



Research Paper

**WASTE DISPOSAL SCENARIO IN COMMERCIAL MARKET OF CALABAR,
SOUTHERN NIGERIA**

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Abstract

In many Nigerian markets the volume of waste generated has a great influence on the urban administrator's capacity to plan for their collection and disposal and the provision of waste disposal bins which is observed as a good measure to maintain cleanliness in the markets but the removal of waste from the bins has remained ineffective because of inadequate trucks for evacuation and manpower. The paper revealed negative impacts of the problems of market waste disposal on sanitation in the markets and suggested lasting and sustainable solutions towards ameliorating the problems. A total of two hundred (200) questionnaires were administered in watt and marian markets. The questionnaire captured information such as types of waste generated, methods of waste disposal, rating of sanitation and enforcement and the various factors that discouraged sanitation in the markets. Both stratified and random sampling techniques were employed in the study and the analyses showed that solid waste generation were higher in watt market than marian market, materials for disposal were at the collection points in marian market while the watt market were indiscriminate dumping because of the distance to waste bins and marian market was rated effective and higher than the watt market on the enforcement of sanitation. Findings revealed that there is a significant relationship between market waste disposal and sanitation in watt and Marian Markets. This shows a positive correlation as the calculated value was greater than the table value. The paper recommended that designated flash points should be planned and made available for the collection of wastes in the markets rather than dumping of waste on the streets and

thereby narrowing the roads, causing traffic congestion, polluting the environment through litters on roads, gutters and the atmosphere with offensive and unpleasant smell.

Key words: Market Waste, Sanitation Enforcement, Waste Disposal Methods, Marian and Watt Markets.

INTRODUCTION

The existence of markets in any city is expedient due to the fact that commercial activities are the back-bone of several economies and people should be able to buy and sell and carry out business transactions so that life could go on normally. However, lack of control in the proliferation of markets and trading spells doom for such cities due to the inherent risks. Street trading is the order of the day in several cities in many developing countries; which also increases fear and the security risk of such places. Unplanned and overcrowded market places especially in developing countries usually grapple with sanitation and waste problems. This phenomenon poses threats such as pollution of the environment and deterioration of city landscape.

On the other hand, one factor that is common with markets is the generation of wastes, which if not well managed will increase public health risks. These waste includes animal wastes, human wastes, equipment wastes and wastes from several food products sold in such markets has not been a major consideration for location of markets.

However, nuisance from uncollected waste material like mind blighting stench, eyesore, filth; mosquitoes, flies and rats' infestation/harassment, etc are quite discomforting and health threatening. A number of disposal strategies exist in handling wastes in Nigerian cities and include traditional combustion or control burning and open burning (this leads to pollution of community air by release of oxide of sulphur and nitrogen into the air). Incineration, composting and recycling refuse, etc.

Market waste includes the trash from commercial establishments, small industries, and households, as well as tins, plastic products, and polythene bags etc. In many markets, the volume of waste generated has overwhelmed the urban administrator's capacity to plan for their collection and disposal. The provision of waste disposal bins by the Cross River State Government is to maintain cleanliness in the city of Calabar as well as the Watt and Marian markets but the removal of waste from the bins is ineffective because of inadequate evacuation trucks and manpower. People's attitude towards the environment is also of concern. Traders must be oriented to know the effects of indiscriminate disposal of waste, the need for proper disposal of their waste and always try to keep their market environment clean.

This paper will focus on the effect of waste disposal on sanitation of markets in Calabar Metropolis, Nigeria with emphasis on the type of waste generated, method of waste disposal, rating of sanitation enforcement in the markets and factors that discourage sanitation in the markets.

2. LITERATURE REVIEW

Waste is anything that has lost its value, and the by-product of the processed product. According to Allaby (2007) waste is any substance, be it solid, liquid or gaseous that remains as residues or an incidental by-product of a substance and for which no other use can be found by the organism or system that produced it. Gilpin (2009) also described it as a material of solid or semi-solid character which the processor no longer considers sufficient to retain. Odoche (1994) and Wagner (2002) said solid wastes are materials which are generated as a result of normal operation over which we have control in terms of their production disposal or discharge.

Sule (2007) asserts that most uncontrolled and poorly managed wastes are found in fast growing capital cities of the world especially in developing countries where population is always on the increase. He also stated that the problem of waste is not familiar but assumes global gargantuan dimensions in recent years, leading to environmental degradation, pollution, epidemics, diseases, decline in urban quality and fiscal spending on solid waste generation and management. However, many organizations in the field of waste management have shown that waste generation problem is not only a social behavior but also socio-economic and cultural factors associated with them. These include population growth, urbanization, technological advancement and improvement in the standard of living. Sule (2007) in an empirical study carried out in Calabar pointed out that during the past two decades in Nigeria, urban centres have continued to grow in terms of population despite this growth; there has been no effect until recently to control and manage the cities. He also observed that increase in population combined with impact of good salary review has led to rising level of consumption. He further stated that the consequences are increased in degradation and generation of waste which resulted to degradation in the city landscape and unhealthy living conditions.

Obot, et al, (2002) observed that the improper disposal of refuse and waste constitutes serious environmental health problems to residents within the vicinity. The phenomenon can escalate the outbreak of different kinds of epidemics. According to Aina (2006) the polluted ground water can affect food chain, health and human environment. She stressed that both women and children are victims of pollution and that over 40,000 children die from disease and other epidemics everyday due to poor waste disposal. Sule (2010) confirmed that solid waste constitutes the major urban environmental paralysis, a clog in the wheel of progress in terms of urban environmental purity and sanitation. He talked about waste as an environmental disaster and aesthetic decay.

According to Malombe (2012) irregular services rendered to producers of refuse by municipal councils compel them to find ways of disposing of refuse. He observed that the main methods adopted by the producers of waste are burning, composting or indiscriminate dumping. Bemeh and Yaugyuorn (1993) estimated that about 85% of the population of some Nigerian cities dumps their refuse in unauthorized sites in their

neighbourhoods, and due to weak capacity to handle waste, unsanitary conditions are created. Although these weaknesses have been attributed to lack of logistics and financial management, people's attitudes towards waste should not be ignored.

Nze (2001) outlined several factors which have conspired to promote the massive building of urban garbage waste. He noted that they resulted from inadequate and deficient infrastructure, inadequate structures for environmental administration, lopsided planning pastures and disregard for basic aesthetics, industrial and commercial growth, and other human factors according to him, urban wastes in Nigeria are regarded as "non resources" having at best a nuisance value and therefore not surprising that an equally negative posture has been adopted in managing wastes from urban concentration in the country.

Sule (2010) opined that the main causes of the problems of Nigerian city's poor environmental condition can be ascribed to improper management of solid wastes and the lack of seriousness in the enforcement of solid waste disposal code. Karley (2003) identified the main problem facing Nigeria's waste management as the lack of suitable sites for disposal of solid waste. This is an undeniable fact, because residential and commercial areas in Nigeria are seriously facing that problem due to poor planning, lack of logistics and poor attitudes towards solid waste handling.

Environmental sanitation in markets is important not only from the point of view of urban aesthetics but also because of the pathogenic organisms which the liquid and solid waste contain and transmit by direct handling or by water, food, insect or rodents (Fadamiro, 1986). Furthermore, when markets are overcrowded or improperly planned, they aggravate the waste management problems within the markets and its immediate environment. This poses a serious health threat to the people that will use the markets as buyers or sellers. These are compounded by widespread in some areas by high population densities. This phenomenon poses a serious health threat to the people and has turned most Nigerian cities into more or less "Garbage cities" (Egunjobi, 1999; Fadamiro and Bobadoye, 2001). Nevertheless, sanitary conditions are improving especially in cities as international aid programs give high priority to health problems caused by the environment. Construction of better drinking water facilities, together with improved systems of sewage disposal, rubbish collection and waste water drainage is helping to create healthier settlements" (Redmond, 2009).

Furthermore, Public health is attainable in an environment that is clean and devoid of substances that can cause disease outbreaks. The urban core of Calabar city especially the areas around Watt and Marian markets had been of major concern to every well meaning resident of the Calabar metropolis. This is due to the fact that these areas had been the major markets in Calabar for several years, with little or no development control as a result of influx of people wrongfully aspiring to sell their goods at every available space. The resultants effects are poor sanitation, congestion, negative effect of public health and deterioration of the urban environment.

According to Greaves and Webster, (2007), “sanitation is the safe management of human waste and is critical to the health of communities. Good sanitation can help to control infectious conditions such as diarrhea and dysentery. Improved sanitation and hygiene have direct impact on child health in particular as about 1.8 million children die of dehydration caused by diarrhea each year and studies have shown that improved sanitation results in at least a 30% reduction in child mortality. The report further asserted that “about 2.6 billion people which are more than a third of the world’s population lack access to sanitation. The millennium Development Goal (MDG) 7, target 10, is “40 halve by 2011, the proportion of people without access to safe drinking water and sanitation”. This is an ambitious target, but the MDGs have been of importance in encouraging governments and NGOs to focus on key developmental issues. Mabogunje (1974), pointed out that solid waste problem as emerging urban centers in Nigeria is a consequence of drastic change occurring from rural habits, norms and values of the people to those of urban civilization. As most people residing in the cities still patronize their bad habit of backyard dumping. He later argued that they are related to lack of public awareness and enlightenment. Finally, the reviewed literature has shown a useful insight into what the paper has to reveal.

3. MATERIALS AND METHDS

This study was conducted around watt and Marian markets in Calabar, the capital of Cross River State–Nigeria. It is located in the south eastern flank of Nigeria. Calabar is located between longitude 8°20'E and 8° 40'E and between latitudes 4 ° 50'N and 5 ° 30'N and 15m above sea level on average. It is bounded in the north by Odukpani LGA; to the west by Calabar River, in the south by Cross River Estuary and to the East by Great Qua River. It is an interfluvial settlement built between two rivers – Calabar River on the West and Great Qua River on the East (Figure 1)Primary and secondary sources of data collection were employed. Primary sources of data employed in the study were personal interview and questionnaire administration with the traders around watt and marian markets and direct observation for first hand information to ascertain the methods of waste disposal and level of sanitation in watt and marian markets. Secondary sources of data employed in the study were text books and journal articles on the subject matter.

Data on the type of waste generated, method of waste disposal, rating of sanitation enforcement in the markets and factors that discourage sanitation in the markets were captured on the questionnaire. Two hundred (200) copies of questionnaires were distributed around watt and marian markets. The stratified and random sampling techniques were adopted in this study. Respondents were interviewed in order to assess their views on the activities of waste and level of sanitation in the study area. However, descriptive statistics and the Pearson’s Product Moment Correlation Coefficient were employed in the analysis.

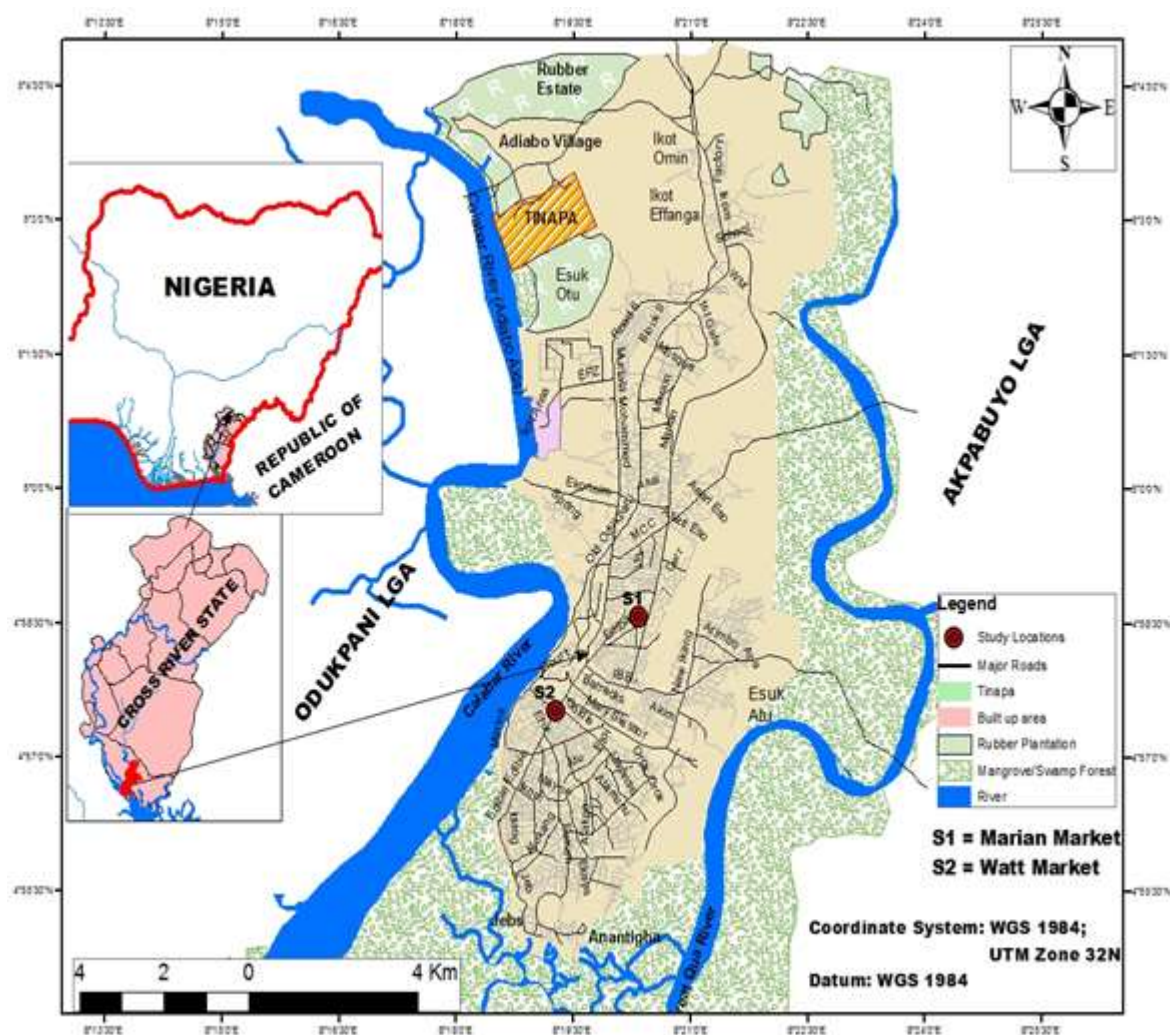


Figure 1: The Study Area

4. RESULTS AND DISCUSSION

Table 1: Types of Waste generated

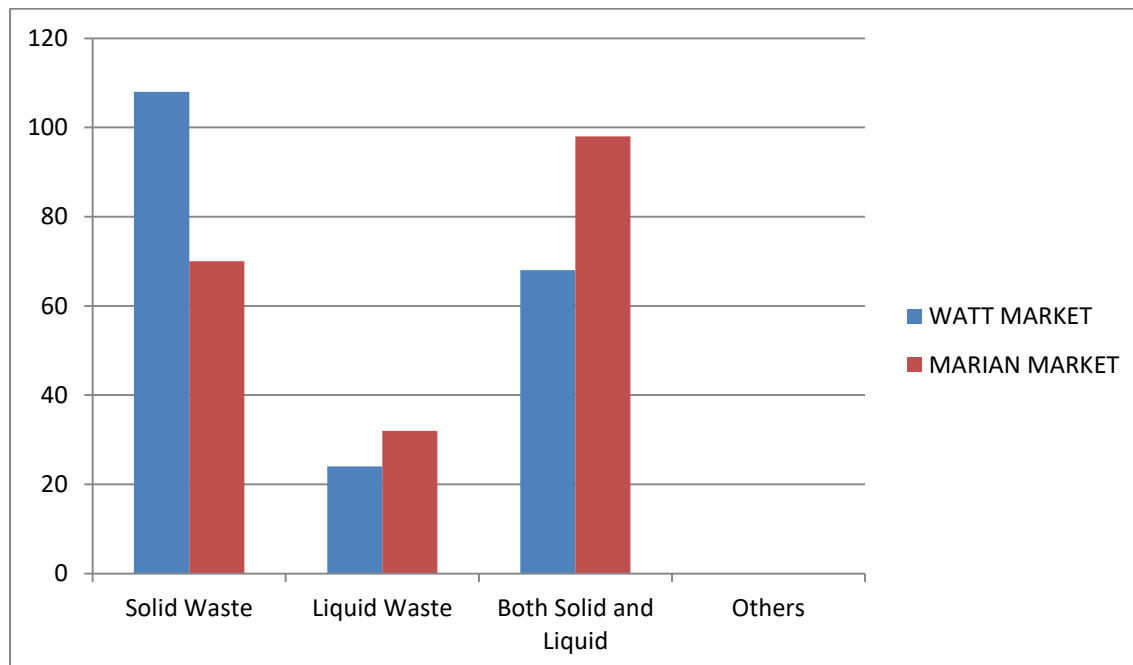
Market	Solid waste	Liquid	Both	Others	Total
Watt	108	24	68	-	200
%	54	12	34	-	100
Marian	70	32	98	-	200
%	35	16	49	-	100

SOURCE: Data Analysis, 2015

Table 1 above indicates that out of 200 respondents in Watt market 108(54%) generate mostly solid wastes, followed by both solid and liquid type of waste 68(34%) but in

Marian market, most of these respondents generate both solid and liquid wastes 98(49%) followed by solid waste 70(35%). It was observed that more of solid waste is regenerated in Watt market than Marian market.

Fig. 1: A Bar Chart showing the types of Wastes Generated in the Study Area



SOURCE: Data Analysis, 2015

The bar chart above shows the type of waste generated in watt and marian markets and the level of generation.

Table 2: Method of Waste Disposal

Market	Collection Points	Sanitary landfill	Burning	Indiscriminate dumping	Recycling	Total
Watt	168	-	-	32	-	200
%	84	-	-	16	-	100
Marian	180	-	-	20	-	200
%	90	-	-	10	-	100

SOURCE: Data Analysis, 2015

Table 2 Shows that about 168 (84%) of the respondents dispose their waste at the collection points in watt market and about 180(90%) in Marian market. Few of the respondents engaged in indiscriminate dumping which might be as a result of distance to collection points.

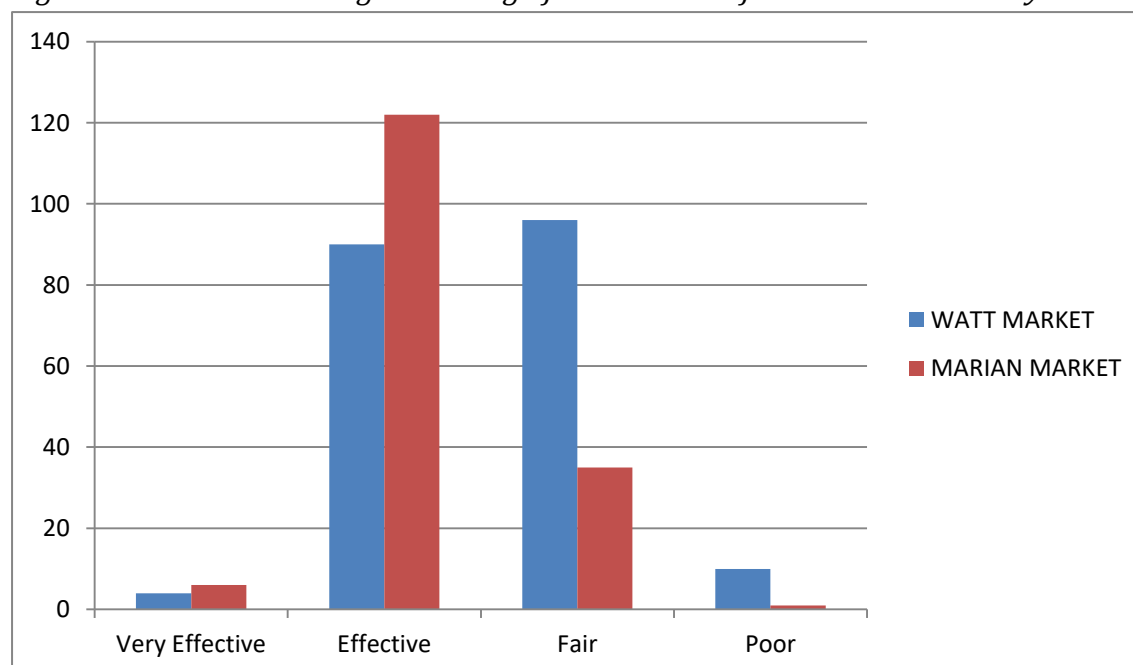
Table 3: Rating of sanitation enforcement in markets

	Watt market	%	Marian Market	%
Very effective	4	2	6	3
Effective	90	45	122	61
Fair	96	48	70	35
Poor	10	5	2	1
Total	200	100	200	100

SOURCE: Data Analysis, 2015

Table 3 shows that in marian market, about 122(61%) agreed that the rate of sanitation enforcement in market is effective, 70(35%) agreed that sanitation enforcement is fairly effective, 6(3%) very effective and 2(1%) poor. While in watt market 96(48%) agreed that sanitation enforcement in the market is fairly effective, 90(45%) of the respondents believes that sanitation enforcement is effective, 10(5%) poor and 4 (2%) is very effective.

Fig. 2: A Bar Chart showing the Rating of Sanitation Enforcement in the Study Area



SOURCE: Data Analysis 2015

The bar chart above shows the rating of sanitation enforcement in watt and marian markets.

Table 4: Factors that discourage sanitation in the markets.

	Watt market	%	Marian Market	5
Enforcement agents not effective	10	5	22	11
Lack of drainage system	-	-	-	-
Inadequate waste bins and distance to waste collection points	124	62	100	50
Traders not conscious of the benefits of keeping clean markets	66	33	78	39
Total	200	100	200	100

SOURCE: Data Analysis 2015

Table 4 shows that the factors that discourage sanitation in the market are inadequate waste bin and the distance to waste collection points with the average respondent of 124 (62%) in Watt market and marian market 100 (50%). Also, traders not being conscious of the benefits of keeping the markets clean with about 66(33%) and 78(39%) response in Watt and Marian markets respectively.

The calculated value of 4.49 with degree of freedom of 3 at 0.05 level of significance and tabulated value of 2.353. This shows a positive correlation and did not occur by chance, since the calculated value was greater than the table value. This means that there is a significant relationship between market waste disposal and sanitation in watt and Marian Markets, Calabar. The areas under study are in the Calabar urban core, comprising the Marian market and Watt market. In these markets, majority of the users are traders (buyers and sellers), while others are the enforcement and sanitation officers. About 6% of the responses were from sanitation officials, while 94% of the responses were from traders. The interviews conducted with some of the traders in both Marian and Watt markets, Calabar confirmed that traders selling perishable goods generate more waste and the types of waste generated in the markets were both solid and liquid wastes. According to this study, it was also observed that the factors that discouraged sanitation in the market are distance to wastes collection points and traders not being conscious of the benefits of keeping clean markets, as a result, these traders tend to dispose waste indiscriminately on streets, urban corridors and gutters, which will not promote public hygiene as well as aesthetics that attract more buying and selling in the markets.

5. RECOMMENDATIONS

The paper recommends as follows:

- i. Specialization and segmentation of markets should be used in planning markets in urban centres due to acceptability of the concept and the resultant economic viability in order to enhance good designs of sustainable markets.
- ii. Public participation by way of meeting on relevant issues such as security, social relationship, cleanliness and peace should be encouraged for the continuous viability of the markets.
- iii. There should be adequate provision of support facilities like adequate public toilets, water supply and waste bins in the markets accompanied with proper maintenance in order to prevent degradation overtime.
- iv. Designated flash points should be planned and made available for the collection of wastes in the markets rather than dumping waste on the street and thereby narrowing the road and causing traffic congestion, polluting the environment through litters on roads, gutters and the atmosphere with offensive and unpleasant smell.
- v. Sanitation and maintenance department should be established for effective supervision of the functionality and maintenance of these facilities, and also maintaining sanitary cleanliness in Watt and Marian markets.

Finally, one day in a week should be set aside for general sanitation and clean up in the markets and must be made compulsory for all traders under the supervision of the sanitation and maintenance department.

6. CONCLUSION

In conclusion, this paper is aimed at evaluating the relationship between disposal of market waste and the level sanitation in Watt and Marian markets in Calabar metropolis with a view to proffering a lasting solution to the menace of waste disposal in these markets. The study has however, revealed the need to maintain the quality of market environments by ensuring that such environments are of good sanitary condition. This in turn has a direct relationship on urban aesthetics, public health and hygiene and will give a sense of inclusion to the beneficiaries who will have security of tenure over their business premises hence, the entire urban population stand a chance of enjoying the urban core and its environs if it becomes cleaner and less congested.

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