

Analysing Infrastructural Decay in Owerri Urban: a Springboard for Sustainable City Development

Blessing Ugwuezuonu¹, C.V. Nwankwo²

¹(Estate and works Department, Federal University of Technology, Owerri, Nigeria)

²(Department of Estate management, Abia State University, Uturu, Nigeria)

Abstract:

Background: This study analyzed Infrastructural decay in Owerri Urban from 1979 till date. The infrastructure within the scope of this study include roads, pipe borne water and waste management system. From 1979-1994, Owerri urban had good quality and adequate infrastructural facilities. However, quality and adequate functional infrastructural facility started declining as years went by. Thus, this paper tends to examine the reason for declination of infrastructural facilities in Owerri urban between 1995-2022. Consequently, the work aimed at analyzing infrastructural decay in Owerri urban as a springboard for sustainable city development.

Materials and Methods: A total number of 291 field workers of Imo state waste management agency, State Ministry of Works and Imo State water sewage and cooperation formed the population of study. Data collected from field survey were analyzed using social statistical packages for social sciences (SPSS version 20).

Results: The result of the findings showed that functional infrastructural facilities for water supply from public mains were very bad between 2012-2022, most roads were in a deplorable condition between 2012-2022, solid waste disposal system has continued to deteriorate since 2016. The paper concluded that use of poor quality materials, lack of maintenance of roads, insufficient time for evacuation, inadequacy of bins and trucks/compactors/tippers for solid waste disposal and lack of maintenance of pipelines and vertical pumps for water supply from the public mains caused infrastructural decay in Owerri urban. This study recommended that the government should increase the number of times for evacuation of solid waste and evacuation should be done more often in the night. There should be constant maintenance of roads, pipelines and vertical turbine pumps as at when due.

Key words: Infrastructural decay, infrastructure, City Development, Owerri urban.

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I. Introduction

In the words of Osullivan, Arthur, Sheffrin & Steven (2003), infrastructure is composed of public and private physical structures such as roads, railways, bridges, tunnels, water supply, sewers, electrical grids and broadband access in telecommunications. Water, Roads, bridges, waste management and telecommunication are among infrastructure that people use on daily basis. When all these infrastructural facilities mentioned are abandoned, destroyed, not maintained, over looked, or low quality materials are used, deterioration or decay will set in.

Carl (1984), therefore referred to infrastructural decay as the gradual decaying or deterioration of public service facilities, even though they may have been originally properly designed and well-built but have worn-out from use.

Owerri Urban had good quality and adequate functional infrastructural facilities between 1979-1994. However, as years went by, Owerri urban started experiencing decline in the quality and adequacy of functional infrastructure. The problem here is that for some decades till date, there has been a decrease or set back in functional infrastructure in Owerri Urban. When it comes to waste management, everywhere in Owerri urban is littered with solid waste packed in Polythene bags. Heaps of solid waste are found at any and every corner in Owerri urban without considering its effect on the society. People drop and heap solid waste in the gutters, and along major and feeder roads. The traffic island along major roads have become refuse dump grounds for the masses. Some individuals dispose their solids waste when it is raining so as to be carried away by the rains and this causes blockage to gutters leading to flooding in Owerri urban. As a result of this uncontrollable solid waste disposal, Owerri urban has been defaced with dirt all over; and foul odour. This could be as a result of inadequacy of trucks, bins, and period of time to carryout evacuation of solid waste.

Pipe born water has become an issue, no one can dictate or has the knowledge of where or where not there is water supply from the mains in Owerri urban. This has led to proliferation of bore-holes in the study area without minding the actual depth of the bore-hole or which corner or location in the compound to or not to

drill the bore-holes. Some children had been drowned in rivers like Otammiri and Nwaorie rivers when they went to fetch water for their families.

Owerri urban is full of very bad roads, few are under rehabilitation. The bad roads have damaged and condemned so many vehicles both private and commercials. Movement of some vehicles have been restricted due to bad roads especially, during the raining season. Many vehicles spoil along the roads because of pot holes. Some roads that lead to other communities have divided into two parts rendering the roads impassable. Infrastructural decay in Owerri urban has kept the masses uncomfortable and unhappy.. There are no good roads for movement of goods and raw materials to consumers. Consequently, it is pertinent to carryout analysis on infrastructural decay (waste management, roads and water) in Owerri urban and brings up forthwith ideas for sustainable city development.

This work intends to analyse the declination in quality and adequacy of functional infrastructure in Owerri Urban with a view to encouraging sustainable city development. Hence, the scope of this study is limited to analyzing the infrastructural decay in Owerri urban between 1995-2022 and the infrastructural sub-section selected in this work were waste management, roads and pipe born water.

It is undoubted that Imo state Government has cultivated the habits of build and demolish, remove and resuscitate, rehabilitate and annihilate infrastructural facilities in Owerri urban. This paper will provide ideas on how to plan ahead for sustainable city development of Owerri Urban.

II. The concept of infrastructure and infrastructural decay

The word infrastructure has different definitions by different authors and scholars depending on their perspectives. Fulmer and Jeffery (2009), gave a general definition of infrastructure as the physical components of interrelated systems providing commodities and services essential to enable, sustain, or enhance societal living conditions and maintain the surrounding environment. Invariably, what that means is that infrastructure are those components that are tangible which are connected and have effect on each other.

Boyle (2022), supported that infrastructure refers to the basic physical systems of a business, region, or nations and further explained that these systems tend to be capital intensive and very costly investments that are of vital importance to a country's economic development and prosperity. Ayesha (2022), opined that infrastructure is important for faster economic growth and alleviation of poverty in a country and also stressed that the adequacy of infrastructure in the form of roads, and railways, transport systems, ports, power, airports, and their efficient working is also needed for integration of a country's economy with other economies of the world. Emphasis is therefore on a country having functional infrastructural facilities that are adequate for the growth of the economy.

According to Robert (2015), infrastructure empowers trade, power, businesses, connects workers to their jobs, creates opportunities for struggling communities and protects the nation from an increasingly unpredictable natural environment. This means that infrastructure creates job opportunities and provides related jobs to workers in communities. Boyle (2022) contributed that infrastructure in economic terms often involves the production of public goods or production processes that supports natural monopolies and gave examples of infrastructure to be transportation systems, communication networks, sewerage, water and electric system and suggested that project related to infrastructure improvements maybe funded publicly, privately, or through public- private partnerships.

Jochimsen (1966), defined infrastructure more deeply as the sum of materials, institutional and personal facilities and data which are available to the economic agents and which contributes to realizing the equalization of the remuneration of comparable inputs in the case of a sustainable allocation of resources that is complete integration and maximum level of economic activities Gianpiero (2009), argued that there is no standard definition of infrastructure across economic studies. Consequently, Tinbergen (1962), introduced the distinction between infrastructure (for example roads, and educations) and superstructure (manufacturing, agricultural and mining activities) without neither a precise definitions nor any theoretical references of these terms.

Skayanms and Markator (2005), opined that infrastructure is an element which to a certain degree enhances competitiveness. He stated pre-requisites' for infrastructure as:

- i. Infrastructure has to be new as far as possible. The 'new' incorporate new (digital) technology to the maximum possible extent.
- ii. Infrastructure has to be socially useful, economically efficient, and technically feasible.
- iii. Infrastructure has to comprise a network, so that advantages of the network economies can be enjoyed.
- iv. Infrastructure has to assist other (super structural) sectors or branches of production.
- v. Infrastructure has to be environmentally sound if the society in which it is applied is to survive.
- vi. Infrastructure has to be (in most cases) networked, intra- and inter-sectionally, in order to achieve high operational efficiency and enjoy network economics or economics of scale.

Ayesha (2022), mentioned six (6) important constituents of infrastructure as follows;

- i. Power and the source of its production such as coal and oil
- ii. Roads and road transport
- iii. Railways
- iv. Communication, especially telecommunication.
- v. Ports and airports
- vi. For agricultural, irrigation constituents is the important infrastructure.

He also listed nine (9) types of infrastructure namely- Aviation, telecommunication, bridges, power and energy, railways, roadways, water and waste management.

Infrastructural decay

Ogbuagu, Ubi & Effiong (2014), carried out study on corruption and infrastructural decay in the Nigeria. The study articulated descriptively the link between corruption and infrastructural decay in Nigeria. Electricity and governance were the two infrastructural sub-sectors selected and briefly examined and used to demonstrate the correlation between corruption and current state of infrastructural decay. From the simple correlation analysis, it was glaring that it was not absolute lack of funds that has caused infrastructural decay but outright mismanagement of funds (corruption) that was principally responsible for the level of infrastructural decay in Nigeria.

Ikediashi (2007), carried out a study on infrastructural decay in Nigeria. There is no doubt that the economic growth of a nation is dependent on the availability of functional infrastructure such as energy, roads, water supply, education and so on to provide the required environment for the free flow of goods and services across the length and breadth of the country. However, efforts have been made to reposition and regenerate the country in the fast emerging new order of globalization. As such, government set up a number of agencies charged with the responsibility of creating and funding small and medium scale enterprises as the foundation of the new economic regeneration as well as the privatization of public enterprises for effectiveness and productivity. Notwithstanding, the actualization of this laudable initiative seemed to be misnomer and would not yield any fruitfulness.

Mumoney (2009), carried out a research on infrastructural decay and National development: The role of banks. This study explore the role of banks in nation building, particularly as it relates to infrastructural decay. Nigeria is the case study of the study. The study revealed that the vital place of infrastructure in any economy can hardly be over emphasized and that infrastructure is a non-military facility including water supply, and distribution system, waste water collection and treatment facilities, transportation facilities, mass transit facilities, airports and airways facilities, resource recovery facilities, airport, school buildings, and solid waste disposal facilities.

According to Agbu (2003), infrastructural decay around the Nigeria could to a greater extent be traced to corruption and lack of accountability and transparency by public/private office holders. The study also revealed that corruption was a global problem and existed in varying degrees in different countries. A study carried out by Uhunmwangho and Ekpu (2012), showed that, the state of decay in Nigeria has become so bad that analysis carried out on the ratio of functional infrastructure to the need for it by both the individual and the corporate bodies revealed that the infrastructure are grossly inadequate. The analysis further revealed that over ninety percent of individuals now choose to meeting their own infrastructural needs instead of depending on the government to provide these basic needs to the general public

III. Materials and Methods

Extensive field survey was used to gather relevant data for this research. Data was retrieved from the staff (field workers) of the three (3) Imo state Government parastatal concerned with the infrastructure under review (waste management, roads and pipe born water). The Imo state Government parastatal concerned in this research work are: the Imo state waste management agency, the Imo state water and sewerage cooperation, and the Imo state ministry of works. The population of the study comprised of the staff (field workers) of water services and commercial department in Imo state water and sewerage cooperation, field workers of Imo state waste management agency and contractors in the field who are financially up-to-date in state ministry of works because they are in a better position to give reasonable data for the study. A total number of 291 members of staff and contractors formed the population of study. Imo State waste management agency field workers were 160, Imo state water and sewerage cooperation were 101, and state ministry of works contractors were 30. Consequently, a total number of two hundred and ninety one (291) questionnaires were distributed (160 questionnaire were distributed to field workers of Imo state waste management agency and 148 were returned, 101 were distributed to Imo state water/sewerage cooperation and 90 were returned and 30 were distributed to contractors of state ministry of works and 22, were retrieved) and two hundred and sixty (260) were duly completed and returned. The data generated in this work were presented in tables and bar charts and likert scale

was used to determine the grades or scores of state of Roads, and conditions of water supply facilities from public mains in Owerri Urban.

IV. Presentation Of Data /Analysis

Data Presentation

Table no 1: Likert Scale

Excellent	Very good	Good	Fair	Bad	Very Bad
6	5	4	3	2	1

The table above is the likert scale used to determine the grades or scores of condition of water supply facilities from the public mains, solid waste management and Road repairs in an Owerri Urban between 1995 -2022.

Table no2: Solid waste disposal in Owerri Urban between 1995 – 2022

S/N	Year	No. of Bins	Standard availability of trucks/tippers/roll on – roll off/ compactors	No of times evacuation is being done per day
1	1995 - 1999	125	28	2 times
2	2000 - 2003	125	28	2 times
3	2004 - 2007	125	28	2 times
4	2008 - 2011	165	7	4 times
5	2012 - 2015	165	7	2 times
6	2016 – 2019	165	7	1 times
7	2020 - 2022	70	20	3 times

TABLE 3: State of Repairs of Roads in Owerri Urban from 1995 – 2022.

S/N	Year	State of repairs
1	1995 - 1999	4
2	2000 – 2003	4
3	2004 – 2007	4
4	2008 – 2011	3
5	2012 – 2015	2
6	2016 – 2019	1
7	2020 - 2022	1

Table 4: Conditions of water supply facilities from the public mains between 1995 – 2022.

S/N	Years	Vertical turbine pumps	Pipelines
1	1995 - 1999	5	4
2	2000 – 2003	4	4
3	2004 – 2007	4	4
4	2008 – 2011	2	4
5	2012 – 2015	1	2
6	2016 – 2020	1	2
7	2020 - 2022	4	2

Analysis / Result:

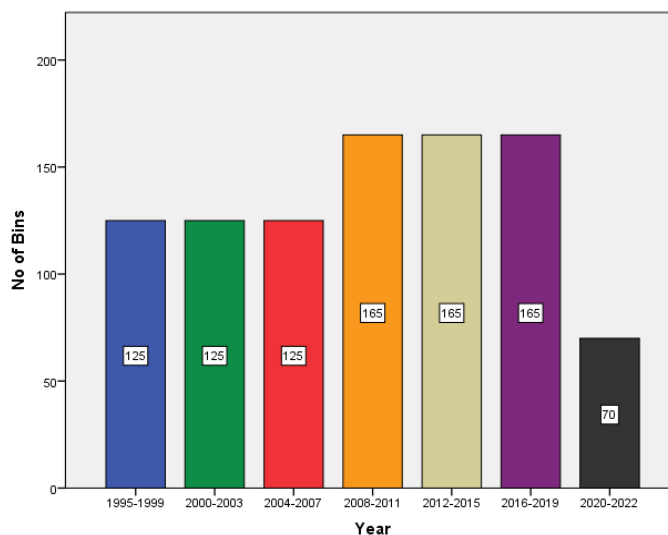


Fig 1: Bar chart showing the number of bins in Owerri Urban from 1995 - 2022

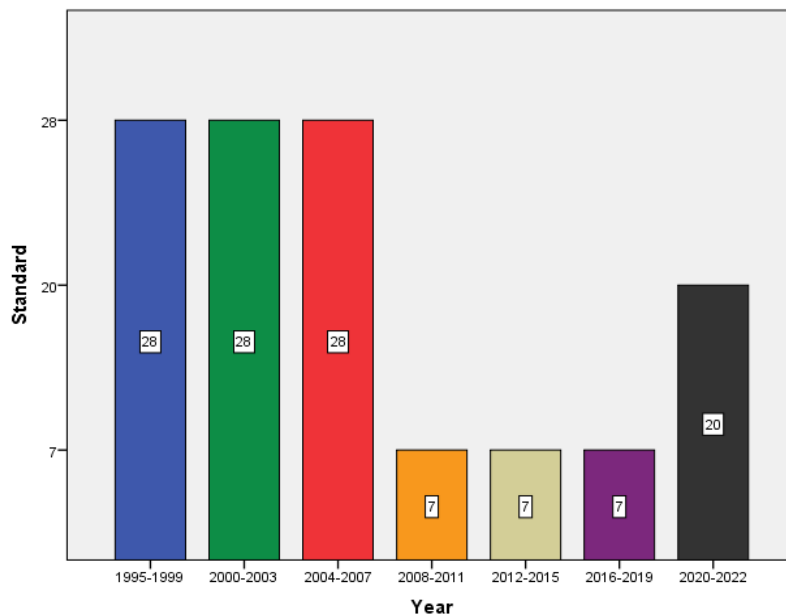


Fig 2: Bar chart showing the number of standard of trucks/roll on-roll off / compactors/tippers in Owerri Urban from 1995-2022

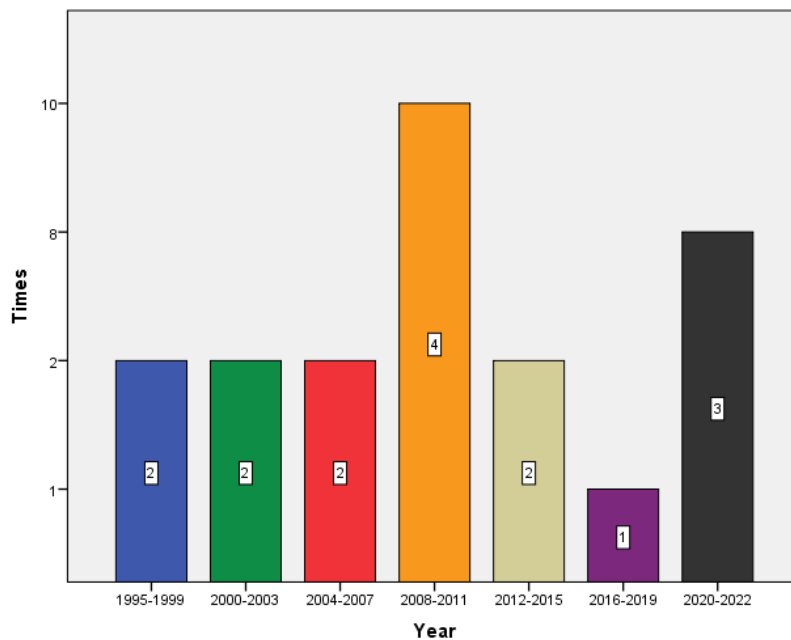


Fig. 3: Bar chart showing the number of times evacuation of solid waste is being disposed between 1995 – 2022

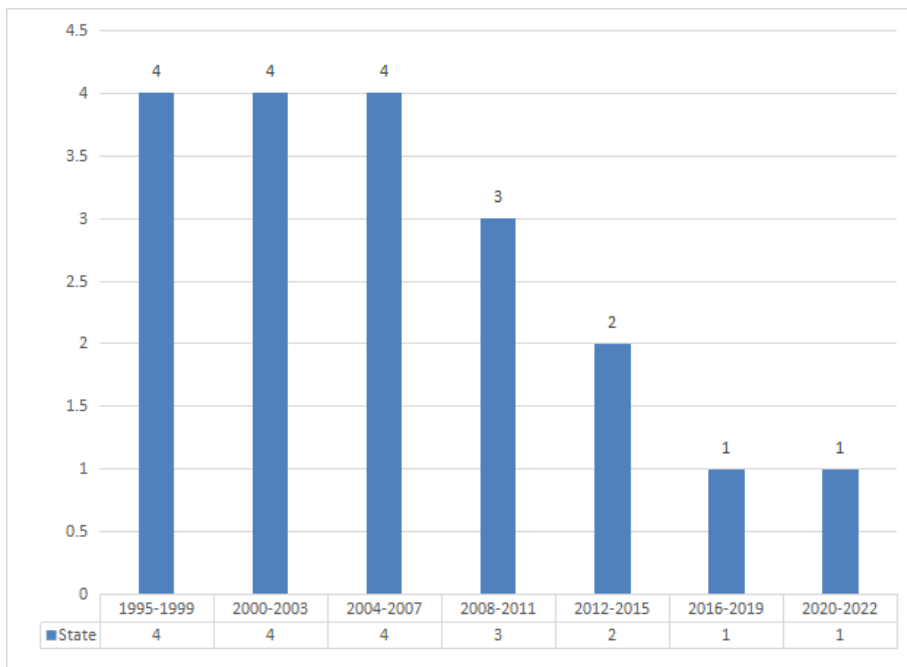


Fig 4: Bar chart showing the state of repairs of roads in Owerri Urban between 1995 - 2022

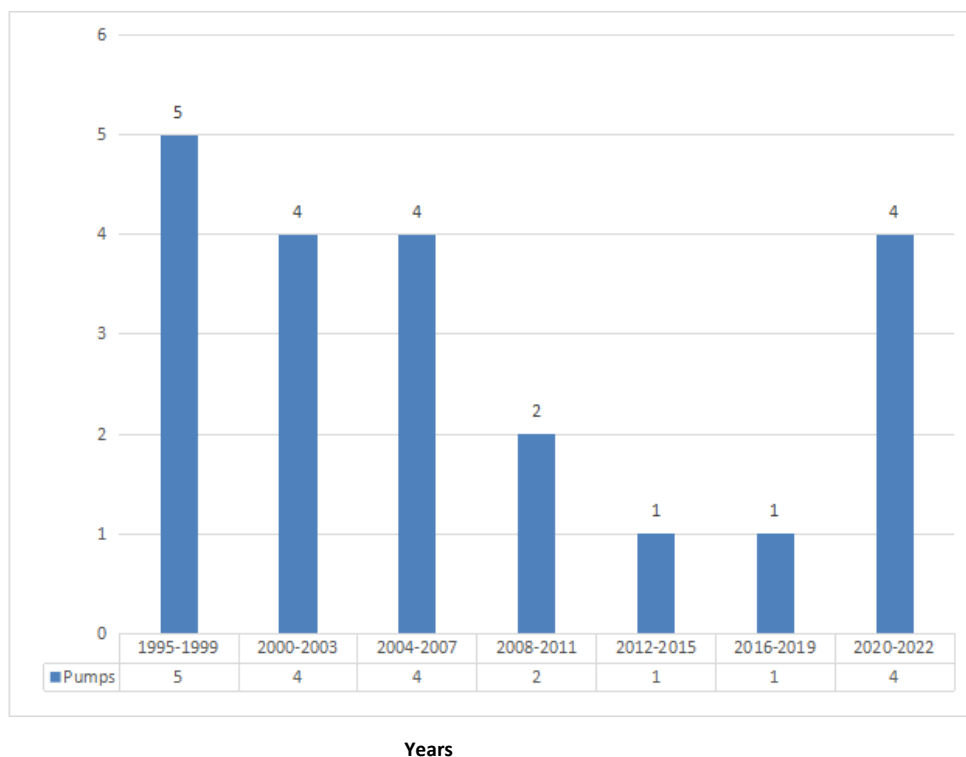


Fig. 5: Bar chart showing the conditions of vertical turbine pumps from water supply public mains in Owerri Urban from 1995 - 2022

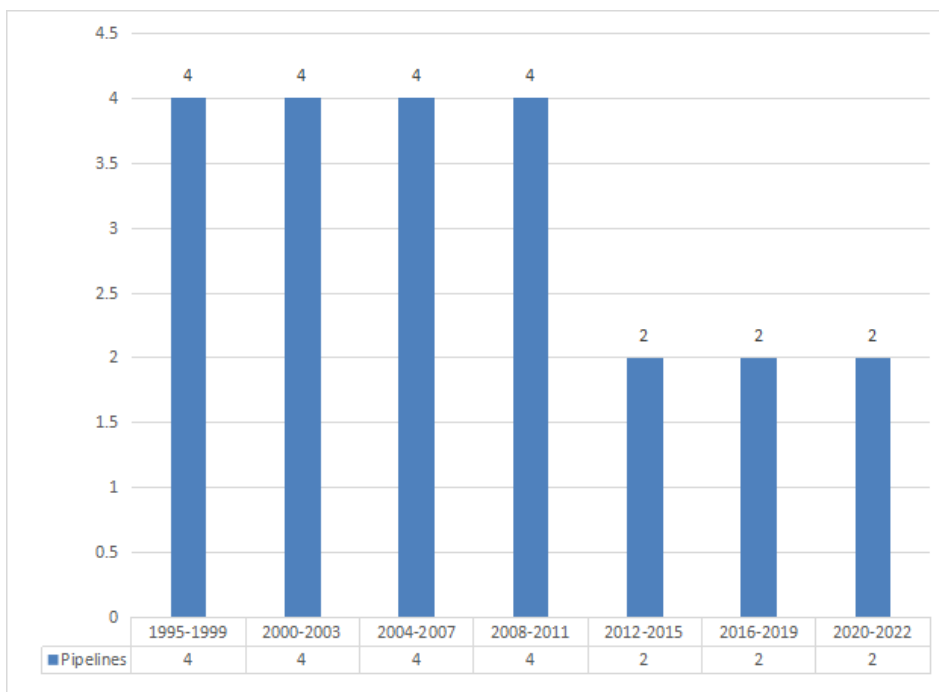


Fig. 6: Bar chart showing the condition of pipelines in Owerri Urban from 1995 - 2022

V. Findings

From the result of the study, the following findings were made: for solid waste disposal, it was observed that the number of bins remained the same (125) from 1995 – 2007. This means that the then management did not decrease nor increase the number of waste bins between the year 1995-2007. Between 2008 – 2019, the management as at then increased the number of bins to 165 which implies that there were enough bins then. While the number of bins were reduced drastically to 70 in 2020 – 2022.

In 1995 – 2007, there were 28 number standard trucks, roll on – roll off, compactors and tippers made available daily. This shows that evacuation of solid waste was carried out effectively. In 2008 – 2019, the number of standard trucks, compactors, tippers, roll on – roll off made available daily decreased to 7 in number which meant that evacuation was not properly carried out. In 2020 – 2022 the number of compactors were 20 which implies that there is little improvement in evacuation of solid was disposal. However this is not adequate because despite the effort made by the management on daily basis to evacuate waste, one will still see solid waste littered along major roads and street corners in Owerri Urban. The number of times solid waste was disposed off in 1995 – 2007 was 2 times; in 2008 – 2011, 10 times; in 2012 – 2015, 2 times; in 2016 – 2019, once and then in 2020 – 2022, 8 times. This means that between 2016 – 2019 the solid waste disposal was not effective in Owerri urban. Then between 2020 – 2022 there was little improvement in solid waste disposal. Evacuation of solid waste was done 10 times in 2008 – 2011 while evacuation was done once in 2016-2019.

The state of roads in 1995 – 2007 was grade 4. This means that the state of repairs of roads in 1995 – 2007 was very good. In 2008 – 2011 the grade was 3, which implies that roads were good then. In 2012 – 2015, the state of repairs of roads was grade 2 which means that the roads were bad and in 2016 – 2019 the grade was 1 which indicates that the state of repairs of roads were very bad. In 2020 – 2022, the grade was 1 which means that roads in Owerri Urban are still very bad. While one may notice road repairs ongoing in some parts of Owerri, it would be noticed that work is moving at a very slow pace and the materials used for repair are substandard such that there is very little improvement in the state of roads.

Conditions of facilities for water supply from the public mains, in 1995 – 1999 scored 5 which implies that the pipelines and vertical turbine pumps were very good in functioning and pumps were running in Owerri. In 2000 – 2007, the score was 4 which means the pipelines and vertical pumps were good in functioning and pumps were running in Owerri Urban. In 2008 – 2011, the score was 2. This implies that water in Owerri had drastically reduced and the state of water supply was bad. Between 2012 -2019, the score was 1 which is very bad, that indicates that in Owerri Urban there was no supply of running water from the mains. This could be as a result of destruction of pipelines during the urban renewal that was carried out by the then administration. In 2021 – 2022 the score was 4 for the vertical pumps which is good because the current administration has carried out some changes in the vertical turbine pumps and as such water has started running in some places but score for the pipelines is still 2 which means that means that most of the pipelines are still bad therefore there is lack of water supply in the study area.

VI. Conclusion And Recommendation

Conclusion

From the study it can be concluded that there is urban decay in Owerri Urban and requires urgent attention from the government to salvage the situation. While government is trying to fix the infrastructural decay, much has not been done and time is of essence in order to bring Owerri Urban back to its original state.

Recommendations

Government should replace and enlarge pipe networks. Vertical turbine pumps should be changed as at when due and also ensure that rehabilitation is carried out at the appropriate time to ensure adequate water supply from the public mains.

Government should ensure that bad roads are repaired promptly and pot holes in the roads are patched as at when due in order to avoid more deterioration. Also ensure that quality materials are being used during construction.

The Government should provide adequate bins, trucks, compactors and tippers for solid waste evacuation. The bins should be sited at strategic locations for easy collection during evacuation period. The period of evacuation should always be at night, when people, cars would not be disturbed by dirt and foul odour. Night evacuation will help to prevent traffic jams on the road. The number of time to evacuate Solid waste should be increased to 12 – 15 time per day. This will make the environment to be clean and free from heaps of solid waste in Owerri urban.

Residents should also be provided with public waste bins close to their neighbourhood where they can throw away their solid waste for further disposal by the waste management authority. The implication is that the roads/streets also have to be good in a good so that the trucks for evacuation can navigate through the roads.

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