

Influence of Rural-Urban Migration on Waste Management in the Enugu Metropolis

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Abstract: The study examined the influence of rural-urban migration on waste management in the Enugu metropolis. It was motivated by the waste disposal problems and challenges in the coal city. The specific objectives sought were to: determine the impact of rural-urban migration, the influence of irregular collection and disposal of refuse, and the influence of indiscriminate dumping of refuse on waste management in the Enugu metropolis. A survey design was adopted for the study. The area of study was the Enugu metropolis which includes Enugu East, Enugu South and Enugu North local government areas. The study covered activities of Enugu State Waste Management Agency, household residents, as well as contractors on waste management in the Enugu metropolis. The study population, 722,664, was drawn from the three local governments areas mentioned. The instrument for data collection was a structured questionnaire. Data collected were presented in Likert 5-points scale, and analysed with a measure of central tendency (Mean). Results indicate that increase in rural-urban migration have a negative impact on waste generation and management in Enugu State. The study recommended among other things that the Enugu State government should try to stem the tide of rural-urban migration and also develop strategies to control indiscriminate dumping of refuse in the city while ensuring that refuse collection and disposal are timely and regularly done across the Enugu metropolis.

Keywords: Migration; Population; Rural-urban Migration; Waste management; Public Enlightenment; Environmental Degradation; Globalization; Metropolis.

INTRODUCTION

Empirical reports indicate that rural-urban migration usually stems from the search for better opportunities, perceived or real, which is an offshoot of rural-urban inequality in wealth Madu [1]. All over the world, there are unbalanced concentrations of wealth, economic and social opportunities in the urban centres, with noticeable neglect and degradation of the rural areas Ajaero & Mozie, [2]. Unarguably, the world today is undergoing the largest wave of urban growth in history with over half of its 7.6 billion inhabitants living in towns and cities. In Nigeria, more than seven cities have populations exceeding 1 million, while the populations of Lagos and Kano are estimated to be well over 9 million each, with the proportion of people living in urban centres increasing from 15 per cent in 1960 to 43.3 per cent in 2000 Adekola, Allen & Akintunde [3].

Unexpectedly, due to the high rate of urbanization in Nigeria, it is becoming increasingly difficult for the city administrators to maintain the

provision of vital social services in the urban areas Lyida [4] which include; waste management, regarded as the most disturbing phenomenon in most urban cities, including Enugu.

Hence, in Enugu metropolis, there has been public outcry over indiscriminate dumping of refuse on the streets in different areas despite the dangers associated with such practices, which include environmental health hazards and exposure to diseases, sicknesses and death Nzeadibe & Ajaero [5]. There is no arguing the fact that the management of solid waste is a global problem, which is, however, more pronounced in developing countries such as Nigeria. Adeyemi et al., [6] report that waste management is one of the most intractable problems facing city administrators and environmental agencies in Nigeria. In the same vein, Ogwueleka [7] observes that solid waste management is one of the greatest challenges facing environmental managers in Nigerian cities. Adefemi and Awokunmi [8] also report that the

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problem has even degenerated to a breakdown of law and order in some cities as a consequence of clashes between some city dwellers and the waste management personnel.

Nigerian urban centres, Enugu inclusive, are experiencing an increased rate of environmental deterioration as a result of indiscriminate dumping of solid waste [9]. Omuta [10] believes that one notable flaw in waste management administration in developing countries is the unavailability of a proper waste management policy, and opines that for waste management to work, various aspects of government services such as engineering, urban planning, public health, law enforcement, etc. must be brought together under a policy synergy that will deliver an effective waste management system. Ogwueleka [11] asserts that some of the approaches used in tackling the problems of waste in Nigeria account for waste management failures. A successful waste management practice, Ogwueleka [11] argues, must distinguish between the different needs and diversities of the different cities in the country.

In addition to the above viewpoints, CNN (2019), also observes that a preponderance of wastes produced in Nigerian cities is emptied in the ocean causing degradation of the environments and death to sea animals which are linked to the alarming increase in rural-urban migrations and the consequential high rate of waste generation and poor disposal mechanisms. In the case of liquid wastes, lack of proper drainage is a challenge to the environment and waste management authorities. In the Enugu metropolis, major streets are littered with waste products, both solid and liquid waste, which pose serious environmental hazards. According to Uwakwe [12] environmental and waste management problems are caused by the lack of technical, financial, institutional and socio-economic support from relevant stakeholders. He notes that these factors hinder effective waste management in most Nigerian cities, including the Enugu metropolis. Similarly, the non-implementation of development policies and poor enforcement of sanitation legislation by the agencies concerned influence the effective management of waste in the Enugu metropolis.

All the foregoing, therefore, necessitated this study which is aimed at examining the effect of rural-urban migration on waste management in the 'Coal City', once revered and envied for its serenity and cleanliness.

Statement of the Problem

Enugu metropolis popularly called 'the Coal City' is one of the major cities in Nigeria that has suffered some of the negative consequences of rural-urban migration. Rural-urban migration has posed a threat to this once-enviable and cherished city. In Enugu State, an average of 2.3 million people live in the

Coal City Ndubuisi-Okolo et al., [13]. These include those gainfully employed in white-collar jobs, the businessmen and women, children and the unemployed who consider it best to move to the city in search of greener pastures. The increase in the city's population which is a result of rural-urban migration has challenged waste management in the Enugu metropolis. Unarguably, waste management is highly imperative, because improper disposal of refuse causes health, safety and economic problems. While all living organisms create waste, humans create far more waste than other species. So, to prevent damaging the earth's ecosystems and to maintain a high quality of life and social equilibrium for the planet's inhabitants, humans must manage and store their waste efficiently and safely Ndubuisi-Okolo, et al., [13].

Ezeah and Roberts [14] observe that solid waste management in Nigeria has been a major concern to city administrators. Ogwueleka [11] believes that inefficient collection and unsafe disposal may be some of the major reasons for the waste management problems in Nigeria. Ogu [15] says that about 80 – 90% of the wastes generated in some Nigerian cities, like Enugu, are not collected for safe disposal because the waste disposal managers seem to be overwhelmed by the increased urban population's rate of waste accumulations. Imam et al., [16] report that in many Nigerian cities, piles of wastes are dumped by the roadsides and open spaces, thereby posing environmental and health risks. In corroboration of these viewpoints, Izugbara and Umoh [17] report that to a large extent, waste management problems contribute to the social, political and environmental crisis in the country, which have enormous negative implications for the economy and the populace.

In 2016, for instance, Enugu metropolis witnessed an alarming rate of refuse dumping, which attracted the attention of many journalists who reported the ugly development, based on the health implications for the populace Ndubuisi-Okolo et al., [13]. This was because according to Ugwu [18] the institutional and infrastructural facilities to deal with urban wastes in Enugu apart from being inefficient were not enough to cope with the volume of human traffic that migrate to the city and the consequent increase in waste being generated. Elekwa [19] observes that the shift in the balance of population between urban and rural areas has contributed significantly to the urban waste disposal problems of Enugu city. He also warns that since the United Nations (1993) has projected that the level of global urbanization will pass 50% by the year 2025, with more than 60% of the world's population living in urban areas, the problems of waste generation and management in cities like Enugu metropolis will most likely get worse, if nothing is done to arrest the ugly trend, as soon as possible.

Despite the frequent changes in the leadership of Enugu State Waste Management Agency, the

problem of waste management and its attendant implications still rears its ugly head. Hence, this study was motivated to examine the influence of other factors in the exacerbation of the menace, especially the contribution of rural-urban migration to the quandary.

Objectives of the Study

The broad objective of the study is to examine the influence of rural-urban migration on waste management in the Enugu metropolis. The specific objectives include:

1. To determine the extent rural-urban migration has impacted waste management in the Enugu metropolis.
2. To examine the influence of irregular collection and disposal of refuse on waste management in Enugu metropolis.
3. To determine the influence of Coal City dwellers' attitudes, including indiscriminate dumping of refuse, on waste management in Enugu metropolis.

Research Hypotheses

The following null hypotheses were tested in the study.

- Ho₁: Rural-urban migration has no significant negative impact on waste management problems in the Enugu metropolis.
- Ho₂: Irregular collection and disposal of refuse have no significant negative influence on waste management in the Enugu metropolis.
- Ho₃: Coal City dwellers' attitudes, including indiscriminate dumping of refuse, have not influenced the waste management problems in the Enugu metropolis.

Review of Related Literature and Theoretical Framework

Broadly defined as the relocation of residence of a person for a specified duration and various reasons, migration incorporates all kinds of movement of people from one place to another. It may take place within a particular geographical boundary of a country or beyond its boundaries. Migration is a natural phenomenon, which cannot be stopped, but can be controlled to a certain extent, depending on the strategies applied in doing so (NPC, 2004).

Migration has also been defined as the shifting of people or an individual or group of individuals from one cultural area to another, which may be permanent or temporary Moore [20]. This restrictive definition will exclude other types of movements, such as the season shift of migrant workers, the temporary and irregular movement of terrorists, and the wandering of pastoral nomads. Downey [21] opines that migration is the permanent or semi-permanent change of residence - the physical transition of people or individual or group from one society to another, a change of a place of residence which may be geographical.

Many migrate in search of white-collar jobs, while some migrate to engage in trade or other activities. When this movement is enormous, it could threaten waste management problem in the receiving cities, apart from other social vices like an increase in robberies, air pollution, and pressures on available infrastructures Aworemi & Abdul-Azeez [22]. Empirical evidence from migration research literature strongly demonstrates that historically, in many parts of the world, unbridled migration has brought negative and dehumanizing consequences on cities Gugler [23]. In general, migration has gradually become an issue in need of urgent attention due to its impact on the environment Hossain [24].

Historically, challenges and impacts of rural-urban migration in Nigeria dates back to the 1960s and have continued to worsen since then Abbass [25]. Those moving from rural to urban areas are usually people that are plagued with certain social and economic problems in which poverty ranks highest Federal Office of Statistics [26]. Another major factor is rural-urban inequality, which started with the advent of the post-independence euphoria and discovery of oil and consequent oil boom in the early 1970s in Nigeria World Bank & I.M.F [27]. Unfortunately, with the evaporation of hopes and enthusiasm within the socio-economic and political environment, resulting from unfavourable economic conditions facing both the rural and urban habitats, due to alleged mismanagement of the nation's resources, rural-urban migration got on the increase since the late 1980s Abbass [28].

From an administrative perspective, it appears that there has been an inadequate policy framework and infrastructural capacity to handle the increased volume of wastes being generated in the cities as a consequence of the suffocating urban populations. This requires the application of expedient public policy measures to avert the impending waste management crisis. Given the significant disparities that have emerged between and within rural and urban settlements, migration should be strategically used for the redistribution of resources or to solve problems usually associated with it Abbass [28].

Hence, some social commentators believe that governmental efforts and resources should be focused on improving the deteriorating condition of rural settlements to alleviate poverty and reduce the spate of rural-urban migration, to arrest the disturbing urban waste management problem in the country.

In a simple sense, waste management can be defined as the collection and disposal of used and unwanted materials by humans within the environment Ebikapade & Jim [29]. In Nigeria, waste management has received little attention until recently because many people do not regard it as an issue of concern. The problem of the increase in waste production in most

cities in Nigeria, as argued by Chukwu [30] is a matter of neglect. He observes that what causes the waste problem is not volume produced but the degree of effectiveness of waste management agencies. This view is supported by Atuegbu [31] who asserts that big cities like Enugu, Lagos, Kano, etc. in Nigeria produce on the average 46kg of solid waste per person, per day. As living standard rises and more people migrate and come to the cities, people consume more and generate more waste.

From the 1990s, the Enugu metropolis has metamorphosed into a resort centre because of its congenial living environment which attracts an influx of weekend leisure seekers into the city. These leisure seekers do not just come in to relax; they also consume and enjoy themselves every weekend, thus, contributing enormously to weekly waste generation in Enugu City. Atuegbu [31] reports that between 500 and 850 metric tons of wastes are generated daily in Enugu city. At Abakpa, the rate of waste generation is so high that in one night, a refuse dump site that was cleared the previous day could be replaced with an equal volume of waste the following morning, thus creating the erroneous impression that it was never cleared before. The scenario is the same at Asata, Emene and Coal Camp areas of Enugu Metropolis.

As a result of the alarming rate of urbanization in Nigeria, it has become a complex and difficult issue for the government to manage waste in some of the urban areas in the country. Services, such as solid waste management, is now regarded as the most challenging task for governmental agencies in most urban cities, including Enugu. According to Ugwu [18] the institutional and infrastructural facilities to deal with urban wastes in Nigeria apart from being inefficient are not enough when compared to the volume of solid waste being generated in the cities. Elekwa [19] notes that the shift in the balance of population between urban and rural areas and between the developed and developing countries began from about 1970 to 1990. Today, the need to address the problem of rural-urban migration which impacts waste management in many cities of Nigeria including, Enugu, has become an urgent one. Although most human activities, especially companies and production-oriented firms, generate waste Brunner and Rechberger [32] the majority of such production firms or industries properly manage their waste because of their knowledge of its environmental hazards. Whilst Enugu state is not among the most industrialized states in Nigeria, the management of industrial and regular waste remains a major challenge to the State.

Theoretical framework

The theoretical benchmark for this study is anchored on the push and pull theory, and the neoclassical theory of migration.

The Push and Pull theory

Globalization, economic crises, political instability, conflicts, civil wars, ethnic cleansing, social inequality, the development of market economy, gender discrimination, and the wider processes of socio-cultural transformation, especially in the last ten years, led to the huge wave of migration in the world Angelina & Blagojce [33]. Globalization has changed the way many people see the world. As people become more aware of living standards and lifestyles in other parts of the world, for example, through television or other social media platforms, their understanding of poverty keeps increasing and their expectations continue to change. This motivates people to migrate to secure greater income, acquire better education and gain insight into new businesses. There is also evidence that young people in particular resort to migration because they want to escape the drudgery of subsistence living in rural areas or to “see the bright light in the big cities” Sally & Edward [34].

The forces of globalization foster strong push factors in many migrant’s countries of origin, in addition to other factors such as economic dislocation and increased absolute and relative poverty rates. Thus, poverty or hardship motivates the migrants to seek economic opportunities in the cities in search of a better life or greener pastures. The cities, therefore, possess more opportunity lures for them, such as significantly higher wages and jobs Jahan, [35] Besides, the demand for migrant workers is often exacerbated by demographic changes, as declining birth rates in developed countries lead to shrinking populations with a growing ratio of elderly to working-age people. The movement of people to the cities due to the need to secure better livelihood, however, sometimes impact negatively on the environment, including excess waste which constitutes health challenges to the people in the cities Angelina & Blagojce [33].

This theory of globalization, therefore, explains the causes of the movement of people (migrants) due to economic, social, political and cultural factors, including displacements from militarization, wars and conflicts.

Neo-Classical Theory of Migration

The neo-classical theory is at present, the dominant theory in explaining causes of migration with its underlying assumption that migration is stimulated primarily by rational economic considerations of relative benefits and costs, mostly financial but also psychological Todaro & Smith [36]. The neoclassical theory at the macro framework understands migration to be driven by differences in returns to labour across markets. The central argument of the neoclassical approach thus concentrates on wages. However, the most basic model originally developed to explain migration in the process of economic development was in the works of Hicks [36, 37, 38] all of whom highlight

that migration results from actual wage differentials across markets or countries that emerge from heterogeneous degrees of labour market tightness.

According to this theory, migration is driven by geographic differences in labour supply and demand and the resulting differentials in wages between labour-rich versus capital-rich countries. The neoclassical macro-level elaboration can be transferred to the micro-level model of individual choice and has been termed the human capital theory of migration introduced by Sjaadstad [39]. The human capital theory enriches the neoclassical framework by incorporating the socio-demographic characteristics of the individual as an important determinant of migration at the micro-level Bauer and Zimmermann [40]. At the centre of such analyses is a rational individual who migrates intending to maximize his or her benefits and gains.

In Enugu State, the majority of people migrate to the cities as a result of these factors mentioned above. The ladies, more especially, migrate from the rural areas to the urban cities due to marriage while the youths migrate in search of greener pasture. The huge inflow of these people into the cities not only impact waste management but the environment, causing congestion. The migration of people from rural to urban centres is mostly to better their lives. Their daily activities in the cities result to waste generation, which increases day by day and has become a concern to both the government and the people in the urban areas. The higher wages paid for labour in the urban centres, according to the neoclassical theory is, perhaps, one explanation for the steady increase in rural-urban migration Bonin et al., [41].

In a way, the globalization syndrome explains the factors that could result in migration. For instance, in Enugu State, the majority of people migrate to the cities because of their exposure to stories coming from people who have travelled out and tasted lives in the cities or abroad. This information gives them the impression that poverty resides more in the rural areas, and that they can live better lives in the cities. Usually, information also comes through people living in the cities who paint rosy pictures about the cities. Considering the living standards of rural dwellers, one will think it is better to move to where life can be easier. In Enugu State, rural-urban migration is mostly a result of poverty, lack of jobs in rural areas, marriage, as well as the need to change the income level of individuals (pull factors). Hence, the city-migrants believe that the cities have everything that life demands and therefore should be the best place to be, as a result of information gathered about the cities and life in the cities.

According to the theory, the global push factors such as economic, social, political and cultural factors increase the number of people running away

from dull lives in rural communities to the bustling cities, with its consequent negative social consequences including increased waste and sanitation problems. The theory explains that consistent movement of people to the cities will increase the volume of waste produced per day which affects the environment.

On the other hand, the neo-classical theory also helps to explain that migration of people from Enugu rural communities to the metropolis is stimulated by rational economic considerations, like the search for white-collar jobs, and also socio-psychological factors like better facilities and social life. In other words, the majority of people migrate to Enugu metropolis to improve their economic well-being, based on the perceptions and feelings that those in the cities are living better lives.

Review of related studies

A study conducted by Adekunle [42] on migration, urbanization and environmental problems in Nigeria, whose main objective was to examine the effect of urbanization and the causes of environmental problems in Nigeria, reveals that there is a preponderance of migration of people between the ages of 15 and 40 to the cities. This constant change of locations or destination results to waste production because of the increase in economic activities and domestic wastes. The study concluded that rural-urban migration increases waste production in most cities in Nigeria. It recommended that the government should make appropriate policies to control the rate of rural-urban migration.

In another study by Emodi [43] on environmental degradations, strategies and effective management practices in Enugu, the core objective was to examine the effect of environmental degradation and strategies for effective management practice. The study reveals that migration is one major causes of waste challenge in the Enugu state. Environmental degradation which results in the deterioration of both urban and rural environmental quality is a major problem in Nigeria. He observed that the situation in urban settings is attaining alarming proportion because rapid urban population growth among other factors have compounded urban environmental management. The study concluded that an increase in the number of rural-urban migrants increases waste production which impact the environment and that urbanization results in environmental degradation.

In another study by Momtaz [44] on the impact of rural-urban migration on the physical and social environment with a focus on Dhaka city, in which the objective was to examine the impact of rural-urban migration on the physical and social environment, it was observed that migration is the combined outcome of both global push and pull factors. The study concluded that push factors are operative at the rural

end while pull factors are operative at the urban destinations. Push factors push people toward the cities and pull factors attract them. It recommended that reducing disparities between rural and urban areas would be a good tool to discourage rural-urban migration which impacts negatively on waste management in the cities.

Gap in Literature

This study has examined some of the major theories of migration and how they relate to the concerns around the present investigation. Specifically, two theories relevant to explaining the surge in the migration situation in the Enugu metropolis – the global push and pull theory of migration, and the neoclassical theory of migration were x-rayed. Some related concepts to the study were also examined.

For the gaps in the literature, most of the studies on the influence of rural-urban migration on waste management have a similar view of the subject matter, but none of these studies considered the alignment of attitudes or behaviours of city dwellers and the efforts of waste management agencies as a precursor to curbing the menace of waste in urban areas. Also, extant studies have not been able to capture the complexity of the waste management problem and other peculiarities of a historic, dynamic city with a rich colonial heritage like Enugu Metropolis, in a social

media era. This study is, therefore, an attempt to close these gaps.

METHODOLOGY

The survey research design was adopted for this study. The design is expected to guide the researcher as to the size of the sample to study and the variables involved Etuk [45]. The study adopted a survey design because of its flexible nature. It is one of the most widely used methods of gathering primary data, which involves the use of a questionnaire that can be administered to respondents.

The study was conducted in Enugu State. Enugu is bounded by the states of Kogi and Benue to the north, Ebonyi to the east, Abia to the south, and Anambra to the west. It includes most of the Udi-Nsukka Plateau, which rises to more than 1,000 feet (300 m). Enugu state is covered by open grassland, with occasional woodlands and clusters of oil palm trees. The Igbo (Ibo) ethnic group constitute the majority of the state's population. This study was, however, focused on the Enugu metropolis, popularly called the "Coal City." The study covered the Enugu metropolis which includes the three local government areas namely, Enugu North, Enugu South and Enugu East, which forms the population of the study. The study population is 722,664 National Population Census [46] taken from the population figures of the three local governments areas that make up the Enugu metropolis.

Table-1: Population Distribution Table

	No of	%	No of	%	Total	%
Population	Male		Female			
Option						
Enugu North	100,000	13.9	144,852	20.00	244,852	33.9
Enugu South	78,000	10.8	120,723	16.7	198,723	27.5
Enugu East	109,089	15.1	170,000	23.5	279,089	38.6
Total	287,089	39.7	435,573	60.2	722,664	100

Source: 2006 National Population Census

Taro Yamane's formula was used for sample size determination, with the formula:

$$n = \frac{N}{1+N(e)^2} \cdot 2$$

when n = Sample Size

N = Total Population (722,664)

e = Margin of Error level (0.05)

1 = Constant.

So, computing:

$$n = \frac{722,664}{1+722,664(0.05)^2}$$

$$n = \frac{722,664}{1+722,664(0.0025)}$$

$$n = \frac{722,664}{1+1,806.66}$$

$$n = \frac{722,664}{2,808.32}$$

$$n = 257.32$$

$$n = 257$$

$$1+1806.66$$

$$n = \frac{722,664}{2,808.32}$$

$$1807.66$$

$$n = 399.77$$

$$= 400 \text{ approximately.}$$

A probability sampling technique was used in the study. A simple random sampling technique was applied. According to Odigbo (2018), simple random sampling is a probability sampling technique in which every element in the population has an equal chance of being selected based on chance or luck.

Table-2: Distribution of Sample Size

Area	No of	%	No of	%	Total	%
Option	Male		Female			
Enugu North	55	13.7	78	21.3	133	35
Enugu South	44	11	62	16	106	27
Enugu East	60	15	90	23	150	38
Total	159	39.7	230	60.3	389	100

Source: Field Survey, 2019

A structured questionnaire was used to collect the data needed for the study. The questionnaire was structured in a five-point Likert scale to enable the investigator to measure the degree of the respondent's agreement with the issues. The questions were structured using the Likert scale range of Strongly Agree (SA), Agree (A), Undecided (U), Disagree (D) and Strongly Disagree (SD). The questions asked in the instrument were to indicate a degree of agreement or disagreement with each of the variables as encapsulated in the research hypotheses.

The study applied the face and content validity technique. The instrument was prepared and presented

to experts in research, measurement evaluation and statistics for assessment and correction. Content Validation was done to ensure that the instrument captured what it was supposed to measure and also to ensure that reliable data were collected from the respondents.

The questionnaire was administered by the researcher to the respondents using a few research assistants. Each assistant handled a particular area. Instructions guiding the filling of the instrument were explicitly given. The questionnaire instruments were structured questions. A total of 400 copies of the questionnaire were administered and 389 were returned.

Table-3: Respondents' Sex Distribution

S/N	Sex	Frequency	Percentage (%)
1			
	Male	120	30.8
2			
	Female	269	69.2
Total		389	100

Source: Field Survey, 2019

From Table-3 above, out of the 389 respondents sampled in the field survey, 120 representing 30.8 per cent of the respondents were

males while 269, representing 69.2 per cent were females.

Table-4: Age distribution of respondents

S/N	Age (years)	Frequency	Percentage (%)
1	18-29	42	10.7
2	29-39	198	50.8
3	40-50	96	24.6
4	51-65	53	13.6
Total		389	100

Source: Field Survey, 2019.

Table-4 above shows that 42 (10.7%) of the respondents were in the age brackets of 18-29 while 198 (50.8%) were aged between 29-39 years. Also, 96 (24.6%) aged between 40-50 years, while 53

respondents representing 13.6% were in the age brackets of 51-65 years. Thus, the age brackets of 29-39 (50.8%) formed the major population for the study.

Table-5: Marital Status

S/N	Marital status	Frequency	Percentage (%)
1	Single	82	21
2	Married	307	78.9
Total		389	100

Source: Field Survey, 2019

Table-5 above shows that out of the 389 respondents sampled, 82 (21%) were single while 307 representing 78.9 per cent were married. So, this

indicates that the married respondents were more in number than the singles.

Table-6: Educational qualification of respondents

S/N	Educational qualification	Frequency	Percentage (%)
1	FSLC	43	11
2	WASC	124	31.8
3	OND/NCE	86	22.1
4	HND/B.Sc/BA	128	32.9
5	M.Sc /Ph.D	8	2
Total		389	100

Source: Field Survey, 2019

From-Table 6 above, out of the 389 respondents sampled, 43 (11%) have the First School Leaving Certificate (FSLC) while 124 (31.8%) have the West African School Certificate (WASC). Also from

the table above, 86 (22.1%) were holders of OND/NCE, 128 (32.9%) have a first degree (HND/B.Sc/BA) while 8 (2%) of the respondents were higher degrees (M.Sc/Ph.D) holders.

Table-7: Occupational Distribution of Respondents

S/N	Occupation	Frequency	Percentage (%)
1	Self – Employed	131	33.6
2	Private –Sector Employed	88	22.6
3	Public- Sector Employed	157	40.3
4	Others (student, retired etc)	13	3.3
Total		389	100

Source: Field Survey, 2019

Table-7 above shows that out of the 389 respondents sampled, 131 (33.6%) were self-employed while 88(22.6%) were employed in the private sector. The table also shows that 157 (40.3%) of the

respondents were civil servants (Public-Sector Employed). Only 13 (3.3%) of the respondents were students or individuals retired from service or out of work

Table:-8: Influence of rural-urban migration on waste management in Enugu metropolis.

Options	SA	A	UD	SD	D	TOTAL
M	41	34	25	26	33	159
F	60	45	40	40	45	230
TOTAL	101	79	65	66	78	389

Source: Field Survey, 2019

From Table 8 above, 101 respondents representing (26.0%) Strongly agreed that rural-urban migration impacts waste management in Enugu metropolis, 79 respondents representing 20.3% agreed, 65 were undecided, 66 respondents representing 16.9%

strongly disagreed while 78 respondents representing 20.1% disagreed. Therefore, the majority of the respondents in the Enugu metropolis were of the view that rural-urban migration has an impact on waste management in Enugu metropolis.

Table-9: Influence of irregular collection of refuse on waste management in Enugu.

Options	SA	A	UD	D	SD	TOTAL
M	61	53	14	16	15	159
F	60	90	25	30	25	230
Total	121	143	39	46	40	389

Source: Field Survey, 2019

Table-9 above shows that 121 (31.10%) of the respondents strongly agreed that irregular collection of refuse negatively influenced waste management in the Enugu metropolis. 143 (36.76%) of the respondent

agreed, 39 (10.03%) were undecided, 46 (11.83%) disagreed while 40 (10.28%) of the respondents strongly agreed.

Table-10: Influence of indiscriminate dumping of refuse on waste management in Enugu

	SA	A	UD	SD	D	TOTAL
M	44	35	25	25	30	159
F	64	45	40	40	41	230
Total	108	80	65	65	71	389

Source: Field Survey, 2019

From Table-10 above, 108 (27.76%) respondents strongly agreed that attitudes of city dwellers, especially the indiscriminate dumping of refuse have a negative influence on waste management in Enugu metropolis, 80 (20.57%) agreed, 66 (16.96%) strongly disagreed, 65 (16.70%) were undecided, another 65 (16.70%) strongly disagreed, while 71 (18.28%) disagreed. Thus, the majority agreed that the indiscriminate dumping of refuse has a negative influence on waste management in the Enugu metropolis.

Test of Hypothesis-1

Ho₁: There is no significant impact of rural-urban migration on waste management in the Enugu metropolis.

Hi₁: There is a significant impact of rural-urban migration on waste management in the Enugu metropolis.

Test Statistics = Measure of Central Tendency

Decision Rule

If Mean < 2.5, the Respondents Disagree.

If 3.5 < Mean < 2.5 (i.e. between 3.5 – 2.5), the Respondents are Undecided.

If Mean > 3.5, the Respondents Agree.

Table-11: Data Presentation and Test of Hypothesis 1: Impact of rural-urban migration on waste management in Enugu metropolis

S/N	Questions	SA	A	UD	D	SD	Mean	Decision
1	Rural-urban migration has a negative effect on waste management in the Enugu metropolis	101 (505)	79 (316)	65 (195)	66 (132)	78 (78)	3.15	Undecided
2	Rural-urban migration leads to indiscriminate dumping of refuse	108 (540)	80 (320)	65 (195)	65 (130)	71 (71)	3.23	Undecided
	Grand Mean =						3.25	Uncertain

Source: Field survey 2019.

Interpretation of Results

Results displayed in Table-11 show that with a Mean score of 3.15 which is < 3.50, the respondents are undecided that rural-urban migration has a negative effect on waste management in the Enugu metropolis. With a Mean score of 3.23 which is < 3.50, they also were undecided that rural-urban migration leads to indiscriminate dumping of refuse. All these gave a cumulative Grand Mean of 3.25 < 3.50, which shows that the respondents were uncertain. Thus, indicating uncertainty that “there is a significant impact of rural-

urban migration on waste management in Enugu metropolis.”

Test of Hypothesis-2

Ho₂: There is no significant influence of irregular collection and disposal of refuse on waste management in the Enugu metropolis.

Hi₂: There is a significant influence of irregular collection and disposal of refuse on waste management in the Enugu metropolis.

Test Statistics = Measure of Central Tendency

Table-12: Data Presentation and Test of Hypothesis 2: Influence of irregular collection and disposal of refuse

S/N	Questions	SA	A	UD	D	SD	Mean	Decision
1	Irregular collection of refuse has a negative effect on waste management in the Enugu metropolis	61 (305)	53 (212)	14 (42)	16 (32)	15 (15)	3.81	Agreed
2	Irregular disposal of refuse has a negative effect on waste management in the Enugu metropolis	60 (300)	90 (360)	25 (75)	30 (60)	25 (25)	3.56	
	Grand Mean =						3.69	Agreed

Source: Field survey, 2019

Interpretation of Results

Results displayed in Table-12 show that with a Mean score of 3.81 which is > 3.50 , the male respondents agreed that irregular collection and disposal of refuse negatively influenced waste management in the Enugu metropolis. With a Mean score of 3.56 which is also > 3.50 , the female respondents also agreed that irregular collection and disposal of refuse negatively influenced waste management in the Enugu metropolis. These two results gave a cumulative Grand Mean of $3.69 > 3.50$, thus, a rejection of the null hypothesis and acceptance of the alternative hypothesis which holds

that: “there is a significant influence of irregular collection and disposal of refuse on waste management in Enugu metropolis.”

Test of Hypothesis-3

- H_{03} : There is no significant influence of indiscriminate dumping of refuse on waste management in the Enugu metropolis.
- H_{13} : There is a significant influence of indiscriminate dumping of refuse on waste management in Enugu metropolis.

Table-13: Data Presentation and Test of Hypothesis 3: Influence of indiscriminate dumping of refuse on waste management

S/N	Questions	SA	A	UD	D	SD	Mean	Decision
1	Indiscriminate dumping of refuse negatively influences waste management in the Enugu metropolis	44 (220)	35 (140)	25 (75)	25 (50)	30 (30)	3.24	Undecided
2	Indiscriminate dumping of refuse impacts negatively on waste management in the Enugu metropolis	64 (320)	45 (180)	40 (120)	40 (80)	41 (41)	3.22	Undecided
	Grand Mean =						3.23	Uncertain

Source: Field survey, 2019

Interpretation of Results

Analysis of data displayed in Table-13 reveals that with a Mean score of 3.24 which is < 3.50 , the respondents were undecided that indiscriminate dumping of refuse negatively influences waste management in the Enugu metropolis. With a Mean score of 3.22, they were also undecided that indiscriminate dumping of refuse impacts negatively on waste management in the Enugu metropolis. The two results gave an aggregate Grand Mean of $3.23 < 3.50$, thus, indicating uncertainty that “indiscriminate dumping of refuse negatively influences waste management in Enugu metropolis.”

DISCUSSION OF FINDINGS

Based on the findings of this study, it is certain that waste management has a serious implication for the effective urban administration of any city. It is usually a standard measurement for good administration and effective urban development planning. Rural-urban migration greatly impacts waste management in the Enugu metropolis. The waste management problem in the Enugu metropolis has to do with the negative

sanitation attitude of most of the residents, through improper disposals and indiscriminate dumping of refuse. There is also the problem of irregular collection of refuse on the part of the government’s waste disposal agency. Even though unchecked rural-urban migration could impact negatively waste management in the Enugu metropolis, however, a systematic, planned and methodical approach to the collection and disposal of refuse in the city could mitigate or even forestall the problem.

RECOMMENDATIONS

Based on the findings of this study the following recommendations are put forward for official considerations:

- 1) Government should find out the reason for the increased movement of people from the rural areas to Enugu city for permanent settlement and ensure that it is quickly addressed to reduce its influence on waste management in the Enugu metropolis.
- 2) Urban administrators in Enugu metropolis should ensure regular collection and management of solid wastes in the State capital.

- 3) Mass education campaigns should be used to enlighten the residents in the Enugu metropolis on the dangers and health hazards associated with indiscriminate dumping of solid wastes.
- 4) The Enugu State Government should also consider modern technology-based waste management recycling methods to help address the waste management problems of the coal city.

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