

FISHERY MANAGEMENT PLANS AND THE DEVELOPMENT OF ARTISANAL FISHERIES IN NIGERIA: A REVIEW.

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ABSTRACT:

Management of natural resources all over the world is of paramount importance to their sustainability. In developing countries like Nigeria, there is less emphasis on proper management especially of fishery and other aquatic resources due to lack of sensitisation and enlightenment of the rural dwellers who are closer to such natural resources. The main thrust of this review is to examine the management plans for Nigerian freshwater bodies (rivers and lakes) and the impact of such plans on the artisanal fisheries development in Nigeria. From the on-shelf information gathered, there is scarcity of information on the management of Nigerian freshwater bodies. Information available indicates that there is the traditional fisheries management and the government legal approach in form of fisheries Laws and Regulations. However these management techniques are poorly carried out since there is a poor follow-up. Appreciable impact of fisheries management introduced on Kainji Lake by the Nigerian-German Kainji Lake Fisheries Promotion Project (NGKLFPP) between 1993 and 2001 proves worthwhile as this introduced some management measures such as implementation of fisheries Laws and Regulations, the ban of obnoxious fishing methods, introduction of fishing licence, constitution of a management unit and appointment of liaison fishermen. Within the operative years of the project, a lot of success was achieved and it is recommended that the approach in Kainji should be replicated in other freshwater bodies in Nigeria to alleviate poverty in the rural poor fishing communities.

INTRODUCTION

Nigeria has a land area of 923,768km² and an estimated population of 111 million, making it one of the most densely populated countries in West Africa. Lakes, Reservoirs and Rivers cover 17% of Nigeria's land area, but many of the water bodies in the arid north are seasonal. There are two main river basins, the Niger - Benue and the Chad systems into with most rivers empty before discharging into the Atlantic, (Anonymous, 2000).

Artisanal Fisheries.

In a subsistence fishery, gear and craft used are usually of the simplest type; the catch is generally only sufficient for the family meal and occasionally for sale.

In industrial fishery, large vessels (carrying inboard engines) are used; the fishery is capital intensive and the yield per unit effort as well as per capita income are generally high.

An artisanal fishery is midway between the two; the gear and craft are mostly traditional (e.g. the dugout canoe), the fishery is labour intensive and the catch per unit effort as well as the per capita incomes is low (Moses, 1982). Artisanal fisheries therefore imply small-scale fisheries.

This paper reviews the management plans and the development of artisanal fisheries in inland waters (Lakes and Rivers) in Nigeria.

Inland Fisheries in Nigeria.

Nigeria is blessed with more than 12 million hectares of inland waters most of which lack management plans. Traditional Fisheries Management exists over defined areas around many fishing communities of inland water bodies. It starts with a 'Sarkin Ruwa' as the chief of fishing in the area. He decides who fishes, when and where and for how long, thus effecting control over

fishing in his area. He decides the closed and open seasons which however may be influenced by patronage, economics and other non-technical reasons (Miller, 2004).

Although Nigeria has one of the highest fish yields per area within West Africa, the fish consumption per person is one of the lowest, due to the high population density. This is illustrated in the table below.

Table 1: Fish yield and consumption in selected West Africa Countries.

Country	Area (km ²)	Population (million)	Annual catch (tons)	Fish yield (kg/km ² /year)	Fish consumption (kg/person/year)
Nigeria	923,768	110.5	383,418	415	3.5
Benin	112,622	6.1	43,772	389	7.2
Cameroon	475,500	15	89,052	187	5.9
Ghana	238,500	18.5	446,884	1,874	24.2

Per capita fish consumption figure exclude fish imports.

Source: Anonymous (2000), The fisheries Sub-sector in Nigeria – Description, Constraints and Possible Solutions.

The next table reflects the National fish supply by sector in Nigeria between 1990 and year 2000

Table 2: National Fish Supply by Sectors (000 tonnes)

Year	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Artisanal Coastal and brackish water catches	171	168	184	107	124	159	142	157	179	190	196
Artisanal Inland, Rivers and Lakes catches	113	123	100	95	110	167	142	157	167	173	175
	35.7%	35.9%	29.2%	37.0%	40.1%	44.4%	42.8%	43.1%	41.2%	40.2%	39.5%
Fish farming aquaculture	7	16	20	19	18	17	21	33	38	42	43
Industrial (Trawling), Coastal fish and shrimps	25.7	36	39	36	22	33	27	17	21	25	29
Total	316.7	343	343	257	274	376	332	364	405	430	443

Source: FOS, FAO production year book, Central Bank of Nigeria Annual Agricultural Survey (2000).

Considering the fish production in Nigeria from 1990 – 2000, total output from 1990 – 1995 showed an unstable trend of increase, but from 1996-2000 there is a consistent trend of increase in total production. Out of this, the artisanal inland sector contributed only about 29% to 44% of the total over the years. Moreover, the output as a percentage of the total is on the decrease from 1997-2000.

The decreasing supply could be as a result of over fishing of the inland waters or ineffectiveness of Traditional Management Plan in use. In general, the reasons for over fishing are attributed to:-

- 1) Rising fishing pressure due to a rapidly expanding population
- 2) The large use of undersized gears, poisons and explosives
- 3) The lack of effective enforcement of appropriate fishery regulations.
- 4) Lack of Management Plan.

Problems of fish production in Nigeria.

According to Dada and Gnanadoss (1983), artisanal fishery sector is the most impoverished one with fishermen generally making a subsistence living. Aderounmu (1983), has attributed several reasons to this situation, some of which are:

- i) The use of outdated fishing craft and gear and labour intensive fishing methods.
- ii) Lack of adequate finance
- iii) Shortage of adequately trained and well-motivated fisheries extension workers

The Federal Department of Fisheries in 1995 also highlighted some factors influencing fish production in Nigeria. These include:-

- i) Non rendition of proper fish production records
- ii) Poor management of some water bodies.

Recommended solutions to the problems facing fish production in Nigeria.

Aderounmu (1983), recommended the following:

- i) Establishment of capacity for building fishing boats in the country.
- ii) Refresher courses for old fishermen and extension workers.

Having considered the problems facing fish production in Nigeria, Kainji Lake is chosen as an example of inland water body where introduction of Management plan assist in solving a number of problems identified above.

A MODEL FISHERIES MANAGEMENT PLAN IN KAINJI LAKE BASIN.

Kainji Lake Basin.

Kainji Lake is one of the first man-made lakes in West Africa. It was created in 1968 by the damming of the River Niger and although the primary function of the lake is for hydroelectric generation, an important small-scale fishery developed using beach seines (now banned), gill nets, fishing traps, drift nets, long lines and cast nets (du Feu and Abiodun, 1999).

Early yield estimates after impoundment reached 28,639 metric tonnes in 1970, which then fell to 4,500 mt in 1980 (Ita, 1982). After this period regular monitoring of the fishery stopped, due to lack of funds and logistics.

According to Alamu *et al.* (2001), the reported declines of fishermen's catches resulted in use of smaller meshed nets, which target all sizes of fish. Eventually the standard of living of fishing families started to fall and this prompted the Nigerian Government to seek a technical assistance from Germany. It led to a 9- year technical cooperation project, the Nigerian-German Kainji Lake Fisheries Promotion Project (KLFPP) in 1993 (Okomoda and Alamu, 2001)

Management Plan on Kainji Lake.

Before the intervention of the Nigerian-German KLFPP, the lake has been managed by the two states (Kebbi and Niger) bordering the lake area. Earlier studies indicated that there was no systematic management of the lake fisheries involving the participation of the fishermen in decision making before 1993 (Alamu *et al.* 2001).

The purpose of the NGKLFPP therefore was to manage the fisheries and other aquatic resources of Kainji Lake on a sustainable basis. According to Okomoda and Alamu (2001), the results were achieved through the following amongst others:-

- 1) A community based fisheries management (CBFM) plan
- 2) An effective extension delivery system
- 3) Monitoring and evaluation system for Kainji Lake Fishery.

Surveys were conducted which showed the trend of the fisheries and assisted in evolving a management plan for the lake. These include the frame; fishing gear, catch assessment, economic and social surveys. According to du Feu (1996), the trend indicated that the number of gill nets and long lines were declining whilst the drift nets and beach seine fisheries were rapidly expanding. He further reviewed the then existing Niger and Sokoto states fisheries edicts and the Inland Fisheries Decree of 1992 and recommended that the edicts be reviewed.

Thus, based on the recommendations of the NGKLFPP, the Niger and Kebbi state Fisheries edicts were promulgated in 1997. The edicts

- i) Banned the use of beach seines,
- ii) Introduced a new licensing fee for entrepreneurs and the assistants,
- iii) Lists the types of gears and the mesh sizes permitted for fishing.

The management plan on Kainji Lake indeed carried along all the stakeholders in the fishery resource for instance the appointment of 'WAKILIS' from amongst the fisherfolks who serve as liaison officers between the project and the community shows that the stakeholders have a chance to contribute towards the management of the resource they depend on.

Also, the ban on beach seines and small mesh sizes of net implies that only table size fish can be caught and juvenile fish are left to grow. This in a way ensures continuity on the fishery resource in that it is preserved and sustained and thus secures the future of the fisherfolk and other stakeholders.

Impact of the Introduction of Community-Based Fisheries Management Around Kainji Lake.

The NGKLFPP made an impact on the Kainji Lake fishery by increasing the fish production of the lake. This was effected by the following amongst others: -

- i) Banning of obnoxious fishing methods – beach seines, small mesh sizes of net, dynamite, explosives etc.
- ii) Establishment of the Kainji Lake Fisheries and Conservation Unit responsible for complying with the rules and regulations and for monitoring, control and surveillance of the lake fisheries.
- iii) Signing into edicts uniform fisheries rules and regulations operative on the lake basin.
- iv) Introduction of licensing system in 1997.

Thus the project is a good model that provides basic information, linkages, fisheries sustainability with multidisciplinary approach to the Kainji Lake Fishery and hence should be demonstrated and practiced in the management of other inland water bodies in Nigeria (Ladu and Okaeme, 2000).

RECOMMENDATIONS.

Based on the above submission, the importance of artisanal fisheries in Nigeria cannot be overemphasized. In order to maximize the potential of the fisheries sub-sector of Agricultural production, there is a need for total appraisal of the available water bodies in each state of the Federation. This should be done based on ground truth survey rather than mere estimates from State department of fisheries, which may not be accurate.

Moreover, indepth studies need to be carried out on:-

- i) Evaluation of the existing fisheries management plan (Traditional or otherwise) in the six geopolitical zones of the country.

- ii) Evaluation of the management plan effectiveness on Kainji Lake as a case study
- iii) The cost implication of replicating the management plan of Kainji Lake on another water body in Nigeria.
- iv) Benefit of fisheries regulations to all key stakeholders of a water body.

CONCLUSION.

If sustainable fisheries are to be achieved, it is necessary to have good management plans in all inland fresh water bodies in Nigeria. In a water body like Kainji Lake where an organization structure is in place to manage the fishery resources, the implementing body should put in more effort so that more success can be achieved.

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