

**WOMEN'S ROLES AND REPRESENTATION IN UGANDA'S WASTE MANAGEMENT SECTOR:
WORKFORCE CONDITIONS, LEADERSHIP, AND POLICY AWARENESS**

Temitope Odeshi, Oluwole Akiyode Olusegun

Kampala International University, Uganda

ABSTRACT

This study examines women's roles in Uganda's waste management sector through a mixed-methods approach across six facilities. Findings show women dominate informal waste work (>70%) but remain concentrated in low-paid, high-risk roles with limited leadership representation (1.9-9.6% in formal settings, none in informal). Gender wage gaps (13-40%) and poor occupational safety conditions persist, particularly in informal systems. The study highlights structural, cultural, and institutional barriers limiting women's advancement. Strengthening gender equity is essential for sustainable development, requiring targeted skills development, gender-responsive policies, improved safety standards, and formalization of informal waste systems.

Keywords: Waste Management, Women, Leadership, Gender Disparities, Sub-Sectoral Dichotomy

INTRODUCTION

Waste management in Uganda is not only an environmental concern but also a site where issues of gender inequality, decent work deficits, and unsustainable consumption and production patterns converge, aligning with the core priorities of Sustainable Development Goals 5 (Gender Equality), 8 (Decent Work and Economic Growth), and 12 (Responsible Consumption and Production). Women constitute a substantial portion of the workforce, particularly in operational roles such as collection, sorting, informal recycling, and other ancillary activities. These roles are labour-intensive, often undertaken under precarious conditions, and largely positioned at the lower levels of the waste management value chain, reflecting persistent inequalities in access to decent work and gendered labour segmentation that SDG 5 and SDG 8 seek to address.(Mugambe et al., 2022a)

Despite their extensive participation in sustaining urban waste systems, women continue to face limited access to protective equipment and training, low remuneration, and restricted upward mobility, while their contributions remain under-recognized(Mugambe et al., 2022a). Although women dominate informal resource recovery in Kampala's plastic waste management and play a central role in advancing resource recovery and circular economy practices aligned with SDG 12, this numerical dominance does not translate into equitable access to income security, formalization, or decision-making power. Instead, it reflects persistent structural inequalities that continue to undermine the realization of gender equality and decent work outcomes envisioned under SDG 5 and SDG 8.

Women face persistent barriers to formal employment, low pay, and socio-cultural norms that reinforce occupational segregation limiting their full participation in decent and productive work systems under SDG 8 while reinforcing entrenched gender inequalities addressed by SDG 5. ("African Development Bank, CIF Launch a Study on the Role of Women in Uganda's Plastic Recycling Economy," n.d.-a). At the same time, emerging initiatives such as the Gender Technical Assessment of Opportunities to Improve Plastics and Waste Management ("Gender Technical Assessment of Opportunities to Improve Implementation of Plastics and Waste Management in a Ugandan Municipality," n.d.-a), and grassroots programs like the Mayinja Women Development Group demonstrate that women are not only participants but also emerging leaders in sustainable waste systems. These initiatives highlight their contributions as entrepreneurs and environmental stewards driving circular economy transitions under SDG 12, while also advancing inclusive economic empowerment consistent with SDG 5 and SDG 8, although their impact remains constrained by limited scale, fragmentation, and weak integration into formal waste governance structures.

Despite existing initiatives, significant gaps remain in understanding women's participation, leadership, working conditions, and policy awareness across formal and informal waste systems, limiting progress toward SDG 5 (Gender Equality), SDG 8 (Decent Work), and SDG 12 (Responsible Consumption and Production). This study addresses these gaps through facility-level evidence on workforce participation, leadership, occupational health, income patterns, and policy awareness, linking findings to institutional and cultural constraints shaping waste governance. In doing so, it contributes to SDG 17 (Partnerships for the Goals) and informs strategies for more inclusive and gender-responsive waste governance in Uganda and Sub-Saharan Africa.

RESEARCH OBJECTIVES:

1. Examine women’s participation and representation across operational levels of waste management, including collection, sorting, recycling, treatment, and disposal.
2. Assess the working conditions, challenges, and opportunities faced by women in formal and informal waste roles.
3. Evaluate the relevance and impact of policies on women’s work in the sector.
4. Identify practical pathways to strengthen women’s empowerment, safety, and leadership in Uganda’s waste management system.

LITERATURE REVIEW

Overview of Waste Management and Gender Dimensions in Uganda

Waste management in Uganda is a critical component of environmental safeguards and community well-being, directly advancing **SDG 3 (Good Health and Wellbeing)** and **SDG 11 (Sustainable Cities and Communities)**. It significantly impacts public health and addresses core issues of gender equality and labour fairness, aligned with **SDG 5 (Gender Equality)** and **SDG 8 (Decent Work and Economic Growth)**. The sector relies on the integration of formal and large informal chains, where the informal workforce plays a vital role in collecting and recycling waste, fostering a more **circular economy** as envisioned in **SDG 12 (Responsible Consumption and Production)**. In these waste systems, women play a prominent but often unappreciated role.

(Mugambe et al., 2022b) They are frequently the ones doing the hardest jobs, collecting, sorting, and recycling informally, yet their vital contributions to sustaining circular waste practices are still largely missing from policy recognition and institutional support. (“Global Waste Management Outlook 2024 | UNEP - UN Environment Programme,” n.d.)

Globally, gendered divisions of labour in waste management reflect deep-rooted social hierarchies where women are associated with “dirty work” yet excluded from its economic and managerial benefits (“Gender and Waste Management | International Environmental Technology Centre,” n.d.-a). In Uganda, women in the informal waste economy often endure precarious working conditions, exposure to toxic materials, and low income with little to no social protection. Men dominate leadership, logistics, and contracting roles, while women’s labour is confined to manual and health-risky tasks, highlighting a pattern of **gendered occupational segregation**.

The formal waste management sub-sector, comprising licensed waste management operators and logistics companies, tends to provide safer and better-compensated employment, though still heavily male-dominated. Conversely, the informal recycling and disposal sites, offer women greater numerical representation but lower dignity, safety, and income. This dual structure epitomizes Uganda’s broader gender paradox: women’s extensive participation contrasts sharply with their marginal representation in positions of authority or policy influence.

Women’s Roles and Representation Across Waste Management Sub-Sectors

Across Sub-Saharan Africa, women form the backbone of informal waste management activities, including waste collection, resource recovery, and recycling (Mbah & Nzeadibe, 2017). Studies from Nigeria, South Africa, and Kenya show that women dominate sorting and recycling yet remain systematically excluded from high value-rendering operational processes such as high value contracting, transport, and waste-to-energy projects (Wilson et al., 2022a). In Uganda, this exclusion is particularly evident in urban centres where the informal waste economy sustains thousands of livelihoods without formal recognition or safety standards (Mugambe et al., 2022b)

Women’s roles in the waste value chain are both economically significant and environmentally vital. They perform labour-intensive tasks that sustain material recovery, yet receive limited financial returns and no formal protection. Women’s participation in Uganda’s plastic recycling economy is primarily at the micro-enterprise or community level, characterized by informal networks, minimal technology, and unstable incomes (“Gender Technical Assessment of Opportunities to Improve Implementation of Plastics and Waste Management in a Ugandan Municipality,” n.d.-b). The bank’s *Gender Technical Assessment* emphasizes that women’s underrepresentation in decision-making stems from weak institutional frameworks and entrenched social norms that discourage female leadership in environmental sectors.

Grassroots initiatives such as the **Mayinja Women Development Group** have demonstrated the transformative potential of women’s environmental entrepreneurship, converting plastic waste into sustainable products (“Dignifying Lives of Women in Waste Management: Challenges and Way Forward - Practical Action,” n.d.-a). However, such initiatives remain out-of-the-way rather than correctly added into national waste management policies. This demonstrates the need for **gender mainstreaming** within Uganda’s waste governance, ensuring women are not only participants but also beneficiaries and leaders in waste value chains.

Occupational Health, Safety, and Economic Inequalities

Occupational health risks are a defining characteristic of informal waste work. Research consistently shows that women waste workers experience higher exposure to hazards such as respiratory infections, musculoskeletal injuries, and skin diseases due to insufficient personal protective equipment and extremely poor working condition (Wilson et al., 2022a). The absence of structured occupational health systems exacerbates these risks, leaving women dependent on self-care or informal remedies.

Studies from Kampala’s slums indicate that waste segregation and recycling largely take place under extreme unsafe conditions, with minimal use of personal protective equipment and limited or no awareness of occupational hazards (Mugambe et al., 2022b). These findings align with broader regional evidence from Nigeria and South Africa, where informal waste pickers, mostly women, report chronic health conditions linked to waste exposure (Mbah & Nzeadibe, 2017). In contrast, formal waste facilities with compliance systems demonstrate reduced health incidents due to regulated safety practices, regular training, and provision of personal protective equipment (PPE).

Economically, women's participation is constrained by pervasive **gender pay gaps** and low wage visibility. Studies reveal that even within formal waste firms, women earn consistently less than men in equivalent roles. This income disparity reflects both structural bias and undervaluation of "feminized" labour. Women's limited access to capital, equipment, and training prevents them from transitioning into higher-paying positions such as drivers, machine operators, or supervisors, roles culturally perceived as male. The economic vulnerability of women waste workers, therefore, is not merely a product of informality but a manifestation of institutionalized gender inequality within Uganda's labour systems.

Institutional and Policy Frameworks Shaping Gender Roles

Uganda's legislative landscape provides a nominal commitment to gender balancing through policy architectures such as the **National Gender Policy (2007)**, the **Employment Act (2006)**, and the **National Environment Act (2019)**. However, these frameworks lack specific mechanisms addressing the gendered realities of waste management. Studies show a persistent gap between policy rhetoric and implementation: while gender equality is mentioned in strategy documents, enforcement in waste-related institutions remains limited (Mbah & Nzeadibe, 2017).

African Development Bank emphasizes that effective gender mainstreaming in waste management requires institutional accountability, integrating gender budgeting, leadership quotas, and workplace safety standards ("African Development Bank, CIF Launch a Study on the Role of Women in Uganda's Plastic Recycling Economy," n.d.-b). Unfortunately, most Ugandan municipalities operate without gender-responsive waste policies, leaving informal women workers outside regulatory protection. Internationally, the **United Nations Environment Programme Gender and Waste Management Framework** advocates integrating women's empowerment into solid waste programs, emphasizing equal access to technology, training, and decision-making ("Gender and Waste Management | International Environmental Technology Centre," n.d.-b). Translating these recommendations into Uganda's local governance context remains a major challenge, particularly amid limited institutional capacity and fragmented waste systems.

Institutional inertia is compounded by cultural and social constraints. As (Gimenez-Jimenez, Calabrò, & Urbano, 2020) argue, informal institutions, such as community norms, gender stereotypes, and stigma often undermine women's entrepreneurial and professional agency even when formal policies exist. In the Ugandan context, the overall societal disposition toward waste work as "low-status" labour dampen the interest and passion of women, thereby decimating their participation and impactful contribution, which ultimately cause a persistent cycle of non-recognition and significant disparity. Thus, achieving gender equity requires not only legislative reform but also transformation of social perceptions and institutional cultures.

Cultural Norms, Stigma, and Social Recognition

Cultural perceptions remain one of the strongest barriers to women's empowerment in Uganda's waste sector. Waste work is frequently associated with dirt, poverty, and social inferiority, discouraging women's participation or public

recognition (“Dignifying Lives of Women in Waste Management: Challenges and Way Forward - Practical Action,” n.d.-b). The associated humiliation with the waste work put women in disadvantage positions in perpetuity. Studies across Africa show that women waste workers often face verbal abuse, sexual harassment, and exclusion from male-dominated workgroups (Wilson et al., 2022b)

Such stigma operates within what feminist scholars term the “**intersectionality of gender and class**”, where poor women are obviously faced with intensified disparity due to both their gender and socio-economic levels. In Uganda, these intersections are particularly visible among women waste pickers who juggle caregiving roles with unsafe, informal labour. Cultural expectations that prioritize domestic responsibilities further limit women’s access to leadership or full-time employment in waste enterprises.

Community sensitization and public awareness are therefore essential in reshaping narratives around women’s environmental labour. Programs led by Non Governmental Organizations (NGOs) such as **Practical Action** have shown that when communities view waste management as a source of environmental stewardship rather than shame, women’s status and self-esteem improve significantly. This alteration of general views of the public is a crucial step toward sustainable inclusion.

Conceptual and Theoretical Underpinnings

This study is grounded in three key conceptual frameworks. First, the **Gendered Division of Labour Theory** explains how socio-cultural norms assign men and women distinct occupational roles, producing structural inequalities in pay, safety, and authority (Mbah & Nzeadibe, 2017). Second, **Intersectionality Theory** highlights how overlapping social categories, such as gender, class, and education shape women’s experiences and vulnerabilities within the waste sector (Gimenez-Jimenez et al., 2020). Third, **Institutional Theory** emphasizes the role of formal and informal institutions in perpetuating or transforming gender disparities. In Uganda’s waste management context, these frameworks collectively illuminate how gender bias is embedded in both policy systems and cultural practices, leading to women’s equal access to essential capitals and resources, credits, and dignity.

Summary of Literature and Identified Gaps

Existing literature demonstrates that women are indispensable to Uganda’s waste economy but remain marginalized in visibility, pay, and policy support. Studies provide rich accounts of women’s participation in informal waste systems (Wilson et al., 2022b) yet few have conducted **comparative analyses** between formal and informal sub-sectors. There is also limited empirical evidence connecting occupational health disparities to institutional neglect or policy inefficiencies. Moreover, while gender mainstreaming is widely discussed, implementation outcomes remain under-examined.

This study focus on these gaps and limitations by formulating an integrated descriptive and comparative analysis of women’s treatment, representation, and well-being across Uganda’s formal and informal waste management systems.

It links gendered labour patterns to health outcomes, income inequalities, and institutional performance, offering a laser-sharp and detailed understanding of how gender, structure, and culture integrate to cause a favourable women's lived experiences in the waste sector.

METHODOLOGY

Methods Summary

- **Design:** Mixed-methods study combining quantitative surveys and qualitative interviews to explore women's roles, experiences, and constraints in Uganda's waste management sector.
- **Study Area:** Six waste management facilities (3 formal, 3 informal) across urban and peri-urban Uganda.

Study Area

This study examined a selection of waste management facilities in Uganda, encompassing both informal and formal sectors to capture a diverse range of operational contexts. The facilities, along with the precise geographic coordinates of each site, were documented to clearly identify their locations.

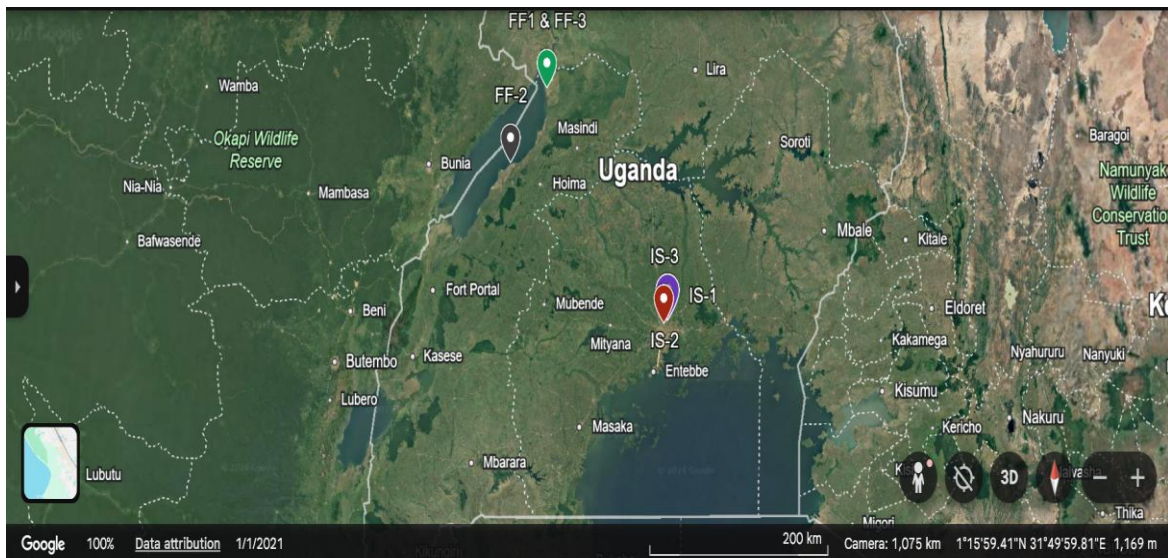
Informal Facilities:

- ✓ IS-1: 0°25'56.2"N, 32°36'40.9"E
- ✓ IS-3: 0°24'41.1"N, 32°34'26.8"E
- ✓ IS-2: 0°24'40.6"N, 32°34'32.0"E

Formal Facilities:

- ✓ FF-2: 1°28'27.1"N, 31°03'32.2"E
- ✓ FF-1: 2°07'18.0"N, 31°24'56.0"E
- ✓ FF-3: 2°07'18.0"N, 31°24'56.0"E

Figure 1- Study Map Area



- **Population:** Women engaged in collection, sorting, recycling, treatment, and disposal activities.
- **Sampling:** Two-stage proportionate-to-size (PPS) sampling; 60 respondents for health survey, 30 for policy/cultural perception survey.
- **Data Collection:**
 - Semi-structured interviews with facility management and informal sector leaders.
 - Health assessment questionnaires covering occupational injuries, PPE use, and health insurance.
 - Key informant interviews exploring lived experiences, empowerment opportunities, and policy/cultural barriers.
- **Data Analysis:**
 - Quantitative: descriptive statistics (frequencies, means, standard deviations), comparative tests between formal and informal sector women.
 - Qualitative: thematic analysis using Excel to identify patterns in challenges, cultural norms, and institutional influences.

Research Design:

This study employed an **integrated mixed-methods design**, combining quantitative surveys and qualitative interviews to provide a comprehensive understanding of women’s participation in Uganda’s waste management sector. This approach allowed the study to capture both **statistical evidence** and **personal narratives**, offering nuanced insights into the roles women play, the conditions they face, and the structural factors limiting their participation.

Study Area and Population

The study examined **six waste management facilities**: three formal facilities operating under regulatory oversight and three informal facilities within urban and peri-urban settings. All facility identifiers are anonymised to protect participants.

- **Formal facilities:** Located in regulated industrial zones, performing activities such as storage, sorting, plastic shredding, baling, composting, sewage treatment, and equipment staging for transportation.
- **Informal facilities:** Primarily engaged in collection, sorting, recycling, and disposal with limited regulation.

Target Population: Women working across multiple subsectors (collection, sorting, recycling, treatment, disposal) in both formal and informal settings.

Sampling

Sampling Procedure

A two-stage sampling strategy was used to select respondents for the health-assessment survey (n = 60) and the policy-perception survey (n = 30). Because the number of women varied across facilities, **proportionate-to-size allocation (PPS)** was applied to ensure that women from each site were represented fairly and in the same proportion as their actual population sizes.

Proportionate allocation ensures that:

- facilities with more women contribute more respondents,
- smaller facilities contribute fewer, and
- the final sample reflects the true structure of the population (N = 109 women across six sites).

Step 1: Determining Proportions

For each facility, a proportion was computed as:

Proportion = Women at Site/Total Women (109)

Step 2: Allocating Sample Sizes

Each proportion was multiplied by the target sample sizes of women (60 for health survey; 30 for policy survey), then rounded to the nearest whole number. This provides **mathematically defensible, research-standard allocation**.

Allocation for 60-Respondent Health Assessment Survey:

The table below communicates the questionnaire distribution and allocation pattern for health assessment

Table 1 Proportional Allocation Chart for Health Assessment Questionnaire Distribution:

Site (Pseudonym)	Women	Proportion	60 × Proportion	Final Allocation
FF-1	14	0.1284	7.70	8
FF-2	9	0.0826	4.96	5
FF-3	18	0.1651	9.91	10
IS-1	25	0.2294	13.76	14
IS-2	40	0.3661	21.97	22
IS-3	3	0.0275	1.65	1

Total = 60

Note: FF denotes formal waste management facilities, while IS denotes informal waste management sites. Facility names have been anonymised using pseudonyms to protect participating organisations.

Allocation Pattern for 30-Respondent Policy and Cultural Perception Survey:

The table below shows the questionnaire allocation pattern for policy and cultural perception survey

Table 2: Questionnaire allocation pattern for policy and cultural perception survey:

Site (Pseudonym)	Women	Proportion	30 × Proportion	Final Allocation
FF-1	14	0.1284	3.85	4
FF-2	9	0.0826	2.48	2
FF-3	18	0.1651	4.95	5
IS-1	25	0.2294	6.88	7
IS-2	40	0.3661	10.98	11
IS-3	3	0.0275	0.83	1
Total	109	1.0000	30	30

Total = 30

Note: FF denotes formal waste management facilities, while IS denotes informal waste management sites. Facility names have been anonymised using pseudonyms to protect participating organisations.

Data Collection Methods

- **Facility Interviews:** Semi-structured interviews with management and informal sector leaders to obtain demographic data, workforce composition, and income levels.
- **Health Assessment Questionnaire:** Captured occupational health issues (respiratory conditions, injuries, skin disorders), PPE access, and health insurance coverage.
- **Key Informant Interviews:** Explored women's lived experiences, empowerment opportunities, and perceptions of policy and cultural barriers.

Data Analysis

- **Quantitative Analysis:**
 - Descriptive statistics (frequencies and means).
 - Comparative tests to identify differences between formal and informal sector workers (income, PPE access, health outcomes).
- **Qualitative Analysis:**
 - Thematic analysis using Microsoft Excel to detect recurring patterns in worker status, cultural norms, sectoral challenges, and institutional influences.

Ethical Considerations

Ethical integrity was a core priority throughout this study. Prior to data collection, formal permission was obtained from all participating waste management facilities through official communication channels. All participants were fully informed about the purpose of the study, the data collection procedures, and their expected involvement, and **written informed consent** was obtained before participation.

To protect confidentiality, no personal identifiers were collected. At the request of one formal facility, and to ensure consistent protection of all participating organizations, **pseudonyms were assigned to all facilities**. Formal facilities are reported as FF-1, FF-2, and FF-3, while informal sites are reported as IS-1, IS-2, and IS-3. This approach safeguarded organizational anonymity while preserving the integrity of the analysis.

Participants were informed of their **right to decline or withdraw from the study at any stage** without penalty or negative consequences. All data were handled confidentially and used solely for research purposes. The study was conducted in accordance with internationally recognized ethical principles for research involving human participants, including **voluntary participation, confidentiality, and respect for participant welfare**.

RESULTS

Participation and Representation of Women Across Operational Levels

Women were present across all operational stages of waste management, including sorting, collection, recycling, and disposal. However, representation varied sharply between **informal** and **formal** waste facilities.

Informal facilities, such as dumpsites and informal recycling spaces, had significantly higher female participation (over 70%). Women dominated labour-intensive, low-paid tasks such as hand-sorting and material recovery. Formal facilities had more gender-balanced participation but with higher male representation in roles requiring training, machinery, operation, supervisory and managerial responsibilities. The participation patterns are clearly shown in tables 3, 4 and 5.

Table 3: Participation of Women by Type of Waste Facility and Operational Role

Facility Type	% Female Workers	Dominant Women's Roles	Roles with Low Women's Representation
Informal (IS-1, IS-2, and IS-3)	76%	Sorting, picking, basic recycling	Machine operation, supervision and management
Formal (FF-1, FF-2, and FF-3)	31%	Cleaning, basic processing	Hazardous waste handling, management

Note: FF denotes formal waste management facilities, while IS denotes informal waste management sites. Facility names have been anonymised using pseudonyms to protect participating organisations.

Table 4: Women Income Vs. Men in all the Facilities- Economic Relationship with participation

Facility	Men Avg. Income (Ugandan Shillings/UGX)	Women Avg. Income (Ugandan Shillings)
FF-2	2,469,000	2,136,000
FF-1	1,714,000	1,354,000
FF-3	2,195,000	3,780,000
IS-3	2,000,000	1,199,000
IS-1	780,000	632,000
IS-2	552,000	385,000

Note: FF denotes formal waste management facilities, while IS denotes informal waste management sites. Facility names have been anonymised using pseudonyms to protect participating organisations.

Table 5: Women’s Participation in Leadership Across Facilities

Facility	Total Staff	Women in Management	Women in Supervision	Total Women in Leadership	Women in Leadership (% of Total Staff)
FF-2	42	1	3	4	9.5%
FF-1	104	0	2	2	1.9%
FF-3	52	1	4	5	9.6%
IS-3	5	0	0	0	0%
IS-1	35	0	0	0	0%
IS-2	60	0	0	0	0%

Participation of Women by Type of Waste Facility and Operational Role

Women were least represented in decision-making, supervisory and management positions across all facilities, demonstrating vertical occupational segregation.

Women Income Vs. Men in all the Facilities- Economic Relationship with participation

Income data reveal a persistent gender earnings gap across five of the six participating facilities, with women earning 13–40% less than men for work involving comparable risk and physical demands. The most pronounced disparities are observed in informal subsector sites, specifically IS-2 and IS-3, where the absence of formal contracts and social protection mechanisms is associated with lower wages and heightened vulnerability among women. In contrast, FF-3 represents a notable exception, with women earning 72% more than their male counterparts due to their placement in specialised and technical roles. This demonstrates that skills-based recruitment and role allocation can mitigate or even reverse gender-based wage disparities. See Table 4 for detailed data.

Women’s Participation in Leadership Across Facilities

Across the six participating facilities, women’s representation in leadership remains extremely low. Only the three formal subsector facilities report any female presence in management or supervisory roles. FF-2 and FF-3 exhibit the highest levels, yet women account for only 9–10% of staff in leadership positions, while FF-1 reports just 1.9%. In contrast, all informal subsector sites (IS-1, IS-2, and IS-3) have no women in leadership roles, despite having substantial female workforces. This pattern underscores a clear structural imbalance: women contribute significantly to operational activities but remain largely excluded from decision-making positions.

Working Conditions, Challenges, and Opportunities for Women

Working conditions differed significantly between informal and formal facilities. Women in informal settings reported **poorer safety, higher exposure to hazards, and limited access to protective equipment.**

Workplace Safety and Health Conditions Reported by Women

Health symptoms such as chest pain, headaches, back pain, and respiratory challenges were more prevalent among informal workers. Table 6 below shows the reported conditions:

Table 6: Workplace Safety and Health Conditions Reported by Women

Indicator	Informal Facilities (%)	Formal Facilities (%)
Lack of PPE	54.1	0
Regular exposure to hazardous waste	45.9	12.5
Reported injuries in past 12 months	64.9	21.7
Access to medical care	8	100
Received safety training	16.2	100

Despite the challenges, informal employment offered **autonomy, entry without certifications, and flexible work structures**, while formal settings provided **stability, safety, and structured income**.

Influence of Policies, Institutions, and Cultural Norms

While a little more than half (53%) reported awareness of gender-related policies, most respondents believed existing frameworks were inadequate. Institutional support, such as training, equipment, and welfare, was limited (77% reported receiving none).

Policy and Cultural Barriers Identified by Respondents

Cultural expectations and stigma significantly undermined women's recognition and advancement within the sector. Table 7 below shows the identified policy and cultural barriers faced, based on respondents' feedback:

Table 7: Policy and Cultural Barriers Identified by Respondents

Barrier Category	% Respondents Affected
Weak implementation of gender-supportive policies	67
Lack of institutional support	77
Cultural stigma toward waste work	90
Exclusion from leadership roles	84

Empowerment and Support Measures Suggested by Women

Women identified several practical pathways for improving their safety, welfare, and leadership:

- Provision of PPE and health monitoring
- Skills development and technical training
- Improved welfare schemes (insurance, savings groups)
- Greater representation in leadership and committees
- Sensitisation campaigns to reduce stigma
- Formalisation and regulation of informal waste activities

Suggested Support Interventions for Women in Waste Management

A number of suggested support interventions were noted from the respondents' feedback, as clearly shown in table 8:

Table 8: Suggested Support Interventions for Women in Waste Management

Intervention Area	% Respondents Supporting
PPE and safety improvements	92
Training and capacity building	88
Income stability and welfare support	74
Leadership opportunities	69
Anti-stigma public campaigns	81

DISCUSSION OF FINDINGS

Women's Participation Across Operational Levels and Economic Representation

The study confirms that women participate widely across the waste management value chain, especially in labour-intensive activities such as sorting, picking, cleaning, basic recycling, and general waste handling. However, their representation declines sharply as roles become more technical, mechanised, specialised, or decision-making oriented. This mirrors the pattern highlighted by the African Development Bank's study, which documented those women perform the bulk of low-value and hazardous tasks in Uganda's waste sector but remain largely excluded from higher-tier operational and managerial spheres (African Development Bank, CIF Launch a Study on the Role of Women in Uganda's Plastic Recycling Economy, n.d.-b).

Leadership Representation: High Participation, Low Decision-Making Power

Leadership results reveal a systemic gender imbalance. Despite women forming a significant share of the workforce, especially in informal facilities, they remain almost entirely absent from leadership. Across six facilities, women constitute only **9.5%**, **1.9%**, and **9.6%** of leadership staff at FF-2, FF-1, and FF-3, respectively, while informal facilities record **0%** female leadership representation. This demonstrates a noticeable segregation of labour: women are present, but not empowered. This pattern reflects (Wilson et al., 2022b) who found that despite women being highly visible in waste systems, but are undervalued and rarely permitted upward mobility in career progression.

Income Inequality and Economic Participation

Economic data further reveal that women remain disadvantaged across most facilities. In **five of six workplaces**, women earn **13-40% less** than men performing work of similar physical intensity and risk. The most extreme income gaps are found in informal settings, such as IS-3 and IS-2, where weak regulatory oversight and limited social protection mechanisms increase women's vulnerability to wage inequities. These findings reinforce broader evidence that informal waste work often traps women in low-value, low-income positions (“Dignifying Lives of Women in Waste Management: Challenges and Way Forward - Practical Action,” n.d.-b) The single exception is FF3, where women earn **72% more** than men due to their placement in specialised, skilled supervisory and technical positions. This outlier demonstrates that when recruitment is skills-based and gender-responsive, women can outperform men economically. It also shows that the gender gap is not biological or cultural, but structurally determined by access to skills, training, and opportunities.

Alignment with Literature

These findings collectively confirm the gendered stratification of the waste labour force. Women's widespread participation does not translate into equitable representation or economic benefit, a trend consistent with observations from Johannesburg, South Africa, where women were found to be essential but undervalued in landfill systems (Wilson et al., 2022b). Similarly, (Gimenez-Jimenez et al., 2020) argue that cultural and informal institutional norms restrict women's advancement into leadership or financially rewarding roles, patterns clearly reflected in the Ugandan case.

Working Conditions and Occupational Challenges

Informal workers experienced significantly poorer conditions, reinforcing global evidence that informal waste roles expose women to greater health risks due to the absence of safety provisions (“Dignifying Lives of Women in Waste Management: Challenges and Way Forward - Practical Action,” n.d.-a) The sharp contrast between informal and formal facilities highlights inequalities embedded within waste-sector employment structures.

Women's health challenges, such as back pain, respiratory issues, and injuries, mirror trends documented in other African waste systems where informal waste pickers face hazardous exposure and lack medical support (Wilson et al., 2022b)

Policies and Relevance

The study shows a major disconnect between policy existence and policy implementation. Despite gender-supportive frameworks, institutional support remains weak, echoing findings by (Gimenez-Jimenez et al., 2020), who argue that informal institutional factors, such as cultural norms and social expectations, often hinder women's entrepreneurial and occupational advancement.

Cultural stigma contributes heavily to women's marginalisation. Waste handling is still perceived as "dirty work," and women bear the social burden of that stigma, consistent with Practical Action's documentation of social devaluation experienced by female waste workers ("Dignifying Lives of Women in Waste Management: Challenges and Way Forward - Practical Action," n.d.-b).

Empowerment, Protection, and Leadership Pathways

Women articulated clear and practical strategies for improving their welfare, demonstrating agency, awareness, and readiness for leadership. Their recommendations align closely with international best practice, which emphasises training, safety, formalisation, and policy enforcement as pillars of gender-responsive waste management ("African Development Bank, CIF Launch a Study on the Role of Women in Uganda's Plastic Recycling Economy," n.d.-c).

Leadership inclusion and capacity building emerged strongly, reflecting global calls for elevating women's voices in urban environmental systems.

CONCLUSION AND SMART RECOMMENDATIONS

Conclusion

This study confirms that women occupy roles in Uganda's waste management sector that are constrained by institutional, regulatory, and socio-cultural structures, reflecting persistent challenges in achieving SDG 5 (Gender Equality), SDG 8 (Decent Work and Economic Growth), and SDG 12 (Responsible Consumption and Production). Women's participation is highest in informal facilities, where they constitute more than 70% of the workforce, primarily engaged in labour-intensive activities such as sorting, picking, and basic recycling, yet their representation sharply declines in technical, mechanised, and decision-making roles, indicating limited progress toward inclusive and equitable labour participation under SDG 8 and SDG 5. Leadership remains overwhelmingly male-dominated, with women accounting for only 1.9% to 9.6% of supervisory or managerial positions in formal facilities and none in informal settings, reinforcing structural barriers to gender equality and inclusive governance.

Income disparities further reflect systemic inequality, with women earning 13% to 40% less than men in comparable roles across most facilities, particularly in informal settings where weak regulation undermines decent work conditions under SDG 8. The exception observed in FF-3 demonstrates that when women access specialised and skilled roles, they can earn significantly more than men, underscoring that income inequality is structurally and institutionally shaped rather than inherent. Working conditions also vary significantly, with women in informal facilities experiencing higher exposure to hazardous waste, limited access to protective equipment, and inadequate medical support, resulting in higher risks to health and safety and highlighting deficits in decent work standards under SDG 8 and sustainability objectives under SDG 12.

Although 53% of respondents demonstrate awareness of gender-related policies, weak implementation, limited institutional support, and entrenched cultural stigma reported by 90% of participants continue to hinder progress toward inclusive governance, safety, and economic empowerment. Collectively, these findings highlight the urgent need for targeted and measurable interventions to strengthen gender equality (SDG 5), improve decent work conditions (SDG 8), promote sustainable and safe waste systems (SDG 12), and enhance institutional collaboration and implementation capacity under SDG 17 in Uganda's waste management sector.

SMART Recommendations

Mandatory Gender Reporting in Waste Facilities

- **Action:** Require all formal and informal waste facilities to report workforce composition, pay scales and rates as applicable to informal settings, and leadership roles by gender.
- **Measurable:** Facilities submit quarterly reports (simple enough for informal settings' use); 100% compliance jointly tracked by district and national environmental authorities and Gender Office of the Ministry of Labour and Gender.
- **Achievable:** Utilize standardized reporting templates.
- **Relevant:** Enables monitoring of gender equity and identification of gaps.
- **Time-bound:** Implement within 12 months of policy adoption.

Gender-Responsive Occupational Safety Plans

- **Action:** Develop safety protocols tailored to women's roles, including consistent PPE provision, bi-annual health monitoring, and hazard-specific procedures.
- **Measurable:** 100% of women workers equipped with PPE and receive regular health check-ups.
- **Achievable:** Partner with local health centres and PPE suppliers.
- **Relevant:** Reduces occupational risks in informal and formal settings.
- **Time-bound:** Roll out protocols within 6 months, with quarterly compliance monitoring.

Skills Development and Technical Training Pathways

- **Action:** Provide targeted training in machinery operation, hazardous waste handling, recycling technologies, and supervisory skills.
- **Measurable:** Train a minimum of 4 women per facility annually; assess skills via competency evaluations.
- **Achievable:** Collaborate with technical institutes and NGOs experienced in women's vocational training.
- **Relevant:** Facilitates upward mobility and reduces structural inequalities.
- **Time-bound:** First cohort trained within 12 months, with annual skill assessments.

Leadership Development and Mentorship Programs

- **Action:** Establish clear pathways into supervisory and managerial roles, including mentorship, quotas, and inclusion in committees/cooperatives.
- **Measurable:** Increase women in leadership by at least 2.5% annually across formal facilities.
- **Achievable:** Pair each candidate with a senior mentor and integrate leadership modules into training.
- **Relevant:** Strengthens women's influence in decision-making.
- **Time-bound:** Achieve first 5 % increase within 2 years.

Formalization and Regulation of Informal Waste Work

- **Action:** Support the registration and regulation of informal facilities, introduce minimum safety standards, worker identification systems, and cooperative-based income stabilization.
- **Measurable:** At least 80% of informal facilities registered and inspected annually.
- **Achievable:** Engage municipal authorities and local NGOs for outreach and registration support.
- **Relevant:** Protects women workers, stabilizes income, and improves workplace safety.
- **Time-bound:** Complete initial registration within 18 months.

Strengthen Policy Implementation and Institutional Oversight

- **Action:** Enforce existing gender policies through audits, accountability mechanisms, and institutional support measures (insurance, childcare, financial literacy).
- **Measurable:** 100% of facilities audited annually; aim for 90% compliance with gender policy standards.

- **Achievable:** Utilize existing municipal inspection teams and institutional reporting frameworks.
- **Relevant:** Translates policy rhetoric into tangible workplace equity.
- **Time-bound:** Begin first audit within 12 months, continue annually.

Public Awareness and Anti-Stigma Campaigns

- **Action:** Conduct community sensitization initiatives highlighting women’s contributions and challenging social stigma.
- **Measurable:** Reach at least 5,000 community members per year via workshops, radio, and social media campaigns.
- **Achievable:** Partner with NGOs, schools, and media outlets.
- **Relevant:** Promotes respect for women’s environmental stewardship and social inclusion.
- **Time-bound:** Launch campaign within 6 months; evaluate impact annually.

Wage Equity Monitoring and Enforcement

- **Action:** Implement wage monitoring systems and enforce equitable compensation across facilities.
- **Measurable:** Publish annual wage-gap reports; reduce gender pay gaps by 10% per year.
- **Achievable:** Conduct payroll audits in formal settings, with municipal oversight and also use meaningful and applicable payment documentations in informal settings.
- **Relevant:** Ensures fair economic treatment for women workers.
- **Time-bound:** First audit and report within 12 months; follow up annually.

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ABOUT THE AUTHORS

Temitope Odeshi, BSc (Hons) in Industrial Chemistry and MSc in Environmental Management and Protection, PhD candidate at Kampala International University, Uganda.

Oluwole Olusegun Akiyode, PhD, Senior Lecturer and Head of the Department of Biological and Environmental Sciences at Kampala International University, Uganda.

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