

## **Assessment of Sanitation Status of the Various Neighbourhoods of Onitsha Metropolitan Region of Anambra State, Nigeria**

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### **Abstract**

This article assesses the extent of sanitation in the various neighbourhoods of Onitsha Metropolitan Region in line with the tenets of the Sustainable Development Goals programme. The research aims at evaluating the nature and efficacy of the various sanitation methods used by the residents of the commercial city of Onitsha. This is with a view to contributing to towards attaining the sanitation target of the Sustainable Development Goals by the year 2030. The target is that everyone should have a safely-managed sanitation facility by 2030. The objectives of the study are: to ascertain the proportion of people using WHO/UNICEF improved sanitation facilities in Onitsha, to identify various methods used by the residents of the city to dispose off their domestic waste, to ascertain the level of handwashing exercise in the various neighbourhoods of the study area, and to develop strategic action plan for improved sanitation in line with the SDG target. To achieve the stated objectives, primary and secondary data were collected through the administration of questionnaires to 815 respondents chosen from five layouts in the study area. The questionnaires were administered to respondents from the selected neighbourhoods through stratified random sampling technique. This was complemented with direct field evaluation. The data obtained were analyzed using tables, percentages and charts, and the results showed that the methods of faecal disposal used by the resident are in line with the requirements of the SDG for a healthy living, save for a negligible number who still use unsustainable methods. The same thing applies to methods of solid waste disposal and personal hygiene practices. From the findings, the paper recommends the involvement of non-state actors, by way of concession, in the evacuation of human excretion and trash collection in the city.

**Keywords:** Sanitation, Methods, Neighbourhoods, Onitsha, Sustainable Development Goals (SDG)

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## **Introduction**

The sanitation target of the Sustainable Development Goals is that everyone should have a safely-managed sanitation facility by 2030 and that open defecation be eliminated. The scale of this target is unprecedentedly large - 5.6 billion additional people will require safely-managed sanitation by 2030 (-1 million per day), and 1.3 billion people will need to switch from open to fixed-defecation in a sanitation facility by 2030 (240,000 per day). Safely-managed shared sanitation and container-based sanitation methods are both likely to be part of the solution, particularly in urban slums. The SDG hygiene target covers facilities for handwashing with soap, menstrual-hygiene management, and food hygiene, but only handwashing with soap is monitored by WHO/UNICEF. In 2015, the percentage of people with handwashing-with-soap facilities at home ranged from 15% in Sub-Saharan Africa to 76% in Western Asia and North Africa. The costs to meet these targets are around US\$46 billion in urban areas, and US\$25 billion in rural areas, per year during 2016-2030, Ducanand Barbara(2017).Goal 6 of the SDG tends to ensure access to water and sanitation for all by the year 2030. The target is that everyone should have a safely-managed sanitation facility by 2030.

In most urban and peri-urban settlements, open defecation is still being practiced by many residents as a result of non-availability of safe toilet facilities in their residences. This open defecation, apart from being an affront to human dignity, causes faecal-oral transmission of diseases as well as the pollution of available water bodies since people defecate openly into the streams.This poor sanitary situation may have led to unsanitary neighbourhood practices which contribute to widespread environmental degradation and this in turn leaves a large segment of the urban population exposed to environmental health risk which is brought about by ineffective human excreta disposal.

Safe sanitation includes total use of hygienic latrines without open defecation. Hygienic latrines include well maintained; flush/pour- flush to piped sewer system, septic tank; effective hand washing after defecation; garbage disposal in a fixed place; composting toilet; safe disposal of faeces to avoid the spread of diseases, and the adequacy of facilities for privacy and dignity that are also within easy reach with no queuing up.

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Onitsha being the largest city in Anambra State and by extension, southeast Nigeria is arguably experiencing uncontrolled urbanization with its attendant environmental degradation, especially in the area of sanitation. The reasons for the rapid urbanization of Onitsha stem from high natural increase in birth rate, rural-urban migration and urban-urban migration. This high rate of urbanization has impacted negatively on urban basic amenities to which basic sanitation is one of them.

This article assesses the extent of sanitation in Onitsha Metropolitan Region in line with the tenets of the Sustainable Development Goals, a programme which objective is designed to serve as a shared blueprint for peace and prosperity for people and the planet, now and into the future. In Onitsha today, hygiene practices appear to be far from being safe as those sanitation methods described by WHO/UNICEF (2000) as unsafe are apparently prevalent in many neighbourhoods of the city.

Currently, the various layouts in Onitsha lack a well-defined method of faecal and solid waste disposal. For human excretion disposal, there is a mix of night soil, dug latrine, flush/pour and water cistern systems, while solid waste disposal consists of open dumping, communal dumping, dumping in the drainage channels, use of receptacles and incineration.

### **Aim of the study**

The research is undertaken to determine the nature and efficacy of the various sanitation methods used by the residents of the commercial city of Onitsha. This is with a view to assessing the efforts made towards meeting the Sustainable Development Goals (SDG) targets as it relates to sanitation.

### **Objectives of the study are:**

- i.** To ascertain the various methods of faecal(excreta) disposal in the study area.
- ii.** To ascertain the proportion of people using WHO/UNICEF improved sanitation facilities in Onitsha.
- iii.** To identify various methods used by the residents of the city to dispose off their domestic waste (trash collection).

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- iv. To ascertain the level of handwashing exercise in the various neighbourhoods of the study area, and;
- v. To develop strategic action plan for improved sanitation in line with the SDG target.

### **Research questions**

1. What are the various methods of faecal disposal in the study area?
2. What is the proportion of people using WHO/UNICEF improved sanitation facilities?
3. What are the various methods of solid waste disposal in the study area?
4. What is the level of hand washing practice in the various neighbourhoods of the study area?

### **Review of related literature**

A review of literature locally and globally reveals that there is a variation in the definition of what constitutes improved sanitation. For example, Satterthwaite (2003) queries the rationale behind the official statistics which indicates that Nairobi, Kenya with nearly 50 per cent of its population in informal settlements had 96 per cent of its population with access to adequate sanitation whereas, in reality, there were cases in informal settlements where 200 households shared single pit latrines.

According to WHO/UNICEF(2005), of the 4000 children under the age of five that die every day from preventable illness such as diarrhea, typhoid, cholera and dysentery, Nigeria contributes at least 10 every day. It is also estimated that half of girls who stop attending primary school in Africa do so because of the lack of safe and private toilets, contaminated water and bad hygiene practices.

For the purpose of this study, safe sanitation includes total use of hygienic latrines without open defecation. Hygienic latrines include well maintained; flush/pour- flush to piped sewer system, septic tank; effective hand washing after defecation; garbage disposal in a fixed place; composting toilet; safe disposal of faeces to avoid the spread of diseases, and the adequacy of facilities for privacy and dignity that are also within easy reach with no queuing up.

In collecting data for evaluating sanitary quality of Salvador, Milroy et al (2001) applied a broad definition of sanitary quality which encompasses type and quality of housing, paving and water

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supply, sewage disposal, drainage and household waste disposal, and through this method, they were to provide a method to appraise the needs of each community and to score baseline conditions that allow the impacts of interventions to be made.

In their paper on governance for water and sanitation services in low-income settlements of Moreno, Buenos Aires, Hardoy et al(2005) looked at the private sector participation among other things. Their paper suggests that providing both water and sanitation services to the poorest areas in Moreno is likely to be achieved only if all actors – the public and private sectors are involved.

In Nigeria, where the Federal Government- in 2008- promised to construct one million latrines nationwide for an estimated 140 million people, nothing concrete has been recorded. Little wonder diarrhea is still one of the leading killer diseases in the country.

The WHO and UNICEF(2000) estimates that in the year 2000 there were 2.4 billion people without access to improved sanitation, out of which 17 per cent were urban dwellers. For sanitation, households are considered to have access to improved sanitation if they use private or shared pour – flush latrines or pit latrines with at least some minimal improvements over crude open pit latrines. Again, the report notes that such sanitary facilities are not necessarily adequate or safe. Indeed, this is actually an understatement, because in many low-income urban areas, such facilities are rarely adequate or safe. This can be hazardous, especially for women and children who have to walk even comparatively short distances to use toilet at night.

According to the 5<sup>th</sup> Annual Water for the poor Act 2009 Report presented to the US Congress, less than half of Nigerians have access to improved sources of water, while 30 percent of the populations do not have access to adequate sanitation (This Day Newspaper, 2010).

According to WHO (2008), almost half of the urban population in Nigeria suffer from at least one disease attributable to lack of safe water and adequate sanitation. Contaminated water spreads diarrhea, typhoid fever, cholera/water borne worm infections and other diseases. Lack of water creates difficulties in carrying out basic hygiene around the house. In addition, lack of convenient access to drinking water means that many hours each day may be wasted on carrying water from distant sources, especially by women and girls. Proper sanitation is just as important for keeping infectious diseases at bay. Again, women and girls are vulnerable as many of them, for reasons of culture and modesty, will not attend to their sanitary needs during day light hours if they lack household toilets.

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Kjellstrom, Tord and Mercado Susan (2008) estimated the proportion of people without adequate provision for water and sanitation in urban areas of Africa in 2000 to be 150-180 million, and they attributed such unsavoury news to poor urban governance. They opined that urban development and town planning are key elements to creating supportive social and physical environments for health and equity.

Like water, access to sanitation should be defined in terms of both availability and type of method. The conventional view of the flush toilet always being the ideal solution to faecal disposal has been challenged in recent years as unsuitable for households in poor communities and where water is scarce, Manda(2009). According to him, there is now considerable support for some types of dry-compositing or “ecological” toilets, such as the “arborloo” which is sometimes called “eco-san” toilets. He went further to define arborloo as shallow form of pit latrine, meant for use for only one year, and after a year, the arborloo site is then planted with a tree.

Why some people argue against this method, is because it requires a certain level of knowledge for effective use, and because it needs enough space which can be guaranteed only in rural areas, others are in strong support of this method.

## **Study Methodologies**

### **Study area**

#### **i. Location**

Onitsha is located on the eastern bank of the River Niger. It is situated in a narrow basin between the Nkisi River to the north and Idemili River to the south and on land which slopes gently down to the Niger flood plain. It lies on latitude 6° 09' North and longitude 6° 17'. Onitsha legal city is made up of Onitsha North and South Local Governments Areas, while the built up areas of the town include some parts of Nkpor and Obosi in Idemili North Local Government Area and Okpoko in Ogbaru Local Government Area.

#### **ii. Geology, relief, drainage and soils**

Onitsha and its neighbouring towns are geographically situated within the vast sedimentary basin of the Niger-Benue trough. The area lies on the sedimentary rock of the upper middle Eocene known as the Bende Ameke group. Within this area, there are large areas of alluvium from the quaternary period. To the north across the Nkisi river valley, the terrain is steep and difficult,

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comprising the southern extremity of the Udi Plateau. To the east the terrain is relatively flat, rising gradually to between 150m and 160m, providing suitable land for building and natural expansion. To the south, the land is flat and swampy, comprising the wide flood plain of the Niger and Idemili Rivers.

The River Niger is well known and other rivers such as the Anambra River, Nkissi River and Idemili River all drain into the Niger. The Anambra River is the largest tributary of the Niger below Lokoja or within the study region.

The relief of the study area can be explained as the Orlu cuesta formation which terminates at the River Niger bank. This upland area which varies between 150 and 240m in height is dissected by a number of small streams draining into the Niger. Large quantities of sedimentary rocks presence in the city is as a result of the presence of large water bodies.

### **iii. Climate and vegetation**

Onitsha and its neighbouring towns are located in the transition area between the sub-equatorial climatic belt and the tropical hinterland climatic belt in Nigeria. Due to their location at the northern fringes of the sub-equatorial climate, features of this climatic belt are experienced.

On a general basis, there are two major seasons namely, the wet season and the dry season. The wet season lasts from mid-March to mid-November with a short dry spell mostly in the month of August. This short dry spell lasts between one and two weeks and is popularly known as “August Break.” The dry season lasts from mid-November to mid-March and the harmattan winds from the Sahara Desert occur during this period.

The wet season is characterized by heavy rainfall with high humidity. Temperatures are equally high and average between 26<sup>0</sup>C and 28<sup>0</sup>C. Annual rainfall averages about 1, 850mm (74 inches) which is reasonably high. Precipitation in the dry season is mainly in form of dew.

The dry season which lasts from mid-November to mid- March experiences the “harmattan wind” which brings a cool dry weather usually between December and February. Temperatures are equally high in the dry season averaging between 27<sup>0</sup>C and 28<sup>0</sup>C.

### **Settlement pattern**

The growth/development of Onitsha owes much to her advantages of site or location, because of its nearness to the River Niger and being a gate way between the southeastern and western parts



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of Nigeria. Over the years, Onitsha has exercised a great deal of political, economic and social influence over the surrounding regions. The neighbouring towns of Obosi, Nkpor, Oba, Ogidi, Nkwelle-Ezunaka, Ogbaru and Umunya constitute parts of the region of the city's influence. These towns were settled communities before the advent of the Onitsha people.

As Onitsha began to grow from its water location along the Niger River by expanding inward, several streets and roads began to spring up. The physical expansion of the waterside town as well as that of the Inland Town led to the growth of the residential layouts and the streets. Notable among the streets and the roads in Onitsha are Awka Road, Oguta Road, New Market, Old Market Road, Iweka Road, Modebe Avenue, Venn Road North and South, Court Road, Old and New Cemetery Roads.

Onitsha as a settlement has grown so much both in population and land area. Non-indigenes account for more than 70% of the total population. The city also has many planned layouts such as the G.R.A, Fegge, Woliwo, American Quarters, Omagba, Odoakpu and Inland Town.

### **Land use activities**

The functions performed by Onitsha as an urban centre have given rise to its various land uses. Thus, land uses include residential, commercial, industrial, institutional, transportation, cultural among others.

The commercial area is located in Otu around the Main Market in the triangle between the River Niger, Old Market Road and New Market Road.

The busy commercial and mixed use area is surrounded by the high density residential area of American Quarters, Odoakpu and Fegge.

Medium and low density residential developments are found to the east and north in Inland Town and GRA. Industrial estate development is concentrated around the Niger Bridge Head and the more accessible roads between Niger Bridge, Iweka Roundabout (Upper Iweka) and Owerri Road. Secondary commercial areas are located along Iweka Road, Iweka Roundabout (Upper Iweka), at the Bridge Head Market and along Niger Roundabout -all as a result of suburbanization of the city.

This pattern is unusual in the sense that the commercial heart (CBD) of the town is not located near its physical centre nor even near the original traditional settlement in EnuOniocha (Inland



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Town). The commercial centre has developed over the years on the River Bank focused on the old river crossing point to Asaba. As a result, the commercial center is now hemmed in between the River Bank and the surrounding high density areas and has little or no room for expansion.

Development in the Bridge Head Area has extended from Fegge to Bridge Road, (Enugu-Onitsha Expressway). South of the Bridge Road (Expressway) is the industrial development of Okpoko (a slum) and the industrial development on both sides of Owerri Road, vast development of the Army Barracks, some new layouts have developed on the far side of the Nkissi River (Trans Nkissi layout) and Mile 3-3 layout along the Onitsha – Aguleri road.

Most new developments on the periphery of Onitsha have been carried out at a much lower density than the development in the main areas. New areas are developed with simple access roads connecting them to the existing main road network with little or no thought for the needs of future growth of the areas. As a result of poor planning, much of the development on the periphery of Onitsha is uncoordinated with the tendency that the city will invariably sprawl in an uncontrolled manner and thereby compounding the existing traffic congestion problems.

The Okpoko development was initially unauthorized because the area was meant to serve as a site for a steel company. The World Bank urban renewal efforts (i.e. Okpoko New Heaven Urban Renewal Scheme) have led to the provision of motorable roads within the slum area.

According to Onitsha Structure Plan (2008), the land use situation in Onitsha is such that residential development accounts for more than 80% of the land in Odoakpu, American Quarters; GRA, Inland Town, Fegge and Okpoko. Woliwo by previous standards has residential use accounting for 54% of the total land, while that of Omoba is 77%. The road network system in Onitsha accounts for about 8%, commercial activities account for more than 20% of the total land area while industrial development accounts for about 5 per cent.

### **Water supply and sanitation**

In the area of water supply, there used to be a treatment works plant on the Nkissi River supported by boreholes sunk by landlords. Later, there was the Greater Onitsha Water Scheme which was to supply water to the growing population with a treatment plant on the Idemili River. The new water scheme had not completely taken off before the Anambra State Water Corporation, which is the agency responsible for water provision in the city, ran into problems that led to the non supply of water to the city since 2001.

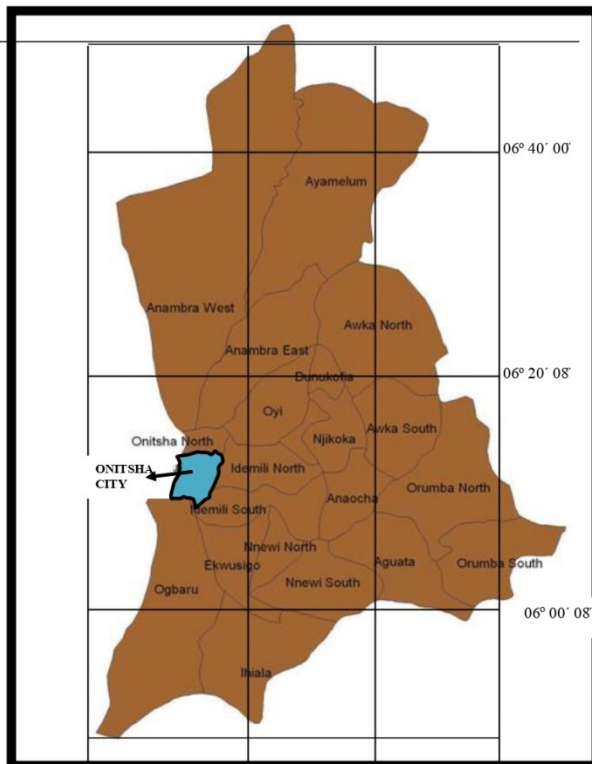
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The Greater Onitsha Water Scheme was supplying the town with treated water until the year 2003 when it packed up due to non-maintenance of the facilities. Since then individual efforts through the use of private bore holes, mostly untreated, remain the only source of drinking water with its attendant health implications.

The sanitary condition of the city in the area of faecal disposal has remained a herculean task as there is no known agency responsible for its management. What is currently obtainable is an uncoordinated individual effort that has often led to the littering of the streets with human faeces as a result of poor evacuation methods. They rely mostly on the use of trucks to evacuate the waste from individual plots. This practice, which is mostly carried out in the night usually leads to dumping of human excreta in the drains or streams, thus exposing these critical segments of the cityscape to land and water pollution. In some cases, especially in the poor neighbourhoods, nightsoil practices still exist with its attendant health risks.

Similarly, the city has not fared better in the area of solid waste disposal as the streets are littered with all manner of refuse wastes. The drainage channels are worst hit by this practice, and this has continuously led to the blockage of this critical infrastructure. Unsanitary outlook is a common sight in almost all the neighbourhoods of the study area. The city generates refuse or solid waste not only on a domestic basis but also as a result of commercial, industrial and other activities, and this has made the rate of solid waste generation in the city to be high. The management of solid waste in the city falls within the responsibility of Anambra State Waste Management Agency (ASWAMA).

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06° 20' 02" 06° 40' 10" 07° 00' 08" 08° 20' 08"

**Fig 1. Map of Anambra State showing the study area**  
Source: Ministry of Lands Survey and Town Planning, Awka

## Methods and procedures

Data for this study was obtained through primary and secondary sources. The primary source was through the administration of household questionnaires and direct field evaluation, while the secondary data was obtained from the National Population Commission, NPC and other relevant sources.

A total number of eight hundred and fifteen (815) people were sampled. These figures were composed through proportionately stratified random sampling, and through this method, 5 layouts (neighbourhoods) out of a total of 15 layouts were selected. The questionnaire was administered to the housewives or female heads of each household. The womenfolk was used because the women usually stay at home more than the men, take care of the children when they

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are sick, carryout domestic chores etc. In cases where this was not applicable, the breadwinner was administered as household head.

Simple random sampling was used to choose 72 streets in which questionnaires were administered out of 604 streets in Onitsha.

### Data presentation, analysis and findings

#### Availability of toilet facility

From Table 1, the study reveals that almost all the residents of the surveyed neighbourhoods have access to one form of toilet facility or the other as 99.6% of those interviewed answered in the affirmative. Only .4% representing 3 respondents said they had no access to toilet facility.

**Table 1: Access to toilet facility**

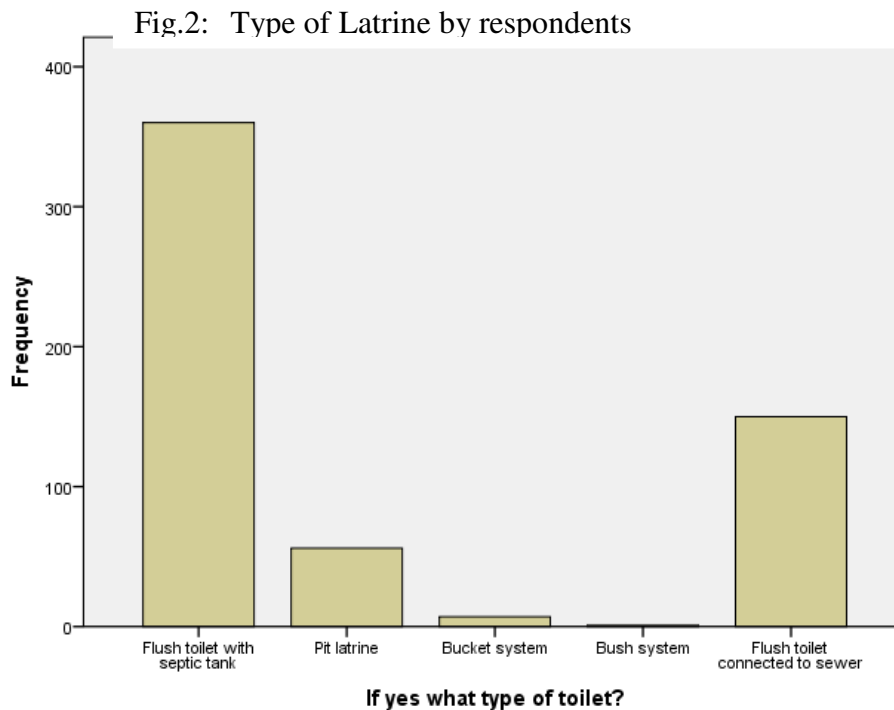
	Frequency	Percent	Valid Percent	Cumulative Percent
Yes	812	99.6	99.6	99.6
Valid No	3	.4	.4	100.0
Total	815	100.0	100.0	

#### Methods of faecal disposal

In the study area, there are different types of faecal- disposal systems. These include flush toilets, pit latrines, bucket system and bush methods. From the study, it was discovered that flush toilet with septic tank is the dominant method of faecal disposal used as this method accounts for 59.9% of the households surveyed. This is followed by flush toilet connected to sewer which is used by 27.7% of the respondents. In the same vein, 10.6% of the respondents use pit latrine, while 1.5% of the respondents use bucket system. Only one person claimed to be practicing open defecation (Table 2). This, however, contrasts sharply with what was noticed in some parts of the study area where human faeces litter the ground, suggesting that open defecation is being practiced to some extent.

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	Freque ncy	Percent	Valid Percent	Cumulative Percent
Valid				
Flush toilet with septic tank	488	59.9	60.0	60.0
Pit latrine	86	10.6	10.6	70.6
Bucket system	12	1.5	1.5	72.1
Bush system	1	.1	.1	72.2
Flush toilet connected to sewer	226	27.7	27.8	100.0
Total	813	99.8	100.0	
Missing System	2	.2		
Total	815	100.0		



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### Usage of toilet facilities by households

The study found that 50.7% of respondents have exclusive use of one toilet, while 48.5% share toilets with other households (Table 3). The sharing of toilets may be a major cause of early filling up of the facilities. This has provided lucrative business for those who own septic tank vehicles used in emptying the filled latrines and soak away pits. However, poor access road (which is one of the institutional causes of poor access to sanitation) makes it difficult to evacuate the faeces in many plots, especially in Okpokoneighbourhood (Photo 1). It was found that some landlords whose houses are not easily accessible to evacuation vehicles and those who could not afford the high cost of emptying their latrines often resort to digging of successive pit latrines or holes where night soil workers usually empty the filled toilets at night. This practice poses health risks to the residents and will equally pollute groundwater.

**Table 3: Usage of toilet facility by respondents**

		Frequency	Percentage	Valid percent	Cumulative
Valid	One household	413	50.7	50.7	50.7
	Share toilet with other household	385	48.5	48.5	99.3
	Share toilet with other household from other plots	6	0.7	0.7	100.0
	Total	814	99.9	100	
Missing System		1	0.1		
Total		815	100.0		

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Fig. 3: Usage of Toilet by respondents

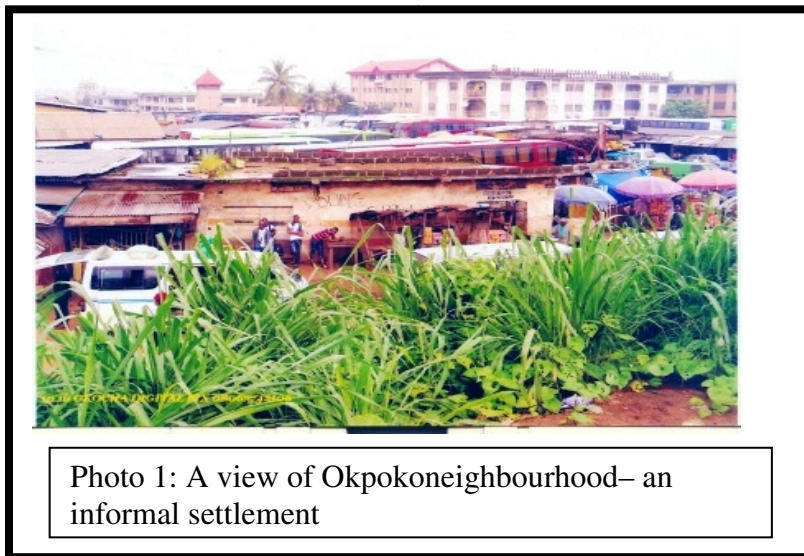
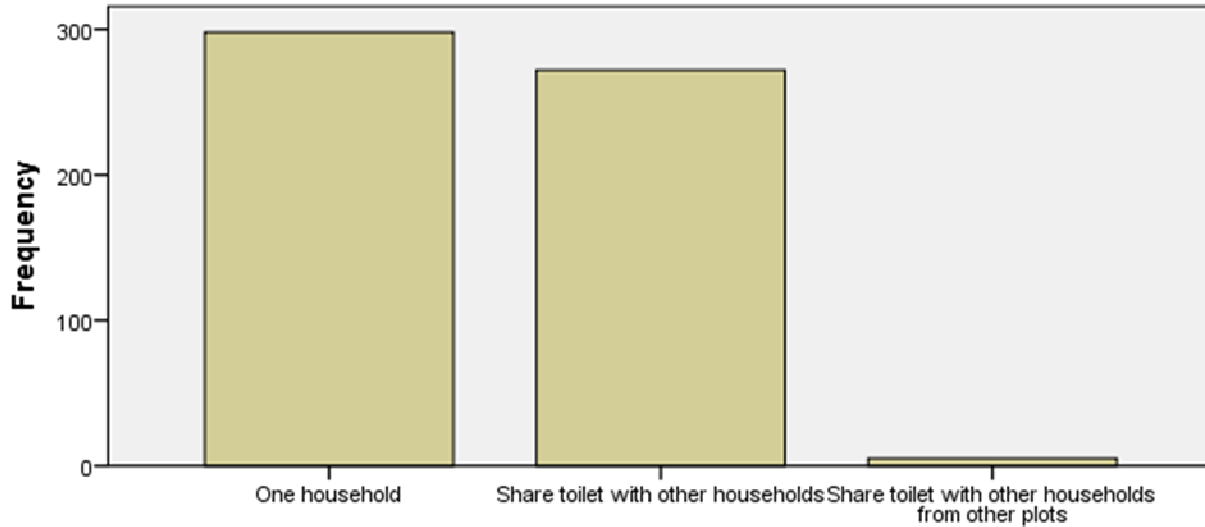


Photo 1: A view of Okpokoneighbourhood– an informal settlement

#### 5.2.4 Method of solid waste disposal

##### Methods of solid waste disposal by households

Several methods of solid waste disposal were observed during on – the- spot assessment of the studied neighbourhoods. In general, it was observed that urban poor neighbourhoods are not well



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served by waste collection agency as collection is either irregular or not provided. Where the service is provided, this is by simply leaving a skip in the neighbourhood for households to deposit waste for onward transfer to ‘landfill’ sites. Sometimes, the skips are left for a long time before collection and this provides grounds for rodents to breed. It also leads to leachate which percolates into the underground water sources and water bodies which in turn serve as sources of drinking water to some residents of these neighbourhoods. The study found that majority of the households interviewed (80.5%) dispose off their waste in communal waste/ city- tip sites (Photo 2). While 7.1% of the respondents burn the waste generated, 5% dump theirs in the drainage/river system. Those who throw their wastes on the road side and who throw waste in open areas within location at night stand at 4.4% and 2.7% respectively (Table 4).

**Table 4: Methods of solid waste disposal by respondents**

	Frequency	Percent	Valid Percent	Cumulative Percent
Burning	58	7.1	7.1	7.1
Communal dump site	654	80.2	80.5	87.7
Throw waste on road side	36	4.4	4.4	92.1
Valid Dump at the drainage/river-side	42	5.2	5.2	97.3
Open area within neighbourhood at night	22	2.7	2.7	100.0
Total	812	99.6	100.0	
Missing System	3	.4		
Total	815	100.0		

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Fig. 4: Method of waste disposal by respondents

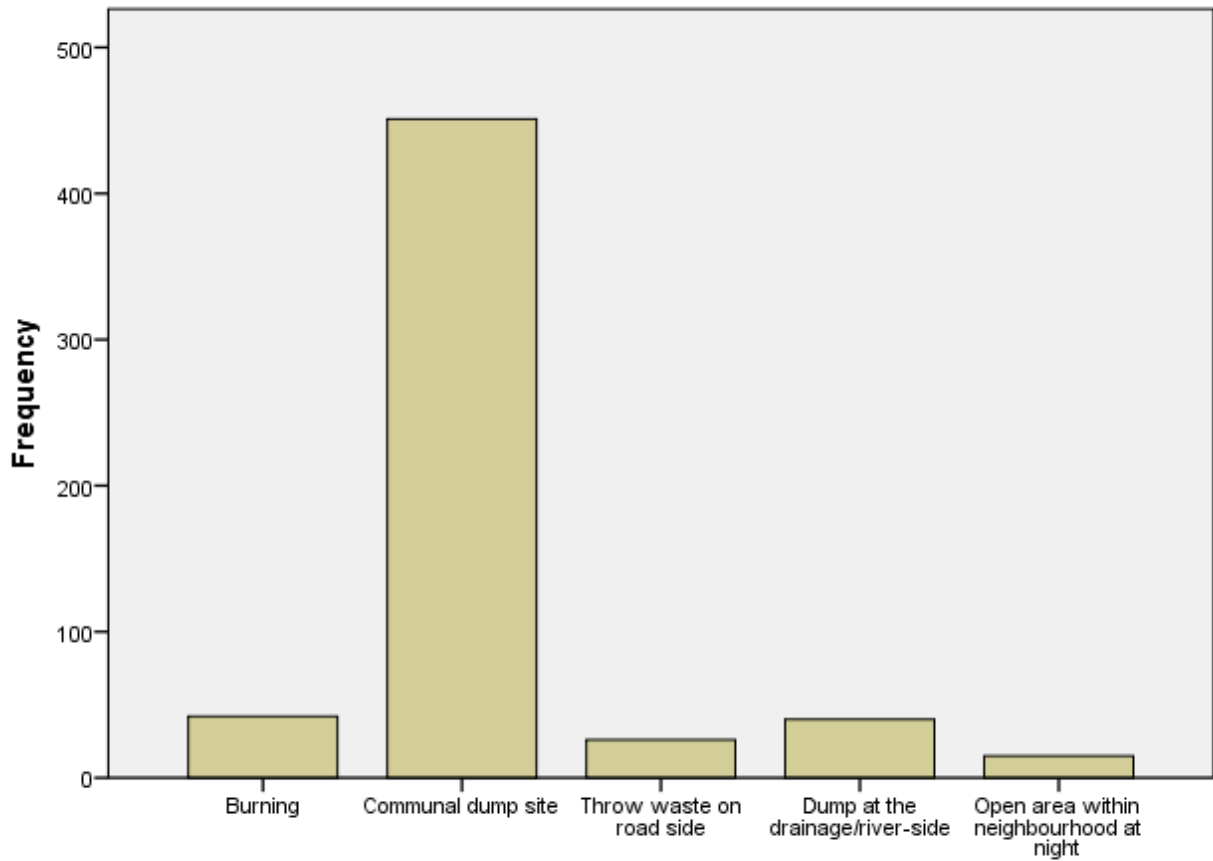


Photo 2: Heap of uncleared garbage at a Feggeneighbourhood

Source: Field survey

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### Personal hygienic practice

In order to ascertain the level of personal hygiene among the residents of the study area, the questionnaire survey asked respondents to state the critical times to wash hands. The responses are as presented on Tables 5,6 and 7. From the tables, those who wash their hands before eating stand at 57.4%, while those who wash their hands after using the toilet represent 54.4% of the respondents. Among the nursing mothers, only 6.5% of the respondents said they wash their hands after cleaning their babies.

The high percentage of awareness on washing of hands before eating and after using the toilet could be as a result of age long habit which the respondents cultivated from birth to keep diseases at bay. From the focus- group discussions, it was found that many households have soap, but do not use it to wash hands except for washing clothes, bathing or washing cooking utensils.

**Table 5: Washing of hands before eating**

	Freque ncy	Percent	Valid Percent	Cumulative Percent
Valid Yes	467	57.3	57.4	57.4
Valid No	346	42.5	42.6	100.0
Total	813	99.8	100.0	
Missing System	2	.2		
Total	815	100.0		

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**Table 6: Washing of hands before eating after using the toilet**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Yes	442	54.2	54.4	54.4
Valid No	371	45.5	45.6	100.0
Total	813	99.8	100.0	
Missing System	2	.2		
Total	815	100.0		

**Table 7: Washing of hands before eating after cleaning babies**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Yes	53	6.5	6.5	6.5
Valid No	760	93.3	93.5	100.0
Total	813	99.8	100.0	
Missing System	2	.2		
Total	815	100.0		

#### 4 Conclusion and recommendations

This study was carried out primarily to ascertain the sanitary condition of Onitsha in relation to the SDG target as it affects sanitation. The findings of the study conducted in five neighbourhoods (both low and high income) within the study area indicate considerable improvement with some variations which agree with one's neighbourhood and socioeconomic status.

One can observe from the analysis tables that the types of facility and methods of defecation are in line with the WHO/UNICEF recommended standards, and only a negligible number falls off the track (Tables 1-3 and Figures 2 and 3).

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Methods of solid waste disposal are equally not bad as majority of the inhabitants of the neighbourhoods of the study area, 654- representing 80.2% of the respondents, make use of the communal dump site system - a system that does not pose much health problems as the refuse is regularly evacuated. However, the house to house refuse collection, which is the best method of solid waste disposal, is alien to the study area.

On personal hygiene, the study discovered that there is high awareness of health consciousness in the area of washing of hands before eating and washing of hands after using the toilet (Tables 5 and 6). It is only in the area of washing of hands after cleaning babies that the residents of the study area are found wanting (Table 7).

In conclusion, the sanitary condition of the study area is not as poor as one had thought prior to the commencement of the study. However, the sanitation situation in poor neighbourhoods needs to be improved to measure up with what is obtainable in the high income neighbourhoods , especially in the area of faecal disposal. From the study, the level of the sanitary conditions of the different neighbourhoods is marked by socioeconomic disparity and inequity produced by market forces.

### **Recommendations**

In view of lack of or little involvement of the city government in waste management, especially faecal disposal, I recommend that the private sector, which currently manages most of the waste disposal activities in the study area, be encouraged by way of tax incentives and the provision of other neighbourhood facilities like access roads and dump sites.

Public awareness on the dangers of poor sanitary environment should also be scaled up as the current awareness campaign is low.

Finally, there is an urgent need for urban renewal of the low-income areas, especially Okpoko in order to improve their aesthetic qualities.

Available online at: <https://ijopad.org.ng>

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