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# Profitability and Constraints of Three Major Fisheries Enterprises in Kano State, Nigeria

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*Abstract-* The study focused on the socio economic and profitability of major fisheries enterprises in Kano State, Nigeria. The socio-economic characteristics of the stake holders along the fisheries enterprises and profitability were described. It also identified and described the marketing channel of fresh and smoked fish in the study area. Gross margin analysis to assess the profitability of the business was determined. The constraints were also described and the factors that influence customer preferences in the study area identified. Primary data were collected from 30 fishermen, 30 processors and 20 consumers using questionnaire and analyzed statistically. The result of the study showed that male dominated fishing (52.3%), while female processing (47.5%). The gross margin analysis showed profitability values of N 74,350 for fishermen during raining period.

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# Profitability and Constraints of Three Major Fisheries Enterprises in Kano State, Nigeria

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Abstract- The study focused on the socio economic and profitability of major fisheries enterprises in Kano State, Nigeria. The socio-economic characteristics of the stake holders along the fisheries enterprises and profitability were described. It also identified and described the marketing channel of fresh and smoked fish in the study area. Gross margin analysis to assess the profitability of the business was determined. The constraints were also described and the factors that influence customer preferences in the study area identified. Primary data were collected from 30 fishermen, 30 processors and 20 consumers using questionnaire and analyzed statistically. The result of the study showed that male dominated fishing (52.3%), while female processing (47.5%). The gross margin analysis showed profitability values of N 74,350 for fishermen during raining period. The constraints of the fishermen were dividing of the dam, high cost of fishing goes, deformation and inadequate capital. The processors complained of inadequate credit facility, inadequate processing facilities and poor sale and bad roads while consumers noted high cost of fish, fish fin problems, deterioration of fish and poor sanitary condition as major constraints. In conclusion, Fisheries enterprise is profitable for both the fishermen and processors. Therefore Government should provide loan scheme for the proper increase and boasting of fisher men and processors activities.

*Keywords:* profitability, constraints, enterprises, kano state, fishery.

### I. INTRODUCTION

ish is an important source of protein to the teeming population in Nigeria. Fish could be regarded as one of the major sources of animal protein in the country. According to Adekoya (2004), Fish represents about 55% of the protein sources intake of Nigerians. A large population of Nigeria is fish consumers with a demand estimated at about 1.4 million metric tons per annum. With a projected fish demand of 1.755 million metric tons in Nigeria (assuming a annual per capital fish consumption of

12.5kg and human population of 140.45 million, in the year 2000) and a total annual domestic production figure of less than 450,000 metric tons, Nigeria has a fish supply deficit of about one million tons (Tobor, 1991). However, a demand supply gap of at least 0.7 million metric tons exists annually with imports making up the shortfall at a cost of about 2.0 million US dollars every five years (Miller and Atanda, 2004). Domestic fish production of about 500, 000 metric tons is supplied by artisanal fisher folks (estimated at about 85% despite over fishing in many water bodies across the country). Fish farmers (1%) and industrial capture fisheries (14%) (FDF, 2005) Fish is a popular, highly nutritious aquatic vertebra, which serves as a delicacy to most of the sub-Sahara Africa providing over 18% of total animals protein intake worldwide, with share as high as 40-60% in some West African states (FAO, 2002). Approximately 200 million Africans rely on fish as an important part of their diet. Ten million houses directly derive income from fish production, such as processing or trade. Yet the enormous potentials of fisheries to help feed and improve the nutritional status of the rapidly increasing population of Africa is greatly under-realized and precious aquatic resources are being degraded (World Fish Center, 2008). Fish is the cheapest animal's protein source in Nigeria, and smoked fish in particular has the potential to solve the pervasive protein shortage owing to its relative affordability compared with fresh fish. Boosting smoked fish consumption will entails retail price reduction, which is achievable only if the market for smoked fish operates efficiently (Taiwo, 2008). Fish as a food plays an important role in our diet. It provides vitamins such as A, B, C and D, contributes a considerable portion of the protein diet for many countries particularly developing ones. The human body utilizes protein from fish better than the protein from milk, beef, pork, chicken etc. Fish is also valued as a source of omega-3-fatty acids which is essential for the development of the brain and retina (Eyo, 2001).

# II. MATERIALS AND METHODS

#### a) Description of the Study Area

The study was carried out in Kano State; where freshwater fishes have a very old history due to availability of numerous freshwater bodies in the State. The state lies on latitude 10°33'N to 12°37'N and Longitude 7°40'E to 9°29'E. It is within Sudan Savannah zone. The total land area of the State is

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20,709 square kilometer. The mean daily maximum and minimum temperatures are 33.1°C and 15.85°C, respectively. Kano State is bordered to the north and northwest by Katsina State, to the east and northeast by Jigawa State, to the south by Bauchi State and to the southwest by Kaduna State. According to official Gazettes of the Federal Republic of Nigeria (2007), the State had a population of Nine million, Three hundred and Eighty Three thousand Six hundred and Eighty-two (9,383,682) inhabitants, with an annual growth rate of 3.3% who are mainly Hausa and Fulani by tribe (NPC, 2006). Agriculture is the major employment of labor in the State with many citizens involved in farming, fishing and marketing of aquatic resources such as fish, frogs either dried, smoked or other fish by-products. Major crops grown in the State include Millet, Sorghum, Cowpea, Corn, Wheat, Cotton, Gum Arabic, Groundnut and Rice, fish and fish products available in the State, while rearing of animals like cattle, horses, goat and sheep are as well prominent (Rim, 1992). The State has quite a large number of fish markets( up to sixteen). These include rural and urban markets where smoked and dry fishes are assembled. Most of the markets operate weekly or twice a week with the exception of city markets, which operate on daily basis. Next to farming are non-farm activities such as building, construction works, and so on. About twenty percent (20%) of the people engage in these activities to either supplement their income from farming, fishing or those from the privates or public sectors. Kano State has relatively abundant surface water resources in form of rivers, dams, lakes, reservoirs; up to sixteen freshwater resources owe to the Lake Chad Basin (L.C.B) which is the most productive in Africa, they comprise of Tiga Dam, Watari Dam, Kusalla Dam, Kanya Dam, Thomas

Dam, Challawa Dam, Wasai Dam (Mbagwu, 1994). These rivers are sources of water for irrigation, domestic uses, fishing and transportation (Mbagwu, 1994). Kano State is currently made up of forty four (44) Local Government Areas (LGAs) and the State is agriculturally classified into three (3) zones by the Kano State Agricultural and Rural Development Authority, (KNARDA, 1995).

### b) Sampling Techniques, Locations and Sizes

## i. Sampling Techniques

The sampling frame for the data collection comprised of fishermen, processors, and consumers, in the three selected zones of Kano State in accordance with the existing Agricultural Development programme (ADPs) Zones in the State. Purposive sampling technique was used for sampling the respondents in the study area. The first stage involved purposive selection of one local government area from each zone based on relative abundance of hydrological features.

#### ii. Sampling Locations

On that basis of zoning and hydrological features three local government areas were selected as sampling locations (Table 1).

#### iii. Sampling Sizes

The second stage, involve simple random selection of respondents from the three selected landing sites. However, 30 each of fishermen, processors (Women) and 20 consumers were used. The distribution of these respondents within the purposively selected study sites was based on the proportion of the respondents in the site. A total of eighty (80) respondents were covered by the survey as shown on Table 1.

ADPs	Location / Actors Fisher	Hydrological Features	Sample Size
I	Bebeji / Rano L.G. (Fisherman).	Tiga Dam	30
II	Kunchi L.G (Processors).	Ghari Dam	30
	Gwale L.G. (Consumers).	Mai Allo Dam	20
	Total		80

Table 1 : Study Location and Distribution of Respondents in each of the Selected Zone

### c) Data Collection and Analytical Tools

#### i. Methods of data collection

Primary data were used for this study. The data were collected with the aid of structured questionnaire administered to the randomly selected respondents. The data on the socio-economic characteristics of the respondents, marketing costs returns, processing cost and data on fishing operations; as well as constraints militating against fish marketing in the study area, were collected using

Structured questionnaire was prepared; the items were tested for reliability and validity before been used for collections of the primary data. Three different types of questionnaire were used for each of the stakeholders: Fisherman, Processors and Consumers. Eighty (80) questionnaires were distributed to the targeted respondents. Data collection activities during these days include very early morning visits to landing sites to interview fishermen. Processors and Consumers were interviewed at different convenient time of the respondent.

### ii. Analytical tools

The tools of analysis used for this study are:

- Descriptive Statistics and Simple Percentages,
- Profitability (Gross Margin), and
- Net Income (NI)

#### iii. Descriptive Statistical and Simple Percentages

Frequencies tables and percentages were used to describe the socio-economic characteristics of the respondents. The characteristics include the Age, Marital Status, Education Attainment, and Occupation, Fishing experience and Sex among others.

#### iv. Profitability Analysis of Stakeholders

The budgetary technique was used to determine the gross margin income at each stage of the chain. This was used estimating as the gross margin is in accordance with Kaplinsky (2000):

## Gross Margin= Revenue- Cost of Goods Sold Revenue

# III. Results and Discussion

#### a) Socio-economic characteristic of respondents

The result of the study indicated that majority of the fishermen have ages range between 41 - 48 years which have the highest percentage (46.25%) followed by 33 - 40years and 49 -56 years (16.25%), then followed by 25 -32 years (11.25%), then 57 -64 years (8.75%), and least percentage of 1.25% was registered on age range of between 65 -72 years. The implication of this finding is that middle aged people take part more in fishing activities than old aged and younger ones in the study area. This has to do with the fact that young adult or middle aged people are more energetic and may have better entrepreneurial drive in the society. It's so because at these aged range people are more energetic and healthier. This tally with the finding of Malgwi (2000) in his study of economics of fish production in Maiduguri metropolitan area, where he revealed that most of the fishermen are in their middle aged .This is also in line with findings of Bello (2000) and George et al.(2010) that age had a positive correlation with Agricultural Productivity. The result shown that 50.00% had household size of 1-6 members followed by 31.25% with household size of 7 - 12 members, then 12.5% have a household size of 13 - 18, thus majority of the respondents in the study area are having less household because the business is more of middle aged who have less family size than the old ones. "Middle aged people participate more fishery enterprise in Kano State. This result are similar to the findings of Fabusoro et al. (2007) who reported that average household size in Africa was about 9 person. Gender is an important socio-economic parameter, according to either male or female (Lahai et al., 2000). The study revealed that both male and female were involved in all activities of fishing such as Fishing, processing, marketing and consumption with male having the majority (52.5%), while female constitute (47.5%) of the respondents; although female participate in processing and marketing than other activities (Sule and Raji, 2006). Education is very important in every aspect of life and plays vital role in Aquaculture development; in enhancing easy assimilation, awareness and receptivity to innovation (Adams et al., 1987) so as to improve fish production. The result indicated the educational status of the respondents with majority having secondary education (31.25%) followed by Qur'anic education with (30.00%) This signifies that majority of the respondents had Qur'anic education due to the dominance of Islamic religion in the study area. With those having tertiary education having the least percentage of (7.5%). This findings is in line with that of Mele (2007), following his study of economic analysis of fresh fish marketing in Dadin kowa, Gombe, State where he found that majority of the respondents had formal education. Marital status described individual as married, single, divorced and widowed and this means single individuals may have more helping hands (Olubanjo et.al., 1994). The result revealed the marital status of the respondents with 7.5% as married and divorced respectively, widowed 5.0% and majority are single with 80.00%. This implies that fishing activities is dominated by single respondents. This may be due to socio – cultural and religious factors in the study area. These agree with the findings of Mohammed, (2011) in evaluation of poultry eggs marketing in Kuje area council where 95% of the respondents were single. Fishing experience is the number of years that the fishermen spent in fishing business. The longer the experience in the business, the better the performances in fishing activities. The result indicated that most of the respondent (36.66%) had fishing experience of 16 - 20 years, 26.66 % of the respondents had fishing experience of 11 - 15 years and 23.33% of the respondents had fishing experience of 21 - 25 years, while 10.00% of the respondents had fishing experience of 6 – 10 years (least percentage). With this experience, it implies that the fishermen can manage their fishing activities and risk and make sound decision to enhance their performance.

Table 2 : Socio – Economic characteristics of Actors along Fisheries enterprises.

Variable	Category	Frequency	Percentage (%)
Age Range	25 – 35	9	11.25
	36 – 46	13	16.25
	47 – 57	37	46.25
	48 – 58	13	16.25
	59 -69	7	8.75
	70 - 80	1	1.25
	Total	80	100
Mean = 39.4	Min = 20	Max = 42	$SD = \pm 5.67$

House hold size	1 - 6	40	50.00
	7 – 12	25	31.25
	13–18	10	12. 5
	19-24	3	3.75
	25 - 30	2	2.5
	Total	80	100
Mean $= 7.3$	Min = 2.1	Max = 23	$SD = \pm 4.11$

Source: Field Survey; 2014

Table 3 : Gende	r and Educa	ational Status
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Variables	Category	Frequency	Percentage (%)	
Gender	Male	42	52.5	
	Female	38	47.5	
	Total	80	100	
Educational Status	Primary	15	18.75	
	Secondary	25	31.25	
	Tertiary	6	7.5	
	Qur'anic	24	30.00	
	Adult	10	12.5	
	Total	80	100	

Sources: Field Survey, 2014.

Table 4 : Fishing Experiences of the Respondents

Experiences (Year)	Frequency		Percentage (%)	
1 – 5	3		10.00	
6 – 10	1		3.33	
11 – 15	8		26.66	
16 – 20	11		36.66	
21 - 25	7		23.33	
Total	30		100.00	
Mean=14	Min=4.23	Max=26	$SD=\pm 4.62$	

Source: Field Survey, 2014.

#### Table 5 : Profitability of Fish Caught and Value / Week

Qty of fish c Commission	aught/ paid	Averag Profit (N)	ge Fr	equency	Selling	Price	Cost Price	Labou
(Week/kg)			Ν	1 400/kg	N250/kg	3		
1-2	1.5	2	1200	750	100	150	200	
3-4	3.5	6	8400	5250	100	150	2900	
5-6	4.5	3	5400	3375	100	150	1775	
7-8	7.5	8	24000	15,000	100	150	8750	
9-10	9.5	7	26600	16,625	100	150	9725	
11-12	11.5	4	18400	11,500	100	150	6650	
Total		30	N84000	N52500	N600	N90	00 N3	0,000

Source: Field Survey (2014)

%Profit = Profit/Selling Price X100 = 30,000/84,000 X100 = 35.71%

#### b) Production Constraints

study area were found to be shrinking nature of the catches are also reducing, 13.33% identified high cost

dams (63.33%) as they witness gross reduction in The major constraints of the fishermen in the catches over the years since they noticed that the of fishing gears as their constraint, while 3.33% advanced loses due to deterioration as their problem; while 20.00% of the respondents identified lack of capital to the fishermen as the major constraint. The preferred solution of the aforementioned problems as suggested by the fishermen includes more water should be allocated to the dam so as to increase its level, 50.00%, 13.3% want availability of fishing gears at cheaper price as the solution to their problems. 3.33% demanded for provision of means of storage to avoid spoilage of catches. 33.33% wants provision of loan by Government or Commercial banks at lower interest rate as their solution to inadequate capital. Majority of the fish processors 66.66% identified inadequate credit facility as their major challenges in the business. of them identified Whereas 26.66% inefficient processing facilities, the remaining 6.66% identified poor sale as their constraints. Accordingly, several solutions were proffered by the processors and 60.00% of them want provision of credit at lower interest and road to be repaired and secured throughout the state and beyond, 20.00% want improved modern processing facilities made available to them as solution to the problem and finally, the remaining, 20.00% want the development of the marketing system in the study area as well as uniform price system. Consumers are the end users of fishery enterprise and also the main target of all the stakeholders have their own thinking of the problems of fish as it affects their own role in the enterprise. For instant 65.00% of them sees high cost of fish as the major problem leading to reduction in their purchasing power, 10.00% mentioned fish - pin problems as it leads to injury or even loss of life and therefore, they have to take their valuable time to remove the pin before or after cooking it, 15.00% complained that the deteriorating nature of fish is their major constraints in fish consumption and also 10.00% highlighted poor sanitary condition of the fish market and marketing as their major constraints. Accordingly, in order to address the several problems by the consumers, enough credit facilities should be provided to boost the production at least by 50.00%. 10.00% suggested that number of exporting fin fish to the various water body should be minimized 30.00% want improved modern processing facilities made available to them as the solution, finally the remaining 10.00% have good hygienic condition as the proper solution to their constraints.

Table 6 : Fishermen Constraints in Kano State

Fishing Constraint	Frequency	Percentage (%)
Restrictions by the dam	10	33.33
Aquatic vegetation menace	4	13.33
Reduction in catches (sizes and numbers)	8	26.67
High cost of fishing gears	4	13.33
Losses due to deterioration	1	3.33
Inadequate capital	3	10.00
Total	30	100.00

Source: Field Survey (2014)

Table 7 : Constraints of the Fish Processors in Kano State

Processors constraints	Frequency	Percentage (%)
Inadequate credit facility	16	53.33
Inadequate processing facilities	8	26.66
Poor sale	2	6.66
Poor road linkages	4	13.33
Total	30	100.00

Source: Field Survey (2014)

Table 8 : Constraints of the Fish Processors in Kano State

Processors constraints	Frequency	Percentage (%)
	riequency	r ercentage (70)
Inadequate credit facility	16	53.33
Inadequate processing facilities	8	26.66
Poor sale	2	6.66
Poor road linkages	4	13.33
Total	30	100.00

# IV. Summary, Conclusion and Recommendations

The study examined the socio-economic and profitability of fishery enterprises in Kano state, Nigeria.

Multistage sampling technique as employed to select a total of 80 stakeholders along the fishery enterprise, 30 fishermen, 30 processors and 20 consumers. The sampling was based on purposive and simple random selection technique. The collected data were subjected

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to both descriptive statistics mainly. The study further attempted to describe the socio - economic characteristics of actors (Fishermen, processors and final consumers) along the fisheries enterprises, estimated the profitability by the actors along the fisheries enterprises, determined the consumer preference to fish in the study area and finally identified the major constraints, as well as possible solution for all actors in the fishery enterprise. Based on the results presented, it can be concluded that fishermen, processors in the study area were operated on small scale, because both have low level of formal education and limited financial resources to use modern techniques of catching fish and processing along the fishery enterprise. Fishermen in the study area were found to be productive because they gave a mean gross margin return of #74350 at the period of raining season. All the stakeholders were found to be relatively efficient to the business operation. Dwindling of the dams, lack of effective processing and storage facilities, inadequate credit facilities, high cost of transportation, bad road network were identified as the major problem prevailing among the actors in the fishery enterprise in Kano state. The study recommends that fishermen and processors level of capital should be increased through increasing their access to loan and credit facilities. Fishermen and processors should be encouraged to form co-operative organization at all level. Credit facilities/institution should be made available to the fishermen and processors through their co-operative organization. Provision of good road network and other infrastructural facilities that link rural marketers with urban markets. Government should make a policy that will ensure access to major fishing gears at the subsidized rate to the fishermen in the study area. This will encourage the participation of more fishermen in the fishing business.

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