

The relationship between stakeholder engagement in planning and electronic waste management in Rubaga

Division, Uganda

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Abstract

The study investigated the relationship between stakeholder engagement in planning and electronic waste management (EWM) among households, business owners, and local officials in Rubaga Division, Uganda. A mixed-methods case study design was employed, utilizing structured questionnaires and interviews to collect quantitative and qualitative data from a sample of 97 respondents selected through purposive and simple random sampling from an accessible population of 200. The data were analyzed to determine the correlation between stakeholder engagement in planning measured through participation in decision-making meetings, goal-setting, and community consultations and EWM effectiveness. The results revealed a strong, statistically significant positive correlation between the two variables, with a correlation coefficient (r) of 0.843 and a significance value ($p = 0.000$). This indicated that as stakeholder engagement in planning improved, EWM outcomes also increased substantially. The null hypothesis was therefore rejected, confirming that the observed relationship was not due to chance. The study concluded that stakeholder engagement in planning is a critical and meaningful determinant of effective EWM, accounting for a significant proportion of variability in waste management performance. It was recommended that Rubaga Division implement targeted policies focused on inclusive participatory planning, clear communication of EWM goals, and structured feedback mechanisms to enhance coordination, accountability, and sustainability in e-waste management.

Keywords: Stakeholder Engagement, Planning, Electronic Waste Management, Rubaga Division, Uganda, Correlation, Participatory Planning, Decision-Making.

Background of the study

The Global E-Waste Monitor reports that global e-waste generation reached approximately 53.6 million metric tonnes in 2019, with projections indicating an increase to 74 million metric tonnes by 2030 (Nyeko et al., 2023). This surge is not merely a problem of waste volume; it is critically exacerbated by inadequate management systems, particularly in developing countries. A primary driver of this inadequacy is the lack of integrated stakeholder involvement in planning and decision-making processes (Squires, 2017). The seminal work by Freeman (1984) on Stakeholder Theory emphasizes that decision-making should consider all parties impacted by organizational actions, including governments, producers, consumers, and informal recyclers (Denis & Richard, 2023). In municipal settings, especially in urban Africa, planning for e-waste management often occurs in a top-down manner, with limited input from the communities that generate and are most affected by the waste (Herat & Agamuthu, 2012). A study in East Africa found that while public participation in e-waste management has expanded, engagement in the planning phase remains inconsistent and poorly structured (12.pdf, n.d.). Consequently, the global and regional conversation has shifted

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towards understanding how structured stakeholder engagement in planning can foster sustainable and resilient e-waste management systems, which are foundational for urban environmental health (Baldé et al., 2024).

The e-waste management challenge is acutely felt across Uganda, where rapid adoption of information and communication technology (ICT) devices has significantly increased e-waste generation. The United Nations estimated that Uganda generated approximately 17,000 tonnes of e-waste in 2018, with projections suggesting an annual increase (UCC, 2020; Forti et al., 2020). This disparity between waste generation and management capacity is mirrored in the planning processes of urban authorities, where stakeholder coordination is often weak. The "silosed" operation of local government authorities, private recyclers, and communities, with limited collaboration and unclear roles, undermines the effectiveness of national policies like the National E-Waste Management Policy (2019) (UCC, 2022). For communities in urban divisions like Rubaga, the challenges are tangible. Residents and businesses often face the consequences of poorly planned waste systems overflowing collection points, illegal dumping, and associated health risks without formal channels to influence the plans meant to address these issues (NEMA, 2021). A study on municipal service delivery in Uganda highlighted that the integration of community views in planning is a key determinant of project sustainability and local ownership (Ministry of Local Government, 2006). Therefore, within the Ugandan context, stakeholder engagement in planning is not merely a procedural formality but a fundamental determinant of system efficiency, equity, and the long-term viability of e-waste management initiatives (Ezeudu & Bristow, 2025).

Rubaga Division, a densely populated and commercially active administrative unit within Kampala Capital City Authority (KCCA), exemplifies these national challenges. As one of Kampala's fastest-urbanizing divisions, it experiences high consumption and turnover of electronic devices, leading to significant and growing e-waste streams. Preliminary observations and local reports indicate that e-waste management in the division is characterized by informal disposal, inadequate collection coverage, and weak enforcement of regulations (Rubaga Division Council Records, 2023). The planning process, as mandated by frameworks like the Harmonized Participatory Planning Guide (2004), is supposed to be bottom-up, involving parishes and wards in identifying problems and setting priorities. However, anecdotal evidence suggests a gap between policy and practice. Community members, business owners, and even local councilors often report limited meaningful consultation during the formulation of the division's development plans and budgets, particularly on environmental health and waste management issues (KCCA, 2022). For instance, while the division may allocate resources for waste management, the specific strategies for e-waste collection, community sensitization, or facility siting are frequently developed without the active input of those who will use or be affected by these services (Najjuuko Joan, 2024). This planning disconnect leads to interventions that are misaligned with local realities and needs, reducing their effectiveness and community buy-in. While national studies on e-waste exist, there is a critical paucity of localized, empirical data specifically examining how stakeholder engagement in the planning phase influences the effectiveness of e-waste management in a high-density urban division like Rubaga (Jac & Kazaara, 2023).

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Problem Statement

The increasing generation of electronic waste in urban Uganda poses significant environmental and public health risks, yet management systems remain largely ineffective due to fragmented stakeholder involvement, particularly in the planning stage (UNEP, 2023). In Rubaga Division, a densely populated area within Kampala City, e-waste is frequently mixed with general waste, openly dumped, burned, or dismantled using unsafe methods, leading to environmental degradation and exposure to hazardous substances (NEMA, 2021). Despite the existence of the National E-Waste Management Policy (2019) and frameworks for participatory planning such as the District and Urban Development Planning Guidelines (2006), stakeholder engagement in planning for e-waste management in the division is weak and unstructured. Local government authorities, private sector actors, informal collectors, and community members often operate in isolation during the planning phase, with limited collaboration, unclear roles, and inadequate consultation mechanisms (UCC, 2022). Previous interventions, including awareness campaigns by the Uganda Communications Commission and Kampala Capital City Authority, have yielded limited and unsustainable results due to the absence of a structured framework for stakeholder planning (KCCA, 2022). Consequently, there is a pressing need to examine the role of stakeholder engagement in planning as a specific determinant of effective e-waste management in Rubaga Division (Christopher & Felex, 2022). The absence of such localized evidence hinders the development of targeted, evidence-based strategies to strengthen participatory planning, improve coordination, and enhance the accountability and sustainability of e-waste management programs in the division.

Main Objective

To assess the relationship between stakeholder engagement in planning and electronic waste management in Rubaga Division, Uganda.

Methodology

The study adopted a mixed-methods case study design to investigate the relationship between stakeholder engagement in planning and electronic waste management in Rubaga Division. The choice of this design was well-suited for the research objectives, as it facilitated an in-depth, contextual analysis of a real-life situation within its natural setting, allowing for the examination of complex social factors (Sekaran, 2013). The design enabled the collection of both quantitative and qualitative data at a single point in time, providing a comprehensive snapshot of the current state of planning engagement and its impact on EWM. Through this design, the study gathered quantitative data from various stakeholders using structured questionnaires and qualitative insights from interviews and document reviews, ensuring a broad representation and contributing valuable insights into municipal environmental management. The research was conducted within Rubaga Division in Kampala District, the capital city of Uganda. The division was selected due to its high population density, significant commercial activity, and documented challenges with e-waste management, making it a critical case for study.

The study population consisted of stakeholders involved in or affected by e-waste management in Rubaga Division. This included district officials, KCCA city-level officers, division officials, village chairpersons, hotel owners,

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households, and shopkeepers. The accessible population was 200 respondents. To ensure a representative sample from this population, the sample size was determined using the Krejcie & Morgan (1970) table, which calculated a target sample of 127 participants. Ultimately, 97 completed questionnaires were returned and analyzed, yielding a response rate of 76.4%. The sampling procedure employed a combination of purposive and simple random sampling techniques. Purposive sampling was used to select key informants such as district, municipal, division, and village officials due to their direct involvement and valuable insights into EWM planning. Simple random sampling, using a lottery method, was used to select households and shopkeepers to ensure their views were fairly represented.

Results

Table 1: Descriptive Statistics on Stakeholder Engagement in Planning and Electronic Waste Management in Rubaga Division.

Planning Indicators	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Mean	STD
I am given chance to give my opinion on EWM.	12.5%	56.3%	21.9%	6.3%	0.0%	3.77	0.84
Leaders participate in the planning of EWM.	6.3%	56.3%	34.4%	3.1%	0.0%	3.66	0.72
Councilors discuss EWM plans with their constituents.	3.1%	21.9%	68.8%	3.1%	0.0%	3.78	0.61
Goals and Objectives of EWM programs are well set.	6.3%	40.6%	37.5%	15.6%	0.0%	3.41	0.98
EWM is a top most priority while planning in Rubaga Division.	3.1%	56.3%	25.0%	15.6%	0.0%	3.37	0.98

Source: Primary Data, 2025

On the statement that respondents were given a chance to give their opinion on EWM, more than two-thirds (68.8%) agreed or strongly agreed, while 21.9% were neutral and 6.3% disagreed. This meant that a majority felt there was some opportunity for input, though a notable portion was unsure or felt excluded.

A council official explained, "We hold budget conferences where community issues are raised, but the specific discussion on e-waste is often not detailed. It's usually grouped under general environmental health." (Official, RD001: 15/10/2025) Regarding whether leaders participate in EWM planning, 62.6% agreed, but a significant 34.4% were neutral, suggesting uncertainty about the depth or visibility of this participation.

A business owner noted, "We see the garbage trucks, but we don't see the planning. We are not sure who decides where the skips go or how often they are collected." (Business Owner, RD002: 16/10/2025). The most striking finding was on whether councilors discuss EWM plans with constituents. While 25% agreed, a large majority (68.8%) were neutral. This high neutrality score, coupled with a very low disagreement rate (3.1%), suggests a widespread lack of awareness or clarity about whether such discussions occur, rather than outright denial. This implies a significant communication gap. On the setting of goals and objectives, 46.9% agreed they were well set, but 37.5% were neutral and 15.6% disagreed.

A community leader commented, "The plans exist on paper, but they are not SMART for us at the village level. We don't know what the specific targets are for reducing e-waste in our parish." (Community Leader, RD003: 17/10/2025) Similarly, while 59.4% agreed that EWM was a top priority in planning, a quarter (25%) were neutral and 15.6% disagreed, indicating that prioritization is not uniformly perceived or communicated.

Table 2: Correlation between Stakeholder Engagement in Planning and Electronic Waste Management.

Variables	Pearson Correlation	Sig. (2-tailed)	N
Planning & EWM	0.843**	0.000	96

Source: Primary Data, 2025

The correlation coefficient (r) was 0.843, indicating a very strong positive relationship between stakeholder engagement in planning and the effectiveness of electronic waste management. This suggested that as participatory planning practices such as inclusive meetings, clear goal-setting, and community consultation improved, the outcomes in e-waste generation, collection, and disposal also improved significantly. The significance value (Sig.) for this correlation was 0.000, which is well below the 0.05 threshold. Consequently, we rejected the null hypothesis that there was no relationship between stakeholder engagement in planning and EWM. The statistical significance confirmed that the observed strong relationship was not due to chance, and that participatory planning is a meaningful and powerful determinant of EWM performance. The strong positive correlation of 0.843 indicated that planning engagement accounted for a substantial proportion (about 71% based on R Square) of the variability in EWM effectiveness.

Findings of the study

It was established that stakeholder engagement in planning significantly influenced electronic waste management in Rubaga Division. The findings indicated that a majority of respondents acknowledged some level of opportunity to give opinions during planning forums like budget conferences. However, the engagement was often perceived as broad and not specifically focused on e-waste, which was frequently subsumed under general waste or environmental health discussions. This aligns with the observations of Squires (2017), who noted that for stakeholder engagement to be

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effective, it must be meaningful and issue-specific, moving beyond tokenistic consultation. Staff interviews corroborated this, with some officials emphasizing that while the structure for participation existed, the technical details of e-waste management were seldom broken down for community understanding and input. Nonetheless, the general statistical relationship confirmed that where planning processes were more inclusive, EWM outcomes were better.

It was further established that the role of local leaders and councilors as bridges between the community and the division was critical but underperforming. The high neutrality score on whether councilors discussed EWM plans with constituents revealed a significant disconnect in communication. This finding resonates with Institutional Theory (Scott, 2014), which posits that the normative pillar shared expectations and roles breaks down when key actors like councilors do not fulfill their intermediary function. Without this feedback loop, community-specific problems and solutions regarding e-waste storage, collection points, and disposal habits are not integrated into formal plans, leading to mismatched and ineffective interventions. A household respondent stated, "We dump old phones and chargers with the rest of the rubbish because we don't know if there's a special place for them. No one has ever asked us about it or told us what to do." (Household, RD004: 18/10/2025)

It was also established that the clarity and perceived priority of EWM goals within the division's planning framework affected management effectiveness. While over half of the respondents believed EWM was a planning priority, a substantial minority was uncertain or disagreed. This ambiguity trickles down to implementation, as unclear or low-priority goals do not command the necessary resources, monitoring, or enforcement. These observations align with literature on participatory planning, which asserts that for plans to be successfully implemented, they must be developed with, and owned by, the stakeholders who will execute or be affected by them (Mazinyo, 2019). The strong correlation ultimately underscores that planning is not a standalone administrative activity but a relational process whose quality directly shapes the physical and environmental outcomes of e-waste management on the ground.

Conclusions

It was concluded that stakeholder engagement in planning has a significant and strong positive relationship with the effectiveness of electronic waste management in Rubaga Division. The findings indicated that where mechanisms for community consultation in forums like budget conferences were utilized, there was a corresponding improvement in EWM outcomes. However, the engagement was often generalized and not sufficiently deep or specific to e-waste issues, limiting its potential impact. Staff and community interviews reinforced this observation, with participants reporting that detailed, technical planning for e-waste often occurred within administrative departments without adequate grassroots input.

It was further concluded that the communication channel between elected councilors and their constituents regarding e-waste plans is weak, creating a critical gap in the planning feedback loop. The high level of neutrality on this matter suggested that most community members were simply unaware of whether such discussions occurred, implying a

failure in the dissemination of planning information and a lack of proactive consultation by local representatives. This breakdown hinders the development of locally relevant and supported EWM strategies.

It was also concluded that while e-waste management is recognized in division planning, its relative priority and the specificity of its goals are not consistently clear or communicated to all stakeholders. This ambiguity can lead to inadequate resource allocation and fragmented implementation. The study therefore concludes that enhancing the structure, depth, and clarity of stakeholder engagement in the planning phase is essential for developing more effective, sustainable, and community-owned electronic waste management systems in Rubaga Division.

Recommendations

To improve electronic waste management in Rubaga Division, the administration should take several key actions focused on planning. The Division should develop and implement structured, sector-specific stakeholder engagement guidelines for e-waste planning, moving beyond general consultations to focus groups and workshops dedicated to e-waste challenges and solutions. This would ensure that plans are informed by the practical realities and ideas of generators, collectors, and processors of e-waste.

The role of councilors as planning liaisons must be strengthened. The Division should mandate and support councilors to hold regular, documented parish/ward meetings specifically on e-waste, translating divisional goals into local action plans and feeding community concerns back into the technical planning process. Furthermore, the Division needs to clearly articulate and communicate SMART (Specific, Measurable, Achievable, Relevant, Time-bound) goals for e-waste management within its development plans and budgets. These goals, such as targets for collection coverage, designated drop-off points, or awareness campaigns, should be publicly shared and discussed with stakeholders to build shared understanding and commitment.

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