



ISSN 2278 – 0211 (Online)

## Value Chain Strategies in Fish Production for food Security in Nigeria: The Case of Selected Key Actors in Fish Production in Ondo State Coastal Areas

**Adeleke, M. L.**

Lecturer, Department of Fisheries and Aquaculture Technology, The Federal University of Technology, Akure, Nigeria

**Omogbemi, T. E.**

Student, Department of Fisheries and Aquaculture Technology, The Federal University of Technology, Akure, Nigeria

**Ogunjobi V. O.**

Assistant Lecturer, Department of Project Management Technology, The Federal University of Technology, Akure, Nigeria

### **Abstract:**

*This paper assessed socio-economic Status of Key Actors in fish production and Value Chain Strategies for food security in Ondo State Coastal Areas, Nigeria. Specifically, it examined the socioeconomic characteristics of the key actors (fishermen, fish processors and fish-marketers), Value chain strategies (production, harvesting, processing and marketing) and challenges in the study area. Both primary and secondary data were used. Data collected were analyzed using descriptive and inferential statistical tools. Gross Margin analysis was used to determine the profitability levels. The result shows that most of the actors (67%) were between the active ages of 20-45 years. 89% of the respondents/actors were married, 44% had above primary school education, All the actors (100%) had fishing experience of 10 years and above. Value chain strategies observed in the area include fortification of fishing gears, changing the time of fishing (early morning and night), 67% had no form of fish preservation while the rest 33% preserve their fish traditionally. The market suffers from several constraints, especially the high cost and variable supply of products, Poor market price of fish and fish products. It is therefore recommended that the concept of value chain should be incorporated with fish production at the artisanal level to avoid fish spoilage and wastage hence, increased profitability, food security and sustainability.*

**Keywords:** Value Chain, production, harvesting, processing and marketing

### **1. Introduction**

Nigeria's fisheries sector is made up of capture fisheries and aquaculture. Capture fisheries encompasses both marine and inland fisheries. Available fish statistics indicate that overall fish production from captured fisheries has increased by roughly 57% over the years, from 320,955 metric tons in 1995 to 504,227 metric tons in 2007. A noticeable increase was observed in 2006, resulting in catches amounting to 518,537 metric tons (PIND 2011). However, the projected fish catch in most of the West African countries cannot meet the forecasted fish demand in the 2050s (Lam et.al, 2011). Among the West African countries, Nigeria shows the largest gap between the forecasted demand for fish and projected fish catch, with the catch providing less than 10% of the projected demand (Lam et.al, 2011).

As projected by the (FAO, 2005), global fish food demand will only be met by continuing the expansion of fish farming by 2030. The importance of value chain in fisheries cannot be over-emphasized. Value-chain in fisheries business goes through production process where the result is a finished product which is supply at maximum value at least possible cost to the final consumer. Nevertheless, Small scale artisanal fishery sub-sector remains the backbone of the fish production in Nigeria, contributing at least 70% of the total fish production in the last decade. This paper assessed value chain of the artisanal fisheries in the coastal region of Ondo State, Nigeria. Specifically, it examined the socioeconomic characteristics of the key actors (fishermen, fish processors and fish-marketers), Value chain strategies (production, harvesting, processing and marketing) and challenges in the study area. Both primary and secondary data were used. Data collected were analyzed using descriptive and inferential statistical tools.

Value chain strategies look at every step a fisheries business goes through in the production, harvesting, processing, and marketing to the final consumers. The goal is to deliver maximum value for the least possible total cost of production of fish to the end users. When fish are captured or harvested for commercial purposes, they need some pre-processing so that they can be delivered to the next part of the market chain in fresh and undamaged conditions. In order to keep fishery products in good conditions and prevent spoilage, the act

of processing is introduced. Fish processing refers to the processes associated with fish and fish products between the time the fish is caught or harvested, and the time the final product is delivered to the customer. Preservation techniques are needed to prevent fish from spoilage and lengthen shelf life. They are designed to inhibit the activity of spoilage bacteria and metabolic changes that result in the loss of fish quality.

## 2. Materials and Methods

### 2.1. The study Area

This study was carried out in Ilaje and Ese-Odo Local Government Areas (LGAs). Ilaje Local Government was created out of the defunct Ilaje/Ese-Odo Local Government Area on October 1, 1996, by the Federal Government. It consists of over four hundred towns and villages, covering an area of 3,000 square kilometers. It shares boundaries in the North with Okitipupa Local Government, in the South by the Atlantic Ocean, in the West by Ogun State and in the East by Delta State. The Local Government is one of the most populated in Ondo State, with a population of 277,034 (NPC, 2006). It has a coastline covering about 180 km, thereby making Ondo State, the state with the longest coastline in Nigeria. Ese-Odo LGA was also created out of the defunct Ilaje-Ese Odo LGA in 1996, with headquarters at Igbekebo. It is made up of two major ethnic groups: the Ijaw Apoi and Arogbo Ijaw, who have similar historical antecedents. The local government has a population of 154,978 (NPC, 2006). It consists of more than 120 towns and villages covering an area of over 1,600 square kilometers.

### 2.2. Statistical Tools

- Descriptive statistics: was used to analyse the socio-economic characteristics of the fisher folks in the study area. The descriptive statistics employed included tables, graphs, bars, pie charts, frequency and percentage and measure of central tendency which include means and standard deviation.
- Multiple Regression Analysis: was used to investigate the factors that influenced the price of fish in the study area.

## 3. Results and Discussion

### 3.1. Socio-Economic Characteristics of Respondents

Variables	Frequency	Percentage
<b>Age (Years)</b>		
≤20	1	1
21-45	67	67
≥46	32	32
Total	100	100
<b>Marital Status</b>		
Single	10	10
Married	88	88
Separated	02	02
Total	100	100
<b>Level Education</b>		
Primary	22	22
Secondary	22	22
Illiterate	56	56
Total	100	100
<b>Fishing Experience</b>		
≤10	0	0
11-40	60	60
41-80	28	28
≥81	12	12
Total	100	100

Table 1: The Result of the Socio-Economic Characteristics of Respondents

Source: Computed from field survey, 2014

The study revealed as presented in Table 1 that the key actors in fishing value chain were within the active age of between 21-45 years (67%) of the respondents. This implies that the actors will be more active and fishing activities will be economically viable and efficiently visible in the study area. In addition, 32% of respondents were above 45 years of age. The implication of this is that fishing activities in the area is a continuous venture. The study agrees with the findings of Adeleke, 2013 that fishing activities is a continuous activity in the area because it is a way of life whereby the coastal dwellers derived their livelihood. Results further revealed that 88%

of the actors were married this implies a great sense of commitment and responsibility of the respondents because it indicates a strong attachment to matrimonial institution. Furthermore, more than average (56%) of the respondents were illiterate, 22% of the respondents had secondary education and 22% had primary education while none of the actors had tertiary education. Though, the result is contrary to the study carried out by Adeleke et. al., 2013 whereby 96% of the fisher folks had one form of education in the coastal region of Ondo State, Nigeria. The result might be due to the fact that some of the fisher folks who were in the higher institution may not be among the pool of respondents at the period of study. None of the respondents had fishing experience of less than 11 years. 60% of the respondents had fishing experience of between 11 and 40 years, 40% had fishing experience of between 41 and 81 years above. This finding is in line with Schumpeterian theory of economic development, which suggests that technical efficiency is influenced by technical knowledge and understanding in addition to other socio – economic environment with which the fisher folks must take decision. The implication of this is that the actors were more experienced and they were vast in delivering their fishing activities more efficiently since “experience is the best teacher”. Therefore, they will be able to teach their young ones how to carry on fishing activities in the area.

### 3.2. Value Chain Strategies in the Study Area

The actors/respondents in the study area had various inadvertent and intentional value strategies adopted for maximum fish production, harvesting, processing and marketing. For maximum fish production/harvesting, the result shows multiple responses of the respondents on the strategies employed for maximum fish production (Figure 1) From the result, fortification of fishing gears, adjusting fishing period to early morning or night, Construction of fish walls and changing fishing methods were 100%, 100%, 60%, 100% respectively. The result conforms with the study of Adeleke et. al., 2013, that artisanal fisher folks had various inadvertent and intentional adaptation strategies adopted for maximum fish production and for fisher folks living in coastal areas where fishing forms the main family income and livelihood, knowledge about the moon becomes an important fact for survival with regard to its influence on their fishing time and activities. This implies that all the respondents have various method of adding value to fish production either inadvertent or intentional for ease production and high catch. All the actors/respondents (100%) used the traditional means of processing fish this include; salting, precooking, drying and smoking. None of the respondents owns a smoking kiln or made use of the modern methods of fish processing in the study area. Only 33% of the respondents preserved fish while the rest 67% of the respondent had no form of fish preservation (Figure 2 and 3). This study conforms with the result of Shamsuddoha, 2007 that traditional methods of fish processing (dry fish) result in poor quality of the products and hinders the ways the product enter into export market. The implication of this is that fish preservation method is not adequate in the study area since the respondents were only familiar with the traditional method of fish processing and preservation, fish produced for marketing purposes may not have longer shelf life thus, making fish to lose its nutritional value if not consumed in time and as a result of its perishability nature compare to other protein sources. Moreover, the marketing value of the fish would definitely be affected. The markets in the study areas undergo several constraints, especially the high cost and variable supply of products, poor market price of fish and fish products. The fish producers, processors and marketers should adopt modern techniques in fish production using modern fishing vessel, smoking kiln and good distribution channel.

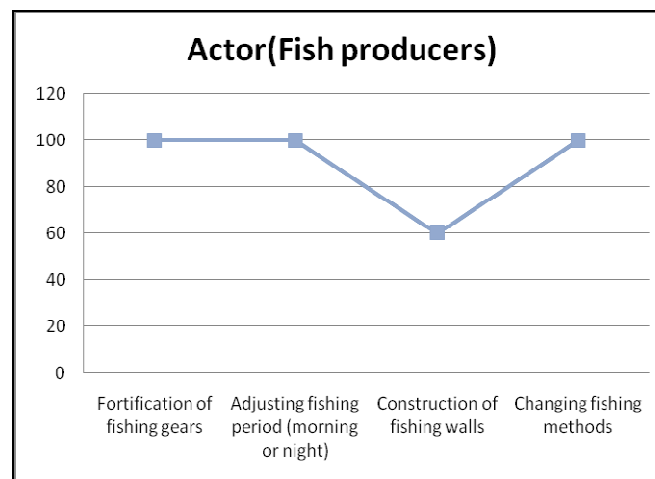


Figure 1: Fish producer strategies in the study area.  
Source: Field Survey, 2014.

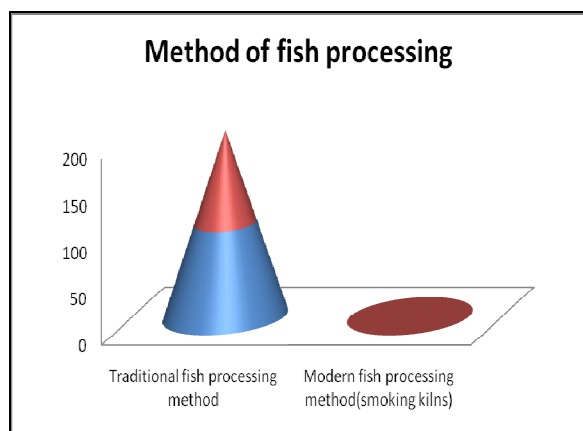


Figure 2: Fish processing methods in the study area.  
Source: Field Survey, 2014.

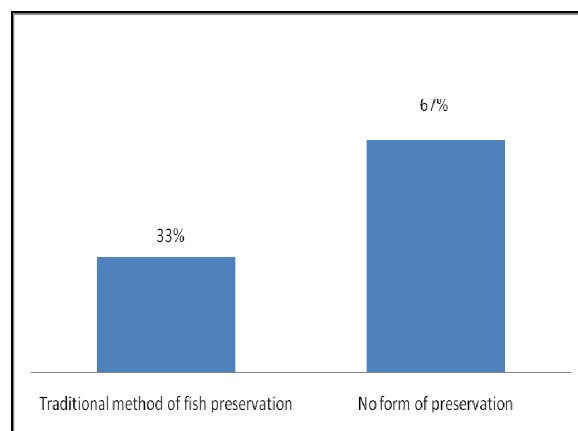


Figure 3: Fish preservation methods in the study area.  
Source: Field Survey, 2014.

### 3.3. Conclusion and Recommendations

The area of study has great potentiality in terms of fish production which could support the government strides towards employment generation. It is therefore recommended that government should intensify the right support in terms of aids and infrastructures and give localized informal training to fisher folks on the ways of improving contributions of the chain actors for sustainable fisheries. Financial institutions and other avenues through which credit can be offered to farmers and small scale processors to empower them should be encouraged. Commercialization of the processing and marketing segments of the fish value chain and technological upgrading of the processing segment should be paramount.

### 4. References

- i. Adeleke M.L. (2013). Socioeconomic characteristics of the artisanal fisher folks in the coastal region of Ondo State, Nigeria. *J. of Economics and Sustainable Development* www.iiste.org ISSN 2222-1700 (Paper) ISSN 2222-2855 (Online) Vol.4, No.2, 2013133
- ii. Adeleke M.L., Balogun A.A. (2013). Occurrence of climate change and its effects on the fishing activities in the coastal region of Ondo State, Nigeria. *European- American J. IJDES-101; International J. of Development and Economic Sustainability* Vol.1, No. 1, March 2013
- iii. Adeleke M.L., Fagbenro O.A. (2013). Livelihood Diversification and Operational
- iv. Techniques of the Artisanal Fisherfolks in the coastal region of Ondo State, Nigeria. *International Journal of innovative Research and Development*. ISSN 2278-0211(online), 2(1), pp. 262-273.
- v. Food and Agriculture Organization (FAO) (2005): Review of the state of world marine fishery resources. *FAO Fisheries Technical Paper*. No. 457. Rome, FAO. 235 p.
- vi. Lam V, Sumaila U.R., Dyck A, Pauly D, Watson R (2011). Construction and
- vii. Potential applications of a global cost of fishing database. *ICES J. of Marine Science* 68. pp.1996–2004.
- viii. National Population Commissions (NPC): Provisional of 2006 Nigeria Census Results.
- ix. PIND (2011). Report Aquaculture Value Chain Analysis in the Niger Delta, Publication of the Partnership Initiative in the Niger Delta region
- x. Shamsuddoha M.D (2007). Supply and Value Chain Analysis in the Marketing of
- xi. Marine Dried Fish in Bangladesh and Non Tariff Measures (NTMs) in International Trading, Participatory Research and Development Initiative, House 106/7, Monipuri Para, Tejgoan, Dhaka 1215, Bangladesh. Accessed 3rd November 2010, www.prdibd.org
- xii. Shamsuddoha M.D (2007). Supply and Value Chain Analysis in the Marketing of Marine Dried Fish in Bangladesh and Non Tariff Measures (NTMs) in International Trading, European Association of Agricultural Economists in its series 106th Seminar, October 25-27, 2007, Accessed 10th August 2010, <http://ideas.repec.org/p/ags/eea/106/7941.html>