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Street Littering in Nigerian Towns: towards a Framework for Sustainable Urban Cleanliness

Edmund E. Nkwocha - Department of Environmental Technology, Federal University of Technology, P. M. B. 1526, Owerri, Imo State, Nigeria
E-mail address: eenkwocha@yahoo.com
Phone: +2348035088288

Immaculata O. Okeoma - Department of Urban and Regional Planning, Imo State University, P.M.B. 2000, Owerri, Imo State, Nigeria

Abstract

An aspect of solid waste management that has become almost intractable to local authorities in Nigeria is street littering. In a study carried out across the country in April/May 2008, this paper tried to expose some of the major factors that contribute to street littering. Six thousand subjects living along 120 streets (6 streets per town) were interviewed in 20 towns in the six geo-political zones of the country. Data was collected for a period of five days and were focused on several questions bordering on street littering (why they littered, what they littered, where they littered, etc.), and their personal information (age, sex, income status, educational levels etc.). Data was analysed using univariate and multivariate models. Results showed that the litter problem was quite intense in all the streets surveyed. The level of education, age and income of subjects were major determinants of their littering habit. We also found that subjects littered the streets for several reasons (absence of bins, inefficiencies of local authorities, ignorance, weak legislation, anger, stress, etc). Finally, the study presented a framework for a sustainable urban cleanliness in the country.

Key Words: attitude, behaviour, cleanliness, littering, street, sustainable.

Introduction

Nigerian towns and cities are presently saddled with myriads of problems. These include chaotic and agonizing traffic congestion, irregular electricity and water supply, proliferation of squatter settlements, among others. Of all these problems, the most embarrassing is poor solid waste management (Sada, 1984; Odocha, 1994; Obianigwe, 1999; Nkwocha and Emeribe 2008). Each person in Nigeria generates about 0.85kg of waste per day (Cookey, 2004). In all, about 119 million tons of municipal and industrial wastes are generated per day based on the 2006 National Population Estimates of 140 million (National Population Commission, 2006). The problem of how to manage these wastes is reaching critical proportion (Adegoke, 1990; Anurigwo, 1995). In response to this problem and other emerging environmental challenges, the Federal Government of Nigeria enacted the National Policy on Environment (1989), and the National Environmental Sanitation Policy (2006) as the most important policy documents guiding environmental management and protection. The implementation of these policies is presently saddled with weak infrastructural base, coupled with poor institutional and inadequate managerial capacities to run towns and cities as political, social and economic entities (Ogbu and Ikira, 1995; Hisashi, 2005). Nigeria still lacks integrated approach to waste management which has resulted in lack of certainty within the waste industry, weak local accountability, and poor strategic planning capabilities (Odocha, 1994; Agunwamba, 1998; Wood, 2006).

Ever since the present democratic dispensation in Nigeria, local authorities have been searching for cost-effective and efficient methods of managing urban solid waste and keeping the streets clean. Efforts have been geared towards the provision of more trucks, equipment and recruitment of more personnel for the collection and disposal of the ever-increasing volume of municipal solid waste. Unfortunately, there has been little or no public involvement (consultation and active participation of citizens) in waste management (Abdulazziz and Duruzoechi 2003; Lambert et al, 2005). Consequently, these authorities continue to face steep challenges in keeping their streets clean. The throw-away mentality is gaining ground and residents, pedestrians, hawkers, and all street-users litter with impunity. Presently, there is a general decline in one of the indexes of civic quality: urban cleanliness. The littering habit in most towns is now so pervasive that the problem has become an interesting area of study and analysis.

Definitions on litter and littering abound. Litter is waste disposed in the wrong place by unlawful human action and can vary in size of incident, occurrence and items (Spacek, 2004). They are materials of different types occasioned by malicious, careless or accidental intent and are generally disposed of illegally rather than lawfully (McAndrew, 1993). Littering on the other hand, is an act that amounts to disposing solid waste inappropriately especially along major roads and streets (Powls, 2005). This indecent behaviour certainly affects everyone's quality of life, gives a visitor a bad first impression and causes environmental blight (Butcher, 2005).

The fundamental questions on this burning topical issue are as follows: Why do Nigerians litter their streets? Who exactly litters? What do people litter? What reasons explain the growing littering habit? In an attempt to find answers to these questions and more, a survey was conducted in some towns across the country in March 2008. The first part of this paper presents the methodology used for data collection, followed by statistical analysis, presentation of results and discussion. This study should be seen as the start of a process with significant potential to collect information relating to an important aspect of municipal solid waste management and to improve generally the understanding of the litter problem in Nigerian towns. The paper, however, argues that the litter problem is indicative of how issues concerning environmental health, urban cleanliness and orderliness are addressed in the country. Finally, it presents a framework for sustainable urban cleanliness for living in a clean, safe and habitable urban environment.

Materials and Methods

The surveys were conducted in twenty (20) towns across the federation. The selection of these towns was preceded by reconnaissance visits to twenty three (23) major towns in the six geo-political zones. The selected towns were those whose litter levels were adjudged very high (as at the time of visit) and were therefore highly representative of Nigerian towns on this very issue. The towns include Aba, Akure, Enugu, Gombe, Gusau, Ibadan, Jalingo, Jos, Kaduna, Kano, Lagos, Lokoja, Maiduguri, Minna, Onitsha, Owerri, Port Harcourt, Sokoto, Uyo, and Warri. (See Appendix 1). They vary in their populations and sizes and range between small (Owerri, Minna, Gusau), average (Onitsha, Kaduna, Jos) and big towns (Ibadan, Kano, Lagos). In each of these towns, six major streets with considerable litter levels were carefully identified and observed for several days: they were observed to be full of activities (residential, commercial, industrial) and were frequented by many pedestrians. Thereafter, fifty-eight subjects were selected

per street through a systematic random sampling method in which the heads of households of one out of every four buildings along the streets were interviewed (we used the street numbers). In the absence of the father, the mother or the eldest child was interviewed. When a selected street was short, subjects along the street adjacent to it were interviewed. This method helped to obtain information across different ages among our subjects. However, the original intention was to work with a high sample size, but the high cost of data collection and the limited time within which the study was carried out necessitated the use of a small sample size per street. At the end of the surveys, the results from fifty (50) subjects per street were used for the study (300 respondents per town). Those whose results were dropped, either did not give full responses to our questions; or did not fully cooperate in the exercise (lack of time, loss of interest, fear that interviewers are tax agents, etc). The results from 6000 subjects were used for the study. These surveys were conducted concurrently in all the selected towns in March 2008, and lasted for a period of five days.

The technique employed in this study was the attitudinal/behavioural survey used for a range of city-wide studies on topical issues. This method was based on the premise that littering of waste resulted from human action and therefore a social problem whose understanding should be approached through the collection of data on people's attitude and behaviour towards the problem. Even though attitude measures are cast in general terms, behaviour measures specific situations (Bootzin et al, 1991). This approach helped to collect data on issues relating to people's littering habits and the ensuing results helped to understand the reasons and general explanation on street littering. The study therefore made use of "moderating variables", namely, those variables that affect the strength of the attitude/behaviour relationships of our subjects, especially as it relates to street littering. These are mainly selected socio-economic variables which were integrated into a well-structured questionnaire used for the interview.

A questionnaire-based interview was therefore conducted in which respondents were asked several questions bordering on their littering habits (why they littered, what they littered, where they littered, etc.), personal information (age, sex, income status, educational levels etc.). Education and personal information of subjects were assumed to affect their littering habits. If a respondent accepted to have littered the street, at one time or the other, the next questions that followed were to know his/her personal details (age,

sex, education level, occupation, effects of littering, etc.). Levels of education attained by respondents were classified into three: primary and secondary education not completed were classified as “Lower education”; completed secondary and vocational education were grouped as “Average education”; while post-secondary and tertiary education were classified as “Higher education”. In the same vein, occupation was either formal or informal. Formal occupation included all those activities that belong to private and public institutions and are registered with the government. Informal occupation, on the other hand, included all those subjects who were self-employed, and generally not registered with the government (non-tax payers); such as artisans (tailors, welders, etc.); retail businesses (shop owners, hawkers, mobile traders etc.), food sellers, hair dressers, motor-bike riders, and all those practicing their trades along the streets. Respondents were also asked whether they knew the implications of littering the streets and the reasons why they littered the streets. On this issue, they were not provided with optional answers, but were given the freedom to express themselves. Finally, they were asked to indicate what they littered and to state their expectations as regards street littering. The intensity and frequency of littering along the streets surveyed were indicated as “very high”, “high” or ‘low’. Samples of littered wastes were collected in each of these streets and carefully analysed. All these analyses were considered necessary because understanding the major groups concerned in street littering would help informed judgement about its mitigation.

The data from these towns were mathematically combined to extract the means for the subjects according to their groups. The pooled estimate of the variance from the samples was used for the analysis. The study used SPSS version 13.0 (SPSS, Chicago, IL; USA) for data analysis. The generalized linear model (GLM) and logistic regression were used to assess the relationships between personal covariates (age, sex, income, education etc.) and littering habits of subjects (why they littered, what they littered, etc). The difference between means was tested by analysis of variance (ANOVA); and factorial analysis was used to analyse geographical variations in littering habits and the most important factors explaining these habits. The limit for statistical significance was set at 95% confidence level ($p < 0.05$). All p-values are two tailed.

These surveys were not without problems. The first was how to identify the respondents in various towns, whom to address the questions. Should the interview concentrate on households living along the streets or solely on

pedestrians who also contribute to the problem? Should street children be included in the surveys? Observations revealed that, in all the towns selected, each of these groups littered the streets in one way or the other. Although such an urban ecological study concerned mainly “street users”, it was assumed that the occupants of buildings and structures along the streets were those who frequent these streets regularly. Based on this assumption, our respondents were drawn mainly from this group. Street children who were squatters in some uncompleted buildings whose numbers fell into the buildings to be surveyed in some of the streets (children who live on the streets with many survival strategies) also formed part of our subjects.

The second problem was that of measuring people’s littering habits. It is not easy to give a rational explanation on why people behave the way they do; as this is a problem which lends more to social and environmental psychology. However, efforts were made to provide the subjects with pertinent verifiable indicators (contents of our questionnaire) which helped to assess patterns of behaviour relating to street littering (age, level of education, sex, occupation, income, etc). The third problem was that of choosing only six streets in big towns such as Lagos, Kano, and Ibadan. It would have been more interesting to conduct the surveys in many streets of these towns. However, high transportation cost in these towns was a major constraint. Our study was therefore restricted to areas where litter levels were observed to be very high. For example, in the case of Lagos our surveys were conducted in Ajegunle and Surulere areas where street littering were very common. Lastly, there was problem of communicating with some of our respondents especially in the towns located in northern part of the country. However, this problem was simply resolved by using interviewers who spoke local languages (Hausa, Fulani, and Tiv).

Results

Six thousand people participated in the survey; 3010 males and 2990 females. Their ages ranged from 11 to 67 years with a median of 47 years. The demographic data for the 6000 subjects are presented in Appendix 2. The majority of subjects (1794) making up 29.9% of the total had their ages ranging between 30 and 45 years; followed by those between the ages of 46 and 50 years constituting about 27.3% (or 1638 subjects). While the youngest group (1506 subjects) has their ages ranging between 11 and 29 years, making up 25.1% of the total subjects, the oldest group (1062 subjects) constituted 17.7% of the total respondents with their ages ranging between 51 and 67 years. About 33.3% of respondents earned below ₦5,000.00 per

month (US\$ 42.67), 29.9% earned between ₦5,000.00 and ₦15,000.00 (US\$42.67-US\$125.00); 17.4% between ₦15,000.00 and ₦30,000.00 (US\$ 125.00-US\$ 250.00), and 9.7% above ₦60,000.00 (US\$ 500.00). As regards their education levels 42.4% of them had lower education, 35.1% had average education while 22.5% obtained higher education respectively. These results shows that our samples were highly representative, having captured all segments of the urban street population such as the young, old, rich, poor, male and female in different regions of the country.

Observations showed that litter levels ranged from “very high” to “high” in all the streets surveyed. The same general pattern of people throwing different objects indiscriminately was equally observed in these streets. Litter levels were very high along the streets contiguous to very big markets as were the cases of Asa Road (Aba), Upper Iwaka (Onitsha), Sabon Gari (Kano), etc; and in those streets located around the Central Business Districts. Paradoxically, streets in towns where educational institutions are located also showed high incidence of littering (Owerri, Port Harcourt, Ibadan). Also, streets located in high density areas were highly littered with waste materials: Ajegunle, Oshodi, Orile-Igamu (Lagos), Etche Road, Aba Road, Ikwerre Road, Borikiri (Port Harcourt); Obodo Ukwu, Okpoko, Mkpo, Nworiwo (Onitsha); Osusu, Ohanku, Omuma, Ehime, Ukpakiri (Aba), Zoo Road, Cikin Gari, Sabon Gari (Kano) to mention a few. Also, results of the analyses of samples of littered objects showed little or no variation as they included objects such as food wastes, (46%), papers (5%), bottles (3%), plastics (25%), rags (4%), cans (6%); leaves and wood (6%), and others miscellaneous objects (cigarette butts, chewing gums, wrappings, etc.) making up to 5% of the total waste littered. Also, 5 out of 10 littered objects were “food related”, while 8 out of 10 were “trade related”. Food wastes were mainly banana peels, maize husks, pear seeds, orange peels, decaying fruits and food leftovers. The single most predominant “trade related” littered object was plastic waste made of polythene bags, packaged-water waste, plastic bottles and food packaging materials (take-aways). All these components presented a high nuisance value along the streets because of their non-degradable nature and high cost of collection and treatment.

Opinions were divided among respondents as to the reasons explaining their littering habits (why they littered). From Appendix 3, it is evidently clear that the greater majority of our subjects (or 87.9%) indicated that they littered the streets because of absence of waste bins. This reason, in fact, corroborated

the second one in which respondents condemned the inefficiencies of local authorities whom they accused of failing to discharge their basic constitutional responsibilities of regularly cleaning the streets, and providing basic equipment for effective solid waste collection. This anger was expressed by 79.8% of subjects and the spatial expression was their littering the streets. Among this group, 62% were respondents from the northern towns while 38% were from the southern towns. However, 79.4% of respondents littered out of ignorance, having no knowledge of the health and aesthetic implications of their actions. According to this group, littering the streets was normal and does not pose any danger to health and safety of the people, an opinion expressed by 64% of our subjects from the north and 36% from the south. Regrettably, the greater majority of this group were below 40 years of age, an observation which we considered very serious. Another interesting finding was that 63.0% of subjects littered for lack of legislation. They indicated that since neither penalties nor punishment were meted out against those who littered, it was therefore easy and very convenient to litter their wastes. This opinion was expressed by 66% of respondents from the southern towns and 34% from the northern towns. Other reasons given by respondents include: long distance from waste collection centres (49.9%), stress (46.7%), and no reason at all (28.7%). Among those who expressed this last opinion were mainly young people (< 20 years) and the unemployed among our subjects.

It is clearly obvious that the reasons for street littering are complex, and perhaps some of the underlying factors may not have been incorporated in our study, so that results obtained are at best suggestive. Nevertheless, our multivariate analysis showed that educational level of respondents could have possibly influenced their littering habits. This was because low levels of education strongly correlated with littering behaviour among subjects (0.86) but this correlation became weaker with higher levels of education (0.35). As was expected, higher education generates higher income in a population. Most of our subjects with higher income have higher education and therefore were more sensitive to littering. When we examined the relationship between age and littering habits among subjects, there was also a high positive correlation between the ages of 11 to 30 years, but this also became less significant at ages above 50 years (0.70, $p = 0.05$, 0.32). However, it was found that the habit of littering was higher among young individuals: odds of littering habit was 6.7% per interquartile range (IQR) for individuals < 30 years (95% confidence interval), whereas the decrease in odds among

individuals 45 years and above was 3.7% (95% of confidence interval). An explanation to this general observation is that subjects of younger age found it more convenient to consume certain goods (oranges, chocolates, ice creams, bananas, junk food, etc) along the streets than older people, as the consumption of certain goods change with age (Jaquemont and Raffinot, 1985). This shows that age could be a major determinant in peoples littering habit. There was no evidence from our results that littering habit of subjects differed by sex. All these results are consistent with our hypotheses that increase in age; education and income seriously reduce littering habits.

Factorial analysis of the multivariates put in evidence three major phenomena. Firstly, the level of education of subjects was the most important factor explaining their littering habit, the lower the level of education of subjects the more they littered the streets, an observation already put into evidence by our correlation analysis. This factor accounted for 57.5% of the total variance of littering habits among subjects. The second factor was the age of respondents: the younger they are, the more they engaged in the littering process. This also accounted for 31.3% of the total variance. Finally, income was also observed to be an important factor and accounted for only 12.2% of the total variance of the phenomenon studied.

Discussion

The problem of street littering in Nigeria is linked with economics and social behaviour. Economically, we observed a significant intensity of activities practised by some of our respondents along the streets surveyed. Most of these activities belong to the informal sector of the economy (retailing, vending of assorted commodities, shoe mending, etc). These activities contributed in no small way in the high incidence of street littering. As littering habit strongly associated with low incomes (as already noted) it could be argued that the worsening economic situation in the country is putting more pressure on most urban dwellers. This was aggravated by urban stress arising from poor income (57.2% of respondents earned below ₦15000.00 per month), poor housing, poor feeding, and sometimes, inability to find jobs (9.9% or 594 subjects were jobless), coupled with disappointments from public services (irregular electricity and water supply, poor garbage collection, poor and late payment of salaries, high level of corruption, etc). Littering the street was therefore a brutal expression of this loss of hope among urban dwellers and street users. This reaction occurred massively, and deliberately without words, and was sometimes seen as a profound reaction against the town and what it represents. While accepting

that people engaged in informal activities for a living, it is equally important to point out that these activities are carried out at the detriment of environmental cleanliness, health and safety of urban residents. Socially, it could also be argued that there was lack of commitment among street users in all the towns surveyed in carrying out basic civic duties of keeping their environment clean. It was observed that younger subjects were not properly grounded in the habit of urban cleanliness and environmental hygiene (Tillett, 2007) As a result, their levels of education did not usually reflect their daily hygienic habits as expressed along the streets. For example, it was observed during the interview that younger subjects found it difficult to “bin” their wastes and preferred throwing them away. This partly explained why, even some of the lettered among them engaged in street littering. All these observations showed that three factors remain important in reducing the incidence of street littering, namely, improvement in the level of civic education among urban dwellers, change in public attitude-behaviour starting from the household level, and strict enforcement of laws against littering.

Absence of waste collection bins at strategic centres along the streets directly contributed to increase in street littering. It was observed in the course of our study that the highest number of bins (numbering 8) was recorded along the streets of only three towns (Kano, Port Harcourt, Kaduna). Other towns recorded a maximum of four to six bins per street (Lagos, Ibadan, Enugu) while the greater majority had no bins at all (Gombe, Onitsha, Minna, Owerri Jalingo). In the towns where the bins existed, the distance between them far exceeded the recommended 350 metres. For example, it was observed that in Kano a metallic bin of 800 cubic meters capacity was placed to serve a population of about 1600 people living within a distance of about 1000 meters. It was also observed that the average height of these bins (3.5 meters) far exceeded the average height of many respondents, especially women and children, who usually found it difficult to throw their waste into them. This problem generally encouraged street littering. Consequently, 78.8% of respondents did not bother to send their wastes to collection centres, nor put them in the waste bins where they existed. Littering their waste has therefore been a long established pattern of behaviour among them. This observation goes a long way to explain the fact that people littered the streets due to absence of basic waste collection facilities.

In addition, the emergence of “new urban cultures” (Coquery-Vidrovitch, 1995) such as street trading, hawking, animal rearing (cow dungs), and many

other informal activities contributed in no small way to street littering. The appearance of unorganized and dirty towns, partly arising from the growing littering habits among street dwellers had led some urban ecologists to argue that the urban functions in the Third World cities are dead (Burgel, 1993), leading to “specific vulnerabilities” (Dory, 1996), with the health dangers associated with them (Pimetal et al, 1998). On another occasion, Nkwocha (1997), argued that street littering in Nigeria is a sign of disaffection; a collective expression mostly from the army of poor residing or passing along streets and areas systematically neglected by the ruling class; a demonstration of anger against the insensitivity of government in providing the basic urban services (electricity, water, waste collection, street sweeping, control of graffiti, etc).

A Framework for Sustainable Urban Cleanliness

This study has shown that street littering is caused by a myriad of factors that are inextricably related with one another. It has put into evidence the overriding need for appropriate actions to mitigate the problem. In the Nigerian situation, these actions are mainly strategic and tactical in nature.

i. Strategic Measures

Strategic measures are mainly general interventions that are expected to have compound effects at the grass root level. These include:

- Public education and sensitization on the dangers of waste accumulation and street littering.
- Formulation and enforcement of appropriate environmental laws which should be punitive as well as serve as a deterrent to future litterers.
- Creation of effective and functional waste management agencies in all towns.
- Formulation of policies that would help to reduce urban poverty levels (creation of jobs, granting of loans to individual entrepreneurs, etc).
- A strong political will, without which none of these measures could succeed.

ii. Tactical Measures

These are specific measures that will deal directly with street littering. These include:

- Seeing littering as an environmental crime and perpetrators as persons whose acts are anti-social and punishable.
- Introducing the pay-as-you throw scheme in most towns especially in high density areas. Payments should be of two kinds. One, purely disincentive, should be based on the quantity of waste generated by an individual. The other, simply a punitive tax to be paid by those who may be caught littering the streets. Non payment should always be pursued in courts to send a message that fines are not voluntary, and that they must be paid.
- Encouraging the use of plastic bins (90-litre capacity) at homes and workplaces, and large metallic or plastic bins of 140 to 250-litre capacity at strategic collection centres, especially along high populated streets and at recommended distances. Fast food operators, food vendors, hawkers, and other street users should be encouraged to inculcate the “bin it” message in their areas of operation. Shops should also be encouraged to store their waste properly and sweep the areas outside their premises regularly.
- Empowering local authorities with legislations similar to the Anti-Social Behaviour Orders (ASBOS) and the Clean Neighbourhood and Environment Act (CNEA) presently existing in England and Wales, to deal with street littering and other environmental crimes (O’Keeffe and Warren, 2005).
- Instituting the “Best Value Performance Indicators” (BVPI) for street cleanliness, which would be an integral part of local environment improvement in assessing the performance of local authorities. BVPI is a modern tool for measuring the cleanliness of streets and environment (Burnel, 2005).
- Sensitising and educating (hands-on experience) young people on the ways of civic behaviour, dangers of street littering, and wrong waste disposal habits (garbology education). Schools in these towns and other places must make litter a topic for assemblies and develop clear policies to make their communities cleaner, greener and safer. Anti-litter posters

should be displayed at strategic places to the attention of most street users, persuading them to “bin” their packaged-water waste, cigarette butts, banana and orange peels, groundnut chaffs, etc, with much civility. Until the public learns to “bin” their waste, our streets will continue to appear ugly, unhealthy and unsafe for good living.

- Using face-to-face contact with street users and urban residents (door-stepping) with the view to encouraging greater public awareness on the dangers of street littering. This will provide them with the necessary information and help gain their support and participation in general urban cleanliness (Read, 2005).
- Cleaning streets regularly by using cost-effective methods (street cleaners, sweepers etc) or by acquiring modern machines of the type Euromec Aquazura Street Sweeper, which are environmentally friendly. The latter was introduced in 2001 in Britain and is the first of its kind worldwide with different advantages (Clarke, 2005).

Conclusion

This paper had tried to analyse the problem of street littering in selected Nigerian towns. It found out that this problem is caused by multivariate factors that are inextricably interwoven. The paper has therefore proffered a framework for a sustainable urban cleanliness in the country.

However, our results do not constitute absolute proof of cause and effect for a variety of reasons. Most of our subjects were those who reside or work along the streets surveyed. A wider survey including pedestrians especially those from rural origin should be conducted. Also, the responses from our subjects were used only at an aggregated level, rather than at individual level, which may introduce a possible aggregation bias. We had no personal behaviour information on individuals, nor the duration of their residence along the streets surveyed. Despite these limitations, the results of this study should serve as a starting point for further researches on this growing problem in Nigerian towns.

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Appendix I: Names of Towns Surveyed, Their Population and Geopolitical Zones

S/N	Name of Town	Population	Geo-political zone
1.	Aba	531,340	South-East
2.	Port Harcourt	541,115	South-South
3.	Warri	557,398	South-South
4.	Lagos (Main/Island)	527,157	South-West
5.	Ibadan	1,308,659	South-West
6.	Kano	365,525	North-Central
7.	Akure	484,798	South-West
8.	Owerri	127,213	South-East
9.	Kaduna	659,230	North-Central
10.	Gusau	383,162	North-East
11.	Sokoto	472,760	North-West
12.	Maiduguri	521,492	North-East
13.	Jalingo	139,845	North-East
14.	Gombe	268,420	North-East
15.	Minna (Bosso)	417,359	North-West
16.	Enugu	871,438	South-East
17.	Jos	653,344	North-Central
18.	Uyo	309,573	South-South
19.	Lokoja	195,261	North-Central
20.	Onitsha	261,604	South-East

Appendix 2: Socioeconomic characteristics of respondents (n=6000)

Age (Years)	No / %
11-30	1506 (25.1)
30-45	1794 (29.9)
45-50	1422 (27.3)
50-67	1062 (17.7)

Income Level (₦)	No / %
<5000	1998 (33.3)
5,000 -15,000	1434 (23.9)
15,000 – 30,000	1044 (17.4)
30,000 – 60,000	940 (15.7)
> 60,000	582 (9.7)

Education status	No / %
Higher Education	1350 (22.5)
Average Education	2166 (35.1)
Lower Education	2484 (42.4)

Appendix 3: Reasons Explaining Littering Habits among Respondents

