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Investigating Fishers' Activities and Management Strategies of Stakeholders of Eleyele Reservoir in Ibadan, Oyo State

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ABSTRACT

Eleyele reservoir is a modified natural wetland considered as a source of fish production. This study was conducted to investigate the fishers' activities and management strategies being employed by the stakeholders of Eleyele reservoir with the intention of improving the fishery resources of the facility. Five (5) respondents were purposively selected from each of the four (4) fishermen's groups. They were engaged through Focus Group Discussions (FGDs). Also, Key Informant Interview (KII) was done with an officer from the Department of Fisheries, Oyo State Ministry of Agriculture and Rural Development. The discussions were audio-recorded, transcribed and analysed, thematically. *Tilapia* sp, *Clarias* sp, *Heterobranchus* sp, *Chysycthyes* sp, *Heterotis* sp, *Gymnarchus* sp and *Synodontis* sp. are the different types of fish found in the reservoir. Fish population has rapidly declined in the last two years due to some factors which included overfishing, pollution, presence of aquatic weeds and environmental factors. Dry season is the optimum period for catching fish in the reservoir. Prohibition of unorthodox fishing methods and restriction on mesh size are parts of the government's efforts in regulation fishing activities on the reservoir. The government should therefore consider removing the weeds and restock the reservoir if they want the water body to continue to contribute to fish production.

Keywords:

Eleyele reservoir, fishers' activities, management strategies of stakeholders, prohibition of unorthodox fishing

Introduction

Although, Food and Agricultural Organisation (FAO) opined that there is no generally accepted definition of fisheries management, however, the Organisation posited that it is the integrated process of information gathering, analysis, decision-making, and allocation of resources to ensure continued productivity of the resources (FAO, 1997). Modern fisheries management is often referred to as a system of appropriate environmental management rules and a mix of management means to implement the rules. A popular approach is the ecosystem approach to fisheries management (Garcia *et al*., 2003). Fisheries management employs activities that protect fishery resources for the purpose of sustainable exploitation.

Eleyele reservoir is a modified natural wetland of about 100 km^2 including the catchment (Tijani *et al*., 2011). It is considered as a source of fish production. Regrettably, according to Ajani and Omitoyin (2004), the reservoir is fast becoming degraded by the unacceptable fishing practices. This study was

conducted to investigate the management strategies being employed by the stakeholders of Eleyele reservoir with the intention of improving the fishery resources of the facility.

Methodology

Study area

The study was conducted at Eleyele reservoir located in Ibadan, Oyo State. It was established in 1945 and constituted a very important part of natural heritage which have widely been utilised by people of Ibadan and environs for decades. It is situated on Latitude 7° 20' - 7° 25'N, and Longitude 3° 51' - 3° 56' E. It is one of the most important lake systems in Southwestern Nigeria that provides nursery and breeding grounds for a large variety of fish species (Adebisi, 1981). The reservoir is also abstracted by the Oyo State Water Corporation at Eleyele Treatment Works for treatment and supply of portable water to Ibadan people (Adeleru, 2017).

Target population

The target population for this study comprised the practicing fishermen in the study area, and an officer at the Oyo State Department of Fisheries, Ministry of Agriculture and Rural Development.

Sampling techniques

Five (5) respondents were purposively selected from each of the four (4) fishermen's groups. These groups were designated as CS_1: Surulere, CS_2: Kajola, CS_3: Ilaje omuro, and CS_4: Ijokodo. They were engaged through Focus Group Discussions (FGDs). Also, Key Informant Interview (KII) was done with an officer from the Department of Fisheries, Oyo State Ministry of Agriculture and Rural Development.

Survey instrument

An interview guide was developed to elicit information on the fisheries management strategies in managing the reservoir. The instrument was developed in both local language (Yoruba) and English. The discussions were audio-recorded, transcribed and translated into English. It was thereafter analysed, thematically.

Results

Focus Group Discussions with the fishermen's groups

1. **From your view, can you estimate the number of people fishing on this water body?**
   Number of fishers here ranges from thirty (30) to fifty (50) [CS_1]
   Total number of fishers on this water body are one-hundred (100) and above [CS_2]
   Number of fishers here are not less than seventy (70) [CS_3]
   Number of fishers here are between twenty (20) and thirty (30) [CS_4]

The disparity in the figures reported by the different groups was as a result of status of fishers. Some considered active fishers while others considered both active and non-active fishers.

2. **What do you think of the level of fish in this water body in the past two (2) years?**
   Because it was easier to capture a lot more fish back then that it is now. The level of fish was much better two years ago than it is now [CS_1]
   In the past two years, it has been very easy to catch a lot of fish, but since then, the amount of fish has been declining [CS_2]

Fish are present in the water body but they are low in number [CS_3]
The level of fish is decreasing presently [CS_4]

Fish population level in the reservoir has rapidly declined according to the fishers since fish catch was easier for them in the last two years compared to the present moment.

3. **What do you think are the reasons for the level of fish in this water body?**

Overfishing over the years, waste dumping and presence of aquatic weeds are the reasons for the reduced level of fish in this water body [CS_1]
There are many reasons for the level of fish in this water body, they include: aquatic weeds, water pollution through wastes from the surrounding communities, climatology reasons (whereby the water body becomes cold, no longer warm like before which makes the fish to hide [CS_2]
The presence of aquatic weeds is the main cause of the decline in fish in this body water [CS_3]
Environmental factor which includes flooding and aquatic weeds are the reasons for the level of fish [CS_4]

This study gathered that overfishing, presence of aquatic weeds and environmental factors are responsible for the decline in fish population in the reservoir.

4. Can you tell us which season of the year do you catch fish in large quantity?

Dry season is the best season of the year in which we catch in large quantity [CS_1]
Dry season is the best season of the year in which we catch large quantities of fish [CS_2]
Dry season is the best season of the year in which we catch many fish but sometimes whenever there is heavy rain, the fish are being flooded to the top surface of the water body which then makes the fish easier for fishers to pick [CS_3]
Dry season is the best season of the year in which we get large quantity of fish. [CS_4]

This study reveals that dry season is the optimum period for catching fish in the study area.

5. **It is reported that there are some regulations made by the government to regulate access of fishers into this reservoir, do you know about these laws? If yes, can you please mention some of these laws to us?**

Prohibition of unorthodox fishing methods (use of chemicals, explosives and electro-fishing [CS_1]
Only matured fish should be caught, young fish should be left in the water to grow [CS_2]
Types and finger/inches net should not be less than three (3) inches (3 finger) to avoid catching small-sized fish which later lead to waste [CS_3]
Fish should be caught in the afternoon and in the morning, so the fish could rest [CS_4]

This study observes that part of government's regulations are prohibition of unorthodox fishing methods and restriction on mesh size.

6. **What are you doing to ensure continuous fishing activities in this water body?**
   Routine cleaning of aquatic weeds in the water [CS_1]
   Ensuring that our members don't use small-sized mesh nets [CS_2]
   Though, tiring but we try as much as possible to clear the weeds [CS_3]
   Our members desist from using nets that catch small fish [CS_4]

7. **What do you expect the government to do?**
   To dredge the water body because it is no more deep [CS_1]
   We have heard about stocking of water bodies. So, this should be done [CS_2]
   They should help us develop other agricultural ventures around here to reduce pressure of fishing on the water body [CS_3]
   Government officials should regularly visit us in order to know about our needs [CS_4]

Key Informant Interview with an officer of the Department of Fisheries, Ministry Of Agriculture and Rural Development

1. **A brief history of Eleyele reservoir: date established, the dimension, other government and non-governmental stakeholders**
   Eleyele reservoir was established in the year 1945. The total area of the lake is 152.67 hectares. Its main purpose initially is to serve as source of water supply for Ibadan and its environment in the western region and till date. Government stakeholders include Officers working with Water Corporation, officers of Fisheries Department, officers of Forestry Department, fishermen on the lake and fresh fish sellers. Non-government stakeholders include Operators of boats and resorts on the lake.

2. **What are the remarkable changes that have happened in the reservoir in the last five (5) years, for instance, the level and quality of water, the vegetation, pollution etc affecting the fishery activities?**
   The reservoir is overgrown with weeds and highly silted up. Low productivity in terms of catches by fishermen. Pollution from other users. Reconstruction by Ibadan Urban Flood Management Project (IUFMP)

3. **What are the predominant types of fish in fishermen catches, and the occasional types?**
   Predominant types of fish include: *Tilapia* sp, *Clarias* sp and *Heterobranchus* sp while occasional types include: *Chysycthyes* sp, *Heterotis* sp, *Gymnarchus* sp and *Synodontis* sp.

4. **What is the current status of the fish level...increasing, dwindling or stable; any case of disappearance of some fish types?**

   The current status of the fish level is decreasing, due to overfishing over the years.

5. Is there in the last five (5) years the data on the following? Number of fishers, gender and age; how many are full time, part-time, occasional; the number and types of fishing gears, craft, catches, and efforts (time and frequency of fishing)

Yes, the data includes: Number of fishers = 35 (33 male and 2 female). Age ranges between 40 years and 65 years. Number of full-time fishers- 18, part-time- 10 and occasional- 7. Fishing gears used are gillnet, traps, basket, drag net and cast net while the fishing craft used is canoe. Fishing occurs two times daily (morning and evening).

6. What are the fishing rules or laws guiding the fishers at Eleyele reservoir?

Types and fingers/inches of net are regulated or controlled to avoid overfishing. Prohibition of obnoxious fishing method (use of chemicals, explosive etc).

Conclusion

There are different groups of fishers in the reservoir. Fish population has rapidly declined in the last two years due to some factors. These include overfishing, pollution, presence of aquatic weeds and environmental factors. Dry season is the optimum period for catching fish in the reservoir. Prohibition of unorthodox fishing methods and restriction on mesh size are parts of the government's efforts in regulation fishing activities on the reservoir. The fishers are observing the regulations and also carry out routine cleaning of aquatic weeds in the water. *Tilapia* sp, *Clarias* sp, *Heterobranchus* sp, *Chysycthyes* sp, *Heterotis* sp, *Gymnarchus* sp and *Synodontis* sp. are the different types of fish found in the reservoir.

Recommendation

The following are hereby recommended: The government should look into these.

1. The reservoir should be dredged to increase the volume of water captured.
2. The weeds should be cleared and the water body restocked
3. The entrepreneurial capacity of the fishers should be built in order to engage themselves in other ventures. This will reduce fishing pressure on the reservoir, thus allowing increase in fish population.
4. Government officials should regularly interact with the fishers.

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