

The Impact of River Benue on Residents of Makurdi Town, Benue State, Nigeria from 1976 to 2020

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Abstract: Human settlements globally arise due to resource availability impacting residents' livelihoods. In Makurdi town, the River Benue is a crucial resource for sustainable development. Researchers, utilizing structured questionnaires, interviews, and records, found that non-indigenous groups exploit the river's potential, while locals focus on upland farming and white-collar jobs, neglecting the river's vast opportunities. The study recommends promoting river-linked resources like craft industries, sand mining, and Fadama farming, initiating empowerment programs, enhancing aesthetics through landscaping, and developing tourism sites. Emphasizing security, market regulation, education, and funding is crucial for Makurdi residents to prosper through the river Benue.

Keywords: Urbanisation, Impact, River Benue, Makurdi, Settlements, Prospects.

1. Introduction

Rivers have influenced the choice of places for settlements, the pace of development and the livelihood of the people. The location of human settlements has long been a subject of interest to researchers and concerned stakeholders. Susana [1] in her work entitled, *Linear Structural Patterns of Settlement* as reviewed by Balasubramanian [2] observed that a certain amount of productive land supports an urban centre. This is because services must be performed to cater for residents in the surrounding area. A productive land here denotes all resources such as minerals, water bodies, fertile land, flora and fauna, and to a greater extent, the people that reside there.

For instance, in the ancient civilization of India, urban centres were often planned near rivers or at the coast. The great and well-planned cities provided public and private facilities and an efficient water management system with numerous reservoirs and wells [3]. Settlements selected by the Indies flourished around rivers and deltas, and rivers remain an enduring symbol of national culture to date. The first major settlements in the Indian civilization (Mohenjo-daro and Harappa), were found along the Indus River and its tributary, the Ravi [4]. These settlements provided physical and aesthetic properties of water giving it a unique mythical-religious potential which played an important role in myths and religious

rituals in the land [2].

This means that it is natural for residents of a town or city to derive the needed materials from their surrounding environment; in this case the River Benue. For instance, the early man gathered fruits, and stones and hunted to survive within his immediate environment. It is the reason why whenever he moved away to another place, his formal place was left to fallow. It is, therefore, an age-long practice that man derives his food, clothing and shelter from his immediate surroundings and whenever there is a deviation from the normal trend, people tend to suffer. For example, it is never easy for residents who leave water in one location to get it from another. In the old days when there was limited technology to drive water through pipes to the desired location, carrying water on the head through a long distance was not easy. But those who had water close by were served by that water and needed not to stress themselves for a source of water. It is based on the above that this research chose to study the impact of the River Benue on its residents.

2. Definition of Concepts

In this paper, two concepts deserve clarification. The first is urbanisation which is defined as the process in which the number of people living in cities /towns increases compared to the number of people living in rural areas [5]. Since 1960, there has been rapid and faster urbanisation in Nigeria compared to other developing countries of the world. A principal reason was due to lack of resources in the rural areas. The lack of resources in the rural areas can be described as the push factor, while the social amenities that attract people to the urban centres such as paid jobs, informal sector, better health care facilities and educational opportunities can be referred to as the pull factors. This definition helps us to understand why Makurdi was established along the riverside and the gradual occupation by diverse ethnic groups with different orientations.

On the other hand, urbanisation creates the second concept; 'impact', on the inhabitants. The United Nations Development Program [6] described 'impact' here as the changes that occur in people's lives. This might include changes in knowledge,

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skill, behaviour, health or living conditions for children, adults, families or communities. Such changes are positive or negative long-term effects on identifiable population groups produced by development intervention, directly or indirectly, intended or unintended. These effects can be economic, social, cultural, institutional, environmental, and technological among others. According to the Group, positive impacts should have some relationship to the Millennium Development Goals (MDGs), internationally agreed development goals, national development goals, and national commitments to international conventions and treaties. Usually, impact may be used to imply contact between two things; in this study, the River Benue and the residents of Makurdi. In this union, at least one thing is pulled towards the other due to unavoidable circumstances. For instance, the residents were impelled to reside by the Riverside to exploit its resources [7].

In this connection, Kregel and George [8] in their article entitled, 'How Environmental Quality Affects Our Happiness', used the River Thames in England and Wales to show how happiness is derived from associations with the environment. They further noted that people worldwide recognise the importance of the natural environment and its protection to their continued well-being. These definitions assist in throwing more light on the socio-economic and political impact of the River Benue on the people of Makurdi Town.

3. Theoretical framework

The theoretical framework for the study of the location of cities was given by Walter Christaller [9] in his Central Place Theory. The Theory says that; a certain amount of productive land supports an urban centre; and is one of the major reasons people choose certain locations for settlement. It further reveals that the centre exists because services must be performed by residents, given the productive land. These services comprise all activities involving tapping from the land and maintaining the land for sustainability. The residents of Makurdi have engaged in such services using the River Benue through fishing, sand mining, water transportation, source of water supply, waste disposal, and recreation among others. These services are performed in a nucleus location referred to as "central functions" or "central places." [9].

It is, therefore, expected from the analysis and application of this Theory that the River Benue should to a large extent, service Makurdi metropolis and its environs. This is contained in the theory which says each central place would have a circular tributary area. Although the first model of this theory focuses on markets' influence on settlements, the application and review by other scholars have broadened the theory's application [1]. That is why it is used in this work to discuss the river Benue as the central place, providing services for the residents of Makurdi town.

4. History and Geography of Makurdi town

Makurdi is in central Nigeria and spatially located within Latitudes $7^{\circ} 52' 30''\text{N}$, $7^{\circ} 34' 30''\text{N}$ and Longitudes $8^{\circ} 22' 0''\text{E}$, $8^{\circ} 40' 10''\text{E}$. According to the UN World Urbanisation Prospects

[5] the population of Makurdi town is now estimated at 454,419. Makurdi town falls into the categories of towns that emerged before the advent of colonialism [10]. The River Benue is a very significant feature in Makurdi and originates from the Cameroun Mountain which flows westward into Nigeria and joins the river Niger in Lokoja, Kogi State. It is the second largest river in Nigeria after River Niger and it is about 1,488 Km long and has alluvia fertile flood plains on both sides of its banks [11]. The River passes through Makurdi, the capital of Benue state of Nigeria. The town is located on the bank of the River Benue which divides the town into two; the North bank, and the South bank. The two settlements have been united into a single town because of the construction of two bridges across the River in 1932 and 1978 respectively.

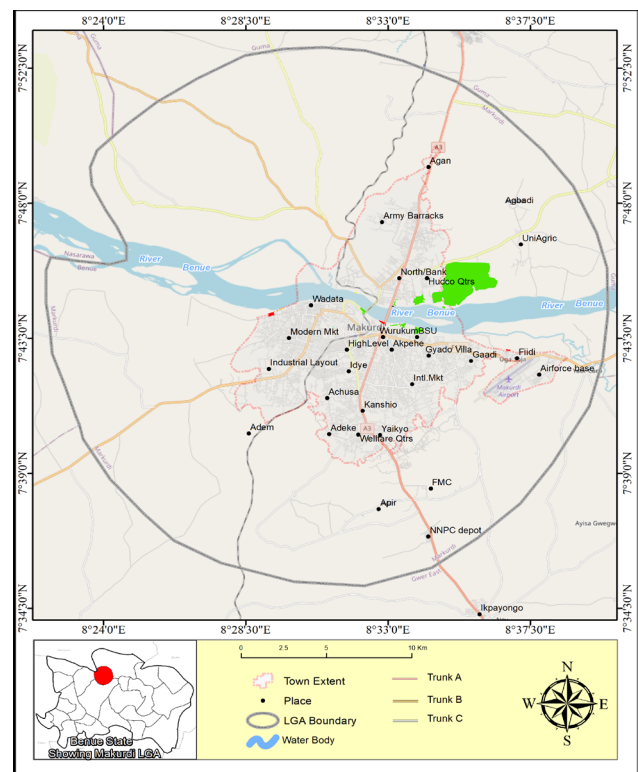


Fig. 1. Makurdi local government showing Makurdi Town

The earliest inhabitants were the Agatu of the Idoma stock who were predominantly fishermen. Abushi a hunter of Agatu-Idoma stock settled at Idye but later relocated with his family to Angwan Jukun, New Garage, Wurukum and Wadata to benefit from the river Benue for fishing, and easy access to water among others [5]. They were later joined by the Tiv of the Ihyarev stock who were crop farmers. The differentiation in their occupations positively marked the beginning of daily economic activities whereby they exchanged fish for food crops. The next group were the Jukun and Igbira ethnic groups who settled at the bank of the River Benue as fishermen using spears, nets, hooks, canoes and traps individually or communally to hunt for fish. Some of them supplemented their main fishing occupation by cultivating cassava and maize during the wet and dry seasons because of the wet banks of the river which remain moist throughout the year. There was trade

in articles such as salt obtained from Keana, Azara, and Akwana. Some were blacksmiths and canoe builders who got wood from riverine economic trees and constructed canoes of different sizes for passenger and goods services [5].

The third group was the Nupe (or Nupawa) who were also riverine dwellers who settled around the present Wadata Market. Their Chief was Alhassan; Sarkin Kwata meaning 'chief of the river' He was in charge of fishing and had a large canoe-like water house called Eyangbura. The subgroup called the Nupawa settled at the bank of the River Benue called Jibata-Makurdi. Their settlements spread to New Garage, Wurukum and North Bank all on the river bank because of its close vicinity to fishing points. They practice subsistence agriculture especially maize, millet and genuine corn [5].

Another ethnic group that followed was the Alago who also settled along the river bank principally for fishing and trading. Next was the Hausa who used the River Benue for their military expedition to acquire slaves used for economic gains such as extra labour (sugar cane business), informants, guides, and political and trading agents. Between 1850 upwards they settled at North Bank and later Wadata [5]. Because of their close affinities in terms of common origin, culture and religion inherited from the far north, the Hausa were shortly followed by the Bororoje Fulani herdsmen to settle at the North bank and Wadata to utilise the river bank. On the whole, apart from culture and religious affiliations which informed the pattern of their cluster settlements, the major influencing factor was to position themselves for effective utilisation of economic resources of the River Benue.

Apart from the indigenous occupants, European explorers such as Mungo Park, Richard Lander and Macgregor Lairds' expedition missions used the River Benue to come in contact with the indigenous people for trade, transportation and settlements. For instance, ports were opened for commerce and trade resulting in mini settlements which Makurdi also benefitted from. Resources such as water, the terrain, easy crossing, traders, herders, sailing on the water, extensive fertile land, fishing, and canoe industry, among others, attracted people to form the settlement area.

5. Makurdi Residents and the River Benue

Historically, the Makurdi settlement started in pre-colonial times. It transited to the colonial time from 1914 to 1960 and entered the post-colonial period from 1960-2020. However, indigenous people failed to recognise the River as a major factor for development and prosperity. The non-recognition was one of the factors responsible for poverty in the area. Ideally, the entire infrastructural development of Makurdi town and its adjoining local government areas such as Makurdi, Gwer West, Gwer, Tarka and Guma principally hinges on the River Benue for water, smooth/sharp sand, gravel and transportation. Yet, the indigenes concentrated on upland farming of crops and subsistence which was determined by natural forces and professional handling and they lacked the technical know-how; resulting in annual poor yield, disasters and low economic output. It is periodic or seasonal. But the riverine business is all year round and is capable of generating millions/billions of

Naira. Most of the settler millionaires in Makurdi town made it through the economic resources of the River Benue.

To arrive at this position, this research used structured questionnaires, interviews and written records to obtain data. The secondary sources which comprise existing official and unofficial information from publications including journals, articles, thesis, books, and conference papers, were consulted. The predominant activities at the Riverside were known through visits to the area which resulted in proof of the utilisation of the River Benue by residents though nominal by indigenes.

A. Sand Mining

The impact of the River Benue can best be understood when we take a look at various ways residents utilise the River in terms of fishing, washing, drinking, transportation, construction of the greater Makurdi water works, sand mining or dredging used for the construction of buildings and roads. Major harbours for mining sand include; the new head bridge Wurukum and the north bank, near Lafia Motor Park, new Garage, Inyongon, Airforce Base, and the Akile-Angbaaye-Gboko Road axis. The research revealed that apart from water, in 2020, the major economic activity in the River was sand mining where no fewer than 150 trucks or tipper loads of sand were sold per day; which cost 10,000.00 naira per tipper within Makurdi town and with no uniform amount for the outskirts of the town and beyond during the rainy season. Similarly, 200 trucks were sold out during the dry season at the cost of 7,000.00 naira per truck, while charges outside the town depended on the distance and the bargaining power of the buyer. For instance, one of the respondents revealed that a truckload of sharp sand to Naka town from Makurdi cost #25,000 in 2010. There is a chain of businesses that are transacted on the Riverside daily. For instance, canoe owners dive into the river belt to scoop out sand into their canoes using labourers who are experts in diving. They in turn sell it to sand dealers who convey the sand to sell directly to builders and construction industries.

By implication, canoe owners, sand dealers, agents, sand loaders/off loaders, tipper owners, tipper drivers, food sellers, builders, contractors, government revenue collectors and those who construct fielder roads for vehicles benefit from the economic boom generated from the sand business in the River Benue. On the whole, every resident of Makurdi benefits from this business differently.

B. Agriculture and Coastal farming

Located on the river bank, residents of Makurdi have green areas where farming activities are conducted during the wet and dry seasons. Crops such as maize, sweet potatoes, rice, yams, cassava, millet, soya beans and vegetables are produced and sold daily throughout the year. This accrues money for the farmers and drains the economy of consumers who are mostly poor ignorant indigenous residents. Although the informants could not ascertain how much they earn daily to enable the research to estimate their potential income it was possible to assert that based on market demands, it must be sustainable for

the producers.

C. Fishing

Fishing in the Makurdi axis of the River Benue is another business hub that benefits residents of the metropolitan city. Mostly carried out by the Jukun and Agatu, fishing is a flourishing occupation because of the high demand for fish by the residents of Makurdi, its environs and beyond. It is consumed in private homes, Government establishments, alcohol consumption spots, restaurants, hotels, institutions and special events. Incidentally, fishermen in the area are not in an organised association. They caught fish daily for household consumption and trading which accrue them at least #5000.00 per day x 30 or 31 days=150,000.00 or 155,000.00 per month, x 12 months= 1,800,000.00 or 1,860,000.00 naira. Other aquatic resources include; snails, crabs, periwinkles, mussels and oysters among others, which are consumed at household levels and a few sold out for small gains. Leech (2019) observed that fish are high in providing nutrients such as protein, iodine various vitamins and minerals to the body. If highly consumed, it will help to prevent attacks of diseases such as heart attacks and strokes, stunted growth and development, brain health, depression, autoimmune disease, vision impairment, asthma in children and sleep disorders. The health benefits notwithstanding, many indigenous residents ignorantly prefer domestic and bush meat.

D. Transportation

Since the beginning of settlements along the river Benue bank of Makurdi, local fishermen have used local canoes for fishing and transportation of goods and humans across and along the stretch of the study area and beyond. The two bridges notwithstanding, goods and services were conveyed between the north and south banks. Commuters used the canoes to travel to places such as Gwer West Local Government Area (LGA), Agatu LGA, down to Lokoja in Kogi State. They also travel to Abinsi, Gbajimba, Katsina Ala and Buruku. By late 1981 and early 1990s, there was a great improvement in transportation with the acquisition of engine boats, flying boats and water buses which Gwer West purchased two of the buses. In 2020, the local boats, engine boats and flying boats were the only means of transportation. Yet they greatly served the residents of Makurdi in terms of attending local markets and events, going to the farm and villages to purchase foodstuff or visiting relatives and friends. For instance, with the poor condition of roads and insecurity, it was more comfortable and safer to purchase from the Gbajimba Market using the waterway.

E. Water Supply

Three channels of water supply were in existence within the period of study. Some residents go to the River to directly fetch water or wash their bodies, clothes, utensils, vehicles and defecate. This happens without a time lag because up to 2020, some residents were in the habit of doing the same.

The second category was those who fetch water to sell called (Mairuwa in Hausa because they were all of northern Nigeria extraction). Possible harbours of fetching water include; Wadata, New garage, Water Board, North Bank and motorised

bore holes, among others. From 1976 to the end of 1990, they were dominated by the traditional men who carried water in two tin gallons tied to a wooden stick on their backs. This method was labour intensive, it threatened the health of the carriers, but could not pay their bills or satisfy the water demand of the residents. From 1990-2020, the construction of trucks (Amaleke) which could contain 8, 10 and 12 gallons of 20-litre plastic containers began. With these, it was less burdensome but paid more. Thus, carrying of water shifted from the back to the use of hands to push the trucks and supply more water to the residents and get more money. By 2020, a container cost 20.00 x 8=160.00, 20.00 x 10=200.00, and 20.00 x 12=240.00 naira. With the new vehicle, one trip was capable of feeding a *Mairuwa* and with a balance to take home at the end of the day. Some motorcycle trucks were gradually being purchased.

F. Water Board

Efforts to supply water to residents of Makurdi began during the colonial period with a mini-water work used by the railway and missionary workers. It was extended to Government Reserved Area in 1960; during the Independence of Nigeria with little improvement following the creation of Benue-Plateau State. In 1976, when Benue State was created, Makurdi became the State Capital, and more efforts were made to expand the water fountain and supply water to residents across the board. There was epileptic water supply in some areas such as Government House and its environs and Wadata. But it ceased to be functional within a short period.

In the fourth Republic; from 1999, the vision of a greater Makurdi water work was conceived with the objective of extending water services to the entire Makurdi Town. Pipelines were laid up to Wurukum, High-level and so on. Water was a test run, but it went into comatose till 2020. In other words, from 1976-2020, private and public water tanks purchase treated water from the treatment plant at the river bank. In 2020, 5,000 litres of water in a tank was sold at the cost of between 7,000.00 and 10,000.00 naira. Water plant workers could not ascertain the number of tanks that purchase water per day, how much they realise and the number per household served. However, a conservative estimate based on the clue above could be very high. This is a project that could benefit every resident if completed and is functional.

G. Tourism Development

Some residents and visitors who admire nature, regularly visit the river bank for sightseeing. One of the study participants revealed that seeing the volume of the movement of water waves, the jumping of fish and the serene environment across the river to the north bank reduces stress and other challenges. Some of them prefer to interact with nature than patronising artificial/man-made resorts. In 2014, some residents spent almost a day on the new Bridge Makurdi to watch the hippopotamus that came out of the water to feel the warm sun's rays. These and many more such opportunities could be capitalised on to develop the tourism sector in Makurdi. In addition, part of the reason why Makurdi was made the State Capital was because of its proximity to the River Benue. It was

envisioned that as a political capital and with the dredging of the river, it could serve as a National water port, an easy access to water transport and supply of water for public and private use. Though these are yet to be achieved, it is believed that it can be possible with time.

6. Issues Militating Against the Effective Utilisation of the River Benue

The River Benue has been polluted by waste. In the same vein, criminals use the riverine areas as hideouts to commit crimes, and transportation, and dispose of dead bodies and other stolen items to escape arrest by security agents. Most of the culpable homicide cases recorded in Makurdi occurred around the river [12]. Some of them used the river to cross, attack and withdraw without being caught.

Rivers have multiple uses in every sector of development like agriculture and industrial sector, transportation, public water supply, sport, and fishing amongst others. Conversely, they are used as sites for waste disposal as well [13]. There is deliberate dumping of waste in rivers, while waste from industries, domestic sewage and agricultural practices also finds its way into rivers resulting in large-scale deterioration of the water quality. Most often, the discharge of these wastes results in health threats to the surrounding environment and even man [14].

Apart from the above, the business level reduces during the height of the rainy season due to the high volume of water or flood which affects even the sand already excavated and loaded at the river banks for sale as well as artificial water fish pods, thus, causing colossal financial losses to fish farmers and sand dealers. Flooding greatly affects crops resulting in large-scale food loss almost annually. Apart from floods, not all farmers have the required funds and modern technology to embark on large or even small-scale farming to enhance food production. For instance, most subsistent farmers could not afford the cost of buying pumping machines and pipes to engage in high-capacity irrigation farming.

Another challenge is the open grazing which results in the destruction of farm crops by herdsmen who ignorantly or deliberately use their cattle to consume crops. While the herdsmen enjoy free foliage and water; the farmers suffer the negative consequences, and inadequate food affects the health of consumers. In this regard, farmers completely or substantially lost their source of livelihood. Any attempt to resist by crop farmers results in conflict with lives and property destroyed and lost; especially by sedentary farmers. This is evidence of conflict over resources of the river Benue.

In terms of fishing, the study participants responded that it was difficult to catch much fish when the volume of water rises because either the locally fabricated fish traps were washed away, got torn or could not fetch fish out of water. In addition, rain storms caused some local boats to capsize; thus, it used to frustrate the efforts of the fishermen; hence, what they already caught got back into the water. There was also evidence of the use of chemicals by some known or unknown fishermen to catch aquatic animals. This process renders the water unsafe for drinking, and also the fish caught using chemicals is not healthy

for consumption. In addition, fishermen in the area of study did not have organised unions or associations to regulate their activities and therefore failed to pay taxes to either the State or Local Government (LG) authorities. This was an advantage to them, but a great aversion to taxes, thus, it denied the State/LG authority the revenue that could be used to provide social amenities which they would have equally benefitted from it.

Up to the end of 2020, indigenes, State and Local Governments were yet to fully engage in this lucrative business to develop it to the status it behoves so that it can provide enough food on the tables of residents of Makurdi Town and revenue for the stakeholders. These account for why there was no organised union, no modern fishing methods and equipment, no active fishery ministry/school and no punishment for those who polluted the water for their interest.

The water sellers like the fishermen had no fixed addresses, no fixed prices and no organised business unions. Their stay in Makurdi posed security threats to themselves and other residents of the town. Like other businesses that depended on the forces of nature, their business declined during the rainy season, hence, many households harvested water from their zinc houses. The water sellers were, therefore, prone to engage in other social vices to survive.

7. Recommendation

- a. Although the negative impact of persistent flooding of the river Benue in Makurdi is disastrous to residents, its benefits outweigh the seasonal flooding phenomenon which can be managed through dredging, flood-resistant housing architecture, the building of levees and embankments, public enlightenment, settlement patterns and necessary legislation/enforcement are necessary measures to checkmate activities aiding flooding. This, therefore means that Makurdi settlement under normal circumstances will remain hence the need to see the river as a huge resource and properly harness its potential for the prosperity of the residents of Makurdi and Benue as a whole.
- b. The government should reduce the heavy tax imposed on sand dealers which invariably affects the direct buyers who are poor civil servants, and mini-business owners struggling to construct residential or business premises. The same should apply to other businesses attached to the River Benue.
- c. Soft loans or grants should be given to stakeholders in this enterprise to boost productivity and enhance patronage.
- d. In a similar vein, grant-in-aid and proper education to ensure the understanding of indigenous residents to join their non-indigene counterparts to utilise the resources of the River Benue must be intensified.
- e. Government in collaboration with sand dealers should purchase specialised and advanced excavation machines to reduce the labour-intensive nature of human manual efforts to rapidly increase the number of tipper loads per day and enhance monthly income. Irrigation facilities at a subsidised rate are to be provided by the government and the bourgeoisie. It was expected that after many years of doing the business, some well-to-do among them would have

massively purchased modern fishing engine speed boats, water buses and other advanced fishing traps.

- f. Properly constructed access roads at each mining site should be provided either by the government or dealers to ease the problem of transportation of sand. River bank dams should be constructed to conserve enough water for use by farmers and of course, herders where necessary during the dry season.

8. Conclusion

Rivers are vital to the formation of communities because they supply necessary resources and promote economic expansion. Rivers facilitate trade and commerce by acting as natural transit corridors that make it easier to convey products. They also provide agriculture with a dependable supply of water, promoting regional farming and guaranteeing food security. Using water power for factories and mills, towns around rivers frequently experience a surge in population and economic activity. Moreover, rivers improve the general ecological balance and the standard of living for locals. Essentially, rivers' advantageous locations and numerous advantages are essential to the long-term growth of settlements.

The importance of water bodies across the world cannot be overemphasized both in the selection of settlement locations and for prosperity. This paper accessed the impact of the River Benue and revealed that the River Benue is a source of sustainable development for the residents of Makurdi. It has the potential to provide continuous economic activities that can offer jobs to many people living in Makurdi town if properly and professionally harnessed. Such economic activities include; fishing, sand mining, water transportation, water supply factories, waste disposal, recreation facilities, wet and dry season farming, ship/canoe industries, commerce, and other aquatic resource enterprises. This does not rule out socio-religious and political activities. However, the study found out that the early indigenous settlers (Idoma and Tiv) were ignorant of these viable potentials. They concentrated on white-collar jobs and upland farming/wildlife exploitation.

The study explored the historical development of settlements including Makurdi town through a literature review. The fieldwork exercise further showed that the migrants from other

parts of Nigeria dominate business transactions around the river and identified the challenges hindering the desired development in Makurdi. Such challenges included; water pollution and, high volume of water during the height of the rainy season, among other challenges. The paper concluded that, to drive positive impact from the River Benue for the unemployed residents (indigenes, non-indigenes) those at the helm of government should look inward to develop economic potentials available in/on the River Benue to push away poverty/desperation in Makurdi.

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