

# Revenue Generating Activities of Fishermen and Their Challenges in a Ghanaian Community

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**Abstract:** *The study was carried out to assess livelihood status and the challenges facing fishermen in Ada district. One hundred fishermen were randomly selected covering the study area for a period of eight months for data collection purposes. Data were collected from the fishermen through some selected tools such as individual questionnaire interview, key informant interview, focus group discussion and physical observation during fishing and marketing. Livelihood condition of the Ada district community was presented in terms of family size and type, occupational status, educational status, housing condition, and annual income. Among the fishermen, 30% had no education, 52% basic education and 18% SHS education. It was found out that 65% of the fishermen families were extended and 35% of the families were nuclear. The average rate member of fisher's family was 10. Major constraints of the fishermen livelihood were identified as; lack of appropriate management techniques, water quality control, runoff control and improper record keeping. Poor site selection was linked with restriction of pond drying due to underground water trend. For the development of the livelihood of the fishermen, expansion of education, loan facilities from government agencies and improved management of the local resources are recommended.*

**Keywords:** Fishermen, Generating, Challenges, Livelihood, Revenue

## 1. Introduction

The significance of the fisheries sector in the socio-economic development of Ghana cannot be ignored. Although, the practice of fish farming started in this country in the 1950s the production is still below expectation while a lot of challenges are faced with high fish demand and over exploitation of the fishery resources.

With a marine coastline of five hundred and fifty (550) kilometers stretching from Aflao in the East to Half Assini in the West, the fishing industry plays a major role in sustainable livelihoods and poverty reduction in several households and communities. The sector is estimated to contribute about 3.9 % of the nation's Gross Domestic Product (GDP) and 11 % of the Agriculture GDP [14].

The fisheries resources of Ghana supply 60 - 70% of natural animal protein to the people. Generally, many Ghanaians are encouraged to take extra of this fish protein than meat, since fish is more nutritious and healthy [4]. Moreover, fish is recognized as the most important source of animal protein in Ghana [1]. Among the various sources of protein, fish stand out as the most important in terms of food security because its price, relative to the price of other high quality protein sources such as milk, meat and eggs is very competitive.

Unfortunately, there is growing evidence that this natural resource is being exploited beyond its sustainable limit. This has caused a decline in its fishing trend [16]. Consequently, the 1970 average fish consumption declined by 25 percent to reach 22 kg/caput/year in 1997 [16] while it was previously estimated at 20kg per caput fish consumption in 1993 [15].

Although, subsistence fisheries have become the sole means

of survival, there is limitation in the country's ability to meet the domestic demand. As a result, this has threatened the economy and food security of many Ghanaians [10]. Subsequently, the government of Ghana, as early as the 1950s, decided to promote aquaculture and culture-base fisheries [16].

The construction of some dams such as the Tono and Veia irrigation dams was seen as a pivot of development, not only in the area of food crop production, but also in the fishery subsector. Freshwater fish was to be supplied not only as an important source of food security, but also a source of employment and income in the catchment areas and beyond. However, the economic benefits of employment, revenue and income generations are at risk as the Tono and Veia reservoirs have been recording declining trends of fish catch.

## Ghana's Fisheries Resource Management Policy

[3], the management system of fisheries in Ghana has been categorized into freshwater and brackish water systems. Basically, there are two main management systems working towards the achievement of the overall objectives of the Sector. These are the Marine Management System and the Volta Lake Management System. The first category - Marine Management System - is in charge of the marine subsector, with common goals of enforcing regulations that ensure the escape and survival of juvenile fish from net and the combined use of purse seines and Fish Aggregation Devices (FADs). On the other hand, the Volta Lake Management System is responsible for managing the inland sector. This

system has the objectives of regulating fish mortality by declaring Specially Protected Areas (SPAs) as breeding and nursing grounds, enforcing fishery regulations on the use of

active gears and under meshed nets and enforcing licensing systems and entry requirements to avoid influx.



## 2. Literature Review

According [4], the mean production of pond-based farms ranged from 1,436 kg per hectare per year to 4,423 kg per hectare per year while the medium sized intensive commercial pond farms produced 45,999 kg per hectare per year. Similarly, [14], reported that the culture-based fisheries in reservoir; produce an average of 150 kg/ha/yr whereas production from the small-scale pond operators is estimated at 2.5 tonnes/ha/yr. Furthermore, Department of Fisheries, in 2004 survey, estimated aquaculture production at 950 tonnes [14].

[17] further suggested that, ponds could be constructed and operated without disturbing the acid soils, allowing a non-acidic layer of sediment on the bottom.

Secondly, at the designing stage, one should also consider that a fish pond with an average depth of 1.5m required 15000 m<sup>3</sup> of water per every hectare. It is also recommended that, before filling the ponds with water, further preparation is done through clearing, cleaning and applying fertilizers such as quick lime, tea-seed cake and livestock manure [14].

[18], stated that computers are used for planning, budgeting, keeping records and accounting at shrimp farming in the USA. Already, [11] discovered the use of computers in farm offices, in Scotland, for keeping track of large amount of information on a daily basis; which are automatically updated after every entry in order to examine the current performance of a farm. Technically, the system is built to suit farmers who have no experience in computer operation. [13] further stated that, a cumulative record of normal situation at farm levels as well as water and stock analysis will strengthen a claim on a disaster relief.

According to [2], some of the opportunities in fish farming include availability of land, water, feed ingredients, manure and infrastructures. Major constraints were generally lack of appropriate management techniques: water quality control, effluent control and proper record keeping. Poor site

selection was linked with restriction of pond drying due to underground water trend. Therefore, farmers' sensitization, technical assistance and financial support will become suggestions to develop solutions to these confrontations.

## 3. Methodology

The present study was carried out at Ada a fishing community in Greater Accra region during the period of November 2014 to June 2015.

### 3.1 Collection of data

The study was based on collection of primary data; an interview schedule was designed for the study. The draft questionnaire was tested with 100 fishermen in the study area. The questionnaire was modified and rearranged according to the experience gathered in pre - testing of questionnaire. A combination of questionnaire interview and Participatory Rural Appraisal (PRA) tools such as Focus Group Discussion (FGD) and crosscheck interviews were conducted with the key informants such as land used data of the studied area, subject related annual reports and documents were also collected to validate the field observation. Moreover, physical observation during, fishing, landing and marketing were done personally. All the collected information were accumulated and analyzed by MS-Excel, SPSS and then presented in textual, tabular and graphical forms to understand the present status of the fishing gears, fish marketing system and livelihood of the fishermen of the studied area.

## 4. Results and Discussion

The data were analyzed using Microsoft Excel 2007 and SPSS. Before analysis, all responses/respondents were coded serially. In this study, the livelihood status of the fishermen was the main aspect emphasizing on educational status, occupational status, family size, family type, housing condition, credit access, income and other socio - economic issues. Depending on involvement in fishing and fishing

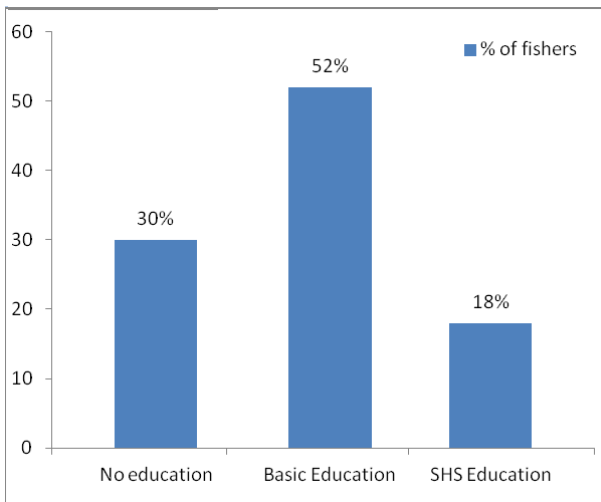
related activities, the fishers were grouped as boat owner, laborer, fish dryer, and others involved in fishing related occupations.

#### 4.1 Type of family

It was found out that 65% fishermen families were extended and 35% families were nuclear. The average rate member of fisher's family was 10.

#### 4.2 Educational level of fishers'

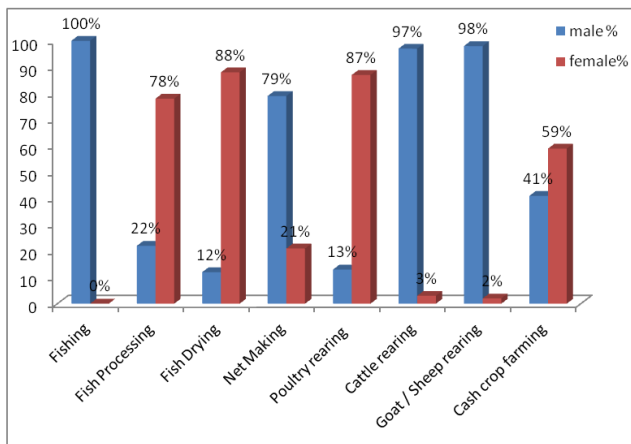
Most of the fishermen in Ada district had basic school education as shown in Figure 4.1 below. Most of the fishermen can read and sign. Among the fishermen of Ada district, 30% had no education, 52% had basic education and 18% senior high education.



**Figure 4.1** Educational statuses of fishermen in Ada district

#### 4.3 Involvement of gender in different income generation activities

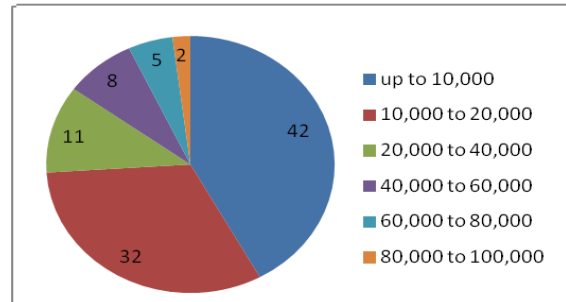
Apart from men engaged in home – based income generation activities, women also played an important role to ease livelihood of the fisher's dominating areas such as fish processing, fish drying, poultry rearing and cash crop farming as shown in Figure 4.2 below



**Figure 4.2** Gender involvements in different income generating activities

#### 4.4 Sources of income

Selected fishermen were grouped into six categories according to the level of their annual income, in Ghana cedi. It was revealed that GHC 10,000 and GHC 20,000 categories had the highest number of fishers' as shown in Figure 3.3 below. The major source of fishers' revenue was fishing; beside this there were different sources of income such as Agriculture and small scale business to support their families.



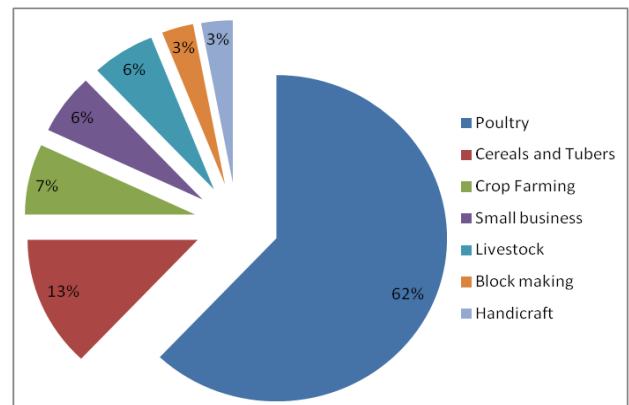
**Figure 4.3** Income levels of fishers

#### 4.5 Alternative income generating activities

In this District, 62% of the fish farmers are into poultry farming, 13% of the fish farmers are into cereals and tubers, 7% are into crop farming, furthermore 6% are into small business and 3% of the farmers are into block making and handicraft respectively as shown in Figure 4.4 below. The main field crops grown in this area included maize, plantain, cassava and cocoyam.

#### 4.6 Challenges facing the fishermen

Collectively, 68% of the fish farmers in Ada encountered some disasters while the remaining 32% did not experience any disaster. The farmers that suffered from both floods and erosions have lands situated in geographically low places and depressed areas. On the other hand, the occurrence of drought and storms occurred at flat plains. Normally, such flat plains lack the required number of trees to serve as wind breaks. Inadequate communication aids during fishing trips, the inability of fishermen to purchase fishing equipments such as fishing net, inadequate credit facility, lack of modern marketing facilities, etc account for some of the challenges facing these fisher folks.



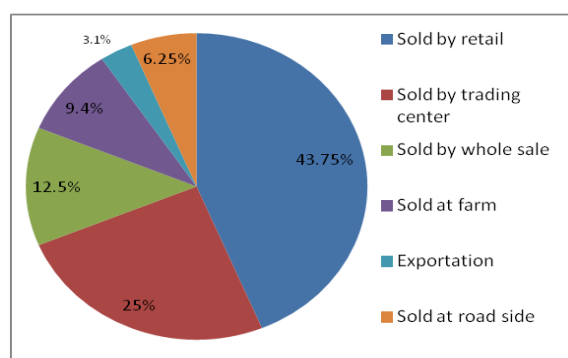
**Figure 4.4** Alternative income generating activities

#### 4.7 Prices of fish

The fish farmers rear fish for a special purpose: commercial, subsistence or both. In order to achieve any of these, fish are produced with different qualities at different stages. From Table 4.1, 40% of them produced market sizes, 5.7% of the fish farmers produced all-male tilapia through sex-reversal while 5.7% did manual sorting. In addition, 20% of them were fingerling producers.

**Table 4.1** Types of fish production by Ada fish farmers

Description	Frequency	Percentage
Production of market size	14	40%
Fingerling production	7	20%
Production of brood stock	4	11%
All – female sex – reversal	2	5.7%
Induced spawning	2	5.7%
Natural spawning	3	8.6%
Manual sorting for all – male	2	5.7%
Manual sorting for all - female	1	2.9%



**Figure 4.5:** Types of fish production by Ada fish farmers

#### 4.8 Farm Water Management

Normally, 50% of the farmers drained their ponds during harvesting and maintenance [9]. At times 7.1% of the farmers top the water levels of their ponds and tanks. This is carried out in order to replace water that had been lost due to seepages or evaporation [9]. On the other hand, 7.1% of them replaced water when it is suspected to be contaminated which is normally detected through water quality or evidence of dead fish in the water.

During these processes, there are high risk of escapees of aquatic organisms but these are controlled through the use of filters [9]. Only 7.1% of the farmers filter water flowing through from their sources. This has the advantages to prevent the entry of wild species as well as disallow the culture stock escape into the wild [11]. This has become another challenge which is not realized by majority of fish farmers. Therefore, the importance of water filtering needs to be given great attention in fish farming.

**Table 4.2:** Water management on fish farms in Ada district

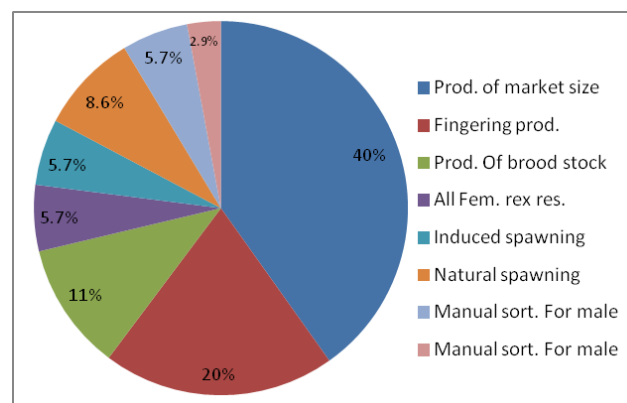
Description	Frequency	Percentage
Water in ponds and tanks	7	50%
Drain water	4	28.6%
Top water level	1	7.1%
Filter water flowing through	1	7.1%
Replace water	1	7.1%

#### 4.10 Marketing strategies

Marketing strategies of the fish farmers included export and sales by retail or whole sale. Fish were sold through weighing at the market centres. Other modes of sale include; supply to hotels, institution or school and families. However, fish were also preserved through smoking, salting and drying (Table 4.3). 43.75% of the fish farmers sold their fish by retail while 12.5% sold theirs by whole sale. Among the sellers, 25% of them made their sales at the trading centers, 9.4% of them used their farm gates and 6.25% sold theirs by the road side. Only 3.1% exported some of the fish produced.

**Table 4.3:** Marketing strategies for farmed fish in Ada District

Description	Frequency	Percentage
Sold by retail	14	43.75%
Sold by trading center	8	25%
Sold by whole sale	4	12.5%
Sold at farm	3	9.4%
Exportation	1	3.1%
Sold at road side	2	6.25%



**Figure 4.6** Marketing strategies for farmed fish in Ada District

Commercial fish farmers sold their produce mainly in two different ways. One of them was the cost of a kilogram of market sizes for minimum prices at GHC 2.50, maximum GHC 5.0 and average of GHC 3.20 (FAO, 2000, 2009). This kind of selling involved 64% of the population studied. The other 36% of the fish farmers produced fingerlings which they sold at 0.07p minimum, 0.24p maximum and an average of 0.13p per piece of fingerling. However, these two ways of pricing fish had been developed so that the fish become more affordable to consumers. Secondly, the strategy enabled customers to select fish according to different sizes and species preferences. This pricing attracted number of customers in Accra, the capital city of the region where marketing opportunity is not a problem [9].

#### 5. Conclusions

The main purpose of this study is to assess the livelihood status and to identify the potential sources of alternative income generating activities of fishermen in Ada district, emphasizing on occupational status, educational status, family size, credit facilities, income and other socio-economic issues.

Fishermen at Ada district are facing a variety of problems during fishing and marketing their goods. Production is still below expectation while a lot of challenges are faced with high fish demand and over exploitation of the fishery resources. Consequently, the government of Ghana, targeted fish production through farming in order to counter the current fish deficit supply. Other problems were inadequate credit facility, presence of aquatic vegetation, lack of marketing facilities, lack of knowledge of fishing practices, lack of appropriate gears and disturbances by dacoits and thieves. Most of the fishermen are very poor and they have limited resources for buying nets and other fishing equipments. They are abandoned in all respect in the society. Most of them are illiterate and live from hand to mouth. Being very poor their children often go for fishing rather than school.

The fish farm business in the district is dominated by males who constitute about 88%. This appears to relate to accessibility of land which is not easy for women (Trottier, 1978). Despite this, women can be recommended to be given support and encouragement in fish farming. Handicrafts, net making, poultry, cash crop farming and other small business are especially identified as women friendly.

The increase of fish production will definitely improve the socio-economic condition and nutritional status of the poor fishermen. On the other hand, Majority of the fishermen of the district are illiterate, so necessary steps should be taken to develop the awareness among the fishermen by Government and Non Government Organizations to protect the species which are at the degree of extinction and to have sustainable production from the district.

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