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Business Development in Nasarawa State: Effect of Poor Sanitation and Waste Management System

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ABSTRACT

Unimproved sanitation as well as waste management are major barriers to economies worldwide. No towns in Nigeria especially the urban and semi-urban centers of high population density can boast of having found a lasting solution to these challenges, rather the problem continues to assume monstrous dimensions. A field survey was undertaken to examine the effect of poor sanitation and waste management on business development in Nasarawa state, Nigeria. A simple random sampling technique was adopted to select 420 respondents from four towns: Lafia, Keffi, Maraba/Masaka and Eggon/Akwanga. Tables, graphs, pie chart, and simple percentage were used to ascertain the percentage of the respondents while chi-square tool was used to test the formulated hypothesis. The analysis indicates that15.48% of respondents reported that sanitation and waste control practice is not good in the State and that it has adversely affected their businesses as stated by 55.00% of respondents. This study recommends that polluter pays principle of waste management should be introduced in the State. In the same vein, moderately improved and hygienic latrines should be built by government in both urban and rural areas of Nasarawa state.

Keywords: Business, Sanitation, Waste, Nasarawa state, Nigeria.

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1. INTRODUCTION

Unimproved sanitation is a major barrier to economies worldwide. Global economic losses associated with inadequate sanitation are estimated at US$260 billion per year, costing countries between 0.5 percent and 7.2 percent of their GDP (WSP, 2005; Sanitation Drive 2015, 2014). Approximately 2.5 billion people, almost 40 percent of the global population, do not have access to toilets or other ways to safely dispose of their urine and feces. More than 1 billion people still practice open defecation. Though open defecation is most prevalent in rural areas, it is on the rise in cities and urban areas (UNICEF and WHO 2014).

Rapid urbanization, rural-urban migration, little or no town planning efforts coupled with attitudinal irresponsibility, lack of political will, ineptitude and graft have independently and collectively created

environmental challenge in Nigeria resulting to human or solid waste decorating streets and public space everywhere in Nigeria (Oyeniyin, 2011). No towns in Nigeria especially the urban and semi-urban centers of high population density can boast of having found a lasting solution to the problem of filth and huge piles of solid waste, rather the problem continues to assume monstrous dimensions (Mba, 2003; Okpala, 1986).

This study is therefore aimed at looking at the effect of poor sanitation and waste management on business development in Nasarawa state, Nigeria. Considerable percentage of wastes (human and solid) generated in many towns in the State are either deposited on the roads, or road sides, unapproved dump sites, or in open sites which adversely affect environmental friendliness. Like the natural environments of living beings, the environment of a business can either enhance or stifle its growth and development. To show in more lucid manner, the relationship between poor sanitation and waste management and business development, the hypothesis is subject to testing using Chi-square technique. The null (H_0) hypothesis is that poor sanitation and waste management system has no significant effect on business development.

2. SOCIO-ECONOMIC BACKGROUND OF NASARAWA STATE

Nasarawa State is in north central Nigeria. Nasarawa state is located between latitudes 7o and 9oN and longitudes 7o and 10oE. It shares boundaries with Benue state to the south, Kogi state to the west, the Federal Capital Territory (FCT) to the north-west; Kaduna and Plateau states to the north-east, and Taraba state in the south-east. Nasarawa state has a land area of 12,000 square kilometers and is divided into thirteen (13) Local Government Areas (LGAs) (Salau and Attah, 2012). The 2006 population census pegs the state's population at 1,863,275. It is, however, estimated that the population of the state has since geometrically increased to the figure of 2.6million people at present (Adogi, 2013).

Figure-1. Nasarawa State, Nigeria

Source: Thescoopng.com (n.d.)

Agriculture is the dominant occupation of the inhabitants of Nasarawa state. Some of the major agricultural products in the state include maize, sorghum, millet, rice groundnut cowpea, soya beans, sesame, melon, yam, cassava, sweet potato, mango, cashew, sugar-cane, oil palm, cattle, sheep, goats, poultry, pigs and fisheries. Nasarawa state (the home of solid minerals) is blessed with numerous solid minerals such as Beryl, Tourmaline, quartz, columbite, granite, limestone, barytes, glass sand, marble and salt (Nasarawa state

Government, 2008). Given that sanitation and waste management in developing countries and towns is an on-going challenge due to weak institutions such as environmental laws, chronic under-funding, rapid urbanization, among others, the situation in Nasarawa State, Nigeria, is not different from other towns or cities in the developing world. Many towns especially the urban and semi-urban areas of high population density experience increasing volumes of waste generation and sanitation problems. In the absence of a regular and efficient solid waste collection system, waste is dumped in open spaces, on access roads and along water courses, which constitutes health hazard. In some parts of Nasarawa urban areas, there are no public facilities for disposing refuse within reasonable distance.

Figure-2. A heap of Complex municipal solid waste on the roadside of the popular Abacha road at Mararaba. Mararaba.
Source: Butu et al. (2013).

Figure-3. Another heap of complex municipal solid waste on the roadside of Abuja-Keffi Express way around Sharp Corner at
Source: Butu et al. (2013).

Dump sites or waste bins are nonexistent and where dumps are sited overflow with refuse, the open solid waste dumps ooze out offensive odour , constituting health hazards. Also, some people do not have access to a toilet. They defecate in the open, exposing themselves and others to fecal bacteria.

3. REVIEW OF RELATED LITERATURE

Access to clean water supply and good sanitation services enhance sound health, boost socio-cultural development, and promote economic balance (Olukanni et al., 2014). However, the development and incidences of water, sanitation and hygiene challenges among many countries of West Africa and particularly Nigeria has become more pronounced in recent times (Olukanni et al., 2014; WHO/UNICEF, 2013). Estimates from global report shows that 6.6% of burden of illness is attributable to poor water, sanitation and hygiene. This challenge is heavily concentrated in low income settings and is affecting susceptible groups such as the poor and the disadvantaged in developing nations which is a major contributor to the cycle of poverty (WHO/UNICEF, 2011; Fewtrell *et al*., 2005; Harvey, 2008). The rationale behind this kind of condition connected with insensitivity of government institutions at all levels towards the low income settings, inadequate financial plan, poor sustainability of modern water systems and sanitation, poor hygiene and inadequate sanitation in public places (Stoveland and Bassey, 2000). Babayemi and Dauda (2009) reported high waste generation rate in Abeokuta without a corresponding efficient technology to manage the wastes. Of some 201 sampled respondents in Abeokuta Ogun State, (35.8%) used waste collection services, (64.2%) used other waste disposal options, (16.4%) used both, (68.7%) and (58.7%) were aware of waste collection service and

waste management regulations respectively. Okeniyi and Anwan (2012) reported that the average wastes generated per day in Covenant University Ota, food waste exhibited the highest percentage of(26.2%), followed by polythene bag (19.3%); and plastic bottles (13.6%), metal cans (11.5%), paper (10.5%), plastic food pack (7.2%), other combustible wastes (5.6%) and polystyrene food pack (5.6%). Similarly, Ogu (2000) interviewed 591 households in Benin-City, Nigeria and found out that three-fifth of the respondents had no solid waste collection service. This is attributed to inadequate resources, and the privatization scheme set up in 1995 to address the environmental issues. The study stressed the need for private partnership with government in providing adequate delivery services to the public. Similarly, Nkwocha *et al.* (2011) assessed the efficiency of the solid wastes collection services in Owerri municipality and observed that the level of efficiency in waste collection was only about 61%, a situation they attributed to a wide range of socio-economic and technical factors.

4. METHODOLOGY

This study adopts a descriptive research design. A simple random sampling technique was adopted to select 420 respondents from Lafia, Keffi, Maraba/Masaka and Eggon/Akwanga. The three senatorial districts of the State were taken into consideration and it was ensured that at least a town is selected from a local government area in each senatorial district. The main source of data was a structured questionnaire. Actually, four hundred and twenty (420) copies of the questionnaires were returned out of four hundred and four-three (443) sent out. Tables, graphs, percentage and mean were used to present responses to survey questions.

5. DATA PRESENTATION AND DISCUSSION

A) Socio-economic Profile of Respondents

Given the nature of this discussion, there is need to examine the background characteristics of respondents. As such, the attributes including sex, age, academic qualification, etc., are hereby examined as a starting point. The doughnut below depicts the sex distribution of respondents (see Figure 4). It shows that 63% (265) were male and 37% (155) were female. A further break down of gender is shown in Table 1. It shows that in Lafia, male respondents were 70 while female respondents were 50.

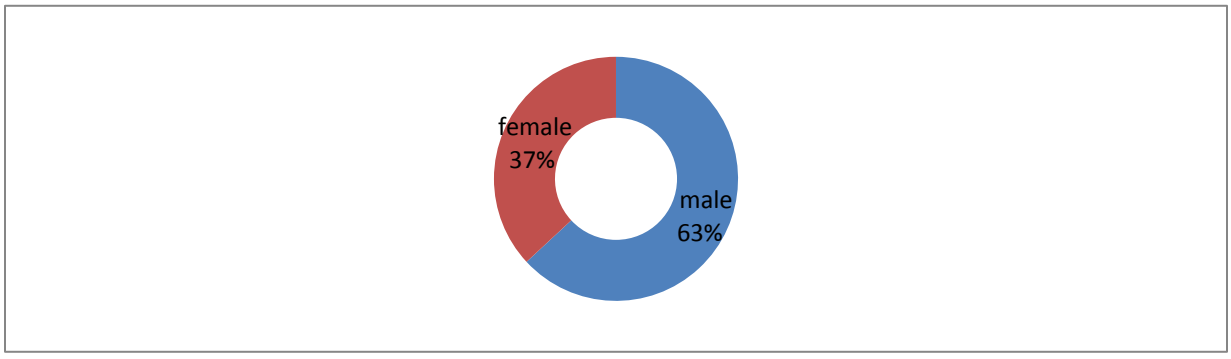

Figure-4. Distribution of respondents based on gender

Source: Field Survey, 2015.

A total of 82 respondents were obtained in Keffi; 50 were male and 32 female. The table also revealed that in Maraba/Masaka, female respondents were 21 in number while the male respondents were overwhelming by a total number of 81. In Eggon/Akwanga, 64 respondents were male while 52 were female.

Table-1. Distribution of respondents by Sex

Sex	Frequency				Total	As % of Total (N=420)
	Lafia	Keffi	Maraba/Masaka	Eggon/Akwanga		
Male	70	50	81	64	265	63.10
Female	50	32	21	52	155	36.90
Total	120	82	102	116	420	100

Source: Field Survey, 2015.

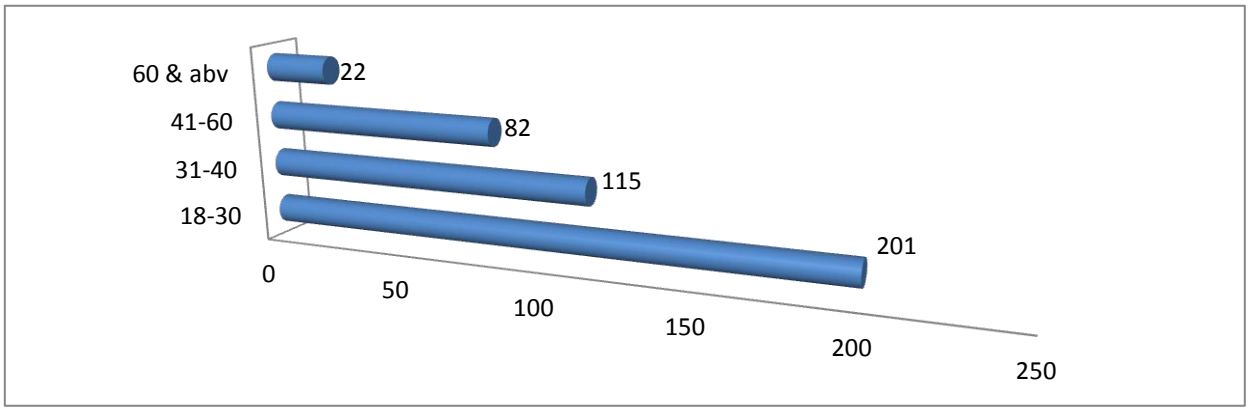

Figure-5. Percentage distribution of respondents by age

Source: Author's illustration using SPSS 19.

The bar chart above (see Figure 5) reveals that 201 respondents (about 48%) fall between 18 – 30 years. The respondents within the age range of 31-40 years were 115 (about 27% of respondents). 82 respondents (20% of the respondents) were under 41-60 years. 22 respondents (about 5% of total respondents) were above 60years old.

Table-2. Distribution of respondents by age

Age	Frequency				Total	Group Data (Arithmetic Mean)			
	Lafia	Keffi	Maraba/ Masaka	Eggon/A kwanga		Age	Frequeny (F)	Mid Point(X)	FX
18-30yrs	82	29	34	56	201	18-30yrs	201	24	4,824
31-40yrs	23	21	42	29	115	31-40yrs	115	35.5	4,059.5
41-60yrs	15	21	26	20	82	41-60yrs	82	50.5	4,141
Above 60yrs	0	11	0	11	22	61-100 yrs	22	80.5	1,771
Total	120	82	102	116	420		420		14,795.5

Source: Field Survey, 2015.

Arithmetic mean: = 14,795.5/420 = 35.2

Table 2 above reveals that respondents whose ages fall between 18 – 30 years were 82, 29, 34 and 56 in number from Lafia, Keffi, Maraba/Masaka and Eggon/Akwanga respectively. 31-40yrs age bracket had 23 respondents from Lafia, 21 respondents from Keffi, 42 respondents from Maraba/Masaka and 29 respondents from Eggon/Akwanga. Those under 41-60 years totaled 15 from Lafia, 21 from Keffi, 26 from Maraba/Masaka and 20 from Eggon/Akwanga. According to Table 2, there was no respondent above 60 years from Lafia and Maraba/Masaka. Nonetheless, Keffi and Eggon/Akwanga each had 11 respondents well above 60 years.

Table-3. Distribution of respondents by marital status

Marital Status	Frequency				Total	As % of Total (N=420)
	Lafia	Keffi	Maraba/Masaka	Eggon/Akwanga		
Single	67	44	50	43	204	48.57
Married	40	38	52	63	193	45.95
Divorced	13	0	0	10	23	5.48
Total	120	82	102	116	420	100

Source: Field Survey, 2015.

According to Table 3, out of 120 respondents in Lafia, 67 were single, 40 were married and 13 were divorced. In Keffi, no respondent was divorced, however, 44 were single while 38 were married. The number of respondents married in Maraba/Masaka were 52 while 50 were single. It appeared that no respondent was divorced in Maraba/Masaka. A closer look at Table 3 shows that 10 respondents were divorced, 43 were single and 63 were married out of a total of 116 respondents.

Table-4. Distribution of respondents by qualification

Type of Qualification	Frequency				Total	As % of Total (N=420)
	Lafia	Keffi	Maraba/Masaka	Eggon/Akwanga		
Primary/College	22	22	34	19	97	23.10
ND/NCE	67	34	40	53	194	46.19
B.Sc/HND	31	15	17	25	88	20.95
Masters/Above	0	11	11	19	41	9.76
No formal education	0	0	0	0	0	0
Total	120	82	102	116	420	100

Source: Field Survey, 2015.

From Table 4, qualification of respondents from Lafia showed that 22 respondents possessed Primary/College certificates, 67 had ND/NCE, 31 B.Sc/HND , none had Masters degree and above. Also, there was no respondent who had no formal education. The table revealed clearly that respondents with Primary/College certificates were 22, ND/NCE were 34, B.Sc/HND were 15, Masters/Above 11, and no respondent without formal education. Primary/College respondents for Maraba/Masaka and Eggon/Akwanga were 34 and 19 respectively. ND/NCE holders among the respondents in Maraba/Masaka were 40 while that of Eggon/Akwanga were 53. According to the table, B.Sc/HND respondents were 25 from Eggon/Akwanga and 17 from Maraba/Masaka. Those respondents having Master degree and above in Maraba/Masaka and Eggon/Akwanga were 11 and 19 respectively. The qualification having the highest number of respondents is ND/NCE (67) and it was experienced in Lafia.

Table-5. Distribution of respondents by nature of business

Type of Qualification	Frequency				Total	As % of Total (N=420)
	Lafia	Keffi	Maraba/Masaka	Eggon/Akwanga		
Trading	54	38	35	47	174	41.43
Manufacturing	17	20	12	15	64	15.23
Services	24	24	30	17	95	22.62
Agriculture	6	0	8	9	23	5.48
Mining	6	0	5	12	23	5.48
Others	13	0	12	16	41	9.76
Total	120	82	102	116	420	100

Source: Field Survey, 2015.

Table 5 attempts to describe or show the nature of business or commerce which the respondents were into. In Lafia, a huge number (54) of the respondents were into trading. This is followed by services (24) and manufacturing (17). Similar, trend of business activities are exhibited in Keffi, Maraba/Masaka, and Eggon/Akwanga.

Table-6. Distribution of respondents by type of business

Types of Business	Frequency				Total	As % of Total (N=420)
	Lafia	Keffi	Maraba/Masaka	Eggon/Akwanga		
Sole Proprietorship	79	56	72	51	258	61.43
Partnership	21	26	16	24	87	20.71
Limited Liability Company	11	0	14	18	43	10.24
Cooperative Society	9	0	0	23	32	7.62
Total	120	82	102	116	420	100

Source: Field Survey, 2015.

Table 6 attempts to categorize the business entities operated by the respondents. Clearly, sole proprietorship is the leading form of business operated by the respondents in Lafia (79 respondents), Keffi (56 respondents), Maraba/Masaka (72 respondents), and Eggon/Akwanga (51 respondents). The table reveals also that partnership form of business thrives in these areas.

B) Poor Sanitation and Waste Management System

Table-7. What is your view on the state of sanitation and waste control practices in the State?

Responses	Frequency	Percent	Valid Percent	Cumulative Percent	Inverse Percent	Cumulative
Very poor	130	30.95	30.95	30.95	100	
Poor	80	19.05	19.05	50.00	69.05	
Fair	145	34.52	34.52	84.52	50.00	
Not good	65	15.48	15.48	100	15.48	
Total	420	100	100			

Source: Field Survey, 2015.

Proper waste disposal is an important component of environmental sanitation and sustainability. A sustainable environment and improved waste management offer opportunities for income generation

(improved business), health improvement and reduced vulnerability. 30.95% of respondents reported that sanitation and waste control practices in the State is very poor. About 34.52% of respondents observed that it is fair. 15.48% of respondents reported that sanitation and waste control practice is not good in the State as shown in Table 7.

Table-8. Does the poor sanitation and waste control condition in the State have negative effect on your business?

Responses	Observed Frequency(O)	Expected Frequency(E)	O - E	$(O-E)^2$	$(O-E)^2/E$	% of (O)	Cumulative % of (O)	Inverse Cumulative% of (O)
Yes	231	210	21	441	2.1	55.00	55.00	100
No	189	210	-21	-441	2.1	45.00	100	45.00
Total	420				4.2	100		

Source: Field Survey, 2015.

Calculated chi-square ---------- 4.2; Critical values ------- 3.84

Alpha level ---------- 0.05; Degree of freedom ------- 1

Improper waste management and poor sanitation condition in the State is reported in Table 8 by 55.00% of respondents to have adverse effects on their businesses. This is probably because the dirty environment affects the patronage of their business. On the contrary, 45.00% of respondents are of the opinion that the poor sanitation and waste control condition does not affect their business. The chi-square test disclosed that the calculated ^{2} (4.2) is higher than the tabulated ^{2} (3.84) for df=1 at = 0.05 level. The null hypothesis is therefore rejected. This implies that poor sanitation and waste management system has significant effect on business development in Nasarawa state.

Table-9. Rank in order of importance (i.e., 1,2,3,4) the following negative effects of poor waste management system on your business

Responses	Frequency	Percentage
Low profitability	120	28.57
Poor access/patronage to business premises	99	23.57
Exposure to diseases/health danger	139	33.10
Low revenue to government	62	14.76
Total	420	100

Source: Field Survey, 2015.

Respondents were requested to rank in order of importance the negative effects of poor waste management system on their businesses in Table 9. The data shows that exposure to disease/health danger was reported by 33.10% of respondents. On the heels of that is low profitability (as reported by 28.57% of respondents), followed by poor access/patronage to business premises (as reported by 23.57% of respondents).

Table-10. What model will you propose for effective sanitation and waste management system in the State?

Responses	Frequency	Percentage
Government increased expenditure	146	34.76
Public-Private Partnership (PPP)	120	28.57
Personal System	86	20.48
None of the above	68	16.19
Total	420	100

Source: Field Survey, 2015.

The poor sanitation and waste management effects on the businesses of respondents culminates into low revenue to government according to the perception of 14.76% of respondents given the data on Table 9.

Given the suggestions proposed for effective sanitation and waste management system in the State as depicted in Table 10, 34.76% of respondents were of the view that Government should increase expenditure on sanitation and waste management, 28.57% of respondents were in support of the idea of Public-Private Partnership (PPP) in waste and sanitation management, 20.48% of respondents recommended adoption of personal system in waste and sanitation management in Nasarwa state. Nonetheless, 16.19% of respondents choose none of the above models proposed for effective sanitation and waste management system.

Table-11. Would you support the empowerment of the waste management agencies through legislation, financing and capacity building for proper enforcement of the sanitation rules and regulation?

Responses	Frequency	Percentage	Cumulative Percent	Inverse Cumulative Percent
Definitely yes	238	56.67	56.67	
No	80	19.04	75.71	
May be	55	13.10	88.81	
Don't know	47	11.19	100	
Total	420	100		

Source: Field Survey, 2015.

11.19% of respondents don't know if they would support the empowerment of the waste management agencies through legislation, financing and capacity building for proper enforcement of the sanitation rules and regulation. 13.10% said may be while 19.04% reported no. An overwhelming percentage of respondents (56.67%) definitely said yes as reported in Table 11.

6. SUMMARY, CONCLUSION AND RECOMMENDATION

The sex analysis of respondents shows that 265 respondents were male and 155 were female. Majority of the respondents (48%) fell between 18 – 30 years. Marital status of respondents shows that 48.57% were single, 45.95% married and 5.48% divorced. A high percentage (46.19%) of respondents possessed ND/NCE. The distribution of respondents by nature of business shows that a large percentage (41.43%)were into trading. The most common forms of businesses undertaken by the respondents was sole proprietorship.

On the subject of sanitation and waste management system in the State, about 34.52% of respondents observed that it is fair. 15.48% of respondents reported that sanitation and waste control practice is not good in the State and that it has adversely affected their businesses as stated by 55.00% of respondents. Among

the negative effects is exposure to diseases/health danger as reported by 33.10% of respondents. Top among the proposal for effective sanitation and waste management system in the State was that government should increase expenditure, next is that Public-Private Partnership (PPP) should be encouraged followed by personal system of sanitation and waste management. An overwhelming percentage of respondents (56.67%) definitely said yes that they will support the empowerment of the waste management agencies through legislation, financing and capacity building for proper enforcement of the sanitation rules and regulation.

Invariably, adequate sanitation and waste management is vital for good health; it keeps environments clean; and it promotes dignity, equality and safety which are all good for business development. This study recommends that polluter pays principle should be introduced where by the polluting party pays for the impact caused to the environment, i.e., the waste generator is to pay for appropriate disposal of the unrecoverable material.

Government should build moderately improved and hygienic latrines in both urban and rural areas.
There is a need for an organized refuse collection both from residential and industrial estates. There must be a disposal site in each street and avenue nearest to the sources of waste, which must be accessible by everyone and the collection should be daily and regularly.

The business community can play a major role in addressing the sanitation crisis. It can do so by embracing corporate social and environmental responsibility. It can support the provision of basic water and sanitation services for healthy and productive society.

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