

Infrastructure Constraints in Artisanal Fish Production in the Coastal Area of Ondo State, Nigeria

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ABSTRACT

The study was conducted among forty communities randomly selected from the coastal fishing communities of Ondo State, Nigeria. The selection was based on fish production intensity, accessibility, security, the receptive nature of the communities and their categorisation. The categories were Ugbo, Aheri, Etikan, Igbokoda and Mahin I, II, III and IV. Whereas artisanal fishery constitutes the most important livelihood strategy for settlers in the study area, the mode of operation of the fisheries has remained rudimentary for several decades. In isolation of either the local, state or federal government, neither the fishers nor the communities have the capacity to improve their mode of operation or basic infrastructure that could enhance development of the fisheries. Therefore, their common characteristics depict neglect and poor standard of living, which seemingly exhibits the absence of any government intervention. Nigeria's coastal artisanal fisheries exploit the Atlantic Ocean, creeks, Lagoons, rivers, estuaries, lakes and other wet lands to provide the bulk (over 80%) of Nigeria's domestic fish production. But the sub-sector is over burdened by poor access roads, absence of modern fishing technologies, absolute lack of cold storage facilities, jetties and poor marketing systems, poor fish handling systems, lack of credit facilities and generally poor environment which are typical of the study area. However, the goal of achieving self sufficiency in fish food production in Nigeria will be a mirage after all, if the fishery (artisanal) is not given the attention it deserves in terms of infrastructure development.

Keywords: Coastal artisanal fisheries, characteristics, infrastructure, fishers, communities

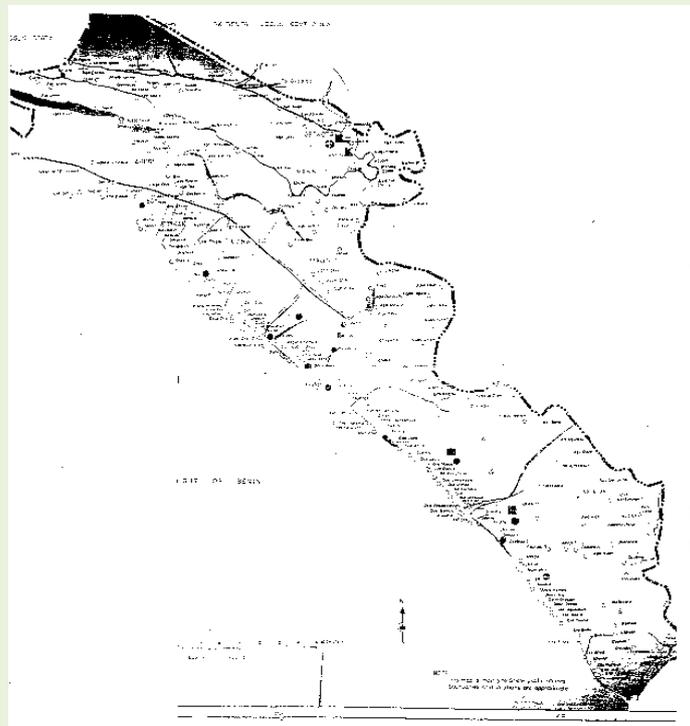


Plate1. Map of the Study Area

Source: Local Government Secretariat at Igbokoda

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INTRODUCTION

In developing countries like Nigeria, artisanal fishery is important to livelihoods and food security as they produce mainly for subsistence, local and small markets generally using traditional fishing techniques and small boats (IDAF, 1997). Abohweyere et al (2011) asserts that artisanal fisheries account for the highest contribution to Nigeria's annual fish production estimated at about 0.4 million metric tonnes which is a far cry from national estimated fish demand of 1.4 million metric tonnes. The term "artisanal" is often used interchangeably with "small scale" fishery. However, their characteristics help in identifying what the fishery entails. Fish has been a major source of food for human race and has put an end to the unsavoury outbreak of anaemia, kwashiorkor and so on. It allows for protein improved nutrition in that it has a high biological value in terms of high protein retention in the body (Olagunju et al 2007). Despite these trends, Nigeria's artisanal fisheries are grossly under developed even as the country has increasing potentials in the sub-sector with her extensive frontiers of Exclusive Economic Zone (EEZ). The reasons for deficiencies in Nigeria's artisanal fishing were summed up in the Federal Department of Fisheries (FDF) (2007) report as: natural constraints, resource exploitation and lack of stable government policies among others.

The entire coastal fishing communities of Ondo State have an estimated population of 287,023 (NPC, 1991). The communities are grouped into political/administrative wards mainly for grass root infrastructure development. Occupying a coastline of about 80km along the Bight of Benin (plate 1), artisanal fisheries in this area involve relatively small amount of capital, small fishing households, small canoes with the crew usually made up of 1 to 16 persons (depending on the type of fishery) and making short fishing trips near shores.

The socio economic environment of the artisanal fishermen is of immense importance as it has bearing on their productivity (Abohweyere et al, 2011). The Atlantic Ocean and the creeks are the main sources of artisanal fish production in Ondo State. However, it is a common feature to find females participating actively in lagoon (non-Ocean) fishing while their male counterparts virtually exploit the Ocean (Adeleke 2013). However, while some females participate in fishing, a fraction are into fish processing and marketing and others participate in petty trading, crop farming and craftworks (native mat making). But virtually all the males are involved in fishing either on part time or full time bases.

Two major types of crafts are prevalent for fishing in Ondo State. The local plank canoes which are smaller in size are operated by mainly the indigenous Yoruba settlers while the larger ones, often half dugout/half plank and popularly referred to as "Ghana boats" are mainly operated by immigrant Ghanaians. This group of fishers (Ghanaians) migrate along the coast as their target fishery season changes. Outboard engines of varying types and capacities (ranging from 15 to 45 horse power) depending on size of canoe, fishery or personal desire of fisher were used to propel these crafts except for few small-sized local canoes and those targeting species in the creeks that use paddle. Gears such as the purse-seine net, monofilament gill net, multifilament gill net, cast nets, encircling nets, traps, etc, also abound for targeting different species. Sandy beaches served as landing sites for some communities while others use the banks of creeks.

By the last count, Ondo State was the eighth (8th) highest producer in Nigeria's artisanal fisheries contributing about 4.49% of total production. Her production level rose by 0.53% in 2004 over the 2003 level, further by 3.84% in 2005, 1.16 in 2006 and 0.15% in 2007 over the 2006 figure (FDF 2007). The depleting rates of increase of the fishery stemmed from poor infrastructure. Onemolease et al (2011) and Ayotunde et al (2012) listed major constraints in fish production to include high cost of inputs, insufficient capital (finance), storage problems, fish spoilage, depleting catch (low income), poor processing methods and poor marketing strategies.

The description of the status of infrastructure in artisanal fishery of Ondo State and how they affect fish production and then income that leaves the communities and fishers in perpetually undeveloped conditions is aimed at exposing the primary factors that could be considered for purposeful intervention in the grass root economy which fuels the nation's (Nigeria's) development. These basic economies must be properly designed to provide the basis upon which national self sufficiency in agriculture, especially fish, could be achieved. This formed the overriding purpose for this study to be carried out in Ondo State.

MATERIALS AND METHODS

Four surveys were conducted at the rate of one per quarter. On every survey, 10 fishermen each were selected from 10 communities. This added up to 400. Questionnaires were administered to each fisher on every survey. Also, one (1) fishermen leader was interviewed in each community during every survey. Participatory Rural Appraisal (PRA) (Gaye et. all, 1998), physical inspection of communities and Focus Group Discussion (FGD) which facilitated further information gathering through direct participation were also employed by the team to establish the claim of availability or otherwise of facilities.

This work is presented using descriptive, narrative and pictorial formats and results explicitly discussed.

RESULTS AND DISCUSSIONS

The fisher folks were mainly male adults and their children of both Nigeria and Ghanaian (migrants) origins which result in the different types of fisheries practiced in the communities (plates 2 & 3). While the Ghanaians operated canoes powered by 40-45HP outboard engines for the purse-seine net fishery, with 8-18 crew, their Nigerian counterparts operated either paddled or 15-30HP outboard engines-powered canoes for their multifilament and monofilament gill nets fisheries with 2-3 crew respectively. Also, the canoes, either half dugout or plank measured between 15-20m and 4-10m for the Ghanaian (purse-seine) and Nigerian (multifilament and monofilament gill nets) fisheries respectively. The absence of jetties made anchoring of boats impossible. Therefore, discharging of fish becomes a herculean task that must be undergone during every trip. It requires several “able hands” to conduct either the “pulling up” of canoes for fish discharge or “pushing it back” into the waters for fishing trips. A lot of energy is exhausted in performing the tasks (Plate 3).



Plate2. *Ghanaian Half Dugout Boat*

Source: *Field survey*



Plate3. *Nigerian Plank Canoe (Pulling out of Ocean for Discharge of Catch)*

Source: *Field Survey*



Plate3. *A Female Fisher in the Lagoon*

Source: *Field Survey*



Plate4. *Fish Landing Site by the Lagoon*

Source: *Field Survey*



Plate5. *A fuelling Point for Fishers*

Source: *Field Survey*

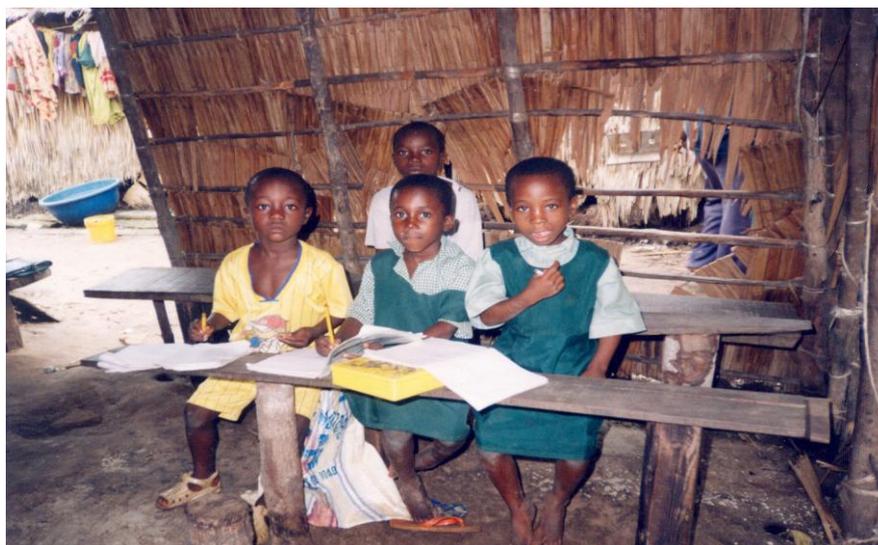


Plate6. A Typical Primary Class

Source: Field Survey

Table1. Types of Schools and Number of Students and Teachers

Type	No	Students	Teachers	Remark
Pry.	206	32060	877	Unqualified, school leavers
Sec.	97	20708	329	Unqualified, school leavers
Tert.	-	-	-	
Voc.	-	-	-	

Source: Ilaje and Ese-Odo LGAs Hqtrs

Table 2 shows that the entire communities studied were characterised by lack of electricity supply. At Araromi, Agba-Etikan and Ode Mahin where rural electricity poles were observed, respondents explained that supplies were epileptic. The public power generating set located at Aiyetoro was not functional at the time of this survey. Mainly, some individuals serviced their apartments with generator sets of 850-930 volts which was just enough to power few lighting points (bulbs), audio and television sets. It requires a power generating set of at least 3.0 KVA to effectively power a small sized refrigerator if fish must be preserved or production of ice blocks needed for fish preservation.

In table 2, the survey identified 11 health centres scattered within the coastal area of Ilaje and Ese-odo LGAs. These were virtually non-functional as the buildings were long abandoned and looked dilapidated. Medical facilities and personnel were neither installed nor posted to the centres. The Doctor/Patient ratio of 0:287,023 was a total aberration from the United Nations Organisation’s (UNO) standard of 1:300. As revealed in the study, health matters were referred to Igbokoda, where medical assistance could be sought. However, respondents explained that traditional solutions were first sought in the local area during ill health and when it could no longer be handled, the patient was taken to Igbokoda but the situation has been responsible for loss of lives that could have been saved.

Rural roads linking few communities (on land) exist. Though the proposed road from Igbokoda to Aiyetoro was abandoned, the completed portion has completely failed, making it difficult to transport fish to the main market held fortnightly at Igbokoda and other parts of the state and country. However, a greater number of the communities could access the market by canoes though at exorbitant costs. The supply of fuel to licensed dispensers terminates at Igbokoda. Operators of OBE – driven canoes purchase the product from privately operated outlets located along the lagoons and creeks at exorbitant, unofficial prices (Plate 5).

Government training centres for artisans and fishers are completely absent in fishing communities. The teacher/pupil ratio for primary schools was calculated at 1:36.6 as against UNICEF standard of 1:20, while it is 1:54.86 for secondary schools as against 1:23. Worse still, are the very poor standards of “teachers” (who were mainly secondary school dropouts or at best, school certificate holders. The entire teaching facilities – buildings, teaching aids, etc, were virtually not available. These conditions signified a vicious circle of low level educational standard in the area. The products of these schools

are yet to be exposed to modern educational methods and materials. In most cases, thatched huts were classified as classrooms and these pose health and environmental risks (Plate 6).

While the communities use the lagoon or creek water for all domestic purposes, sachet water from other parts of the state has become heavily relied upon for the supply of drinking water.

Table2. *Number of Communities where Basic Facilities were observed*

Facilities	Available	Not available	Remark
Electricity (national grid)	-	40	
Rural electricity	7	33	Epileptic supply
Health centre	11	29	Abandoned
Portable water	-	40	Sachet water to the rescue
Rural Roads	6	34	Existing ones have failed

Source: *Survey*

Table3. *Number of Communities where Fishing Facilities were observed*

Type	Available	Not available	Remark
Anchorage	-	40	Sandy beach
Refrigeration	-	40	No power supply
Organised market	-	40	Individual arrangement
Formal fuel dispensing	-	40	Illegal bunkering
Formal credit	-	40	Cannot approach banks
Cooperative	36	4	Informal groups

Source: *Survey*

While spoilage due to poor preservation and marketing arrangements has reduced the availability of fish to consumers, the rate of spoilages especially during bumper seasons pose some concerns to stakeholders in the sector. Bumper production is not matched with either fresh fish or smoked fish preservation. The absence of cooling systems (table 3) for fresh fish as well as visibly poor capacity of traditional smoking kilns to accommodate large quantities of fish for smoking (Plates 7 & 8) provide avenues for fish spoilages. Poor transportation facilities for moving fish products to the central market at Igbokoda directly affect the price of fish as well as contribute to the short shelf life of smoked fish. Plate 9 shows an over loaded car with smoked fish products heading towards the market. Table 3 also shows that fishers had no access to formal credits. Therefore, they rely on the savings they could make from their fishing efforts. Informal cooperative groups existed in some communities (36). These groups were inactive due to lack of motivation and cohesiveness. Respondents claimed that government promises of assistance on fishing inputs do not materialise. They also claimed that government efforts to assist them were always politicised and do not get to them.



Plate7. *A Typical Shrimps and Small Fishes Smoking Oven*

Source: *Field Survey*



Plate8. *Traditional Cut-Drum Fish Smoking Oven*

Source: *Field Survey*



Plate9. *Loaded “Transport” Car with Fish Products*

Source: *Field Survey*

CONCLUSION AND RECOMMENDATION

Fishers and their communities in Ondo State are not carried along in development process. This has negative effects on the morale, exploitation capacities and productivity of the fishers. Fishing operation in the study area is carried out using traditional methods, causing strains on the operators. The lack of capital for investment does not encourage fishing, thereby forcing a huge number of the fishers to abandon the enterprise in search of other livelihood means. Some of the numerous consequences of this include rural urban migration, increase in crime rate, poor income from fishing and poor investment capacity. Fish in our diet and fishing in the Nigerian economy contribute immensely to healthy leaving and national growth respectively. Fish is a vital source of numerous food supplements such as oils, fatty acids and dietary proteins; the activity (fishing) is capable of generating employment and income for the rural population as well as providing the avenue for balancing rural-urban migration. The study suggests that regular studies for the collection of up-to-date information about fishing communities and the operators in the artisanal sector should be conducted. The results of such studies should also be regularly used in the formulation of policies. These operators should always be practically targeted in the formulation and implementation of fisheries policies by directly involving them from the onset.

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Use of Abbreviations

IDAF	International Development of Artisanal Fisheries
NPC	National Population Commission
FDF	Federal Department of Fisheries
EEZ	Exclusive Economic Zone
UNO	United Nations Organisation
PRA	Participatory Rural Appraisal
FGD	Focus Group Discussion
HP	Horse power
LGA	Local Government Area
Hqtrs	Headquarters
KVA	Kilovolt Per Amp
OBE	Out Board Engine
UNICEF	United Nations International Children Education Fund