ENVIRONMENTAL HEALTH

Enforcement of the National Environmental Health Practice Regulations (NEHPR), 2016, and the Provision and Maintenance of Basic Sanitation Facilities in the Federal Capital Territory (FCT), Abuja, Nigeria

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Abstract

The National Environmental Health Practice Regulations (NEHPR), 2016 represent important instruments for translating public health policies into practical requirements in Nigeria. This study examines the enforcement of NEHPR 2016, in relation to provision and maintenance of basic sanitation facilities in the Federal Capital Territory, Abuja, Nigeria. The study was a descriptive cross-sectional study and data were obtained using a validated questionnaire and an observation checklist. The study population consists of adult residents' heads of households or their representatives from study communities of the FCT and selected environmental health stakeholders who were involved in the implementation or enforcement of environmental health regulations. The heads of households or their representatives were selected using multi-stage sampling technique across the six area councils and communities. Information on enforcement procedures, institutional capacity, implementation challenges and responsibilities for sanitation service provision were obtained from the office of the Environmental Health Council of Nigeria. The NEHPR Enforcement indicators were assessed by the reported inspection visits, compliance to abatement notices and other relevant enforcement actions available. Relevant official records, including inspection reports and enforcement documentations, were reviewed. Availability and functionality of sanitation facilities were assessed. From the study findings, while up to 61.2% of the Environmental Personnel possessed more than one of the ELRs, only 14.1% possessed the National Environmental Health Practice Regulations (NEHPR, 2016). A total of 11.5% of the residents had never been visited by the Environmental Personnel. Only 156 (26%) out of 600 residents were served abatement notices of which 133 (85%) complied with the terms of the notice. Sanitary conditions were poor in the study area. Up to 24.8% practiced open defecation. There were improvements in sanitation activities among residents where NEHPR, 2016 were enforced (52.1% on provision of a new water supply, 64% on provision of waste bins, and 56.9% on provision/maintenance of toilet facilities). Effective environmental health implementation is important for improvement in household sanitation.

Keywords: NEHPR; Environmental Health; Basic Sanitation; FCT-Abuja

1 Background

Environmental health regulations are intended to promote good conducts from humans to safeguard the environment and check the environmental risks and diseases. One key essence of the environ-

mental regulations is their application and implication in achieving basic sanitation which is essential for prevention of disease transmission (World Health Organization [WHO], 2024). These regulations are enacted to sustain and enforce the principles of personal and environmental hygiene, so as to control and prevent environmental pollution, maintain a healthy living and promote the health of the population (Aibor and Olorunda, 2006).

Generally environmental health regulations represent important instruments for translating public health policies into practical requirements for individuals, communities, businesses, and government institutions, and guides the authorities to establish minimum sanitation standards, define the responsibilities of relevant stakeholders, monitor compliance, and prescribe corrective or punitive measures for violations where legally authorized (Medlicott et al., 2018; WHO, 2026). At the moment, the extent of usefulness of the environmental health regulations in helping to achieve basic sanitation is an issue of major concern. Effective enforcement of National Environmental Health Practice Regulations (NEHPR) is required to encourage responsible environmental behaviour, promote maintenance of sanitation facilities and strengthen accountability in environmental health services management (National Environmental Health Practice Regulations, 2016). Poor and weak enforcement of such regulations could not only undermine the effectiveness of environmental health policies but also allow industrial pollution, poor waste management, and unsafe sanitation practices to persist, directly threatening public health and rendering formal policies ineffective (Mensah et al., 2022).

No doubt, adequate provision and maintenance of basic sanitation help reduce environmental health risks. However, the availability of the necessary facilities needed to achieve proper sanitation rest not only on resources and infrastructure expansion but also on operational institutional provisions, with clear regulatory responsibilities, and suitable mechanisms for monitoring and enforcing environmental health standards (Tseole et al., 2022).

Based on Goal 6 of the Sustainable Development Goals, the provision of safe and adequate sanitation has been recognized at the global stage as an important determinant of health and environmental sustainability with emphasizes on access to adequate and equitable sanitation and hygiene (United Nations, 2025). Achieving these tasks requires more than infrastructure investment, but also requires effective governance, adequate financing, clear institutional responsibilities, and mechanisms that ensure sanitation facilities are available, functional, and maintained over time (Sustainable Development Goals, 2026). Environmental health regulation enforcement can therefore be examined as one component of the wider institutional framework supporting sanitation service delivery.

Nigeria is one of the countries experiencing rapid growth in population and urbanization, leading to increasing pressure on public infrastructure and consequently with imposed need for effective environmental sanitation management. Poor waste gathering services, unarticulated waste disposal, poorly maintained drainage systems, and inadequate sanitation facilities can result to environmental pollution, flooding, and conditions that increase the risk of disease (Pona et al., 2021). It is the joint responsibilities among all stakeholders (the government authorities, environmental health personnel, private service providers, property owners, community organisations, and inhabitants) to tackle these situations. Hence, regulations are particularly needed in clarifying responsibilities and ensuring that established environmental health standards are followed.

The practical contribution of any regulation depends on the extent to which its provisions are implemented and enforced. The National Environmental Health Practice Regulations (NEHPR), 2016, constitutes an important regulatory instrument within Nigeria's environmental health framework.

The organisation is assigned with the responsibilities of environmental inspections, compliance monitoring, public education, issuance of notices, and the application of legally prescribed sanctions, as appropriate (Environmental Health Officers registration Council of Nigeria, 2013). These activities target to promote the provision and maintenance of sanitation facilities by encouraging responsible conduct and ensuring that relevant obligations are observed in overcoming sanitation challenges.

Although environmental health regulations establish an important foundation for sanitation management, their practical effectiveness should be assessed through evidence of implementation and observable outcomes. The Federal Capital Territory (FCT), Abuja, presents a relevant setting for examining the relationship between environmental health regulation enforcement and sanitation infrastructure. The FCT residents structure comprises of diverse communities and varying patterns of urban development. Differences in infrastructure provision, waste management services, institutional presence, and residents' socioeconomic circumstances may influence the availability and condition of basic sanitation facilities. Furthermore, variations in inspection practices, public engagement, and enforcement capacity may affect how environmental health requirements are complied with, across communities.

Determining whether relationship exist between enforcement activities and factor of availability, accessibility, functionality, and maintenance of basic sanitation facilities could help in identify the possibility of correlations between poor provisions of sanitation with constraints in enforcement, infrastructural investment and institutional responsibilities. Such evidence is relevant for strengthening environmental health administration and improving the implementation of sanitation policies. Against this background, this study examines the relationship between enforcement of the National Environmental Health Practice Regulations, (NEHPR) 2016, and the provision and maintenance of basic sanitation facilities in the Federal Capital Territory, Abuja, Nigeria. Specifically, it assesses the extent of regulatory enforcement, determines the availability and condition of relevant sanitation facilities, and investigates the association between enforcement activities and sanitation infrastructure outcomes. The findings are expected to provide evidence that can inform environmental health policy, improve regulatory implementation, and support strategies for strengthening sanitation service delivery and environmental health protection.

2 Materials and methods

2.1 Study design and setting

The study was designed as a cross-sectional analytical study investigating the association between enforcement of the National Environmental Health Practice Regulations, 2016, and the provision and maintenance of basic sanitation facilities in the Federal Capital Territory (FCT), Abuja, Nigeria. The FCT consists of six local council areas namely; Abuja Municipal, Abaji, Bwari, Gwagwalada, Kuje and Kwali. The territory comprises of different inhabited backgrounds with potentially no unique levels of access to sanitation infrastructure and environmental health services, making it suitable for investigating regulatory implementation and sanitation outcomes.

2.2 Study population and eligibility criteria

The study population comprised adult residents aged 18 years and above in selected communities of the FCT and environmental health stakeholders involved in the implementation or enforcement of environmental health regulations. Included in the study were heads of households or their represent-

atives who have been living in FCT for at least one year before the commencement of the study. The reason was to make sure that only those that have good knowledge of waste management arrangements, drainage conditions, sanitation facilities and environmental health services in FCT were used in the study. Also, only those that consented for the study were allowed to participate. On the other hand, Environmental health stakeholders were also included in the study. Their selection was based on their expertise responsibilities and direct involvement in environmental health administration, inspection or enforcement which is needed to achieve the aim of the study.

2.3 Sample size and sampling procedure

The study sample size was established using Cochran's formula (Cochran, 1963). The study assumed a 50% as the rate of enforcement of the NEHPR, and considers a 95% confidence level, a 5% margin of error, and 15% attrition rate, leading to an estimated minimum sample size of 442 participants. This size was raised to 600 household's participants to add more power to the study.

Survey participants were selected using multi-stage sampling technique across the six area councils and communities. Eligible Heads of households (HoHs) or their representatives were recruited from sampled households. The 121 environmental health stakeholders were selected purposively based on their experience and involvement in regulatory implementation. In all, 721 respondents participated in the study. Where facility observations were undertaken, eligible premises and sanitation facilities were observed and assessed using observation and review methods.

2.4 Data collection instruments and procedure

Data collection was performed by the principal researcher in collaboration with trained research assistants. Data were collected using a validated structured questionnaire and an observation checklist, as applicable. The questionnaire validation include allowing inputs from environmental health and public health research professional for applicability, clarity and suitability with the study objectives.

The Questionnaire was used to obtain information on respondents' sociodemographic characteristics, exposure to environmental health enforcement activities, and the availability, functionality and maintenance of basic sanitation facilities. Enforcement indicators included reported inspection visits, compliance to abatement notices and other relevant enforcement actions available. It was pretested and adjusted to arrive at the final version of the instrument. It was written in English language but was translated to some of the respondent who cannot understand English and their responses were entered back by the research assistants.

Information on enforcement procedures, institutional capacity, implementation challenges and responsibilities for sanitation service provision were obtained from the office of the Environmental Health Council of Nigeria. Where applicable, a standardized checklist was used to assess the presence, condition and maintenance of selected sanitation facilities. Also, relevant official records, including inspection reports and enforcement documentation, were reviewed where access was granted.

2.5 Study variables and measurements

The study outcome variables include availability, functionality and maintenance of basic sanitation facilities. The explanatory variable was exposure to environmental health regulation enforcement, measured by inspection visits, compliance monitoring and documented enforcement actions.

Availability was assessed by determining whether specified sanitation facilities or services were present and accessible. Functionality referred to whether the facilities were in good conditions for use on their main purposes, while maintenance was assessed using evidence of upkeep.

2.6 Data analysis

Data were analyzed using descriptive and inferential statistical methods. Initial data analysis include descriptive techniques. Frequencies and percentage frequencies were computed for categorical variables while summary statistics for continuous variables were estimated and summarized using means and standard deviations, Associations between enforcement indicators and sanitation outcomes were examined using chi-square tests. Statistical significance was assessed at a two-sided p-value of less than 0.05.

Where qualitative interviews were conducted, interview data were analyzed thematically. Findings from interviews and observations were compared with the quantitative results to provide a broader understanding of regulatory implementation and sanitation facility conditions.

2.7 Ethical considerations

The study was approved by the Department of Public Health, Federal University of Technology Owerri Nigeria. Relevant administrative permissions were obtained from the Environmental Health Department of the six area councils in Abuja. Oral informed consent was obtained from participants before data collection. Participation was voluntary, Personal information such as names and addresses of the respondents were not obtained to maintain confidentiality of information, and data were stored securely and accessed only by authorised members of the research team.

3 Results

A total of 721 respondents, comprising 600 household heads or their representatives, 85 environmental personnel and 36 court staff within the study area, were sampled.

Table 1 contains the socio-demographic characteristics of the resident's head of household or their representatives studied. The average age of the study group is 33.38 ± 11.27years, with slightly more than half (52%) being below thirty years of age. Up to 61% of the participants were males, similar proportion (63%) were married and clear majority (84%) had at least secondary level of education.

Table 1. Socio-demographic characteristics of the resident's HoHs studied.

Socio-demographic Characteristics	Frequency Percentage (%), (N=600)
Age (Mean: 33.38 ±11.27)	
18-30 years	313 (52.2)
31-40 years	149 (24.8)
41-50 years	88 (14.7)
51-60 years	28 (4.7)
61 years and above	22 (3.7)
Sex	
Male	366 (61)

Socio-demographic Characteristics	Frequency Percentage (%), (N=600)
Female	234 (39)
Marital Status	
Married	333 (55.5)
Single	226 (37.7)
Divorced	23 (3.8)
Separated	13 (2.2)
Widowed	5 (0.8)
Highest Educational Status	
Primary	55 (9.2)
Secondary	214 (35.7)
Tertiary	272 (45.3)
No formal education	59 (9.8)
Occupation	
Civil/Public Servant	171 (28.5)
Trader	92 (15.3)
Farmer	92 (15.3)
Artisan	20 (3.3)
Unemployed	163 (27.2)
Others	62 (10.3)
Total	600 (100)

3.1 Availability of National Environmental Health Practice Regulations (NEHPR, 2016)

Table 2 shows that 21.2% had just one of the Environmental Laws and Regulations (ELRs), 18.8% had two different ELRs, 25.9% had three of the ELRs and 22.4% had four or more of the ELRs.

Table 2. Availability of the NEHPR, 2016 and other ELRs among the environmental personnel.

Number of ELRs Owned by Environmental Personnel	Frequency (N=85)	Percentage (%)
None of the ELRs	10	11.8
Only one of the ELRs	18	21.2
Two of the ELRs	16	18.8
Three of the ELRs	22	25.9
Four or more of the ELRs	19	22.4

3.2 Specific ELRs owned by the environmental personnel

Categorically, 61.2% of the Environmental Personnel possessed more than one of the ELRs, 14.1% possessed the Abuja Environmental Protection Board's Act (AEPB ACT 10 of 1997), same 14.1%

possessed the National Environmental Health Practice Regulations (NEHPR, 2016), 2.4% possessed Public Health Law, 1.2% had the Area Council Bye Laws while 7.1% did not have any ELRs (Table 3).

Table 3. Specific ELRs owned by the environmental personnel.

ELRs owned by the environmental personnel	Frequency (N=85)	Percentage (%)
AEPB Act 10 of 1997 only	12	14.1
NEHPR, 2016 only	12	14.1
Area Council Bye-Laws only	1	1.2
Public Health Law only	2	2.4
More than one of the ELRs	52	61.2
None	6	7.1
Total	85	100

3.3 Enforcement of the National Environmental Health Practice Regulations 2016

Table 4 shows that the visits by the Environmental Personnel, were at varied intervals such as once in a month (38.7%), once in six (6) months (30.2%) and once in twelve (12) months (19.7%). A total of 11.5% of the residents had never been visited by the Environmental Personnel.

Table 4. Enforcement of the National Environmental Health Practice Regulations 2016.

Enforcement of the National Environmental Health Practice Regulations 2016	Frequency	Percentage (%)
Frequency of Visitation by Environmental Personnel to Residents' Homes		
Once in a Months	232	38.7
Once in six (6) Months	181	30.2
Once in twelve (12) Months	118	19.7
None	69	11.5
Number of residents served with abatement notices		
Yes	156	26.0
No	446	74.0
Compliance Status of Residents to the Abatement Notices served (only for those served: n=156)		
Yes	133	85.3
No	23	14.7
Number of Residents Prosecuted for Environmental Defaults		
Yes	67	11.2
No	533	88.8
Summary		
Enforcement of NEHPR (2016)	211	35.2
Non- Enforcement of NEHPR (2016)	389	64.8

The table also shows that out of the 600 residents studied, only 156 (26%) of the residents were served abatement notices on course of the working visit by the Environmental Personnel for premises inspection. Out of the 156 residents served with the abatement notices, 133, representing 85% complied with the terms of the notice while 23 representing approximately 15% did not comply.

3.4 Sanitation conditions of FCT residents in relation to the activities of environmental personnel

Among the 600 residents that participated in the study, 44.3% used water closet (WC) System of toilet, 30.8% used pit latrine while 24.8% practiced open defecation (Table 5).

In terms of water supply facility, 15% of the residents used tap water, 62% used bore hole, 13.2% sourced their water supply from water vendors popularly known as Mei Ruwa and 9.8% sourced water from streams.

Equally, 19% of the residents affirmed that government contractors collect their refuse, 22.8% stated that refuse vendors popularly called Baba Bola collect their refuse while 58.2% admitted that their family members dispose their refuse by themselves.

Table 5. Sanitation conditions of FCT residents in relation to the activities of environmental personnel.

Access to basic sanitation/ELR activities	Frequency	Percentage (%)
Kinds of Toilet Facility used by Residents		
Water Closet	266	44.3
Pit Latrine	185	30.8
Bush (Open defecation)	149	24.8
Kinds of Water Supply Facility available		
Tap	90	15.0
Bore hole	372	62.0
Water Vendor (Mei Ruwa)	79	13.2
Stream	59	9.8
Method of Refuse Disposal Practiced		
Government contractors collect the refuse	114	19.0
Vendors (Baba Bola) collect the refuse	137	22.8
Family members dispose the refuse at dumpsite or streams	349	58.2

3.5 Enforcement of NEHPR, 2016 and access to basic sanitation facilities among residents of FCT

Sanitation activities based on toilet facilities improvement indicated that 47% of the residents either had provision of a new or maintained the old toilet facilities. Also, 38.5% of the residents had new water facilities or maintained old one, while 54.7% of the residents had provisions of new waste bins (Table 6).

Among the study participants, 120 residents (56.9%) that experienced NEHPR, 2016 enforcement recorded provision of a new toilet or maintenance of old toilet facilities compared to 41.6% among the non-enforcement residents. Among the residents where NEHPR, 2016 was reported to be enforcement 52.1% had improvement of sanitation through provision of a new water supply facility or maintenance of old facilities compared to 31.1% found at the residents where NEHPR 2016 was not

enforced. In terms of sanitation improvement on provision of waste bins, 64% of residents was recorded among residents of NEHPR, 2016 enforcement against 49.6% among non NEHPR, 2016 enforcement residents.

Table 6. Influence of enforcement of NEHPR, 2016 on sanitation activities.

Access to basic sanitation activities	Total n (%)	Enforced n	Enforced %	Not enforced n	Not enforced %	χ^2	p-value
Provision of a new/maintenance of old toilet facilities by residents							
Yes	282 (47.0)	120	56.9	162	41.6		
No	318 (53.0)	91	43.1	227	58.4		
Total	600 (100)	211	100.0	389	100.0	12.73	<0.0001
Provision of a new/maintenance of old water supply facility by residents							
Yes	231 (38.5)	110	52.1	121	31.1		
No	369 (61.5)	101	47.9	268	68.9		
Total	600 (100)	211	100.0	389	100.0	25.54	<0.0001
Provision of new waste bin(s) by residents							
Yes	328 (54.7)	135	64.0	193	49.6		
No	272 (45.3)	76	36.0	196	50.4		
Total	600 (100)	211	100.0	389	100.0	11.39	0.001

4 Discussion

The findings of this study indicate that monthly visits by environmental health personnel were infrequent, resulting in the limited issuance of abatement notices. However, majority of residents who received abatement notices complied with the requirements, but since low proportion was served with notices consequently, leading to limited reported prosecution, it suggests that enforcement activities may not be sufficiently widespread. This situation likely affects the ability of environmental authorities to ensure compliance with sanitation regulations across the study area. The relatively low proportion of FCT residents who reported receiving abatement notices suggests that more consistent inspection and enforcement may be necessary. A related study performed in Akure South West Nigeria examined residents' compliance with a sanitation policy also found high compliance (69.7%) among respondents (Oni et al., 2024). Although the objectives of the two studies differ slightly, both studies highlight the importance of monitoring and enforcement in achieving effective environmental sanitation.

The proportion practising open defecation in the index study indicates a substantial sanitation challenge among the surveyed households. This finding can be compared with another Nigerian

study which reported that approximately 32% of Nigerian households practised open defecation (Abubakar, 2018). Though the national rate reported in that study is slightly higher than approximately 25% found in this study, the present study finding was higher than the nation rate for urban areas in Nigeria. It therefore suggest that open defecation should be regarded as an important sanitation concern even in the FCT. It therefore signalled the need for support and active regulatory enforcement against households without toilets.

The present study findings on refuse disposal is a clear indication that many households dispose the refuse themselves which suggests a high rate of indiscriminate dumping of refuse. This study finding is in line with a recent study findings from Ondo State Nigeria of which many residents responded that they perform refuse dispose on their own (Ologunagba et al., 2025), The study identified weak enforcement, poor monitoring, governance concerns, and community attitudes as important factors affecting sanitation regulation and waste management.

The present study finding demonstrated variation in access to water supply though majority was through borehole source. While common use of a borehole does not automatically establish that the water is safe for drinking, the present study findings support broader concern of which sanitation challenges remain important in Nigeria.

Importantly, the present study finding indicates that significant association exist between reported enforcement of NEHPR, 2016, and improvements in sanitation facilities. FCT residents where NEHPR, 2016 was enforcement recorded higher levels sanitation relating to improvements in toilet, water supply and waste bin provision compared to the residents where it was not enforced. This important finding is a clear support for enforcement of NEHPR, 2016. In a Ghanaian study assessing sanitation bye-laws, among the challenges identified, were poor financing and weak sanctioning which affects effective enforcement. It therefore, means that enforcement achieves better results when backed with finance, and appropriate sanctions. The present study adds evidence from the FCT by demonstrating that reported enforcement was associated with better sanitation-related actions among residents.

5 Conclusion

Overall, the findings of this study in the FCT are broadly consistent with evidence from Nigeria and other African settings showing that sanitation regulations implementation can be constrained by weak sanitation infrastructure. The significant associations found in this study between enforcement and sanitation improvements suggest that effective environmental health implementation may be an important component of improving household sanitation. However, sustainable progress calls for integration of consistent enforcement, public education, adequate sanitation infrastructure, reliable waste collection, and community participation.

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