



LEEDS  
BECKETT  
UNIVERSITY

---

Citation:

Ahmed, A and Obanore, S and Paul, P (2022) Waste Management Regulations Enforcement: Lead Way to a Healthy Environment in Nigeria. Trends in Civil Engineering and its Architecture, 4 (3). pp. 673-677. ISSN 2637-4668 DOI: <https://doi.org/10.32474/TCEIA.2022.04.000188>

Link to Leeds Beckett Repository record:

<https://eprints.leedsbeckett.ac.uk/id/eprint/9196/>

Document Version:

Article (Published Version)

---

Creative Commons: Attribution 4.0

© All rights are reserved by Ash Ahmed.

The aim of the Leeds Beckett Repository is to provide open access to our research, as required by funder policies and permitted by publishers and copyright law.

The Leeds Beckett repository holds a wide range of publications, each of which has been checked for copyright and the relevant embargo period has been applied by the Research Services team.

We operate on a standard take-down policy. If you are the author or publisher of an output and you would like it removed from the repository, please [contact us](#) and we will investigate on a case-by-case basis.

Each thesis in the repository has been cleared where necessary by the author for third party copyright. If you would like a thesis to be removed from the repository or believe there is an issue with copyright, please contact us on [openaccess@leedsbeckett.ac.uk](mailto:openaccess@leedsbeckett.ac.uk) and we will investigate on a case-by-case basis.



# Waste Management Regulations Enforcement: Lead Way to a Healthy Environment in Nigeria

Sonny Omon Obanore<sup>1</sup>, Ash Ahmed<sup>2\*</sup> and Parneet Paul<sup>3</sup>

<sup>1</sup>Civil Engineering Group, Leeds Beckett University, UK

<sup>2</sup>Reader, Associate Professor, Civil Engineering Group, Leeds Beckett University, UK

<sup>3</sup>Professor, Civil Engineering Group, Leeds Beckett University, UK

\*Corresponding author: Ash Ahmed, Reader, Associate Professor, Civil Engineering Group. Leeds Beckett University, UK

Received: 📅 July 21, 2022

Published: 📅 July 27, 2022

## Abstract

Solid waste management is a combination of techniques of disposing of, collecting, and recycling solid waste. Effective management of waste is vital for maintaining a sustainable environment. In countries where illegal disposal of waste and pollution are rampant, waste management is a way of dealing with deadly diseases such as cholera and malaria. This study examines the current regulations in Nigeria with the view to identify the main weakness and provide a way for forwarding. Qualitative data was analysed thematically to identify current weaknesses in waste management. It identifies weak rules, lack of public education, limited funding, and inadequate enforcement policies as the main factors that curtail waste management. The study proposes increased participation of the private sector, public education, and increased funding as a way forward to enhancing the countries waste management systems. The findings, recommendations and framework of this journal can be extended to all Africa in general and developing countries.

**Keywords:** Waste; Management; Regulations; Enforcement; Healthy; Environment; Nigeria

## Introduction

Waste management is an orderly approach to waste disposal which is concerned with the safe collection, transportation, and treatment of solid waste. As the population grows, waste management becomes a necessity due to increased economic activities and increased volumes of waste [1]. Today, a municipal waste management system is commonplace. In urban areas where the annual population growth rate is high, regulations and legislation governing solid waste management must be adequately designed and implemented. The benefits of having an effective waste management system are immense; a suitable environment promotes a healthy population, improved economic activities, and an aesthetic environment. Countries around the world are battling with waste disposal. Piles of waste along roads and riverbanks are common in developing economies. An array of weaknesses has been identified in waste management systems in developing countries. According to Ogboi (2009), problems such as low and irregular waste collection and inferior disposal methods are common in waste management systems of developing countries.

The environmental issues associated with improper waste disposal pose significant health risks to the population [2]. In the recent past, break-out of cholera has been reported in most developing countries in Africa. In developed nations, communities are more conscious about environmental pollution, and regulations promote waste recycling. Nigeria's population ranks highest in Africa. The complexities in land use associated with high population cause a significant challenge in the countries endeavor to deal with waste disposal effectively. According to Ogwueleka (2009), the country lags in Solid waste management regulation and legislation. Most of the population are either ignorant or unaware of penalties attached to improper disposal of waste. The present study seeks to explore waste management enforcement in Nigeria [3]. The researcher used a desktop study approach. The researcher reviewed documents and data relating to waste management regulations and legislation in Nigeria.

## Data Collection

Qualitative data was collected for the current study. A review of current regulations and legislation was conducted by reviewing

existing laws. Qualitative data was retrieved from disseminated findings. In addition, the researcher analysed both the Nigerian laws and constitution matters relating to the topic.

## Literature Review

An extensive review of existing laws and regulations concerning waste management in Nigeria is presented. It is crucial to understand the existing legislation to facilitate in concluding their impact on the topic. Three critical areas are given: waste management in Nigeria, waste management regulations, and enforcement practices.

### Waste management in Nigeria

The local government is responsible for the collection and disposal of waste. The function is given through the constitution adopted in 1999, [4]. According to the Nigerian constitution above, the waste management mandate includes maintaining public convenience, sewage, and waste disposal to the local government. A variation of the law has been adopted in certain states. In some states, the government has developed regulations at variance with

the constitution rendering the local government less powerful, [5].

In 1987, the Nigerian government came up with an environmental agency named Federal Environmental Protection Agency. The Agency manages the toxic waste that was being dumped by the foreign companies in the city, as is described in the revised policy on the environment (1999) and The Nation Agenda 21 (1999). The Agency's role was to complement the standards of environmental pollution control and regulation. It regulated the disposal and treatment of hazardous waste from the industries [6]. The waste collection is in two ways; 1) Door-to-door collection and community disposal. The door-to-door assembly required more staff that collected it from citizens' homes. The method is difficult and expensive to pay the workers [7]. Despite all, the levels of illegal disposal in main cities are increasing. Figure 1 below shows that the waste collected in Nigerian cities ranges between 10,000 tonnes to 260,000 tonnes per month. Generation of waste depends on the cities' population, those with high population are most likely to generate more waste.

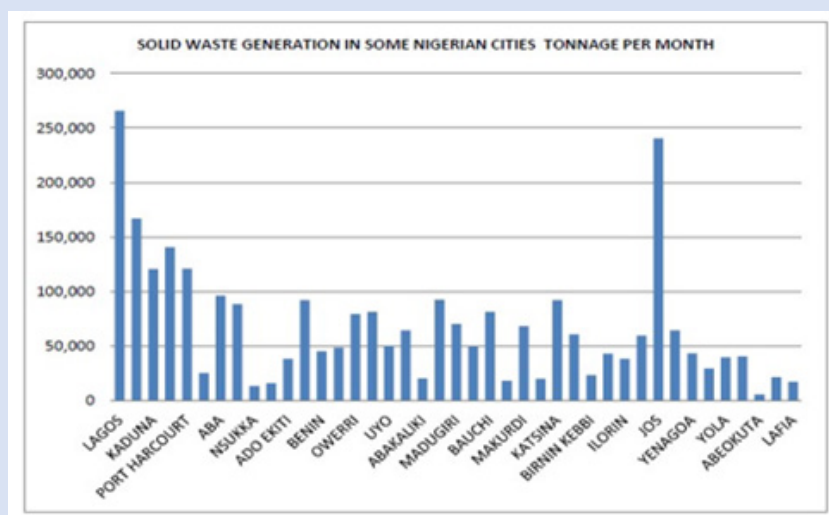


Figure 1: Solid Waste Generation in Nigerian Cities Tons Per Month,

**Source:** Department of Sanitation/Solid Waste Management, Federal Ministry of Environment Abuja Nigeria (2010).

### Waste Management Regulation in Nigeria

Effective waste management all depends on regulations and policy guidelines for environmental sustainability. These regulations show how Nigeria is committed to sustainable and efficient management of the environment. There exist several agencies and laws that regulate waste management [8]. These include the Federal Ministry of the environment, the Lagos State Waste Management Authority (WMA); The National Environmental Standards Regulatory and Enforcement Agency (NESREA); the Ministry of Water Resources.

According to Osinibi (2014) environmental management regulations in Nigeria are on the national policy of 1989. The purpose of waste management regulation in Nigeria is to attain

workable development. That is; raise public awareness and understanding of essential connections between environmental development and improvement; upgrade ecological measures and save the sustainable utilisation of ecosystems and natural resources; to bring good quality environment for the prosperity and wellbeing of Nigerians [9]. More so, to join other countries in compliance with international agencies to achieve utilisation of natural resources and successful remedial action of transboundary environmental pollution [10]. The most significant legal basis for waste management in Nigeria is the Federal Environmental Protection Agency (FEPA) Act. In July 2007, Nigeria's president revoked all FEPA and NESREA laws and signed them into law. In the Nigerian states, the minimum standards are the federal laws. According to Article 33, the government is allowed to enforce stricter measures and firmer sanctions on violators [11].

By law, the local governments manage municipal solid

waste, but because of inadequacy, the involvement of other state environmental agencies became a necessity. The National Environmental Protection (NEP) regulations of 1991 mandate industries to have environmental audits, implement boundaries on toxic substance emission and set requirements for monitoring pollution. Collection, disposal of solid and hazardous and treatment

wastes from industrial and municipal sources are regulated by NEP regulations S.I.15 of 1991. The Figure 2 below shows that most waste products are being disposed into rivers, public spaces, drainage and less percentage of waste collected are being either recycled or reused.

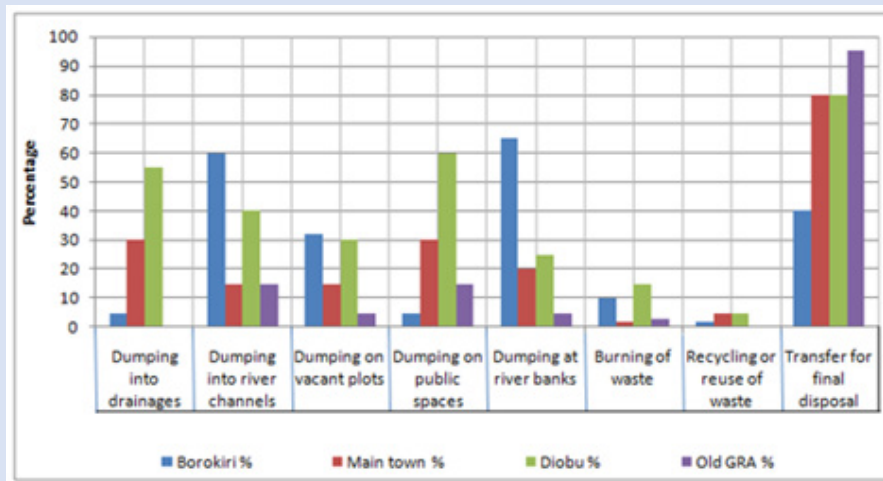


Figure 2: Illegal Dumping in Nigeria Source: [29].

### Regulation enforcement and procedures

The Customary Courts and Magistrate courts handle Nigerian environmental matters. Environmental planning and protection were the small units in the Federal Ministry of Works and Housing that dealt with environmental protection [12]. when a bill was taken to parliament in 1981 for the formation of the Federal Environmental Protection Agency, the members of parliament did nothing to the bill, and the industrial pollution continued [13]. The enforcement of the environmental policies in Nigeria was slow due to the political differences in the country and procedures by the successive government. The federal government of Nigeria implemented the ecological sanitation policy to handle the challenges of waste. Still, it didn't work efficiently because the agencies only implemented the procedure in a few states [14]. The

federal government implemented the waste projects to deal with the cleaning of the environment, they carried out workshops and the study of waste generation, Nigerian government, decided that every citizen should participate in the cleaning of the atmosphere every Saturday of the month [15]

### Enforcement Training Requirement

The government of Nigeria has made attempts to educate its citizens about waste management (Nwachukwu, 2008). Several workshops have been done to train people to understand hazardous waste and the need for proper disposal of garbage in designated dumpsites. The emphasis of these training workshops is to encourage the safe disposal of waste and encourage recycling activities [15]. However, Figure 3 above shows that illegal disposal of waste in main cities remains a major problem.



Figure 3: Illegal Waste Dumpsite in Ibadan city, Nigeria, Source: [35].



## Discussion

### What are the Current Regulations in Nigeria?

This part examines the existing laws/policies and regulations concerning waste management in the Federal Republic of Nigeria. It highlights some state, federal and municipal regulations on waste management [16]. This summary shows laws and sufficient legal structures that already exist to address waste management and public health. As mentioned earlier, the responsibility of waste management lies with the local government. However, the federal government also provides regulations and laws relating to waste management. The basis of the statutes is contained in the federal government constitution of 1999. Section 20 of the constitution gives power to the federal government to safeguard and improve the environment that including air, water, and land [17].

The federal government has established three regulations on waste management and sanitation. These are.

- a. National Policy Guidelines on Solid Waste Management are tasked with ensuring economic and sustainable environmental health through efficient sanitary solid waste management ways.
- b. National Policy Guidelines on Sanitary Inspection of Premises aim at promoting a healthy and clean environment for the public.
- c. National Environmental Sanitation Policy aims at strengthening, stimulating, and promoting government policies on sanitation and environmental education.

The Federal Ministry of Environment (FME) was empowered by the FEPA act to examine permits or licenses given to any person and arrest anyone against regulations on the environment. The FEPA act also gives FME power to seize anything used in going against the Act. [18]. The Act provides that any person who violates its provisions is liable to a fine, imprisonment, or both. Any person or organisation who disposes of hazardous materials will take the responsibility of any remedial measures.

### The Reason for Failed Implementation of Regulations.

One of the factors that have led to the failed implementation of waste management regulations is the failure of the state to implement these regulations [19]. Other reasons are lack of public awareness on good waste management practices, will of the public to pay for waste disposal services for a clean environment. Waste generation in Nigeria is estimated at 0.65 to 0.95/kg/capita/day [20]. Abuja, one of the fastest-growing cities in Nigeria, generates 644 thousand tonnes of waste annually. So that to predict and plan for waste treatment facilities, it is crucial to know the amount of waste generated [21]. But there are no precise data on solid waste generation; most of the data was estimated. The use of pushcarts and wheelbarrows transports most wastes generated. Most of it is illegally dumped. Illegal dumping is rampant because communities

feel that legal dumpsites are very far from their homes [22]. In addition, irregular garbage collection coupled with the limited number of garbage collection vehicles encourages illegal dumping as shown below.

### The Lead way to Achieving a Healthy Environment in Nigeria

In order to achieve a healthy environment and a sustainable way for waste management in Nigeria, there should be amendments to the Federal Republic of Nigeria constitution 1999 to be in line with the African Charter on Human Rights (Ratification and Enforcement) Act and make the right to a healthy environment justifiable. In this way, it will be easy to enforce the environmental laws, and, in the end, the agencies dealing with waste management will be effective [23]. Secondly, the government should sensitise the citizens to improved waste management methods by the government or its agencies. Additionally, the waste management agencies should come up with applicable regulations on waste management. The policies/ regulations should have recycling, disposal, and re-use as the essential aspect for efficient waste collection, transportation, and disposal activities [24]. Also, the agencies should look at the interest of the workers by providing financial remuneration, which will reduce the movement between the private sector and the waste management sector because there will be more manpower. It is also crucial for the local workers' contributions and activities to be recognised and included in municipal collection planning [25]. Further, waste management agencies should establish relations with user groups and residential communities for effective service delivery and cost-efficiency [26]. For communities to participate in waste management, it is vital to have the support of NGOs. There should be public sensitisation on the effects of waste on health and environmentally correct ways to manage waste [27].

The agencies responsible should implement environmentally friendly, economical, and efficient methods in disposing of organic wastes like bio-digestion, briquetting, and gasification [28]. It is also essential to promote the use of biodegradable and recyclable things for daily use. It is vital to have comprehensive policies for hazardous waste management like waste disposal, collection, treatment, and recycling. In this way, the disposal and recycling of wastes like batteries, plastics, papers, electronics, and lubricating oils will be addressed by the agencies responsible. The government should include Pro-poor plans in waste management to generate income [29]. More effort should be put by the agencies involved towards increased collection and transportation of wastes. There should be strict policies to control how special and hazardous wastes are handled [30]. However, it is essential to have a working transportation system for various waste from rural and urban areas to disposal and treatment facilities. Finally, strict implementation of the law and provision for amendments and continuous reviews of regulations follow evolving times. There should also be mechanisms to deal with changing issues such as electronic waste and implement the principle of producer responsibility as it is practiced by other

industrialised countries [31].

## Recommendations

Waste management will increasingly become a problem as the population increases. This is especially true in developing economies, especially in Africa, where population growth has led to an increasing number of slums, narrow road networks, and congestion in urban areas. In Nigeria, there is an urgent need to establish actual statistics of population growth vis a vis the amount of waste generated in metric tonnes [32]. This will aid in developing appropriate and effective policies to deal with the current waste disposal menace. The current study provides evidence that ignorance of the population and weak government regulation are the main impediments to successful waste management. Existing government regulations do not give a clear separation of duties or delineation of responsibilities. Moving forward, the government must amend current rules. The federal government must allocate tasks to municipalities and other agencies. Enforcement of existing regulations is curtailed by lack of public education. The government of Nigeria must put in a concerted effort and embark on a national agenda to train and educate the public about waste management [33]. Strict penalties must accompany waste management regulations. The public needs to be aware of the consequences of illegal disposal not just because they risk the wrath of the law but also need to be conscious of the health effects of unlawful dumping. In Africa, Malaria is known to be one of the deadliest killer diseases. Eradication of Malaria requires the combined efforts of both government and its citizens.

Lack of sufficient funding makes it hard for the Environment Protection Agency to discharge its duties efficiently. A limited budget makes it hard for the Agency to attract experts and hire enough staff to handle mountains of dumpsites across the country. Therefore, the private sector and other humanitarian agencies need to pull together and increase funding to the EPE. More funds need to be channelled towards buying garbage collection vehicles, hiring experts, and increase the number of staff.

## Conclusion

Waste management is crucial not just for environmental protection but also as a source of life and livelihood. To attain an effective waste collection system requires that a proper framework is designed and enforces [34]. The current study provides evidence that a stable government with a firm commitment to waste management is fundamental. The policy direction suggested here is to; first revise current regulations and laws, create public awareness through rampant public education programs, then support the laws and regulations through string enforcement measures [35]. More importantly, the entire waste management system calls for cooperation between government, private sectors, and humanitarian organisations. Successful implementation of waste management techniques will protect the environment and eradicate some of the deadliest diseases in Nigeria [36].

## References

1. Abel OA (2009) An analysis of solid waste generation in a traditional African city: the example of Ogbomoso Nigeria Environment and Urbanisation. SAGE Journals 19: 2527-2537.
2. Adegoke A (2006) The challenges of environmental enforcement in Africa: The Nigerian experience. Third International Conference on Environmental Enforcement Head of Inspectorate and Enforcement Federal Environmental Protection Agency, Nigeria.
3. Adeyinka MA, Bankole PO, Olaye S (2005) Environmental Statistics: Situation in Federal Republic of Nigeria. Country Report Presented at the Workshop on Environment Statistics.
4. Ahmed SA, Ali M (2004) Partnerships for solid waste management in developing countries: linking theories to realities. Habitat International 28(3): 467-479.
5. Afun S (2010) Government Regulations and Legislations Will Ensure Sustainable Waste Management in Nigeria. Solid Waste Management Services Limited, Port Harcourt, Nigeria.
6. Ayotamuno JM (2004) Municipal solid waste management in Port Harcourt, Nigeria Obstacles and prospects. Management of Environmental Quality: An International Journal 15: 389-398.
7. Babayemi JO, Dauda KT (2009) Evaluation of Solid Waste Categories and Disposal Options in Developing Countries: A Case Study of Nigeria. Journal of Applied Science and Environmental Management 13: 83-88.
8. Bako AG (2014a) Municipal Solid Waste Re-Use and Recycling For Wealth Creation And Sustainable Environment In Zaria, Kaduna State, Nigeria. Department Of Geography, Faculty Oof Science, Ahmadu Bello University Zaria.
9. Boadi KO, Kuitunen M (2003) Municipal solid waste management in the Accra Metropolitan Area. The Environmentalist 23: 211-218.
10. Burnley S, Phillips R, Coleman T, Rampling T (2011) Energy implications of the thermal recovery of biodegradable municipal waste materials in the United Kingdom. Waste Management 31: 1949-1959.
11. Carison B (2009) Drivers of and barriers to e-waste management in the Philippines, Lund, Sweden.
12. Dauda M, Osita OO (2003) Solid waste management and re-use in Maiduguri, Nigeria, Towards the Millennium Development Goals. 29 The WEDC International Conference Abuja, Nigeria pp. 20-23.
13. Eneh OC (2010) Managing Nigerian's Environment: The unresolved issues. Journal of Environmental Science and Technology 4: 250-263.
14. Environmental Protection Agency (EPA) (2009) Local Authority Prevention Demonstration Programme (LAPD), National Waste Prevention Programme United Kingdom.
15. Federal Ministry of Land and housing (2007) Surveyor Generals Office, Cartographic Department, Abuja Nigeria.
16. Fischhendler I (2007) Escaping the polluter pays trap: Financing wastewater treatment on the Tijuana San Diego border. Ecological Economics.
17. Graneheim UH, Lundman B (2003) Qualitative content analysis in nursing research: concepts, procedures and measures to achieve trustworthiness. Nurse Education Today 24: 105-112.
18. Imam A, Mohammed B, Wilson DC, Cheeseman CR (2008) Solid waste management in Abuja, Nigeria. Waste Management 28: 468-472.
19. Kelley KE (2003) Multi-family recycling guide. Solid Waste Authority, Palm Beach County.
20. Kofoworola OF (2007) Recovery and recycling practices in municipal solid waste management in Lagos, Nigeria. Waste Management 27:

- 1139-1143.
21. Mbah PO, Nzeadibe TC (2017) Inclusive municipal solid waste management policy in Nigeria: engaging the informal economy in post-2015 development agenda. *Local Environment* 22: 203-224.
  22. Morris J, Dickey LW (2004) Three 80s for the 90s will cut waste in half. *Resource Recycling Systems*, Ann Arbor.
  23. Nabegu BA (2010) An Analysis of Municipal Solid Waste in Kano Metropolis, Nigeria. *Journal of Human Ecology* 31: 111-119.
  24. National Environmental Standards and Regulations Enforcement Agency (NESREA) (2009) Federal Republic of Nigeria Official Gazette: NESREA, Abuja Nigeria.
  25. Nwachukwu, Michael A (2008) Environmental Sanitation Enforcement and Compliance Best Management Strategies for Nigeria. International Network for Environmental Compliance and Enforcement's (INECE) Eighth International Conference, Linking 26. Concepts to Actions: Successful Strategies for Environmental Compliance and Enforcement, held in Cape Town, South Africa.
  26. Nwafor JC (2006) Environmental Impact Assessment for Sustainable Development: The Nigerian Perspective. Environment and Development Policy Centre for Africa, Enugu, Nigeria.
  27. Ogboi E, Kperegbeji JI (2009) Waste generation and its environmental consequences in Ika urban and rural environs of Delta State Nigeria. *Bioscience Research Communications* 21: 229-236.
  28. Ogbonna DN, Amangabara GT, Ekere TO (2007) Urban solid waste generation in Port Harcourt metropolis and its implications for waste management. *Management of Environmental Quality: An International Journal* 18: 71-88.
  29. Ogwueleka TC (2009) Municipal Solid Waste Characteristics and Management in Nigeria. *Iran J Environ Health Sci Eng* 6: 173-180.
  30. Onyenekewa CE, Agbazue VC (2011) Protection of Nigeria's Environment: A Critical Policy Review. *Journal of Environmental Science and Technology*.
  31. Olowomeye R (1991) *The Management of Solid Waste in Nigerian cities*. New York & London, USA.
  32. Osinibi OM (2014) Evaluating the impact of poor waste disposal management on environmental sustainability and human rights in Nigeria. *Interdisciplinary Environmental Review* 19: 147-159.
  33. Oyelola OT, Babatunde AI, Odunlade AK (2009) Health implications of solid waste disposal: a case study of Olusosun dumpsite, Lagos, Nigeria. *International Journal of Pure and Applied Science* p. 3.
  34. Sangodoyin AY (2007) An Examination of the Environmental Effects of Metropolitan Expansion: Domestic Waste Disposal in Southwest Nigeria. *Environmental Management and Health* 14: 20-23.
  35. Surendran S (2012) Solid Waste Management: A Critique of Nigeria's Waste Management Policy. *International Journal of Knowledge, Culture and Change Management* January 2012.
  36. The Sahel and West Africa Club/ECOWAS (2008) *Demographic Trends, Atlas on Regional Integration in West Africa*.



This work is licensed under Creative Commons Attribution 4.0 License

To Submit Your Article Click Here: [Submit Article](#)

DOI: [10.32474/TCEIA.2022.04.000188](https://doi.org/10.32474/TCEIA.2022.04.000188)



### Trends in Civil Engineering and its Architecture

#### Assets of Publishing with us

- Global archiving of articles
- Immediate, unrestricted online access
- Rigorous Peer Review Process
- Authors Retain Copyrights
- Unique DOI for all articles