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adejet@unilag.edu.ng

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COMMUNITY DEVELOPMENT ASSOCIATIONS AND LAGOS WASTE MANAGEMENT AUTHORITY'S COLLABORATIVE STRATEGIES FOR EFFECTIVE WASTE MANAGEMENT IN LAGOS STATE, NIGERIA

Olatinwo Islamiyat Abiodun

Dr. O. O. Aitokhuehi

&

Prof. P. I. Ememe

Department of Adult Education
Faculty of Education
University of Lagos-Akoka, Yaba, Nigeria.

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Abstract

The continued presence of inappropriately managed municipal solid waste remains an environmental and social hazard confronting communities and government. Despite collaborative efforts of government agencies and communities, poor disposal and management of Municipal Solid Waste remains a menace to the bedrock of a hygienic community. Hence, this study assessed the collaborative efforts of Community Development Associations (CDAs) and the Lagos State waste Management Authority (LAWMA) in enhancing effective waste management in Lagos State, Nigeria. Descriptive survey research was employed for this study. 3 research questions were raised and 1 hypothesis was tested using mean scores and regression analysis respectively. The research hypothesis was tested using Regression analysis at 0.05 level of significance. Multi stage sampling procedure, simple random sampling and purposive sampling techniques used. The sample size for this study was 361 participants comprising of CDA members and LAWMA officials. A Self-structured questionnaire with reliability coefficient of $r=0.772$ was used. The study revealed among others that the collaboration between LAWMA and the CDAs has yielded a slightly moderate result in areas of awareness creation, joint- decision making and monitoring. However, more effort has to be put in the areas relating to compliance and enforcement through rewards and punishment. The study also found out that challenges such as bad road networks, poor attitude to community hygiene and lack of waste infrastructures still affect the waste management practices.

Key words: Collaboration, Community development, Community development associations, Lagos waste management authority

Introduction

Over the years, industrial development and innovations have defined the compositions of different wastes at different times and places. While some of these wastes have economic value and can be optimally utilized, others are harmful to the environment and health of man. Man has continued to dispose of these wastes uncompromisingly, leading to problems such as erosion, drought, desertification, ozone layer depletion, and pollution of water, land and air. This negligence has damaged most resources that are meant to improve the standard of health and living. Indiscriminate dumping of waste has been a recurring issue not only in developing countries but all over the world.

The United Nations Environmental Programme (UNEP, 2005) generally referred to waste as unwanted materials, objects or substances that one intends to discard by the provisions of the law. Some of the items categorised as waste include household rubbish, waste from manufacturing activities, packaging items, old cars and televisions, plastic bottles and containers, and agricultural and farm rubbish. Waste could also be in form of municipal waste which is made up of household waste, waste from offices institutions and small businesses yards and gardens, commercial and trade waste street sweeping, contents of litter containers and so on, hazardous waste from industries during production and manufacturing of goods using sophisticated machineries, and Radioactive or Nuclear Waste gotten from various stages of nuclear fuel cycle such as mining and milling, fuel enrichment, reactor operation uranium and fuel processing (OECD 2002).

The Global Waste Management Outlook (2024) explained that more waste is produced yearly owing to economic growth and unsustainable production and consumption. Municipal solid waste generation is projected to rise from 2.1 billion tonnes to 3.8 billion tonnes, between 2020 and 2050. However, in 2020, 38% of all municipal waste (810 million tonnes) was dumped or

openly burned in the environment. The implications of this rise include health, environmental, and social problems. This means that if waste is not contained and correctly and hygienically dumped, it poses a threat with a great chance of creating unfavourable conditions and causing public health problems. Apart from these threats, UNEP 2024 reports that the direct cost of managing solid waste globally in 2020, including collection, recycling, energy recovery and disposal, was US\$252 billion, with an indirect cost of US\$135 billion annually.

Lagos State is a metropolitan city in Nigeria with a population of over 17 million people (National Population Census 2006). Therefore, congestion and overpopulation are unavoidable problems. This has led to inadequate basic waste management infrastructures which has made the Megacity a site for poorly managed rubbish and garbage, which is taking a toll on the city and its inhabitants. One of the results of the lack of adequate waste management facilities and poor waste consciousness is people dumping waste in drainages and gutters. These materials build up and block the water ways in residential areas leaving the residents to suffer the consequences that may lead to sickness or even death.

The management of solid waste in Lagos relied heavily on communal practices where communities engaged in periodic clean-up exercises and utilized rudimentary methods for waste handling. Every community has a culture of how the environment must be made clean with communities being monitored. Municipal solid waste and environment were monitored by local councils, the chiefs and the "dreaded Sanitary Inspectors" known in the local parlance as "Wole Wole". In the 1970s, local governments were vested with the constitutional responsibility of waste management. However, with the onset of rapid urbanization and industrialization, these traditional methods have proven inadequate. Community Development Associations (CDAs) then evolved as grassroot organisations playing a pivotal role in solid waste management through facilitating

community participation, organizing clean up campaigns and educating the public on proper waste management practices. CDAs have emerged as essential actors in the solid waste management chain. These associations, formed by local residents, serve as crucial intermediaries between the community and government agencies like the Lagos Waste Management Authority (LAWMA) which is responsible for solid waste collection, transportation, recycling and disposal within the state. Over the years, CDAs and LAWMA have worked together to implement and achieve different policies and initiatives like the National Solid Waste Management Policy (NSWMP, 2018) and the 'Cleaner Lagos Initiative'.

Statement of the Problem

Lagos, one of the most populous cities in Nigeria, is faced with the problem of poor waste management. Municipal Solid waste that is not adequately handled results in problems, especially regarding man's health and the environment. It has become the 'norm' to read in the print media and television a bombardment of overflowing waste in our urban centres. All too often, the bold headlines "refuse heaps take over Lagos roads" dominate the media. Solid wastes are abandoned on the roads for weeks, becoming an eyesore in Lagos State. Government at all levels in partnership with the communities, through the CDAs, have tried different strategies to curb this problem but have been faced with obstacles in actualizing a sustainable waste management. Despite the efforts of the Ministry of Environment, LAWMA and the CDAs to arrest the problem associated with solid waste, inefficient waste management remains a cankerworm in the fabrics of communities in Lagos State. Previous studies have shown that there have been collaborative actions in place to effectively manage waste by various government and community associations, such as the presence of the government 'wole-wole' officials, policies and governmental agencies like LAWMA, NESREA on solid waste, contracting over 200 Private Sector Partnership, PSP

operators in Lagos State, creating awareness in schools and communities through audio-visual media and community development associations creating recycling hubs, introducing the Adopt a bin project for every household, improving the conditions of landfills in the community and the Cleaner Lagos Initiative, yet problems such as poor community knowledge of and attitude towards waste management, lack of modern equipment to separate and move waste appropriately, poor enforcement of laws and deserving punishment for offenders, lack of political will and trust between stakeholders may be some hindrances to achieving effective and efficient solid waste management in the state.

Objectives of the Study

The purpose of this study was to examine the Community Development Associations and the Lagos State Waste Management Authority collaborative strategies for effective waste management. Specifically, the objectives of the study are to:

- i. identify collaborative strategies employed by LAWMA and CDAs for waste management in Lagos State;
- ii. examine the effectiveness of these collaborative strategies employed by LAWMA and CDAs in ensuring effective waste management;
- iii. find out the challenges LAWMA and CDAs face in achieving effective waste management

Research Questions

The following research questions guided this study:

- i. What are the collaborative strategies employed by LAWMA and CDAs for waste management in Lagos State?
- ii. How effective are these collaborative strategies employed by LAWMA AND CDAs in ensuring effective waste management?

- iii. What are the challenges faced by LAWMA and the CDAs in achieving effective waste management?

Research Hypothesis

This research hypothesis was formulated to guide the study.

HO: Collaborative strategies employed by LAWMA and CDAs does not significantly result in effective waste management.

Methodology

The descriptive survey research design was adopted for the study. The justification for using this design to have in-depth information and knowledge about the collaborative efforts between Community Development Associations and the Lagos Waste Management Authority (LAWMA) for effective waste management in Lagos State, Nigeria. The population of the study comprises of CDA active members across the three (3) Senatorial District in Lagos State. They were estimated to be 5,879, according to the data obtained from the Lagos Bureau of Statistics (2024). A sample size of 361 respondents (CDAs active members) was used for the study through sample size determinant table.

Multi-stage sampling procedure was used to select the sample size for this study. The procedure was divided into 3 stages: At the first stage, three (3) Senatorial District in the state were selected along the existing stratification include: Lagos Central, Lagos East and Lagos West. All three were selected using the purposive sample technique. This is because these are presence of the activities of LAWMA and collaborations with CDAs. Stage 2 non-proportional sampling was used to five (5) sample Local Government Areas based on senatorial district earlier selected. The justification for adopting this sampling is because it helps for studying small or sub-groups that might be under represented in a proportional sample.

Furthermore, at the 3 stage, in the (5) sample Local Government Areas selected, there are 118 CDAs: Proportionate sampling techniques was used to gives equal probability to each of the CDAs being selected, to ensure that the sample accurately reflects the distribution of sub-group within the population. Two (2) CDAs were equally selected in each of the Local Government Areas s mentioned above.

Structured questionnaire was used as the research instrument for data collection. The questionnaire was tagged “Community Development Associations Lagos Waste Management Authority Collaboration Waste Management Questionnaire” (CDALAWMAQ). Data collected were collated and analyzed using descriptive and inferential statistics. All the research questions were answered using frequency counts, percentages, mean scores and standard deviation. While, hypotheses formulated were tested using regression analysis at 0.05 level of significance and with the aid of the Statistical Package for the Social Sciences (SPSS, version 25).

Results

This section presents the results and interpretation from the data collected as illustrated below:

Research Question One: *What are the collaborative strategies employed by LAWMA and CDAs for waste management in Lagos State?*

Table 1: Analysis of the collaborative strategies employed by LAWMA and CDAs for waste management in Lagos State.

Items	\bar{X}	SD	Rank
Awareness creation	2.99	1.07	1 st
Joint planning	2.68	0.98	5 th
Cooperation	2.84	1.00	2 nd
Monitoring and compliance	2.65	0.99	7 th
Enforcement	2.66	1.04	6 th
Joint decision making	2.76	0.95	3 rd
Coordination	2.74	1.03	4 th
Mutual trust	2.56	1.04	8 th
Networking	2.52	1.14	10 th
Joint commitment	2.54	1.05	9 th
Feedback quality	0.00	0.00	--
Conflict resolution	0.00	0.00	--
Grand mean	2.69		

Table 1 shows the opinions expressed by the respondents on collaborative strategies employed by LAWMA and CDAs for waste management in Lagos State. Awareness creation ranked highest (1st) with a mean score of 2.99, followed by Cooperation in 2nd (2.84), Joint decision-making in 3rd (2.76). In contrast, Networking ranks lowest (10th) among the rated strategies with a score of 2.52. Most emphasized or top three strategies (awareness creation, cooperation, and joint decision-making) suggest a focus on community engagement and collaborative decision-making processes while the least emphasized strategies mutual trust (8th), joint commitment (9th), and networking (10th) have the lowest scores, indicating potential areas for improvement in the collaboration process. More so, mid-range strategies such as coordination (4th), joint planning (5th), enforcement (6th), and monitoring and compliance (7th) fall in the middle, showing moderate emphasis. The grand mean of 2.69 on a 4-point scale suggests a moderate level of collaboration, with room for improvement. Standard deviations range from 0.95 to 1.14, indicates relatively consistent

responses across participants. Feedback quality and conflict resolution show scores of 0.00, suggesting that these strategies were not employed by LAWMA and CDA. This result implies that there are areas for potential improvement, focusing on building mutual trust, strengthening joint commitment, and improving networking could enhance collaborative efforts.

Research Question Two: *How effective are these collaborative strategies employed by LAWMA and CDAs in ensuring effective waste management?*

Table 2: Analysis of how effective are these collaborative strategies employed by LAWMA and CDAs in ensuring effective waste management

Items	\bar{X}	SD	Remark
The knowledge about waste has been enhanced through awareness creation.	3.24	0.91	Effective
Costs associated with waste management have been minimized due to the cooperation and collaboration of partners.	2.70	0.90	Effective
The quality-of-service provision has improved as a result of joint planning.	2.74	0.99	Effective
The monitoring by LAWMA and CDA has led to consistency in waste management services.	2.86	1.03	Effective
Enforcement strategies have led to compliance with waste disposal.	2.75	1.05	Effective
Joint decision-making has encouraged waste usage, recycling, and disposal by both LAWMA and CDAs.	2.83	0.98	Effective
Grand mean	2.85		

Table 2 shows survey results on the effectiveness of collaborative strategies between LAWMA and CDAs for waste management. From the results, all strategies are rated as "effective" with mean scores ranging from 2.70 to 3.24 on a 4-point scale. The grand mean of 2.85 suggests a moderate effectiveness of the collaborative strategies overall. Item 1 ranks highest with a mean score of 3.24 indicating that educational efforts have been particularly successful. In contrast, item 2 has the lowest score (2.70), though still considered effective. This suggests that while cost reduction has occurred, it may be an area for further improvement. Standard deviations range from 0.90 to 1.05

indicates relatively consistent responses across participants for all items. In summary, the data suggests that the collaborative strategies between LAWMA and CDAs have been generally effective across various aspects of waste management in Lagos State. Awareness creation stands out as the most effective strategy, while cost minimization, though still effective, may be an area for potential improvement. The overall positive assessment indicates that the partnership between LAWMA and CDAs is yielding beneficial results in waste management efforts.

Research Question Three: *What are the challenges LAWMA and CDAs face in achieving their waste management mandate in Lagos State?*

Table 3: Analysis of the challenges LAWMA and CDAs face in achieving their waste management mandate in Lagos State

Items	\bar{X}	SD	Remark
There is poor awareness creation on waste management both by LAWMA and the CDAs	3.04	1.00	Agree
LAWMA bill for waste disposal is too high	2.70	0.94	Agree
There is lack of trust between LAWMA and community members	2.93	0.92	Agree
There is no punishment for offenders so illegal disposal persist	2.72	1.06	Agree
The community members don't pay their bills	2.78	0.99	Agree
Poor road networks have incapacitated waste transportation	2.82	0.93	Agree
There is no punishment for offenders so illegal disposal persist	2.94	1.01	Agree
Presence of Cart pushers poses a problem to effective waste management	2.75	0.89	Agree
Poor maintenance of waste trucks causes breakdowns in communities	3.05	0.89	Agree
There is insufficient monitoring and supervision of community members on their waste practices	2.85	0.95	Agree
Grand mean	2.86		

Table 3 shows survey results on the challenges LAWMA and CDAs face in achieving their waste management mandate in Lagos State. From the results, respondents agreed to all the challenges with mean scores ranging from 2.70 to 3.05 on a 4-point scale. The grand mean of 2.86 suggests a reasonable level of agreement to the challenges confronting LAWMA and CDA in achieving their mandate. Item 6 ranks highest with a mean score of 3.05 indicating poor maintenance of waste trucks causes breakdowns in communities. Item 4 has the lowest mean score (2.72) indicating that lack of punishment for offenders of illegal disposal is a serious challenge. Standard deviations range from 0.89 to 1.06 indicates relatively consistent responses across participants for all items. The overall agreement to the statement indicates that challenges persist that hinders LAWMA and CDAs in achieving their waste management mandate in Lagos State suggesting strategic actions in solving the challenges.

Hypothesis Testing

HO: *Collaborative strategies employed by LAWMA AND CDAs will not significantly result in effective waste management.*

Table 4: Regression Analysis Results of Relative Effect of Collaborative Strategies and Effective Waste Management

Model summary

$R = .656^a$

$R^2 = .430$

R^2 (Adjusted) = .420

Standard Error of Estimate = .466

$F = 40.618, P < 0.05$

Model		Unstandardized Coefficients	Standardized Coefficients				
		Std. Error	B	T	Sig.	Remarks	
1	(Constant)	.958	.203	4.711	.000	Significant	
	Awareness creation	.493	.065	.494	7.558	.000	Significant
	Joint Decision-making	.015	.063	.019	.233	.816	Not significant

Monitoring	.278	.066	.305	4.236	.000	Significant
Enforcement of WDM	-.099	.075	-.083	-1.321	.188	Not Significant

a. Dependent Variable: Effective waste management

b. Predictors: (Constant), awareness creation, monitoring, joint decision-making, enforcement of waste disposal and management

The result from Table 4 revealed that collaborative strategies employed by LAWMA and CDAs (awareness creation, monitoring, joint decision-making, enforcement of waste disposal and management) had a strong positive relationship with effective waste disposal and management ($R=.656$). The R-square adjusted value of .420 indicated that collaborative strategies had a combined effect of 42% to the variability of effective waste disposal and management. This implies that for every small change in collaborative strategies, there is 42% improvement in effective waste disposal and management.

However, in terms of the relative effect of each variable of collaborative strategies on effective waste disposal and management, the result indicates that two which are awareness creation and collaborative monitoring out of the four predictor variables were statistically significant with effective waste disposal and management. Awareness creation made the most significant effect with ($\beta=.494$, $P=.00<.05$), and followed by collaborative monitoring ($\beta=.305$, $P=.00<.05$). However, joint-decision making ($\beta=.019$, $P=.00>.05$) and enforcement ($\beta=-.083$, $P=.00>.05$) were not statistically significant on waste disposal and management. This result implies that there is a need for improvement in the collaborative strategies employed by LAWMA and CDAs to ensure effective waste disposal and management.

Discussion of Findings

Research on the collaborative strategies employed by the Lagos Waste Management Authority (LAWMA) and Community Development Associations (CDAs) has revealed areas where potential improvements could enhance their joint efforts (Smith, 2021; Akande, 2022). Building mutual trust between the two groups emerged as a key priority. Currently, there is some skepticism and wariness that limits their ability to fully collaborate (Adebayo, 2020). Strengthening the joint commitment to shared goals and ensuring clear, open communication could help overcome these trust issues and foster a more productive partnership.

Another area for improvement is networking and information-sharing. The study found that LAWMA and CDAs often work in isolation, missing opportunities to learn from each other's experiences and coordinate their activities (Ogunbiyi, 2021). Establishing regular meetings, workshops, or virtual forums could facilitate the exchange of best practices, challenges, and innovative ideas. This improved networking could lead to more aligned and impactful collaborative initiatives.

The findings of research question two and the corresponding hypothesis one revealed that collaborative strategies employed by CDAs and LAWMA significantly affects waste management in Lagos State. Akinsoranti and Olujide 2007; Busari, Abimbola and Moses (2020) acknowledged the positive result of self- help projects of CDAs in collaboration with stakeholders to provide health facilities, pipe borne water and so on. CDAs have constantly been working together with partners to ensure policies and programmes relating to health are jointly planned and executed in communities. revealed a significant correlation between collaborative strategies and waste disposal effectiveness. This finding is in tandem with the present study as it concurs to the effectiveness of collaborative strategies on self-help projects relating to waste management in the communities,

finding from research question three, disclosed that the challenges persist that hinders LAWMA and CDAs in achieving their waste management mandate in Lagos State suggesting strategic actions in solving the challenges. Research conducted by Adeyemi and Oladipo (2022) reveals that inadequate infrastructure remains a critical bottleneck, with insufficient waste collection vehicles and limited disposal facilities severely constraining LAWMA's operational capacity. The rapid urbanization of Lagos, which has seen population growth exceed 21 million residents, has outpaced the existing waste management infrastructure, creating a complex environmental management scenario that stretches current institutional capabilities to their limits.

Conclusion

The collaboration between Community Development Associations (CDAs) and the Lagos State Waste Management Authority (LAWMA) holds significant potential for addressing the persistent waste management challenges in Lagos State. By leveraging the grassroots reach and community mobilization strength of CDAs alongside LAWMA's technical expertise and resources, this partnership can create a more inclusive, efficient, and sustainable waste management system. Such synergy not only promotes environmental cleanliness and public health but also fosters a sense of ownership and responsibility among residents. Ultimately, this collaborative approach serves as a practical model for tackling urban waste management issues in rapidly growing cities, so as to bridge gap in paving the way for cleaner, healthier, and more sustainable communities in Lagos and beyond.

Recommendations

Based on the findings of the study, the following recommendations were made:

- i. Establish regular dialogue sessions and joint training programs to strengthen relationships and collaborative strategies networking between LAWMA and CDAs. This could be achieved

through Memorandum of Understanding (MoU) outlining clear roles, responsibilities, and shared goals.

- ii. Strengthening awareness creation for Waste Management collaboration between LAWMA and CDAs to ensure compliance of general public on waste management practices. This could be achieved through expanded radio programme to include social media, community forums, and local influencers for wider reach, organize town hall meetings, street campaigns, and educational programs in schools. Conduct periodic surveys to assess changes in waste disposal behavior and adjust strategies accordingly.
- iii. Lagos Waste Management Authority (LAWMA) should organize capacity building training and resources for CDAs to actively participate in waste management initiatives. LAWMA should improve waste collection logistics, including additional waste bins and recycling centers.
- iv. To enhance the effectiveness of collaboration in promoting hygiene, by encourage CDAs to initiate local waste management projects with LAWMA's support.

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