VOL. 13 NO. 4,
AUGUST, 2026
E-ISSN 3026-9210
P-ISSN 3026-815X

African Scholar Publications & Research International
www.africanscholarpub.com

Journal of Built Env. & Geological Research (JBEGR)

Informal Sector Dynamics in Urban Solid Waste Governance: Scavengers, Scrap Dealers, and the Politics of Unrecognized Labour in Zaria, Nigeria

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DOI: https://doi.org/10.70382/ajbegr.v13i4.067

Abstract

The informal sector remains the de facto backbone of solid waste collection in many low-income African cities, yet it is routinely absent from formal governance frameworks. This study appraises the scale, structure and institutional standing of informal waste actors - scavengers, scrap dealers and unregistered collectors in Zaria Local Government Area, Kaduna State, Nigeria. Using a mixed-method design combining household surveys (n = 288), key-informant interviews with 50 informal operators and local government officials, and direct field observation across four districts of Zaria Walled City, the study finds that 979 primary and 317 secondary informal collectors handle approximately 112,350 kilograms of solid waste daily, compared with a public-sector workforce of only 207 staff. Despite this disproportionate contribution, informal operators work without registration, protective equipment, price protection or representation in policy instruments, and households pay them directly for a service the formal system does not reliably provide. The findings are read against Stoker's regime theory and pluralist models of urban governance, showing that stakeholder presence does not translate into recognition or coordinated action. The paper argues that Zaria's solid waste management system exhibits a 'politics of unrecognized labour', in which the informal sector's functional indispensability coexists with its administrative invisibility. Drawing on comparative experience from Nigeria, Brazil and other developing contexts, the study proposes cooperative formation, fair-price collection points, protective equipment provision, and formal integration of informal actors into local waste governance frameworks as a pathway toward a more inclusive and sustainable solid waste management system.

Keywords: Informal Sector; Scavengers; Solid Waste Governance; Stakeholder Participation; Zaria, Nigeria

Introduction

Rapid urbanization across sub-Saharan Africa has outpaced the capacity of municipal authorities to deliver basic services, and solid waste management (SWM) is among the services most visibly strained by this gap (Nzeadibe, 2009). In many African cities, formal waste collection systems cover only a fraction of the urban population, leaving households, businesses and public spaces dependent on an informal economy of waste pickers, itinerant collectors and scrap dealers who operate outside any registered institutional framework. This informal sector performs functions -- primary collection, sorting, recycling, and secondary transport of decomposed waste to farmland -- that formal agencies either cannot or do not perform, yet it is rarely acknowledged as a legitimate stakeholder in waste governance (Wilson et al., 2006).

The stakeholder concept in solid waste management typically enumerates government agencies, private companies, non-governmental organizations and community-based organizations as the actors whose participation determines system performance. Scavengers and scrap dealers are, at best, folded into a generic 'private sector/individuals' category, with little disaggregation of their numbers, output, or working conditions (Medina, 2007). This conceptual flattening obscures a structural paradox: informal operators frequently outnumber and outperform formal collection staff in terms of tonnage handled and frequency of service, while remaining entirely outside the policy instruments, budgets, and organizational charts that define 'official' solid waste governance.

This paper draws on primary field data collected in Zaria Local Government Area, Kaduna State, Nigeria, to examine the scale and character of informal waste sector activity and to interrogate why this scale of activity has not translated into institutional recognition. The paper is organized as follows. Section 2 outlines the study area and the methods used to generate the data. Section 3 presents the results, disaggregated into the scale of informal collection, its economic and occupational dimensions, and its institutional standing relative to the formal sector, and discusses these findings against the literature on informal recycling and urban governance theory. Section 4 concludes with implications for solid waste policy in Zaria and comparable secondary cities in Nigeria.

Study Area

Zaria is a historic metropolitan city in Kaduna State, Nigeria, and the seat of the Zazzau Emirate Council. The contemporary Zaria metropolitan area spans four local government areas -- Zaria, Sabon Gari, Giwa and Soba -- with an estimated population of approximately 786,000 persons as of the study year. The study focused on Zaria Walled City, comprising the districts of Kwarbai A, Kwarbai B, Unguwan Juma and Kaura, which together form the historic core of the metropolis and exhibit the informal, high-density residential fabric characteristic of many older Northern Nigerian urban settlements.



Figure 1: Zaria Local Government Area showing its constituent districts and neighbouring LGAs.
Source: *Field survey/GIS base map, 2026.*

Research Design and Sampling

The study adopted a mixed-method, cross-sectional design combining household surveys, targeted stakeholder surveys, key-informant interviews and direct field observation. A cluster sampling technique was used, with each of the four districts of Zaria Walled City treated as a first-stage cluster; compounds within selected street blocks were then enumerated to administer household questionnaires, yielding a usable sample of 288 households across the four districts. For the informal and institutional stakeholder component, a full-coverage approach was adopted: interviews were conducted with officials of the Kaduna State Environmental Protection Agency (KEPA) and Local Government Health Departments responsible for waste management, alongside structured interviews with 50 informal waste collectors, scavengers and scrap dealers identified through snowball referral during site visits to collection points, dumpsites and scrap yards.

Data Collection and Analysis

Three instruments were used: a household questionnaire capturing waste disposal practices and payment for collection services; a stakeholder questionnaire administered to local collectors, scavengers and government officials capturing operational scale, equipment, income and constraints; and an observation schedule supported by photographic documentation of collection points, disposal practices and informal operator activity. Quantitative data were analysed using descriptive statistics -- frequency counts, percentage distributions and cross-tabulation by district -- while qualitative material from interviews and observation was analysed thematically to characterize the roles, practices and constraints of informal operators relative to the formal solid waste management structure.

Scale of Informal Sector Activity

The field survey identified 979 informal operators engaged in primary waste collection across the four districts of Zaria Walled City, moving household waste from generation points to communal depots or, in the absence of accessible depots, directly to open dumping sites. On average, each primary operator collects approximately 50 kilograms of waste daily and earns around ₦500 per day, with clients charged between ₦20 and ₦40 per collection. Table 1 presents the distribution of primary operators and collection volumes by district.

Table 1. Volume of Primary Waste Collection by Informal Operators

District	No. of Operators	Total Daily Collection (kg)
Kwarbai A	216	10,800
Unguwan Juma	340	17,000
Kwarbai B	241	12,050
Kaura	182	9,100
Total	979	48,950

Source: *Field survey, 2026.*

A second, distinct category of informal operators is engaged in secondary collection -- the retrieval of decomposed waste from dumpsites for sale as compost to farmers, particularly during the dry season ahead of the cropping cycle. An estimated 317 individuals operate in this segment, collecting an

estimated 63,400 kilograms of decomposed waste daily, with individual operators moving up to 200 kilograms per day. Combined, primary and secondary informal collection accounts for approximately 112,350 kilograms of solid waste handled daily in Zaria Walled City, a volume that substantially exceeds what the formal public-sector system manages, given that house-to-house collection by the Local Government Health Departments was officially discontinued in 1991, and current formal collection is described as intermittent and concentrated in highly visible or politically influential neighbourhoods.

Equipment, Technology and Working Conditions

Informal operators rely almost entirely on low-capacity, self-financed equipment. More than half (56 percent, Zaria average) use wheelbarrows for primary collection, 33 percent use cartons or sacks, and 11 percent use push carts; there is little variation in this pattern across the four districts. This equipment profile requires operators to make multiple trips per day and constrains the geographic radius each operator can service, but it also requires minimal start-up capital, which partly explains the sector's low barriers to entry and correspondingly large workforce.



Figure 2. Wheelbarrows and handcarts used by informal operators for primary waste collection in Zaria Walled City.

***Source**: Field survey, 2026.*

Scavengers -- who manually search through mixed waste at dumpsites, streets and bins to recover plastics, metals, glass, paper and organic material for resale -- were found to operate across four broad specializations, summarized in Table 2. Across all specializations, the absence of personal protective equipment, exposure to sharp and hazardous material, price volatility set by intermediary buyers, and social stigma emerged as recurring constraints, consistent with occupational health risks documented among waste-picker populations elsewhere (Cointreau, 2006).

Table 2. Types of Scavengers, Materials Handled and Constraints

Type	Materials Collected	Principal Constraints
Organic/compost	Food scraps, farm waste, animal dung	Odour; health risk; low, unstable income
Metal & aluminium	Cans, wires, tools, vehicle parts	Injury risk; price swings; harassment
Paper & carton	Newspapers, packaging, old books	Low value; water damage; health risk
Plastic & glass	PET bottles, containers, jars, bottles	Sharp-object injury; toxic residue

***Source:** Field survey, 2026.*



Figure 3. Sorted scrap metal accumulated at a scrap dealer's yard, illustrating the downstream trade in materials recovered by scavengers.
Source: *Field survey, 2026.*

The Household--Informal Sector Economic Relationship

Because formal collection is unreliable, households in Zaria are, in practice, primary clients of the informal sector. Survey data show that 84.0 percent of sampled households pay between ₦100 and ₦200 per month to informal or private collectors for waste removal, with a further 7.7 percent paying above ₦300 and only 5.9 percent making no payment at all -- typically because they are not engaging the services of any collector. This pattern indicates that the overwhelming majority of households have, independently of any government programme, entered into a stable, low-cost informal payment arrangement that substitutes for the formal service the Local Government is nominally mandated to provide. Where formal collection points do exist, they are grossly inadequate: only twenty-four communal depots serve the entire urban area, with no new depots established since 1991 despite substantial urban expansion, and no transfer stations or engineered landfills -- final disposal in Zaria occurs at two open dumps at Dakace and Madachi that receive unsorted, untreated waste. The absence of reliable formal alternatives is a direct driver of the disposal practices recorded in the household survey, where 70 percent of respondents reported burning waste as their primary disposal method, with burying, and dumping in gutters, streets and open spaces accounting for most of the remainder, and only 21 percent using approved communal depots.



Figure 4. Uncollected solid waste accumulating within Zaria Walled City in the absence of regular formal collection.
Source*: Field survey, 2026.*

Institutional Invisibility: Comparing Formal and Informal Capacity

The Local Government Health Departments responsible for solid waste management in Zaria employ a combined total of 207 staff across health inspection, waste

collection, road sweeping and driving functions. This formal workforce is outnumbered by the informal sector -- 979 primary collectors, 317 secondary collectors, and an additional cohort of scavengers and scrap dealers -- by a ratio of roughly six to one. Formal equipment holdings are similarly constrained: neither Kaura nor Kwarbai areas possess any tippers, pay loaders or bulldozers against a combined minimum requirement of four tippers, two pay loaders and four bulldozers, and basic manual tools such as wheelbarrows, shovels and rakes are available at a fraction of stated requirements.

Despite this asymmetry, the institutional stakeholder framework used by local authorities recognizes government agencies, formally contracted private companies, and, loosely, 'community-based organizations' as legitimate participants in solid waste governance, while informal collectors, scavengers and scrap dealers are absent from registration systems, receive no equipment support, price protection or occupational safety provision, and have no representative body through which to engage local government. This mirrors findings from other Nigerian cities: Nzeadibe (2009) documents a comparable pattern in Enugu, where informal recyclers made substantial, quantifiable contributions to urban waste management and job creation without corresponding policy recognition, and Wilson et al. (2006) note that informal recycling systems across developing countries are frequently 'unrecognized' even where they achieve significant diversion of waste from final disposal.

Reading the Findings through Urban Governance Theory

The concluding analysis of the underlying field study situates these findings against Stoker's (1995) regime theory, which explains effective urban governance outcomes as products of durable coalitions of interest between public and private actors. The Zaria evidence does not support a regime-theory reading: stakeholder actions are fragmented and largely uncoordinated, informal operators pursue collection independently of government agencies and of each other, and no durable coalition of interests around solid waste service delivery is observable. Instead, the pattern aligns more closely with the pluralist models advanced by Judge (1995) and Polsby (1980), in which multiple actors pursue overlapping but uncoordinated interests, and public-sector failure creates space that informal and community actors fill on an ad hoc basis rather than through a negotiated institutional bargain.

This theoretical reading clarifies why the scale of informal activity documented here has not by itself produced recognition: presence and functional contribution are not, on their own, sufficient to generate coalition-based governance arrangements. Comparative experience suggests that recognition tends to follow deliberate policy intervention rather than emerging spontaneously from stakeholder scale. In Brazil, the formal integration of catadores (waste pickers) into municipal recycling cooperatives has improved both livelihoods and diversion rates (Gutberlet, 2015), while in several Nigerian cities informal recyclers have been shown to generate incomes above the minimum wage for comparable formal-sector work, without commensurate policy attention (Nzeadibe, 2009). These cases indicate that the barrier to recognition in Zaria is not a lack of economic or environmental justification, but the absence of a deliberate institutional strategy to organize, register and incorporate informal actors into the existing solid waste governance structure.

Toward Recognition: Policy Implications

Three policy directions follow from the findings. First, organizational: informal primary and secondary collectors and scavengers would benefit from formation into registered cooperatives, which the underlying field study identifies as a mechanism for achieving economies of scale in equipment use and for creating a legitimate counterpart body for local government engagement. Second, protective: the near-total absence of personal protective equipment among scavengers, combined with the complete

absence of household-level waste separation, exposes this workforce to avoidable occupational health risk; provision of basic protective gear and source-separation campaigns would directly address this. Third, institutional: formal recognition of informal operators as a distinct stakeholder category -- with defined roles, registration, and a channel of engagement with the Local Government Health Departments and KEPA -- would allow policy instruments to address this sector explicitly rather than treating it as an unacknowledged externality of public-sector under-provision. None of these measures require displacing the informal sector with capital-intensive formal alternatives; rather, they require treating an already-functioning system as a legitimate part of Zaria's solid waste governance architecture.

CONCLUSION

This study set out to examine the scale and institutional standing of informal solid waste actors in Zaria Local Government Area. The evidence shows an informal sector -- primary collectors, secondary collectors, and specialized scavengers and scrap dealers -- that handles more waste daily and employs more people than the formal public-sector system, and that most households depend on directly through informal payment arrangements. Yet this same sector remains unregistered, unequipped, and structurally absent from the stakeholder categories that inform local solid waste policy. The study describes this condition as a politics of unrecognized labour: a governance arrangement in which functional indispensability and administrative invisibility coexist without contradiction, sustained less by deliberate policy choice than by the absence of any policy attention at all. Addressing this gap does not require replacing the informal sector but organizing, protecting and formally incorporating it, through cooperative formation, protective equipment provision, and explicit representation in local waste governance frameworks. Future research should track outcomes where such integration has been attempted in comparable Nigerian secondary cities, to establish which mechanisms most effectively convert informal contribution into formal recognition.

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