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# The profitability analysis of artisanal fishing in Asa River of Kwara state, Nigeria

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## Abstract

This study investigated the profitability of artisanal fishing in river Asa in Asa Local Government Area of Kwara State, Nigeria. A total of 80 respondents were randomly selected for the study. Data were collected by the use of structured set of questionnaires. Three research questions guided the study. Results of profitability analysis showed that an average fisherman makes a Gross Margin of ₦52883.99/fisherman/month. The problems of artisanal fishing included lack of storages facilities, lack of government support and seasonal change in the volume of the river. The study recommends among others; fishermen should be given adequate training and the required assistance on modern fishing techniques and use of modern fishing equipment to ensure sustainability. There is also the need to organise the farmers into cooperatives to enable them have better access to government programmes and credits. It is also recommended that the government should build mini cold rooms with good storage facilities to help the fishermen overcome the problem of fish spoilage which reduces the quality of their products

**Keywords:** Artisanal fishing, Gross margin, Asa River, Fishermen, Kwara state

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## 1. Introduction

Nigeria is blessed with abundant natural and human resources with numerous water bodies as one of the most important natural resources bequeathed to the country by nature. The hunting, catching and marketing of edible fresh water and ocean fishes largely dominate fishing industry in Nigeria. Basically, Fish production in Nigeria is either by capture fisheries, artisanal fish farming (fish farming) or by importation. Capture fisheries involve the harvesting of naturally existing stocks of wild fish. This can be done either by small scale/artisanal fishers or by industrial/commercial trawlers. In artisanal fisheries, production is achieved by individual or by small groups by the use of labour intensive gears. Characteristically artisanal fishers operate from dug out, wooden canoes that are more often than not unmotorized (Coates, 2000; Aneneet al., 2010). Artisanal fishing account for more than 80 per cent of the total fish production in Nigeria. According to Matthew (2001), 'traditional', 'small-scale' or artisanal fisheries is used to characterize those fisheries that were mainly non-mechanized with low level of production. The term particularly applies to coastal or island ethnic groups using traditional techniques such as rod and tackle, arrows and harpoons, throw nets and drag nets and traditional fishing boats.

The Nigerian fishery sector not only provides employment for citizens in the coastal area, but also contributes more than 40 per cent of the animal protein consumed by the average Nigerian. The sub-sector is also a high foreign earner generating about 20 million dollars annually through the export of shrimps alone and provides direct and secondary employment to more than one million Nigerians. It is estimated that about 10 million people particularly youths are engaged in artisanal fishing in Nigeria (Central Bank of Nigeria, 2004). Fishing is a natural and inherited vocation of coastal and riverine communities, and they largely depend on it for their livelihoods. Fishing could be lucrative for the coastal fishermen, because the resources are abundant in season. The riverine communities benefit from species diversity. However, Nigeria has not been able to provide the quantity of fish needed by its citizens and this has led to importation to supplement local production. (Bada, 2005), noted that Nigeria requires approximately 1.5 million tonnes of fish annually in order to meet its daily protein needs. fish supply from the three sub-sectors, artisanal, aquaculture and industrial on the average had not met 30 per cent of the required fish demand in the last 20 year. In spite of the abundant water resources that this country has, the larger portion of the country's fish requirement is meant from importation. In spite of the relevance of artisanal fishing to the economy, only few studies have been carried out to assess the profitability of the enterprise and constraints faced by the fishermen. Inioni, and Oyaide (2007) carried out a study on the analysis of artisanal fishing in the South Agro-Ecological Zone of Delta State. The result of their study revealed that Net Margin/fisher/year is ₦111,677.62. Anyanwu, Mkpado, and Ohaka, (2009) in their study of Economics of Artisanal Fishing along River Niger in Onitsha North Local Government Area of Anambra State obtained a Gross Margin of ₦96,002.29 per farmer per month. Onemolease and Oriakhi, (2011) carried out a study on the prospects, constraints, relationship between demographic characteristics of respondents and the economic returns of artisanal fishing in selected riverine communities in Delta State. They used 92 respondents for their study and observed average earning of the respondents to be ₦24,456.52 per month. In view of the following, this study was carried out to achieve the following objectives:

- i. describe the socioeconomic characteristics of those involve in artisanal fishing in the study area
- ii. determine the Costs and Returns of artisanal fishing in the study area and
- iii. identify the problems facing artisanal fisheries in the study area

## 2. Methodology

### 2.1. Study area

This study was conducted in Laduba and Afon communities in Asa Local Government Area of Kwara State. The headquarters of the council Area are in Afon. It has an area of 1,286 km<sup>2</sup> and a population of 126,435 (Nigerian Population Commission, 2006). Annual rainfall in the study area ranges between 1,000mm to 1,500mm with average temperature of between 30<sup>0c</sup> to 35<sup>0c</sup>, the people's primary occupations are fishing and farming (Kwara Agricultural Development Projects, 2006).

### 2.2. Sampling technique

The study was carried out in Kwara State, Nigeria. Afon and Laduba communities in Ilorin South Local Government Areas of the State were purposively selected for the study due dominance of artisanal fishermen in the area (KWADP, 2006). Simple random sampling was then used to select 40 fishermen each from the two selected communities in the Local Government Area to make a total of 80 respondents from which primary data were obtained through the administration of a well- structured questionnaire.

### 2.3. Analytical technique

Descriptive statistics which include frequencies, percentages and tabulation was used to describe the socioeconomic characteristics of the respondents and to identify the constraints faced by the artisanal fishermen while the Gross Margin analysis was used to determine the costs and returns to artisanal fishing in the study area.

### 2.4. Gross margin analysis

The costs and returns to artisanal fishing was estimated using the gross margin analysis. It is given as follows;

$$GM = TR - TVC$$

Where:

GM = Gross margin in naira/fisherman/month

TR = Total revenue in naira/fisherman/month

TVC = Total variable cost in naira/fisherman/month

### 3. Results and discussion

#### 3.1. Socioeconomic characteristics of the respondents

Table 1 gives a summary of the socioeconomic characteristics of the respondents.

Table 1. Socioeconomic characteristics of the respondents

<b>Characteristics</b>	<b>Frequency</b>	<b>Percentage (%)</b>
<b>Gender</b>		
Male	80	100
<b>Total</b>	<b>80</b>	<b>100</b>
<b>Marital Status</b>		
Single	4	5
Married	74	92.5
Divorced	2	2.5
<b>Total</b>	<b>80</b>	<b>100</b>
<b>Educational status</b>		
No formal education	1	1.25
Quaranic education	9	11.25
Primary education	41	51.25
Secondary education	28	35
Tertiary education	1	1.25
<b>Total</b>	<b>80</b>	<b>100</b>
<b>Age</b>		
≤ 30	21	26.3
31-40	34	42.5
41-50	21	26.5
51 and above	4	5.00
<b>Total</b>	<b>80</b>	<b>100</b>
<b>Primary Source of income</b>		
Yes	53	66.25
No	27	33.75
<b>Total</b>	<b>80</b>	<b>100</b>
<b>Years of Experience</b>		
3-8	4	5
9-13	6	7.5
14-19	27	33.75
20-25	39	48.75
26-31	4	5
<b>Total</b>	<b>80</b>	<b>100</b>

As shown in Table 1 all the respondents were males. Majority of the respondents 92.5% are married and about 51% of the respondents have primary education. The average age of the respondents is 33.5 years and more than half of the respondents have ages above the average age. About 66% of the respondents have fishing as their primary occupation and serve as their main source of livelihood. The average fishing experience is 15.5 years.

### 3.2. Cost and return analysis

Summary of Gross Margin of the Artisanal fishermen is given in Table 2.

Table 2. Gross Margin estimate of respondents

Item	Value (₦)
<b>Gross Income</b>	<b>59,020.31</b>
Less	
Variable Costs:	
Fuel	1390.48
Spare Parts	1058.52
Soap	158.52
Transportation	250
Labour	3248.89
<b>Total Variable Cost</b>	<b>6136.32</b>
<b>Gross Margin</b>	<b>52883.99</b>

Table 2 reveals that artisanal fishing in the study area is a profitable venture with a gross margin of total of ₦ 52883.99/fisherman/month.

Table 3. Problems of artisanal fisheries in the Study Area

Problems of Fishing	Frequency	Percentage(%)
Heavy wind	2	2.5
Seasonal volume of the river	22	27.5
Pilfering of catch	8	10
Lack of government support	17	21.25
Lack of storage facilities	22	27.5
Poor road network	4	5
Lack of cooperation among fishermen	2	2.5
Insufficient labour	3	3.75
<b>TOTAL</b>	<b>80</b>	<b>100</b>

Table 3 shows the distribution of fishermen according to the problems they encountered in their fishing activities. All the fishermen were of the view that seasonal change in the volume of the river and lacks of government support as well as lack of storage facilities were the major problems they have. Other problems encountered by the fishermen are stealing of catch and poor road network. Others also include heavy rain fall which reduce the fishing hours in the rainy season, lack of cooperation among the fishermen also is one of the problems that has reduced their access to credit facilities from the government, insufficient labour force also reduce their income as most of them are dependent on family labour. The problems of artisanal fishing included lack of storages facilities, lack of government support and seasonal change in the volume of the river.

#### 4. Conclusion and recommendations

From the result of the study, it can be concluded that artisanal fishing in the study area is profitable however; it can be made more sustainable if the fishermen are given adequate training and the required assistance. There is also the need to organise the farmers into cooperatives to enable them have better access to government programmes and credits. The government should build mini cold rooms with good storage facilities to help the fishermen overcome the problem of fish spoilage which reduces the quality of their products.

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