



PUBLIC PRIVATE PARTNERSHIP AND A HEALTHY ENVIRONMENT: SUSTAINABLE DEVELOPMENT GOALS CONCERN

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Abstract

Research background: This study investigates the function of public-private partnerships in fostering a healthy environment in Lagos State, Nigeria. It examines the function of waste management agencies and the waste management structures, including landfills, in alleviating illegal waste disposal and health-related concerns. Therefore, emphasising a strategy for attaining Sustainable Development Goals (SDG), including SDG 3 (Good Health and Well-Being), SDG 6 (Clean Water and Sanitation), and SDG 15 (Life on Land) by policy reorientation.

Purpose: The objective of this study is to emphasise waste management, since it is crucial for attaining specific Sustainable Development Goals (SDGs) that relate to public health.

Research methodology: This study utilises a cross-sectional survey design employing a quantitative methodology. Purposive sampling was employed to determine the study area, and 400 residents residing near the Olusosun landfill in Ojota were selected. Standardised questionnaires were used to gather data and distributed using random sampling. Out of 400 questionnaires distributed, 318 were correctly filled out and returned. The collected data were analysed using SPSS, with results presented and interpreted through descriptive and inferential statistics.

Results: The findings demonstrate a positive and statistically significant effect of landfills on health issues. More so, imply that residents in the Ojota district of Lagos State associate health-related ailments with garbage exposure. Also, a positive and statistically significant effect of waste management agency on illegal dumping was identified. This indicates that residents perceive the deficiencies of the waste management agencies as leading to illegal dumping.

Novelty: This research alters the scarcity of literature on studies that integrate the variables proposed in this study.

Keywords: Public-Private Partnership, Healthy Environment, Waste Management, Sustainable Development Goals, Concern

JEL classification: M10, M20, M29

Introduction

Proper waste handling is essential globally and crucial for attaining Sustainable Development Goals (SDGs). The UN Environment Programme (UNEP) and the World Health Organisation (WHO) identify poor environmental conditions resulting from ineffective waste management as a significant barrier to sustainable development due to its detrimental effects on human health (World Health Organisation, 2024; UN Environment Programme (UNEP), 2025). Thus, enhancing the understanding of waste management is essential for attaining the SDGs, as it directly influences environmental sanitation, public health, and climate change. Ghanbarzadeh et al. (2024) assert that the accumulation of solid waste in nearby residential areas is a persistent and hazardous issue, exacerbated by growing populations, insufficient infrastructure, and ineffective waste management practices.

Sridhar and Parimalarenganayaki (2024) assert that the principal cause of diarrhoea is the contamination of drinking water due to poor waste management practices. Muziri et al. (2024) reference a collaborative study by the World Health Organisation (WHO) and UNICEF, which indicates that over 2.4 billion people suffer health complications due to waste-related issues. Several developed nations, such as Germany, Norway, Japan, and China, currently have distinct strategies for tackling the waste issue. However, a developing nation, like Nigeria, remains at risk of an unhealthy environment emanating from improper waste handling. According to Green Planet Solutions (2025), only 1% of Germany's waste goes to landfills. The rest is recycled or used to generate energy; over 20% of its renewable energy originates from waste. As of 2022, just 3.1% of Norway's refuse went to landfills; the most common ways of waste treatment are incineration and recycling (EFTA Surveillance Authority (ESA), 2025). These milestones are ascribed to sufficient infrastructure, sustainable waste

management methods, robust regulatory frameworks, public enlightenment, and involvement, among other factors (Ogunmakinde, 2019).

According to the World Bank Group (2024), Nigeria produces 32 million metric tonnes of solid waste each year, and only 30 to 35% is collected due to inadequate infrastructure, a frail legislative framework, and insufficient enforcement. Lagos State, the fastest-growing metropolis in Nigeria with a population of over 24 million, produces over 13,000 metric tonnes of waste daily, of which only 33% is collected; the majority of which is relegated to landfills (World Bank Group, 2024). The state is acknowledged for its rising urbanisation, population, refuse production, traffic congestion, overcrowding, and incapacity to manage the enormous waste generated (Wright et al., 2024). Hence, this research was conducted to analyse the impact of PPP on promoting a healthy environment in Lagos State. Two primary objectives were addressed: first, to investigate the effects of landfills on health-related concerns, and second, to assess the impact of waste management agencies on the incidence of illegal dumping.

1. Literature review

1.1. Conceptual clarification

Within the scope of this study, wastes refer to the undesirable outcomes of human actions, influenced by population, culture, behaviour, and level of affluence, impacting the volume and speed at which they are produced (Voukkali et al., 2024). While developed nations often generate more industrial refuse, developing countries mostly have organic waste, predominantly consisting of food waste (Sahoo et al., 2024). However, to effectively manage any kind of waste, it is crucial to have a thorough understanding of both its attributes and its environmental implications. The Lagos Waste Management Authority (LAWMA), established in 1991, is the current body responsible for waste management in Lagos State. It was formerly known as the Lagos State Refuse Disposal Board (LSRDB), and was created in 1977 (Lagos State Government, 2025). Research demonstrates that waste management systems in the state are frequently poor, unable to keep up with the megacity's growing population and trash generation (Etim, Choedron, Ajai, 2024). This necessitated the implementation of a collaborative strategy for waste management. In this approach, LAWMA partners with Private Sector Participants (PSPs) to provide waste management services aimed at mitigating environmental damage and fostering a healthier environment. As of 2023, there were more than 364 PSP operators, with over 3,500 staff in the state (LAWMA, 2024).

Accordingly, Private Sector Participation (PSPs) is recognised as a legal arrangement in which a government organisation cooperates with private agencies to manage a public infrastructure project, which is usually the duty of the government sector (Alabi et al., 2020). The public partners consist of the government, and the private participants can be domestic or foreign entities with specific resources relevant to the venture (Esperilla et al., 2024). An effective PPP structure efficiently distributes tasks and risks between the partners, acknowledging that each partner has distinct advantages in carrying out specific tasks. Therefore, PPP activities in waste management are expected to ensure a healthy environment in Lagos State. This collaboration is anticipated to result in a cleaner and healthier environment by mitigating illegal waste dumping, improving waste collection and disposal, and ensuring the establishment and maintenance of waste management infrastructure such as landfills (Haqq, & Gultom, 2022). Landfills are purpose-built facilities designed to effectively handle large quantities of waste by layering them with soil and other materials to minimise odours and prevent environmental pollution. Several activities and factors influence the kind of emissions generated and released into the atmosphere by landfills, such as the amount and type of waste, the duration of operating the landfill, and the weather (Laner et al., 2012).

Accordingly, poorly managed landfills undergo complex chemical processes that produce air gases and pollutants, and inhaling these substances may lead to respiratory issues and other ailments (Calvo et al., 2005). Additionally, improperly located and poorly operated landfills pose a substantial hazard to human well-being and the natural surroundings because they attract various pests, including rodents, rats, mosquitoes, flies, and other disease-carrying insects. This is mainly of concern in Lagos as landfills are constructed near residential areas. Daily, significant amounts of waste from homes and businesses in Lagos are taken to landfills; this waste consists mainly of damp, biodegradable, and natural materials mixed with recyclable items. As they decompose, they release gases, mainly methane, which trap heat in the atmosphere and impact public health (Ianc, Tomescu, 2024). Specifically, with a population of over 22 million across 20 local government areas, Lagos State has fewer than 10 legally recognised landfills (World Population Review, 2024; Adewole, 2009). The landfills include Olusosun (Ojota), Abule-Egba, Igando, Ewu-Elepe and Epe. The state produces between 13,000–15,000 metric tonnes of waste daily, with the majority collected and directly disposed of in landfills, intensifying pressure on these sites (Punch, 2024). For example, the Olusosun (Ojota, Lagos), the largest landfill in Africa, was originally designed to accommodate 13,860,000 tonnes of solid waste over a 20-year operational span, averaging approximately 1,900 tonnes daily; currently, it receives more than 10,000 metric tonnes of waste each day

(Ayodele, Alao, Ogunjuyigbe, 2018; Omokaro, Michael, Evgenievich, 2024). This overcapacity not only increases the engineering requirements of the landfill but also generates hazardous conditions for workers, the local community, and the surrounding ecosystem.

Additionally, inadequate landfills, among other waste-related issues, are recognised as a leading factor in illegal dumping. Illegal dumping is apparent in numerous locations, including unoccupied land, abandoned structures, streets, highways, canals, and rivers (Ichipi, Senekane, 2023). It means disposing of trash in an authorised area or without an official license. The environmental impacts of illegal dumping are severe, including water, soil, and air pollution (Siddiqua et al., 2022). Njoku et al. (2023) observed that individuals' resort to illegal dumping because they are unwilling to pay for proper disposal or because the waste management services are either inaccessible or associated with challenging bureaucracy. This affects both human, animals and the general environment. According to the US Public Health Service, inadequate waste management is associated with up to twenty-two illnesses affecting people (Vinti et al., 2021). This is because inadequate waste disposal attracts pests, vectors, and other animals that spread diseases, endangering human lives and the ecosystem. Moreover, most individuals engage in waste burning, which generates emissions that pose a considerable threat to public health, including respiratory disorders. Leachate from inappropriate waste collection and disposal is a significant issue, as it contaminates surface and underground water sources. This contamination then spreads throughout the ecosystem, creating ideal conditions for vectors and insects to reproduce, and less ideal conditions for habitats. Consequently, improper waste management lead to many health difficulties, such as waterborne illnesses, neurological disorders, respiratory challenges, cancer, fertility and skin-related illnesses, psychological conditions, and the transmission of diseases.

1.2. Theoretical clarification

Environmentally responsible behaviour (ERB)

The ERB hypothesis was first developed by Hines, Hungerford, and Tomera in 1986. The idea elucidates the motivations behind people's involvement in pro-environmental behaviors or ecologically responsible acts. This theory is based on the discipline of environmental psychology and utilises psychological and socio-cognitive elements to elucidate the mechanisms and motivations behind human decisions that have consequences for the environment; it emphasises that (1) individuals must recognise the ramifications of their activities and recognise the significance of embracing pro-environmental behaviours. (2) it highlights the significance of attitudes and beliefs in influencing people's environmental behaviours. Positive attitudes

towards environmental conservation, coupled with a firm conviction in the effectiveness of one's activities in creating an impact, might affect the probability of participating in ecologically responsible behaviour. (3) Personal values about environmental conservation and sustainability motivate individuals to engage in environmentally responsible actions. When people place a higher importance on values such as benevolence, ecological concern, and duty towards future generations, they are more inclined to engage in behaviours consistent with these values. (4) It also considers perceived behavioural control, which pertains to people's opinions about their capability to carry out pro-environmental behaviours. Factors such as self-efficacy, perceived hurdles, and external restraints might affect people's perception of their ability to engage in environmentally responsible behaviours. (5) Social variables, such as social norms, peer influence, and societal expectations, can impact people's environmental behaviours. When people regard pro-environmental behaviours as socially acceptable and normative, they are more likely to adhere to these expectations and participate in ecologically responsible acts. (6) Establishing precise environmental objectives and possessing inherent incentives to save the environment may stimulate environmentally conscientious conduct. Hence, individuals who establish explicit environmental goals and possess intrinsic motivation to attain sustainable results are more inclined to actively pursue actions for environmental preservation.

The theory of environmentally responsible behaviour is pertinent to this study as it offers valuable insights into the intricate interplay of psychological, social, and contextual factors that influence individuals' decisions to engage in pro-environmental behaviours. Considering these key components, the theory sheds light on behaviours that effectively prevent health issues from inadequate waste management. Understanding these characteristics may assist policymakers, environmental practitioners, and organisations in developing efficient interventions and strategies to encourage sustainable behaviour change and cultivate a culture of environmental stewardship in waste management.

1.3. Empirical clarification

Parvin and Tareq (2021) examined the impact of landfill leachate on the well-being of the general population. The authors claimed that the primary cause of the proliferation of landfills is the rapid development of natural resources, accelerated technological advancement, and the increase of industrial activities. The research revealed that the improper operation of landfills leads to significant contamination of waterways, agricultural products, soil, and air with harmful metals. Additionally, open burning in landfills contributes to air pollution by releasing atmospheric pollutants such as CO₂, impacting human health. The study concluded that the

environmental crisis is worsening due to poorly managed landfills. Njoku et al. (2019) conducted a study on the health problems associated with landfills; the authors asserted that decomposing items in landfills harms the ecosystem. Evidence indicated that around 78% of the individuals living near these landfills experience the adverse effects of air pollution. These effects manifest through increased health concerns, such as inflammation of the eyes and influenza.

Olayiwola et al. (2023) conducted a study on waste management administration and environmental sustainability. The study population consisted of 700 waste administrators in the Ikeja Local Government Area, from which 250 were selected using the Yamen sampling approach. Nonetheless, out of the 250 disseminated surveys, 233 were correctly filled out and returned. Linear regression was employed to ascertain the ANOVA and coefficient values at a significance level of 5% (0.05). The findings indicated a negative association between the activities of waste management agencies and environmental sustainability, as well as between waste disposal, waste separation, and environmental cleanliness. A negative link between waste recycling and pollution control was identified. Consequently, it was recommended that efficient collection methods, comprehensive system coverage, good waste management, institutional collaboration, sufficient financial resources, enforced regulations and standards, and suitable technology be adopted.

Onumiyiyan (2017) conducted a study to assess waste management in Lagos State, with a specific emphasis on the operations of LAWMA. The study found that despite the regular deployment of environmental cleaning initiatives, a significant amount of garbage remains on the streets. The study participants reported that LAWMA carries out waste collection operations only once a month, with occasional delays resulting in waste build-up, adversely affecting public health. Momodu et al. (2011) highlighted that poor waste collection and disposal create substantial environmental hazards. The authors noted that although LAWMA has collaborated with PSP operators to enhance waste management efficiency, there are still issues regarding the sluggishness of collection, disposal, and illegal dumping sites. There is excessive accumulation of waste on roadsides, obstructing drainage systems, polluting the environment, and causing flooding. Participants stated that deficient mobility infrastructures (such as the lack of sufficient waste trucks) hinder the efficient delivery of services by LAWMA. Agunwamba (1998) asserted that insufficient resources, including finances, infrastructure, manpower, and contemporary technology equipment hinder LAWMA's operations. This results in significant illegal dumping, adversely affecting the aesthetics of the environment and the overall public.

The studies emphasised various waste management practices/ variables that significantly affect the environment and public health, including landfill leachate, open burning, waste management operators, environmental sustainability, waste disposal, waste separation, waste recycling, waste collection, environmental cleaning initiatives, and illegal dumping. Across the findings, it can be observed that inadequate waste management procedures result in significant air, water, and land pollution, which in turn affects the general ecosystem.

2. Research methodology

This study employed a quantitative approach by utilising cross-sectional survey design. The study population comprised 400 individuals residing or working near the Olusosun landfill in Ojota, Lagos State. The study region was selected by purposive sampling because Ojota houses a significant waste management facility in the state; the Olusosun landfill is the largest in Africa. Consequently, it was imperative to examine individuals within the vicinity as they are perceived to possess first-hand information essential for the study. Data were gathered by standardised, self-administered questionnaires, divided into sections restricted to information pertinent to the investigation. The sections comprised participants' residential characteristics and views on selected environmental variables. Another section captured statements reflecting the dependent and independent variables (four items for each variable) utilising a five-point Likert scale ranging from "Strongly Disagree" to "Strongly Agree," including "Neutral," "Agree," and "Disagree." The questionnaire was disseminated using simple random sampling to ensure respondents had an equal opportunity to participate, thereby mitigating bias. Convenience sampling was utilised for data collection to prevent coercion and to allow participants to reply voluntarily at their convenience. Out of the anticipated 400 replies, 318 were collected, constituting 80% of the total, which was considered satisfactory for the analysis. All data were analysed via SPSS (Version 26), employing descriptive and inferential statistics. Descriptive statistics employed frequencies and percentages, presented in charts and tables. Inferential analysis employed regression model estimation for the hypothesis results. A preliminary investigation was conducted to identify potential issues with the item construction, resulting in a communicative Cronbach's alpha coefficient of 0.988.

Model specification

Linear regression given as: $Y = f(X)$

where:

$Y = y_1, y_2$ (DV – PPP; Landfills & Waste management agency),

$X = x_1, x_2$ (IV – Healthy Environment; Health related issues & Illegal dumping).

Conceptual framework

Figure 1 is a graphical representation of the model specification, the Independent Variable (IV), Public Private Partnership was denoted as (X); and the main Dependent Variable (DV), Healthy Environment was signified as (Y). The indicators associated with PPP are Landfills (x_1), and Waste management agency (x_2). The indicators associated with Healthy Environment were Health related issues (y_1), and Illegal dumping (y_2).

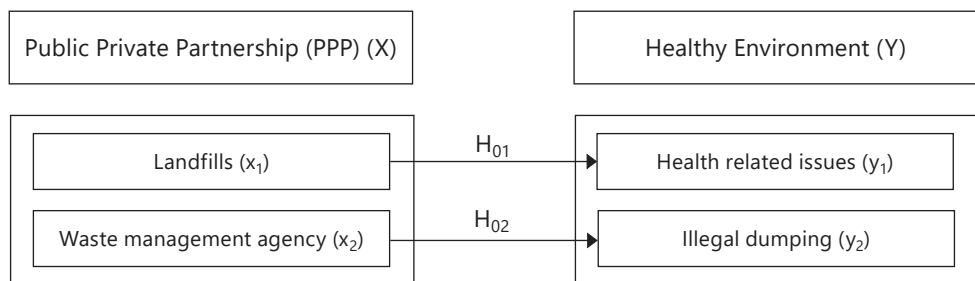


Figure 1. Conceptual framework

Source: authors' elaboration.

Study hypotheses

H₀₁: There is no statistically significant effect of landfills on health-related issues in Lagos State.

$y_1 = f(x_1)$; where y_1 = Health-related issues, x_1 = Landfills

H₀₂: There is no statistically significant effect of Waste Management Agency on illegal dumping in Lagos State.

$y_2 = f(x_2)$; where y_2 = Illegal Dumping; x_2 = Waste Management Agency

3. Research results

Section A

Participants Residential Characteristics

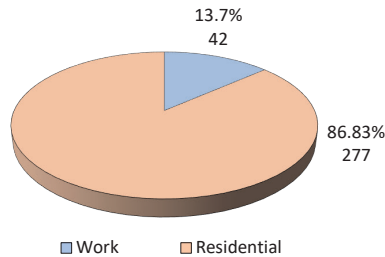


Figure 2. Purpose of occupancy

Source: authors' elaboration.

As illustrated above in Figure 2, the majority of respondents (277; 86.83%) were residents of a selected study area, whereas a smaller proportion (42; 13.17%) worked there. The sample distribution indicates that the findings are largely shaped by residents (86.83%) directly exposed to the landfill in their living environment, while workers in the area are under-represented (13.17%). This imbalance implies the results primarily capture residential impacts, with comparatively limited insights into workplace-related exposures.

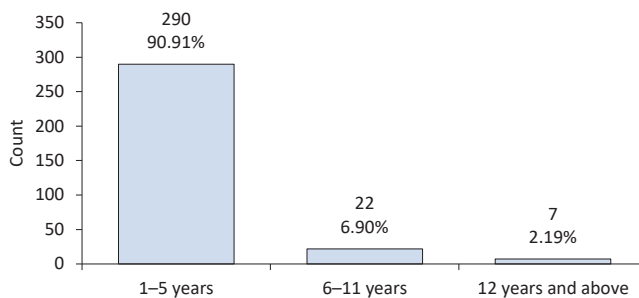


Figure 3. Length of occupancy

Source: authors' elaboration.

As shown in Figure 3, most of the participants (290; 90.91%) had lived or worked in the area for 1-5 years, while 22 participants (6.90%) reported 6-11 years and only 7 participants

(2.19%) had been in the area for 12 years or more. This distribution suggests that most respondents were sufficiently familiar with the conditions surrounding the dumpsite, and their responses reflect authentic lived experiences. However, the limited proportion of long-term residents and workers restricts insights into cumulative or long-term health impacts of landfill exposure.

Participants Views on Environmental Variables

Table 1. Responses to landfills

Items	Options	Frequency	Percentage
Soil pollution from landfills affects agriculture and the ecosystem	Strongly Agree	189	59.4
	Agree	75	23.6
	Neutral	22	6.9
	Disagree	12	3.8
	Strongly Disagree	20	6.3
		318	100.0
Landfills pollute groundwater and surface water quality	Strongly Agree	214	67.3
	Agree	75	23.6
	Neutral	7	2.2
	Disagree	11	3.5
	Strongly Disagree	11	3.5
		318	100.0
Landfills jeopardise the well-being and health status of communities	Strongly Agree	200	62.9
	Agree	76	23.9
	Neutral	0	0.0
	Disagree	33	10.4
	Strongly Disagree	9	2.8
		318	100.0
Emissions of harmful chemicals from landfills cause air pollution	Strongly Agree	199	62.6
	Agree	81	25.5
	Neutral	6	1.9
	Disagree	10	3.1
	Strongly Disagree	22	6.9
		318	100.0

Source: authors' elaboration.

The results in Table 1 reflect participants' perceptions of landfills. Of the 318 responses, 189 (59.4%) strongly agreed, 75 (23.6%) agreed, 22 (6.9%) were neutral, 12 (3.8%) disagreed,

and 20 (6.3%) strongly disagreed that soil pollution from landfills poses a problem that adversely impacts agriculture and ecosystems. Among the polled individuals, 214 (67.3%) strongly agreed, 75 (23.6%) agreed, 7 (2.2%) remained neutral, and 11 (3.5%) strongly disagreed that landfills contribute to water pollution. Two hundred (200) 62.9% of the participants strongly agreed, 23.9% (76) agreed, 10.4% (33) disagreed, and 2.8% (9) strongly disagreed that landfills pose a direct threat to the well-being and health of communities. A total of 199 respondents (62.6%) strongly agreed, 81 (25.5%) agreed, 6 (1.9%) were neutral, 10 (3.1%) disagreed, and 22 (6.9%) strongly disagreed that lands emit dangerous chemicals that contribute to air pollution. This indicates that participants regard landfills in the state as a significant environmental threat, resulting in numerous forms of pollution, directly affecting human health and agriculture.

Table 2. Responses to HRI

Items	Options	Frequency	Percentage
Proximity of landfills to homes created health complications.	Strongly Agree	203	63.8
	Agree	83	26.1
	Neutral	8	2.5
	Disagree	21	6.6
	Strongly Disagree	3	0.9
		318	100.0
landfills and illegal dumping contribute to the spread of diseases.	Strongly Agree	196	61.6
	Agree	81	25.5
	Neutral	7	2.2
	Disagree	26	8.2
	Strongly Disagree	8	2.5
		318	100.0
Landfills increase vector borne diseases in the community.	Strongly Agree	149	46.9
	Agree	109	34.3
	Neutral	16	5.0
	Disagree	30	9.4
	Strongly Disagree	14	4.4
		318	100.0
Exposure to landfill waste causes respiratory problems	Strongly Agree	130	40.9
	Agree	90	28.3
	Neutral	10	3.1
	Disagree	54	17.0
	Strongly Disagree	34	10.7
		318	100.0

Source: authors' elaboration.

Table 2 illustrates the participants' perceptions of health-related concerns. The data indicate that 203 participants (63.8%) strongly agreed, 83 participants (26.1%) agreed, 8 participants (2.5%) were neutral, 26 participants (8.2%) disagreed, and 3 (0.9%) strongly disagreed that residing near landfills had subjected them to health risks. Among the participants, 196 (61.6%) strongly agreed, 81 (25.5%) agreed, 7 (2.2%) were neutral, 26 (8.2%) disagreed, and 8 (2.5%) strongly disagreed that both landfills and illegal dumping facilitate the dissemination of infectious diseases throughout the area. Additionally, 149 (46.9%) participants strongly agreed, 109 (34.3%) agreed, 16 (5%) remained neutral, 30 (9.4%) disagreed, and 14 (4.4%) strongly disagreed that landfills attract disease-carrying insects and rodents, increasing the risk of vector-borne diseases within the community. Furthermore, 130 (40.9%) participants strongly agreed, 90 (28.3%) agreed, 10 (3.1%) remained neutral, 54 (17%) disagreed, and 34 (10.7%) strongly disagreed that persistent exposure to landfills is linked to respiratory issues and other health conditions within the community. These findings indicate that participants perceive residing near landfills as a significant health hazard due to landfills' association with infectious diseases, the attraction of disease-carrying vectors, and respiratory complications.

Table 3 illustrates the participants' perceptions regarding the operations of the waste management agency. A total of 18 participants (5.7%) strongly agreed, 22 participants (6.7%) agreed, 9 participants (2.8%) were neutral, 86 participants (27%) disagreed, and 183 (57.5%) strongly disagreed with the statements on the regular collection of waste by the state's waste management agency. Among the responders, 7 (5.3%) strongly agreed, 16 (5%) agreed, 15 (4.7%) were indifferent, 100 (31.4%) agreed, and 170 (53.5%) strongly agreed with the assertion that sufficient vehicles are available for waste collection in their location. A total of 22 (6.9%) respondents strongly agreed, 32 (10.1%) agreed, 7 (2.2%) were neutral, 96 (30.2%) disagreed, and 161 (50.6%) strongly disagreed with the assertion that the waste management agency is effective in preventing illegal dumping. Additionally, 7(2.2%) participants strongly agreed, 18 (5.7%) agreed, 23 (7.2%) remained neutral, 82 (25.8%) disagreed, and 188 (59.1%) strongly agreed that the waste management organisation supplies sufficient bins for waste disposal. This observation suggests that participants view the waste management agency as ineffective due to irregular waste collection, insufficient waste vehicles and bins, and low enforcement against illegal dumping. The strong disagreement is characterised by residents' dissatisfaction with waste managers' operational capability and enforcement, reflecting a perceived failure to provide reliable and preventive waste management services.

Table 3. Responses to waste management agency

Items	Options	Frequency	Percentage
The waste management agency collect waste regularly	Strongly Agree	18	5.7
	Agree	22	6.7
	Neutral	9	2.8
	Disagree	86	27.0
	Strongly Disagree	183	57.5
		318	100.0
There are enough trucks for waste collection in my region	Strongly Agree	17	5.3
	Agree	16	5.0
	Neutral	15	4.7
	Disagree	100	31.4
	Strongly Disagree	170	53.5
		318	100.0
The waste management agency is effective in preventing illegal dumping	Strongly Agree	22	6.9
	Agree	32	10.1
	Neutral	7	2.2
	Disagree	96	30.2
	Strongly Disagree	161	50.6
		318	100.0
The agency provides adequate bins for waste disposal	Strongly Agree	7	2.2
	Agree	18	5.7
	Neutral	23	7.2
	Disagree	82	25.8
	Strongly Disagree	188	59.1
		318	100.0

Source: authors' elaboration.

Table 4 illustrates participants' perceptions regarding illegal dumping. Of all 318 participants, 108 (34%) strongly agreed, 188 (59.1%) agreed, 1 (0.3%) remained neutral, 3 (0.9%) disagreed, and 18 (5.7%) strongly disagreed that inappropriate waste disposal is a significant issue contributing to environmental deterioration. Among the participants, 10 (3.1%) strongly agreed, 16 (5%) agreed, 4 (1.3%) were neutral, 113 (35.5%) disagreed, and 175 (55%) strongly disagreed that the state WMA is effectively addressing the problem of illegal dumping. Furthermore, 176 (55.3%) participants strongly agreed, 102 (32.1%) agreed, 13 (4.1%) remained neutral, 18 (5.7%) disagreed, and 9 (2.8%) strongly disagreed that illegal disposal exacerbates environmental pollution, adversely affecting the quality of land, water,

and air in their vicinity. Also, 14 (4.4%) participants strongly agreed, 26 (8.2%) agreed, 11 (3.5%) remained neutral, 102 (32.1%) disagreed, and 165 (51.9%) strongly disagreed that the waste management agency implements legal measures against individuals and enterprises involved in illegal dumping. The results suggest that respondents perceive that illegal dumping significantly contributes to environmental deterioration and pollution. This leads to a lack of residents' confidence in the state's waste management agency and legal enforcement.

Table 4. Responses to illegal dumping

Items	Options	Frequency	Percentage
Improper disposal of waste results in ecosystem degradation.	Strongly Agree	108	34.0
	Agree	188	59.1
	Neutral	1	0.3
	Disagree	3	0.9
	Strongly Disagree	18	5.7
		318	100.0
The waste management agency is actively addressing the problem of illegal dumping.	Strongly Agree	10	3.1
	Agree	16	5.0
	Neutral	4	1.3
	Disagree	113	35.5
	Strongly Disagree	175	55.0
		318	100.0
Illegal dumping adversely affects the quality of land, water and air.	Strongly Agree	176	55.3
	Agree	102	32.1
	Neutral	13	4.1
	Disagree	18	5.7
	Strongly Disagree	9	2.8
		318	100.0
The WMA takes legal actions against illegal dumping perpetrators.	Strongly Agree	14	4.4
	Agree	26	8.2
	Neutral	11	3.5
	Disagree	102	32.1
	Strongly Disagree	165	51.9
		318	100.0

Source: authors' elaboration.

Section B: Hypotheses Testing

Hypothesis one

- H_0 : There is no positive and statistically significant effect of landfills on health-related issues in Lagos State.
- H_1 : There is a positive, statistically significant effect of landfills on health-related issues in Lagos State.

Table 5. Regression Model Estimation

Model summary					
Model	R	R square	Adjusted R square	Std error	Durbin-Watson
1	0.307	0.094	0.091	0.75857	1.512
Coefficients					
	Unstandardised coefficients		Standardised coefficients	t-Stat.	Sig.
	B	Std. error	Beta		
1 (Constant)	1.276	0.097		13.139	0.000
Health Related Issues	0.326	0.057	0.307	5.736	0.000

Source: authors' elaboration.

The results reveal a moderate positive and statistically significant influence of landfills on health-related issues, evidenced by an R-value of 0.307, the R^2 of 0.094, and a p-value of 0.000. The R^2 value indicates that landfills contribute to 9.4% of the health issues among the sampled population. The p-value of 0.000 indicates that the observed effect is unlikely to have arisen by chance, given that it is below the established threshold of 0.05. Consequently, the null hypothesis is rejected, and the alternative hypothesis is accepted, indicating that landfills exert a beneficial and statistically significant impact on health issues. This research underscores that landfills contribute to environmental contamination (air, water, and land), and situating landfills near residential areas exacerbates exposure to such pollution. Furthermore, improperly managed landfills are breeding grounds for disease-carrying insects, rodents, and pests.

Hypothesis Two

H_0 : There is no positive and statistically significant effect of Waste Management Agency on illegal dumping in Lagos State.

H_1 : There is a positive and statistically significant effect of Waste Management Agency on illegal dumping in Lagos State.

Table 6. Regression Model Estimation

Model summary					
Model	R	R square	Adjusted R square	Std error	Durbin-Watson
1	0.341	0.117	0.114	5.1343	1.975
Coefficients					
	Unstandardised coefficients		Standardised coefficients	t-Stat.	Sig.
	B	Std. error	Beta		
1 (Constant)	1.153	0.070		16.391	0.000
WMA	0.243	0.038	0.341	6.458	0.000

Source: authors' elaboration.

The data reveal a moderate positive correlation and statistically significant effect of perceived ineffectiveness of waste management agency and increased illegal dumping ($R = 0.341$, $R^2 = 0.117$, $p < 0.05$). The R^2 value of 0.117 signifies that approximately 12% of illegal dumping is ascribed to the inefficacy of the waste management agency in the State. The p-value of 0.000 is below the preset value of 0.005, indicating statistical significance; hence, the null hypothesis is rejected, leading to the acceptance of the alternative hypothesis. This affirms the theory that ineffective waste management agencies lead to illegal dumping. This discovery underscores the importance of a systematic and practical waste management system in mitigating illegal dumping, as these perceptions affect public trust in waste management systems, community collaboration, and policy acceptability.

4. Discussion

The findings of hypothesis one indicated that landfills have a statistically significant implication on health-related concerns among those living or working in the vicinity of Ojota in Lagos State. Consequently, the placement of landfills in proximity to inhabitants and the inadequate handling of these dumps pose a significant environmental and health risk to individuals. This discovery aligns with the findings of Siddiqua et al. (2022), whose research

revealed that landfills contribute to approximately 20% of worldwide CH₄ emissions. The findings are also consistent with those of Laner et al. (2012) and Kalčíková et al. (2015), which respectively found that landfills attract agents that transmit diseases, generate toxic substances and pose danger to human health. The findings clearly demonstrate that exposure to poorly managed landfills increases chronic health issues, which is the central concern of SDG 3, focused on health and well-being. The link between public health and waste management structures is evident; if waste management authorities continue to mismanage landfills, more illnesses can be expected, thereby hindering the realisation of SDG 3. The findings underscore a hindrance to attaining Sustainable Development Goal 6, which aims to guarantee clean water and sanitation. This is due to the fact that unmanaged landfill directly affects groundwater and the atmosphere through the discharge of leachates and methane. Also, the data indicate that landfill management is a significant obstacle to reaching Sustainable Development Goal 15 (life on land). It demonstrates that landfills impact human health by contaminating terrestrial ecosystems and biodiversity, degrading land resources, and disrupting biological balance.

The findings of hypothesis two show that the inefficiency of waste management agencies has a statistically significant effect on illegal dumping in Lagos State. This implies that when there are issues related to delayed or non-collection of waste, illegal dumps prevail. Some waste management officials blame it on the public's attitude, and residents blame it on the authorities especially where they do not collect trash often enough, hence, some individuals resort to dumping waste anywhere they like, which puts people's health and the environment at risk. This result is consistent with Agunwamba (1998), the author noted that illegal dumps affect people's health and the way the environment looks. Bayeh et al. (2024) results was also are in line with this research; the study highlighted that illegal dumping, contamination of surface and groundwater, and the spread of diseases including dysentery, cholera, the common cold, and typhoid are just a few of the environmental concerns that have arisen as a consequence of waste management authorities' failure to carry out their duties that can prevent illegal dumping, adequately. The findings strongly demonstrate that inefficient waste management results in illegal dumping, facilitating the spread of diseases that jeopardise public health. This exemplifies the objective of SDG 3, as human well-being cannot be addressed independently of a clean and safe environment. The findings correlate with SDG 6 (clean water and sanitation), indicating that illegal dumping hinders access to safe water and impedes the attainment of a clean environment, as such practices contaminate surface and groundwater. Also, it aligns with the concerns of SDG 15 (life on land) affirming that illegal waste disposal due to the ineffectiveness of waste management contaminates the soil and destabilises habitats.

Conclusions

The study was carried out to evaluate the impact of PPP in promoting a healthy environment. The data indicate a statistically significant correlation between landfills and health-related issues. It implies that the impact of landfills in Lagos state is far-reaching in terms of health-related issues due to water, air, and soil pollution. Among the health challenges associated with such landfills' mismanagement is the release of methane gas, a potent greenhouse gas that causes air pollution. Oxygen in the atmosphere could be substituted by methane gas, which could cause breathing complications and, in worst-case scenarios, asphyxiation. These landfills can emit volatile organic compounds (VOCs) and other odorous substances that cause several other health-related issues. Leaching from such mismanaged landfills causes the release of hazardous chemicals and toxic metals into the surrounding water sources and soil. This contaminated water then finds its way into drinking water sources, causing serious health complications like gastrointestinal diseases, neurological defects, and even cancer. Moreover, poor landfill management is a source of attraction to pests such as flies, mosquitoes, and rodents, which are the carriers of diseases. Also, infinite offensive smells produced by such improperly maintained landfills are distressing to the individuals residing or working around the site, which may lead to many medical conditions.

The study shows that the prevalence of illegal dumping in Lagos State is linked to the inefficiency of the waste management agency. It implies, most inhabitants resort to illegal waste disposal methods when LAWMA persistently fails to offer timely and reliable waste collection services. This is common in areas where collection services are not regular or frequent enough. Secondly, the lack of enforcement also incentivises people to illegally dispose of waste, knowing there are only limited chances of being fined or suffering consequences. Respondents' feedback shows that LAWMA is inefficient because there is not enough of the necessary infrastructure, like waste trucks, transfer stations, and recycling facilities, to handle the huge quantity of waste generated in the city. Consequently, waste collection and disposal delays present opportunities for individuals who practice illegal dumping to take advantage of these situations.

Specific recommendations arose from the findings of this research. We recommend that Lagos State government and waste management agencies should implement strategies to mitigate the health impacts of landfills. This includes, but is not limited to, meticulous selection of landfill sites, installation of protective barriers and equipment for the collection of hazardous liquids, continuous monitoring and mitigation of pollutants, and execution of waste diversion activities to reduce the volume of waste deposited in landfills. Landfill managers are advised

to thoroughly cover waste daily and implement methods to mitigate odours. Individuals are advised to engage in waste sorting, reuse, and recycling.

To address the issue of illegal waste dumping exacerbated by LAWMA's inefficiencies, it is imperative to augment the agency's operational capacity, reinforce waste management regulations, retrain personnel on appropriate waste collection and disposal methods, invest in infrastructure improvements, and promote transparency and accountability in waste management practices. LAWMA should increase the frequency of waste collection throughout the state to promote environmental cleanliness and sustainability. The agency should collaborate with additional PSP operators and recycling organisations to enhance collection efforts and mitigate illegal waste dumping. The adequate performance of PPP can address the environmental health issues in Lagos State, which aligns with the focus of Sustainable Development Goals (SDGs) advocated by the United Nations. Particularly SDGs 3, 6, and 15.

Here, certain directions for further research are offered. This research is novel in that it analyses the proximity of landfills and the performance of waste-management agencies' contribution to health-related issues and illegal dumping in the Ojota region of Lagos State. Putting both aspects in one quantitative study offers new, locally based evidence in an environment where waste management's combined health and governance aspects have little research. Hence, its primary contribution to the literature is that it clearly shows that the inefficiency of the waste-collection services is a significant stimulus of illegal dumping, contributing to the further growth of environmental and health risks. This discovery takes the discussion out of the common focus on landfill emissions as the only problem, and how the impact of institutional performance directly influences community health outcomes. The study's strengths are that it has a large respondent base with a high 80% response rate, a very high internal reliability score, and uses descriptive and inferential statistics to prove the findings. Such methodological decisions strengthen and make the findings credible. Nevertheless, the cross-sectional nature may not allow for reaching in-depth conclusions regarding causality and periodic changes. The results are more limited by the Ojota axis of Lagos state, which may limit generalisation. Future studies could use longitudinal or mixed-method designs to observe the changes over time and enhance causal inference. Applying similar studies to other areas or cities would permit a comparison and more general policy advice. Moreover, limiting participants' responses to predetermined options may have hampered more profound self-expressions. Hence, qualitative research through interviews could uncover the social and behavioural elements contributing to illegal dumping and societal reactions to waste management practices.

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