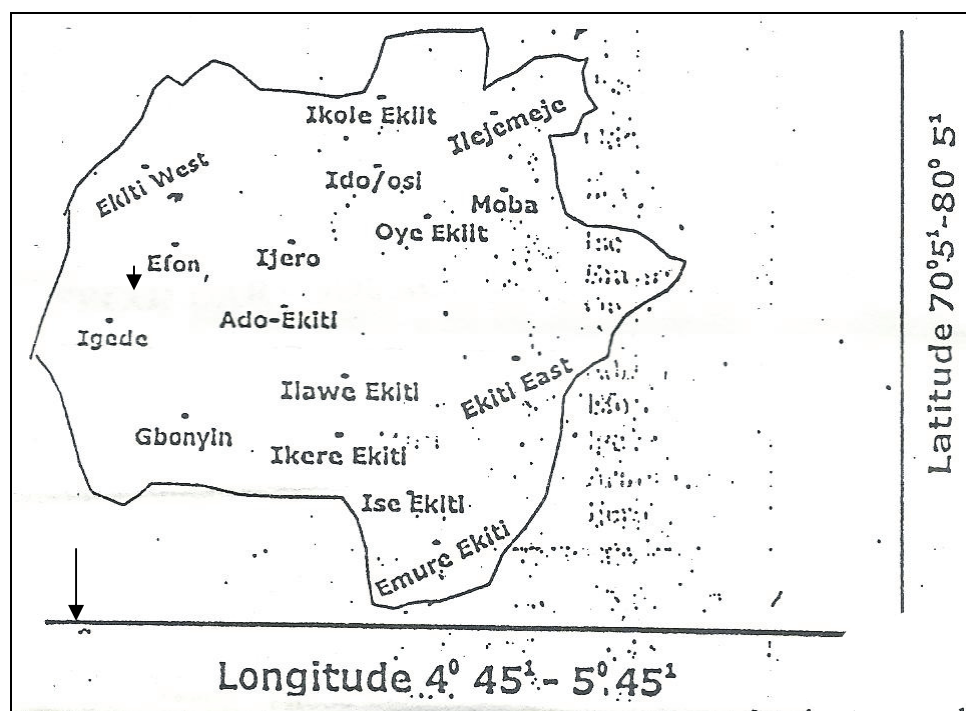


Figure 1: Map of Ekiti State showing the study area (Ado – Ekiti) : Study Area (Ado – Ekiti)

2.4. Method of Data Collection

The study was carried out with fish farms and fish marketers as targets. Fish farms owned by private and government were used for the study in addition to information retrieved from fish marketers randomly selected from major strategic fish market locations.

Method used was the distribution of questionnaires to fish marketers and fish farm owners /managers. The questionnaires were distributed to randomly sampled fish farms and fish marketers within Ado – Ekiti. The questionnaires were designed to record responses to specific questions on the socio – economic profile of people involved in the production and sales of aquaculture products and the assessment of constraints /problems affecting their business.

2.4.1. Primary Sources of Data

This is the field study data collected with the aid of questionnaires. The information and records kept by the individual fish marketers and fish farm owners served as first class source of information and where records were not kept, memory estimate of fish farmers and traders were resulted to.

During the administration of the questionnaires, the level of fish farming and fish marketing were asked, Government assistance rendered in all respect was also enquired about. The questionnaire was divided into sections which required information that were relating to the respondent background, species produced and sold, their source, price, information on items and materials used for the business and problems encountered in the business. The questions were read or interpreted for the marketers in Yoruba.

2.4.2. Secondary Source of Data Collection

This data was obtained from the Fisheries Department of the Ministry of Agriculture and Rural Development which served as another source of information used in the study. This is possible because the Department is responsible for the feasibility survey of areas used in fish farming activities and other consultancy services. Also, where fish farmers give an under or over estimation of information which are vital for the study, it is reconciled with the estimate given by the Government Fisheries Officers. This makes it possible to have a better and fair result.

2.5. Method of Data Analysis

The information obtained from the questionnaires were subjected to descriptive statistics which include; average percentages, frequency distribution and tabular percentages. Data collected from the responses to the questionnaires administered were used to identify the socio – economic profile of people involved in the production and marketing of fish and fish products and the basic problems they face.

3. Result

In all, 60 questionnaires were administered. 30 to the fish farmers and the other 30 to the fish marketers; all the 60 questionnaires were retrieved. From the study, the following results were obtained and grouped according to the response of fish farmers and fish marketers respectively.

3.1. Gender Distribution of Respondents

The study showed that majority of the fish farmers were males constituting 83.33% while 73.33% of the fish marketers were females. This is shown in Table 1 below.

Gender	Fish Farmers		Fish Marketers	
	Frequency	Percentage	Frequency	Percentage
Male	25	83.33	8	26.67
Female	5	16.67	20	73.33
Total	30	100	30	100

Table 1: Gender Distribution of Respondents
Source: Field Survey

3.2. Marital Status of the Respondents

On the marital status of respondents, the study revealed that 20% of the fish farmers are single, 66.67% are married while 13.33% are widows /widowers.

For the fish marketers however, majority of them are married constituting about 83.33%, minority are single and widowed constituting about 10% and 6.67% respectively, (Table 2).

Marital status	Fish Farmers		Fish Marketers	
	Frequency	Percentage	Frequency	Percentage
Single	6	20	3	10
Married	20	66.67	25	83.33
Widow/widower	4	13.33	2	6.67
Total	30	100	30	100

Table 2: Marital Status of the Respondents
Source: Field Survey

3.3. Level of Education of Respondents

It was gathered from the study that 10% of the fish farmers had no formal education, 30% had primary education, 50% had secondary school education and 10% of the fish farmers had tertiary education.

For the fish marketers, 26.67% had no formal education, 60% had primary education, 13.33% had secondary education. This indicates that most of the fish farmers and fish marketers have little school education or no formal education. This is presented in Table 3.

Level of Education	Fish Farmers		Fish Marketers	
	Frequency	Percentage	Frequency	Percentage
No formal education	3	10	8	26.67
Primary Education	9	30	18	60
Secondary Education	15	50	4	13.33
Tertiary Education	3	10	---	---
Total	30	100	30	100

Table 3: Level of Education of Respondents

Source: Field Survey

3.4. Age Distribution of Respondents

Majority of the fish farmers are at the range of 41 – 50 years constituting 60%, 10% were less than 30years old, 10% between ages 31 – 40years, 10% between ages 51 – 60years and above 60years old.

For the fish marketers, majority were between 41 – 50years, 13.33% were between age less than 30years old, 10% were between ages 31 – 40years, 3.33% were between ages 51 – 60years and above 60years old. The graphical representations of the respondents are presented in figure 2 and figure 3.

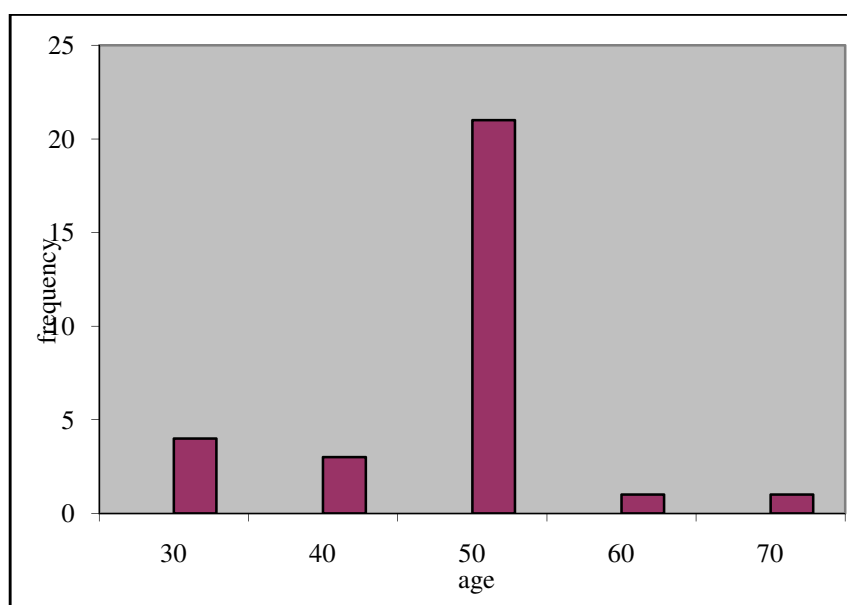


Figure 2: Age Distribution of Fish Farmers

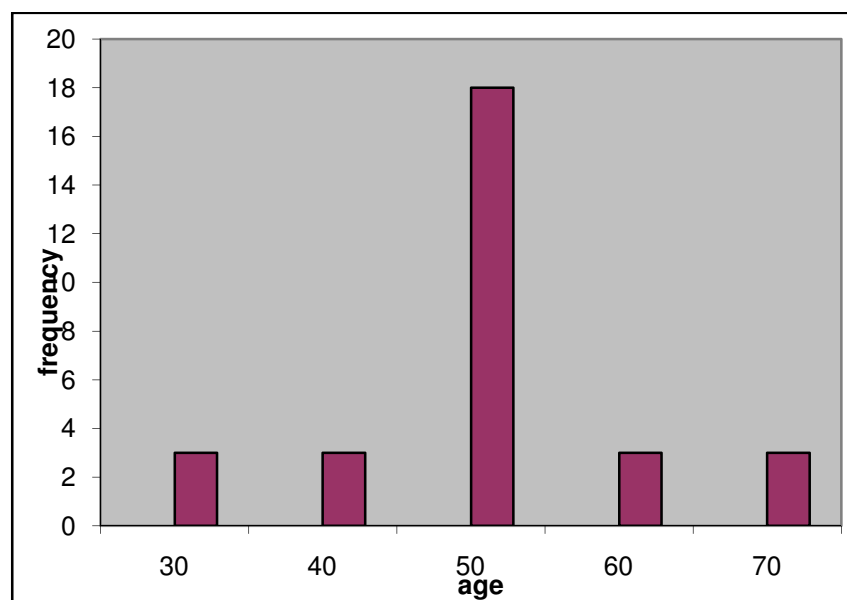


Figure 3: Age Distribution of Fish Marketers

3.5. Nature of Fishing Job

Table 4 shows that, of the 30 respondents, 93.33% are full time fish farmers and 6.67% of the respondents are part time fish farmers. For the fish marketers, 83.33% are full time fish marketers and 16.67 of the respondents are part time fish marketer engaged in other occupation apart from marketing.

Nature	Fish Farmers		Fish Marketers	
	Frequency	Percentage	Frequency	Percentage
Full Time	28	93.33	25	83.33
Part Time	2	6.67	5	16.67
Total	30	100	30	100

Table 4: Nature of Fishing Job
Source: Field Survey

3.6. Prompting of Interest in Business

96.67% of the fish farmers had their interest in fish farming prompted by profitability of the business venture and 3.33% had personal interest in fish farming.

For the fish marketers, majority had commercial interest in fish marketing constituting about 86.67% and 13.33% had personal interest in fish marketing. This is shown in Table 5.

Prompting of interest	Fish Farmers		Fish Marketers	
	Frequency	Percentage	Frequency	Percentage
Commercial interest	29	96.67	26	86.67
Self interest	201	3.33	254	13.33
Total	30	100	30	100

Table 5: Prompting of Interest in Business
Source: Field Survey

3.7. Years of Engagement in Fish Business

Table 6 shows that 20% of the fish farmers have been engaged in fish farming for 1 – 5years, 33.33% have been engaged in fish farming for 6 – 10 years and 46.67% have been engaged in fish farming for over 10years.

36.67% of the fish marketers have been engaged in fish marketing for 1 – 5years, 60% have been engaged in fish marketing for 6 – 10years and 3.33% have been engaged in fish marketing for over 10years.

Years of Engagement	Fish Farmers		Fish Marketers	
	Frequency	Percentage	Frequency	Percentage
1 – 5years	6	20	11	36.67
6 – 10years	10	33.33	18	60
Above 10 years	14	46.67	1	3.33
Total	30	100	30	100

Table 6: Years of Engagement of Fish Business
Source: Field Survey.

3.8. Capital Expenditure in Setting Up Fish Marketing Business

In setting up fish marketing business, 6.67% spent less than ₦2,500 to start up their business, 13.33% spent between ₦2,500 – ₦25,000, 33.33% spent between ₦25,000 – ₦50,000, 43.33% spent between ₦50,000 – ₦100,000, while 3.33% used between ₦100,000 – ₦500,000 to establish their business. This is shown in Table 7 below.

Amount (Naira)	Frequency	Percentage
Less than ₦2,500	2	6.67
₦2,500 – ₦25,000	4	13.33
₦25,000 – ₦50,000	10	33.33
₦50,000 – ₦100,000	13	43.33
₦100,000 – ₦500,000	1	3.33
Above ₦500,000	-----	----
Total	30	100

Table 7: Capital Expenditure in Setting up Fish Marketing Business
Source: Field Survey

3.9. Forms of Fish Product Sold in Market

53.33% of the respondents sold the fish product in the fresh State, 40% sold the fish in the smoked states while 6.67% sold both the smoked and fresh forms of fish.

The species of fish sold include *Clarias gariepinus* Tilapia species, *Heterotis niloticus* etc. The choice of species sold by the fish marketers were determined mainly by demand while other reasons include personal interest, accessibility and so on. This is presented in Table 8 below.

Form of Fish	Frequency	Percentage
Fresh	16	53.33
Smoked	12	40
Both	2	6.67
Others	----	----
Total	30	100

Table 8: Forms of Fish Product Sold in Market

Source: Field Survey

3.10. Constraints Militating Against the Sale of Fish

The major problems militating against the marketing of fish by the fish farmers are, variation in selling price (75%), poor transport network (71%) and theft / poaching (60%) as shown in Table 9.

The prevalent problems is variation in selling price, this is because some of the wholesales usually purchase fish through price haggling with the producers which often does not favour the fish farmers and also some of them usually adjust their weighing scale in order to reduce the weight of fish to reduce price being paid to the fish farmers. Poor transport network is another problem as some of the roads to the farm locations are bad, High cost of transport was in anyway not a problem. This is due to the fact that marketing of fish is carried out in the farm site and not transported elsewhere.

Activities of poachers who steal fish reduce the fish stock of farmers at the end of cropping season (60%). These are problem for fish farmers because their actions affect the revenue and profit of the fish farmers. Others include high rate of loss due to spoilage (40%), poor demand (30%), activities of trade unions (25%), and seasonal variation (25%) all in a descending order.

The constraints militating against the marketing of fish from the fish marketers' points of view are also indicated in Table 10 and the extent at which each problem affects the venture was determined by averaging the percentage of each constraint selected by respondents from the questionnaire administered.

Lack of electricity supply for preservation was rated highest (68%) among the problem faced by fish marketers followed by high rate of loss due to spoilage (65%), and poor transportation to the market (65%). Other problems include high cost of transportation (45%), theft (40%) and irregular supply of fish (40%).

The irregular supply of fish to be sold are problems militating against the marketing of fish to fish marketers. According to the respondents, there are times in which these might be demand for fish but supply at those times might not be made.

The activity of the trade union posed very little (25%) or no problem to the marketing of fish on the part of fish farmers. Little of the fish marketers had problems with the trade union (5%) and average of the fish marketers had the sale of fish affected by festive period (5%). This actually constituted the least problems as more often than not sales, were boosted.

Constraints	Fish Farmers		Fish Marketers	
	Percentage		Percentage	
	Yes	No	Yes	No
Poor transportation to the market	71	29	65	35
High cost of transport	----	----	45	55
Poor demand	30	70	3	97
Trade union	25	75	5	95
High rate of loss due to spoilage	40	60	65	35
Seasonal variation	25	75	3	97
Festive period	15	85	5	95
Theft / Poaching	20	80	40	60
Electricity supply	80	20	68	32
Variation in selling price	75	25	61	39
Irregular supply of fish	----	----	40	60

Table 9: Constraints Militating against the Sale of Fish

Source: Field Survey

4. Discussion

This study was set out to examine the socio – economic profile of people involved in the marketing of aquacultural products and to identify the basic problems affecting the marketing of aquacultural products in Ado – Ekiti, Ekiti State.

According to the study, majority of the fish farmers were male constituting 83.33%. This could be due to the fact that fish farming could be strenuous therefore more males are involved in the venture. For fish marketing, the ratio of females to male was 73.33%: 26.67%. Nwabueze and Nwabueze (2010) observed that more females were involved in fish marketing than males in his study on the problems of fresh fish marketing in Oshimili South LGA of Delta State, Nigeria.

The major people found in the marketing venture were mainly women with little educational background. Their source of capital was from personal savings since they had no collateral to obtain credit facilities from banks and financial houses. Their age ranged between 30 and 70. Gaya *et al* (2010) who worked on economic analysis of fish marketing in Yola – North LGA, Adamawa State also observed that most of the fish marketers in the study areas are in their youthful age, they are in their active work life and can therefore withstand the rigours of the business.

Also, there is considerable need to preserve fish. According to Clucas and Ward (1996), different methods of preservation of fish bring about differences in shelf life of fish. In Ado – Ekiti, unsold fish is preserved mainly by wood – smoking. But wood is also scarce and expensive. This, as observed by Ebe (2007), is an additional cost which translates to higher prizes of fish.

It was observed from the study that most of the respondents (93.33%) were self - sponsored as many of them complained of not having any form of assistance and did not know how to go about obtaining loans from credit facilities. Income margin per month was discovered to be low, that may well be attributed to the various constraints faced in the business particularly transportation of fresh fish to sale points.

It was also observed by Gaya *et al* (2010) who worked an Economic Analysis of fish marketing in Yola LGA, Adamawa State, Nigeria that a combination of transportation, storage and quality were the problems prominent in the area. This agrees with the findings of this study as transportation was also observed to be a major problem in fish marketing and distribution in the study area. Most fresh fish marketers traveled by road and some of the roads are bush tracks while others are tarred but in a state of disrepair. This reduces the volume of traffic on the roads and raises the costs of transporting fish; they are also exposed to the danger of attack by robbers who could way – lay them on the road because the roads are usually not well travelled. Usually the fish are transported in large, wide and round containers, which could make it difficult for the containers to be loaded into vehicles used.

Lack of electricity supply was also another major problem for fish marketers in the study area as it led to high quantity of fish spoilage. According to Bada and Rahji (2010), an inadequacy in power supply could result in dire consequences for the market agents in terms of spoilage or deterioration in the quality and economic values of the commodities. The storage cost could be a serious problem if electricity is not available and the marketers have to provide this through self – generation of power.

Further more, the presence of middlemen in the distribution of fresh fish and inability to access loans were other constraints identified, which have resulted in the unstable price and high cost of fish in the study area.

5. Recommendation

The enhancement of fish supply to Ado –Ekiti and the nation as a whole would be achieved if adequate attention is paid to the development of efficient fish marketing and distribution patterns of aquaculture product which in turn would enhance the development of aquaculture.

It is therefore recommended that:

- The private individuals or bodies interested in establishing fish farms should be aided by the Government through the granting of loans to carry out their aquacultural projects and make it possible for them to get basic tools and implements and other fish rearing and marketing inputs at subsidized prices.
- The assistance of extension workers are highly required from Federal and State Departments of Agriculture by both the fish farmers and fish marketers who would help to train them in modern fish culturing, processing and preservation methods to improve the production and handling, processing and storage efficiency of both fresh and smoked states of fish so that the shelf life of fish could be prolonged.
- Fish marketers should be given opportunities to obtain credit facilities. This should also be aided by the Government to aid their effective functioning.
- The provision of amenities such as low transportation cost for fish traders should be ensured by the Government. This should be done in order to reduce the corresponding increase in cost of fish products.
- The Government should consider the establishment of special stalls in local market places for smoked and fresh fish. This is necessary to prevent excessive fish death and fish spoilage.
- The tightening of security of fish farms should be ensured by fish farmers to checkmate the activities of poachers.
- Marketing outlets should also be provided by government, which would ensure that all fish harvested by these farmers are bought from them at reasonable prices as at when harvested. This will encourage the farmers to produce more, will reduce wastage and spoilage and ensure that the fish gets to the consumers in a healthy and optimum quality state.

6. Conclusion

Fish farmers and fish marketers play a crucial role in the development of aquaculture. This study has revealed that the marketing of aquacultural products by the fish traders and producers go a long way in improving the standard of aquaculture and those involved in it. It therefore implies that any effort made to improve the state of aquaculture will indirectly improve the life of both the marketers and farmers.

Fish marketers and fish farmers in Ado – Ekiti, have preference in the production and marketing of fish species such as *Tilapia* species, *Clarias gariepinus*, and *Heterotis niloticus*. If the constraints showed by this study are resolved, it will bring about optimal

improvement of the marketing of aquacultural products. Therefore, there is need for some adjustment in the manner and way that the marketing of aquaculture products is carried out which will lead to the development of aquaculture.

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