

# The Role of Informal Waste Pickers in Plastic Waste Recycling: Case Studies from African Cities

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## ABSTRACT

Plastic waste management is an escalating challenge in African cities, exacerbated by rapid urbanization and inadequate formal waste management systems. Informal waste pickers serve as crucial actors in plastic waste recycling, playing a vital role in diverting waste from landfills and reintroducing materials into the recycling value chain. This article examines their contributions, focusing on their involvement in waste collection, sorting, and material recovery. Through case studies from Lagos, Accra, Nairobi, and Johannesburg, it explores the economic, environmental, and social benefits of their work while highlighting the significant challenges they face, including hazardous working conditions, lack of recognition, and limited access to formal markets. The discussion also delves into policy frameworks and interventions that could enhance their contributions, such as formalization efforts, financial support, and inclusive waste management strategies. Additionally, the article evaluates regulatory gaps and potential models for integrating informal waste pickers into municipal waste systems. Finally, it presents recommendations for strengthening waste governance, fostering public-private collaborations, and advancing sustainable, inclusive circular economies in African urban settings.

**Keywords:** Informal Waste Pickers, Plastic Waste Recycling, African Cities, Circular Economy, Waste Management Policy

## INTRODUCTION

The increasing volume of plastic waste in African cities presents a significant environmental and public health challenge [1]. Rapid urbanization, population growth, and changing consumption patterns have led to an upsurge in plastic waste generation, overwhelming existing waste management systems [2]. Many municipal waste management structures struggle with inefficiencies, including inadequate infrastructure, limited funding, and poor enforcement of waste disposal regulations. Consequently, large amounts of plastic waste end up in landfills, drainage systems, and natural environments, exacerbating pollution, contributing to climate change, and posing serious risks to human and ecological health [3,4].

In this context, informal waste pickers (IWP) have emerged as key actors in recycling and waste recovery [5]. Despite operating outside formal waste management frameworks, IWPs play an essential role in reducing plastic pollution, promoting

recycling, and sustaining the circular economy [6]. Their activities include collecting, sorting, and selling plastic waste materials to local and international recycling industries, thereby diverting significant amounts of waste from disposal sites. This informal sector not only contributes to environmental sustainability but also serves as a critical livelihood source for many marginalized populations, including unemployed youth, women, and migrants who rely on waste picking as their primary source of income [7,8].

This review examines the role, contributions, and challenges faced by IWPs, as well as opportunities for their sustainable integration into municipal waste systems. It explores how IWPs function within urban waste management landscapes, the socio-economic impact of their work, and the regulatory frameworks governing their activities. Furthermore, the discussion highlights key case studies from different

African cities to illustrate the effectiveness of informal waste recycling networks and the policy interventions needed to support and optimize their contributions. Finally, the review proposes strategies to bridge the gap between informal and formal waste management systems, fostering collaboration between stakeholders and promoting inclusive, sustainable waste governance. By recognizing the essential contributions of IWPs and addressing the barriers they face, policymakers can create an enabling environment that strengthens waste management systems while improving socio-economic conditions for informal waste workers.

### **The Role of Informal Waste Pickers in Plastic Waste Recycling**

Informal waste pickers (IWPs) play a crucial role in plastic waste recycling by operating independently or within informal networks to collect, sort, and sell recyclable materials [9]. They bridge the gap between waste generation and resource recovery, contributing significantly to urban waste management systems in many African cities. Despite facing numerous challenges, IWPs remain an essential workforce in the recycling value chain, performing tasks that formal waste management systems often fail to address effectively [3].

One of their primary contributions is material recovery. IWPs extract valuable plastics from mixed waste streams, significantly reducing the volume of waste that ends up in landfills or the environment [6]. This activity not only helps manage urban waste but also provides a steady supply of raw materials for the recycling industry, supporting local manufacturing and reducing reliance on virgin plastics [2]. Economically, waste picking offers employment and income opportunities to marginalized populations, including unemployed individuals, women, and migrants. Many IWPs rely on plastic waste collection as their primary livelihood, helping to alleviate poverty and reduce economic disparities. By selling collected plastics to recycling firms and intermediaries, they create an informal but vital economic sector that sustains thousands of families [10]. From an environmental perspective, plastic waste recycling mitigates pollution, conserves resources, and reduces greenhouse gas emissions associated with plastic production. By diverting plastics from landfills and open dumpsites, IWPs contribute to cleaner urban environments, helping to curb the detrimental effects of plastic waste on ecosystems, water bodies, and human health [9]. Despite these contributions, IWPs face multiple challenges, including poor working conditions, social stigma, and lack of recognition in formal waste management policies. Addressing these issues through supportive policies, inclusion in waste

management programs, and improved access to protective equipment and fair market prices can enhance their efficiency and impact, making plastic waste recycling more sustainable and effective in African cities [8].

### **Case Studies from African Cities**

Several African cities illustrate the significant role of informal waste pickers (IWPs) in plastic waste recycling, highlighting both their contributions and the challenges they face in different urban contexts. These case studies from Lagos, Accra, Nairobi, and Johannesburg showcase diverse approaches to waste management and the varying levels of integration of IWPs within formal systems [11]. Lagos, Nigeria, is a major hub for plastic waste recovery, with IWPs playing an essential role in waste collection and recycling. Despite a lack of formal recognition, they collaborate with informal sector recyclers and exporters, ensuring that a substantial volume of plastic waste is repurposed. The city's dynamic waste economy allows IWPs to earn a living while reducing environmental pollution. However, they face difficulties such as fluctuating market prices, exploitative middlemen, and hazardous working conditions [12]. In Accra, Ghana, IWPs collect plastic waste and sell it to recycling companies, yet they operate in a largely unregulated environment. Their contributions to waste management are substantial, but they struggle with social stigma, inadequate safety measures, and limited legal recognition. Many waste pickers rely on informal agreements with scrap dealers, which often result in unfair compensation for their efforts. Municipal authorities have begun to acknowledge their role, but policy support remains minimal [13]. Nairobi, Kenya, has a thriving waste economy where IWPs play a crucial role in plastic waste recycling. However, they encounter significant barriers, including restrictive policies and hazardous working conditions. Many IWPs work in dumpsites under unsafe conditions, lacking protective gear and facing health risks [14]. Despite these challenges, waste picking remains a primary source of income for many urban poor. Some initiatives, such as waste picker cooperatives, aim to improve their bargaining power and working conditions, but comprehensive policy inclusion is still lacking [15]. Johannesburg, South Africa, stands out as a city that has made efforts to formalize the role of IWPs. The government has introduced programs that integrate waste pickers into the municipal waste management system, providing them with identification cards, designated sorting spaces, and access to training [16]. This approach has improved waste recovery rates and enhanced the livelihoods of many IWPs. However, challenges persist, including inconsistent

implementation of policies and resistance from formal waste management companies. These case studies underscore the importance of IWPs in urban waste recycling systems across Africa. Recognizing and integrating them into formal waste management frameworks can enhance sustainability, improve working conditions, and contribute to a more inclusive circular economy [17].

### **Challenges Facing Informal Waste Pickers**

Despite their crucial contributions to plastic waste recycling, informal waste pickers (IWPs) face multiple challenges that hinder their efficiency, well-being, and economic stability. These challenges include health risks, social stigma, economic exploitation, and regulatory barriers that limit their integration into formal waste management systems [18]. Health and safety risks remain a major concern for IWPs. Many work in hazardous environments such as dumpsites and streets, where they are exposed to toxic substances, sharp objects, and unsanitary conditions. The lack of protective gear increases their vulnerability to injuries and illnesses, while inadequate access to healthcare further exacerbates their struggles [19]. Social stigma and marginalization also affect IWPs, as they are often viewed as nuisances rather than valuable contributors to waste management. Negative perceptions from the public and authorities lead to discrimination, harassment, and exclusion from formal waste management discussions. The absence of legal recognition means they lack job security, social protection, and representation in decision-making processes [20].

Limited market access is another challenge, as IWPs often struggle with inconsistent pricing and dependence on intermediaries who exploit their labor. Many do not have direct access to recycling companies and must rely on middlemen who offer low prices for collected materials. This makes it difficult for them to achieve stable and sustainable incomes [21]. Policy and regulatory barriers further restrict the operations of IWPs. In many African cities, waste pickers operate in legal gray areas, facing periodic eviction from dumpsites and crackdowns by municipal authorities. The absence of supportive policies prevents their formal recognition, limiting opportunities for better working conditions and economic inclusion [22,23]. Addressing these challenges requires policy reforms, social inclusion, and economic support to enhance the livelihoods and

working conditions of IWPs while improving waste management sustainability.

### **Policy Responses and Opportunities for Integration**

Municipal authorities and policymakers can improve waste management systems by recognizing and supporting informal waste pickers (IWPs) through targeted interventions. Integrating IWPs into formal waste management structures not only enhances recycling efforts but also promotes economic and social inclusion. Several key strategies can facilitate this process [24]. Formalization and legal recognition are essential for ensuring the protection and empowerment of IWPs. Governments can achieve this by establishing waste picker cooperatives, issuing identification cards, and including IWPs in municipal waste management plans. Recognizing their contributions formally can help reduce exploitation and provide access to social protection, fair wages, and safer working conditions [25,26]. Capacity building and training initiatives are crucial in improving the efficiency and productivity of IWPs. Providing training on waste sorting, recycling techniques, financial management, and safety measures can enhance their skills and enable them to operate more effectively. Additionally, supplying protective gear and improved waste collection equipment can reduce health risks and improve overall working conditions [5].

Public-private partnerships can also play a vital role in integrating IWPs into the recycling value chain. Encouraging collaboration between IWPs, recycling companies, and government agencies can create sustainable waste management systems. Partnerships with private sector actors can lead to better waste processing infrastructure, market access for recycled materials, and improved income opportunities for waste pickers [27,28]. Incentivizing circular economy models is another approach that can promote sustainable recycling practices. Policies supporting waste valorization, extended producer responsibility (EPR), and incentives for businesses to use recycled materials can create a more robust market for recyclables. Establishing buy-back centers and offering financial incentives for recycling initiatives can further encourage efficient waste collection and processing [8]. By implementing these strategies, policymakers can enhance waste governance, improve waste management outcomes, and foster a more inclusive and sustainable recycling sector that benefits both IWPs and the environment.

### **CONCLUSION**

Informal waste pickers play a crucial role in plastic waste recycling in African cities, helping to reduce pollution, conserve resources, and support the livelihoods of marginalized communities. Their

contributions to environmental sustainability and waste management are significant, yet they continue to face numerous challenges, including poor working conditions, social stigma, and lack of legal

recognition. Addressing these challenges requires proactive interventions from governments, policymakers, and private sector actors. Inclusive policies that formally recognize and integrate IWPs into municipal waste management systems can enhance their working conditions and economic stability. Providing access to training, protective equipment, and fair market opportunities will further

strengthen their role in the recycling sector. By fostering collaboration between stakeholders and promoting circular economy models, cities can create sustainable waste management systems that benefit both IWPs and the broader urban environment. Recognizing their efforts is essential for achieving a more equitable and sustainable future.

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