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Women's Empowerment and challenges through Waste Recycling Entrepreneurship in Lagos State, Nigeria: A Qualitative Study

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A B S T R A C T

Women's participation in waste recycling can create livelihood and entrepreneurial opportunities, yet participation does not necessarily translate into meaningful economic and social empowerment. This study examines women's empowerment through waste recycling entrepreneurship in Lagos State, Nigeria, focusing on access to productive resources, entrepreneurial agency, decision-making, livelihood outcomes, social recognition, and the structural constraints shaping women's experiences. The study adopted a qualitative research design guided by Kabeer's resources–agency–achievements framework. The findings identified eight major themes: motivations for entering waste recycling entrepreneurship; access to resources; entrepreneurial agency and decision-making; economic empowerment and livelihood outcomes; social empowerment and recognition; gender-based constraints and discrimination; occupational safety and working conditions; and institutional and policy support. The findings showed that waste recycling provides women with income, livelihood support, entrepreneurial opportunities, business networks and, for some participants, greater autonomy. However, limited access to finance, equipment, storage, training and markets constrains enterprise growth and movement into higher-value recycling activities. Gender-based harassment, household constraints, restricted control over income, occupational hazards and inadequate institutional support further limit empowerment outcomes. The study recommends integrated gender-responsive interventions combining finance, technology, skills development, market linkages, occupational safety, and institutional protection to transform women's participation in recycling into sustainable and empowering entrepreneurship.

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INTRODUCTION

Women's economic empowerment has increasingly become an important component of inclusive development, poverty reduction, gender equality, and sustainable livelihoods. Beyond participation in paid employment, empowerment encompasses women's ability to access and control productive resources, make strategic decisions, exercise agency, and derive meaningful economic and social benefits from their activities (Kabeer, 1999). The United Nations Economic Commission for Africa (UNECA) similarly conceptualizes women's economic empowerment in terms of improvements in women's human, financial and physical capital, access to economic opportunities, and the resulting enhancement of agency and voice (UNECA, 2016). In this regard, entrepreneurship can provide women with opportunities to generate income, accumulate assets, develop skills, exercise control over productive activities and strengthen their bargaining position within households and communities. However, entrepreneurship does not automatically result in empowerment, particularly where women entrepreneurs operate within restrictive institutional, financial, social, and gendered environments.

The growing interest in women's entrepreneurship has generated substantial scholarship on the contribution of women-owned enterprises to employment, household livelihoods and local economic development. Nevertheless, research has also cautioned against viewing women entrepreneurs simply through a narrowed lens or assuming that women's enterprises are inherently small, survival-oriented or less economically significant than those operated by men. Ahl (2006) explained that conventional entrepreneurship research has sometimes reproduced gendered assumptions by treating women's businesses as secondary to men's economic activities. A more useful approach is therefore to examine the institutional and social conditions within which women entrepreneurs operate and to understand how entrepreneurial activity can create, constrain or transform women's agency.

Nevertheless, participation in waste recycling should not be equated automatically with empowerment. Recent evidence from Lagos demonstrates that women involved in landfill waste picking face gendered barriers, including gender-based divisions of waste, unequal access to recyclable materials, physical violence, gender norms and male-dominated working arrangements (Nnanwube & Olutayo, 2026). These constraints indicate that women's participation may occur within unequal structures that simultaneously provide livelihood opportunities and reproduce gender disadvantages. Similarly, studies of waste pickers in Lagos have identified occupational hazards, harassment, price fluctuations, and low social status among the challenges confronting workers in the sector (Abu et al., 2025).

Against this background, this study examines women's empowerment through waste recycling entrepreneurship in Lagos State, Nigeria. Specifically, the study explores how participation in waste recycling entrepreneurship affects women's economic agency, access to resources, decision-making, livelihood opportunities and social recognition, while also identifying the institutional, financial, technological, market and gender-related challenges that shape these

experiences. By focusing on women's voices and their experiences, the study contributes to the literature on women's entrepreneurship, gender and circular economy, informal waste management, and inclusive sustainable development.

LITERATURE REVIEW

Concept of Women's Empowerment

Women's empowerment is a multidimensional concept concerned with the expansion of women's ability to make choices and act upon those choices. Kabeer (1999) provides one of the most influential conceptualisations by identifying three interconnected dimensions: resources, agency and achievements. Resources represent the conditions that enable women to exercise choice and may include financial capital, education, skills, social networks, productive assets and institutional support. Agency refers to women's ability to define goals, make decisions, negotiate and act upon their preferences. Achievements represent the outcomes of these processes, including improvements in well-being, economic security and social position.

Contemporary approaches similarly emphasise economic agency, autonomy, access to and control over resources, income, time and decision-making. UN Women (2024) describes economic empowerment as a transformative process involving women's ability to exercise economic and social rights, access resources and assets, and challenge inequalities. The emphasis on agency is important because income increases alone may not fundamentally alter gender relations if women lack control over earnings or remain constrained by household and institutional expectations.

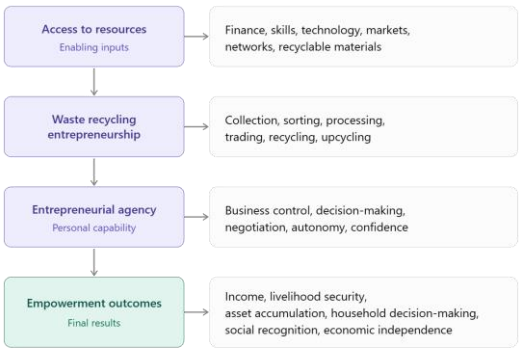


Figure 1: Conceptual Framework for women entrepreneurs' empowerment in waste recycling activities

This process is moderated by gender norms, discrimination, occupational safety, institutional support, infrastructure, market conditions and government policies.

This conceptualisation recognises that entrepreneurship may create opportunities for empowerment while structural inequalities may simultaneously constrain the extent to which those opportunities translate into meaningful changes in women's lives.

Women's Entrepreneurship and Empowerment

Women entrepreneurship refers broadly to women's creation, ownership, management and development of enterprises. It has been associated with income generation, employment creation, household welfare and local economic development. Entrepreneurship can provide women with opportunities to diversify household income, develop business skills, accumulate assets and gain greater autonomy in economic decision-making.

However, feminist entrepreneurship scholarship cautions against treating women entrepreneurs as a homogeneous category. Women's entrepreneurial experiences are shaped by gender norms, class, education, household responsibilities, access to capital, institutional structures and market conditions. Ahl (2006) opined that entrepreneurship research needs to move beyond approaches that implicitly position women's businesses as inferior or secondary and instead examine the social and institutional conditions shaping women's entrepreneurial experiences.

The relationship between entrepreneurship and empowerment can therefore be understood as conditional. Access to finance, business networks, technology, markets and training can strengthen entrepreneurial capacity, while discriminatory practices and unequal access to productive resources can limit the extent to which entrepreneurship translates into empowerment. In the Nigerian context, gender relations and patriarchal structures continue to shape women's entrepreneurial experiences and access to finance. Onoshakpor and Ng (2026), using qualitative evidence from Nigerian entrepreneurs, found that gendered social constructions influenced the entrepreneurial process and that the sector of operation was particularly important in determining women's access to finance

Women's participation in recycling can contribute to environmental sustainability, livelihood creation and resource recovery, but participation may also occur under conditions characterised by low economic returns, occupational risks, discrimination and limited institutional protection (Palm et al., 2024; Shakuto, 2024). Consequently, a gender-responsive circular economy requires attention not only to the number of women participating but also to the quality and conditions of their participation. Important considerations include women's ownership and control of enterprises, income distribution, participation in decision-making, access to finance and technology, leadership opportunities, occupational safety, market power and institutional recognition (Palm et al., 2024; Shakuto, 2024).

Informal waste recycling is an important source of livelihoods in most developing nations particularly where formal waste-management systems have limited coverage. Informal waste workers contribute to material recovery and environmental management but often operate under conditions characterised by weak regulation, occupational hazards and social marginalisation (Wilson et al., 2006; Velis et al., 2012; Zolnikov et al., 2021; Uddin et al., 2020). In Lagos, these challenges intersect with gender. Nnanwube and Olutayo (2026), using in-depth interviews with women and men waste pickers and key informants, found that women's participation in landfill waste picking is shaped by gendered working arrangements, unequal access to recyclable materials, physical violence, gender

norms, and other structural barriers. Their findings demonstrate that the waste-recycling environment is not gender-neutral. Similarly, research on waste pickers in Lagos Mainland identifies price fluctuations, harassment, occupational hazards and low self-esteem among major challenges, while also highlighting income generation, material recovery and environmental benefits as important opportunities (Abu et al., 2025). These findings suggest that women's participation in recycling can involve a tension between livelihood opportunity and structural vulnerability. Recycling may provide income and economic activity, but women may simultaneously experience restricted access to resources, unsafe working conditions, gender discrimination, and limited control over valuable recyclable materials.

Waste recycling entrepreneurship can contribute to women's economic empowerment through several pathways. First, it can provide direct income. Regular earnings from the collection, sorting, trading or processing of recyclable materials may improve women's ability to meet household needs and reduce dependence on other sources of income. Second, entrepreneurial activity can facilitate asset accumulation and business investment. Third, engagement in recycling can contribute to the development of technical, managerial and market-related skills, thereby strengthening women's productive capabilities and economic opportunities (Kabeer, 1999; Muktar et al., 2025). Recent evidence from Lagos State similarly indicates that plastic waste-to-wealth entrepreneurship is associated with women's income generation and skill development, both of which are relevant to empowerment outcomes (Muktar et al., 2025).

The potential empowerment effects extend beyond income. Entrepreneurship may increase women's confidence, social networks, bargaining power and participation in household decision-making. From Kabeer's (1999) perspective, however, empowerment involves more than access to economic resources; it encompasses the interaction of resources, agency and achievements. Similarly, UNECA (2016) conceptualises women's economic empowerment in terms of access to productive resources and economic opportunities alongside increased agency, voice and capacity to influence decisions. These dimensions suggest that women's participation in recycling should be assessed not only in terms of earnings but also in terms of whether participation strengthens their ability to make choices and exercise control over resources.

However, the empowerment pathway is not automatic. Women may participate in income-generating activities without necessarily gaining control over the income generated, productive assets or important business decisions. Dependence on intermediaries, low prices for recovered materials, limited access to finance and restricted market opportunities can constrain the extent to which recycling participation translates into substantive empowerment (Kabeer, 1999; Onoshakpor & Ng, 2026). Evidence from Nigeria also indicates that gender relations and patriarchal structures can shape women's entrepreneurial experiences and access to finance (Onoshakpor & Ng, 2026). Thus, participation may generate livelihood benefits without producing corresponding changes in agency, decision-making power or control over resources. This distinction is central to the present study.

Access to finance is one of the major factors shaping women's entrepreneurial development. Women entrepreneurs may rely heavily on personal savings, family support, rotating savings arrangements, informal credit and microfinance because of barriers to formal credit. Evidence from Nigeria indicates that gendered social structures and the sector in which women operate can influence their access to entrepreneurial finance, with women often navigating financing constraints within broader patriarchal and resource-constrained contexts (Onoshakpor & Ng, 2026). In waste recycling, financing constraints can be particularly significant because businesses may require vehicles, storage facilities, sorting equipment, protective equipment, processing machinery and working capital. These resource requirements can create entry and expansion barriers for women entrepreneurs, particularly where access to formal financial services is limited (Onoshakpor & Ng, 2026; Palm et al., 2024).

Furthermore, gender norms can influence the type of waste activities women undertake, the locations in which they work and the level of control they exercise over recyclable materials. Social expectations concerning women's domestic responsibilities may restrict their time and mobility, while perceptions about physically demanding waste work may discourage or constrain participation. Similarly, discrimination can also occur within recycling spaces. In a recent study in Lagos, Nnanwube and Olutayo (2026) identified gendered divisions of labour, unequal competition for recyclable materials, physical violence and normalised gender roles as structural barriers to women's participation in landfill waste picking.

METHODOLOGY

Research Design

This study used a qualitative research design to explore women's experiences of empowerment through waste recycling entrepreneurship in Lagos State, Nigeria. A qualitative approach was considered appropriate because the study aims to understand participants experiences, perceptions, motivations, agency, opportunities, and constraints within the waste recycling sector. Rather than measuring empowerment through observable economic indicators, the study examined how women themselves perceive changes in their economic independence, decision-making capacity, access to resources, entrepreneurial autonomy and social recognition.

The study was informed by Kabeer's (1999) resources–agency–achievements framework, which conceptualises empowerment as a process involving access to resources, the ability to exercise agency and the achievement of meaningful outcomes. The framework provided an analytical structure for examining how participation in waste recycling entrepreneurship may create opportunities for women's empowerment while also exposing them to structural and gender-related constraints.

Study Area

Lagos State is selected as the study area because it is the commercial hub of Nigeria, with high population, high waste generation presence of formal and informal waste-management and recycling systems.

The study focused particularly on women who participate directly in waste recycling entrepreneurship, including women involved in the collection, sorting, aggregation, trading, processing, recycling and upcycling of recyclable materials. The setting provides an appropriate context for investigating the relationship between waste-based entrepreneurship and women's empowerment because women participate in different segments of the recycling value chain while facing varying levels of access to capital, technology, markets, and institutional support.

Study Population and Sampling

The study population comprised women entrepreneurs engaged in waste recycling activities in Lagos State. Participants were selected purposively because the study required respondents with direct and relevant experience of waste recycling entrepreneurship.

Participants were selected based on these criteria:

women aged 18 years or older;

actively involved in waste recycling or a related recycling enterprise;

had been engaged in waste circular activities from six months and above

willing to participate in the focus group discussion.

Snowball sampling was subsequently used where necessary to identify additional women entrepreneurs through existing participants and recycling networks. To capture diversity of experiences, the sampling process sought variation in participants' age, marital status, educational background, type of recycling activity, years of entrepreneurial experience and scale of operation.

Data Collection

Primary data were collected through focus group discussions (FGDs). The FGDs allowed participants to describe their individual experiences, motivations, challenges and perceptions of empowerment in greater depth. Furthermore, it provides an opportunity to examine shared experiences, differences in perception and collective interpretations of women's participation in the recycling sector.

FINDINGS AND DISCUSSION

Demographic Analysis

The study involved 36 women entrepreneurs participating in waste recycling activities across selected locations in Lagos State. Participants represented different segments of the recycling activities- collection, sorting, aggregation, trading, processing, upcycling.

The participants differed in age, educational background, marital status, years of entrepreneurial experience and scale of recycling operations. This diversity enabled the study to capture different dimensions of women's experiences within the recycling sector.

Table 1: Demographic information of the women waste recycling entrepreneurs

Variables	Frequency	Percentage
Age (years)		
18- 27	8	22.2%
28-37	16	44.4%
38-47	12	33.3%
48-57 and above	0	00.0%
Education:		
formal Education	24	66.7%
No Formal Education	12	33.3%
Marital Status:		
Single	20	55.6%
Married	16	44.4%
Working/ Engage in other income activities:	16	44.4%
Yes	20	55.6%
No		
Spouse involvement:		
Yes	13	36.1%
No	23	63.9%
Business Experience:		
<2 years	11	30.6%
2 years-5 years	14	38.9%
6years -9 years	7	19.4%
Above 9 years	4	11.1%

Source: Authors Compilation, 2026

Table 1 presents the demographic and entrepreneurial characteristics of the 36 women waste-recycling entrepreneurs included in the study. The findings reveal important patterns relating to age, education, marital status, engagement in other income-generating activities, spousal involvement and business experience.

The age distribution indicates that the majority of the respondents were relatively young to middle-aged. Women aged 28–37 years constituted the largest proportion of the sample (44.4%), followed by those aged 38–47 years (33.3%), while respondents aged 18–27 years accounted for 22.2%. No respondent was aged 48 years or above. This distribution suggests that waste-recycling entrepreneurship in the study area is predominantly undertaken by women within the economically active age groups. The concentration of respondents between 28 and 47 years indicates that waste recycling represents an important livelihood and entrepreneurial opportunity for women who are economically active and seeking income-generating opportunities.

With respect to educational attainment, 66.7% of the respondents had formal education, whereas 33.3% had no formal education. The relatively high proportion of women with formal education suggests that participation in waste

recycling is not exclusively associated with low educational attainment. Women with some level of formal education may be able to utilize basic literacy, numeracy and business-management skills in activities such as record keeping, price negotiation, communication with buyers and management of recycling enterprises. Nevertheless, the one-third without formal education highlights the importance of accessible entrepreneurial, financial and technical training programmes that do not rely heavily on formal educational qualifications.

The marital-status distribution shows that 55.6% of the respondents were single, while 44.4% were married. The relatively balanced distribution indicates that waste-recycling entrepreneurship attracts women across different household circumstances. The slightly higher representation of single women may reflect the importance of independent income-generating activities among women who may have fewer household income sources. At the same time, the substantial participation of married women demonstrates that recycling entrepreneurship can constitute an important livelihood activity within households and may contribute to household income and economic resilience.

The findings further show that 44.4% of respondents were engaged in other income-generating activities, whereas 55.6% reported that waste recycling was their only income-generating activity. This result is particularly important from a livelihood perspective. More than half of the respondents depended solely on waste recycling as an income-generating activity, indicating that the sector may constitute a major source of livelihood for participating women. The remaining respondents who combine recycling with other economic activities may be pursuing livelihood diversification as a strategy for reducing income instability and managing the uncertainties associated with recyclable-material prices, material availability and market demand. The relatively high level of dependence on recycling also suggests that disruptions in the sector could have direct consequences for women's household welfare.

Regarding spousal involvement, only 36.1% of respondents indicated that their spouses were involved in their recycling activities, while 63.9% reported no spousal involvement. The predominance of independent enterprise operation suggests that many women manage their recycling businesses without direct participation from their spouses. This may indicate a relatively high degree of entrepreneurial autonomy among the respondents. However, it may also imply that women bear the primary responsibility for sourcing materials, managing operations, accessing markets and handling business risks. For married women in particular, the absence of spousal involvement may therefore have implications for access to financial resources, labour, and social support. This dimension warrants further investigation through the qualitative findings.

The distribution of business experience indicates that the respondents had varying levels of exposure to waste-recycling entrepreneurship. Women with 2–5 years of experience constituted the largest group (38.9%), followed by those with less than two years of experience (30.6%). Respondents with 6–9 years of experience accounted for 19.4%, while only 11.1% had more than nine years of experience. Overall, approximately 69.5% of the respondents had five years or less of business experience, suggesting that most women were relatively recent

entrants or had relatively short exposure to the recycling enterprise sector. This may indicate a growing interest in waste recycling as an entrepreneurial and livelihood opportunity. However, the relatively small proportion with more than nine years of experience may also suggest challenges associated with long-term business survival, enterprise expansion or retention within the sector.

Taken together, the demographic profile indicates that the women waste-recycling entrepreneurs were predominantly economically active, relatively young-to-middle-aged women, with majority possessing formal education and more than half relying on waste recycling as their sole income-generating activity. The predominance of relatively new businesses further suggests that waste recycling may provide an accessible entry point into entrepreneurship, but the relatively small proportion of long-established enterprises raises questions concerning business sustainability and growth. These findings provide an important foundation for examining the subsequent determinants of women's participation and the financial, market, technological, institutional and gender-related challenges confronting their enterprises.

Thematic Analysis from the FDGs

The FGDs were conducted to examine the determinants of women entrepreneurs' participation in waste recycling activities. Furthermore, the FGDs investigate whether women are empowered in these activities or not. The FGDs were conducted in the three major areas where waste disposing activities are majorly concentrated: Igando, Ketu and Ikorodu. These areas were selected because many recycling activities have been taking place in this environment for decades. Six FGDs were conducted – 2 each from the three selected areas (6 FGDs). Each FGD consists of 6 participants and the total participants for the FGDS in the three selected areas were 36

Theme One: Motivations for Entering Waste Recycling Entrepreneurship

The analysis revealed several motivations for women's participation in waste recycling entrepreneurship. The major motivations included income generation, unemployment or limited formal employment opportunities, household financial responsibilities, independence and recognition of business opportunities in recyclable materials.

Majority of the women participants described recycling as a practical means of generating income and supporting household expenditure. Others indicated that they entered the sector after observing opportunities to make money from recyclable materials.

A participant explained:

"I started this business because for long I have been looking for job I could not find one."

"My husband salary is too small to take care of the family so am doing this to help the family"

"I started collecting nylon and plastic bottles because my salary is too small, I am a widow and things are too expensive in the market. I am using this business to support my salary"

"I sell pure water the gain am making is too small especially now that it raining, market is too dull that is how my neighbor introduces me to this business"

Another participant emphasised the entrepreneurial opportunity associated with recyclable materials.

"I no get job, but my sister in-law introduced me to the business now at least I have my own business, and I can afford to buy some things for the family"

These accounts suggest that participation was not exclusively a response to economic necessity. For some participants, recycling was also perceived as a viable entrepreneurial opportunity.

Theme Two: Access to Resources as a Foundation for Empowerment

Access to financial, human, physical and social resources emerged as an important determinant of women's ability to establish and expand recycling businesses. Participants identified capital, recyclable materials, storage facilities, equipment, training, market information and business networks as important resources.

Financial resources

Limited access to affordable finance was frequently identified as a constraint. Participants reported relying on personal savings, family assistance, cooperative arrangements and informal borrowing.

"Money na big problem for this business, sometimes I will see some recyclable items that I can buy and resell to make high profit but because of no money I would not be able to buy them"

"Sometimes I do see some profitable items to buy, but because no where to keep them I had to buy the little I could sell immediately."

Another one said

"There are some machines that I can buy that will make help me convert the waste materials to other useful items and make better gain, but because of no money to buy the machine I had to sell the items to other people that have the machines "

The findings indicate that inadequate capital and resources may restrict women's ability to purchase equipment, increase inventory, rent suitable business premises or move into higher-value recycling activities.

Facilities

Facilities especially storage facilities were lacking in most of the study area and most women in the FGD explain lack/ inadequate facilities to keep their waste materials.

"Some time when I buy plenty I will be able to sell them little and make more profit but most times I always sell them at once because no facility or safe place to keep the items.

"Last month, I kept my unsold items under this small tent the next day I could not find them. It had been stolen."

Skills and training

Participants also identified training as an important resource. Skills relating to sorting, processing, product development, business management, marketing and financial management were perceived as useful for enterprise development.

"For where, no training yet but I use to look at those that are more experienced in the activities and copy what they are doing. There was a time that

some people came to us that we should come to Alausa for training, but I could not go because of the transportation fare."

Market access

Also, access to reliable buyers was another important issue. Participants indicated that fluctuating prices and dependence on intermediaries could reduce the returns obtained from recyclable materials.

Theme Three: Entrepreneurial Agency and Decision-Making

This theme is concerned with the extent to which recycling entrepreneurship strengthened women's agency and autonomy.

Participants described different levels of control over business operations, income and investment decisions. Some women reported having substantial autonomy, whereas others indicated that household responsibilities or relationships with business partners influenced their decisions.

One participant stated:

"I have control over my money but sometimes when my husband does not have money, I still borrow him."

"Any money I get from this business I must put it down for the family if not, next time my husband will not allow me to go out for the business."

"I used my money to buy whatever I want to buy but in most cases what I buy are majorly for the family."

The accounts suggest that entrepreneurial agencies extend beyond business ownership. It includes the ability to decide what materials to purchase, negotiate prices, determine how income is used, invest in the enterprise and decide whether and how the business should expand.

Theme Four: Economic Empowerment and Livelihood Outcomes

Participants generally described income generation as one of the most immediate benefits of recycling entrepreneurship.

A participant explained:

"Yes, I get income from the sales of the recyclable items and in most cases, I saved the money because my husband too is working."

"I get money from the business, but my husband decides how we use the money."

"I get money from the sorting of waste that I am doing, but the money no reach anywhere because things are too expensive in the market. I only use it to help the family. I cannot buy any equipment from the money."

However, the analysis should distinguish income generation from control over income. Where participants reported earning income but having limited authority over its use, the evidence would suggest that economic participation did not necessarily translate into full economic empowerment.

Theme Five: Social Empowerment and Recognition

Beyond economic outcomes, women entrepreneurs described changes in their confidence, social networks and community recognition. Few women reported that entrepreneurship increased their confidence in interacting with customers, suppliers, government officials and other business owners. Most of the women did not see any effect of waste activities on their social life and recognition in the communities. While only a few attest to the fact that recycling activities have helped their social lives. The few ones are:

"The activities in waste recycling made me to be member of some group in my area, this enable me to know where I can sell my items at better price, also among the group we also borrow ourselves money."
"The work am doing made me to meet some friends and we share opportunities and talk about our challenges in the work, and sometimes we do talk about our family issues"
The findings suggest that entrepreneurial participation may contribute to a limited extent to social empowerment by creating opportunities for some women to develop networks and become recognised as economic actors.
Theme Six: Gender-Based Constraints and Discrimination
Despite the empowering potential of recycling entrepreneurship, participants identified several gender-related constraints.
These challenges are:
"These men their own too much, they always dictate the items we can pick and also the time we can work"
"Me am here with my husband, so with my husband am protected, but my friend that has no husband here, the men use to harass her even with sex"
"we women we don't stay for late because many harassments always happen at late hours)"
These accounts demonstrate that women's participation occurs within a gendered institutional and social environment.
Theme Seven: Occupational Safety and Working Conditions

Occupational safety was another significant concern. Participants identified exposure to hazardous materials, sharp objects, contaminated waste, traffic, poor sanitation, and inadequate protective equipment as potential risks.

"Sometimes you are looking for nylon, but you can mistakenly touch poo. Also, sharp object had injured me several times and I had to go to the hospital for tetanus injection"

"The smell here is too much sometimes I would not be able to eat because am already exhausted with the smell I perceived."

The findings suggest that empowerment should not be evaluated exclusively through economic outcomes. Safe and dignified working conditions are also important components of meaningful participation.

Theme Eight: Institutional and Policy Support

Participants identified several forms of support that could improve women's participation in recycling entrepreneurship.

"What I am using now like this thick rubber glove in my hands, I bought it from the second-hand market and it is even expensive "

"Sometimes some people would come here and asked us to identify things that could help our business, we always tell them our request, but we no go see them again"

"Last year, some women came here and they said they are from government that we should come to Alausa for training, but I could not go because I no get transportation money. So, if they want us to attend training, they should bring bus that will carry us to the place"

Another woman said:

"If they want us to do any training or learn anything, they should give us transport money or come here to do the training for us."

Participants generally emphasised that support should move beyond short-term assistance toward interventions that improve women's productive capacity and position within the recycling value chain.

Taken together, the eight themes demonstrate that women's waste recycling entrepreneurship represents both an opportunity for empowerment and a context in which existing inequalities can be reproduced. The findings can be interpreted through Kabeer's (1999) resources–agency–achievements framework.

At the resource level, women identified finance, recyclable materials, equipment, storage facilities, training, market information and networks as critical resources. Limited access to these resources restricted their ability to expand businesses and move into higher-value recycling activities. At the agency level, some women demonstrated control over business decisions and income, while others experienced household and gender-related constraints on their autonomy. At the achievement level, recycling generated income and household livelihood benefits for many participants, while social empowerment and community recognition appeared more limited.

The findings therefore indicate that women's participation in recycling should not be interpreted as synonymous with empowerment. Rather, participation represents a potential entry point through which empowerment may occur when women acquire productive resources, develop entrepreneurial capabilities, exercise control over income and business decisions, and obtain safe and equitable opportunities to participate in higher-value activities. Where these conditions are absent, recycling may remain primarily a livelihood strategy with limited transformative effects.

An important implication is that empowerment interventions should address the structural conditions surrounding entrepreneurship, rather than focusing exclusively on encouraging women to enter the recycling sector. Financial inclusion, accessible skills development, appropriate technology, market linkages, occupational safety, protection from gender-based harassment and responsive institutional support are interconnected components of an enabling environment.

Overall, the findings suggest that waste recycling entrepreneurship has meaningful potential to contribute to women's economic empowerment in Lagos State, but this potential is conditional. The pathway from participation to empowerment is mediated by access to resources, entrepreneurial agencies, household relations, gender norms, market conditions, occupational safety, and institutional support. This multidimensional interpretation provides a stronger basis for understanding women's empowerment than measures based solely on participation or income generation.

Therefore, the thematic analysis of the focus group discussions provides important insights into the experiences of women engaged in waste recycling entrepreneurship in Lagos State. Across the eight themes, the findings demonstrate that women's participation in waste recycling is simultaneously a livelihood strategy, an entrepreneurial opportunity and a potential pathway to

empowerment. However, the evidence also indicates that the empowerment potential of recycling entrepreneurship is constrained by limited access to finance and productive resources, restricted control over income, gender-based constraints, occupational hazards and gaps in institutional support. The findings therefore support a multidimensional understanding of women's empowerment in which participation in an income-generating activity is not regarded as sufficient evidence of empowerment. Rather, empowerment depends on women's access to resources, capacity to exercise agency and ability to achieve meaningful economic and social outcomes.

CONCLUSION

This study examined women's empowerment through waste recycling entrepreneurship in Lagos State, Nigeria, with particular attention to the factors shaping women's participation, access to productive resources, entrepreneurial agency and empowerment outcomes. Drawing on findings from six focus group discussions involving 36 women entrepreneurs across Igando, Ketu and Ikorodu, the study found that waste recycling constitutes an important livelihood and entrepreneurial activity for women. Participants reported entering the sector because of income needs, unemployment or limited formal employment opportunities, household financial responsibilities, the desire for economic independence and recognition of business opportunities in recyclable materials.

The findings, however, indicate that women's participation in waste recycling does not automatically translate into comprehensive empowerment. Access to resources emerged as a fundamental condition shaping the ability of women to establish, sustain, and expand their enterprises. Limited access to finance, storage facilities, equipment, training, recyclable materials and market information constrained women's ability to increase the scale and profitability of their businesses. Also, inadequate capital and limited access to recycling machinery restricted some women to lower-value activities such as collection, sorting and trading, thereby limiting their ability to move into higher-value processing and recycling activities.

The findings further demonstrate that entrepreneurial agency is an important dimension of women's empowerment. Some participants reported substantial control over their businesses and earnings, while others indicated that household responsibilities and relationships with spouses influenced how their income was used. Consequently, income generation alone cannot be considered sufficient evidence of economic empowerment. The ability to exercise control over income, participate in business decisions, negotiate with buyers, invest in the enterprise and determine the direction of business development is equally important.

The study also found that the empowerment outcomes associated with recycling entrepreneurship extend beyond income. Some participants reported developing social networks through business groups, sharing market information and obtaining informal financial assistance. However, broader social recognition and social empowerment appeared limited among most participants.

This suggests that while recycling entrepreneurship may strengthen women's economic participation and social connections, its capacity to transform into wider gender and social relations remains constrained.

Gender-based constraints and occupational safety concerns further limit the empowering potential of the sector. Participants reported harassment, restrictions on working hours and concerns about personal safety. They also described exposure to sharp objects, contaminated materials, unpleasant odours and other occupational hazards. These findings demonstrate that women's empowerment in waste recycling should be understood not only in terms of income and business ownership but also in terms of safety, dignity, autonomy, and equitable participation.

Finally, the findings reveal a gap between the availability of institutional support and women's ability to access such support. Although participants reported opportunities for training and engagement with government or other organisations, transportation costs, limited follow-up and the location of training programmes restricted effective participation. Institutional interventions that do not consider these practical barriers may therefore have limited impact.

Overall, the study concludes that waste recycling entrepreneurship has considerable potential to serve as a pathway to women's economic empowerment in Lagos State, but this potential is conditional. The transition from participation to meaningful empowerment depends on women's access to productive resources, entrepreneurial agencies, control over income, safe working conditions, market opportunities and responsive institutional support. The findings therefore support a multidimensional understanding of empowerment in which resources, agency and achievements interact to determine whether participation in waste recycling produces meaningful improvements in women's economic and social position.

RECOMMENDATIONS

Based on the findings of the study, the following recommendations are proposed:

- Improve women's access to affordable finance
- Promote access to appropriate recycling technology
- Provide accessible and practical skills development
- Establish safer working environments
- Strengthen protection against gender-based harassment
- Support women's entrepreneurial agencies and control over income
- Develop women-focused recycling cooperatives and networks
- Improve institutional coordination and follow-up
- Integrate women's empowerment into circular-economy policy

POLICY IMPLICATIONS

The findings have important implications for policy and practice. First, interventions aimed at women in the waste-recycling sector should adopt an empowerment-oriented rather than participation-oriented approach. Simply increasing the number of women involved in recycling may not produce meaningful empowerment if women remain concentrated in low-value activities, lack control over their earnings or operate under unsafe conditions.

Second, interventions should address the interconnected nature of the constraints identified by the women. Finance without technology may not enable enterprise upgrading; training without transportation support may not be accessible; and access to markets without bargaining power may not substantially improve returns. A more integrated approach combining finance, skills, technology, market linkages, safety and institutional support is therefore required.

Third, women should be recognised as active economic actors within the circular economy rather than merely as beneficiaries of waste-management programmes. Supporting their progression into processing, upcycling, manufacturing and other higher-value activities could potentially strengthen both women's livelihoods and the broader economic value generated from recyclable materials.

CONTRIBUTION OF THE STUDY

The study contributes to literature by examining women's empowerment in waste recycling through a multidimensional qualitative perspective. Rather than measuring empowerment exclusively through income or participation, the study considers the interconnected roles of access to resources, entrepreneurial agency, economic outcomes, social networks, gender relations, occupational safety and institutional support. The findings demonstrate that waste recycling can provide women with important livelihood and entrepreneurial opportunities, while simultaneously exposing them to structural and gender-specific constraints. This provides a basis for future research and policy interventions that seek to transform women's participation in waste recycling into more sustainable and empowering forms of entrepreneurship.

REFERENCES

Abu, R. D., Abu, G. O., Agbebaku, H. G., Jimoh, R., & Bizi, H. L. (2025). Challenges and opportunities of waste pickers' engagement in informal waste recovery and recycling sectors in Lagos Mainland, Nigeria. *African Journal of Geographical Sciences*.

Afolabi, A. O., et al. (2022). Waste pickers' perception of occupational hazards and well-being in a Nigerian megacity. *International Journal of Environmental Studies, 80*(4), 933–947. https://doi.org/10.1080/00207233.2022.2055344

Ahl, H. (2006). Why research on women entrepreneurs needs new directions. *Entrepreneurship Theory and Practice, 30*(5), 595–621. https://doi.org/10.1111/j.1540-6520.2006.00138.x

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology, 3*(2), 77–101. https://doi.org/10.1191/1478088706qp063oa

Ezeudu, O. B., & Ugochukwu, U. C. (2026). Assessing the contributions of informal waste management sector and its economic potentials in Nigeria: Challenges and opportunities for macro-level circular economy implementation. *Waste Management & Research*.

Granados, et al. (2026). Towards a socially inclusive circular economy: Evidence from social enterprises in low- and middle-income countries. *Business Strategy and the Environment*.

Kabeer, N. (1999). Resources, agency, achievements: Reflections on the measurement of women's empowerment. *Development and Change, 30*(3), 435–464. https://doi.org/10.1111/1467-7660.00125

Ladan, S. I., & Ladan, A. (2016). *Assessing entrepreneurship opportunities in waste management*.

Proceedings of the 1st International Conference on Social and Management Science Research.

Maghsoudi, M., Mohammadi, N., & Kia, R. (2026). Data driven identification of entrepreneurial opportunities in trash to cash initiatives within the circular economy. *Discover Sustainability, 7*, Article 1197. https://doi.org/10.1007/s43621-026-03718-4

Muktar, I. M. C., Bassey, E. I., & Timilehin, O. O. (2025). Role of income and skill development in plastic waste-to-wealth entrepreneurship: Empowering women in Sub-Saharan Africa. *Asian Economic and Financial Review, 15*(12).

Nnanwube, E. F., & Olutayo, A. O. (2026). Barriers to women's participation in Lagos State, Nigeria, landfill waste picking. *Local Environment*. https://doi.org/10.1080/13549839.2026.2621329

Nzeadibe, T. C., & Iwuoha, H. C. (2008). Informal waste recycling in Lagos, Nigeria. *Communications in Waste & Resource Management, 9*(1), 24–30.

Onoshakpor, C., & Ng, P. Y. (2026). Gender, entrepreneurship and access to finance in patriarchal context. *International Journal of Gender and Entrepreneurship*. https://doi.org/10.1108/IJGE-04-2024-0134

Palm, J., Lazoroska, D., Valencia, M., Bocken, N., & Södergren, K. (2024). A gender perspective on the circular economy: A literature review and research agenda. *Journal of Industrial Ecology, 28*(6), 1670–1683. https://doi.org/10.1111/jiec.13554

Uddin, S. M. N., Gutberlet, J., Ramezani, A., & Nasiruddin, S. M. (2020). Experiencing the everyday of waste pickers: A sustainable livelihoods and health assessment in Dhaka City, Bangladesh. *Journal of International Development, 32*(6), 833–853. https://doi.org/10.1002/jid.3479

United Nations Economic Commission for Africa. (2016). *Women's economic empowerment: Boosting women's entrepreneurship in Africa*. UNECA.

UN Women. (2024). *Women's economic empowerment strategy*. United Nations Entity for Gender Equality and the Empowerment of Women.

Velis, C. A., Wilson, D. C., Rocca, O., Smith, S. R., Mavropoulos, A., & Cheeseman, C. R. (2012).

An analytical framework and tool ('InteRa') for integrating the informal recycling sector in waste and resource management systems in developing countries. *Waste Management & Research, 30*(1), 43–66. https://doi.org/10.1177/0734242X12454934

Wilson, D. C., Velis, C., & Cheeseman, C. (2006). Role of informal sector recycling in waste management in developing countries. *Habitat International, 30*(4), 797–808. https://doi.org/10.1016/j.habitatint.2005.09.005

Zolnikov, T. R., Furio, F., Cruvinel, V., & Richards, J. (2021). A systematic review on informal waste picking: Occupational hazards and health outcomes. *Waste Management, 126*, 291–308. https://doi.org/10.1016/j.wasman.2021.03.006