
A SOCIO-ECONOMIC ASSESSMENT OF WASTE TO WEALTH POTENTIALS OF SOLID WASTES IN LOKOJA TOWN, KOGI STATE

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ABSTRACT

Solid waste management has become an important socio-economic and environmental issue in Nigeria, particularly in rapidly growing urban centers such as Lokoja, Kogi State. This study examined the socio-economic assessment of waste-to-wealth potentials of solid wastes in Lokoja town. The objectives of the study were to: identify the types of waste-to-wealth activities in Lokoja, examine the magnitude of solid wastes generated in the study area, evaluate the existing challenges of waste-to-wealth activities and suggest possible ways of addressing these challenges in waste-to-wealth conversion processes. A descriptive survey research design was adopted and data were collected from a sample of 385 respondents using a structured questionnaire. Data were analyzed using frequencies, percentages and correlation analysis. Findings revealed that major waste-to-wealth activities in Lokoja include plastic recycling, scrap metal collection, composting of organic waste and reuse of bottles and cardboard. The study established that waste generation is significant as households generate 1–3kg daily(40.5%). Food/organic waste(42.1%) and plastics(33.2%) were the most common types generated. Major challenges hindering effective waste-to-wealth activities included inadequate funding(31.4%). Main suggested solution was provision of loans and equipment(32.4%). Correlation analysis showed a significant positive relationship ($r=0.629$, $p<0.05$) between waste-to-wealth activities and socio-economic livelihood in Lokoja, indicating that effective waste management can enhance income, create jobs and improve living standards. The study concludes that waste-to-wealth has untapped socio-economic potential in Lokoja, but its impact is limited by structural, financial and

social barriers. It is recommended that government implement sustainable policies, while public-private partnerships should establish modern recycling facilities.

KEYWORDS: Waste, Solid Wastes, Socio-Economic, Waste-To-Wealth.

INTRODUCTION

Waste is anything that is no longer needed or useful and is thrown away. It includes materials, substances and objects that people discard because they have no further use for them. Waste can be converted into wealth through various means to ensure sustainability and environmental health. Waste is any substance or material which requires to be disposed of as being broken, worn out, contaminated or otherwise spoilt and as such lost its usefulness (Anifowose et al., 2022). These range from garbage or refuse from homes and other places where human or animal lives exist. On the other hand, solid waste as described by State of Vermont Agency of Natural Resources on Environmental Conservation (2021) is any tangible and non-free flowing unwanted materials or substances that results from human activities. It is referred to as Solid Waste where its sources are generated from commercial, agricultural and industrial operations (Singh et al., 2023). To this end, population growth and economic development are major contributors to solid waste generation in urban areas (The World Bank, 2019). Thus, solid waste is usually generated from human settlements, small industries and commercial activities.

Waste-to-wealth is a concept that focuses on turning waste materials into valuable resources or products, thereby creating economic value while reducing environmental loss (Onungwe, et al, 2024). According to the World Bank (2022), waste-to-wealth involves innovative approaches to waste management and recycling, aiming to minimize waste generation and maximize resource efficiency.

On a global scale, it is estimated that about 1.2 kg/capita/day and almost 1.3 billion tonnes of solid waste are generated every year (World Bank, 2022). In East Asia and the Pacific Region, the annual waste generation rate is approximately 270 million tonnes per year and China accounts for up to 70 % of the total (World Bank, 2022). In Pakistan for example, municipal solid waste collection service was available for 98% of the residents, though no proper treatment or landfill procedure was adopted for the collected wastes in most of the areas (World Bank, 2022). In Malaysia also, one of the rapidly developing nations in Asia, about 80 % of wastes generated are catered for, with recycling being a thriving industry (Ogboo& Hussain, 2023). The slogan used in Malaysia in order to promote good living is

Reduce, Reuse and Recycle and the citizens are living in consciousness of this fact which has contributed to successes recorded so far in the country. In Bangladesh, urbanization and an increase in population, including land use activities, have culminated in the huge generation of solid waste, leaving the authorities in a dilemma on the way forward (Haque et al., 2020).

In Africa, rapid urban growth has significant pressure on cities, towns and surrounding areas (Saghir& Santoro, 2018). This has led to increased urban waste generation leading to health hazards, underground water pollution and affected air and aesthetic qualities (Mazhindu et al., 2022). The inability to properly manage these wastes generated in developing countries such as Nigeria creates great concern (Amasuomo& Baird, 2016). Nigeria, with a population of about 228 million (Worldometer Statistics, 2024) is one of the largest producers of solid waste in Africa (Bakare, 2020). Despite a host of policies and regulations, solid waste management in the country remains a huge challenge to the authorities, stakeholders and the entire public.

It has been recorded that, Nigeria generates over 32 million tons of solid waste yearly, but only a fraction is collected (Bakare, 2020). Most of these wastes are generated by households and in some cases, by local industries, artisans and traders who litter the immediate surroundings. Improper collection and disposal of municipal wastes has led to different levels of environmental challenge such as blockade of sewers, drain networks and the choking of water bodies (Amoah et al., 2022).

Drawing from the directive of the Federal Government to the states for the establishment of waste authorities, all states in Nigeria have established waste management boards/agencies under the Ministry of Environment (National Environmental Standards and Regulations Enforcement Agency, 2007). Some of these Waste Authorities include; Kogi State Sanitation and Waste Management Board, Abuja Environmental Protection Board, Anambra State Waste Management Authority (ASWAMA), Lagos State Waste Management Agency (LAWMA), Oyo State Solid Waste Management, Rivers State Environmental Sanitation Authority, Kano State Refuse Management and Sanitation Board to name a few. The emergence of waste Authorities in most states in Nigeria has brought about several strategies best suitable for solving the problems of waste management in the state. These strategies include; The traditional waste management strategies consisting of waste generation, collection, transportation and disposal. On the other hand, the waste minimisation strategy consists of waste reduction, reuse, recycling, recovering with technological strategy consisting of the application of Geographical Positioning Systems (GPS), Geographical Information System (GIS) and Remote sensing technologies. The above background formed the basis for

this study which intends to assess waste to wealth potentials of solid wastes in Lokoja, Kogi State. The specific objectives were to:

1. identify the types of waste-wealth activities in Lokoja.
2. examine the magnitude of solid wastes generated in the study area.
3. identify the existing challenges of waste-to-wealth activities in Lokoja.
4. suggest possible ways of addressing these challenges in waste-to-wealth conversion processes in Lokoja.

METHODOLOGY

Study Area

Lokoja town is located between latitudes $7^{\circ}45' \text{ N}$ - $7^{\circ}50' \text{ N}$ of the equator and longitudes $6^{\circ}41' \text{ E}$ - $6^{\circ}45' \text{ E}$ of the Greenwich Meridian (figure 1). Lokoja situates about 300m along the Niger Valley and 900m above sea level (Ifatimehin, et al, 2013). Lokoja town which is the headquarters of Kogi State as well as Lokoja Local Government Area is centrally and strategically located. It serves as the gateway to the Northern and Southern parts of Nigeria. Lokoja town is bounded to the North by Kogi Local Government Area Koto Karfe and to the east by Bassa Local Government Area and to the south zone by Ajaokuta and Adavi local government areas and to the western zone by KabbaBunu Local Government Area (Kogi State Economic Empowerment and Development Strategy, 2004).

Lokoja lies at the confluence of western bank of river Niger at an altitude of 125 meters above the mean sea level. The north-western side of the city is situated at the foot of a ridge (Patti ridge) with an altitude of between 400-1500 meters above means sea level with area of about five hundred and seventy seven square kilometres (Musa, et al, 2020).

The soils of Lokoja comprises of both sandy and clay deposits. The soils are characterised by low water holding capacity, this encourages infiltration; however, the clay soil beneath causes water logging during rainy season which encourages runoff generation (Musa, Amhakhian and Abu, 2020).

Lokoja is largely drained by the River Niger, with its major tributaries such as Meme River along with other smaller streams. Lokoja, located in the plains of River Niger at the confluence with River Benue, falls within both the crystalline and sedimentary hydro geological provinces. The study area contains the confluence where River Niger and River Benue meet.

The socio economic activities in Lokoja include civil service, with the civil servants engaging in civil service work, the military, para military, private and public services. Lokoja has three

management and its economic opportunities. In the context of this study, the design allows for the collection of firsthand information from various stakeholders including waste collectors, scavengers, recycling operators, municipal authorities and households. This makes it possible to describe and quantify the types of waste generated, the methods of disposal, the current practices of reuse and recycling and the level of awareness and engagement with waste-to-wealth initiatives among the residents of Lokoja.

In view of the above, structured questionnaires was designed and administered to respondents to express their views and to enable the researcher get the necessary data required for this study.

The data that were used in this study were obtained from both primary and secondary sources. The primary sources include questionnaire and personal field observation. The secondary sources included articles in journal, published text books and other relevant materials.

The population of Lokoja town is estimated to be 195,261 in 2006 and 337,933 as projected in 2025 from the National Population Commission census data using 2.63% annual growth rate. The method of Metha (2004) population projection was adopted.

The sample size for this research work was derived using the Taro Yamane's formula based on the population of 337,933 in Lokoja. Therefore, a total of four hundred (400) questionnaires were administered by the researcher for the purpose of this study. Sampling technique that was used for this study is simple random sampling technique where the respondents were randomly selected by the researcher in Lokoja.

Data that was obtained from various sources were analysed statistically. Descriptive analysis involved detailed description of the data using charts, tables and other suitable cartographic techniques. Statistical analysis on the other hand involved the use of figures and relevant quantitative techniques.

RESULTS AND DISCUSSION

Table 1: Respondents' Distribution on Types of Waste-to-Wealth Activities in Lokoja.

Question/Variable	Response Options	Frequency(N = 385)	Percentage (%)
1. Most common waste-to-wealth activity	Recycling plastics	140	36.4
	Composting organic waste	60	15.6
	Scrap metal collection	120	31.1
	Paper/cardboard recycling	65	16.9

2. Businesses engaged in recycling	Yes, many	100	26.0
	Yes, but very few	150	39.0
	No, none	80	20.8
	Not sure	55	14.2
3. Waste most commonly converted to wealth	Plastic waste	160	41.6
	Food/organic waste	70	18.1
	Metal scraps	110	28.6
	Glass bottles	45	11.7
4. Waste-to-wealth activity providing highest income	Plastic recycling	120	31.1
	Scrap metal sales	160	41.6
	Composting/organic manure	55	14.3
	Paper recycling	50	13.0
5. Main actors in waste-to-wealth activities	Private individuals	80	20.8
	Waste scavengers	140	36.3
	Organized firms	100	26.0
	Government agencies	65	16.9
6. Frequency of seeing waste-to-wealth activities	Daily	110	28.6
	Weekly	95	24.7
	Occasionally	120	31.2
	Rarely	60	15.5
7. Group benefiting most from waste-to-wealth	Youth	130	33.8
	Women	70	18.2
	Low-income earners	140	36.3
	Everyone equally	45	11.7
8. Most demanded product from waste-to-wealth	Plastic products	140	36.3
	Organic manure	60	15.6
	Scrap metals	130	33.8
	Paper/cardboard	55	14.3
9. Ever sold waste for money	Yes, frequently	95	24.7
	Yes, sometimes	120	31.2
	No, never	140	36.3
	Don't remember	30	7.8
10. Sector driving waste-to-wealth activities	Informal sector	150	39.0
	Government sector	60	15.5
	Private companies	120	31.2
	NGOs	55	14.3

Source: Field Work, 2025

The results in Table 1 present ideas into the types of waste-to-wealth activities in Lokoja. On the first question, recycling plastics (36.4%) and scrap metal collection (31.1%) emerged as the most common activities, while composting organic waste (15.6%) and paper/cardboard recycling (16.9%) were less dominant. This shows that waste-to-wealth practices in Lokoja are more skewed towards recyclable items with immediate market value such as plastics and metals. On the existence of recycling businesses, the majority of respondents (39.0%)

indicated that only very few recycling businesses exist in Lokoja, while 26.0% believed there were many, 20.8% said none existed and 14.3% were not sure. This indicates a weak institutional presence in waste recycling, dominated largely by informal actors rather than structured enterprises. When asked about the type of waste most commonly converted to wealth, plastics (41.6%) topped the list, followed by metal scraps (28.6%). Organic waste (18.1%) and glass bottles (11.7%) were far less utilized. This finding aligns with the first question and further highlights the low emphasis placed on organic waste utilization in Lokoja despite its high availability.

In terms of income potential, scrap metal sales (41.6%) were considered the most profitable, followed by plastic recycling (31.1%). Composting (14.3%) and paper recycling (13.0%) were viewed as less lucrative. This suggests that market-driven factors rather than environmental sustainability currently dictate waste-to-wealth choices. Regarding the main actors involved, waste scavengers (36.3%) were identified as the most active, followed by organized firms (26.0%) and private individuals (20.8%), with government agencies (16.9%) playing the least role. This emphasizes the dominance of informal and semi-formal actors in the waste-to-wealth sector. On frequency of waste-to-wealth activities, 31.1% of respondents observed such practices occasionally, 28.6% daily and 24.7% weekly, while only 15.6% said rarely. This indicates that waste-to-wealth is a fairly visible activity in Lokoja, even if informal in nature.

As to who benefits the most, low-income earners (36.3%) and youths (33.8%) were the leading beneficiaries, while women (18.2%) and everyone equally (11.7%) had lower responses. This shows that waste-to-wealth serves as a coping strategy for vulnerable groups, especially youths and the poor. The most demanded products derived from waste were plastics (36.3%) and scrap metals (33.8%), while organic manure (15.6%) and recycled paper (14.3%) had lower demands. This reflects the market preference for industrial and resale-oriented items rather than agricultural or environmental products. On personal involvement, 36.4% of respondents said they had never sold waste for money, but 31.1% reported occasional sales and 24.7% frequent participation, suggesting that while not universal, waste trading is fairly high.

Finally, the sector driving waste-to-wealth was found to be the informal sector (39.0%) and private companies (31.2%), while government (15.6%) and NGOs (14.3%) played minor roles. This shows the grassroots-driven nature of waste-to-wealth in Lokoja, with limited institutional and policy backing.

Table 2: Magnitude of Solid Waste Generated in Lokoja.

S/N	Question	Response Options	Frequency (N = 385)	Percentage (100 %)
1	How much waste is generated in your household daily?	Less than 1kg	58	15.1
		1–3kg	156	40.5
		4–6kg	109	28.3
		More than 6kg	62	16.1
2	Which type of waste is most generated in your area?	Food/organic waste	162	42.1
		Plastics	128	33.2
		Metals	41	10.6
		Paper/cardboard	54	14.1
3	How do most households dispose of their waste?	Government collection services	92	23.9
		By burning	106	27.5
		By dumping in open spaces	129	33.5
		By selling to waste collectors	58	15.1
4	Do you think the volume of waste in Lokoja is increasing?	Yes, rapidly	174	45.2
		Yes, slowly	121	31.4
		No, it is stable	46	12.0
		I don't know	44	11.4
5	What time of the year is waste generation highest?	Rainy season	86	22.3
		Dry season	71	18.4
		Festive periods	146	38.0
		All seasons equally	82	21.3
6	On average, how often is waste collected in your area?	Daily	68	17.7
		Weekly	132	34.3
		Monthly	84	21.8
		Hardly ever	101	26.2
7	Which source generates the highest volume of waste in Lokoja?	Households	147	38.2
		Markets	134	34.8
		Industries	57	14.8
		Institutions	47	12.2
8	Can waste management in Lokoja handle the waste produced?	Yes, very effectively	51	13.2
		Partially effective	142	36.9
		Not effective	137	35.6
		Not sure	55	14.3
9	Which type of waste poses the biggest disposal challenge?	Plastics	163	42.3
		Food/organic waste	96	25.0
		Metals	51	13.2
		Glass	75	19.5
10	In your opinion, the waste in Lokoja is best described as:	Manageable	72	18.7
		Overwhelming	137	35.6
		Poorly handled	134	34.8
		Adequately managed	42	10.9

Source: Field Work, 2025

The findings presented in Table 2 reveal the scale and nature of solid waste generation in Lokoja. With respect to household waste generation, a majority (40.5%) of respondents reported producing between 1–3kg of waste daily, while 28.3% generate 4–6kg and only 15.1% generate less than 1kg. This suggests that waste generation per household is moderate to high, reflecting rising consumption patterns in the town. In terms of the types of waste produced, food and other organic waste dominate (42.1%), followed by plastics (33.2%). Metals (10.6%) and paper/cardboard (14.0%) are less significant. This indicates that perishable and packaging-related waste make up the largest share of the solid waste stream in Lokoja, consistent with household and market activities. When examining disposal methods, open dumping (33.5%) and burning (27.5%) were identified as the most common practices, with only 24.0% making use of government waste collection services. A further 15.1% admitted to selling waste to collectors. This reflects a weak formal waste management system and heavy reliance on informal and environmentally harmful practices.

Perceptions of waste generation trends show that a combined 76.6% of respondents believe waste volume is increasing (45.2% rapidly and 31.4% slowly). Only 12.0% think it is stable, while 11.4% were uncertain. This highlights a growing waste burden on Lokoja. Similarly, waste production peaks during festive periods (37.9%), likely due to increased consumption, while 22.3% and 18.4% linked it to rainy and dry seasons respectively. Waste collection patterns further emphasize challenges, with the majority reporting weekly (34.3%) or irregular collection (26.2% hardly ever). Only 17.7% enjoy daily services, suggesting inadequate infrastructure and irregular service delivery. On waste sources, households (38.2%) and markets (34.8%) contribute the most, while industries (14.8%) and institutions (12.2%) play smaller roles. Regarding system efficiency, only 13.2% considered Lokoja's waste management system very effective, while 36.9% felt it was partially effective. Alarming, 35.6% rated it not effective, with 14.3% uncertain, indicating widespread dissatisfaction. Plastics were identified as the biggest disposal challenge (42.3%), reflecting their non-biodegradable nature. Organic waste (25.0%), metals (13.2%) and glass (19.5%) also pose significant issues.

Finally, perceptions of the general waste situation were negative, as 35.6% described it as overwhelming, 34.8% as poorly handled and only 18.7% as manageable. A mere 10.9% believed it was adequately managed, pointing to urgent policy and infrastructural interventions needed to address Lokoja's waste crisis.

Table 3: Challenges of Waste-to-Wealth Activities in Lokoja.

S/ No.	Item	Response Options	Frequency (N = 385)	Percentage (%)
1	Major challenge facing waste-to-wealth activities	Lack of awareness	88	22.9
		Poor technology	96	24.9
		Inadequate funding	121	31.4
		Government neglect	80	20.8
2	Level of government support	Very high	28	7.3
		Moderate	92	23.9
		Low	144	37.4
		Non-existent	121	31.4
3	Access to recycling equipment	Yes, adequate	42	10.9
		Yes, but not enough	109	28.3
		No, equipment lacking	173	44.9
		I don't know	61	15.9
4	Factor discouraging participation	Low income returns	136	35.3
		Stigma from society	72	18.7
		Lack of knowledge	88	22.9
		Health risks	89	23.1
5	Organization of waste-to-wealth businesses	Very organized	32	8.3
		Fairly organized	105	27.3
		Poorly organized	142	36.9
		Not organized at all	106	27.5
6	Major hindrance to large-scale recycling	Lack of policies	84	21.8
		Inadequate infrastructure	131	34.1
		Poor market demand	76	19.7
		Poor waste segregation	94	24.4
7	Public perception of waste-to-wealth	Highly valued	46	11.9
		Valued by few	109	28.3
		Not really valued	150	39.0
		Not valued at all	80	20.8
8	Effect of poor segregation	Increases sorting cost	71	18.4
		Reduces efficiency	82	21.3
		Discourages investors	54	14.1
		All of the above	178	46.2
9	Health issues discouraging	Respiratory	64	16.6

	participation	problems		
		Skin infections	46	11.9
		Injuries from sharp objects	74	19.2
		All of the above	201	52.3
10	Accessibility of loans/funds	Very accessible	38	9.9
		Accessible with difficulty	109	28.3
		Not accessible	174	45.2
		I don't know	64	16.6

Source: Field Work, 2025

The results from Table 3 shows several pressing challenges facing waste-to-wealth initiatives in Lokoja. The most critical challenge identified was inadequate funding (31.4%), followed by poor technology (24.9%) and lack of awareness (22.9%). Government neglect was also cited by 20.8%, underscoring weak institutional support. When asked about the level of government support, an overwhelming majority of respondents rated it poorly, with 37.4% stating support is low and 31.4% claiming it is non-existent, while only 7.3% believed it to be very high. This demonstrates a significant gap between policy rhetoric and implementation. In terms of recycling equipment, only 10.9% reported adequate access, while a striking 44.9% said equipment is lacking and 28.3% said what exists is insufficient. This technological gap is a major hindrance to scaling up recycling initiatives.

On factors discouraging participation, low income returns (35.3%) stood out as the biggest deterrent, followed closely by health risks (23.1%) and lack of knowledge (22.9%). Social stigma (18.7%) also plays a considerable role in discouraging engagement in waste-to-wealth ventures. The organizational structure of waste-to-wealth businesses was largely criticized, with 36.9% describing them as poorly organized and 27.5% as not organized at all, compared to only 8.3% who considered them very organized. Similarly, inadequate infrastructure (34.0%) and poor segregation (24.4%) were seen as the key factors hindering large-scale recycling. Public perception of waste-to-wealth remains low, with 39.0% saying it is not really valued and 20.8% saying not valued at all, while only 11.9% viewed it as highly valued. This negative perception contributes to weak participation and limited market expansion.

On the technical side, 46.2% of respondents believed poor segregation increases costs, reduces efficiency and discourages investors simultaneously, showing how critical waste sorting is to profitability. Health hazards were also a major concern, with 52.3% identifying all forms of risks (respiratory issues, skin infections and injuries) as discouraging

participation. Finally, access to funding emerged as a strong barrier, as nearly half (45.2%) said loans and funds are not accessible, while 28.3% noted they are only accessible with difficulty. A mere 9.9% considered funding very accessible.

Table 4: Solutions to Waste-to-Wealth Challenges in Lokoja.

S/N	Item	Options	Frequency (N = 385)	Percentage (%)
1	Most effective way to improve waste-to-wealth in Lokoja	a) Government support policies	120	31.2
		b) Public awareness campaigns	95	24.7
		c) Private sector investment	80	20.8
		d) Community participation	90	23.3
2	Will training programs on recycling help improve waste-to-wealth?	a) Yes, very helpful	220	57.1
		b) Yes, slightly helpful	95	24.7
		c) No, not helpful	40	10.4
		d) Not sure	30	7.8
3	Institution to take the lead in promoting waste-to-wealth	a) Government	150	39.0
		b) NGOs	70	18.2
		c) Private sector	90	23.4
		d) Communities	75	19.4
4	How can awareness be increased?	a) Radio/TV campaigns	100	26.0
		b) Social media	85	22.1
		c) Community workshops	110	28.6
		d) School programs	90	23.3
5	Incentive to encourage more people	a) Higher profits	115	29.9
		b) Reduced stigma	65	16.9
		c) Access to loans	120	31.2
		d) Provision of equipment	85	22.0
6	Importance of community participation	a) Very important	180	46.8
		b) Important	120	31.2
		c) Slightly important	55	14.3
		d) Not important	30	7.7
7	Should waste separation be made compulsory?	a) Strongly agree	160	41.6
		b) Somewhat agree	120	31.2
		c) Disagree	65	16.9
		d) Not sure	40	10.3
8	What will make businesses sustainable?	a) Market linkages	70	18.2
		b) Technological innovation	65	16.9

		c) Policy support	80	20.8
		d) All of the above	170	44.1
9	Government's role in promotion	a) Provide funds/loans	90	23.4
		b) Create enabling policies	95	24.7
		c) Build recycling plants	75	19.5
		d) All of the above	125	32.4
10	How to reduce health hazards	a) Safety gear	80	20.8
		b) Health education	65	16.9
		c) Regular medical checkups	70	18.2
		d) All of the above	170	44.1

Source: Field Work, 2025

The results from table 4 shows several practical solutions to address challenges in waste-to-wealth activities in Lokoja. A majority of respondents (31.2%) emphasized government support policies as the most effective improvement measure, closely followed by public awareness (24.7%) and community participation (23.3%). Training programs were highly regarded as important, with 57.1% rating them as "very helpful."

The government was seen as the main driver of waste-to-wealth (39.0%), though communities and the private sector were also acknowledged. For awareness creation, community workshops (28.6%) and radio/TV campaigns (26.0%) were the most preferred methods. Access to loans (31.2%) and higher profits (29.9%) were considered strong incentives for greater participation.

Community involvement was seen as vital, with nearly half (46.8%) calling it "very important." On waste separation, 41.6% strongly agreed it should be compulsory, though some (16.9%) disagreed. Sustainability was most associated with a holistic approach (44.1%), stressing the need for market linkages, innovation and policy support.

Regarding government roles, 32.4% suggested that the state must combine funding, policy support and infrastructure development. Finally, the reduction of health hazards was linked to comprehensive measures (44.1%), showing the need for protective gear, education and medical checkups for waste workers.

Hypothesis Testing

Ho: There is no significant relationship between waste-to-wealth activities and socio-economic development in Lokoja town, Kogi State.

Table 5: Correlation between Waste-to-Wealth Activities and Socio-Economic Development in Lokoja Town.

Variables	Waste-to-Wealth Activities	Socio-Economic Development
Waste-to-Wealth Activities	1.000	0.629**
Socio-Economic Development	0.629**	1.000
N	385	385
Sig. (2-tailed)	—	0.000

The result in Table 5 shows a positive and statistically significant correlation ($r = 0.629$, $p < 0.05$) between waste-to-wealth activities and socio-economic development in Lokoja town. This indicates a moderately strong association, suggesting that as waste-to-wealth practices such as recycling, composting and scrap recovery increase, there is a corresponding improvement in socio-economic indicators such as job creation, income generation and better living standards among residents. Given that the significance value ($p = 0.000$) is less than the 0.05 threshold, the null hypothesis (H_0) is rejected while the alternative hypothesis (H_1) is accepted. This confirms that waste-to-wealth activities have a significant positive relationship with socio-economic development in Lokoja town.

DISCUSSION OF FINDINGS

The discussion is organized based on the four objectives guiding the study. Objective One identified the types of waste-to-wealth activities in Lokoja as the findings revealed that waste-to-wealth activities in Lokoja include plastic recycling, metal scrap collection, paper/cardboard reuse, composting of organic waste and small-scale reuse of bottles and cans. This finding is consistent with Abila and Kantola (2019), who noted that in Nigeria, waste-to-wealth activities are mainly informal, driven by unemployed youths, scavengers and small traders who find economic value in plastics and metals. Objective two examined the magnitude of solid wastes generated in Lokoja as the study found that waste generation in Lokoja is significant and increasing, with households, markets, motor parks and institutions producing large volumes daily. This aligns with Ezeudu et al. (2020) who emphasized that Nigerian urban centers face a rapid increase in waste volume due to population growth, urbanization and consumption patterns. Objective three evaluated the existing challenges of waste-to-wealth activities in Lokoja as the study revealed that the major challenges hindering waste-to-wealth activities in Lokoja include: Inadequate funding and poor access to loans for entrepreneurs, amongst others. This finding resonates with Kaza et al. (2018) who reported that weak institutional support, low investment and stigmatization remain barriers to

recycling enterprises in Nigeria. Objective four suggested possible ways of addressing these challenges in waste-to-wealth conversion processes as respondents suggested several solutions, including: Stronger government support policies such as subsidies and private sector investments. These solutions are supported by Olanrewaju and Ilemobade (2019), who argue that multi-stakeholder collaboration is key to effective waste-to-wealth development.

CONCLUSION

The study concluded that solid waste in Lokoja, though often seen as a nuisance, holds significant socio-economic potential when harnessed through recycling and reuse. Waste-to-wealth activities such as plastic and metal recycling already provide livelihoods for informal workers, but the sector is limited by lack of awareness, poor government support, weak infrastructure and negative societal perceptions. Importantly, the significant correlation between waste-to-wealth activities and socio-economic development highlights that expanding and formalizing these initiatives can improve income, create jobs, reduce poverty and promote sustainable urban development in Lokoja.

RECOMMENDATIONS

Based on the findings, the following recommendations are made:

1. Based on the finding that waste-to-wealth activities in Lokoja are dominated by informal entrepreneurs focusing mainly on plastics and metals, it is recommended that the Kogi State Government and Lokoja Local Government formalize and support these enterprises through registration, training and provision of enabling infrastructure such as recycling centers and sorting hubs.
2. Given the high and increasing volume of waste generated daily across households, markets and institutions in Lokoja, there is a need for authorities such as the Kogi State Environmental Protection Board (KOSEPB) to introduce a digital monitoring framework to track waste generation trends across seasons.
3. Since lack of awareness, inadequate funding, poor technology and social stigma are major barriers to the growth of waste-to-wealth initiatives, it is recommended that comprehensive policies be developed to encourage investment and public participation. Government and financial institutions should provide soft loans, tax incentives and grants for recycling entrepreneurs.
4. As the findings and respondents' suggestions indicate, stakeholder collaboration is important for sustainable waste-to-wealth development. Therefore, the government

should encourage Public Private Partnerships that involve private investors, NGOs and community-based organizations in establishing recycling plants, composting facilities and collection networks.

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