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The Economic Implications of Poor Waste Management Practices on the Consumer Goods Sector in Nigeria

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ABSTRACT
This study examined the economic implications of poor waste management practices on the cosumer goods sector in Nigeria. It was carried out in Jalingo, the capital of Taraba State, which is located in the northeastern part of Nigeria. A descriptive research design was adopted for this study. A random sampling technique was adopted in Taro Yamane's form to determine the sample. Descriptive statistics and a non-parametric test were used to analyze the data. The result showed that shows the responses of respondents to the question of whether inefficient waste management practices can increase the cost of production for consumer goods. 134 of the respondents, representing 39.0 percent, strongly agree that inefficient waste management practices can increase the cost of production for consumer goods. 112 of the respondents, representing 32.0 percent, agree that inefficient waste management practices can increase the cost of production for consumer goods. 67 of the respondents, representing 19.0 percent, disagree that inefficient waste management practices can increase the cost of production for consumer goods. 34 of the respondents, representing 10.0 percent, strongly disagree that inefficient waste management practices can increase the cost of production for consumer goods. Also, the result showed that the p-value of 0.000 is less than the level of significance (0.05),Implementation of effective waste management strategies has a significant effect on the environmental conditions or economic benefits for Nigeria.It was concluded that the implementation of effective waste management strategies improves environmental conditions and economic benefits in Nigeria. It was recommended that there is a need to increase community, NGO, and CBO enrolment in the implementation of the waste management ordinances. Also, an integrated development plan that should guide present and future developments should be established that improves waste management and minimization.

Keywords: waste management, practices, consumer goods, pollution

I. INTRODUCTION

The various strategies for handling and getting rid of waste are referred to as waste management. Wastes can be eliminated, processed, recycled, repurposed, or kept under control. Reducing the quantity of useless items and avoiding any health and environmental risks are the main goals of waste management.For developing nations like Nigeria, waste management is one of the most important environmental concerns. Health risks, pollution of the air and water, and environmental deterioration have all resulted from improper trash disposal. Global concern over the effects of inadequate waste management on the environment and public health is growing. In Nigeria, the waste management sector is essential to both sustainable development and environmental preservation. Nonetheless, the undeveloped state of the waste management industry has resulted in the growth of unofficial waste collectors and disposal sites. This study aims to explore the impact of appropriate waste management on the profitability of particular consumer goods industries in Nigeria.

Poor waste management has led to pollution of the air and water, harm to human health, and environmental deterioration. The emergence of informal garbage collectors—people who gather and dispose of waste in parks, rivers, and other bodies of water—is a result of the absence of an effective waste management system. As a result of this practice, cholera, dysentery, and typhoid fever are quite prevalent throughout the nation (Kofoworola, 2007). The Nigerian Federal Government has taken steps to solve the issue of waste management after realizing how important it is. In order to control and implement environmental

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standards and regulations, including waste management, the National Environmental Standards and Regulations Enforcement Agency (NESREA) was founded in 2007 (NESREA, 2015).

The lack of public education and understanding about waste management procedures is one issue that Nigerian waste management is currently confronting. Due to a lack of awareness among the Nigerian populace regarding the negative effects incorrect garbage disposal has on the environment and human health, illicit dumpsites and inappropriate waste disposal methods continue to proliferate (Oloruntoba and Diabate, 2010). Moreover, the establishment of a sustainable waste management system in Nigeria and the adoption of appropriate waste management methods are hampered by a lack of public awareness and education (Akpan, 2016).

The Nigerian waste management system, however, faces a number of significant challenges, including inadequate infrastructure, improper disposal methods, unauthorized garbage collection methods, a lack of public awareness and education, and a lack of funding and political will. Addressing these problems is necessary to build a sustainable waste management system in Nigeria that can successfully protect the environment and public health. This research focuses on the economic implications of waste management practices on the profitability of the consumer goods sector in Nigeria.

Objectives of the study

The objectives of the study are to:

1. Examine the effect of inefficient waste management practices on the cost of production for consumer goods.
2. Determine the effect of inadequate waste management on the supply chains for consumer goods.

Ho: Implementation of effective waste management strategies has no effect on the environmental conditions or economic benefits for Nigeria.

II. LITERATURE REVIEW

Environmental Impacts of Inadequate Waste Management

Inadequate waste management practices have significant and far-reaching impacts on the environment. These impacts range from local issues such as land and water pollution to global concerns like climate change and biodiversity loss. One of the most immediate effects of poor waste management is land pollution. Improper disposal of waste, especially in open dumps, leads to soil contamination. Hazardous chemicals from waste can leach into the soil, affecting its fertility and leading to soil degradation. This contamination can have severe consequences for agriculture and natural vegetation (Kumar and Samadder, 2017). Heavy metals and other toxic substances from industrial and electronic waste are particularly harmful, as they can persist in the environment for long periods of time (Robinson, 2009).

Inadequate waste management also significantly impacts water bodies. Leachate from waste dumps and landfills can percolate into groundwater, contaminating it with harmful chemicals and pathogens. Surface water bodies are also at risk due to runoff from waste sites, which can carry pollutants into rivers, lakes, and oceans (Kjeldsen et al., 2002). This pollution not only affects water quality but also harms aquatic ecosystems, disrupting the balance of marine and freshwater habitats (Moore, 2008).

The decomposition of organic waste in landfills generates methane, a potent greenhouse gas that contributes significantly to climate change. Open burning of waste, a common practice in areas with inadequate waste management systems, releases toxic pollutants, including dioxins and particulate matter, into the atmosphere (Yadav, 2018). These emissions have adverse effects on air quality and public health, and they contribute to global warming and climate change.

Poor waste management practices can lead to the loss of biodiversity. Waste dumps and polluted environments are inhospitable to many forms of life. The ingestion of plastic waste by marine and terrestrial animals is a growing concern, as it can lead to injury or death. Additionally, habitat destruction due to land pollution and water contamination can lead to a decline in biodiversity (Barnes et al., 2009). Inadequate waste management also results in visual pollution. Accumulations of waste in public areas are unsightly and can degrade the aesthetic value of the environment. This type of pollution can have a negative impact on the quality of life in affected areas and can deter tourism and other economic activities (Slack et al., 2009).

The environmental impacts of inadequate waste management are diverse and significant. They affect not only the immediate vicinity of waste disposal sites but also have broader implications for global environmental health. Addressing these issues requires comprehensive waste management strategies that include proper

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disposal, recycling, and reduction of waste generation.

Public Health Implications of Inadequate Waste Management

Inadequate waste management poses significant public health risks. The improper handling, disposal, and treatment of waste can lead to a range of health issues, affecting communities, particularly those in close proximity to waste disposal sites. One of the primary public health concerns associated with poor waste management is the spread of infectious diseases. Waste, especially biomedical and household waste, can be a breeding ground for bacteria, viruses, and parasites. When waste is not properly disposed of or treated, these pathogens can contaminate water sources, soil, and air, leading to diseases such as cholera, dysentery, and respiratory infections (Knipe et al., 2016). The risk is particularly high in areas with inadequate sanitation facilities and where open dumping of waste is common.

Exposure to hazardous chemicals from waste is another significant health risk. Chemicals such as heavy metals, pesticides, and industrial solvents can leach into water supplies and soil, and they can also be released into the air during the burning of waste. Long-term exposure to these chemicals can lead to a range of health problems, including neurological disorders, kidney damage, and various forms of cancer (He et al., 2019). The burning of waste, particularly in open settings, contributes to air pollution, which can lead to respiratory problems. Smoke and fumes from waste burning contain harmful substances like particulate matter, dioxins, and polycyclic aromatic hydrocarbons, which are detrimental to respiratory health. People living near waste disposal sites are especially vulnerable to conditions such as asthma, bronchitis, and other chronic respiratory diseases (Yadav et al., 2018).

The impact of inadequate waste management on mental health is an emerging area of concern. Living in polluted environments near overflowing waste sites can lead to stress, anxiety, and other mental health issues. The aesthetic degradation and the associated stigma of living in such areas can also affect psychological wellbeing (Mawby, et al., 2017). Poor waste management can lead to an increase in vector-borne diseases. Waste sites, particularly those with organic waste, can attract rodents and insects such as mosquitoes and flies, which are vectors for diseases like malaria, dengue fever, and the Zika virus. The accumulation of stagnant water in waste materials can provide breeding grounds for these vectors, exacerbating the spread of these diseases (Rajagopalan, et al., 2018).

The public health implications of inadequate waste management are extensive and multifaceted, affecting physical health, mental health, and the overall quality of life. Addressing these health risks requires a comprehensive approach to waste management that includes proper waste disposal, treatment, and public awareness about the health risks associated with waste.

Socio-Economic Aspects of Waste Management

Waste management is not only an environmental and public health issue but also has significant socio-economic dimensions. The way waste is managed can have profound impacts on the economy, employment, and social well-being of communities. Effective waste management systems can contribute positively to the economy. Proper waste management practices, such as recycling and composting, can generate economic value from waste materials. For instance, recycling industries can create marketable products from waste, contributing to the circular economy and reducing the reliance on raw materials (Kaza, et al., 2018). On the other hand, inadequate waste management can impose economic burdens, including the costs associated with environmental cleanup, healthcare expenses due to waste-related diseases, and lost tourism revenue in polluted areas (Wilson et al., 2015).

Waste management can be a significant source of employment, particularly in developing countries where much of the waste collection and recycling is done informally. The sector offers a range of job opportunities, from waste collection and transportation to recycling and waste processing. Formalizing these jobs can provide stable employment and improve working conditions for those involved in the waste sector (Medina, 2008). However, it is crucial to ensure that these jobs are safe and that workers are protected from the health risks associated with waste handling. Waste management also has implications for social equity and inclusion. In many cities, marginalized communities are disproportionately affected by inadequate waste management practices. They often live in close proximity to waste dumps or in areas where waste collection services are lacking. Improving waste management can therefore contribute to social equity by reducing the environmental burden on these communities (Gutberlet, 2010). Additionally,

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inclusive waste management strategies that involve community participation can empower local communities and promote social cohesion.

The informal sector plays a crucial role in waste management, especially in developing countries. Informal waste pickers collect, sort, and recycle waste, often without formal recognition or protection. While they provide valuable services, they typically work under poor conditions and face social stigma (Wilson et al., 2006). Integrating these workers into formal waste management systems can improve their livelihoods and enhance the efficiency of waste management. Waste management is closely linked to urban development. As cities grow, the generation of waste increases, necessitating efficient waste management systems to maintain urban cleanliness and livability. Effective waste management is essential for sustainable urban development, as it contributes to cleaner cities, improved public health, and enhanced quality of life for urban residents (Troschinetzand Mihelcic, 2009).

The socio-economic aspects of waste management are integral to understanding the full impact of waste on society. Effective waste management can provide economic benefits, create employment opportunities, promote social equity, and contribute to sustainable urban development. Addressing the challenges in this sector requires a holistic approach that considers both the environmental and socio-economic dimensions of waste management.

Community Engagement and Public Awareness in Waste Management

Community engagement and public awareness are essential components of effective waste management. They play a crucial role in ensuring the success of waste management programs by fostering a sense of responsibility and participation among community members. Community engagement in waste management involves the active participation of local communities in the planning, implementation, and monitoring of waste management practices. This participatory approach is crucial for the success of waste management programs, as it ensures that the solutions are tailored to the specific needs and preferences of the community (Wilson, D. C., et al., 2009). Engaged communities are more likely to support and sustain waste management initiatives, leading to improved environmental outcomes (Bernstein, J., 2004).

Raising public awareness about the importance of proper waste management is key to changing attitudes and behaviors. Educational campaigns can inform the public about the environmental and health impacts of improper waste disposal and the benefits of recycling and waste reduction. These campaigns can be conducted through various media, including social media, local newspapers, radio, and community workshops (Henry et al., 2006). Schools also play a vital role in educating children about sustainable waste practices, which can have a long-term impact on community attitudes towards waste management. NGOs often play a pivotal role in community engagement and public awareness of waste management. They can bridge the gap between government authorities and local communities, facilitate community participation, and provide education and training on waste management practices (Gutberlet, 2010). NGOs can also advocate for the rights and protection of informal waste workers, who are crucial to the waste management system in many developing countries.

Despite its importance, community engagement in waste management faces several challenges. These include apathy or lack of interest from the public, cultural and social barriers, and the absence of incentives for participation. Overcoming these challenges requires a comprehensive approach that includes building trust, providing incentives, and ensuring that community voices are heard and respected in the decision-making process (Paul, J., et al., 2012). Increased public awareness can lead to significant changes in waste management practices at the individual and community levels. When people are informed about the consequences of their actions and the benefits of proper waste management, they are more likely to adopt sustainable practices such as recycling, composting, and reducing waste generation (Wang et al., 2017).

Community engagement and public awareness are critical for the effective management of waste. They not only facilitate the implementation of waste management programs but also ensure their sustainability by fostering a culture of environmental responsibility. Effective communication, education, and participation are key to achieving these goals.

III. METHODOLOGY

The study was carried out in Taraba State, Nigeria. It was formed after the previous Gongola State was divided into it on August 27, 1991. The Taraba River, which flows through the southern portion of the state, inspired the state's name.

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Taraba State's capital and largest town is Jalingo. Mountains, valleys, and plateaus are just a few of the varied topographical elements that define Taraba State. It is renowned for having an abundance of natural resources, such as mineral deposits and good soil. Taraba State's economy is heavily reliant on agriculture, with the bulk of the people working in agriculture. **Rice, yams, millet, and** maize are among the crops that are grown. Another common practice is raising livestock, especially among the Fulani people. Taraba State has a lot of potential for tourism, particularly on the Mambilla Plateau, which is well-known for its beautiful scenery and temperate environment. In addition, traditional festivities and cultural festivals draw travelers. The state is home to academic institutions, like Taraba State University in Jalingo, which advances the area's educational landscape.

The descriptive research design was chosen for this investigation. It facilitates the collection of data from a broad and diverse population sample, offering valuable perspectives into their views, experiences, and perceptions concerning the subject matter under investigation.

IV. RESULTS

Table 1: Inefficient waste management practices can increase the cost of production for consumer goods.

		Frequency	Percent	Cumulative Percent
Valid	Strongly agree	134	39.0	39.0
	Agree	112	32.0	71.0
	Disagree	67	19.0	90.0
	Strongly disagree	34	10.0	100.0
	Total	347	100.0	

Table 1 shows the responses of respondents to the question of whether inefficient waste management practices can increase the cost of production for consumer goods. 134 of the respondents, representing 39.0 percent, strongly agree that inefficient waste management practices can increase the cost of production for consumer goods. 112 of the respondents, representing 32.0 percent, agree that inefficient waste management practices can increase the cost of production for consumer goods. 67 of the respondents, representing 19.0 percent, disagree that inefficient waste management practices can increase the cost of production for consumer goods. 34 of the respondents, representing 10.0 percent, strongly disagree that inefficient waste management practices can increase the cost of production for consumer goods.

Table 2: Improper waste management leads to the wastage of valuable resources.

		Frequency	Percent	Cumulative Percent
Valid	Strongly agree	70	20.0	20.0
	Agree	142	41.0	61.0
	Undecided	20	6.0	67.0
	Disagree	61	18.0	85.0
	Strongly disagree	48	15.0	100.0
	Total	347	100.0	

Table 2 shows the responses of respondents if improper waste management leads to the wastage of valuable resources. 70 respondents, representing 20.0 percent, strongly agreed that improper waste management leads to the waste of valuable resources. 142 respondents, representing 41.0 percent, agreed that improper waste management leads to the waste of valuable resources. 20 respondents, representing 6.0 percent, were undecided. 61 respondents, representing 18.0 percent, disagreed that improper waste management leads to the waste of valuable resources. 48 respondents, representing 15.0 percent, strongly disagreed that improper waste

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management leads to the waste of valuable resources.

Table 3: Inadequate waste management can disrupt supply chains for consumer goods.

		Frequency	Percent	Cumulative Percent
Valid	Strongly agree	60	17.0	17.0
	Agree	45	13.0	30.0
	Undecided	19	6.0	36.0
	Disagree	97	28.0	64.0
	Strongly disagree	126	36.0	100.0
	Total	347	100.0	

Table 3 shows the responses of respondents to the question of whether inadequate waste management can disrupt supply chains for consumer goods. 60 of the respondents, representing 17.0 percent, strongly agree that inadequate waste management can disrupt supply chains for consumer goods. 45 of the respondents, representing 13.0 percent, agree that inadequate waste management can disrupt supply chains for consumer goods. 19 of them, representing 6.0 percent, were undecided. 97 of the respondents, representing 28.0 percent, disagree that inadequate waste management can disrupt supply chains for consumer goods. 126 of the respondents, representing 36.0 percent, strongly disagree that inadequate waste management can disrupt supply chains for consumer goods.

Table 4: Improper waste disposal can lead to environmental pollution and health hazards, resulting in increased healthcare costs for consumers and the consumer goods sector.

		Frequency	Percent	Cumulative Percent
Valid	Strongly agree	134	39.0	39.0
	Agree	112	32.0	71.0
	Disagree	67	19.0	90.0
	Strongly disagree	34	10.0	100.0
	Total	347	100.0	

Table 4 shows the responses of respondents if improper waste disposal can lead to environmental pollution and health hazards, resulting in increased healthcare costs for consumers and the consumer goods sector. 134 of the respondents, representing 39.0 percent, strongly agree that improper waste disposal can lead to environmental pollution and health hazards, resulting in increased healthcare costs for consumers and the consumer goods sector. 112 of the respondents, representing 32.0 percent, agree that improper waste disposal can lead to environmental pollution and health hazards, resulting in increased healthcare costs for consumers and the consumer goods sector. 67 of the respondents, representing 19.0 percent, disagree that improper waste disposal can lead to environmental pollution and health hazards, resulting in increased healthcare costs for consumers and the consumer goods sector. 34 of the respondents, representing 10.0 percent, strongly disagree that improper waste disposal can lead to environmental pollution and health hazards, resulting in increased healthcare costs for consumers and the consumer goods sector.

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Table 4: Community waste management involvement should be encouraged through initiatives like community clean-up drives, waste sorting, and recycling programs.

		Frequency	Percent	Cumulative Percent
Valid	Strongly agree	102	29.0	29.0
	Agree	128	37.0	66.0
	Undecided	18	5.0	71.0
	Disagree	57	16.0	87.0
	Strongly disagree	42	13.0	100.0
	Total	347	100.0	

Source: Field Survey.

Table 4 shows the responses of respondents on whether community waste management involvement should be encouraged through initiatives like community clean-up drives, waste sorting, and recycling programs. 102 of the respondents, representing 29.0 percent, strongly agree that community waste management involvement should be encouraged through initiatives like community clean-up drives, waste sorting, and recycling programs. 128 of the respondents, representing 37.0 percent, agree that community waste management involvement should be encouraged through initiatives like community clean-up drives, waste sorting, and recycling programs. 18 of the respondents, representing 5.0 percent, were undecided. 57 of the respondents, representing 16.0 percent, disagree that community waste management involvement should be encouraged through initiatives like community clean-up drives, waste sorting, and recycling programs. 42 of the respondents, representing 13.0 percent, strongly disagree that community waste management involvement should be encouraged through initiatives like community clean-up drives, waste sorting, and recycling programs.

Table 5: Partnerships with local communities, NGOs, and community-based organizations should be established to implement waste management initiatives.

		Frequency	Percent	Cumulative Percent
Valid	Strongly agree	102	29.0	29.0
	Agree	128	37.0	66.0
	Undecided	18	5.0	71.0
	Disagree	57	16.0	87.0
	Strongly disagree	42	13.0	100.0
	Total	347	100.0	

Table 5 shows the responses of respondents to the question of whether partnerships with local communities, NGOs, and community-based organizations should be established to implement waste management initiatives. 102 of the respondents, representing 29.0 percent, strongly agree that partnerships with local communities, NGOs, and community-based organizations should be established to implement waste management initiatives. 128 of the respondents, representing 37.0 percent, agree that partnerships with local communities, NGOs, and community-based organizations should be established to implement waste management initiatives. 18 of the respondents, representing 5.0 percent, were undecided. 57 of the respondents, representing 16.0 percent, disagree that partnerships with local communities, NGOs, and community-based organizations should be established to implement waste management initiatives. 42 of the respondents, representing 13.0 percent, strongly disagree that partnerships with local communities, NGOs, and community-based organizations should be established to implement waste management initiatives.

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H_0: Implementation of effective waste management strategies has no effect on the environmental conditions or economic benefits for Nigeria.

Level of significance: 0.05
Decision rule: reject the null hypothesis H_0 if the p value is less than the level of significance. Accept the null hypothesis if otherwise.

Table 6: Test Statistics

	Implementation of effective waste management strategies can lead to improved environmental conditions and economic benefits for Nigeria.
Chi-Square	74.520[a]
Df	2
Asymp. Sig.	**.000**

a. 0 cells (.0%) have expected frequencies less than 5. The minimum expected cell frequency is 25.0.

Conclusions based on the decision rule:

Since the p-value of 0.000 is less than the level of significance (0.05), we reject the null hypothesis and conclude that the implementation of effective waste management strategies can lead to improved environmental conditions and economic benefits for Nigeria.

V. CONCLUSION AND RECOMMENDATIONS

It was concluded that the implementation of effective waste management strategies improves environmental conditions and economic benefits in Nigeria. The following recommendations were made:

1. There is a need to increase community, NGO, and CBO enrolment in the implementation of the waste management ordinances.
2. An integrated development plan that should guide present and future developments should be established that improves waste management and minimization.
3. Strengthen the existing initiatives on waste management, for instance, the Volunteer Youth Group. This group can be given the opportunity to collect waste and garbage for the county and be paid for the services.

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