

MANAGEMENT OF WATER INFRASTRUCTURE IN EKITI STATE FOR SUSTAINABLE DEVELOPMENT

Agboola Joseph T. Alo Moses O. and Oyinlana Ayodeji O.

Department of Urban and Regional Planning, The Federal Polytechnic Ado-Ekiti

Corresponding Author's email: agboolame2002@yahoo.com



Abstract

Access to safe water supply has a great influence on health, economic productivity, and quality of life. Challenges of water demand still persist irrespective of millions of naira spent in water supply but yet the supply is far below the demand. This paper assessed the problems and prospects of water infrastructural decay in Ekiti State with a view to proffering planning principles and techniques to prevent water infrastructural decay in the state. Secondary data from literature, journals, government policy gazette were used. A reconnaissance survey, personal observation, interviews, and photographs were used to collect data. The capacity of water supply in Ekiti state was examined through under study of nine (9) dams /water projects vis-à-vis their category, design capacity, total volume per quarter, average volume per day, and capacity utilization. Data obtained were analyzed using the descriptive contents method. The finding showed that these dams can supply seventy percent of water needed in the state if adequately harnessed and managed. The research revealed that the population of the state grows faster than the water supplied from the public- owned facilities. Policy measures were recommended that abandoned dams should be resuscitated through proper funding and maintenance under public- private partnerships for economic sustainability.

Key words: *Water infrastructure, Demand, Supply, Management, Sustainability*

Introduction

According Sodemade, Balogun-Adeleye, Agbeye and Momodu (2020) access to water affects the health status of a community as lack of access to potable water supply leads to incidences of illness and death. The United Nation Development Goals (SDGs) 6.1 and 6.2 are generally call for availability and sustainable management of water and sanitation for all by 2030 (United Nation Organization, 2015). Therefore, attainment of this goal remains an issue in the Sub-Sahara African (Ndikumana and Pickbourn, 2017).

World Health Organization and United Nation Children Fund (UNO/UNICEF, 2019), Sub-Sahara Africa (400million), Eastern and South Eastern Asia (161million). Most of these people are still dependent on unprotected water sources such as rivers, streams, springs, and hand dug wells. However, Ukoli and Onodipe(2003) examined salient factors responsible for the failure of many water supply projects in developing countries such as; lack of public awareness, unaffordable tariffs, insensitivity of central government and donors to local customs and beliefs, lack of technical expertise and inability to operate and maintain water system once in place, lack of

community participation and local involvement in design and management, and lack of sound economic analysis prior to project design and construction.

According to the 2012 report of the UNICEF/WHO Joint Monitoring Programme (JMP) for Water Supply and Sanitation, access to improved water supply in Nigeria nationally is 58% with 74% of the urban population having access and 43% of the rural population. This implies that as many as about 70 million Nigerians have no access to improved water supply. The JMP report estimates that between 1990 and 2010, the percentage of urban drinking water coverage has fallen by 5%, from 79% to 74%. Many households often the poorest end up purchasing water from private vendors much more expensive than the public supply. Water supply services where they exist, are still unreliable and of low quality and are not sustainable because of difficulties in management, operation and pricing and failure to recover costs. Most water supply systems show extensive deterioration and poor utilization of existing capacities, due to under-maintenance and lack of funds for operation. Over 70% of planet earth, as well as over 70% of the human body, is water. Water supply is critical to sustainable development and economic vibrancy of any nation. Population increase, industrialization, and rising standard of living have put water demand on the rise; though without a resultant increase in the amount of the resource. According to ICA (2005 and 2010). USAID (2009) inadequate infrastructure is holding back Africa's economic growth per capita by 2% each year and reducing firms' productivity by as much as 40%. Sub-Saharan Africa (including Nigeria) is also lagging behind the rest of the world in its level of infrastructural development.

United Nation (2019) report, 23% of the urban population in Nigeria lacked basic water services. Research has shown that most people in the rural areas still depend on streams, ponds, and shallow wells for their water needs (Ishaku et al, 2011; Longe and Yaya, 2015; Akeju et al, 2018). Considering the above, the situation of Ekiti State is not any different. Thus, this study is aimed at assessing the water infrastructural facilities and management in Ekiti State.

Water is one of the basic needs of man and is a key driver of sustainable economic growth and poverty alleviation. The Nigerian government, over the years, has made efforts to improve the deplorable water supply and sanitation situation in the country. The World Bank and other development partners have in the past provided fund support for the rural, small towns and urban water supply. The support has assisted the government to reach the current status of 58% national access to water supply and 32% access to sanitation. However, despite the considerable investment in the water and sanitation sector majority of population still does not have access to water in adequate quantity and quality.

Gauff Consultant (2018) opined that ninety percent of residents of Ekiti state lack access to safe drinking water, out of which 73% drink water contaminated with E-coli from or at household levels, and 41% of the state still defecate openly. A preliminary assessment of the state water supply situation revealed that less than 20% of the population has access to safe water supply services from the existing piped water system managed by the state water corporation, and most of these have intermittent and unreliable service. Most towns and villages area served by a water supply system which has been in use for 40-50 years are obsolete and dilapidated. About 90% of the network is in dire need of replacement and is unable to distribute water to most parts of the state for potable water access. Therefore, many parts of the urban areas that do not have any water distribution network and rely solely on private boreholes and alternatives such as purchase from water vendors at high cost (Gauff Consultant, 2018).

There are several difficulties related to water access that should become governmental priorities. They include, structural problems such as poor infrastructure, fair tariff water systems

and water quality. Among the problems that can be addressed by local authorities and communities are: lack of water storage, water wastage and lack of education on proper water management. Therefore, management of water infrastructure in Ekiti State does not run contrary to what is found in other parts of the country in particular and developing world as a whole. This paper, therefore, appraised existing situations of available water facilities, the relationship between water quantity and quality used, with a view to improving the adequacy urban and rural water provision in the state.

Conceptual /Theoretical Framework and Literature Review

Water Resource and Infrastructural Management

Water resource management is the activity of planning, developing, distributing and managing the optimum use of water resources. Realization with regards to the degradation of the environment brought about the concept of sustainable development in the late 1980s and early 1990s. Sustainable development refers to 'development that meets the needs of the present without compromising the ability of future generations to meet their own needs' (World Commission on Environment and Development, 1987). A central guideline to sustainability is that sustainable development leaves future generations a wealth of inheritance – a stock of knowledge and understanding, a stock of environmental assets – no less inherited by the current generation. The themes that underlie the concept of sustainability are environmental integrity, economic efficiency, equity in economic considerations. Various governments of the world have now adopted sustainability as the mainstream of decision-making processes and political reality (Golding and Winters, 1995).

According to Robert (2002), the four main types of sustainability are human, social, economic and environmental. These are defined and contrasted in the following ways. Human sustainability means conserving human capital. Human capital is a private good of individuals, rather than between individuals or societies. The health, education, skills, knowledge, leadership and access to services create human capital. Investments in education, health, and nutrition of individuals have become acknowledged as part of economic development

Social sustainability means upholding social capital. Social capital is investments and services that produce the basic framework for society. It reduces the cost of working together and facilitates cooperation: trust lowers transaction costs. Only organized community participation and strong civil society, including government, can accomplish this. The cohesion of community for mutual benefit, connectedness between groups of people, mutuality, forbearance, concern, patience, tolerance, companionship, love, commonly accepted standards of honesty, discipline and ethics. Commonly shared rules, laws, and information (libraries, film, and diskettes) promote social sustainability.

Economic capital should be sustained. The widely recognized definition of economic sustainability is the maintenance of capital or keeping capital intact. Thus, Hicks's definition of income—the amount one can consume during a period and still be as well off at the end of the period—can define economic sustainability, as it devolves into consuming value-added (interest), rather than capital

Although environmental sustainability is needed by humans and originated because of social concerns, environmental sustainability itself seeks to improve human welfare by protecting natural capital. As contrasted with economic capital, natural capital consists of water, land, air, minerals and ecosystem services, hence much is converted to manufactured or economic capital.

The environment includes the sources of raw materials used for human needs, and ensuring that sink capacities recycling human wastes are not exceeded, in order to prevent harm to humans

The development could be an act of improving by expanding, enlarging or refining; or a process in which something passes by degrees to a different stage or a state in which things are improving. Infrastructure refers to the roads, cables, wires, pipes, bridges, canals, reservoirs, and sewers that support the economy and society.

According to Udoudo and Udoidem (2017), infrastructure represents all essential services, facilities, equipment and devices needed or desired for the physical and mental health, and social well-being of the family and individual. Kessides (2006) asserted that infrastructure represents the long-lived engineered structures, equipment and facilities; and notes that the services they provide are used both in economic production and by households. While Nubi (2002) terms infrastructure as an aggregate of all facilities that allow a city to function effectively. In the same vein, Crump (1991) describes infrastructure as goods and services that, while in themselves are not usually directly productive, but are important to the operation of a viable economy. It can be adduced from the aforementioned definitions that infrastructure represents an inclusive variety of economic and social amenities which are critical to producing an enabling environment for sustainable urban growth. It comprises physical structures and facilities that are developed or services provided by the public or private.

Jimoh (2016) defined infrastructure as the physical framework of facilities through which goods and services are provided to the public. Identify municipal infrastructure as hard infrastructure systems generally owned and operated by municipalities such as streets, water distribution, and sewers. Also, some public utilities connected with soft infrastructure, such as parks, public pools, schools, hospitals and libraries. However, Buhr (2003) quoted by Jimoh (2016) argued that there is material and immaterial infrastructure linked to the development.

Eregha (2007) submitted that the state of infrastructure of any state is directly related to the quality of life. In his observation, Jimoh (2016) asserted that the quality of life for most people in Africa related to number of facilities available for their well-being. That is, either not improved or only done so marginally as a result of the bad leaders since their independence. The consequences of these result in untold hardship in the continent such as; lack of access to safe water supply which has a great influence on health, economic productivity and quality of life,

According to Udoudo and Udoidem (2017) water infrastructure traditionally, the provision of water supply and services in Nigeria has been a continued social responsibility of the various tiers of government. Unlike the structures of other African countries such as Ethiopia, Uganda, Gambia and South Africa. Nigeria 1999 constitution does not establish any direct prerogative or right to water. Section 20 of the constitution grants powers to states of the federation to protect and improve the environment and safeguard the water. Prior to this, domestic water management had no position in the political decision-making process. Water management practices before 1999 were more muddled in approach with a number of unclear and unrealistic conventions (Akpabio, 2007). The National Water supply and Sanitation Policy (NWSSP) which was introduced in January 2000, currently provides the institutional arrangements (Table 1).

Table 1: Cost Sharing for Capital Investment in Water Provision

Level of Government	Urban (%)	Semi-Urban (%)	Rural (%)
Federal	30	50	50
State	60	30	25
Local	10	15	20
Communities	-	5	5
Total	100	100	100

Source: National Water Policy (2000) adapted in Udoudo, F.P and Udoidem, J.O (2017)

Maintenance of Water Facilities

The problems are due primarily to poor funding which ended in a lack of maintenance and an inability on the part of the authorities to expand facilities. The high cost of construction and operation associated with the establishment of large water corporations led to the adoption of low-cost technology in providing potable water for the operation and funding of potable water supply for both urban and rural areas. Atser, and Ofem (2004) opined that one of such institutions is the establishment of State Water Boards which is expected to generate enough money through rates collection at least to facilitate the operation and maintenance of water facilities. Unfortunately, the State Water Boards could not perform due to obsolete facilities in the face of increased demand. Besides, government subventions have been too meager to keep the operation of water facilities smooth. The NWSSP (2000) observes that the existing water works for urban and semi-urban centers are confronted with problems associated with their designs, operation and maintenance, and lack of integrated management. This has resulted in many existing water works supplying less water than they were planned for.

Chima (2002), Udoudo and Udoidem (2017) and Adejemilua (2007) asserted that technology for attaining urban water needs like the developed countries are unable to work in Nigeria and other developing African countries. This calls for the need to develop other systems that is self-reliant; thus, the emergence of boreholes and hand pumps as strategies to meet urban water need in Nigeria. The lack of adequate facilities by such schemes gives rise to low productivity, low coverage and inefficient service delivery. Corroborating this Adejemilua (2007) in Udoudo and Udoidem (2017) observed that the Nigerian water supply situation is not different from that of Somalia where the rich people invest in boreholes or wells, the middle class have theirs delivered to private water tanks by water merchants, while the poor buy water from roadside water dealers.

Table 2: Location of Water Schemes in Ekiti State

S/N	Name	Capacity per day	Date commissioned	Location	LGA	Senatorial district	Remarks
1	Ado Ureje water scheme	4,930	1961	Ado	Ado	ECSD	Medium dam
2	Efon Alaaye water scheme	675	1953	EfonAlaye	EfonAlaye	ESSD	Mini Scheme
3	Ero water scheme	104,500	1985	Ikun	Moba	ENSD	High graded amy
4	Igbara odo-water scheme	6,000	1999	Igbaraodo	ESW	ESSD	Medium
5	Ikere Artesian water	225	1984	Ikere Ekiti	Ikere Ekiti	ESSD	Artesian borehole
6	Ido Ajinare scheme	200	1986	Ido Ajinare	EW	ECSD	Mini scheme
7	Itapaji water scheme	5175	1975	Itapaji	Ikole	ENSD	Medium
8	Itapaji water scheme	225	1960	Okemesi	EW Ekiti	ECSD	Mini scheme
9	Little Osse Scheme	66,000	1989	Egbe	Gbonyin	ESSD	High grade

Source: Ekiti State Water Corporation, 2000 and Bankole, 2010.

The study area

The Study Area Ekiti State is located in a tropical climate with distinct wet and dry seasons, (Adebayo, 1993). Geographically, it is located between longitude 40 45' to 5 0 45' East of Greenwich Meridian and on latitude 70 15' to 80 5 North of the equator. It shares boundaries with Kwara State to the north, Kogi State to the north-east Osun State in the south and south-east Ekiti State lies to the savannah belt of Nigeria with a total land area of 6,353 km² (2,453 sq miles, see figure 1,2 and 3. The state enjoys two distinct wet and dry seasons. The 2006 census by the National Population Commission put the population of Ekiti State, Nigeria at 2,384,212. Projected to 6,111, 460,156 million in 2030.



Figure 1: Map of Nigeria showing Ekiti State

Source: Ekiti State Ministry of Land and Housing, Ado-Ekiti.

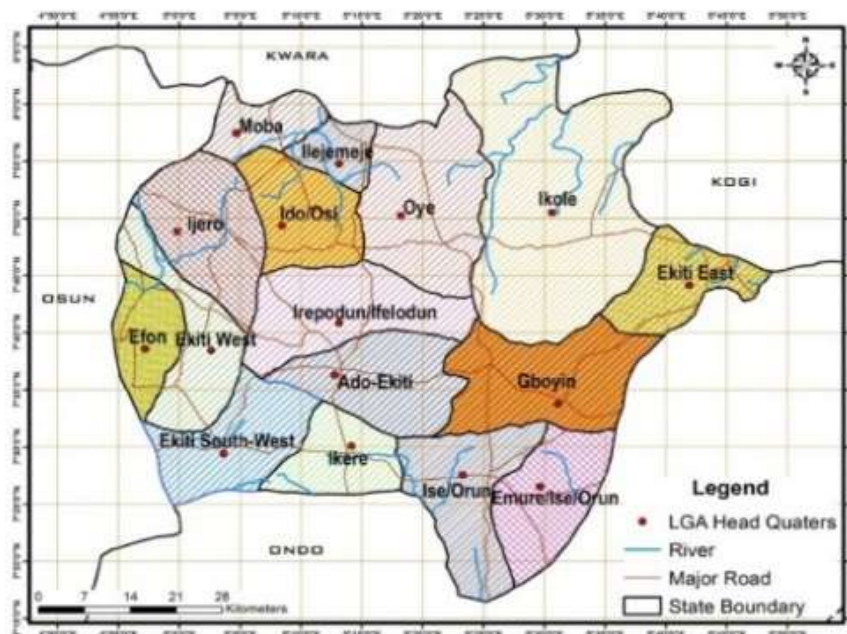


Figure 1: Map of Ekiti State showing Ado-Ekiti Local Government Areas

Source: Ekiti State Ministry of Figure1Land and Housing, Ado-Ekiti.

Data and methods

The main focus of this research, is to appraise the water infrastructural decay in Ekiti state. To achieve this, this paper assessed the problems and prospects of water infrastructural decay in Ekiti state with a view of proffering planning principles and techniques to maintain water infrastructural facilities in the state. Secondary data from literature, journals, government gazette and primary data such as reconnaissance survey, personal observation, interviews, and photographs were used for data collection. Also, the capacity of water supply in Ekiti state was examined through under study of nine (9) dams /water projects vis-à-vis their category, design capacity, total volume per quarter, average volume per day, and capacity utilization. The study utilized four (4) variables as guide to drive the appraisal of the situations of water infrastructure management in the state. The variables of interest are; the performance or functionality of various water projects in the state, particularly the Millennium Development Goals (MDGs) vis a vis the current Sustainable Development Goals (SDGs); payments for water consumption to the State Water Corporation, metering the quantity of water used, and adequacy of water supply or reliability and dependability on public water as a basis for the appraisal. The requirement, reasoning and justification for the choice of the variables among the residents of Ekiti State appears reasonable since there are characters of similarity in habitability in this study area. In terms of culture, physical settings like geological and hydrological water catchment as well as homogenous among the Ekiti dwellers. Photographs and personal observations from field survey were carried out to complement the observed variables. Secondary data were collected from Ekiti State Water Corporation to assess the strength of available water projects in the state. Data obtained were analyzed using descriptive and content evaluation methods.

Main Discussion

An independent analysis of the management of water infrastructural facilities in the study area revealed that the Ekiti State government of Nigeria has over the years declined to acknowledge the need to put in place sustainable funding and maintenance policy for the management of water infrastructure for the welfare of her citizenries. This is an acknowledgment that the major limitation to sustainable management of water infrastructural development is poor funding which is not been reflected in the budgetary or resource allocation process of the state over the past years. This is in spite of the immense contributions of potable water to the physical assets, health, and economic development of the state

The performance variable summarizes the failure of state water corporations to discharge their duty of water provision for the citizenry. Otherwise, these Corporations, The principle of cost-effective pricing was not duly utilized to finance expenditure cost incurred from daily management of water projects in the state. This should be introduced in order to ensure sustainable water supply. Payment for water consumed by populace was very low compared with amount spent on water facilities management. Normally, should be proportionate to water consumed. Authority should make provision for a standard system in charge of water billing and collection of water rate monthly and remitted the same to the state treasury. Research have shown that, provision of water has been treated as a social service by government, and there has been a lack of emphasis on cost regaining. The variables of reliability and dependability of the Corporation have shown the relationship between public water and adequate water supply. Congestions and competitions that are often observed around public water pipes are direct consequence of their insufficiency.

The study also critically assessed the conditions of accessed water facilities vis-à-vis citizens satisfaction. According to Bankole (2010) the provision of water to the state dated back to 1953 at Efon Alaaye, Okemesi in 1960 and Ado-Ekiti water scheme in 1961. Apart from these three aforementioned sets of schemes other 6 schemes have been added at various time to supply water to both the rural and urban centers of the state under the supervision of the state water corporation. The distribution of this facility is given in table 1. The water supply situation in Ekiti State remains very poor with more than half the present population, lacking access to safe, reliable and affordable potable water supplies. Findings has shown that majority of the state water projects are moribund, disrepair, and abandoned. See plate 1,2,3,4,5,6,7, &8. The current coverage and access rate is very low. This means majority of the people of the State obtain their water from alternative sources. These alternative water sources are usually very costly, often impose high labour requirements for fetching water, and the quality may be suspect. In such a situation, it is usually the poor or the low-income earners that face the brunt, thereby denying them the right to access potable water.

Observation of the MDGs projects in the state was nothing to write home about. Hardly can you find any water running from these projects in the state since the time of construction till date. Most of these MDGs taps were abandoned, some were used as table for sales of fire wood. Consequently, the state could not meet the MDGs goal talk less of the SDGs goal of sixty liters of households per capital daily water consumptions, this alarming. See plates 3, 4, 5, 6 and 8. Proactive steps needed to mitigate this issue before it is too late.

Recommendations

- i. Auditing the MDGs water project in the state is necessary on the uncompleted projects and non-functioning projects. This will help the government to sanction contractors handled the work, if possible, recovered the embezzled money to complete the abandoned projects.
- ii. Declaring a state of emergency on the water demand and supply in Ekiti State is not enough, the government should equally call for public-private partnerships in the water sector and other environmental issues like environmental management.
- iii. Upgrading and revitalization of all water projects in the state are overdue. The capacity of the volume of water produced per day is far less the demand of the towns and villages in the state due to an increase in population.
- iv. Review Ekiti State Urban and Regional Planning and Development Law of 2011, to accommodate regulation of water and natural resources management in Ekiti State through infrastructure renewal strategy. There is an urgent need to compel both the federal and state governments to favors the implementation of the planning laws of 1992.
- v. Regional development plan of the state is over due to accommodate infrastructural development and management the existing one. Proactive steps needed to mitigate this issue before it is too late.
- vi. Corruption and poor service delivery among the civil servants of ministries and agencies in charge of water provision and management in the state should be checked. Normally, there should be proportionate money pay for water consumed among the residents in the state especially where water supply is available. Authority should make provision for a standard system in charge of water billing and collection of water rate monthly and remitted the same to the state treasury.

- vii. Maintenance and security of water facilities should be a major priority of the management of state water corporation and agency. Regular monitoring of water distribution pipe networks, in order to detect leakages deserved attention.
- viii. Adequate fund should be provided for water corporation and agency to safeguard shortage of water provision against limitation to sustainable management of water infrastructural development in the state. This can enhance meeting SDGs goal in the state.
- ix. Proactive planning of public and private partnership should be encouraged. Citizens should be carried along in decision making on issues that concern them like water supply.
- x. There is a need to keep educating policymakers on the physical planning implications of their actions and inactions. Planners should be well-grounded in advocacy planning strategies in a bid to check problems arising from the undue influence of politics on planning like issue of water demand and supply facilities management.

Conclusion

This study has discovered various problems confronting water facilities development and management in the study area. In addition, planning principles and methods to mitigate them have been suggested. A clear understanding of challenges facing effective water infrastructure management is critical in order to plan for sustainable water supply to meet the SDGs goal in Ekiti State. Water use patterns and the factors that affect water consumption as well as challenges of lack of access to it is critical to the effective management of water supply and the effective design of related public policies. The long-term maintenance of water infrastructure in Ekiti State will help in capacity efficient service provider for users, at lower cost with significant impacts that are tolerable for society and the environment sustainability.

Reference

- Akeju, T.J; Oladehinde, G I; Abubakar, K (2018). An Analysis of Willingness to pay (wtp) for improved water supply in Owo LGAs, Ondo State, Nigeria. *Asian Research Journal of Art and Social Sciences*. 5 (3) pp 1-15.
- Adejamilua, F. (2007). *Latitude of Environment and Resource Management*. HEBN Publishers, Ibadan. 132 – 146.
- Akpabio, E. M. (2007). Nigeria"s Water Law: How is it translated in the Cross-River Basin". *International Journal of Regulation and Governance*. 7 (2) 157 – 184.
- Atser, J., & Ofem, B. (2004). Perspectives on Spatial Aspect of Sustainable Water Supply in Benue State. *Journal of the NITP XVII* (1) October. 31 – 43
- Bankole. B. O 2010. The Geographical Distribution of Water Supply in Ekiti State. *African Research Review, an International Multi-Disciplinary Journal, Ethiopia Vol. 4 (2) April, 2010* ISSN 1994-9057 (Print) ISSN 2070-0083 (Online) (Pp. 71-79).
- Buhr, W. 2003. "What is Infrastructure? Department of Economics, School of Economic Discipline, University of Siegen. Siegen Discussion Paper No. 107-03
- .Eregha, E. Z. 2007. Democratic Governance and Development in Africa: Challenges of African Union (AU). Available at www.krepublishers.com 02-Journals/JSS/JSS. 14.000
- Golding, I. and L. A. Winters, Eds. (1995). *The Economics of Sustainable Development*. OECD Centre for Economic Policy Research. Cambridge, UK, Cambridge University Press.
- Gauff Consultant (2018). Feasibility studies and project implementation support report, Gauff
- ICA 2010. 6TH Infrastructure Consortium for Africa. Annual Meeting Agreement for Closer Collaboration on Regional Projects Among Stakeholders. GRUIPE BANCO AFRICANO DE DESENVOLVIMENTO
- Isa, R.S, Jimoh R, and Achuen, E 2016. An overview of the construction of construction sector to sustainable development in Nigeria, *Net journal of Business Management*.
- Ishaku, H.T, Rafee Majid, M, Ayayi, A.P, and Haruna, A. (2011). Water Dilemma in Nigerian rural communities looking towards the sky for an answer. *Journal of water Resources and protection*. 3, pp 598-606.
- Jimoh, U. U. 2016. "Infrastructure". In Egunjobi. (Ed). *Contemporary Concepts in Physical Planning* Department of Urban and Regional Planning, University of Ibadan. Ibadan. Vol. 11: 455-479.
- Longe, E.O, Yaya, F.M. (2015). Assessment of water and sanitation service level in 20 rural communities of Amuwo Odofin and Ojo LGAs of Lagos State, Nigeria. *American Journal of Environmental Engineering and Sciences*. 2 (6). Pp 53-61.
- Meadowcroft, J and Bregha, F. 2007. *Governance for sustainable development meeting the challenge ahead*, Academia.
- Ndikumana, L, Pickbourn, L. (2017). The impact of foreign aid allocation on access to social services in sub-Saharan Africa. The case of water and sanitation. *World Development*. Pp 104-114.

- Nubi, T.O 2002. "Procuring, Managing and Financing Urban Infrastructure: Towards Integrated Approach". A paper presented at a National Workshop on Land Management and Property Tax Reform in Nigeria.
- Okorafor. H, KaluJohn. I Nwazue. C, Stephen.U amd Jane. I. 2012.Rural Infrastructure Development: A Tool for Resolving Urbanization Crisis. A Case Study of South-EasternNigeria. Scientific and academic publishing. ISSN: 2163-1573 e-ISSN: 2163-1581.
- RWSA. 2019. The Rural water supply international directory. Rural water supply network RWSN,Switzerland.
- Sodemade, G. A, Balogun-Adeleye, R.M, Agbeye, O, and Momodu, O, (2020). Assessment of water supply challenges in Ado-Ekiti, Ekiti State, Nigeria. *Journal of Engineering Research*. Vol.25, No 2. Pp 203 212.
- Sridhar, M.K.C. and Oloruntoba, E.O. 2008. "Water Development, Health and the Nigerian Millennium Development Goals". In Agbola, T., Olatubara, C.O, Wahab, B; Sanni, L. and Ipingbemi O. (Eds). *Environmental Planning and Health in Nigeria. Essays in Honour of Prof. Egunjobi, T.O.* Department of Urban and Regional Planning, Ibadan, University of Ibadan: 83-112
- Udoudo, F.P and Udoidem, J.O 2017. Urban Infrastructure Provision in Nigeria: A Critique of the Funding Strategy. *Saudi Journal of Business and Management Studies* ISSN 2415-6663. DOI: 10.21276
- USAID 2009 Safeguard the world' water, 2010 report on USAID Fiscal year 2009 Water Activities VTPI, (2006), Online TDM Encyclopedia Victoria Transport Policy Institute (www.vipi.org/tdm).
- WHO and United Nations Children's Fund (2019). Progress on household drinking water, sanitation and hygiene 200-2017. Special focus on inequalities. New York; UNICEF and
- WHO. 2019. https://water.who.int/water_sanitation-health/publication/mp.report-2019/en/ Accessed 9/20/2019.
- WHO/UNICEF JMP, 2013. Progress on sanitation and drinking-water 2013 update
- WHO/UNICEF Joint Monitoring Programme for Water Supply and Sanitation. http://www.zaragoza.es/ciudad/medioambiente/onu/en/listadoPer_Onu?pub=JMP Nigeria, History and Development, Ibadan University press, Ibadan.
- World Commission on Environment Development 1998. *From one Earth to one world; An overview*, Oxford, Oxford University Press.

Appendix I



PLATE 1: ABADONED MDGs WATER PROJECT

SOURCE : AUTHOR FIELD
SURVEY 2021



PLATE 2: ABADONED POWER
TRANSFORMER AT ERO DAM



PLATE 3: ABADONED WATER FACILITY AT ERO
DAM



PLATE 4; ABADONED WATER FACILITY AT ERO DAM



PLATE 5: DOWN STREAM OF
ERO WATER DAM



PLATE 6: ABADONED OVER HEAD TANK OF
BORE HOLE WATER AT ILUPEJU IJAN



PLATE 7: MORIBOUND MDGs WATER
PROJECT AT ADO-EKITI



PLATE 8: MORIBOUND WATER FACILITY
AT ERO DAM



PLATE 9: ABADONED MDGs WATER FACILITY
AT ADO-EKITI



PLATE 10: ABADONED HAND
PUMP WELL WATER AT ADO-
EKITI