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APPRAISAL OF WATER SUPPLY SECTOR CONTRIBUTION TO THE REVENUE OF PLATEAU STATE GOVERNMENT, JOS, PLATEAU STATE, NIGERIA

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ABSTRACT

Water sector is an indispensable entity that produce essential services to the teeming population of human, animal and ensures the growth of economic activities and help in the general functioning of the ecosystem. This is sector in spite of its importance yield very dismal returns to the government and water entrepreneurs in most developing countries. This study appraises the contribution of water supply sector to the revenue of Plateau State Government, Nigeria. The study utilized mainly documented sources of revenues of Plateau State Water Board (PSWB), Jos and the various revenue profiles of the Plateau State Revenue Service Jos and the data obtained from these sources are: year on year revenue generated by PSWB between 1991 and 2019 and the other revenue contributors like PLAGIS, education sector, health services, Judiciary, manufacturing, tourism and general taxes. Data were presented and analyzed using frequency tables and water revenues compared with revenues generated from other sources. The result of this study indicates that the total water revenue generated between 2007 and 2019 is N5.8bn representing only 5.6% of the total revenues generated by government for the period while Plateau State Internal Revenue Service raked in the total sum of N95, 380,052,386.34 from PLAGIS, retail trading, taxes and social services. The study concluded that the water revenue is low and dismal compared to other sources of revenues and recommends that: government should utilize the idle capacities of water supply projects (WSPs), government to commercialize and partially privatize the operations of WSPs through arrangements of PPP, JV and BOT and engage in massive recovery drive through incentive based target system to boost revenues from accumulated debts.

KEYWORDS: Plateau State Government, Revenue Generation, Water Resources, Water Supply, Water Use

1. Introduction

Water resources development is the actualization of water resources potential of a given place to make it available at desired quality and quantity for different uses (Gundiri, 2002). The objective of managing the quantity, quality and reliability of water resources is therefore to achieve optimum, long-term environmentally sustainable, social and economic benefits to society from their entire use (Vivan, Ali and Adamu, 2015). The essential nature of water for different uses and its sustenance of the entire ecosystem makes it a compulsory resource for use in households, institutions and industry for varied purposes (Ali, 2018). The water policies in most developing countries have weakly placed responsibility of managing water resources in the hands of individuals, local governments, state governments and every

Thom and Harry so much that it is carelessly used and abused with polluters walking away after messing up this precious resource. Our common resource is being abused due to weak laws and institutions in Nigeria; water is being highly regulated for maximum returns in advanced climes like the US, UK, France and even in parts of developing countries like South Africa and India (Ali, 2018).

Water supply projects and services across different locations the world over vary in their mode of operations and frameworks due to the peculiarity of the social, economic, political and environmental realities. Some socialist countries like Hungary, Slovenia, North Korea, Bulgaria and Romania provide water to the citizenry at less or minimal costs and continue to provide subsidies to state water utilities in which sustainability, quality and efficiency in service delivery become serious challenges, their capitalist counterparts like China, USA, United Kingdom and Switzerland on the other hand preach and practice full cost recovery to give guaranteed supply safety, quality, sustainability and service efficiency (Ali, 2018 and ICPDR, n.d). America, South Africa, Great Britain and other developed countries operate their utilities and recoup full initial project cost, operations, maintenance and replacement costs through tariffs and ensure efficiency of connections and metering to guarantee 24 hours uptime and consumer satisfaction.

Water systems in developing countries according to Stalker and Kumives (2001) must meet the objectives of providing safe, affordable and desirable service delivery to consumers and ensure system that is capable of recovering costs and delivering quality service and benefits to water subscribers. Due to failure of most of the utilities to meet these objectives, water tariffs are low and many water users do not pay their bills, service providers rely mostly on occasional subsidies to cover their costs

(WSP, 2011 and ICPDR, n.d). In most cities, result of failures of these utilities has led to individuals, communities and other potable water users resorting to drilling their wells and boreholes. The private sector business enterprises on the other hand set up bottled and sachet water packaging plants and forcing households to pay high rates to get water from these sources while the rich ones that afforded connections pay less to enjoy erratic water supply from these utilities (Water and Sanitation Projects, WSP, 2011).

In areas of water service coverage, more customers mean a larger revenue base for the service provider and fewer consumers mean less revenue (WSP, 2011 and Water Aid, n.d) which in turn results in higher operating ratios and less efficiency. For example, all the seven cities of India studied by Water and sanitation project in 2011 have very wide gap and higher number of potential customers to which to extend their connections. Most performing State Water Agencies invest heavily in metering all the house connections, standpipes and street pipes. They also have mechanisms for checking and reducing the rates of non-revenue water and are efficient in blocking all revenue leakages, and in most of the utilities. In Nigeria just as in some parts of India and other developing countries, metering is very rare, customers are not informed, and equipment are dysfunctional (WSP, 2011 and Makwara, 2011).

To be able to provide services to unserved areas and maintain existing projects on a sustainable basis, new investment is required in new network expansion and the maintenance of existing systems at least partially funded by the internally generated revenues of service providers (Banerjee, et al, 2008). Nigeria, Tanzania and other developing countries have welfarist water supply, view water supply as nearly the sole preserve of the public sector, and feel it is the right of every citizen to have unfettered access to it all the time, given the right quality and quantity.

Their view of water as a gift of nature, social and public good makes it a free commodity regardless of how much cost the government defrayed in putting in place infrastructure and distribution to households. A third perspective to managing water to deliver benefits to users of all socio-economic strata (Makwara, 2011) argued that due to the critical nature of water, it should be managed from both economic and social standpoints so that the poor would not go without water. Global Water Partnership, GWP (2012) and Ali (2018) state that though water should be recognized as the basic human right, to have access at an affordable price, water should be managed as an economic good to ensure delivery of enormous benefits to users. This study is aimed at appraising the water sector contribution to the revenue of Plateau State Government. The study has specifically identified the water supply projects and their financial contributions to the revenue profile of Plateau State.

2. Materials and Methods

2.1 Location, position and size

Jos metropolis is located between latitudes 9^0 54' N and 10^0 10' N and longitudes 8^0 48' E and 9^0 30' E. The study area comprises Jos South and Jos North local government areas with their headquarters in Bukuru and Jos respectively. The area is situated within the northern senatorial zone of Plateau State, and is bounded by Barkin-Ladi and Jos East to the east, Riyom to the south and Bassa local government areas to the west (in Figure 1). The areal extent of Jos metropolis, from north to south is 104km while from east to west is about 80km on an elevation of 1,250m above sea level, with Shere Hills having the highest peak of 1,777m above sea level, and an area of 1002.19 Km^2 (Mohammed, Gajere, Adigun and Folayan, 2010).

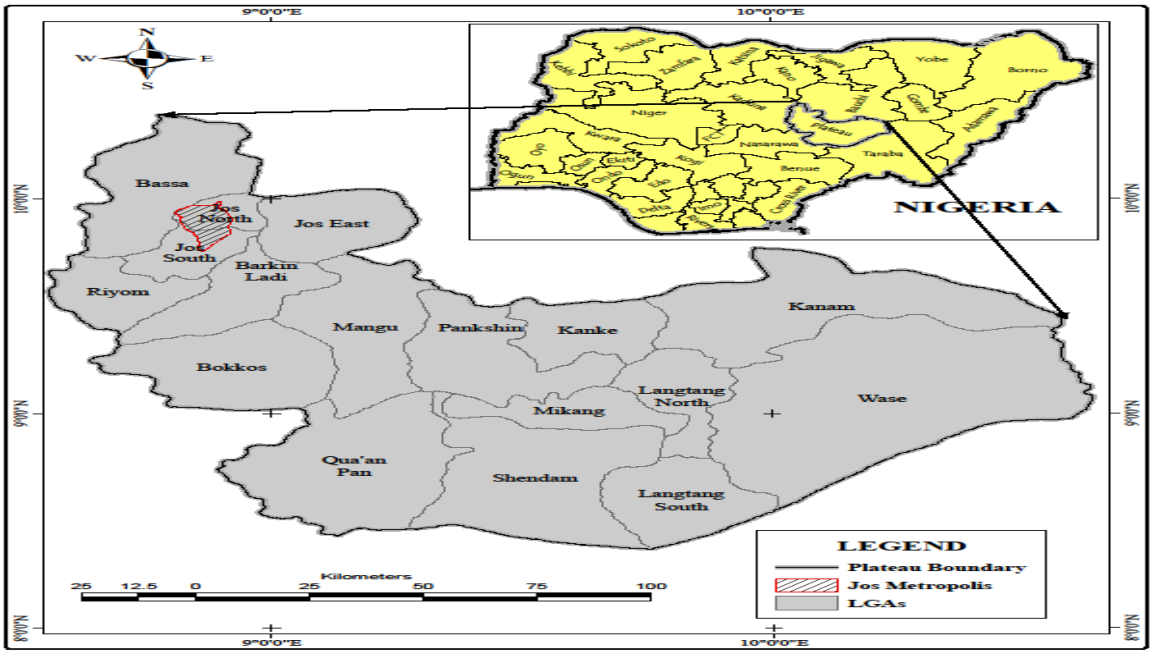

Figure 1: The Study Area, Jos Metropolis, Plateau State, Nigeria
Source: GIS Lab, Department of Geography and Planning, University of Jos, 2018

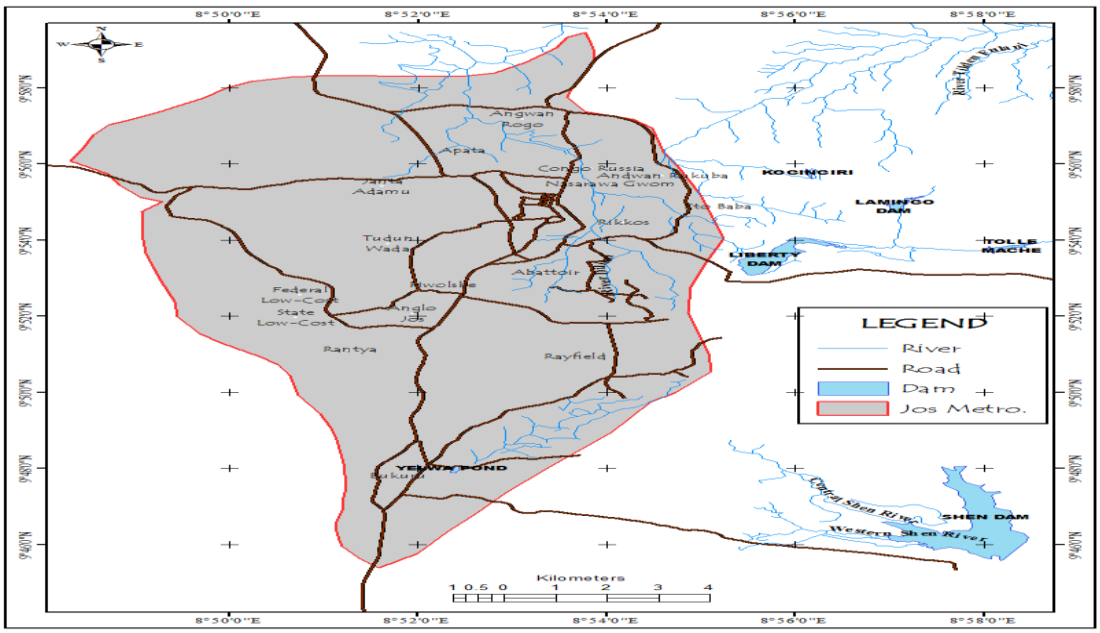

Figure 2: Jos Metropolis, Plateau State, Nigeria
Source: GIS Lab, Department of Geography and Planning, University of Jos, 2018

2.2 Geology and Hydrogeology

Crystalline basement rocks adjoin the area on all sides except to the southwest where it has common boundary with the cretaceous sedimentary of the lower Benue basin. The lower Niger basin area is drained by minor rivers within Jos Metropolis. This area is underlain by basement complex rocks that are composed mainly of granitic and migmatitic gneisses and granites. Both the older and younger quantities of these areas are poor aquifers. However, over most of the area have this discontinuous mantle of weathered rocks or joint and fractured system in the unweathered basement that provide secondary reservoir, the decomposed mantle is sometimes too thin to harbour large quantities of water and is usually clayey to be highly permeable (Adelana, *et al* 2008). The Hydrogeology of Jos or any area is influenced by geology and climate because geological formations underlying the area and the structure contained in them determine the types of aquifer to be encountered and their recharge rate, while the climate determines the amount and the rate of recharge the aquifer receives (Ariyo and Adeyemi, 2005).

2.3 Relief and Drainage

There is a variation in altitude across Jos metropolis, the highland part of Jos metropolis rises to an average of 1200m above sea level with the peak of about 1700m around Shere hills. The older granites form clusters of resistant cores throughout a long history and still form the hill masses of the present landscape of the Plateau. Long years of volcanic activities have affected the geology of the area by creating hills and valleys rich in minerals such as tin, columbite, kaolin and gemstones (Ogboji, 2012) .The drainage pattern of Jos metropolis is radial and because of altitude, many rivers take their source from the area. Jos Plateau according to Eziashi (1995) is copiously drained by streams, which are largely headwater and tributaries of larger river systems. These larger river systems are the Delimi – Bunga to the North East, Lere – Gongola to the east, the Wase, Shemankar, Dep – Ankwe and Mada to the South and Southwest and the Kaduna River to Northwest. The headwater of Delimi – Bunga system takes its rise some 13km Southeast of Jos, flows through Jos and then Northeast towards Lake Chad. Its major tributary, the Tilden Fulani, rises from Shere Hills and flows through the Nile valley by joining it about 20km beyond the Plateau edge (Eziashi, 1995).

2.4 Climate

Jos metropolis experiences Aw climatic type and falls within the koppens Aw climatic sub-region. Generally, weather conditions are warmer during the rainy season (April-October) and much colder during the hammattan period (December-February) (Ariyo, 2000). The mean annual temperature of the city ranges between 20^0 C and 26^0 C. These temperature ranges are due to influences of rainfall, relief and cloud cover at different periods and seasons of the year. Relative humidity is lower during the dry season between November to March and is very high during the wet season with the peak values of between 81% and 84% in July and August (Bingel, 1978, Ariyo, 2000, Nyong, et al, 2003, Nyong, et al 2008). Precipitation on the

Jos Metropolis ranges from 70cm to 100cm during the peak period. The study area has wet and dry seasons. The wet season takes about 8 to 9 months between mid-March and end October, while the dry season takes about 3 to 4 months from mid-November to mid-March (Ariyo, 2000). The wet season is influenced by prevalence of the warm moist maritime south westerly monsoon winds which blow from the Atlantic Ocean south westward hinterland while the dry season is linked to the dry tropical continental north easterly winds (Hammattan) a cold dry and dusty mass blowing from the Sahara Desert (Ariyo, 2000).

2.5 Hydrology and Water Resources

Hydrology of Jos metropolis or any area is influenced mostly by climate and geology. Though, ground water is the major source of water across much of the world, particularly in rural areas in arid and semi-arid regions. Aquifers generally are replenished by effective rainfall, rivers, ponds and lakes (Compagnucci, Cunha, Hanaki, Howe, Mailu, Shiklomanov and Stakhive, n.d). Water is life and adequacy of its supply is central to civilization (NWSSP, 2000). Jos Metropolis is blessed with abundant water resources due to high rate of precipitation and favourable climate. The annual rainfall in Jos metropolis which last for 8 – 9 months varies between 70 cm to 100 cm during the peak period (Ariyo, 2000). The area is drained by Delimi, Shen /Yingi,RafinSanyi, Nupis and Agog Rivers which are dammed purposely to provide water for the teeming population of Jos metropolis. The water resources of Jos metropolis comprise of rivers, streams, mine ponds, boreholes, dams and wells, which provide water for residential, industrial, recreational and agricultural purposes (Ariyo, 2000). There are six major existing water supply dams supplying water to the people and industries of Jos metropolis with some other ones being constructed and rehabilitated to boost water supply from government's own dams. Most of the inhabitants of these areas depend mostly on hand-dug wells, boreholes, streams, ponds, water harvested from rains to satisfy their water need for drinking and washing.

2.6 People, Population and Human Activities

Jos metropolis comprises of Jos city and Bukuru town, which have fused due to long years of urbanization and population growth. The metropolis has two Local Government Areas – Jos South and Jos North local government areas and expanding to cover parts of Bassa, Jos East, Riyom and Barkin-Ladi by the urbanization efforts of the state government through the implementation of the Greater Jos Master Plan. Jos has a heterogeneous population with Berom, Anaguta, Afizere, with few of Jere and Buji in Bassa and Jos North Local Government Areas. The other major ethnic groups of Plateau extraction residing in the city include Ron, Mushere, Ngas, Pan, Geomai, Mwagavhul, Tarok, Irigwe, Mupun, Amo, all numbering up to fifty(50)

ethnic groups (tribes). The metropolis is cosmopolitan in nature as it has nearly all Nigerian ethnic groups residing in it, some of which include Yoruba, Igbo, Hausa-Fulani, Kanuris, Tiv, Kuteb, Jukun, Ibibio, Idoma,Igala among other ones, attracted partly from all over the world by mining activities and her status as the State capital.

The population of Jos metropolis is put at 892, 914 based on the 2016 population projection (National Population Commission, 2006). It has a density of about 391 persons per square kilometre and is the most densely populated and urbanized place in Plateau State. Due to the presence of so many higher institutions, church institutions, commercial activities, administrative activities that have over the years mobilized and are continuously attracting labour, capital and entrepreneurship, all these have combined to make Jos to assume the status of a cosmopolitan city (Vivan, Ali and Makarau, 2015).

Data for this study were derived from mainly secondary sources. These information was obtained from Plateau State Water Board financial statements, State budget, and the Plateau State Internal Revenue Service, Jos. Information on benefits (revenues) of water supply projects and state government tax revenues were obtained from Plateau State Water Board annual statement and account and Plateau State Internal Revenue Service spanning 28 years (1991-2019). This period witnessed massive tax and revenue reforms by the state government with proper electronic record keeping by the government institutions.

All the maps including that of Nigeria, Plateau State and those of Jos metropolis used for this study were obtained from the GIS Laboratory in the Department of Geography and Planning, University of Jos. These materials provided the background with which this study was undertaken. These maps show locations of water supply projects like treatment plants, dams and water reservoirs which produce revenues to the government in the study Area. The study also utilized the descriptive statistical tools like frequency tables and ratios for data presentation and analysis.

3. Results and Discussion

3.1 Water supply projects in Jos metropolis

Plateau State Water Board is a government owned agency established by Plateau State Water Board Edict No. 4 of 1991 and charged with the responsibility of providing potable water services to the over 3 million citizens of both Jos metropolis and other local government areas of Plateau State. Apart from other water supply projects in other parts of the state, the board manages six major dams which provide water for households, commercial activities and industries within the Jos metropolis. These dams are Tolle Mache, Yakubu Gowon Dam, Yelwa Dam, Kogin-giri Dam, Laminga (Liberty) and Lamingo (Gwash) Dams. The water produced from these Dams is transported through pipes of different sizes to treatment plants after which it's distributed to consumers.

The Board has six Departments which include Administrative, Commercial, Accounts, Operations, Quality Assurance and Technical. It has four additional units namely: Planning Research and Statistics, Public Relations, Legal and Management Information System. The Operations department is charged with the functions of water production, treatment and distribution. The Commercial department on its part maintains customer database of about 23,000, which are billed, based on the flat rate tariff system, the Finance and Accounts Department on the other hand has the mandate of managing the accounts of the Board. See details of the summary of the Board and other information in Table 1. The Board has 367 employees and serves only about 560,000 people representing only about 56% of the entire population within Jos metropolis. Apart from the untapped potential of their inability to extend service coverage to serve over 440,000 number of people in Jos metropolis, they have very high non-revenue water rate of 58% and an uptime of 7 hours in a day which is below the acceptable desired level of at least 8 hours prescribed by the African Development Bank (AfDB) as shown in Table 1 With over 500,000 households, the board is currently connected to only 23,453 leaving up to 476,547 households unconnected and relying on the water sources that are considered unreliable for drinking and other potable uses.

Table 1: Basic Features of Plateau State Water Board

Characteristics/year	2016
Population served	3 million (Statewide)
Population served	560,000(Jos metropolis)
Number of dams/ Treatment Plant/Reservoirs	6/4/8
Total Number of connections	23,453
Number of employees	367 as at June 2016
Non-revenue water	58 %
Service coverage	20%
Average domestic tariff	N2500
Total daily water production	50400m^3
Total daily water distribution	50400m^3
Average Hours of service per day	7 hours
Length of piped water connections	400Km
Proportion of the connection that is metred	425 (1.8%)

Source: SUWASA, 2015 and Field Survey, 2019

The Plateau State Water Board generates and shares bills to the tune of N31.7bn (Plateau State Water Board, n.d) for 24 years but get the actual collections in sum of only N7.6bn (Table 2) representing just about 12.9% of the face value of the total billing amount (Ali, 2018). Government has given many interventions such as monthly subventions and subsidies in areas of chemicals for water purification and execution of capital projects like the

major rehabilitation of dams and pipelines that were recently undertaken by the State Government and yet not much is achieved in stabilizing a guaranteed clean water supply to the residents of Jos metropolis. The efforts of Overseas Development Agencies like FAO, UNDP, European Union and the World Bank in areas of giving of grants in large sums running into billions of Naira, technical expertise and credit facilities to Plateau State Water Board have all not yielded any tangible result as the Board is run as public utility and not making profit as it is still unable to expand its coverage to unserved areas to offer exceptional services and achieve its objectives.

Both government and the water subscribers (users) alike enjoy the benefits of water supply and the projects in Jos metropolis. The benefits accruing to users of water bother on connection fees, water rates and fees affordability, social, economic and other unquantifiable economic and environmental benefits, while the benefits on the part of government bother on revenue generation, ability to fulfil social and political obligations to the citizenry among other ones.

3.2 Financial contributions of water supply projects in Jos metropolis

Table 2: Financial Benefits of WSP to Government

Year	Benefit(net surplus)	Year on year (YoY) variance
1991	(1,384,060)	(1,158,188)
1992	225,872	(12,142,704)
1993	(12,368,576)	(27,576,601)
1994	(39,945,177)	31,639,608
1995	71,584,785	38,747,439
1996	110,332,224	16,924,224
1997	127,256,448	56,266,553
1998	(70,989,895)	174,634,643
1999	245,624,538	(220,170,538)
2000	25,454,000	197,676,641
2001	223,130,641	117,281,284
2002	340,411,925	(139,419,900)
2003	200,992,025	(12,945,331)
2004	188,046,694	(13,755,533)
2005	174,291,161	(69,857,258)
2006	244,148,419	23,584,644
2007	267,733,063	158,967,946
2008	108,765,117.04	45,649,367
2009	154,414,484	4,640,266
2010	159,054,750	(158,809,315)
2011	245,435	(151,197,747)
2012	151,443,182	323,480,895
2013	474,924,077	615,337,673
2014	1,090,261,750	952,987,189
2015	500,948,325.82	(6,294,234,445.28)
2016	910,136,754	6,492,912,085
2017	1,331,374,605	6,679,296,220
2018	679,890,988	7,049,696,259
TOTAL	**7,656,003,555**	**15,878,455,376**

Source: PSWB Financial Statement Series 1991- 2018 and Author's computation

The Board receives so much assistance from Overseas Development Agencies, the Federal Government of Nigeria and Plateau State Government in forms of subsidies, subventions, grants and loans and invested same into water production activities of the Board for this number of years. The revenue of N7,656,003,555 earned (Table 3) over the period of 27 years is dismally small compared to the over N31.7 Billion accumulated water consumption debtors and receivables (Ali, 2018). This finding differs from that got by Khumbare and Sen (2008) in their study of four States in India which concluded that investments in water supply projects are economically viable, promotes economic growth, attracts private investment, stimulate economic activities, reduces transaction and marketing costs with fairly high net benefits to communities.

Table 3: Contribution of Taxation and Water Sector to Government Revenue

YEAR	PIRS Revenue(N)	PSWB Revenue(N)	Total	%
2007	1,876,365,651.46	267,733,063	2,144,098,714.46	12.49
2008	2,736,335,063.54	108,765,117.04	2,845,100,180.58	3.82
2009	3,128,265,462.43	154,414,484	3,282,679,946.43	4.70
2010	3,398,815,261.07	159,054,750	3,557,870,011.07	4.47
2011	4,520,622,617.37	245,435	4,520,868,052.37	0.005
2012	6,927,812,288.11	151,443,182	7,079,255,470.11	2.14
2013	8,486,806,640.08	474,924,077	8,961,730,717.08	5.29
2014	8,353,950,803.55	1,090,261,750	9,444,212,553.55	11.54
2015	6,937,349,802.70	500,948,325.82	7,438,298,128.52	6.73
2016	9,013,326,267.34	910,136,754	9,923,463,021.34	9.17
2017	10,788,343,576.45	1,331,374,605	12,119,718,181.45	10.99
2018	12,726,479,548.41	679,890,988	13,406,370,536.41	5.07
2019	16,485,579,403.83	NA	16,485,579,403.83	NA
	95,380,052,386.34	**5,829,192,531**	**101,209,244,917.20**	**5.76**

Source: PIIRS, 2020; PSWB, 2020 and Authors' Calculations

Water revenue account for very insignificant and negligible percentage contribution in terms of incomes to the entire portfolio of Plateau State Government as seen in Table 3. This could be attributable to the initial conception of water as a social good which should be provided at a cost to government and supplied at no cost to the end users (Ali, 2018). Table 3 shows the trend in the percentage contribution of water supply sector to the revenue of Plateau State Government. Out of the total revenues N101,209,244,917.20 generated through the Plateau Internal Revenue Service (PIRS) and Plateau

State Water Board (PSWB) between year 2007 and 2019 only N5,829,192,531 representing the dismal 5.76% was contributed by PSWB. Year 2007 recorded the highest contribution of N267,733,063 which represented 12.49% of the total revenue portfolio of N2,144,098,714.46 by the Plateau State Government. This is followed by 11.54% in 2014 and 10.99% in 2017. The year 2011 witnessed the worst outing with 0.005% of the revenues generated by the two parastatals. Water production and distribution dismally account for a very small proportion of Nigeria's gross domestic products and averagely less than half percent annually in spite of the contribution of water to nearly every facet of state economies as raw material in industries, source of water for irrigation, recreation and other money spinning uses. With a Naira value of 2.37 Billion Naira in 2008, water contributed 0.01% to Nigeria's GDP in 2009. Lagos State Government which generated the total sum of 1.379 Billion Naira contributed over 58% of the total output being the dominant player in the sector in revenue generation (Ali, 2018). This performance is followed by FCT with the percentage contribution of 15.1% (N358 Million), Rivers (9.25% or N219.5 Million), Kano (1.74% or N41.2 Million). Other states with over one percentage contribution are Delta, Oyo, Akwa-Ibom and Enugu States. Plateau State is 28th on the ranking and contributed N6.34 Million representing only 0.27% to total GDP of the country as at 2008 (Economic Associates, 2010 and Ali, 2018).The Plateau State Water Board according to Babalobi (n.d) over the years has not been able to meet the demands from the various urban residents and poor communities to enable proper access to water supply and basic sanitation, this situation negates the Board's aim of generating the income levels that will guarantee the sustainability of their activities over time and also contribute meaningfully to their GDP. There has been progressive and steady increase on the contribution of water to the Gross Domestic Products of Nigeria from 1991 to 2019 as seen in Table 3, this means that water holds great potentialities to the development of Nigeria and her states if properly harnessed, developed and fully paid for. This trend is different from the realities in State Water Agencies whose contribution to state economies are very negligible and inconsequential (Ali, 2018).

4. Conclusion

Benefits of water supply projects accrue to government in form of revenues and to individual water users in form of availability of potable water from better sources and satisfaction of subscribers with the quality water service delivery. Plateau State Water Board has very high accumulated consumer water consumption debt and receivables of N31.7bn over the period of 27 years spanning 1991 to 2018 (Ali, 2018). This was attributed to consumer's unwillingness to pay water rates according (Ali, 2018), high collection inefficiency, high level non-revenue water and low amount charged as monthly water rates by Plateau State Water Board as approved by the government. This low capacity to collect revenues led to high level receivables, low year on year revenues coupled with their low capacity to efficiently collect

the revenue levels that match the performances of their sister agencies and has led to the inability to sustain their operations independently but depend nearly solely on government subventions and subsidies.

5. Recommendations

i. The Plateau State Water Board should build more of these projects in different locations and increase their rate of households, commercial and institutional connections in unserved areas as this would boost the Board's revenue base and make them become viable and profitable.

ii. Plateau State Water Board should be partially commercialized to be able to operate on business model that will improve its revenue base from its current N7.6bn to an appreciable level that can sustain its investment and operational activities. This can be achieved through intensive media campaigns, prompt problem resolution, and high-level tariff collection efficiency among other strategies to satisfy their consumers and create in the consumer the willingness to pay their monthly bills promptly.

iii. In addition, revenue targets should be given to all the staff of the Board with an incentive attached to same as practiced in government's tax authorities like Federal Inland Revenue Service and some private sector organizations. This would go a long way in boosting the morale of the staff to put in their best in generating revenues that would support and sustain the operational activities of the Water Board and also enable it expand its activities to unserved areas of the metropolis.

iv. The involvement of private sector organizations in different level of development among developed and developing countries is highly growing. The use of the framework of Public Private Partnership (PPP) for developing strategic water supply projects in Jos metropolis in areas of Build Operate Transfer (BOT), Build Own Operate Transfer (BOOT), Lease, Rehabilitate, Operate Transfer (LROT), Build Transfer Lease (BTL) and Joint Ventures (JVs) should be adopted.

v. Plateau State Water Board apart from embarking on serious recovery drive to recover accumulated debt over time should review the monthly water rates for households, commercial customers and industrial users based on the current economic realities and also put into cognizance the social responsibility of government to the citizenry in tackling infrastructural problems (deficits), disease pandemic and provision of social services.

vi. In addition, to forestall the further accumulations of these receivables, the Board should make efforts to provide metres for all connected households and devise the means of truncating water supply to households and

other consumers that default in their obligations in payment of monthly bills for a particular period.

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