THE BUSINESS CASE FOR GENDER IN THE PLASTIC WASTE MANAGEMENT SECTOR

Introduction

Globally, the plastic waste management sector is projected to grow annually at a rate of around 5% from 2022-32.[1] With plastic pollution now at crisis levels and many cities unable to meet demand for safe waste disposal, the sector can offer environmentally and socially responsible investment opportunities for mission-aligned companies, municipalities, and financiers.

While in the informal workforce that processes almost 60% of plastic waste around the world, **women are overrepresented in the lowest paid roles.**

In emerging economies, plastic waste management is both highly labor intensive and highly gendered. Within households, women are typically responsible for waste disposal, while in the informal workforce that processes almost 60% of plastic waste around the world, women are overrepresented in the lowest paid roles, including sorting, collecting, and aggregating waste. Recognizing the role that women play in the plastic waste sector can help improve the effectiveness of messaging around waste disposal and collection, unleash untapped market value, and better focus capacity building and formalization efforts to target women as a key workforce and supply chain demographic.

This business case highlights how companies and investors, in partnership with local and national governments, NGOs, and other stakeholders, can better support women in plastic waste management by addressing their needs as informal and formal workers, entrepreneurs, and consumers.

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From a commercial perspective, potential benefits of a gender-inclusive approach to plastic waste management include:

- Improving engagement with women in the informal plastic waste processing sector can improve efficiency in processing and create value in the sector, as well as reduce reputational risk by managing gender-specific vulnerabilities in the sector workforce.
- In the formal sector, strengthening the talent pool by including more qualified female candidates for formal employment can foster the innovation and advancement that comes with increased workforce diversity.
- Strengthening the local supply chain by working with more women-owned businesses can help keep costs low, support companies' social license and good standing in the local community, and reduce the risks of disruption or conflict.
- Harnessing gender insights to better target consumers, before and after plastic is disposed of, can improve efficiencies later in the plastics waste value chain.

1. The Business Case for Closing Gender Gaps in the Plastic Waste Management Sector

a. Understanding the role that women play is essential to the design of effective waste management services.

Understanding who makes key decisions about purchasing products and disposing of post-consumer waste is essential to developing waste management systems that are efficient, effective, and widely used. Globally, women are often in charge of domestic tasks, including waste disposal. Research has shown differences in how women and men approach waste, including what is considered waste, how waste should be disposed of, and willingness to spend on waste collection services. Analyzing and mapping the routines and pain points of the system's most frequent users can make the difference between whether plastic waste is properly disposed of or lumped together, which has downstream implications for processing.[2] For instance, while men may prefer a central waste drop-off point, women frequently prefer door-to-door waste collection. Where recycling models rely on users properly sorting and disposing of waste, targeting women with information about options and the consequences of waste sorting and disposal can be a key determinant for efficiency in sorting, cleaning, and disposal.[3] In some cases, engaging women as waste pickers and community educators has generated dramatic improvements in waste sorting; in Hoi An, Vietnam, for example, this approach reduced the amount of waste going to landfills by over 70%.[4]

b. Supporting workers at the bottom of the value chain—often women—is key to systemic improvements.

Globally, most waste processing is done informally, and this is unlikely to change.[5] Women represent a major component of the informal waste sector workforce, from voluntary local waste collection and cleanup projects to picking and sorting for income. Understanding the gender dynamics of the informal waste management sector workforce—and the unique vulnerabilities faced by this large component of the workforce—is important to targeting training, understanding worker priorities, and working effectively with the sector.

> "Female waste pickers contribute to local economies, to public health and safety, and to environmental sustainability."[6]

During waste processing, including sorting out plastics and other recyclable items, women are most often sequestered in positions with the lowest earning opportunities—in picking and sorting, for instance—while men have greater access to higher-earning positions.[7] In a study of the informal plastics waste management sectors in Mongolia, Bhutan, and Nepal, "women [had] majority representation in many informal roles such as waste pickers at dump sites. However, as the waste systems professionalize[d], men [were] often the beneficiaries, taking more lucrative and safer jobs as they become available."[8] In Ghana, waste picking is often the job of last resort for single mothers and widows who lack capital to start other businesses, meaning that many of the female pickers are older women competing with younger male pickers who often have better access to pushcarts and tricycles that help them control the sector more efficiently.[9] Women who participate in waste picking also face security concerns, since waste picking often takes place in isolated open spaces.[10]

Expectations of domestic work and childcare can also make it harder for women to engage in income earning outside the home.[11] In Ghana, for example, "74% of women working in plastic waste facilities have the lowest-paying positions (such as washing and sorting), and only 7% of women work in positions that allow them to make decisions."[12] A 2021 study in Indonesia found that male waste workers earned nearly double what their female counterparts earned for similar hours worked.[13]

"Many studies indicate that women's attitudes toward plastic pollution and the prioritization of health and profit lead to different, more environment-positive behaviors and decision-making. It will be impossible to achieve a truly sustainable and inclusive world free of plastic pollution without consulting and addressing the challenges of women and marginalized communities."[14]

"The imbalance that exists ultimately places women waste workers at a serious disadvantage, as it is harder for them to access opportunities to build assets and consolidate influence. Women often don't have a seat at the table and are often underrepresented in decision-making positions. This keeps them in low-level positions of the waste management value chain, making career progression difficult. The low value of plastic waste exacerbates this problem and can keep informal waste collectors and their families, who already have little to no social and economic protection, stuck in a cycle of poverty."[15]

As a result of entrenched gender norms, not only do women get pushed into the lower paying roles in the sector, but they are also increasingly vulnerable to negative health consequences. For instance, where boys' education is prioritized, girls often go to work with their mothers as informal waste pickers, meaning that these young women are working around hazardous chemicals longer, increasing their health risks while further cementing the likelihood of remaining in this same low paid work into adulthood.[16]

By understanding the dynamics of the informal workforce, municipalities and waste management companies can work directly with women waste pickers to improve waste recovery. For example, pickers can be trained to make larger quantities of plastic recoverable, which can lower costs and support increased recycling. Since women are so often the ones doing the picking and sorting, a strong business case exists to target them as the focus for training and support efforts, and to invest in improvements to their working conditions.

BOX 1 | Women Waste Pickers of Pune: Creating their Own Way Forward

In the city of Pune, for instance, women make up 90% of the waste pickers, and nearly all come from the so-called 'untouchable' Dalit caste. The waste pickers of Pune have not only unionized, but they also formed India's first wholly owned cooperative of self-employed waste pickers, which entered into a memorandum of understanding with the city of Pune in 2008. As a result, the women wear uniforms identifying them as waste pickers and have access to personal protective equipment (PPE) and improved equipment such as motorized carts. As a result, they work less for more money. And with door-to-door collection, waste spends less time degrading in landfills, which improves waste quality.[18] Remarkably, the Pune waste pickers cooperative is still operating in 2024, and it has expanded the services it offers its members, including microcredit loans. The cooperative has also expanded into other areas of municipal service provision, such as composting, biogas plant management, and e-waste collection to augment members' earnings.[19] The anchor contract from the city of Pune has therefore had significant multiplier effects in addition to increasing the efficiency of waste collection.

> "Women's overrepresentation in the informal labor sector, as opposed to the formal plastics waste management economy, has meant they not only benefit less from their labor, but are in less of a position to influence their sector and environment."[17]

c. Increasing representation of women in the formal waste management workforce can improve the bottom line.

Even in the formal waste processing sector, gendered norms and prejudices help men advance and keep women largely at the bottom of the employment ladder. Research shows that men are more likely to get paid positions in recycling centers—which also often come with training and PPE. However, because such positions are still viewed as 'dangerous,' women may be legally or traditionally prohibited from these roles—and may paradoxically then end up working in the less regulated, less safe informal sector.[20] In Ghana, for example, women make up only 12% of the formal plastics sector (including production and manufacturing, as well as waste management). Men make up 89% of plastics manufacturing and 92% of waste management jobs.[21]

However, there is growing recognition of the value of gender diversity in the formal waste management workforce. The industry publication Plastics Today notes that having a gender-diverse leadership team increases the odds of attracting other high potential women candidates, and that there are specific benefits to hiring women waste management truck drivers: "Women are typically less aggressive behind the wheel than men, and therefore would put less stress, wear, and tear on the trucks. Their different driving style may also include a safety bonus, especially in neighborhoods where young children play."[22] *Plastics Today* also noted in 2021 that while there is a talent shortage across the manufacturing sector in the United States, the plastic manufacturing workforce is beating the industry average of 29%, with 33% women—around double what it was 10 years prior—with sector leaders continuing efforts to attract and retain more female talent.[23]

d. Women are often strategic partners in the waste management supply chain.

In many parts of the world, women are also important interlocutors in the waste supply chain, particularly through their roles in recycling hubs. Recognizing the role that women play in the local economy and how existing local businesses can be integrated into the waste supply chain can be an opportunity to build on local structures. For instance, in the Philippines, women are frequently proprietors of sari shops, which are popular local sundry shops. Through a USAID-supported NGO called Aling Tindera, these stores become collection points for cleaned plastic, and the Plastic Credit Exchange collects the plastic and sells it back into the market.

The private sector can get involved by financing plastic buybacks or buying plastic offsets. This model accommodates low value and single-use plastics, which helps reduce greenhouse gases (GHGs). If such a model were rolled out across Manila, for example, it is estimated that the "programs would remove 280,000 metric tons of GHGs from the environment via recycling the plastic—the equivalent of removing over 60,000 cars from the road for one year."[24]

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A promising new development in the plastic financing space has been the February 2024 announcement of a plastic waste reduction linked bond, jointly backed by the World Bank, Citibank, and Plastic Collective. The bond will leverage waste collection and waste recycling credits generated by projects that are certified by an intermediary – Verra, a nonprofit that operates leading standards programs in the environmental and social

markets. Two projects have registered with Verra's plastics program to date: ASASE Foundation in Ghana works with female entrepreneurs to set up their own plastic waste collection services and aims to establish small plastic recycling plants in communities where plastic pollution is most severe, while Greencore has the SEAcular Indonesia Collection and Recycling Project focused on difficult to recycle plastics, and trains and employs coastal communities to collect ocean-bound plastic. Investors, who have thus far fronted $14 million to enable the projects to invest in equipment and facilities to scale up and expand, are expected to receive coupon payments linked to the sale of the plastic credits the projects will generate, on top of a fixed amount.[25]

e. Recognizing women's voices and vulnerabilities is critical to local project support.

The presence of landfills and waste processing plants also has gendered impacts on the community—failure to recognize these can exacerbate tensions with the community and heighten reputational risk for the companies involved. For example, in Delhi, India, local residents and informal waste pickers united together in fierce opposition to an incineration plant at the Okhla landfill site.[26] Women in the waste picking community—whose livelihoods stood to be most impacted—were most vocal and active in organizing against the plant. Resistance came from a combination of economic threat to existing livelihoods and the backlash against dioxin pollutants from the plant.[27] Although the Indian authorities ultimately ruled in favor of the plant, the company spent five years in protracted litigation and continues to face hostility and resentment from the local community. Companies should use knowledge of gendered impacts in their local contexts to ensure that community communication and mitigation strategies are targeted to the most affected groups.

2. Strategies to Address Gender Gaps in the Plastic Waste Management Sector

Given the different ways that men and women intersect with the plastic waste sector, how can companies and investors, local and national governments, NGOs, and other stakeholders adapt to work with, rather than ignore, these differences?

a. Create municipal waste management strategies that work for men and women, including education on plastics recycling.

For example, consider:[28]

- **Where communal waste disposal sites are located and the types of waste cans used.** The further the waste disposal point, the less likely it is that waste will make it there, and may instead be improperly disposed of, often at the risk of greater environmental damage.
- **When and how waste is collected.** The longer waste goes uncollected, the more likely it is to attract vermin and create community blight, and the more likely that households will look for alternatives which may be more environmentally damaging.

- **Location of landfills.** Consider proximity of landfills to community settlements, especially given women and children's heightened vulnerability to pollution.
- **Compensation for waste separation.** Waste separation can be helpful for recycling, and the easiest time for waste separation is at the source. Where municipalities create incentives, households are more likely to participate, and women are likely to be the drivers of participation in these initiatives.
- **Creating enforceable policies prohibiting illegal waste disposal.** Policies that prohibit and punish illegal dumping and other forms of waste destruction or disposal can help create greater awareness of the importance of proper waste disposal.[29] For all of these points, ensure that both men and women are involved in consultations and planning decisions, to ensure that decisions account for differing needs and use patterns.

(**Relevant Tools:** See **TOOL 3.2**: Rapid Gender and Community Engagement Company Self-Assessment, **TOOL 3.3**: Rapid Gender and User Engagement Company Self-Assessment, **TOOL 3.5**: Integrate Gender Concerns into Baseline Community Assessments, **TOOL 3.6**: Integrate Gender Concerns into Social Impact Assessments, **TOOL 3.7**: Facilitate Gender-Equitable Participation in Consultations on Infrastructure Operations, **TOOL 3.10**: Ensure Gender Sensitivity in Participatory Monitoring and Evaluation and Grievance Mechanisms.)

b. Consider initiatives to train and support women waste pickers.

> "Having the right waste management and collection infrastructure in place will not only help reduce waste leakage into the environment but also unlock new recycling opportunities by reducing business case risk and creating easier access to the right kinds of waste feedstock at lower cost."[31]

Female waste pickers have skills, knowledge, and experience, but often lack decision-making power, organization, and collective action. In addition, they may lack access to PPE or safe equipment and are often unable to negotiate fair wages. Contracting or subcontracting with these women helps companies ensure high quality feedstock.[30] Investing in women's training, PPE, safe equipment, and fair wages can lead to improved returns on investment.

Entry points for companies may include contracting women as independent contractors (for example, via an app) or through organized associations of waste pickers. Engaging with established organizations, associations/cooperatives, or startups broker the integration of informal waste workers can create opportunities for local value creation and reduce the logistical burden of managing supply chain complexity while retaining the

benefits of efficiency and productivity. Women working as part of organized structures also tend to benefit from more secure and better waged employment—which can help companies create a more socially responsible supply chain.

- (**Relevant Tools:** See **TOOL 2.2**: Self-Assessment of Supply Chain Gender Diversity and Inclusion; **TOOL 2.6**: Developing a Comprehensive Gender Diversity Supply Chain Program; **TOOL 2.7**: Support Development of Local Women-Owned Businesses; **TOOL 2.8**: Guidance Note on Women-Owned Businesses and Public Procurement in Cities; **TOOL 2.9**: Sample Needs Assessment Questionnaire to Develop Coaching Program for Women-Owned Businesses.)

c. Consider financial inclusion

For female entrepreneurs and workers, plastic waste management can provide a living and a path to economic empowerment. However, a key gap is providing the right financial services to enable them to save, transact, get paid, and access credit when needed. Women often face greater barriers to accessing finance, particularly those who are low income and lack formal education. The private sector has a role to play, beginning with collecting gender disaggregated data on their customers' needs and vulnerabilities, and tailoring products and services accordingly. Offering a tiered system of requirements for opening bank accounts can help include those who lack formal identity documents or who are low literacy, while mobile money can help those who lack bank accounts altogether. A push for greater connectivity to bridge the digital gender divide is key to ensuring that women, as well as men, can benefit from the opportunities that digital financial inclusion provides.[32]

(**Relevant Tools: TOOL 2.7**: Support Development of Local Women-Owned Businesses; **TOOL 2.9**: Sample Needs Assessment Questionnaire to Develop a Coaching Program for Women-Owned Businesses; **TOOL 3.12**: Create Community Development Initiatives that Benefit Both Men and Women; **TOOL 3.13**: Create Local Economic Development Opportunities and Empowerment Opportunities for Women; **TOOL 3.14**: Guidance Note on Building a Women's Entrepreneurship Community.)

d. Support women's engagement in innovative and entrepreneurial waste recycling activities

There are growing numbers of innovative waste recycling programs around the world which could incorporate women in the waste sector to build on their experience and empower this key demographic. For example, initiatives could:

- **Support women's active engagement in recycling projects.** In Abidjan, Cote d'Ivoire, for instance, through a collaboration with UNICEF plastic garbage is collected by an association of around 200 'Fighting Women,' and then recycled into eco-bricks which are used to build schools. The project is expected to deliver 500 classrooms.[33]

- **Support women entrepreneurs in the plastics sector.** Globally, data indicates that women are "more likely to found businesses with social and environmental goals" or to aim for a "triple bottom line." Given the urgency of the plastic waste management crisis, it is likely that many current or would-be female entrepreneurs are interested in starting companies to become part of the solution. Furthermore, women-led startups may be more likely to make their money go further. A Boston Consulting Group study found that for every dollar of investment raised, female-run startups generated 78 cents in revenue, whereas male-run startups generated only 31 cents.[34]

(**Relevant Tools:** See **TOOL 2.7**: Support Development of Local Women-Owned Businesses; **TOOL 2.9**: Sample Needs Assessment Questionnaire to Develop a Coaching Program for Women-Owned Businesses; **TOOL 3.2**: Rapid Gender and Community Engagement Company Self-Assessment, **TOOL 3.3**: Rapid Gender and User Engagement Company Self-Assessment, **TOOL 3.5**: Integrate Gender Concerns into Baseline Community Assessments, **TOOL 3.6**: Integrate Gender Concerns into Social Impact Assessments, **TOOL 3.7**: Facilitate Gender-Equitable Participation in Consultations on Infrastructure Operations, **TOOL 3.10**: Ensure Gender Sensitivity in Participatory Monitoring and Evaluation and Grievance Mechanisms; **TOOL 3.12**: Create Community Development Initiatives that Benefit Both Men and Women; **TOOL 3.13**: Create Local Economic Development Opportunities and Empowerment Opportunities for Women; **TOOL 3.14**: Guidance Note on Building a Women's Entrepreneurship Community.)

BOX 2 | Case Studies in Women's Entrepreneurship in the Waste Sector

In Nigeria, **WeCyclers** is a woman-founded social enterprise that incentivizes recycling for citizens in Lagos. Households sign up online and then receive instructions for waste separation. Waste is collected via cargo bike, and households receive points, based on weight, via an SMS platform. Points can be redeemed for household goods, electronics, and even cash, and then recyclable goods are sold onwards for recycling.[35] WeCyclers has recycled 525 tons of waste in its first two years of operation and won numerous awards.[36]

In Indonesia, **Rebricks** was founded by two women to process and transform plastic waste into bricks for paving and construction.[37] Rebricks can currently recycle the waste from 88,000 plastic sachets per day—33 million sachets per year—into building materials.

In India, **CresaTech** (also female founded) aims to transform the menstrual pad disposal space—approximately 12 billion menstrual pads are disposed of yearly in India. CresaTech's pads are plastic-free and water-soluble, aiming to drastically reduce the number of pads that find their way into landfills or incinerators.[38]

RePurpose Global is a plastic credit platform created by Svanika Balasubramanian and her two cofounders as a result of their joint master's thesis on one of the largest waste dumps in Mumbai, India. Like being carbon neutral, RePurpose enables individuals and businesses to become "plastic neutral" and take responsibility for their plastic footprint by funding recycling of the same amount of plastic waste they produce. RePurpose currently funds plastic recovery projects across six countries and is working with partners internationally to create a global plastic offset standard.[39] Embedding gender equality into RePurpose from the start was a key goal of the founders.

Conclusion

Across so many sectors, women face outsized burdens and consequences. In societies where women are expected to play specific roles in domestic tasks as well as in their community, plastic waste management uniquely implicates women at every stage, and can be vastly improved by their collaboration. For municipalities seeking to improve waste management, recycling companies looking to improve the quality and quantity of recyclable plastics, and manufacturers seeking to ensure the plastic waste they generate is recycled, understanding the role that women play in the sector is essential, and incorporating them into the solutions is logical and important—and makes good business sense.

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