

ASSESSMENT OF URBAN ORGANIC WASTE MANAGEMENT PRACTICES IN NIGERIA: A CASE STUDY OF BODIJA MARKET IN IBADAN, OYO STATE.

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Abstract

Urbanization and population growth in Nigeria have led to significant challenges in organic waste management, particularly in a bustling market like Bodija in Ibadan, Oyo State. The research assessed the current organic waste management practices in Bodija and proposed sustainable solutions to enhance efficiency and environmental stewardship. The research employed both qualitative and quantitative approaches to capture a comprehensive understanding of organic waste management practices. The study used a structured questionnaire to gather quantitative data on organic waste management practices, challenges, perceptions, and opportunities in Bodija Market. In addition, existing literature was reviewed to gain qualitative insights into how waste management has evolved over time. While the quantitative data highlighted current perceptions, the qualitative review helped understand both past and present practices. The findings revealed the prevalence of open dumping, limited infrastructure and low public awareness on waste segregation process and lack of waste disposal infrastructure, which have resulted in environmental pollution and reduced market hygiene. The result also showed the importance of improvement efforts such as regulatory enforcement, public awareness campaigns and technological innovations in addressing waste management issues. However, the research contributes into the field of organic waste management through the adoption of approaches which includes raising public awareness, enforcing proper rules and regulations, and also various innovations to enhance the proper collection and disposal of wastes to tackle organic waste challenges in Bodija Market.

Keywords: Bodija, waste management, environmental pollution, sustainability,

Introduction

Effective waste management is a critical aspect of urban development, ensuring environmental sustainability and public health. Ibadan, as a densely populated city, faces significant challenges in waste management due to rapid urbanization and population growth. The historical perspective reveals the evolution of waste management practices from traditional methods to more structured systems. However, the complexities in waste collection, disposal, and infrastructure within most cities contribute to environmental and health concerns, making effective waste management a pressing issue for the city (Azeez *et al.*, 2023). As Ibadan's population increases, urbanization and waste management challenges intensify, putting environmental sustainability at risk (Olu, 2023). Although effective organic waste management is crucial, there is still limited research on the specific practices, challenges, and opportunities in Nigerian markets. The existence of markets in the country, represents important channels and hubs that are responsible for the contribution of increased financial investment and trade both regionally and nationally. Bodija Market, one of the

largest and busiest markets in Ibadan, serves as an ideal case study for assessing organic waste management due to its central role in commerce and daily life (Oke, 2015). Its bustling nature and diverse range of products result in substantial organic waste generation.

Ibadan as a city, is known for its rapid population growth and increasing urban development, especially around market areas. This has resulted in increased environmental impacts due to its evolving landscape from increased waste generation. Managing the environmental impacts of the rising waste generation, particularly organic waste, is crucial in the context of rapid urban growth. The understanding and improvement of waste management practices, especially in Bodija Market is important as it contributes to the health and overall well-being of humans. The study aims to investigate the existing strategies, challenges and opportunities associated with the management of the organic waste generated within Bodija Market with the ultimate goal of proposing sustainable solutions for improved waste management practices. The objective of this study was to assess current organic waste management practices in Bodija market, Ibadan, Oyo State, Nigeria.

Materials and Methods

Research location:

Bodija Market, located in Ibadan North Local Government Area, was established in 1987 to relieve overcrowding at the Orita-Merin food market and spans approximately 7,207 square meters (Daramola et al., 2017). Its strategic location along the Oyo-Ogbomoso-Ilorin interstate road provides easy access for farmers from Northern Nigeria and surrounding towns. The market comprises organized rows of wooden and concrete stalls for wholesalers and merchants, yet many vendors occupy roadside areas, contributing to congestion. Combined with unpaved, poorly maintained roads, these conditions exacerbate unsanitary environments and pose significant challenges for effective organic waste management. A survey showed that the market had a total of 5,493 comprising 3,139 lockable shops and 2,374 open stalls (Daramola *et al.*, 2017).

According to Oke (2015), Bodija Market operates as a central marketplace within the southwestern Nigerian trade system, drawing patronage from both metropolitan and regional catchment areas. It's a cross between a food market and ghetto animal slaughterhouses. The market, which generates a lot of waste, is the biggest regional food market in South Western Nigeria (Azeez *et al.*, 2023). Some of the potential selection criteria for the market as a case study include –

- **Significance and Representativeness:** Bodija Market exemplifies typical urban organic waste challenges due to its size, high population density, and economic importance. It generates substantial waste, making it a representative site for studying urban waste management (Oke, 2015; Azeez et al., 2023).
- **Waste Generation Patterns:** Bodija market was selected as the study site due to its diverse businesses – ranging from foodstuffs and produce to textiles, electronics, and plastics – which generates organic wastes daily (Daramola et al., 2017).
- **Geographic location and Accessibility:** The market's popularity and accessibility facilitate efficient data collection, including surveys and on-site investigations.

Data Collection Methods:

Data collection methods involve the prospective ways in which data can be gathered for the analysis and this is dependent on the research approach used. For the process of collection, a mixed method was employed to allow both quantitative and qualitative data to be collected efficiently and independently assessed. As a mixed-research approach was implemented, both qualitative and quantitative data were easy to collect to properly understand waste management approaches in the area. The data collection pattern was grouped based on the type of data collected. These are explained below;

1. **Surveys among Market Vendors and Customers:** For quantitative analysis, data was collected through the use of designed and structured questionnaire to gather data on perceptions, practices and challenges related to organic waste management. The rationale for collecting data from the market vendors and customers was because they can be called the 'residents of the market' or the existing population of the market. Their input was very important in assessing organic waste management in the market. The questionnaire was distributed using random sampling among them to derive a comprehensive representation.
2. **Site Visits and Observations:** This was also a form of gathering data through observations to understand the current state of organic waste management practices. It was also important for documenting disposal methods and verification of the information given through the questionnaire survey. This was done through proxy as distance would not allow an actual visitation by the researcher.
3. **Qualitative Assessment of Literature:** Existing studies, reports, and policy documents on Bodija Market and Oyo State were reviewed to examine the development of waste management practices, identify challenges, and highlight potential improvements. The review provided context for the current research and facilitated comparison with contemporary findings.

Data Collection:

For both quantitative and qualitative approaches, data collection involved designing the questionnaire, preparing instruments, conducting fieldwork, and recording observations.

Data were collected using a structured questionnaire designed to capture insights on Bodija Market's organic waste management practices, associated challenges, perceptions, and potential opportunities. A total of 24 questions were designed and divided into 8 sections – demography, current organic waste management practices, opportunities for improvement, existing waste management initiatives, environmental impact assessment, profitability and satisfaction and awareness. The questions were designed to look inwards in the market's framework, test their existing knowledge on waste management practices and understand their perceptions about opportunities on wastes. Structured questionnaires were given to selected participants using online platforms (Google forms) and site surveys depending on the preferences and accessibility of the target population. The rationale for the online survey was to aid in faster accessibility to the questionnaire for those with access to phones

and mails while the questionnaire distribution during site survey was due to those vendors with no access to phones and online platform.

The data was collected through the questionnaire? and reviewed literature and it include the following –

- Quantitative data on organic waste generation, collection methods, segregation practices, disposal techniques, and perceptions using the structured questionnaire.
- Derive data from reviewed literatures to explore in-depth insights, perspectives, and experiences related to organic waste management practices, including information on environmental impacts

Limitation in Data Collection:

The sample chosen may not fully represent the whole population which can lead to biased results. Participants may also give incomplete or inaccurate responses due to factors such as environment, ability to recall information or current state of mind. In addition, some people may be unwilling or unable to take part in surveys due to lack of time or privacy concerns which limits access to information.

Data Analysis:

A proper assessment and analysis of the gathered data includes both qualitative and quantitative methods. With the objectives and the nature of data, both procedures helped in analyzing data collected in the research.

Quantitative Analysis: Statistical analyses were conducted to quantify and interpret survey responses, with frequency distributions applied to examine patterns, trends, and associations in waste management practices. Data was automatically captured using Google forms.

The questionnaire was organized into thematic sections aligned with the study objectives. Items on current waste management practices evaluated prevalent disposal methods in Bodija and their effectiveness. Questions on organic waste management challenges identified key operational and systemic barriers, while items on improvement opportunities assessed potential strategies for enhancing existing waste management systems.

Questions highlighting the existing waste management initiative in the market were assessed along with questions on environmental impact, profitability and awareness. The responses from these questions in Google Form were combined with the one collected from ground survey and analyzed. Visualization techniques were effective to enhance data interpretation and facilitate communication of findings. With the use of graphs, tables and charts, the data was visually represented to identify patterns and trends. The use of quantitative analysis allowed the researcher to see the variations in perception of organic waste management in Bodija – whether it has changed in comparison with other similar studies (Taiwo and Ajayi, 2013; Azeez *et al.*, 2023; Olu, 2023).

Qualitative Analysis: This involves thematic analysis to identify recurrent themes, patterns, and narratives emerging from observations, and document reviews (Abubakar *et al.*, 2022). Qualitative insights gathered during site visits and observations were integrated into the analysis, providing additional context and depth to the quantitative findings. Thematic analysis was applied to the

reviewed literature to derive important contents and themes to uncover underlying meanings, perspectives, and narratives related to organic waste management practices. It was also used as a tool to create an informed analysis, comparing former findings and aligning them to create a perfect insight of the market.

Results and Discussion

A total of 105 respondents participated in the survey both online and field survey. The field survey was implemented to enable a proper interaction with the market vendors who might not have access to the online platform. The result on figure 1 indicated that about 37% rated the organic waste management practices to be poor while about 35% noted fairness in the practice. This result suggested that there is need for improvement in the waste management practice of the market. When asked about the waste management methods observed and in use in the market, a large proportion selected open dumping as a major type that is widely practiced. According to Olusa, Enisan and Adebisi, (2020), waste management practices have been greatly influenced by the increasing population because of limited resources, infrastructure and services. In the case of Bodija Market, it was revealed that the current waste management infrastructure was poor. This implies that there is the issue of poor infrastructure and practices as related to waste management. Table 1 shows that 22 of the respondents indicated that recycling was a major practice. The prevalence of open dumping as a major waste management type highlights a concerning issue regarding proper waste disposal and environmental pollution. This suggested that there is potential for implementing more environmentally-friendly methods and improving overall waste management practices in Bodija Market.

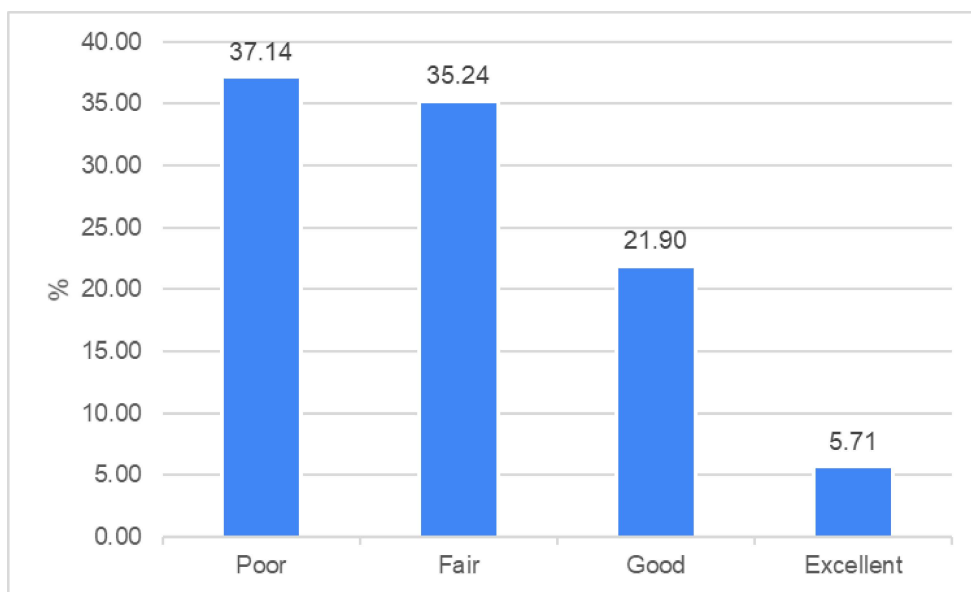


Fig. 1: Respondents on Rating of Current Waste practices

Table 1: Responses on Waste Management Methods

Waste Management Methods	Count	%
Composting	4	3.81
Composting, Landfilling, Incineration	1	0.95
Composting, Open Dumping	2	1.90
Composting, Recycling	3	2.86
Composting, Recycling, Incineration	1	0.95
Composting, Recycling, Landfilling	1	0.95
Composting, Recycling, Landfilling, Open Dumping	1	0.95
Incineration	2	1.90
Landfilling	5	4.76
Landfilling, Open Dumping	5	4.76
Landfilling, Open Dumping, Incineration	3	2.86
Open Dumping	46	43.81
Open Dumping, Incineration	2	1.90
Recycling	22	20.95
Recycling, Landfilling	1	0.95
Recycling, Landfilling, Incineration	1	0.95
Recycling, Landfilling, Open Dumping	1	0.95
Recycling, Open Dumping	3	2.86
Recycling, Open Dumping, Incineration	1	0.95

Source: Author's survey, 2024.

Table 2 shows the prevalent issue in the market, the analysis confirmed that organic waste management challenges in the market include lack of proper waste collection arrangement, inadequate knowledge on waste separation, not enough funding for waste management initiatives, and poor waste disposal facilities – this was confirmed by 11% of the respondents however, 37 respondent showed that the major issue was the lack of proper waste collection arrangement. As reported by Azeez *et al.*, (2023), the exponential growth and urbanization in the area have posed significant challenges in managing the solid waste generated within the market. This is known to impact plans for waste collection arrangement because there is need for more resource allocation that will cover the expansive area. Poor waste disposal facilities as pointed out by 12% of the respondents was a major issue discussed by Chinwe and Ejiofor (2022). As reported by Yakubu, (2017), it was stated that The United Nations acknowledged the problems of poor sanitation and waste management in the Sustainable Development Goals which sets targets to address these

challenges, including the target by 2030 to substantially reduce waste generation through prevention, reduction, reuse and recycling. This would illustrate that Bodija Market does not have a sustainable waste management infrastructure as shown in Figure 2. It also shows the impact the overall cleanliness and environmental hygiene of Bodija Market yielded that there is a significant (34%) and moderately significant impact (33%). This generally showed that these challenges posed a greatly significant issue to overall cleanliness and environmental hygiene. The prevalence of challenges such as open dumping and inadequate waste disposal activities has been known to contribute to the accumulation of waste, resulting in unsanitary conditions and environmental pollution within the market. These conditions not only affect the aesthetic appeal of the market but also pose health risk to market vendors and surrounding areas (Ajayi *et al.*, 2021).

Table 2: Responses on Current Challenges of Waste Management

Issues	Count	%
Inadequate knowledge on waste separation	12	11.43
Inadequate knowledge on waste separation, Not enough funding for waste management initiatives	2	1.90
Inadequate knowledge on waste separation, Not enough funding for waste management initiatives, Poor waste disposal facilities	2	1.90
Inadequate knowledge on waste separation, Poor waste disposal facilities	2	1.90
Lack of proper waste collection arrangement	37	35.24
Lack of proper waste collection arrangement, Inadequate knowledge on waste separation	2	1.90
Lack of proper waste collection arrangement, Inadequate knowledge on waste separation, Not enough funding for waste management initiatives	1	0.95
Lack of proper waste collection arrangement, Inadequate knowledge on waste separation, Not enough funding for waste management initiatives, Poor waste disposal facilities	12	11.43
Lack of proper waste collection arrangement, Inadequate knowledge on waste separation, Poor waste disposal facilities	4	3.81
Lack of proper waste collection arrangement, Not enough funding for waste management initiatives	1	0.95
Lack of proper waste collection arrangement, Not enough funding for waste management initiatives, Poor waste disposal facilities	4	3.81
Lack of proper waste collection arrangement, Poor waste disposal facilities	2	1.90
Not enough funding for waste management initiatives	11	10.48

Not enough funding for waste management initiatives, Poor waste disposal facilities, Lack of proper sensitization on the effects of improper waste disposal	1	0.95
Poor waste disposal facilities	12	11.43

Source: Author's survey, 2024.

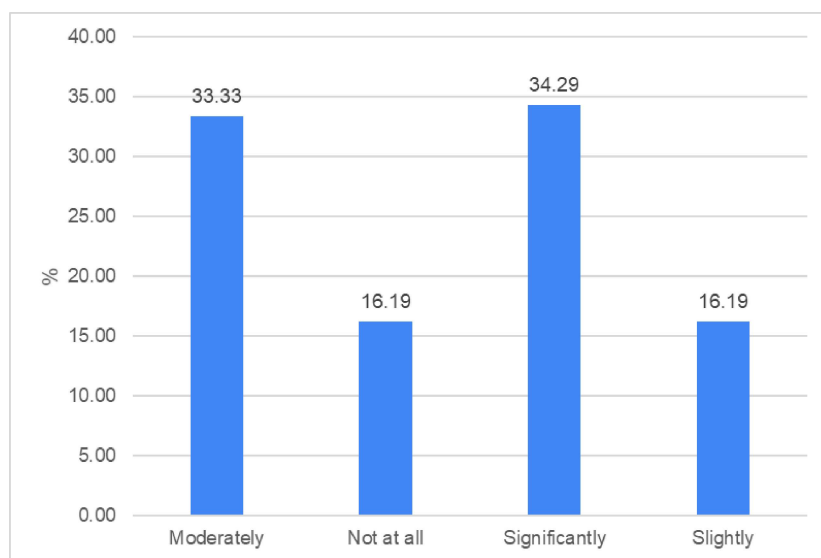


Fig. 2: Impact of Challenges over Cleanliness and Environmental Hygiene

Table 3 presents the respondents proposed solutions that will address these challenges in managing organic waste such as:

- Communities implementing waste segregation programs
- Authorities improving waste collection infrastructure
- Agencies should educate the public on proper waste management
- Policymakers provide financial incentives for composting and recycling.
- Government bodies coordinating comprehensive waste management plans.

However, 11% of the respondents showed that implementing all solutions would be effective while 23% indicated that the most important solution is to raise public knowledge and educate people about waste management techniques. The combination of these solutions may not solve the issue but a focus on the public as they are the major contributors to generating and increasing wastes. According to Abubakar *et al.*, 2022, organic wastes that are collected can be dumped in landfills or dumpsites, most of which are expected to fill up in ten years or less and it is often considered acceptable to dispose of waste in an unsustainable way by burning or dumping it in an open area, usually close to neighborhoods or by dunking it into bodies of water. These practices are often the reason there is a need to raise knowledge about sustainable ways to handle organic waste, which was a major focus of the respondents. One of the respondents also pointed out that laying down

laws that prevent people from improper disposal of waste which has to be followed by severe sanctions should be included. It was discovered that the reason open dumping was a common waste disposal type is due to increased waste generation and accumulation, without finding proper ways for disposal (Ogundele, Rapheal and Abiodun, 2018; Olusa, Enisan and Adebisi, 2020). In the survey, about 48.5% of the respondents opined that waste should be collected daily as a way to ensure that rate of waste accumulation is reduced and open dumping discouraged. However, 31% of the respondents explained that several times in a week is an efficient way to deal with waste accumulation. This would mean that Bodija Market would be ‘efficiently clean’ through waste collection several times (collection on some selected days and times). Only 18% opined that wastes should be collected once in a week as presented on Figure.

Table 3: Some Responses on Solution to Challenges

Row Labels	Count	%
Making improvements to the infrastructure for collecting waste	10	9.52
Making improvements to the infrastructure for collecting waste, Raising public knowledge and educating people about waste management techniques	11	10.48
Offering financial rewards for efforts related to composting and recycling	8	7.62
Putting in place community-based waste segregation initiatives	10	9.52
Putting in place community-based waste segregation initiatives, Making improvements to the infrastructure for collecting waste, Raising public knowledge and educating people about waste management techniques, Coordinating to create comprehensive waste management plans with state government and local authorities	9	8.57
Putting in place community-based waste segregation initiatives, Making improvements to the infrastructure for collecting waste, Raising public knowledge and educating people about waste management techniques, Offering financial rewards for efforts related to composting and recycling, Coordinating to create comprehensive waste management plans with state government and local authorities	11	10.48
Putting in place community-based waste segregation initiatives, Making improvements to the infrastructure for collecting waste, Raising public knowledge and educating people about waste management techniques, Offering financial rewards for efforts related to composting and recycling, Coordinating to create comprehensive waste management plans with state government and local authorities, Laying down of laws that prevent people from improper disposal of waste. Which has to be followed by severe sanctions	1	0.95
Raising public knowledge and educating people about waste management techniques	23	21.90

Source: Author’s survey, 2024.

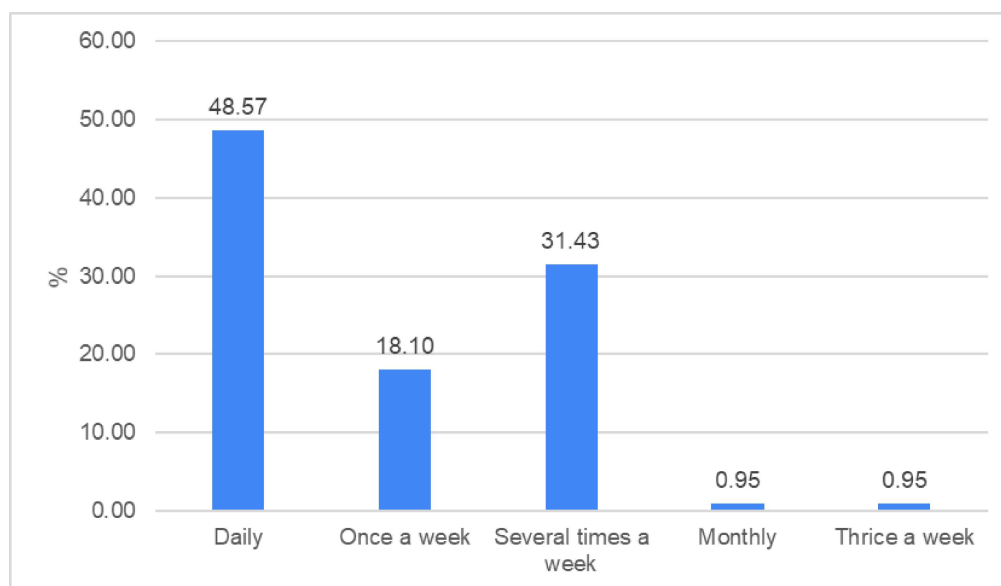


Fig. 3: Response on Frequency of Waste Collection

Furthermore, Table 4 shows the survey explored the challenges that can impede implementing the solutions highlighted. Majorly, lack of government support, financial limitation, technological drawback and opposition from local authorities were the barriers that were analyzed. The lack of government support, illustrated by 13% of the respondents, indicated that most respondents rely greatly on the efforts and capacity of the government to step in and ensure that these solutions are implemented. As stated by Hammed, Sridhar and Wahab (2016), the government is often mandated to provide waste management facilities such as vehicles that need to be grounded at different sites. Implementing solutions such as providing laws that will be properly followed, maintaining facilities and increase efforts for a robust waste management plan is important for the government (Ogundele, Rapheal and Abiodun, 2018; Chinwe and Ejiofor, 2022) and this was recognized by the respondents.

Table 4: Exploring Challenges to implementing the solutions

Challenges to implementing Solutions	Count	%
Financial limitations	12	11.43
Financial limitations, Technological drawback	12	11.43
Lack of government support	14	13.33
Lack of government support, Financial limitations	7	6.67
Lack of government support, Financial limitations, Technological drawback	10	9.52
Lack of government support, Technological drawback	5	4.76

Opposition from local authorities	8	7.62
Opposition from local authorities, Financial limitations	2	1.90
Opposition from local authorities, Financial limitations, Technological drawback	2	1.90
Opposition from local authorities, Lack of government support	4	3.81
Opposition from local authorities, Lack of government support, Financial limitations, Technological drawback	5	4.76
Opposition from local authorities, Lack of government support, Financial limitations, Technological drawback, Illiteracy	1	0.95
Opposition from local authorities, Lack of government support, Technological drawback	6	5.71
Opposition from local authorities, Technological drawback	5	4.76
Technological drawback	12	11.43

Source: Author's survey, 2024.

Table 5 presents measures proposed by respondents to improve waste management in Bodija Market. About 21% of respondents supported all measures, while one suggested stricter regulation against improper waste disposal. These results underscore the need for targeted interventions, consistent with Olusa, Enisan, and Adebisi (2020), who highlight the growing municipal waste challenges in developing countries presented in the survey illustrate that –

- Increasing public awareness campaigns on waste segregation can educate market vendors and visitors about the importance of separating organic waste from recyclables and no recyclables, thereby facilitating an efficient waste management practice
- Investing in better waste collection infrastructure is crucial for ensuring timely and efficient collection of waste, reducing the likelihood of accumulation and environmental pollution within the market
- Implement strict waste disposal regulation can help enforce proper waste disposal practices and discourage illegal dumping thereby promoting environmental sustainability and hygiene in Bodija Market
- Providing incentives for recycling and composting initiatives can encourage market vendors to participate in sustainable waste management practices, leading to increased recycling rates and reduced organic waste generation
- The additional suggestion of implementing strict laws against improper waste disposal aligns with the need for effective enforcement and implementation to comply with waste management regulations and prevent environmental degradation.

Table 5: Measures to Improve Waste Management Practices in Bodija Market

Row Labels	Coun t	%
Implement strict waste disposal regulations	15	14.29
Increase public awareness campaigns on waste segregation	15	14.29
Increase public awareness campaigns on waste segregation, Implement strict waste disposal regulations	9	8.57
Increase public awareness campaigns on waste segregation, Implement strict waste disposal regulations, Provide incentives for recycling and composting initiatives	7	6.67
Increase public awareness campaigns on waste segregation, Invest in better waste collection infrastructure	6	5.71
Increase public awareness campaigns on waste segregation, Invest in better waste collection infrastructure, Implement strict waste disposal regulations	10	9.52
Increase public awareness campaigns on waste segregation, Invest in better waste collection infrastructure, Implement strict waste disposal regulations, Provide incentives for recycling and composting initiatives	21	20.00
Increase public awareness campaigns on waste segregation, Invest in better waste collection infrastructure, Implement strict waste disposal regulations, Provide incentives for recycling and composting initiatives, Strict laws against improper disposal of waste	1	0.95
Increase public awareness campaigns on waste segregation, Invest in better waste collection infrastructure, Provide incentives for recycling and composting initiatives	3	2.86
Invest in better waste collection infrastructure	14	13.33

Source: Author's survey, 2024.

Table 6 shows the survey of how technological advancement could improve waste management in Bodija Market. This stemmed from the fact that the market is one of the largest market structures in Ibadan and technology has helped in advancing waste management (Vergara and Tchobanoglous, 2012; Wilson *et al.*, 2012; Ravi and Vishnudas, 2017). The result indicated that almost 42% of the respondent stressed the need for developing technology for waste management such as automating collection operation, setting up tracking and monitoring system, and developing advanced waste treatment. The benefit of technological advancement in waste have been highlighted in research to include improved efficiency, effectiveness and sustainability of waste management practice which are majorly positive impacts. This result indicates that the respondents understood the potential of technology to help optimize waste management in Bodija Market. Only one of the respondents did not recognize the need for technology in waste management.

Table 6: Role of Technology in Improving Organic Waste Management.

Technological Roles in Improving Waste Management	Count	%
Automating waste collection operations	14	13.33
Automating waste collection operations, Developing advanced waste treatment technologies	7	6.67
Automating waste collection operations, Putting up waste tracking and monitoring systems	7	6.67
Automating waste collection operations, Putting up waste tracking and monitoring systems, Developing advanced waste treatment technologies	21	20.00
Developing advanced waste treatment technologies	23	21.90
None	1	0.95
Putting up waste tracking and monitoring systems	17	16.19
Putting up waste tracking and monitoring systems, Developing advanced waste treatment technologies	14	13.33
Technology has not played any role	1	0.95

Source: Author's survey, 2024.

Awareness of Waste Management Initiatives among the Market Community

Figure 4 presents the response on awareness of waste management initiatives. The survey explored the need for existing initiatives that are often used in promoting waste management strategies to be employed in the market. Firstly, a firsthand understanding of awareness of such an initiative was analyzed and it was shown that most of the respondents are not aware of any known initiative that is centered on waste management in the market. The role of such initiatives as described in studies include public awareness campaigns aimed at educating the people about the importance of proper waste disposal, recycling and composting, community engagement and participation and partnerships between government and non-profit organizations (Yakubu, 2017; Chen *et al.*, 2021). As shown in the result, 81% of the respondents have been part of such an initiative and this is an influencing factor that impact waste management knowledge.

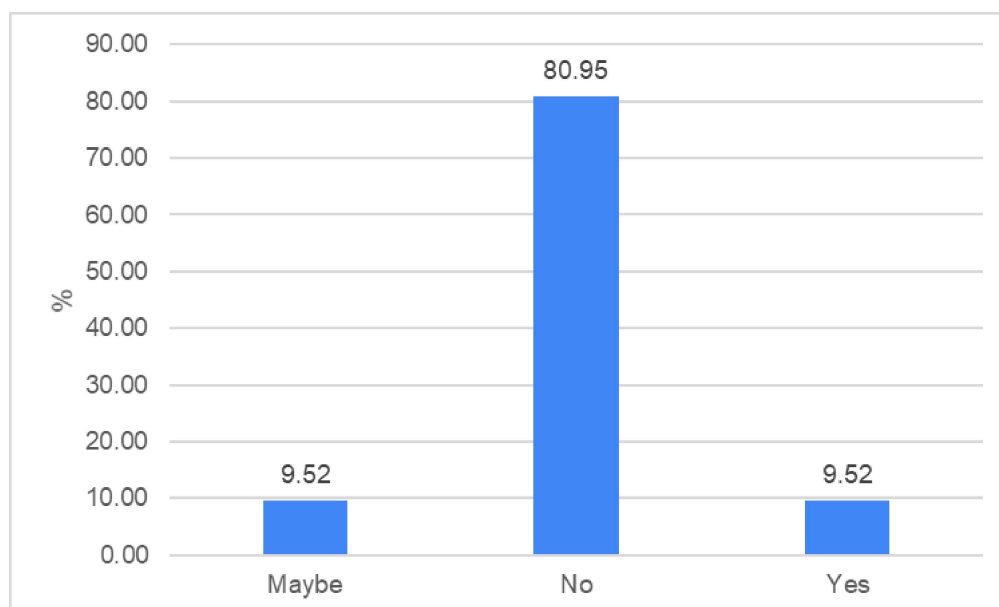


Fig. 4: Responses on Awareness of Waste Management Initiatives

Figure 5 shows that respondents are highly concerned about the environmental impacts of current waste management practices in Bodija Market, including pollution, reduced aesthetic quality, and inadequate regulatory oversight (Taiwo & Ajayi, 2013). These findings highlight the urgent need for a comprehensive waste management strategy.

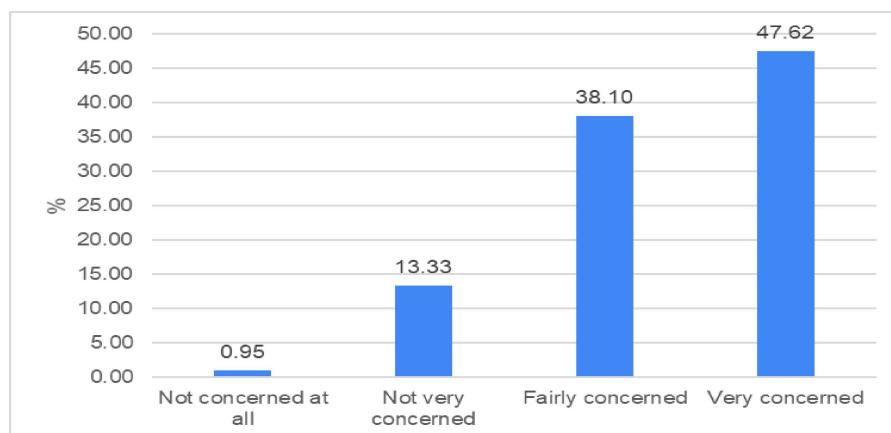


Fig. 5: Concerns about environmental impacts by the respondents

On witnessing any negative environmental impact associated with organic waste management in Bodija Market, a large proportion of the respondents is shown on Fig. 6. 20% showed that they have witnessed some impacts like bad odor or smells (air pollution in context), environmental degradation, dropping off wastes on the roadside, impact on quality of air, bad hygiene and dirty environment due to wastes dumped illegally. This would imply that negative environmental impacts

such as air pollution, environmental degradation, bad hygiene and offensive odor are mostly common in the market and would intervene with proper waste management strategies for reduced impact.

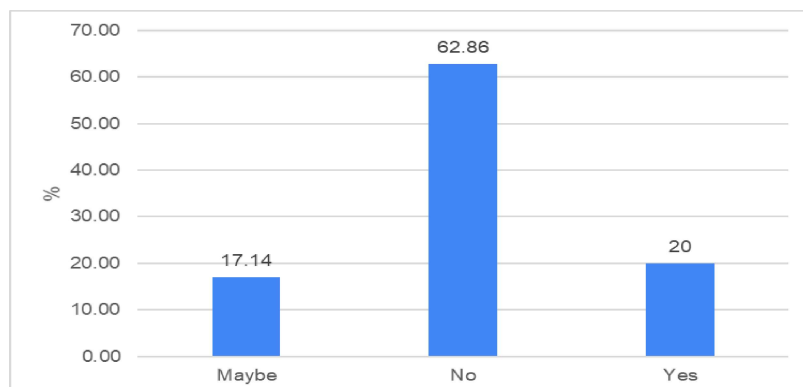


Fig. 6: Perception on negative environmental impacts of waste management.

Figure 7 portrays the response of the respondents when asked about the potential of organic waste to be used in agricultural production. About 74% indicated the usefulness of organic waste for agricultural production. They indicated that organic waste has the potential to increase soil productivity for effective use in agricultural practices as stated in research that through composting and recycling of organic waste, urban agriculture can be promoted (Baud, Post and Furedy, 2004; Yates and Gutberlet, 2011; Bour, 2019; Ayilara *et al.*, 2020). For this research, it would be implied that the respondents understand the need for integration of agricultural production with organic waste reduction and effective use. The implication is also that there is a strong basis for exploring and promoting the use of organic waste in agriculture which will enhance soil fertility and reduce dependence on chemical fertilizers and promote environmentally sustainable agricultural practices.

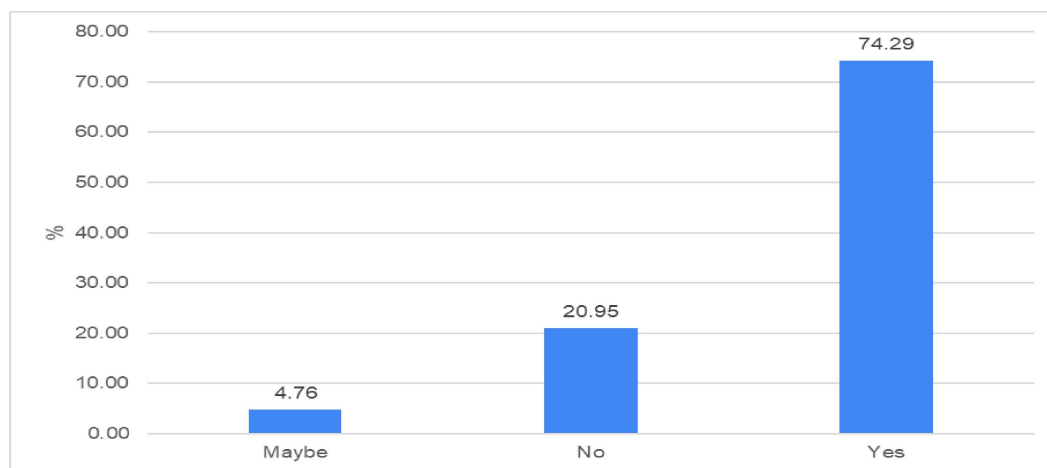


Fig.7: Respondents Perception on the Use of Organic Waste in Agriculture

Figure 8 explored the level of satisfaction of the overall cleanliness and hygiene of the market, willingness to participate in programs and initiatives and perception on how effective management

can contribute to a healthier environment. Firstly, 33% of the respondents expressed dissatisfaction with the overall cleanliness and environmental hygiene of Bodija Market while 14% were very dissatisfied. This result depicts the fact that the environment at the market falls short of meeting the expectation of significant respondents in terms of cleanliness and environmental hygiene. This dissatisfaction likely stems from prevalence of organic waste, inadequate management structure, and poor sanitation practices. Also, there is the accumulation of organic waste, improper waste disposal and lack of effective collection system as additional influencing factors.

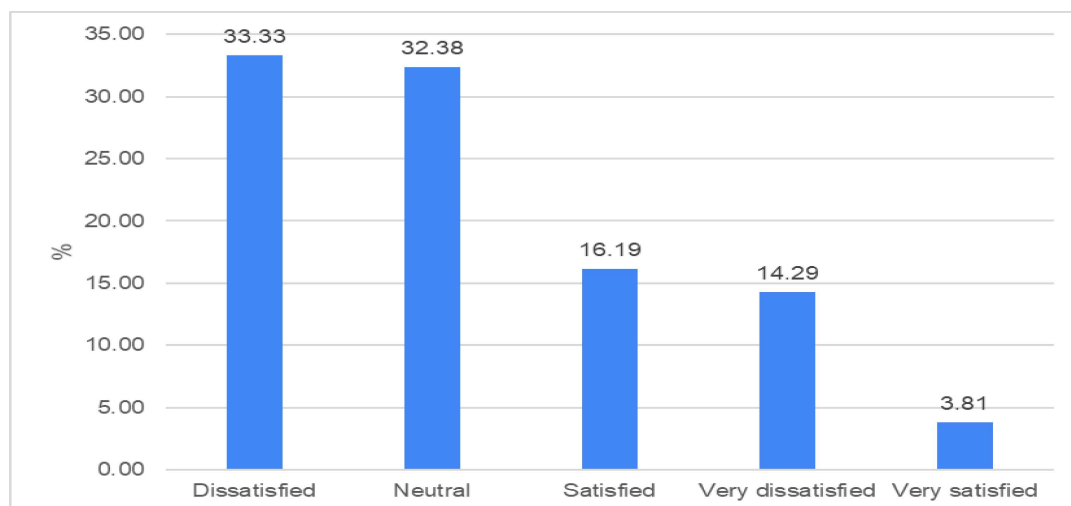


Fig. 8: Satisfaction levels of respondents on the cleanliness of the market

When it comes to willingness to participate in initiatives and programs for waste management, about 59% of the respondents responded that they will be willing, indicating that there is a willingness to ensure that proper waste management for Bodija Market is created. However, a large proportion of the respondents pointed out that they are not aware of any public-private partnership on organic waste management practices as shown on Figure 9. This indicated that although there is a willingness to participate in order to ensure engagements and collaborations to improve waste management practices, there is a large communication gap about such initiatives especially the public-private partnership types. There is also a lack of awareness building efforts on the path of the organization to leverage collaborative efforts. However, a large proportion of the respondents agreed that effective waste management can contribute to a healthier environment in Bodija Market as presented on Figure 10.

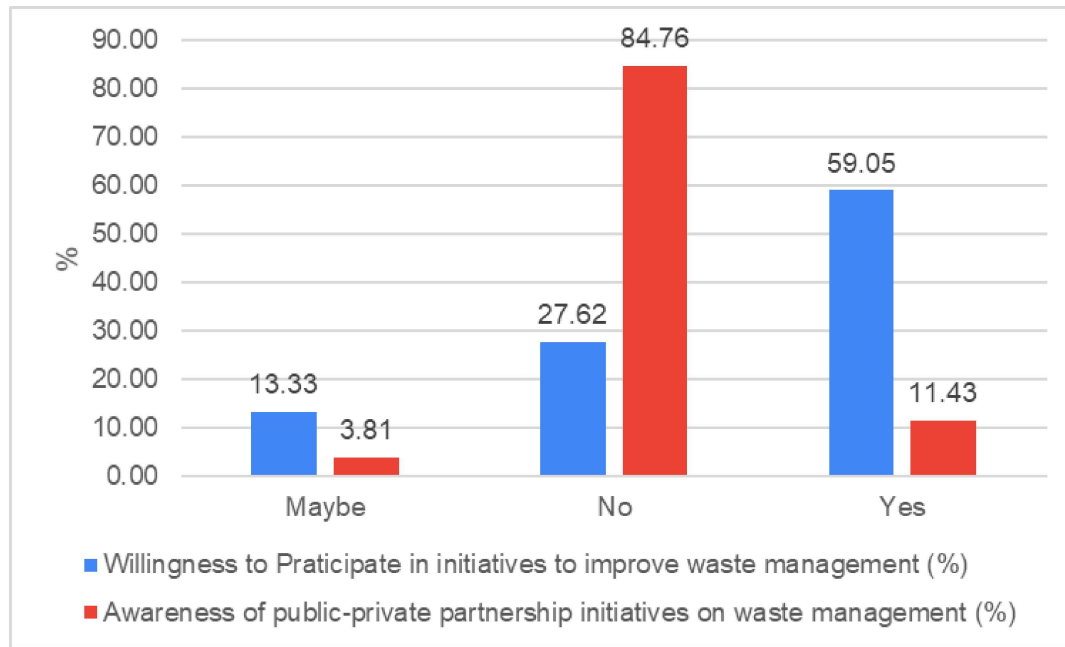


Fig. 9: Willingness, Participation and Awareness Efforts.

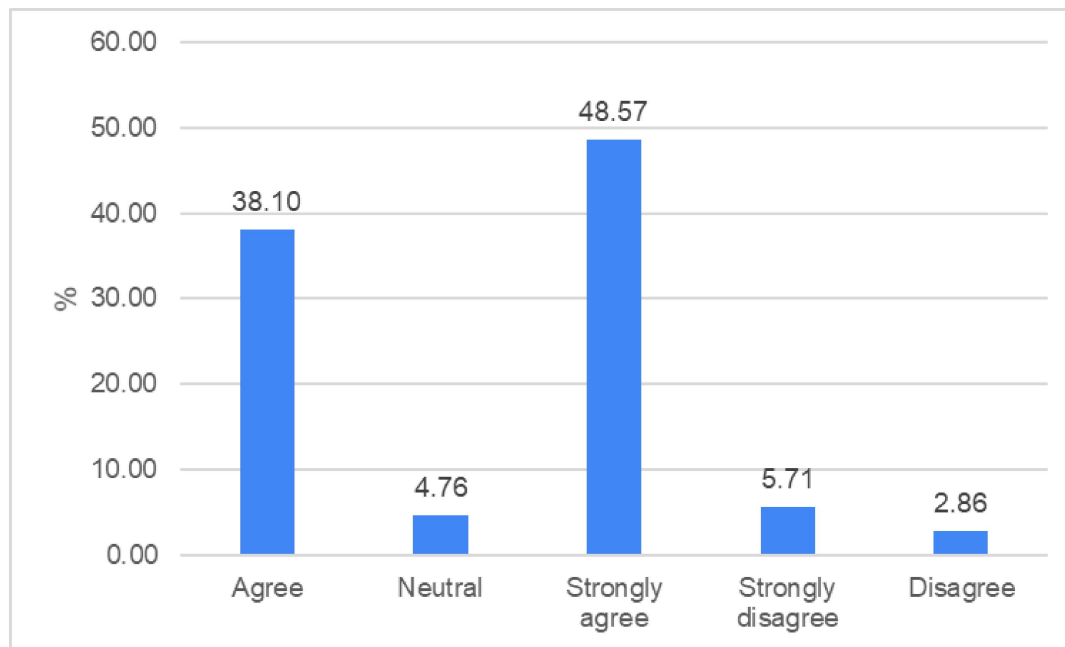


Fig.10: Response on the impacts of effective waste management for Bodija Market

Conclusion and Recommendations

The study provided valuable insights into the current state of organic waste management practices in Bodija Market in Ibadan. The research revealed that Bodija Market faces significant challenges in organic waste management, including the widespread practice of open dumping, inadequate infrastructure, and limited public awareness. These challenges not only contribute to environmental degradation, air and water pollution and reduction in aesthetic quality of the surrounding area, it also poses a risk to public health and safety. Despite these challenges, the study identified several opportunities for improvement and innovation strategies that will further improve waste management practices in the market. Key opportunities identified include public-private partnerships, community engagement, and technological innovations to support sustainable waste management solutions. By collaborating with government and local authorities, the market authorities can create a framework for technological innovations that will help in improving waste collection and monitoring. Also, Bodija Market can overcome its waste management challenges through a look into its infrastructure to determine proper methods for waste collection. Furthermore, the research highlighted the importance of regulatory enforcement and public awareness campaigns in promoting responsible waste management behaviors and fostering a culture of sustainability.

Overall, the findings of the research highlight the urgency and importance of addressing organic waste management challenges in the Bodija market. Through adopting a process that encompasses environmental, economic and social considerations, the market can be envisioned as a model for other markets that contribute to sustainable urban development, overall prosperity and well-being of the city.

It is recommended based on the findings that there is a need to enhance the policy on organic waste management in the area. There is also a need for a proper review on the existing regulations on waste management to adjust and remove sections that are not working.

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