

ARTISANAL FISHERIES VALUE CHAIN ACTORS' PARTICIPATION IN POLICY FORMULATION AMONG FISHER-FOLKS ALONG OGUN RIVER BASIN, OGUN STATE NIGERIA

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ABSTRACT

Artisanal fish value chain constitutes the major business activities in the fishing communities along Ogun River, Nigeria. This study profiled the socioeconomic characteristics of, and involvement in policy formulation and enforcement by fisherfolks along Ogun River Basin. A multi-stage multistage sampling procedure was adopted for selecting 151 value chain actors from three value chain strata: fishers (86), marketers (36) and processors (29) respectively. The highest proportion of fishers (34.9 %), fish marketers (30.6 %) and fish processors (37.9 %) were in the age brackets of 41-50, 41-60, and 31-40 years respectively. Mean ages of fishers, fish marketers and fish processors were 44.41, 48.22 and 39.55 years respectively. The highest proportion of fishers (22.1 %) and marketers (55.6 %) were Yoruba while 100.0 % of processors were Egun. There were significant associations between presence of fisheries policies ($\chi^2 = 120.071$), participation in policy enforcement ($\chi^2 = 70.114$), sufficiency of existing rules and regulations ($\chi^2 = 32.47$), extent of obedience to existing policies ($\chi^2 = 32.243$). From the study, it was found that three fisheries value-chain fisherfolks (fishers, fish processors and fish marketers) individually and collectively played significant roles in fisheries value-chain development. There is need to improve fisherfolks' participation in fisheries policy formulation and implementation, access to rural credit, storage facilities, subsidized costs of fishing equipment, closed area/season, stocking/recruitment of fish species. Value-chain fisherfolks should be encouraged to organize themselves into cooperative societies to enhance productivity.

INTRODUCTION

Artisanal fishing is an ancient, small-scale, low technology, commercial or subsistence fishing practices, particularly those of coastal or inland ethnic groups using traditional techniques such as rod and tackle, arrows and harpoons, throw nets and drag nets and traditional fishing boats (references). Artisanal fishermen are those that are not working for commercial companies, they are not commercial or industrial based. The main supply of fresh fish to the local markets is from this artisanal fishery. It was estimated that the global fishery production would have reached about 179 million tonnes in 2018, but it was able to attain 156 million tonnes, which is very impressive (FAO, 2018).

Fish is one of the most important sources of food, employment and income to many people in the developing countries (FAO, 2012). The demand for fish globally and particularly in Nigeria has been on the increase with supplies not meeting up the demand (FAO, 2012). With an annual fish demand in Nigeria of about 2.66 million tonnes, and a paltry domestic production of about 780,000 tonnes, the demand/supply gap stands at staggering 1.8 million tonnes (Worldfish, 2018).

The value chain fisher folks involved in the marketing of fishery products appear to be on the

increase as a result of increase in population and therefore, demand tends to be high. Also despite the nutritional and commercial values of fish and fish products, the production and marketing remain low in Nigeria when compared to other nations of the world (FAO, 2012). Furthermore, due to the cumbersome nature of fish distribution channel, the local fish seller is faced with the problem of profit maximization (Magudu and Edward, 2011). However, irrespective of the great opportunities embedded in fisheries activities of Ogun River, a lot of the fish resources are being discarded on a daily basis due to an unorganized or uncoordinated distribution channel (Aihonsu and Shittu, 2008). Analysing the artisanal fisheries value chain is in accordance to the policy objectives of the Agriculture Promotion Policy of the Nigeria government which is geared towards development of individual enterprise across successive stages of the commodity value chains for the development of crop, livestock and fisheries sub-sectors, namely input supply, production, storage, processing/utilization, marketing and consumption. Analysing fisheries value chain will provide an insight into various employment opportunities that exist in the fisheries sector because Nigeria has a great potential of fish resources whose distribution and value chain needs to be strengthened and developed to bridge the gap between demand and

supply of fish in Nigeria (Amao et al., 2006; Kaplinsky and Morris, 2000).

According to FAO (2013) report, Nigeria supply or produce about 0.4 percent of global fish products. In spite of the huge import bills and the recent government effort towards boosting fish production through aquaculture and sound fishery policies, the gap between projected fish demand and supply continues to widen (Bassey *et al.*, 2015). Fish supply and marketing suffer from various setbacks ranging from shortage of supply, price fluctuations, poor distribution and length of value chain and spoilage in transit (Esiobu and Onubuogu, 2014).

Having identified the above gaps, this study intended to bridge the gaps by contributing to the existing body of knowledge on artisanal fisheries value chain with regards to stakeholders' involvement in making policies and regulation that affect them. Hence, this study was conducted to shed light into the activities, regulations, and contributions of the government and all stakeholders to the sustenance of the policy guiding the use of the water body. It also gave good information about the endangered, buoyant and nearly extinct species in the river. The outcome of this study will provide an insight into the current state of stakeholders'

engagement in policy formulation and implementation. It will, therefore, serve as an important input for policy makers on fisheries development in Ogun State.

MATERIALS AND METHODS

This study was conducted among fisher folks in Ogun River, Ogun State, Nigeria. Ogun River is one of the major rivers in the South western part of Nigeria with a total area of 22.4 km² and a fairly large flow of about 393/m³ sec/G¹ during the wet season. It is located between longitude 3°25'E - 3°28'E and latitude 6°35'N - 8°41'N between Lagos and Oyo states in Lagos State where it enters the Lagos lagoon (Osunkiyesi, 2012). The water is used for agriculture, aquaculture, transportation, human consumption, various industrial activities and domestic purposes. Along its course, it constantly receives effluents from breweries, cattle markets, slaughterhouses, textile and dyeing industries, tanneries and domestic wastewater before finally discharging to Lagos (Osunkiyesi, 2012). A 100 square km area around River Ogun has an approximate population of 3,637,013 and an average elevation of 336 meters above the sea (Osunkiyesi, 2012).

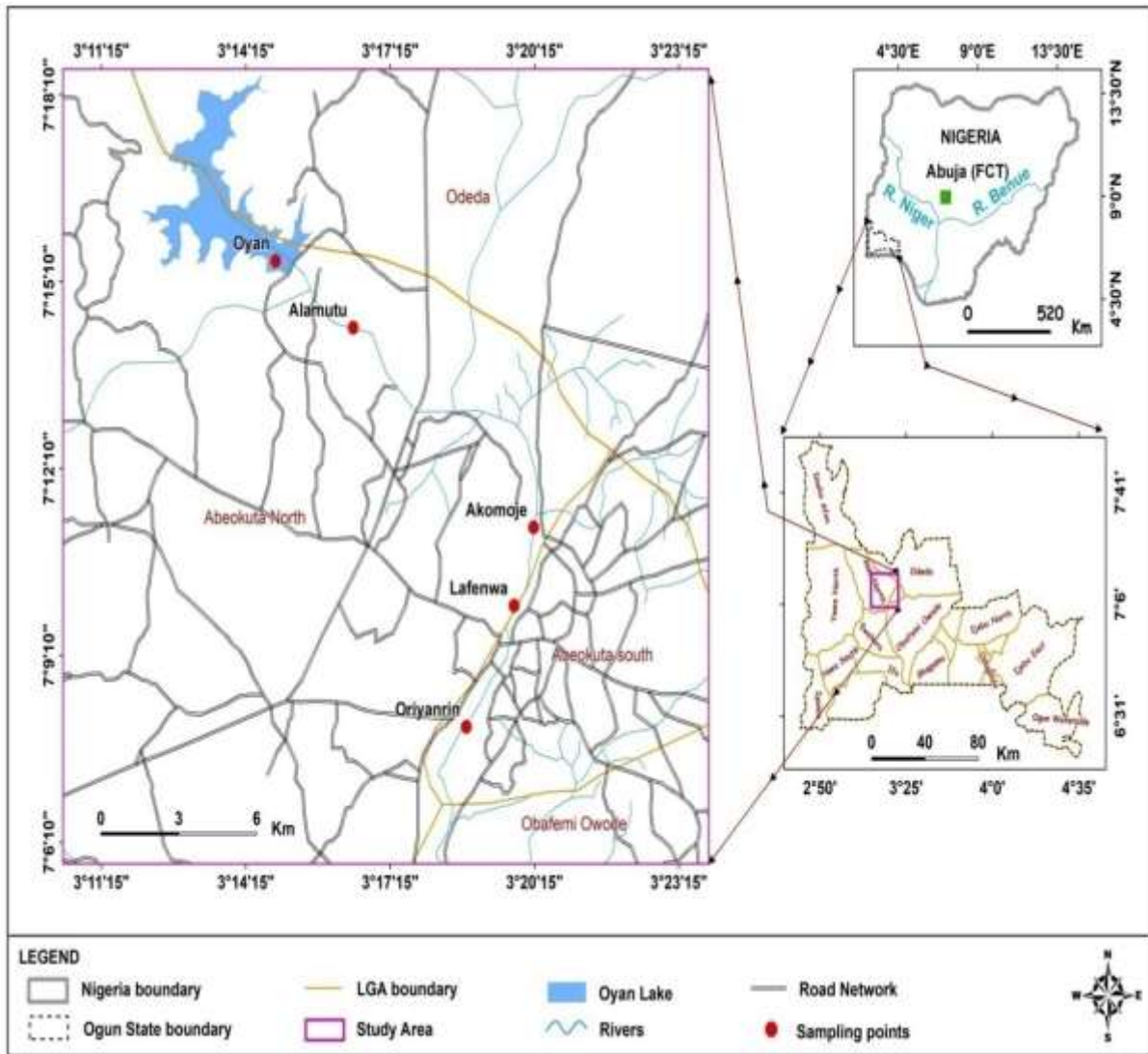


Figure 1: Map showing study locations in Ogun River

This study was carried out between February and October 2020, using primary and secondary data in the fishing communities along the Upper and Lower Ogun River. The data collected were qualitative and quantitative in nature. The study population consists of all the fisher folks in artisanal fishery in Ogun River.

The sampling frame was 302 and a sample size of 50% (151) were interviewed, using the structured interview guide, and with the assistance of the

trained research team. A two-stage sampling procedure was adopted in this study. The first stage entailed the purposive sampling of five fishing communities (Oyan, Alamutu, Lafenwa, Oriyanrin, and Akomoje) in the study area based on intensity of involvement in different fishery value chain. The second stage involved the use of simple random sampling in the selection of 50 percent of the fishers, fish marketers, processors, and retailers as the core value chain fisher folks as detailed in Table 1.

Table 1: The sampling technique and sample size of the study area

Location	Actors	Sampling frame	Sample size (50%)
Oyan	Fishers	100	50
	Marketers	6	3
	Processors	60	30
	Retailers	30	15

Alamutu	Fishers	24	12
	Marketers	4	2
	Processors	2	1
	Retailers	4	2
Lafenwa	Fishers	18	9
	Marketers	4	2
	Processors	6	3
	Retailers	8	4
Oriyanrin	Fishers	8	4
	Marketers	2	1
	Processors	6	3
	Retailers	8	4
Akomoje	Fishers	4	2
	Marketers	0	0
	Processors	2	1
	Retailers	4	2
Total		302	151

The research instruments for this study were interview guides for each of the groups of fisheries value chain actors. The interview guides were administered to respondents by the researcher, and the team of enumerators. The interview questions were read and interpreted to the respondents, and responses recorded. Items included in the interview guide were carefully sourced from the existing literatures relating to the research topic in focus. The items were submitted to research experts in the fields of Agricultural Extension, Aquaculture and Fisheries Management for proper check and assessment. This was done to ascertain the face and content validity of the interview guide. Validated interview guides were subjected to test-re-test reliability technique to ascertain the reliability of the research instruments. The interview guides were administered to a set of fisher folks in other fishing communities outside the study area at two different times at an interval of two weeks. Responses from two data administration were then correlated. The Cronbach's (internal consistency) value of at least 0.70 achieved indicated that the scales were reliable for the research work.

The data obtained from the administered interview guide were coded, and entered into the Microsoft Excel software package before onward exportation to the Statistical Package for Social Sciences (SPSS

20.0) for the analysis. Descriptive statistics such as frequency counts, percentages, mean and standard deviation were used to analyse the collected data. The inferential statistics such as Analysis of Variance (ANOVA), and Chi-square were used to test the hypotheses of the study at 5% level of significance, diversity of fish species from the landing sites were also recorded.

RESULTS

Socio-economic characteristics of value chain actors

The socio-economic characteristics of the fisheries value chain actors (fishers, fish marketers and fish processors) presented in Table 2 reveals that 30.2 and 34.9 percents of the fishers were in the age brackets of 31-40 years and 41-50 years respectively while 23.3 percent of the fishers were in the age group of 51-60 years. Also, equal proportions (30.6%) of the fish marketers were each in the age groups of 41-50 years and 51-60 years. As for the fish processors, the highest proportion (37.9%) was in the 31-40 years of age group. Additionally, 24.1 percent of the fish processors were each in the 21-30 years and 41-50 years age brackets. The mean ages of the fishers, fish marketers and fish processors were 44.41 ± 10.17 years, 48.22 ± 13.90 years and 39.55 ± 9.06 years respectively.

With respect to household size, at least half of the fishers (53.5%) and fish marketers (50.0%) had household size of 6-10 persons while 51.7 percent of the fish processors were from households with 1-5 persons. The mean household sizes of the fishers, fish marketers and fish processors were 9 ± 5 persons, 7 ± 3 persons and 7 ± 4 persons respectively. All (100.0%) of the fishers were male while all (100.0%) of the fish marketers and fish processors were female. As shown in Table 2, majority of the

fishers (89.1%), fish marketers (91.7%) and fish processors (82.8%) were married. Higher proportions of the fishers (61.6%), fish marketers (66.7%) and fish processors (58.6%) were from nuclear families. More than half of the fishers (59.3%), fish marketers (52.8%) and fish processors (65.5%) practised Islam while 38.4%, 44.4% and 34.5% of the fishers, fish marketers and fish processors respectively practised Christianity.

Table 2: Socio-economic characteristics of artisanal fisheries value chain actors (n = 151)

Socio-economic characteristics	Fishers (n = 86)		Fish marketers (n = 36)		Fish processors (n = 29)	
	Freq	%	Freq	%	Freq	%
Age (years)						
21-30	7	8.1	4	11.1	7	24.1
31-40	26	30.2	6	16.7	11	37.9
41-50	30	34.9	11	30.6	7	24.1
51-60	20	23.3	11	30.6	4	13.8
>60	3	3.5	4	11.1	0	0.0
Mean±SD	44.41±10.17		48.22±13.90		39.55±9.06	
Household size						
1-5	19	22.1	15	41.7	15	51.7
6-10	46	53.5	18	50.0	11	37.9
11-15	17	19.8	3	8.3	3	10.3
>15	4	4.7	0	0.0	0	0.0
Mean±SD	9±5 persons		7±3 persons		7±4 persons	
Sex						
Male	86	100.0	0	0.0	0	0.0
Female	0	0.0	36	100.0	29	100.0
Marital status						
Single	7	8.1	3	8.3	1	3.4
Married	77	89.1	33	91.7	24	82.8
Separated	1	1.2	0	0.0	2	6.9
Widowed	1	1.2	0	0.0	2	6.9
Type of family						
Nuclear	53	61.6	24	66.7	17	58.6
Extended	33	38.4	12	33.3	12	41.4
Religion						
Christianity	33	38.4	16	44.4	10	34.5
Islam	51	59.3	19	52.8	19	65.5
Traditional	2	2.3	1	2.8	0	0.0
Tribe						
Egun	15	17.4	7	19.4	29	100.0
Ajase	8	9.3	0	0.0	0	0.0
Hausa	18	20.9	0	0.0	0	0.0
Idoma	6	7.0	9	25.0	0	0.0
Agatu	12	14.0	0	0.0	0	0.0
Igala	8	9.3	0	0.0	0	0.0
Yoruba	19	22.1	20	55.6	0	0.0
Education						
No formal	31	36.0	28	77.8	22	75.9
Incomplete primary	8	9.3	0	0.0	0	0.0
Complete primary	23	26.7	3	8.3	6	20.7
Incomplete secondary	7	8.1	1	2.8	1	3.4
Complete secondary	12	14.0	4	11.1	0	0.0
Tertiary	5	5.8	0	0.0	0	0.0

Freq = Frequency; % = Percentage

Source: Field Survey (2020)

The highest proportion (22.1%) of the fishers were Yoruba. This was followed by the Hausas and the Eguns accounting for 20.9 and 17.4 percents of the fishers respectively. More than half (55.6%) of the fish marketers were Yoruba while all (100 %) of the fish processors were the Eguns. Furthermore, Table 3 reveals that the highest proportion (36.0%) of the fishers had no formal education followed by those with complete primary and secondary education accounting for 26.7 and 14.0 percents respectively. Also, majority of the fish marketers (77.8%) and fish processors (75.9%) had no formal education.

The primary and secondary occupations of the fisheries value chain actors are presented in Table 3.

It shows that all (100 %) of the fishers considered artisanal fishing as their primary occupation. Also, all (100 %) of the fish processors and fish marketers also considered fish processing and marketing as their primary occupations respectively. Farming was the secondary occupation of 44.2 percent of the artisanal fishers while 80.6 and 62.1 percents of the fish marketers and fish processors respectively had no secondary occupation.

As shown in Figure 2, lower proportions of the fishers (36.0%), fish marketers (25.0%) and fish processors (3.4%) had fisheries training while the remaining had no fisheries related trainings in their profession.

Table 3: Occupational distribution of artisanal fisheries value chain actors (n = 151)

Socio-economic characteristics	Fishers (n = 86)		Fish marketers (n = 36)		Fish processors (n = 29)	
	Freq	%	Freq	%	Freq	%
Other occupation						
Artisans	8	9.3	0	0.0	2	6.9
Farming	38	44.2	0	0.0	9	31.0
Business/trading	6	7.0	7	19.4	0	0.0
Fish farming	1	1.2	0	0.0	0	0.0
Other fisheries-related works	4	4.7	0	0.0	0	0.0
Livestock/poultry	2	2.3	0	0.0	0	0.0
Clergy	1	1.2	0	0.0	0	0.0
None	26	30.2	29	80.6	18	62.1

Source: Field survey (2020)

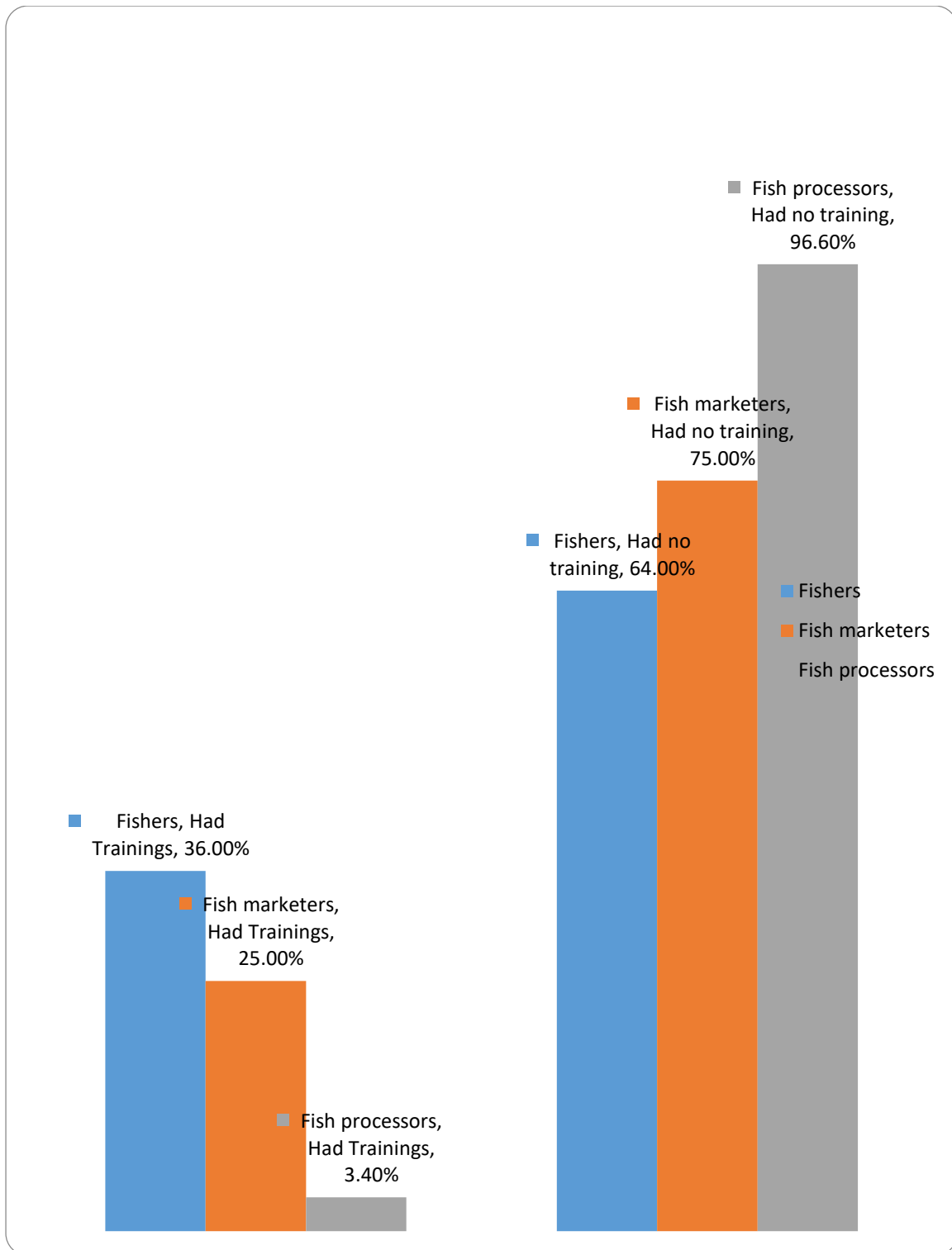


Figure 2: Distribution of fisheries value chain actors by attendance at fisheries training

Source: Field Survey (2020)

Fishery practices of artisanal fishers

More than two-thirds (67.4%) of the fishers made use of gillnets as fishing gear (Table 3). This was followed by the use of cast net (50.0%), hook and line (41.9%) and gura net (38.4%). Table 3 reveals that the fish species with the highest demand was Tilapia (84.9%). This was followed by *Chrysichthys nigrodigitatus* (46.5%), *Clarias gariepinus* (45.3%) and *Lates niloticus* (20.9%). The purpose of fishing to almost all (97.7%) of the fishers was both commercial and consumption. About 54.7% and 34.9% of the fishers practiced fishing on small and medium scales respectively. Only 10.9 percent claimed their scale of production was large (Table 3).

Majority (84.9%) observed decline in fish catch. More than half (52.3%) of the fishers indicated that their fish catch does not meet demand. Close to two-thirds (66.3%) of the fishers spent 1-5 hours per fishing trip while 30.2 percent spent 6 - 10 hours per fishing trip. The mean fishing duration per trip was 4.93 ± 2.58 hours. Table 4 further indicated that majority (86.0%) of the fishers went for fishing in the morning while very few went for fishing in the afternoon (11.6%), evening (12.8%) and overnight (11.6%). More than half (53.5%) employed the use of self labour while 22.1 and 24.4 percents of the fishers used family and hired labours respectively.

Table 4: Distribution of fishers by their fishing practices

Fishing practices	Frequency	Percentage
Fishing gears		
Gillnet	58	67.4
Dragnet	13	15.1
Hook and line	36	41.9
Cast net	43	50.0
Gura net	33	38.4
Wire cage	15	17.4
Bamboo trap	12	14.0
Species with highest demand		
<i>Gymnarchus niloticus</i>	7	8.1
<i>Tilapia</i>	73	84.9
<i>Clarias gariepinus</i>	39	45.3
<i>Heterotis niloticus</i>	3	3.5
<i>Chrysichthys nigrodigitatus</i>	40	46.5
<i>Lates niloticus</i>	18	20.9
<i>Momyrus sp.</i>	1	1.2
<i>Synodontis</i>	1	1.2
Purpose of fishing		
Consumption	1	1.2
Commercial	1	1.2
Both	84	97.7
Scale of production		
Small scale	47	54.7
Medium scale	30	34.9
Large scale	9	10.5
Observed decline in fish catch		
Yes	73	84.9
No	13	15.1
Daily catch meeting fish demand		
Yes	41	47.7
No	45	52.3
Fishing duration per trip (hours)		
1-5	57	66.3
6-10	26	30.2
11-15	3	3.5
mean \pm SD	4.93 ± 2.58	
Period of fishing		
Morning	74	86.0
Afternoon	10	11.6
Evening	11	12.8
Overnight	10	11.6
Source of labour		

Self	46	53.5
Family	19	22.1
Hired	21	24.4

Table 4 shows that close to half of the fishers do not make use of any crew member during the wet (48.8%) and dry (47.7%) seasons while 46.5% and 48.8% had 1-5 crew members in wet and dry seasons respectively. Majority of the fishers went into fishing 6-10 times per week in wet (77.9%) and dry season (79.1%). The mean fish catches per trip were 29.79 ± 18.21 kg and 16.27 ± 11.67 kg in wet and dry seasons respectively.

Table 5: Fishing practices in wet and dry seasons

	Wet season		Dry season	
	Frequency	Percentage	Frequency	Percentage
Frequency of fishing per week				
1-5	19	22.1	18	20.9
6-10	67	77.9	68	79.1
mean \pm SD	5.99 ± 1.34		6.07 ± 1.24	
Number of crew members				
0	42	48.8	41	47.7
1-5	40	46.5	42	48.8
6-10	3	3.5	3	3.5
>10	1	1.2	0	0.0
mean \pm SD	1 \pm 2 person		1 \pm 1 person	
Quantity of fish catch per trip (kg)				
≤ 30				
31-60	59	68.6	78	90.7
>60	21	24.4	8	9.3
mean \pm SD	29.79 ± 18.21 kg		16.27 ± 11.67 kg	

Contribution of fisheries value chain actors to policy implementation

As shown in Table 6, all the artisanal fishers indicated the presence of policies guiding fishing activities in Ogun River. However, they observed that there were no policies guiding fish marketing activities. Close to two-thirds (65.5 %) of the fish processors expressed that there were policies guiding fish processing activities in the study area. Majority (81.4 %) of the fishers submitted that they participated in enforcing the existing policies guiding artisanal fishing.

Majority (65.5 percent) of the fish processors were also involved in the enforcement of fish processing policies in Ogun River. In addition, all the fishers, and 65.5 % of the processors observed that the existing policies were sufficient, Twenty nine (29 %) and (44 %) of the fishers noted that the existing policies were obeyed by the fishers to very high, and moderate extents respectively. 37.9 percent of the fish processors reported that existing policies on fish processing were obeyed to a very high extent, 34.5 percent observed that existing policies were not obeyed at all.

Table 6: Contribution of fisheries value chain actors to policy formulation and implementation

	Fishers	Fish marketers	Fish processors
Presence of policies			
Yes	86 (100.0)	0 (0.0)	19 (65.5)
No	0 (0.0)	36 (100.0)	10 (34.5)
Participation in existing policies			
Participated	70 (81.4)		19 (65.5)
Not participated	16 (18.6)		10 (34.5)
Sufficiency of existing policies			
Sufficient	86 (100.0)		19 (65.5)
Not sufficient	0 (0.0)		10 (34.5)
Extent of obedience of existing fisheries policies			
Very high	25 (29.1)		11 (37.9)
Moderate	38 (44.2)		5 (17.2)
Low	22 (25.6)		3 (10.3)
Not at all	1 (1.2)		10 (34.5)

Figures in parentheses () are expressed as percentages

Source: Field Survey (2020)

The existing policies guiding the activities of the artisanal fishers are presented in Figure 8. Figure 8 revealed that all (100 %) of the fishers indicated that the existing fisheries policies with respect to artisanal fishing were on gear restriction, mesh size

regulations and closed area. As for fish processors, 65.5 percent of the fish processors identified that the existing policy guiding the activities of fish processors was on market ticket.

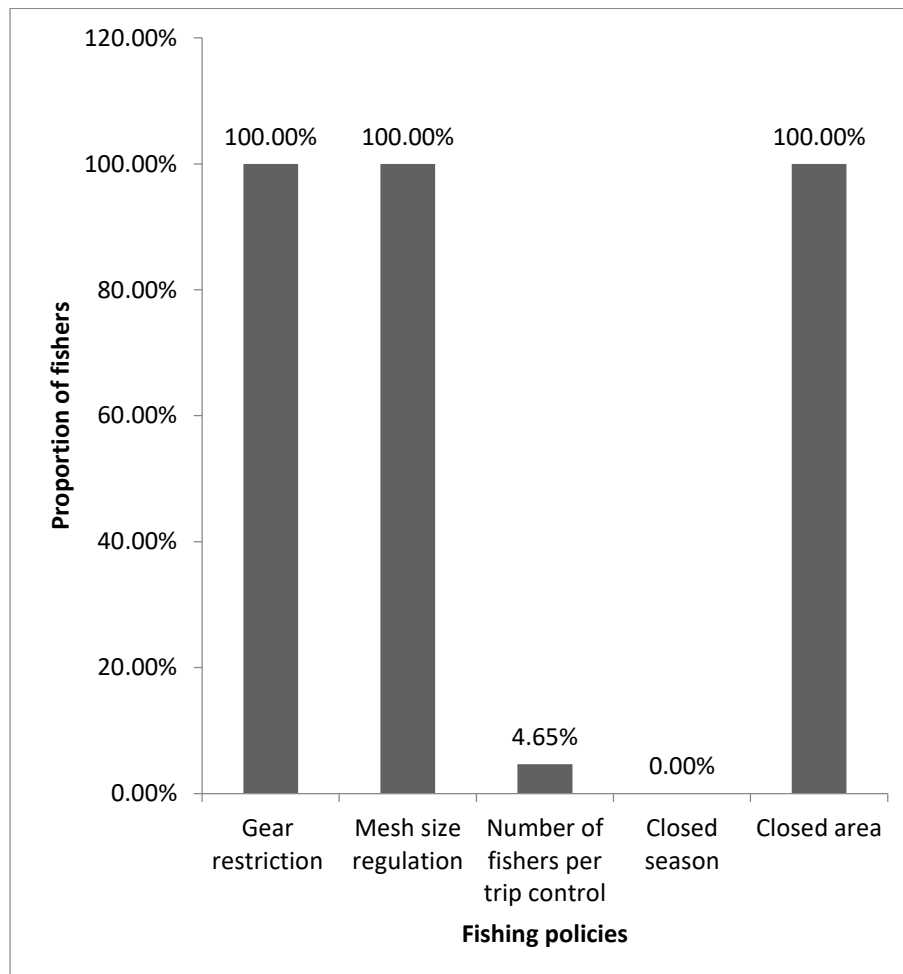


Figure 3: Existing fishing policies guiding the activities of artisanal fishers

Source: Field Survey 2020

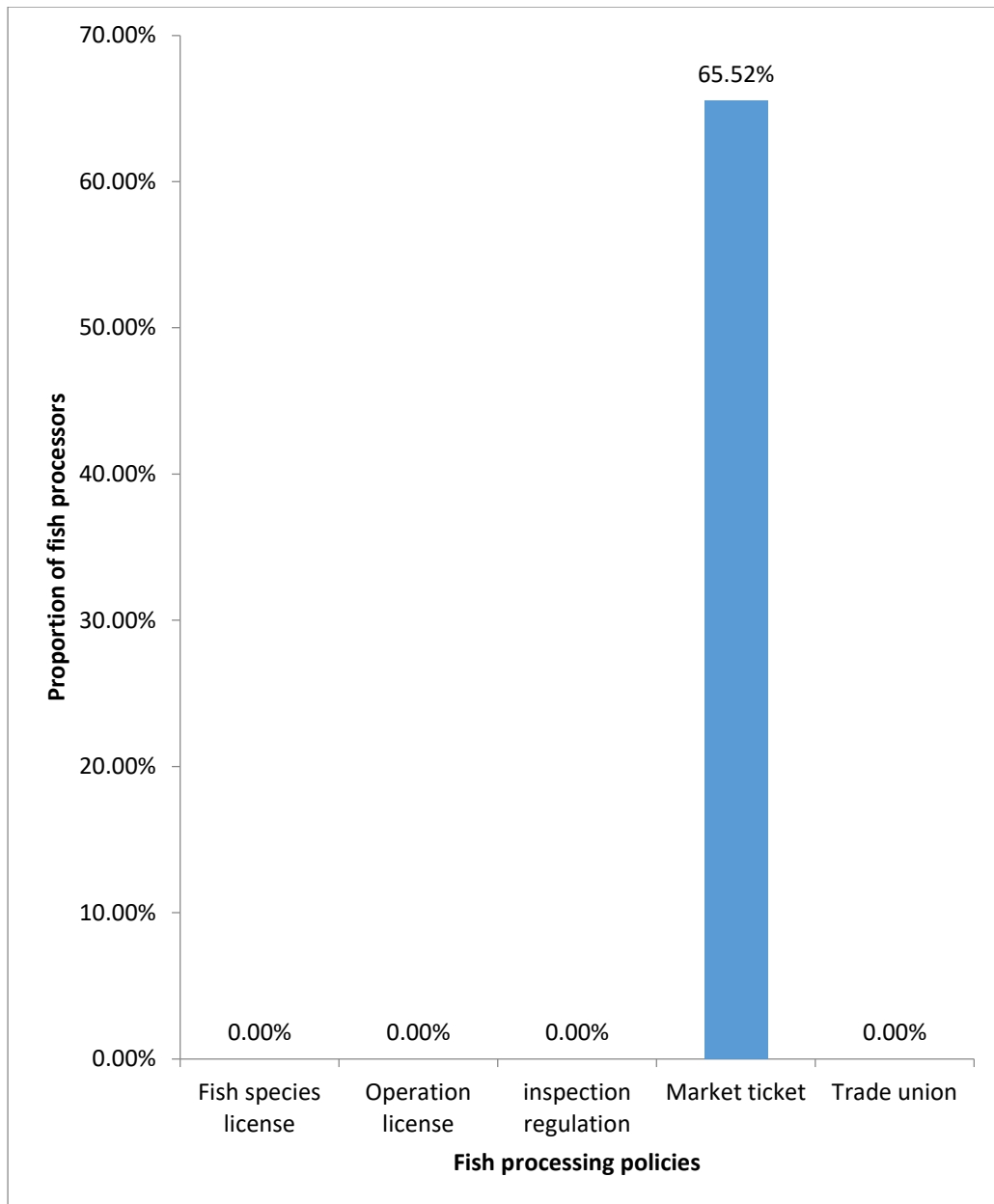


Figure 4: Existing fish processing policies guiding fish processors

Source: Field Survey (2020)

Hypothesis one: There were no significant differences in the revenues of the different value chain actors

Differences in the total revenues of the three fisheries value chain actors (fishers, fish marketers and fish processors) was tested using the analysis of variance technique and the results are presented in Table 5. It showed that the differences in the total revenues of the value chain actors were significant ($F = 28.730, p < 0.01$).

Table 7: Difference in total revenues of value chain actors

	Sum of Squares	df	Mean Square	F	p-value
Between Groups	998784279275080.10	2	499392139637540.06	28.730	0.000
Within Groups	2572585257676444.00	148	17382332822138.14		
Total	3571369536951524.00	150			

df= degree of freedom

Hypothesis two: There was no significant association between the fisheries value chain actors and their contributions to policy formulation/implementation

Associations between the different value chain actor categories and variables on contribution to policy implementation were tested for significance using the Chi-square analytical technique. The results are

presented in Table 6. It revealed that there were significant associations between presence of fisheries policies ($\chi^2 = 120.071$, $df = 2$, $p < 0.01$), participation in policy enforcement ($\chi^2 = 70.114$, $df = 2$, $p < 0.01$), sufficiency of existing rules and regulations ($\chi^2 = 32.479$, $df = 1$, $p < 0.01$), extent of obedience to existing policies ($\chi^2 = 32.243$, $df = 3$, $p < 0.01$).

Table 8: Association between value chain actors and contributions to policy formulation/implementation

Variables	Chi-square value	Df	p-value
Presence of fisheries policies	120.071	2	0.001
Participation in policy enforcement	70.114	2	0.001
Sufficiency of existing rules and regulations	32.479	1	0.001
Extent of obedience to existing policies	32.243	3	0.001

Df= degree of freedom

DISCUSSION

On the socio-economic characteristics, results from this research work indicated that the three fisheries value chain actors were similar with respect to age, household size, marital status, family type, religion, and educational attainment. The results revealed that the different fisheries value chains were dominated by persons aged 21-60 years which happens to fall in the age range categorized as the working/work force of the nation. This age range is characterized by innovativeness and adventurousness as a result of the energetic nature of persons within this age group. This result agrees with the findings of Oladoja and Adeokun (2013) who observed that most of today's farmers were young and strong enough to engage in income-generating activities towards ensuring food security. The engagement of able-bodied men and women could be attributed to the fact that fisheries related activities are tedious, strenuous and energy-sapping in nature. The household size of the respondents also affirmed that fisheries value chains were characterized by persons with small to moderate households.

Education is key and directly related to employment and income which have influence on access to amenities and facilities including those related to fish hygiene and environmental health (Adeyeye *et al.*, 2015). Education is also instrumental to

individual involvement in development policy issues. Results revealed that majority of the fisher folks either had no formal education or complete primary education implying that the fisheries industry was dominated by people with low level of education. A study in Ogun River also reported that most of the fishers in lower Ogun River were having either primary or secondary education qualifications (Ikewinwe *et al.*, 2011). Another study in Lagos State, also confirmed that artisanal fishers were in possession of primary and secondary education certificates. It is important to point out that the fishers had higher level of education than both the fish marketers and fish processors.

A reason for this difference could be associated with gender discrimination in favour of the men resulting from the common practice of male preference when choosing who to send to school. To this end, Cliffe and Akinrotimi (2015) posited that women fisher folks were with little or no education. Additionally, this study revealed that higher proportions of the fisher folks had no formal training on fisheries. By implication, they relied on the traditional /indigenous knowledge which they mostly gained from socialization – a process through which indigenous knowledge of fishing, fish processing and marketing is passed from one generation to another. Hence, the fisher folks lacking in terms of

using improved/modern techniques of fishing, processing and marketing because according to Olaoye *et al.* (2016), education enhances skill acquisition, knowledge transfer, efficiency and productivity by accepting the improved technologies.

As evident from this study, gillnets, cast nets, hook and line and gura nets were the most commonly used fishing gears among artisanal fishers. Fishes were caught for both consumption and commercial purposes. This implies that net revenue from artisanal fishing is dependent on the fish consumption level of fishing households. The consumption level is in turn a function of the household size. According to the findings from this study, most of the fishers operated either the small or medium scales of production. Based on the scale of production, the daily catch of the fishers was unable to meet the demand for fish. Another possible reason for this is the declining fish catch observed by majority of the fishers. It could also be attributed to high consumption of fish by family members. The fishers' inability to meet the fish demand by consumers is also as a result of relatively short fishing duration per trip as the fishing duration for most of the fishers was 1-5 hours with mean fishing duration of 4.93 ± 2.58 hours per fishing trip. Fishing was done mostly in the morning with some few fishers also engaging in fishing in the afternoon, evening and overnight. Fishing was a full time occupation to all the fishers. This contradicted the findings of Olaoye (2010) which observed that there were more part time than full time fishers in Ogun State and that fishing was not the major livelihood of the people in Ogun State. It however supports Omitoyin and Fregene (2012)'s report that fishing was the permanent occupation of majority of the artisanal fishers in Lagos State.

Policies guiding artisanal fishing in Ogun River were known to all the fishers operating around the water body while significant proportion of the fish processors expressed that there were policies guiding fish processing activities in Ogun River. On the other hand, no fish marketer knew the existence of any policy guiding fish marketing. A probable reason for this could be that fish marketers did not mostly operate around landing sites of Ogun River. They mostly transport their purchased fishes to markets before selling. Hence, it is either that there are no established policies on fish marketing or that the fish marketers were not aware of any existing policy on fish marketing. Participation in the enforcement of existing policies was affirmed by majority of the fishers and fish processors. Also, fishers and fish processors who identified with the policies indicated that the existing policies were sufficient. Despite the sufficiency of these policies, most of the fishers and fish processors reported that

the level of obedience of the policies was relatively low. This contradicts the findings of Agbeja (2012) who reported that low awareness of policies was an indication that fishermen, who were the primary stakeholders at the fishing community level, have been neglected. The neglect of these stakeholders in the design and implementation of fisheries development policies was also affirmed by Agbeja (2012). Due to this, Agbeja (2012) concluded that there was very weak equity in participation in the Nigerian fisheries development. This could be among the reasons for the noticeable poor condition of coastal fisherfolks in Lagos State. Olopade *et al.* (2017) also reported a lack of regulation as the main threat to fishery resources.

CONCLUSION

From the study, it is important to affirm that all the three fisheries value chain actors (fishers, fish processors and fish marketers) individually and collectively played meaningful roles in fisheries value chain development. Despite the important roles of the different value chains, it can be concluded that participation in the formulation and implementation of policies guiding fisheries activities in Ogun River was based on the actors' close contact with Ogun River. Hence, while all of the fishers were actively engaged in policy formulation and enforcement, some of the processors and none of the fish marketers participated in fisheries policies formulation.

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