

PROBLEMS AND PROSPECTS OF ALAU DAM CONSTRUCTION IN ALAU COMMUNITY, KONDUGA LOCAL GOVERNMENT AREA, BORNO STATE, NIGERIA

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Abstract

This research focuses on identifying the problems and prospects of Alau dam construction in Alau community on Konduga local government area of Borno state. The construction of the dam though, has contributed to the development of various activities in Alau community, but has also resulted in various problems as well as loss of lives and property, loss of arable agricultural land, forced resettlement and destruction of farmlands leading to low yield. Data was garnered based on questionnaire administration, interviews and observations. The questionnaire was administered based on households, taking 5% of the total of 1154 households; using systematic sampling technique which gives a sample households of 58. Data was collected on the general information of the respondents, problems, threats and benefits of the construction of Alau dam in Alau community. The data was presented in tables and analyses was done by extracting the major occurrences using percentages which then further discussed with recommendations made to harness the prospects and mitigate the problems.

Keywords: Dams, Dam construction, Earth Dam, Resettlement, Flooding

Introduction

The construction of dams in Nigeria in some instance has been viewed as a blessing, while some; especially the affected few, view it as a punishment. Though dams are supposed to bring about development in areas of water supply, irrigation for agricultural purposes and the generation of

hydro-electric power, but it has also accounted for both told and untold misery by the dam community (Ogbeide et al 2003 & Shettima 2000).

Water supports life. It remains one of the most valuable natural resources vital to the existence of any form of life. All human's production activities could only be carried out with water (Qiang, 2003). As important as water is, it is a limited resource. Qiang (2003), also posits that, the total amount of all kinds of water is about 1.39 billion km³ the world fresh water is only about 36 million km³ representing less than 3% of world's total water amount. Large dams in Nigeria are such as the Kainji, Shiroro and Jebba dams are for hydro-electric power supply while the smaller dams such as Alau, Cham, Ojirami and Bakolori are mainly for agricultural and water supply activities.

The dam construction programme has registered tremendous successes in Nigeria which is also accompanied by problems that last for a long time (Ya'u, 2002). Some of these problems are forceful resettlement which are not usually accompanied by proper compensations, loss of means of livelihood such as farmlands, fish ponds and economic trees, engendered ecological changes which are harmful to the communities, decline in fishing yield, drying up of arable agricultural land and general developmental neglect (CAPP, 1998).

In Nigeria, most dams are constructed mainly by the Federal Ministry of Agriculture and Water Resources about 81% of which consisted of earth dams (Gundiri, 2004). Alau dam construction started on August 1984 and completed in 1986 and gates finally installed in 1989. It was initially constructed because of downstream farming but as a result of shortage of water in Maiduguri township, the dam's water was diverted to Maiduguri town for domestic and industrial use.

Ever since the construction of Alau dam, the surrounding communities have been subjected to several hardships as a result of flood occurrences and other devastations caused by the dam. Many people lost their houses and other properties worth millions of naira. Although the floods did not directly cause any death at the time of the failure numerous casualties were reported due to the resulting poor conditions. Residents now suffer from housing shortages, resulting in overcrowded living environment, in one instance, more than 30 people. Many community members lost their local business due to the catastrophe and were left without a means of livelihood. The dam communities are neglected because they are not active stakeholders in major developments as a result of the dam constructions (Ya'u, 2002). Fishing, which is one of the major Economic activities in the dam and serves a major source of income for the inhabitants is stalled (Akan et al, 2013).

The impact of the devastation caused as a result of the construction of Alau dam on people's livelihood, health, social system and culture are not

easily quantified and hence often not ignored when analyzing the cost and benefits of Alau. The direct benefits they provide to people are typically reduced to monetary figures for economic quantification and are not recorded in human terms.

The historical origin of Alau dam

The inflow of water into Alau and Jere Bowl depends mainly on the natural inflow of the Ngadda, which is seasonal, and to a less extent on runoff from the immediate surroundings. River Yedzeram takes its source from the Hudu hills east of Mubi and flows North West and eventually drains into Lake Chad (Ikusemoran, 2013). This phenomenon greatly contributes a massive inflow (especially during the wet season) into the river Ngadda via a tenuous connection in the Sambisa swamps. However, in years of low rainfall, this contribution is not much. Based on 14 years records (1964-1978) the average annual inflow into Lake Alau was put at 239 million cubic metres of water (Odo and Ijere, 1997).

In every lean rainfall year, there is usually zero inflow. The construction of the dam was first started on 1st August 1984 and completed in 1986 and gates finally installed in 1989. It was initially constructed because of downstream farming but as a result of shortage of water in Maiduguri township, the dam's water was diverted to Maiduguri town for domestic and industrial use. Since the completion of the dam, natural inflow of the Ngadda into Jere Bowl no longer takes place. However, at the peak of rainfall in August, the flow within the channel causes serious flood incidences. These local floods are inadequate for paddy rice cultivation in the depression. In October 1992 Alau-Dam reached its maximum shortage level of 329m. In fact there was spillage due to excess water above the normal retention water level of 329m which flowed down stream into the Jere Bowl. Also the rainy season of 1992 witnessed the inflow of water in Ngadda Bul, a tributary of river Ngadda downstream of the dam which flowed into the Jere Bowl. However, according to officials of the Borno State Water Corporation, there has not been substantial runoff in the river channel of the Ngadda-Bul for the past 8 years. In 1994 Alau dam also met with a massive inflow of water from river Yedzeram and river Gombole which forms a confluence in the Sambisa swamps before proceeding to Maiduguri. That of 1994 was unique as it is a flash flood and not an ordinary flood. It didn't last for long but wreaked havoc in several areas within Maiduguri's wards. The year 2012 experienced a torrential rainfall which caused an increase in the normal water retention level, leading to the compulsory opening of the Alau dam evacuation valve or flood gates. The phenomenon led to intense flooding in Maiduguri and environs, leading to the loss of lives and property (Digma 2012).

Methodology

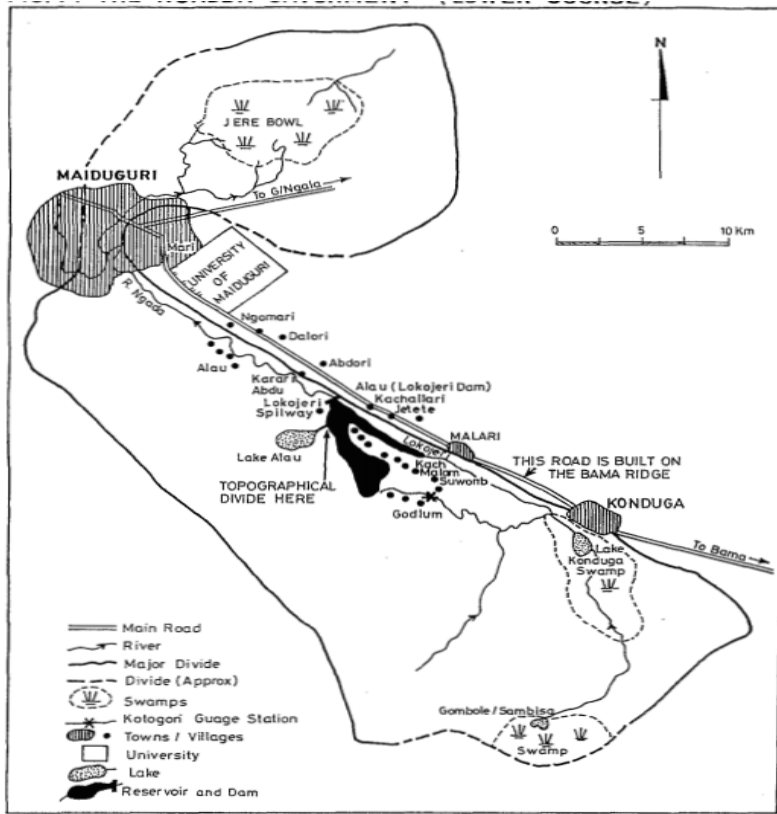
The survey covered the general impacts of the construction of the dam. This ranges from the problems it has brought to the Alau community and the corresponding prospects that are viable for boosting future development. Data on the efforts the government has put to mitigate the problems and also to harness the prospects was also gathered. The data was actualized through questionnaire administration which was done on a household basis. There are a total of 1154 households which was derived from 577 compounds taking an average of 2 households per compound. Systematic sampling technique was employed taking a 5% sample size. Questionnaires was administered to 58 households. Data was also obtained through personal interviews, observations and from agencies such as Chad Basing Development Authority (CBDA), Ministry of Water resources, Konduga Local government secretariat and Borno State Water Board.

The data was collected from the study area based on the response of the respondents. The data was also presented in tables and the analysis was done using major occurrences of the respondents which are in percentages. Various inferences were drawn from the response given by the respondents. These analyses were used in making the judgment based on the situation of the study area in terms of comfort achievement and problems were also identified.

The study area

Alau Dam in Alau community is located between latitude $11^{\circ}4'N$ and $12^{\circ}5'N$ and longitude $13^{\circ}05'E$ and $13^{\circ}20'E$, Konduga, Borno State, North Eastern Nigeria. The Dam is 9meters high with a square reservoir area of about 50 km. The maximum storage capacity is 112 million meter cube. Alau Dam received water from River Yedzram and River Gombole which meet at a confluent at Sambisa and flow as River Ngadda into Alau Dam. Alau Dam received a wide variety of waste from agricultural land. This Lake is also use for commercial fishing. Alau Dam receives a wide variety of waste from agricultural activity within this area. Alau settlement has a total population of 6895 with 1174 households in total (Planning unit Konduga LGA secretariat)

Fig 1. Showing Alau dam and Reservoir



Source : Modified from H.M.M.B. Seneviratne. 1979.

Results

Table 1: Socio-economic characteristics of the study area

Age	Variable	0-9	11-20	21-30	31-40	41-50	50 above	Total
	No.	27	100	110	79	17	12	345
	%	8	29	32	23	5	2	100
Ethnic status	Variable	Kanuri	Babur	Fulani	Hausa			Total
	No.	48	2	5	3			58
	%	82.7	3.5	8.6	5.2			100
Education status	Variable	Primary	Post primary	Tertiary	Adult education	Qur'anic education		Total
	No.	15	4	4	5	30		58
	%	25.9	6.9	6.9	8.5	51.7		100
Occupation status	Variable	Civil servant	Farmer	Artisan	Petty trading			Total
	No.	5	45	3	15			58
	%	8.6	60.4	5.2	25.9			100
Sex status	Variable	Male	Female					Total
	No.	182	163					345
	%	53	47					100
Marital status	Variable	Married	Single					Total
	No.	48	10					58
	%	82.7	17.3					100
Religious status	Variable	Islam	Christianity					Total
	No.	50	8					58
	%	86.2	13.8					100

Source: Survey, 2013

Data was collected based on the general characteristics of the inhabitants of Alau community, the benefits, threats posed by and problems of the construction of Alau dam.

Table 1 shows that 84% of the respondents lies between the ages 11-40 and 53% are males, which constitutes the majority of the population. It implies that, there is a strong work force base for the community. 82.7% of the respondents are married, 86.2% are Muslims and 82.7% are of the Kanuri tribe respectively. From the same table 1, which shows that 51.7% of the respondents have Qur'anic education, while 25.9% have primary education and 60.4% of the respondents engage in farming, indicates that the population is majorly an agrarian one which is fostered by the massive workforce who constitute more of males.

Table 2: income per annum (in naira)

Variable	NO.	%
Less than 66,000	20	34.5
66,000-132,000	30	51.7
132,000-270,000	4	0.9
270,000 and above	4	0.9
Total	58	100

Source: Survey, 2013

Table 2: shows that, 51.7% of the respondents earn between N66,000 and N132,000 per annum while 34.5% earn below N66,000. From the table above the income accrued per annum is rather low. This is a clear indication that the majority of the population are peasant farmers who indulge in small-scale agricultural practice.

Table 3: mode of transportation

Variable	NO.	%
Car	10	17.2
Motorcycle	30	51.7
Bicycle	18	31.1
Total	58	100

Source: Survey, 2013

From Table 3 above, majority of the respondents constituting 51.7% and 17.2%, utilize motorcycle and bicycles more as their means of transportation respectively. Movement of people and goods will then be a difficult activity since cars are the most reliable means of transport that can carry enough load.

52% of the respondents posits that malaria is the major health problem as a result of the construction of Alau dam (fig. 1). 86% of the respondents posits that the major problem as a result of the construction of the dam is consistent flooding (fig. 2). 45% of the respondents agree that farming is the major economic benefit of the construction of Alau dam (fig.

3). 52% of the respondents agree that recreational activities are the major social benefit of the construction of Alau dam (fig. 4). 49% of the respondents which constitute the majority agreed that the major ecological benefit of the construction of Alau dam is the continuous deposition of fertile alluvial soil (fig. 5). 84% of the respondents agree that the major economic threat of the dam is destruction of farmlands (fig. 6). 60% of the respondents posit that the major ecological threat of the construction of Alau dam is sedimentation causing unclean water supply (fig. 7). 52% of the respondents agree that the major social threat posed by the construction of Alau dam is forced resettlements (fig. 8).

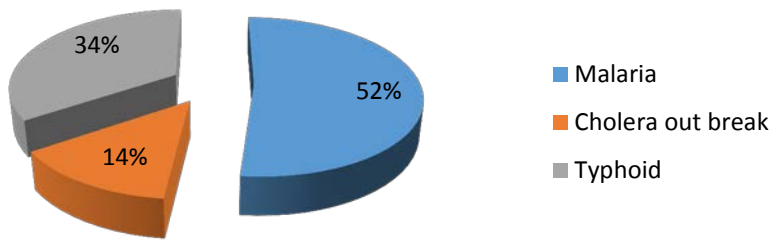


PLATE 1: ALAU DAM FLOOD GATES (SURVEY, 2013)



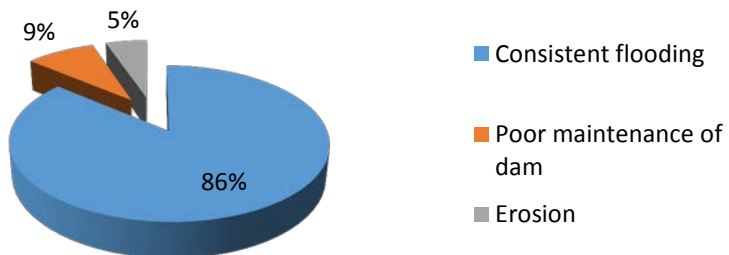
PLATE 2: ALAU DAM OVER FLOW CHAMBER (SURVEY, 2013)

FIG. 1: HEALTH PROBLEMS POSED BY THE CONSTRUCTION OF ALAU DAM



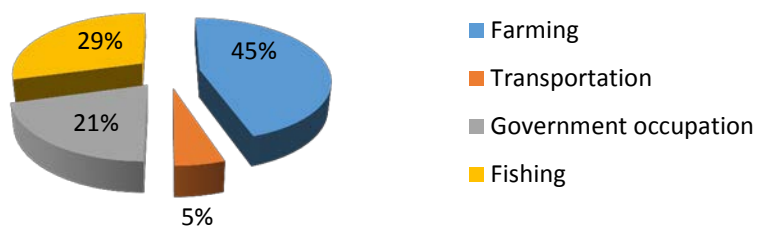
Source: Survey, 2013

FIG. 2: MAJOR PROBLEMS POSED BY ALAU DAM CONSTRUCTION



Source: Survey, 2013

FIG. 3: ECONOMIC BENEFITS OF ALAU DAM CONSTRUCTION

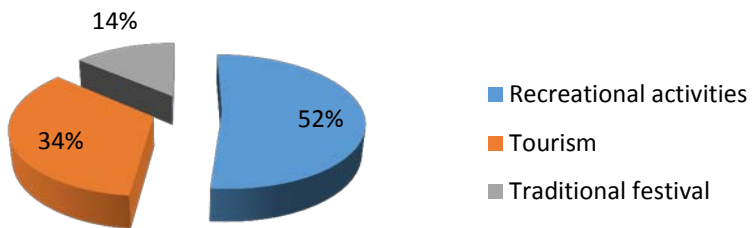


Source: Survey, 2013



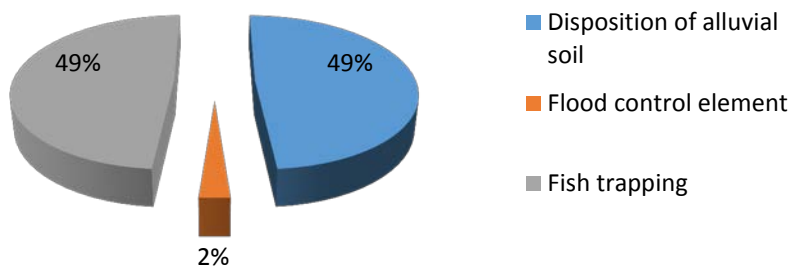
PLATE 3: POTENTIAL AGRICULTURAL LAND ALONG THE SHORES OF ALAU DAM (SURVEY, 2013)

FIG. 4: SOCIAL BENEFITS OF ALAU DAM CONSTRUCTION



Source: Survey, 2013

FIG. 5: ECOLOGICAL BENEFITS OF ALAU DAM CONSTRUCTION

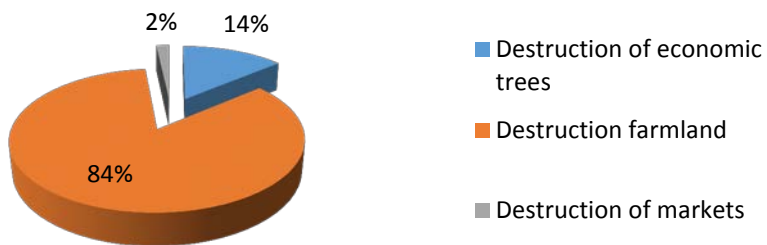


Source: Survey, 2013



PLATE 4: THREAT OF ALAU DAM CONSTRUCTION TO RESETTLED AREA (SURVEY, 2013).

FIG. 6: ECONOMIC THREAT POSED BY ALAU DAM CONSTRUCTION

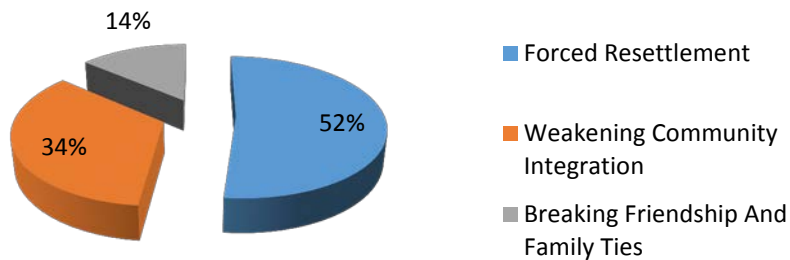


Source: Survey, 2013



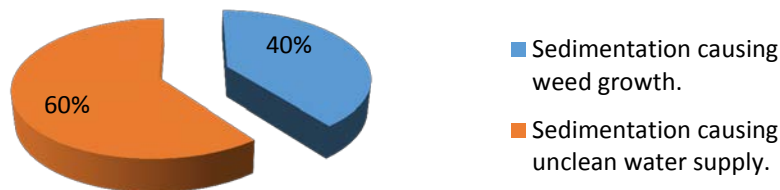
PLATE 5: THREAT TO FARMLANDS DUE TO CONSTRUCTION OF ALAU DAM (SURVEY, 2013).

FIG. 8: SOCIAL THREAT POSED BY ALAU DAM CONSTRUCTION



Source: Survey, 2013

FIG. 7: ECOLOGICAL THREAT POSED BY ALAU DAM CONSTRUCTION



Source: Survey, 2013

Discussion and findings

The majority of the population, which constituted 84% of the total population, falls within the workforce range and this is as a result of the opportunities to be engaged in one work responsibility or the other in Alau community. This is made possible by the presence of river Alau and the dam constructed within it. The dam has provided much opportunities for irrigation farming and fishing. This phenomenon cuts across all gender bounds with both sexes participating fully. The very few who don't partake in either farming or fishing activities embark on other activities such as petty trading and the civil services. There is no doubt that the construction of Alau dam has served as a pull factor for migrants.

Though, Alau dam has posed problematic situations and threats to the Alau community, it still has its benefits which the community is enjoying. These benefits have not been fully harnessed due to government neglect both

at the federal, state and local levels of government. Most of the inhabitants engage in primary production activities using crude means. The government has not made any attempt to alleviate their problems. Flooding has terrorized the Alau community over the years; 86% of the respondent agreed to it. More than 8% of the respondents complained that the flooding is as a result of poor maintenance of the dam. The government has not attempted to employ a measure that will serve as a panacea for the sustainable control of the problems of the dam.

It was understood that, the problems and threat posed by Alau dam construction has served as a retarding factor for the progress of the Alau community. The community is void of major infrastructures such as roads for easy and fast evacuation of people and agricultural products, health centres and schools.

Recommendations

1. The government of Borno state need to enforce the annual submission of environmental impact reports for all projects in the entire state. This will support an effective audit of the activities of Alau dam. Then, comprehensive environmental impact reports should be written for Alau dam on a yearly basis to monitor the problems, prospects and experiences of the dam. In addition, the federal government of Nigeria in conjunction with the state government should imbibe the culture of preparation of environmental impact assessment report before any dam is constructed to mitigate future devastation on the environment, lives and property.
2. It is pertinent to review and restructure the laws and legislations that guide resettlement activities as a result of mega proposals such as dam construction. The government should also ensure a well monitored resettlement programme for affected people as well as due compensation as a result of dam construction. This will ensure that affected communities are well resettled and compensated on their affected farmlands and other properties.
3. In line with ensuring a yearly audit of the impact of Alau dams, the government should embark on an expansion programme for the dam and a de-sedimentation scheme of the dam floor as well. This will reduce the hazard of impurity in the water and also mitigate to great extent the overflow of water into farmlands and settlements.

Conclusion

It is clear from the findings that Alau dam is not undergoing any form monitorin to ensure an assessment of the damages it causes on a yearly basis. Dam development projects are aimed at reducing poverty or improving economic opportunities. But this notion has not manifested much in Alau

community. The failure to adequately account for the various impacts can lead to extreme conditions of poverty. The bulk of the population constituting energetic youths is a major potential for both physical and economic development, which is also being frustrated by inadequate or lack of basic infrastructures to effectively run their agrarian activities. With the effective and efficient implementation of the proposals and recommendations given in this study, the problems of Alau community will be well mitigated and the prospects efficiently harnessed for the development of the community and Borno state at large.

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