



## Assessment of the Socio-economic Impact of Kashimbilla Multipurpose dam Project in Takum LGA, Taraba State, Nigeria

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### Abstract

The increasing global demand for energy combined with the quest for clean, renewable energy has placed high demand on hydroelectric power development. Hydroelectric power project often times requires the construction of dam along a river to create reservoir, thereby affecting the flow of the river, altering ecosystems and affecting wildlife and people who depend on those rivers. The construction of hydroelectric dam has an enormous and devastating impact on the environment. This study has examined the socioeconomic impacts of Kashimbilla multipurpose dam. Primary and secondary data were used in this study. The primary data were generated from field observation and interviews, while the secondary data was generated through secondary desk review of existing relevant materials. The study findings show that the Kashimbilla dam is a multipurpose dam that is very unique. It is a buffer dam meant to check the threat of a flood from the weak volcanic Lake Nyos in Cameroon Republic. The dam was also meant to provide water supply of 60,000 cubic metres per day to 400,000 people, hydro power supply of 40 megawatts, irrigations of 2000 hectares, including tourism and fishery which will serve as poverty alleviation measure in the area. Some of the socioeconomic impact of the dam include displacement of several communities and creation of two resettlement camps. The study findings shows that despite the fact that the local communities were not involved in the dam project construction and resettlement, there were no resistance by the local people. Other impacts include loss of farmlands and historical areas used for Takaciyawa festival. It was reported that the dam led to the emergence of some diseases among the people of Jinagbanshin, Lukpo, Shibon Igba and Bariki Lisa as a result of the impoundment of the river. Although the Federal government assured that the Kashimbilla dam project will be commissioned in the first quarter of 2015, this was not possible as a result of the transition to new civilian regime in the country. Work at the project site will be rounded up by October, 2015 and the project site will be closed. The completion and commissioning of the project will depend on the response of the Federal government by way of meeting their financial obligation to the construction firm.

**Keywords:** Dam, Hydroelectric, Impact, Kashimbilla, Socioeconomic and Takum

### Introduction

The increasing global demand for energy combined with the quest for clean, renewable energy has placed high demand on hydroelectric power development. Modern hydroelectric dam development is driven by politics, economics, and energy demand. Large dams are developed for many purpose. The Kashimbilla dam is a multipurpose dam for flood control to check the threat of a flood from the weak volcanic Lake Nyos in Cameroon Republic, water supply of 60,000 cubic metres per day for 400,000 people, additional hydro power supply of 40 megawatts, irrigations of 2000 hectares, including tourism and fishery which will serve as poverty alleviation measure in the area. While the benefits of a dam project can be worthwhile, any interruption of natural processes brings economic, environmental, and social impact on the local community. In most developing countries of Africa (Nigeria inclusive), lack of funding limits the priority of socioeconomic impact analysis. This provide opportunity for preliminary research in the study area.

Hydroelectric power project often times requires the construction of dam along a river to create reservoir, thereby affecting the flow of the river, altering ecosystems and affecting wildlife and people who depend on those rivers. The construction of hydroelectric dam has an enormous and devastating impact on the environment. These impacts depends on the size and topography of the area. Hydroelectric power projects constructed in a lowland area tend to occupy much more land than those on hilly area which can hold more volume of water in a smaller space. Flooding land for hydroelectric power reservoir has an extreme environmental impact which include destruction of forest and wildlife habitat, loss of agricultural and scenic land and in most cases, leads to relocation of human settlements. This makes it imperative to conduct adequate environmental impact assessment to understand fully the possible adverse effects of the project on local communities and measures put in place to mitigate these effects. It is also expected that the anticipated adverse effects are adequately communicated to the local communities and their consent and opinion taken into consideration in the project plan, design and implementation. Experience have shown that in most developing countries (Nigeria inclusive), the adverse impacts of development projects are not adequately communicated to local communities. This was the case on the proposed Mambilla hydroelectric power project in Taraba state. Instead, the local communities were only provided information on the potential benefit of the project while the information on the adverse impacts are kept away from them. Oftentimes, some of the adverse impacts of the HEP projects are not envisaged at the planning stage of the project but are later felt by the physical, biological and human components of the environment. This situation makes it imperative to have impact studies on any major development project in contemporary dispensation so as to appraise the processes involved in the planning and execution of the project. This will help to examine the impact of the project on local communities and the mitigative measures put in place to cushion the adverse effects of the project.

Also, there exist quite much information on the Kashimbilla dam project on the internet. Much of this information are merely political statement contained in online newspapers which does not reflect reality on the ground. Sadly enough, some journal articles published online were based on these political statements contained in the online newspapers.

Hence there is need for research to provide information on the true state of the Kashimbilla dam project at the moment. This study attempt to fill this knowledge gap in the case of the Kashimbilla Multipurpose dam project.

## Conceptual Framework

This study is based on the concept of socio-economic impact. An impact is a measurable change in the characteristic or property of resources (Oyelaran, 2001). Impact types most commonly observed during construction projects include alteration, rearrangement, dispersal, removal and total destruction of ecological resources. An impact according to Oyelaran (2001) has both spatial and temporal components and can be described as the change in an environmental impact, over a specific period and within a defined area, resulting from a particular activity compared with the situation which would have occurred had the activity not been initiated.

The concept of Socio-economic Impact studies provides a general framework for the assessment of a development project in order to determine its likely ecological and socio-economic consequences and also determine any possible alternative (Ibrahim, 1997). Socio-economic impact involves analysis of potential impacts of new projects on local communities and wider society, and the development of strategies to manage these impacts. Socio-economic impact studies can be carried out as a separate study, but is often delivered through an Integrated Environmental and Socio-economic Impact studies. The objectives of socio-economic impact studies are to predict and limit adverse impacts of new developments, and to build positive relationships with communities and stakeholders (Burdge *et al*, 1995). Socio-economic impact therefore is designed to assist communities in making decisions that promote long-term sustainability, including economic prosperity, a healthy community, and social well-being. A socio-economic impact study examines how a proposed development will change the lives of current and future residents of a community (Oruonye and Sanusi, 2011). Because socio-economic impact is designed to estimate the effects of a proposed development on a community's social and economic welfare, the process should rely heavily on involving community members who may be affected by the development.

Socio-economic impact provides a foundation for assessing the cumulative impacts of a development undertaking on community's social and economic resources. Unfortunately, socio-economic impact often takes a back seat to other types of impact assessment such as fiscal and environmental impact analysis because the impacts are often more difficult to measure, and the social impacts associated with a development are generally more subtle than impacts on a community's fiscal balance sheet or local natural resources (Burdge *et al*, 1995).

## Description of the Study Area

Takum LGA is one of the oldest LGA in Taraba State, created in 1976. Takum derives its name from Kuteb word *Tekum*, meaning smaller hill settlements in the area. Takum was created from the former Wukari Native Authority in 1976. It is roughly located between latitude 6°22'N to 7°30'N and longitude 9°40'E to 10°20'E. It is bordered to the north by Donga and Wukari LGAs, to the west and south west by Benue State, to the east by Ussa LGA and to the east and south east by the Republic of Cameroon. Takum LGA with a landmass of 2,542km<sup>2</sup> has a population of 135,349 (68,863 male and 66,486 female) people according to the 2006 national census. Takum LGA has 11 political wards and 3 districts; Chanchanji, Kashimbilla and Takum districts.

The Kashimbilla dam is located in Kashimbilla district, 50km south-west of Takum town in Taraba State. The dam is a 40mega watts capacity. It could actually generate more electricity than this but has to be limited to this, because of its closeness to the border with the Republic of Cameroon. If it is made to generate more than this, it could result in the submergence of much land in the Republic of Cameroon and this could result in international problem. The Kashimbilla dam is a buffer dam which is meant to protect and save the citizens of the state from destruction as a result of flooding from possible collapse of Lake Nyos. The decision came after warning by the United Nations to the Nigerian government in 2005 on the need to create a buffer dam to contain the water of Lake Nyos in Cameroon as a result of breakage in 5-10 years. The lake was said to have been formed 400 years ago as a result of volcanic eruptions. Presently, it has started breaking. When it breaks, water from the lake will wash away villages, farm lands and cities along the River Benue in Taraba, Benue and Kogi States, and will lead to the death of thousands of people. The Kashimbilla dam is a unique dam. This Uniqueness influence the design and construction of the dam. The Kashimbilla dam has been designed for an operating life span of 150 years.

The dam is 35m high. The sections include the spillway, flood directing structure, power generating plant and sensors to measure seepages. There are 8 openings of the water intake to prevent big fishes from entering the turbine. There is also a machine for clearing the clogs. The speed of the river is 4meter per seconds. The river was diverted and an embankment was constructed across the main river. The whole idea of a buffer dam is to control the flow of water through the spillway. A generator seats on top of a turbine.

The multibillion naira contract for the construction of the Kashimbilla multi-purpose dam project was awarded to Messrs Setraco company limited on May 11, 2007. The contract was awarded in 2006 at the sum of N42billion naira, but only N1billion naira was released to the contractor. The contractor was mobilized to site in July 2008. The project was expected to be completed in 3 years (2011), but owing to politics and bureaucratic bottleneck, it is yet to be completed.

## Methods

Both primary and secondary data were used in this study. The primary data include participant observation and interview with the Project Manager of the constructing firm and members of the community. The secondary data was generated from secondary (desk) review to identify existing literatures on socio-economic impacts of hydropower dams on local communities. Additional information was generated from web-based generic search engines, using the snow ball to retrieve significant references. The researcher visited the Kashimbilla Multipurpose dam project site along with the students of Taraba State University on field excursion. During the field excursion, the researcher and students were taken on a guided tour round the dam and affected communities that were resettled. This enabled the researcher to have a

firsthand view and information on the dam construction. Unfortunately, the Project Manager of the constructing firm declined response on questions that bordered on compensation of the local communities and challenges of the resettlement scheme.

## Result of Findings

Findings of the study show that the installation of the distribution network for evacuation of generated electricity from the dam has not been done. It is hoped that the installation of the distribution network will form part of the next phase of the project. This will depend on the response of the new present government of the country. The Project Manager in an interviewed said that work at the project site will be rounded up by October, 2015 and the project site will be closed. The construction firm according to him will direct its attention to the power transmission and distribution lines. At the time of visit to the project site in July, 2015, the firm was working on installation of mechanical and electrical fittings (Fig. 6&7). Findings of the study shows that the Federal Government recently paid the company money to construct alternative access road to the local communities which is ongoing (Fig. 8).

The findings of this study shows that more than 200 communities stand to be affected by the Kashimbilla multipurpose dam construction. Interview with some local community members shows that there was no compensation paid to the local communities as a result of acquisition of their land. Government just acquired another land and ask the local people to relocate. The constructing firm proposed 3 resettlement camps. They have started the first camp and the second camp was not completed. The third camp was cancelled by the government. The first camp is the Birama resettlement camp. It has the following proposed developmental facilities; access roads and drainages (Fig. 8), 2 boreholes and boat channel. Ngabea *et al* (2013) observed that the construction of the dam has been responsible for the relocation of large numbers of people from Birama. Most people moved to villages such as Hanki, Mango, Alahu and Tandun among others.

The creation of large dams in Africa has been responsible for the relocation of large numbers of people. The Kossou Dam in the Ivory Coast displaced 85 000 people, the Akosombo Dam 84 000, the Kariba Dam in Zimbabwe 57 000, the Kainji Dam 55 000 and the Lagdo Dam 35 000 people (Mudzengi, 2012). The Aswan High Dam on the Nile displaced 120 000 Nubians, both in Egypt and Sudan (Adams, 1992). The economic and human costs of resettlement are huge. The economic and human cost of resettlement are huge. The financial costs of resettlement includes surveying sites, evaluating the number of people and property affected, rebuilding of settlements and infrastructure and the actual relocation of the communities.

The outcome of the interview with the Personnel Manager shows that the local communities were very friendly with the project and constructing firm. However, the report of Ngabea *et al* (2013) shows that the local communities were not actively involved in the project planning and design stages. Thus the only aspect of the project that the local communities were involved was limited to their engagement as paid laborers. This non-involvement of the local communities in the project design and implementation contributed to failure by the authorities to ensure that the local communities reap maximum benefit from the dam project (Ngabea *et al*, 2013). Community involvement in the dam construction would have reduce the stress and psychological trauma experienced by the local communities as a result of relocation. Experience from past resettlement schemes has shown that the failure/success of any resettlement scheme is not necessarily a question of whether the innovations intended are advance (developmental) or not, but more of a question of the degree of public participation leading to effective execution of project that is involved (Oruonye and Sanussi, 2011). Oyedipe (1983) argued that since resettlement is usually caused by national project, there is need for resettlement strategy which emphasizes development – oriented innovations with modification to ensure maximum consultation and involvement of the relocatees themselves to avoid shortcomings and anxiety.

Findings from the study show that unlike previous resettlement schemes associated with hydroelectric dam construction in Nigeria and Africa, there was no any form of resistance by the local communities in the case of the Kashimbilla multipurpose dam construction. However, the local people experienced anxiety as a result of removal from traditional lands and non-compensation of the local communities. The PM observed that in Nigeria, land is not a problem but in other parts of the world, it could be a serious problem.

The findings of the study show that the Kashimbilla dam project at the moment provides employment opportunity to 1,500 people in the area which is expected to increase to 2,000 after completion. The Project Manager remarked that before the commencement of the project, one can hardly see any motor bike in the area, but today the community is fast developing. So many construction works springing up in the neighborhood of the dam. The Kashimbilla dam is also design to accommodate tourism. Special sections have been designated for this purpose and has not been completed at the moment.



Fig. Kashimbilla Multipurpose dam Project



Fig. 2. Kashimbilla Multipurpose dam and spill way

The Kashimbilla Dam caused a lot of devastating diseases among the people of Jinagbanshin, Lukpo, Shibon igba and bariki lisa. The impoundment of the water at the upstream increased the prevalence of schistomomiasis, malaria and yellow fever in the region (Ngabea *et al*, 2013). Dams also result in the destruction of natural habitats (Mudzengi, 2012). According to Canter (1985) the shift from river to lake environment can result in the reduction of species diversity. Dams may lead to the loss of rare flora and fauna species. Impoundments lead to decreased woodland thereby adversely affecting wildlife communities. This leads to decreased hunting and associated uses (Mudzengi, 2012). Medicinal herbs will also be lost. Furthermore, decreased forest plant communities lead to decreased timber production and attractiveness of an area to recreationists (Canter, 1985).

Some of the river valleys between hills/mountains were important historical and cultural sites used for recreational activities. These sites include the valley between “Kuna bête” and “Kuna Kashimbilla” which were sites used for Takaciyawa festival in the area. The Takaciyawa festival is one of the prominent cultural event in local community (Ngabea *et al*, 2013).

### Challenges

The major challenge that the construction firm are having at the moment is that of finance. The Federal government of Nigeria is owing the company N35billion. Secondly, lack of alternative access road especially if the dam site is closed. The third challenge is the non – payment of compensation to the local communities. The fourth challenges was the poor manner in which the resettlement scheme was handle. Effort to get information on the total number of people resettled for each community and issues of compensation proved fruitless as the Project Manager declined comment on such issues, insisting that they were not permitted to comment on such by the terms of their engagement. He referred the researcher to another indigenous engineer to provide such information. The indigenous engineer did not respond to several mails sent to him on these issues. This goes further to show the level of secrecy associated with most government large scale projects in developing countries and Nigeria in particular.



Fig. 3 Constructed embankment of Kashimbilla Multipurpose dam



Fig. 4 Kashimbilla Multipurpose dam under construction



Fig. 5. Buoyes for monitoring and Tourism on the Kashimbilla Multipurpose dam



Fig. 6 Electrical Installations at the Kashimbilla Multipurpose dam



Fig. 7 Turbines at the Kashimbilla Multipurpose of dam



Fig. 8. Construction of access road to affected communities

## Conclusion

This study has examined the socioeconomic impacts of Kashimbilla multipurpose dam. The study findings has shown that the Kashimbilla dam is a multipurpose dam that is very unique. It is a buffer dam meant to check the threat of a flood from the weak volcanic Lake Nyos in Cameroon Republic. The dam is also meant to provide water supply of 60,000 cubic metres per day to 400,000 people, hydro power supply of 40 megawatts, irrigations of 2000 hectares, including tourism and fishery which will serve as poverty alleviation measure in the area. Some of the socioeconomic impact of the dam include displacement of several communities and creation of two resettlement camps. The study findings shows that despite the fact that the local communities were not involved in the dam project construction and resettlement, there were no resistance by the local people. Other impacts include loss of farmlands and historical areas used for Takaciyawa festival. It was reported that the dam led to the emergence of some diseases among the people of Jinagbanshin, Lukpo, Shibon Igba and Bariki Lisa as a result of the impoundment of the river. Although the Federal government assured that the Kashimbilla dam project will be commissioned in the first quarter of 2015, this was not possible as a result of the transition to new civilian regime in the country. Work at the project site will be rounded up by October, 2015 and the project site will be closed. The completion and commissioning of the project will depend on the response of the Federal government by way of meeting their financial obligation to the construction firm.

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