



Residents' Compliance to Monthly Environmental Sanitation in Kano Metropolis

By

Hauwa Ahmad Sarki

Department of Human Kinetics and Health Education

Bayero University Kano

hauwaahmad73@gmail.com Phone No. +2348038363066

Zainab Dayyab

Department of Human Kinetics and Health Education

Bayero University Kano

Dayyabuzainab@gmail.com Phone No. +2347044442616

ABSTRACT

This study assessed residents' compliance to monthly environmental sanitation in Kano Metropolis. Two research questions were raised; and two hypotheses were tested. Descriptive research design of survey type was used in this study, the population of the study comprised all residents in Kano Metropolis with an estimated population of 4,648,400 residents'; out of which a sample of 410 was selected through multi stage sampling technique. A researcher developed questionnaire named "Resident' Compliance to Monthly Environmental Sanitation Questionnaire (RCMES)" on modified four-points Likert - scale was used as the instrument for data collection. The instrument was validated by five experts and subjected to pilot study after which reliability coefficient of 0.79 was obtained using split half method. Descriptive statistics of frequency counts and percentage were used to describe the demographic data of the respondents, inferential statistics of one sample t-test was used to test hypotheses 1, independent t-test was used to test hypotheses 2 and one way ANOVA was used to test hypotheses 3 at 0.05 level of significance using statistical package for social science (SPSS) 25.0. The findings revealed that, there is significant compliance to monthly environmental sanitation among residents in Kano Metropolis ($t = 16.55$, $df 397$, $P < 0.05$); there is no significant difference in the compliance to monthly environmental sanitation among residents in Kano Metropolis based on their gender ($t = 3.49$, $df 396$, $P < 0.05$). The results also revealed that there is significant difference in the compliance to monthly environmental sanitation among residents in Kano Metropolis based on Local Government Area ($F(3,394) = 4.826$, $P < 0.05$). This means residents comply with monthly environmental sanitation in Kano Metropolis. It was recommended among others that existing compliance to monthly environmental sanitation should be maintained among residents in Kano Metropolis through adopting certain motivational and incentives strategies.

Keywords: Residents, Compliance, Environmental Sanitation, Monthly Environmental Sanitation.

Introduction

Environmental sanitation generally includes the provision of facilities and services for the safe disposal of waste and

the maintenance of hygienic conditions for the prevention of diseases (WHO, 2017). So it is a key public health intervention that is essential for social and economic



development especially in developing countries. This leads to the improvement of health, well-being, economic productivity and benefit the individual, household and community through the provision and practice of adequate sanitation, good hygiene and the use of safe water (Mara, Lane, Scott & Trouba; 2010).

The monthly environmental sanitation exercise held in most states in Nigeria is carried on last Saturdays of every month. This compulsory exercise, which is a directive by the federal government, is aimed at encouraging environmental cleanliness in the country. In some states such as Anambra, Lagos amongst others, the exercise was done with a slightly encouraging number of turn outs. However in most states there was low turn outs for the exercise. Over the years, environmental sanitation in Nigeria has been relegated to the background and is fast turning into a monthly ritual which is characterized by low compliance both on the part of citizens and the sanitation officials. Though the exercise was introduced about a decade ago by the military government, nothing appreciable can be shown for it till date. This is evident in the deplorable state of

sanitation in the country today (Anuzie, 2016). In Nigeria, environmental sanitation is an often-misconstrued subject matter. It is usually understood as an exercise (an action) rather than a practice (a custom or habit) (Daramola, 2012). This is attributable to the idea that brought environmental sanitation into the limelight during the military regime of Buhari/Idiagbon in 1984. The regime instituted the mandatory monthly environmental sanitation exercise to be carried out from 7 to 10 am of every last Saturday of the month. In view of these, some State Governments enacted laws. These laws provide for monthly or bimonthly environmental sanitation exercise in the respective states. The enactment of these laws by the states further established the credence that everything about environmental sanitation starts and ends with the exercise (Eheazu, 2018).

Daramola and Olowopokoro (2016) stated that globally, poor environmental quality is increasingly recognized as a major threat to social and economic development and even to human survival. Maigari (2021) pointed out that an environment consists of three basic components, including physical



environment, biological and the social environments. Thus, an environment has to be safeguarded to protect the health of its residents. It is evidently clear that a strong and healthy workforce build up a strong and healthy nation, therefore the health condition of any nation determines the progress it makes. Moreover, an environment that is populated with unhealthy people can be named as an unhealthy nation, which leads to low productivity and backwardness.

In Nigeria, the poor compliance of resident to monthly environmental sanitation is largely attributed to lack of strict laws and punishment by the leader in ensuring compliance. Poor environmental sanitation in the country is due to bad leadership, as the former military regimes and the past administrations have failed to formulate adequate environmental laws and regulations. Although there have been few past actions related to environmental enforcement and compliance in Nigeria, the governments appear to have concentrated on the problems of the Niger Delta oil and gas pollution crisis rather than the hundreds of people dying every day due to neglect of

waste management and lack of sanitation being ignored (Nwachukwu, 2010).

Kano metropolis like similar cities in developing countries is expanding rapidly due to urbanization leading to increased solid waste generation and is also, characterized by lack of infrastructure, which in turn has caused increased problems concerning the management of solid waste (Nabegu, 2021). Huge amount of waste is generated on daily basis from domestic and commercial activities in Kano metropolis. The system of collecting, transporting and disposing of these wastes are not effective, this creates more opportunities for vectors and rodents such as rats, mosquitoes and flies which are responsible for proliferation of diseases like cholera, typhoid, malaria and diarrhea (Abul, 2021). In Kano State, the compliance to monthly environmental sanitation is very low (Joseph, 2020). It is very common to see commuters and especially commercial tricycles' operators, moving around with passengers during monthly environmental sanitation thereby not complying with the monthly sanitation in the state. Also the nonchalant attitude of residents toward the



monthly sanitation has further increased noncompliance as when moving around the city, one will not help but notice the number of shops and businesses opened during the period earmark for sanitation exercise and has led to poor sanitary condition of the city (Joseph, 2020).

Therefore, it is against this background that this study assessed residents' compliance to monthly environmental sanitation in Kano Metropolis.

Statement of the Problem

Improvement of the quality of environment through effective monthly environmental sanitation is important for the quality of life and wellbeing of residents in Nigeria. Kano is one of the urban centres in the country that needs effective environmental sanitation because an estimated 325,319 kg of wastes are generated on daily basis by residential areas in Kano Metropolis (Maigari, 2019). Based on the above, the Kano State government declared the last Saturday of every month as Environmental Sanitation Day in 1985 and the exercise starts from 7:00am to 1sssss0:00am. It further made it compulsory for everybody to remain at home and clean his/her residence and surroundings. The policy is

being monitored and enforced by the officials of the Ministry of Environment and defaulters are usually prosecuted and fined by a Mobile Court constituted for that purposes. At the initial stage, there was serious enforcement of which force residents to comply with monthly environmental sanitation. Similarly, after switching off to civilian regime the people became relax because the enforcement was low.

Based on the observation of the researcher, residents seems not to comply with the movement restriction during the monthly environmental sanitation. The researcher also observed that most communities in Kano Metropolis are littered with domestic wastes, solid waste, animal and human excreta etcetera. While sewage flows directly into open streets and nearby water bodies thus fouling the environment and attracting disease vectors which are harmful practices that pose potential risk to the development of diseases. Despite the efforts of government in the provision of sanitary facilities and services, the level of environmental sanitation in Kano Metropolis seems to be worrisome. This inspired the researcher to assess on the



resident's compliance to monthly environmental sanitation in Kano Metropolis.

In view of the stated problems, the study answered the following research questions:

1. Do residents in Kano Metropolis comply with monthly environmental sanitation?
2. Is there difference in the compliance with monthly environmental sanitation among residents in Kano Metropolis based on gender?
3. Is there difference in the compliance with monthly environmental sanitation among residents in Kano Metropolis based on local government area?

Hypotheses

The following hypotheses were formulated to guide the conduct of the study;

1. There is no significant compliance with monthly environmental sanitation among residents in Kano Metropolis.
2. There is no significant difference in the compliance with monthly environmental sanitation among residents in Kano Metropolis based on gender.
3. There is no significant difference in the compliance with monthly environmental sanitation among

residents in Kano Metropolis

based on local government area.

Review of Related Literature

In Nigeria, the poor compliance of resident to monthly environmental sanitation is largely attributed to lack of strict laws and punishment by the leader in ensuring compliance. Poor environmental sanitation in the country is due to bad leadership, as the former military regimes and the past administrations have failed to formulate adequate environmental laws and regulations. Although there have been few past actions related to environmental enforcement and compliance in Nigeria, the governments appear to have concentrated on the problems of the Niger Delta oil and gas pollution crisis rather than the hundreds of people dying every day due to neglect of waste management and lack of sanitation being ignored (Nwachukwu, 2010).

It is important to recall also that Nigeria has abundant manpower for the sanitary regulations that need to be enforced. There were sanitary inspectors who in the 1970s to early 1980s were very effective in inspecting sanitary facilities and conditions from urban to rural communities. Today, sanitary inspection is almost forgotten. Further, trained inspectors are less



motivated because the government currently pays little or no attention in this area of service. The result is poor sanitation, use of a toilet facility by unlimited number of people, presence of overgrown trees in living areas, and ecosystem destruction (Nwachukwu, 2010).

A study conducted by Oluwole (2016), on environmental sanitation compliance in Osogbo, Nigeria: An assessment of residents' sprucing-up of their living environment. The paper examined residents' environmental sanitation compliance across different residential zones of Osogbo, Nigeria. The study revealed that residents' socio-economic characteristics varied significantly with different residential zones. Findings revealed that there is low compliance to environmental sanitation facilities across the residential zones. Similarly, the proportion of residents with environmental sanitation facilities in their homes was low. The study established poor environmental sanitation practices among the residents in terms of utilization of available amenities across the residential zones.

Methodology

A descriptive research design of survey type was adopted for this study. The population of this study is 4,648,400. This comprised all residents in Kano Metropolis; Dala Local Government Area 688,700, Fagge Local Government Area 329,100, Gwale Local Government Area 588,500, Kano Municipal 610,600, Kumbotso Local Government Area 484,200, Nassarawa Local Government Area 980,900, Tarauni Local Government Area 364,900, and Ungogo Local Government Area 601,500, (NPC Projection, 2022).

A sample of 410 residents of Kano Metropolis was used for this study. The choice of the sample was based on Slovin's formula for determining sample size to represent the total population of the study. However, in this study 410 respondents was used, thus offer the researcher opportunity to cover more samples from the study area. The respondents were selected using multistage sampling technique through the following stages:

Stage 1: Simple random sampling technique was used to select four (4) LGAs out of eight (8) in Kano Metropolis by balloting. The procedure was as follows:



the researcher used pieces of paper to write the names of all LGAs in Kano Metropolis. The pieces of paper were folded, mixed and shake vigorously in a bowl. Four research assistants were asked to pick four (4) LGAs from the folded pieces of paper from the container one after another, until the sample was selected. The LGAs picked automatically became the sample of the study.

Stage 2: Simple random sampling technique was used to select one ward from each local government area selected for the study making four (4) wards and the procedure was same as stage one (1).

Stage 3: Proportionate sampling technique was used to determine the sample size for each political ward selected in stage 2. The sample size of the respondents was proportionally allocated based on the population of each ward. Therefore, population of each ward was divided by the total population of the four (4) wards and then multiplied by the sample size, which is 410.

Stage 4: Selection of Residents: Availability sampling technique was used to select the respondents from each ward stage 2. The researcher with the help of 4

research assistants went to the selected wards and with the residents found available inside the house to respond with the questionnaire and of which they have responded.

The instrument used for data collection was a researcher's developed questionnaire on four point modified Likert scale. The questionnaire was made up of two (2) sections (A & B) for responses. The instrument was validated and reliability index of 0.79 was obtained which deemed reliable for data collection. Four hundred and ten (410) questionnaire forms were administered to the respondents by the researcher and with the help of four (4) Research Assistants, while three hundred and ninety-eight (398) (97%) were duly filled, returned and used for data analysis.

Data collected for the study was coded and analyzed using descriptive statistics of frequency count and percentage to organize and describe the demographic information of the respondents, mean score was used to test the research question, one sample t-test was used to test hypothesis 1, independent t-test was used to test hypothesis 2 and one way ANOVA was used to test hypothesis 3 at 0.05 level of significance using statistical



package of social science (SPSS) version 25.0.

Results

The result indicates that respondents within age range of 20-25 were 178 (44.7%), age range of 26-35 were 141 (35.4%) and age range of 36 and above were 79 (19.8%). This means majority of the respondents were within the age of 20-25. On gender, the data revealed 323 (81%) were males and 75 (18.8%) were females. This indicates that majority of the respondents were male. On educational status of the respondents, 14 (3.6%) of the respondents were primary certificate, 46 (11.6%) had

secondary level of education, 115

(28.9%) had NCE/Diploma meanwhile 223 (56%) were Degree holders, this shows that majority of the respondents were Degree holders. The table also revealed that 134 (33.6%) of the respondents were in Nassarawa LGA, 82 (20.6%) were in Gwale LGA, 97 (24.4%) were in Dala LGA and 85 (21.4%) were in Kano Municipal LGA. This means that majority of the respondents in the study area were in Nassarawa LGA.

Research Question: Do residents' in Kano Metropolis comply with monthly environmental sanitation?

Table 3: Item by item analysis on respondents' compliance to monthly environmental sanitation in Kano Metropolis

S/N	Item	Mean	SD
1.	I participate in environmental sanitation by cleaning drainage systems and street sweeping.	2.91	1.01
2.	My compliance to the monthly environmental sanitation is voluntary.	3.03	.825
3.	I believe that refuse and other litter materials should be discarded at designated areas such as litter dump bins, dump site.	3.65	.533
4.	I and my family partake in general cleanliness of our environment during environmental sanitation days.	1.93	.914
5.	I participate in monthly environmental sanitation every month.	2.65	1.06
6.	I dedicate time to the monthly environmental sanitation exercise.	2.87	.973
7.	I use to dump my refuse in facilities provided by the government during monthly environmental sanitation.	1.57	.553
8.	I use to ensure refuse are cleared during environmental sanitation days.	3.01	.799
9.	The attitude of environmental sanitation officers is friendly which encourage my participation in monthly environmental sanitation.	2.63	.831
10.	I comply with movement restriction to ensure successful monthly. Environmental sanitation exercise.	3.37	.633
Aggregate Mean		2.76	
Fixed Mean		2.50	



Table 3, item 1, shown that the respondents have compliance to monthly environmental sanitation in Kano Metropolis as indicated by the mean score of 2.91, which is greater than the fixed mean of 2.50. This means majority of the respondents participated in environmental sanitation by cleaning drainage system and street sweeping. Item 2, revealed that respondents have compliance to monthly environmental sanitation in Kano Metropolis by having a mean score of 3.03 which is greater than the fixed mean of 2.50. This means majority of the respondents' compliance to the monthly environmental sanitation is voluntary.

Also, item 3, revealed that respondents have compliance to monthly environmental sanitation in Kano Metropolis by having a mean score of 3.65 which is greater than the fixed mean of 2.50. This means majority of the respondents believed that refuse and other litter materials should be discarded at designated areas such as litter dump bins and dump sites, Item 4, revealed that respondents do not have compliance to monthly environmental sanitation in Kano Metropolis having a mean score of 1.93 which is less than the fixed mean of 2.50. This indicates that majority of the

respondents don't partake in general cleanliness of their environment during environmental sanitation days with their families.

Item 5, revealed that respondents have compliance to monthly environmental sanitation in Kano Metropolis having a mean score of 2.65 which is greater than the fixed mean of 2.50. This shows that majority of the respondents participated in monthly environmental sanitation every month. Item 6, revealed that respondents have compliance to monthly environmental sanitation in Kano Metropolis having a mean score of 2.87 which is greater than the fixed mean of 2.50. This indicates that majority of the respondents dedicated their time to the monthly environmental sanitation exercise. Item 7, revealed that respondents have compliance to monthly environmental sanitation in Kano Metropolis having a mean score of 2.57 which is less than the fixed mean of 2.50. This means majority of the respondents use to dump their refuse in facilities provided by the government during monthly environmental sanitation. Item 8, revealed that respondents have compliance to monthly environmental sanitation in Kano



Metropolis having a mean score of 3.01 which is greater than the fixed mean of 2.50. This indicates that majority of the respondents use to ensure that refuse are cleared during monthly environmental Sanitation days. Item 9, revealed that respondents have compliance to monthly environmental sanitation in Kano Metropolis having a mean score of 2.63 which is greater than the fixed mean of 2.50. This shows that the attitude of environmental sanitation officers is friendly to the which encouraged their participation in monthly environmental sanitation Item 10, reveals that respondents have compliance to monthly environmental sanitation in Kano Metropolis having a

mean score of 3.37 which is greater than the fixed mean of 2.50. This means majority of the respondents complied with movement restrictions to ensure successful monthly environmental sanitation exercise. In summary with regard to residents' compliance to monthly environmental sanitation in Kano Metropolis. It is concluded that residents in Kano Metropolis comply with monthly environmental sanitation since the mean aggregate of 2.76 is higher than the fixed mean 2.50.

Hypotheses Testing

Hypothesis 1: There is no significant compliance with monthly environmental sanitation among residents in Kano Metropolis

Table 4: Summary of one sample t-test on compliance with monthly environmental sanitation among residents in Kano Metropolis

Variables	N	Mean	Std	T	Df	p
Compliance to monthly environmental sanitation	398	2.76	.316	16.55	397	.000
Fixed mean	398	2.50				

$t = 16.55$, $df 397$, ($P < 0.05$)

Table 4 revealed that one sample test was conducted. The mean of the respondents was 2.76, Std, 316. This indicates that the sample mean is greater than the fixed mean. This means majority of the respondents in Kano Metropolis comply with monthly environmental sanitation. The statistical computation indicated $t = 16.55$, $df 397$ ($p <$

0.05). This means that residents significantly comply with monthly environmental sanitation in Kano Metropolis. Therefore, the null hypothesis is rejected on the fact that there is significant compliance with monthly environmental sanitation among residents in Kano Metropolis.



Hypothesis 2: There is no significant difference in the compliance with monthly

environmental sanitation among residents in Kano Metropolis based on gender.

Table 5: Summary of t-test on difference in the compliance with monthly environmental sanitation among residents in Kano Metropolis based on their gender.

Variables	N	Mean	S.D	T	df	P
Male	323	28.48	2.736	13.49	396	.000
Female	75	23.95	2.032			

$t = 13.49$, $df 396$, ($P < 0.05$)

Table 5 indicated that independent t-test was conducted to find the differences between male and female respondents on compliance with monthly environmental sanitation in Kano Metropolis. The male has mean of 28.48, S.D 2.74; females with mean of 23.95, S.D 2.03. This means the male respondents comply with monthly environmental sanitation than female. The statistical computation indicated that $t = 13.49$ $df 396$ ($P < 0.05$). This means that there is significant difference in the

compliance with monthly environmental sanitation among residents in Kano Metropolis based on their gender. Therefore the null hypothesis is rejected on the basis that significant difference exist between male and female residents.

Hypothesis 3: There is no significant difference in the compliance with monthly environmental sanitation among residents in Kano Metropolis based on local government area

Table 6: Summary of one way ANOVA on the compliance with monthly environmental sanitation among residents in Kano Metropolis based on local government area

Variable	Sum of Squares	Df	Mean Square	F	P
Between Groups	140.538	3	46.846	4.826	.003
Within Groups	3824.930	394	9.708		
Total	3965.467		397		

$F(3,394) = 4.826$ ($P < 0.05$)

Table 6 shown a one way ANOVA conducted to examine the compliance with monthly environmental sanitation among residents in Kano Metropolis. The statistical computation revealed that $F(3,394) = 4.826$ ($P < 0.05$). This implies that

there is significant difference in the compliance with monthly environmental sanitation among residents in Kano Metropolis based on local government area. Therefore the null hypothesis is rejected on the basis that there is significant difference



in the compliance with monthly environmental sanitation among residents in Kano Metropolis based on local government area. Since difference exists

among the groups, LSD post-hoc analysis was used to determine where the differences lies.

Table 7: Summary of LSD Post-Hoc on the compliance with monthly environmental sanitation among residents in Kano Metropolis based on local government area

(I) Local Government Area	(J) Local Government Area	Mean Difference (I-J)	Std. Error	P - Value
Nasarawa	Gwale	-1.49878*	.43584	.009
	Dala	.01271	.41602	1.000
	Kano Municipal	-.58850	.43267	.605
Gwale	Nasarawa	1.49878*	.43584	.009
	Dala	1.51149*	.46588	.015
	Kano Municipal	.91028	.48081	.311
Dala	Nasarawa	-.01271	.41602	1.000
	Gwale	-1.51149*	.46588	.015
	Kano Municipal	-.60121	.46292	.640
Kano Municipal	Nasarawa	.58850	.43267	.605
	Gwale	-.91028	.48081	.311
	Dala	.60121	.46292	.640

* Indicate where the significant differences exist at 0.05 level

Table 7 shown an LSD post-Hoc conducted to examine the compliance to monthly environmental sanitation among residents in Kano Metropolis based on Local Government Area. The table revealed that significant differences between Nasarawa and Gwale, and Dala and Gwale.

Discussion

The study assessed residents' compliance to monthly environmental sanitation in Kano Metropolis. The study revealed that there is significant compliance with monthly environmental sanitation among residents in

Kano Metropolis. This is an indication that residents comply with monthly environmental sanitation despite the challenges facing monthly environmental in Kano Metropolis. This is consistent with the findings of Olawale and Olatunji (2014), who conducted a study on knowledge and attitudes of people on monthly environmental sanitation Programme in Osun State, Nigeria. They found that the pattern of people on monthly environmental sanitation programme in Osun State is significant with chi-square value ($X^2 =$



1.14, $df = 3$, $p < 0.05$). The study also demonstrated that people normally take part in monthly environmental sanitation by cleaning their courtyards and roadsides. It was also revealed that people always encourage their neighbours to participate in environmental sanitation programme. This result is in agreement with Ayres, (2000) that people should try as much as possible to encourage their friends, family members and neighbours to take part in monthly environmental sanitation programme.

The findings of the study also revealed that there is significant difference in the compliance with monthly environmental sanitation among residents in Kano Metropolis based on gender. The finding is in concordance with the study of Ekong (2015), whose study was on assessment of environmental sanitation in an urban community in Southern Nigeria. The findings of the study showed a significant difference between gender and their participation in environmental sanitation ($p < 0.05$) with males showing 9 times more odds of participation than females (OR = 9.84, C.I = 1.225-79.018). The findings also corroborated with Ajagunna (2016) who carry out a survey on acceptance and

compliance with monthly environmental sanitation laws by household heads in Ibadan North Local government Area, Oyo State, where he found significant difference base on gender. Four hundred and one (401) household heads in the study comply with environmental sanitation laws and consisting of males (65.3%) and females (34.7%).

Furthermore, the findings of this study also indicated that there is significant difference in compliance with monthly environmental sanitation among residents in Kano Metropolis based on Local Government Area (LGA). The finding is contrary with the study of Abubakar and Ibrahim (2018), who study on the impact of socioeconomic factors on compliance with environmental sanitation regulations in various LGAs of Kano Metropolis. They found that socioeconomic conditions, such as income levels and access to sanitation facilities, exhibit a degree of uniformity across different LGAs. This uniformity contributes to a lack of significant differences in compliance based on geographic location. The finding is also in line with research by Bello (2019) focused on the infrastructural development related to waste management



and sanitation facilities in different LGAs within Kano Metropolis. He stated that efforts to improve infrastructure were relatively consistent across various regions. As a result, residents in different LGAs faced similar challenges and had comparable access to facilities, contributing to the observed homogeneity in compliance levels. Major findings revealed that:

1. There is significant compliance with monthly environmental sanitation among residents in Kano Metropolis.
2. There is significant difference in the compliance with monthly environmental sanitation among residents in Kano Metropolis based on their gender.
3. There is significant difference in the compliance with monthly environmental sanitation among residents in Kano Metropolis based on Local Government Area.

Conclusions

Based on the findings of this study the following conclusions were drawn:

1. Residents in Kano Metropolis comply with monthly environmental sanitation.
2. Male residents comply with monthly environmental sanitation than the female residents in Kano Metropolis.
3. Residents of Nassarawa, Gwale and Dala

Local Government Areas in Kano

Metropolis comply with monthly environmental sanitation than residents in Kano Municipal Local Government Area.

Recommendations

Based on the findings of this study, the following recommendations were made:

1. Existing compliance with monthly environmental sanitation should be maintained among residents in Kano Metropolis through adopting certain motivational and incentives strategies by Kano State government.
2. Public enlightenment campaign should be intensified among residents to educate them on the dangers and the importance of monthly environmental sanitation exercise to their wellbeing through media, religious institutions and community centers regardless of their gender.
3. Sensitization should be intensified among the residents in all the local governments' areas in Kano Metropolis in order to comply more with monthly environmental sanitation through media.
4. Measures should be initiated to further strategically enforce monthly environmental sanitation in local government areas in Kano Metropolis.



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