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Supporting decent livelihoods through sustainable service provision: Lessons on solid waste management from Kampala, Uganda

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Summary

Better waste management could cut up to a fifth of global greenhouse gas emissions, making it an essential part of delivering the Paris climate agreement. A waste management strategy which supports the 15 to 20 million people who informally work in the waste sector globally can also contribute to achieving the first Sustainable Development Goal (SDG) of ending poverty, and the eighth SDG of decent work for all. Partnerships with community-based organisations and small enterprises involved in waste management can generate multiple economic and social benefits in a sector otherwise notorious for appalling conditions and the vulnerability of workers.

This paper offers lessons from Kampala, Uganda, where community-based organisations and small enterprises play an important role in municipal solid waste management, especially in informal settlements. One example from Kampala is the Luchacos cooperative, which uses organic waste to produce biomass briquettes – an energy source for cooking that simultaneously reduces both urban air pollution and deforestation. If the Luchacos model could be scaled up to replace half of all charcoal use in Kampala, almost 12,000 additional people would find employment in the biomass briquette industry. Similarly, the private firm Plastic Recycling Industries (PRI) contracts 120 community-based organisations and small enterprises to collect almost one-fifth of Kampala's plastic waste.

Photo credit: Visty Banaji

About this policy brief

This policy brief was prepared by the University of Leeds. It was developed in partnership with the Coalition for Urban Transitions, which is a major international initiative to support decision makers to meet the objective of unlocking the power of cities for enhanced national economic, social, and environmental performance, including reducing the risk of climate change. The research presented here was conducted in support of the Coalition's Economics workstream, and builds on previous University of Leeds and Coalition research on the economic and social benefits of low-carbon cities. The opinions expressed and arguments employed are those of the authors.

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80 percent of the 1,200 employees contracted by these organisations are women, who earn nearly three times as much as they would working as individual waste pickers. Both Luchacos and PRI work closely with the Kampala Capital City Authority (KCCA).

These examples from Kampala highlight how national governments can improve and expand solid waste management services by supporting municipalities to take a more strategic, multi-stakeholder approach to waste management. They can stimulate positive social and economic impacts by designing a framework which requires the systematic inclusion and support of community-based and small-scale enterprises in waste management processes, rather than only seeking partnerships with large private firms. This could involve establishing procurement policies that are more accessible for community-based organisations and small enterprises, providing public land for waste sorting, facilitating links between formal and informal operations, and reforming regulation to favour locally-led initiatives over large-scale technological solutions. The outcome would be an upgraded municipal waste management system that is more economically efficient, socially inclusive and environmentally sustainable.

This policy brief is one of a series on frontrunning climate actions in cities around the world. The objective of this series is to strengthen the evidence on the economic and social implications of low-carbon, climate-resilient urban development. The series focuses on providing robust data on actual or ex post outcomes of climate action, ranging from better public health to job creation to greater equity. Each case study explores some of the preconditions for the successful design and delivery of urban climate action and provides national policy recommendations that could enhance their effectiveness and benefits.

Highlights

- It is predicted that cities around the world will produce 2.2 billion tonnes of waste per year by 2025. This is almost double the amount produced in 2012.[1] Inadequate waste management poses severe risks to society, the economy and the environment. Solid waste generates greenhouse gas emissions that directly account for 5 percent – 1,460 metric tonnes of carbon dioxide equivalent – of global emissions.[2] The potential for climate change mitigation through waste management is far more sizeable: up to one-fifth of global emissions could be reduced through the effective management, recycling, reuse, and prevention of waste materials.[3]
- At the local level, inadequate waste management – especially in informal settlements – is a major contributor to multiple public health risks as well as to diverse environmental impacts such as increased flood risk. The desire to introduce effective and sustainable waste management systems is often one of the most pressing challenges in urban centres.
- Globally, an estimated 15–20 million people worldwide are working in community-based organisations and small enterprises in the informal waste sector.[4] These enterprises often achieve high recycling rates and are especially effective in their coverage of poorer neighbourhoods, such as informal settlements, which are typically not served by municipalities.
- In Uganda, the Strategic Framework for Reform adopted by the government in 1997 promotes the diversification of waste management service providers to include private companies, non-governmental organisations, community-based organisations and small enterprises. This is a result of the public authorities lacking both the budget and technical expertise to provide waste management coverage for a rapidly growing urban population. However, there is not yet a clear view as to how these new partnerships could operate, nor what their objectives or governance structures should be.

- In Kampala, more than 3,000 individuals, over 100 formally registered companies, and at least 40 non-governmental and community-based organisations are involved in solid waste management.[5] These community-based organisations and small enterprises are uniquely positioned to contribute to both alleviating urban poverty and tackling climate change.
- One such organisation – Plastics Recycling Industries – collects and recycles 3,600 tonnes of plastic waste every year. PRI contracts 120 community-based organisations and small enterprises to collect plastic waste, which it then recycles at its capital plant. The average weekly wages of the 1,200 waste collectors indirectly employed by PRI is around UGX 65,000 (USD 17),[a] a nearly threefold increase over the wages of the average waste picker in the city.
- Another such organisation, Luchacos, uses organic waste to produce charcoal briquettes that are used as an affordable source of energy for cooking by low-income households. If all of Kampala's organic waste was used to make briquettes, 400,000 tonnes of wood that would have been made into charcoal could be saved annually. This is equivalent to roughly 65 hectares of forest, which could sequester between 6,000 and 40,000 tonnes of carbon dioxide equivalent (CO_2e). At the same time, 12,000 jobs could be created by this process for primarily low-income populations.
- National governments can improve and expand solid waste management services by supporting a more strategic, partnership-based approach to urban waste management. They can stimulate positive social and economic impacts by designing a framework which enables municipalities to systematically include community-based organisations and small enterprises into formal solid waste management strategies. Key national actions include the reform of national procurement and waste management policies to favour locally-led initiatives rather than technological fixes, and the provision of finance, land and other support to small organisations. This approach will generate immediate social and economic benefits, including more secure livelihoods for the urban poor, the capacity to expand waste collection services to more households and, ultimately, healthier urban environments and urban residents.

Background

Rapid urbanisation, population growth, rising incomes and changing consumption patterns have resulted in a vast increase in the amount of solid waste generated worldwide, especially in cities. By 2025, it is estimated that cities will produce 2.2 billion tonnes of waste per year globally, almost double the 1.3 billion tonnes produced in 2012.[6] Municipal solid waste management has thus emerged as one of the most pressing challenges in urban centres today.

Inadequate collection, transportation, treatment and disposal of solid waste poses severe risks to the economy, society and the environment, especially in areas with insufficient waste disposal infrastructure such as informal settlements.[7] Waste and contaminated water cause disease, and provide a breeding ground for vermin and parasites. The resulting public health issues include respiratory conditions such as asthma and bronchitis, skin conditions like scabies and trachoma, and bacterial diseases such as diarrhoea.[8] This can lead to chronic malnutrition in children, which in turn can lead to physical stunting and cognitive under-development in adults.[9] Environmental impacts associated with improper waste management include pollution of the air, water and land. The accumulation of refuse in drainage channels and rivers degrades local ecosystems, while at the same time creating social and economic hazards. Flooding is a chronic problem in many urban areas, and stagnant water exacerbates the risk of vector-borne diseases such as dengue fever and malaria.

[a] *Correct as of 20/03/2019 via www.oanda.com. Applies for all conversions in this paper.*

Solid waste, when not handled properly, is also a significant source of methane, a potent greenhouse gas. The waste sector directly accounts for approximately 3–5 percent of global greenhouse gas emissions.[10] However, the potential for climate change mitigation through waste management is far more sizeable. Recycling and reuse avoids emissions associated with extraction and processing of raw materials across all sectors of the economy, which could cut global emissions by 10–15 percent.[11] If waste prevention is also included, this increases to 20 percent (see Figure 1).[12]

Recycling can also stimulate the local economy by generating jobs in repair and refurbishment. It is estimated that transitioning to such a 'circular' economy could create between 9 and 25 million new jobs worldwide.[13]

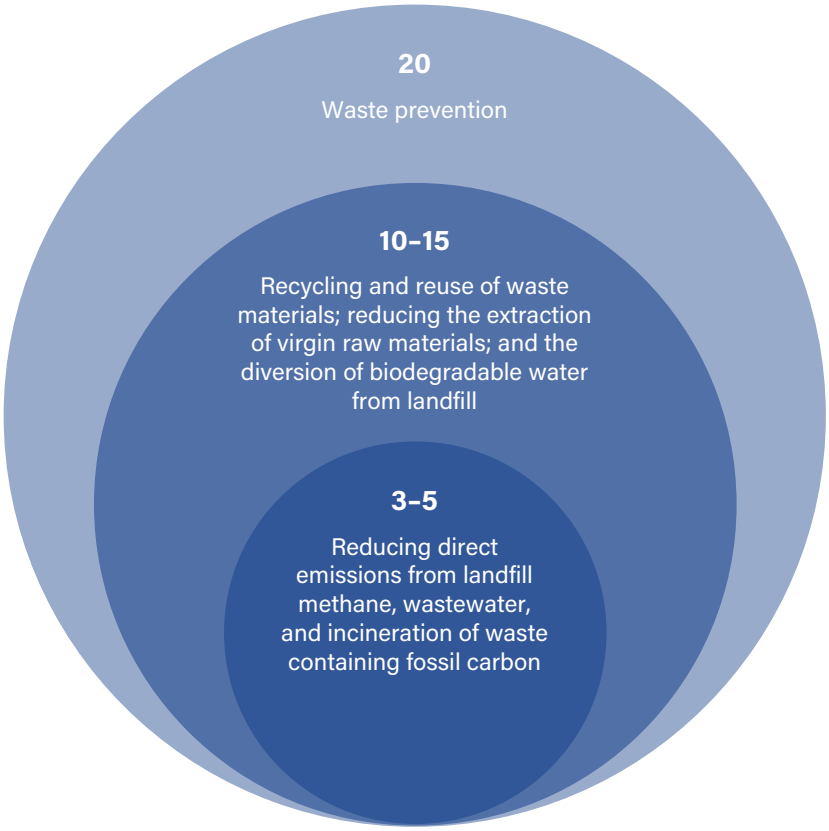
Coordinated action and partnership are essential elements of a solid waste management strategy,[14] especially in low-income contexts where the state does not always have the capacity or resources to provide citizens with basic services.[15] Solutions to this lack of capacity often involve introducing technology-intensive solutions such as waste-to-energy plants run by large private firms. This approach has its advantages, but it has not always been successful – particularly in developing countries. Waste streams containing a larger proportion of organic waste and a smaller proportion of non-biodegradable materials – as is common in many developing country cities – are less suited to these technologies because they are too wet to combust. Moreover, high-tech solutions require large upfront capital investments and operational expenditures that lower-income countries often struggle to finance.[16]

These technology-led approaches to waste management also place little value on the complex ecosystem of (often informal) actors involved in waste management in many low- and lower-middle-income country cities. An estimated 15–20 million people worldwide work in the informal waste sector.[17] The majority of these workers are self-employed informal waste pickers or informal service providers involved with community-based organisations and small enterprises.[18] This reflects wider economic norms in cities of the Global South: micro, small and medium enterprises (MSMEs) constitute up to 90 percent of all businesses in developing economies,[19] employ up to 78 percent of the working population and account for approximately 29 percent of national gross domestic product (GDP).[20]

The informal waste sector achieves recycling rates often comparable to those in developed country cities. For example, 30 percent of materials are recovered by the formal sector in Rotterdam, the Netherlands, while the informal sector recovers 27 percent in Delhi, India, 31 percent in Quezon City, the Philippines, and 85 percent in Bamako, Mali.[21] In addition to their economic efficiency, these waste enterprises are an important source of livelihoods for low-income and other marginalised urban residents.[22,23,24] Notably, community-based organisations and small enterprises involved in waste management disproportionately employ women, who often do not have the same range of income-earning opportunities as men.[25] Local waste management can also stimulate both informal and formal economic development, for instance through providing inputs and products more affordably.[26] All of these development benefits mean that community-based organisations and small enterprises in the waste sector address some of the fundamental drivers of vulnerability – poor health, precarious livelihoods, and social exclusion – and are consequently well positioned to enhance community resilience to climate change.[27]

Figure 1

Percentage of global greenhouse gas emissions that could be avoided by capitalising on the waste hierarchy.



Yet work in the waste sector often remains a last resort, often for the very poorest. Waste pickers face chronic illness and frequent injury due to daily exposure to waste.[28] They also face stigma on account of their livelihoods, which can lead to exclusion from community networks, while the informal nature of their work (and typically housing) means they cannot legally access public services such as healthcare and grid electricity. Because they tend to operate informally and at very small scales, informal waste workers have less access to finance. All of these factors interact, meaning that waste workers are highly vulnerable to shocks and stresses – including the effects of climate change. For instance, the impact of high temperatures is much worse for somebody who lives in a polluted environment and is already weakened by prolonged ill-health.

Policymaking in this context presents both great opportunity and great risk. Many waste management enterprises create wider social and environmental benefits, providing critical services that improve public health, enhance economic performance, reduce environmental degradation and enhance the climate resilience of most urban residents.[29,30] These benefits largely accrue to low-income urban populations in informal settlements, which are primarily served by these informal community-based and small-scale enterprises.[31,32] In the long-term, though, most governments would aspire to move people out of waste picking because of the impact this kind of work has on their health and wellbeing.

There is still much to be gained from ensuring informal waste sector livelihoods become decent work. A cleaner, healthier city with better basic service coverage can underpin a vibrant and productive urban economy. Low-income and other marginalised groups benefit from access to more secure livelihoods and higher incomes, reducing the depth and scale of urban poverty. Governments can expand waste management services and address pressing environmental concerns within a city, all at little or no extra cost to the taxpayer.[33,34] Kampala's experience demonstrates the economic, social and environmental potential of a more inclusive waste management strategy.

THE WASTE SECTOR IN UGANDA

Uganda has one of the highest population growth rates anywhere in the world, registering increases of around 3.3 percent per annum.[35] Furthermore, the urbanisation rate of around 5.7 percent per annum[36] will yield an urban population of more than 32 million by 2050.[37] Uganda has dramatically reduced the proportion of its population living below the international extreme poverty line, which more than halved between 1993 and 2013, falling from 68.1 percent to 34.6 percent.[38]

Despite this progress, the country still faces widespread deprivation in the non-monetary dimensions of poverty, primarily in access to basic services such as piped water and sanitation. A number of community-based organisations and small enterprises – including an estimated 1.1 million MSMEs, community-based organisations[39] and non-government organisations – have emerged to fill gaps left by the public sector.[40] The small enterprises alone employ an estimated 2.5 million people and account for approximately 90 percent of the entire private sector.[41]

These pressing urban challenges are exemplified by the waste sector. In part because of rising incomes and in part due to urban population growth, the amount of municipal solid waste generated nationwide is expected to increase to more than five times 2012 levels, reaching 6,313 tonnes per day by 2025.[42] Even at current waste amounts, up to 85 percent of waste currently remains uncollected in some municipalities in Uganda.[43]

Many community-based organisations and small enterprises are involved – with varying degrees of formalisation – in waste reuse and recycling initiatives in Uganda, particularly in the informal settlements of cities.[44] Despite the proliferation and performance of these organisations, the government continues to award tenders and funding – where it is available – primarily to profit-generating private contractors and corporate entities. This paper presents two notable exceptions to this, which illustrate how partnerships that include community-based organisations and small enterprises in solid waste management can help governments to tackle urban poverty, improve public health and create a cleaner, safer environment.

Methodology

This paper presents research conducted in Kampala, Uganda in August 2018. Seventeen semi-structured key respondent interviews were conducted with various stakeholders, selected in cooperation with our research partners at Makerere University. In addition, site visits to the premises of several waste management enterprises, a recycling facility, and the city's landfill were undertaken – these visits yielded data regarding the operations of the organisations discussed below. The authors also carried out an extensive analysis of the existing literature and other key documentation, including review documents related to the as yet unapproved National Urban Solid Waste Management Policy.

Table 1
Interviewees

Stakeholders	Method
Federal government	2 interviews
Municipal authorities (KCCA)	3 interviews
Micro and small enterprises	5 interviews and 4 site visits
Medium enterprises	2 interviews and 1 site visit
Civil society	3 interviews
Academia	2 interviews

The policy context: Uganda's first National Urban Solid Waste Management Policy

NATIONAL CONTEXT

Until very recently, the provision of solid waste management in cities in Uganda has not had one dedicated policy, but rather has been guided by a number of strategies developed by different government agencies. This has resulted in an abundance of rules and regulations that exist in silos, without clear leadership or accountability.[45]

The most notable strategy was introduced in 1997. Following a period of liberalisation and partially in response to the inability of municipal authorities to provide adequate solid waste management, the Government of Uganda prepared the Strategic Framework for Reform. This landmark policy encouraged municipal authorities to work with a diverse set of service providers including non-governmental organisations, community-based organisations and small enterprises, as well as large corporate actors. It is worth noting that this was part of the broader decentralisation of service delivery within Uganda, with the national government devolving significant powers to district and municipal governments.

Twenty years later, the first set of central guidelines for the provision of urban solid waste management was issued – the National Urban Solid Waste Management (NUSWM) Policy of 2017. The policy was intended to be in place between 2015 and 2030, but at the time of writing is not yet ratified. Noteworthy objectives of the policy include the ambition to provide a single, overarching national framework for solid waste management; to establish national leadership on waste management; to clarify and structure the relevant legislation on solid waste management; and to facilitate collaboration with diverse non-state actors. On this front, it is complemented by the MSME Policy approved in 2015 and the MSME Directorate established shortly afterwards. If effectively implemented, the NUSWM and MSME policies could address some of the current issues that exist in waste management.[46]

MUNICIPAL CONTEXT

The Local Government Act (LGA) of 1997 specified that the responsibility for the segregation, collection and disposal of waste lies with the municipal authorities. In practice, decentralisation of solid waste management has not led to significant improvements in local service provision. Municipal authorities have needed significantly more support to plan, finance and implement effective waste management plans.[47] This is part of a wider capacity deficit which is exacerbated by serious funding shortfalls. Municipal authorities have limited revenue collection powers and even more limited abilities to exercise those powers. Yet fiscal transfers from central government are neither sufficient nor reliable enough for local authorities to fulfil their mandates – including on solid waste management.[48]

This is particularly evident in the capital city, Kampala. Following the Kampala City Act of 2009, the ruling party replaced the city council with the Kampala Capital City Authority in 2011. The executive director of the KCCA is not elected but rather chosen by the president. Opinion is divided as to whether this is to enhance accountability, or for political motives.[49] As a result, Kampala is subject to a unique hybrid governance structure where the influence of national decision-makers is much stronger than in smaller urban areas in Uganda.[50] The KCCA has done a remarkable job of improving revenue collection and service delivery since it was established,[51] but its policy and revenue generation options remain severely limited.

Although the national NUSWM and MSME policies favour partnerships with community-based organisations and small enterprises, the LGA indicates that it is an offence to remove, collect or disturb solid waste in containers, or to remove solid waste from a container, effectively making scavenging an illegal activity. This is one of the reasons that local authorities tend to favour partnerships with formal, private contractors rather than collaborating with community-based organisations and small enterprises.[52] Despite this, many individuals and organisations are heavily involved in informal waste management activities in Ugandan cities as outlined above.[53]

Case study: Community-based and small-scale enterprises delivering public services in Kampala

Kampala is the largest urban area and capital city of Uganda, with a population of 3.5 million in the Greater Kampala Metropolitan Region.[54] The region accounts for 10 percent of the country's population, at least a third of GDP and almost half of all formal employment in the country.[55] Half of Kampala's population live in areas classified as slums.[56]

The city generates around 2,300 tonnes of solid waste per day, amounting to 803,000 tonnes per year.[57] This is expected to increase to at least double this amount by 2030.[58] Around three-quarters of the waste is organic and biodegradable. A further 15 percent comprises recyclables including plastics, paper, metal and glass.[59] The waste sector is the city's second biggest contributor of greenhouse gas emissions after energy generation – 28 percent of citywide emissions come from landfill, waste incineration and solid waste management collectively.[60]

The average annual municipal expenditure on solid waste management in Kampala is UGX 8.5 billion (USD 2.25 million). On average, this provides for half of Kampala's generated waste being collected – one-third by private contractors commissioned by KCCA and two-thirds by KCCA staff.[61] It is then dumped without treatment at the city's official dump site, Kiteezi, where it is left to decompose.[62] Much of the rest ends up in one of Kampala's 59 illegal dump sites, 133 unofficial temporary storage sites (recognised by the KCCA but not officially designated for waste) or 35 official temporary waste storage locations.[63] More is burnt or carried away in waterways, where it often accumulates and blocks drainage channels. Informal settlements in particular suffer because of this through related hazards such as vector-borne diseases and flooding.

Officials estimate that there are currently around 3,000 people employed in the informal provision of solid waste management services in Kampala, as well as more than 100 formally registered companies, of which many are micro or small enterprises.[64] These actors are part of well-established but not always formal value chains for various waste streams. In some cases, KCCA has provided grants or non-financial support to these initiatives, for instance by allocating land that they can use to sort and treat waste. Utilising and upscaling this existing network – including the actors involved in recycling, turning waste into renewable energy sources, and raising awareness regarding the prevention and reuse of waste materials – has the potential to improve the efficiency of the waste sector in Kampala, reduce the sector's greenhouse gas emissions, and provide sustainable livelihoods for the urban poor.[65,66]

SUCCESSES: NEW PARTNERSHIPS AND RESPONSIBLE BUSINESS MODELS

This policy brief presents two organisations, Luchacos and Plastic Recycling Industries, involved in solid waste management activities in Kampala. Both are formal, registered companies that effectively serve as a bridge between formal waste management systems and informal community-based organisations and small enterprises. Luchacos is smaller, created to address local development priorities and initially dependent on grant financing from bilateral development agencies. PRI is larger, designed for profit and initially funded by a multinational corporation. Both generate substantial social and environmental benefits for their employees and the wider community, and offer valuable lessons about a more efficient, inclusive and sustainable approach to solid waste management in low-income cities.

Luchacos takes its name from the Lubaga Charcoal Briquette Cooperative Society, previously known as Kalokode. It is a consortium of individuals and community-based organisations, which collectively form a registered company that operates in the Lubaga division of Kampala. The organisation uses organic waste to produce biomass briquettes, which are then sold as an affordable source of energy for cooking to (mostly) low-income households.

Luchacos was formed in 2006, when KCCA identified the Lubaga Parish informal settlement as a candidate for a donor-funded programme which sought to turn environmental problems into development opportunities. Community members were asked to identify their most pressing concerns and highlighted waste accumulation (and the associated issue of flooding). Together with KCCA and the donors, the community decided to build upon an existing but rudimentary initiative to turn organic waste into briquettes. KCCA and their donors then facilitated training in business skills and provided support in upgrading the briquette-making technology.

After the programme ended in 2010, Luchacos continued its operations at a much smaller scale. In 2015, Makerere University initiated a project on augmenting waste economies to enhance urban livelihoods and reduce emissions in informal settlements.[67] This project provided renewed support to Luchacos, and the organisation was once again able to scale up its work. It now maintains its operations without donor support.

Annually, an average of 192 tonnes of waste is either collected by Luchacos employees or delivered to the organisation by one of the 1,200 households in nearby informal settlements. This waste is enough to produce 24 tonnes of biomass briquettes. The briquettes are sold either to the participating households, who receive a discount, or to local institutions and other users. Though small-scale, the enterprise is the primary source of income for its 20 employees. It has significantly reduced the extent of the solid waste crisis facing the Lubaga Parish. Although hard to quantify due to a lack of reliable data, this would be expected to reduce the health risks facing residents, including both the incidence of disease and the severity of flooding due to refuse blocking drainage infrastructure. There is potential to scale the model up to generate wider positive environmental and social outcomes (see Box 1).

Box 1

Scaling up biomass waste briquette production

Biomass waste briquettes can be used in a similar way to charcoal and so require little behavioural change. However, briquettes have a variety of advantages over charcoal:

- they create a use for waste that incentivises collection and treatment;
- by displacing firewood and charcoal as an energy source, briquettes reduce deforestation;
- since their production is relatively low-tech, they can provide income-generating opportunities for virtually anyone.

It is important to recognise that biomass briquettes do not offer an improvement in terms of indoor air pollution unless used with improved cooking stoves. In the longer term, efforts could be made to focus on other ways of converting organic waste into energy such as anaerobic digestion, but scaling up biomass waste briquette production in the medium-term could have positive environmental and social implications.

Currently, 79.4 percent of households in Kampala use charcoal, consuming an estimated 236,908 tonnes per year. Kampala currently generates 1,170,190 tonnes of waste every year, of which 78 percent is organic. If all organic waste was used to produce biomass briquettes like those made by Luchacos, almost half of all charcoal use could be replaced. This could save 570,000 tonnes of wood (equivalent to roughly 100 hectares of forest), which in Uganda could sequester anywhere between 9,000 and 55,000 tonnes of CO_2e, directly accounting for 1.3–7.7 percent of Kampala's total emissions.

Based on the Luchacos model being scaled up or replicated to meet this demand, almost 12,000 people could be employed in a citywide biomass briquette industry.

Based on authors' calculations using data collected during interviews and from sources referenced.

The other partnership considered here is between KCCA and Plastic Recycling Industries, the largest plastic recycling company in Uganda. PRI's Kampala-based recycling plant alone recycles 18 percent of all plastic waste generated in Kampala. Each month, this amounts to around 300 tonnes.

In this partnership, KCCA provided the land on which the collection centre has been constructed and also supplies trucks to transport plastic waste to the centre. PRI provided the upfront capital investment costs, operates the plant, and has committed to buying plastic waste at market prices. Informal community-based organisations and small enterprises collect and supply plastic waste.[68]

PRI is financed by the Ugandan branch of Coca-Cola Beverages Africa. The recycling plant employs 50 full-time staff members and a further 45 temporary staff on a daily basis. 120 suppliers, each of whom works with an average of 10 collectors, deliver between 10 and 12 tonnes of plastic waste to PRI every day. The average weekly earnings of each of these 1,200 waste collectors is around UGX 65,000 (USD 17), a nearly threefold increase over the wages of a typical waste picker, who is unlikely to earn more than UGX 100,000 (USD 27) in an entire month.[69] Around 80 percent of the workers are women.

Both of these examples demonstrate how municipal authorities can integrate waste pickers and sorters into solid waste management systems in an affordable way. Both Luchacos and PRI effectively serve to bridge the formal and informal sector, while only benefiting from relatively insignificant and sometimes non-financial subsidies. Their approaches have significantly enhanced the efficiency and extent of waste collection in Kampala, generating multiple economic, social and environmental benefits, and at the same time have created decent livelihoods for some of the city's most vulnerable residents.

CHALLENGES: THE COMPLEXITY OF AGGREGATING AND SCALING

All levels of government in Uganda face severe resource constraints. This means that partnerships with private and civic actors are an attractive option for service delivery, including in the waste sector. However, both national and local policies continue to favour partnerships with large, formal actors. For example, the tendering process requires contracted solid waste service providers to have bank guarantees of a minimum of UGX 5 million (USD 1,325) and access to trucks.[70] This effectively excludes all but large corporate firms from applying.

The emphasis on private companies and technological fixes has some justification. The processes and prerequisites for partnering with a single, formal company are in many ways more straightforward for a government agency than partnering with multiple, informal actors. In the waste sector, new technologies such as waste-to-energy generation, though expensive, are relatively simple to construct and operate. However, by focusing on these options, cities in low- and lower-middle-income countries miss the many potential benefits associated with integrating community-based organisations and small enterprises into solid waste management systems.

There are other challenges facing community-based organisations and small enterprises in the waste sector. Many struggle to add enough value to make waste collection and sorting a feasible livelihood. Even PRI is grappling with this, as demand for recycled waste has plummeted since China banned the import of recyclables. PRI is therefore currently producing a surplus that jeopardises the commercial viability of the plant.[71] Even where a market for waste-based products exists, community-based organisations and small enterprises struggle to achieve scale and improve efficiency. The United Nations Refugee Agency in Uganda, for instance, has shown serious interest in purchasing briquettes from Luchacos in bulk,[72] but employees cannot produce enough without upfront capital investment, imported machinery and more workers.[73,74] These are difficult to secure for organisations led by workers excluded from formal education and finance systems. Such constraints make it difficult for community-based organisations and small enterprises to provide waste management services more efficiently, and therefore to significantly increase the incomes of their members and employees. Taken together, this means that informal waste work is likely to remain a low-paid and precarious livelihood.

A high proportion of women are involved in community-based organisations and small enterprises related to solid waste management in Kampala. This speaks to the low status of the work and the limited options available for many women in cities of the Global South. Waste-related enterprises with a high proportion of women workers may face additional discrimination and constraints in securing investment.[75] On the other hand, this means that efforts to include community-based organisations and small enterprises in formal waste management systems may disproportionately benefit women. A gender lens should be utilised in the design of contracts and the provision of spaces to sort waste to ensure that waste management strategies actively enhance gender equality.

Scaling up the benefits

A recent World Bank study on economic development in Kampala predicted that just 18 percent of existing informal enterprises have the potential for growth.[76] The same study estimated that 93 percent of microenterprise owners in Kampala are living below the poverty line. Supporting and scaling such enterprises may not lead to substantial increases in GDP or tax revenue, but could significantly improve the lives of a large number of low-income urban residents[77] – including not only those working in the sector, but also those looking for affordable basic services. Given a supportive and enabling policy environment, community-based organisations and small enterprises could generate much-needed employment while expanding crucial public services and contributing to climate change action.

Although operating at different scales, Luchacos and PRI both effectively link community-based organisations and small enterprises with larger formal players, whether a private firm or city government. This arrangement can provide more income security and better working conditions for informal waste workers. Reduced physical exposure to waste and the ability to purchase more nutritious food and safer shelter both lead to healthier, more productive workers.

Being integrated into formal waste management systems can also serve to mitigate some of the discrimination that people working in this sector face. The waste workers who were interviewed typically indicated that they would like to stay in their current line of work, but needed better occupational health and greater income security.

Crucially, the business models of Luchacos and PRI both have the potential to achieve scale. Involving more waste pickers enables the companies to collect more waste, which makes it more economically feasible to invest in equipment and training that adds more value to waste materials. Greater scale can therefore attract investment, whether in the form of grants or loans. As flagged above, most community-based organisations and small enterprises are struggling to achieve scale on their own – but isolated examples from Uganda, India and Brazil illustrate that this is possible with government support.[78]

Ultimately, these partnerships have the potential to change power relations within cities, repositioning low-income groups as partners of the state and crucial economic actors. Building more formal relationships with informal waste workers can change the perceptions of decision-makers, encouraging them to become more accountable to the poorest in the city. In turn, structured collaboration with businesses and governments can equip low-income groups with new knowledge and skills that enable them to engage more effectively with the formal sector. This can spill out into other aspects of urban life, including negotiations around land tenure, housing provision and connection to trunk infrastructure. The aggregate effect of bridging formal and informal service provision in the waste sector could have a profound impact on the environment, the economy, and society at large.

Policy recommendations

Four main policy recommendations emerge from this study:

1. **Design strategic national policies for urban waste management that support partnerships with community-based organisations and small-scale enterprises.**

   Governments that want to be perceived as progressive and modern are increasingly favouring larger-scale, capital-intensive, technological approaches to waste management, particularly through traditional public-private partnerships with large multinational firms. Such solutions involve high capital costs, can be difficult to maintain and are not always well-suited to developing contexts where formal waste collection systems are limited and much of the waste is organic.[79] Instead, national governments should empower and support municipal governments to take a more strategic approach, taking the opportunity to address the socio-economic and environmental issues commonly associated with poor waste management. A key component of this should be to stimulate and support the work of community-based and small-scale enterprises. Reforming waste regulations to favour composting and the reuse and resale of resources could be a more affordable option for authorities with limited budgets. Simultaneously, these reforms would help to secure the livelihoods of some of the most vulnerable urban residents in the country.

2. **Prepare an inventory of the activities and contributions of community-based organisations and small enterprises to sustainable service provision.**

   Governments can document and analyse the activities of community-based organisations and small enterprises to understand the social, environmental and economic contributions that they make. This information can also help decision-makers to appreciate how important these organisations are to both the urban economy and to service provision. A better understanding of these organisations would enable governments to better plan for integrated management approaches which do not rely on huge upfront capital investments and can help them to achieve core development priorities such as better livelihoods and public health. Such data can be co-produced by the people working informally in the waste sector, which can also assist in starting to build the mutual understanding and relationships that underpin effective partnerships.

3. **Strengthen non-financial support for community-based organisations and small enterprises that contribute to sustainable, inclusive urban development.**

   Governments can directly support small organisations by providing capacity building, equipment, infrastructure and land. For example, government agencies might provide hygienic equipment such as gloves or aprons, as well as safe spaces where pickers can sort through waste. Governments can also review policies to ensure that they are not disadvantaging smaller or more informal organisations. The formal recognition that comes with such efforts also serves to make community-based organisations and small enterprises more attractive for prospective investors and consumers, granting them legitimacy in the eyes of, for example, commercial banks.

4. **Enhance access to finance for community-based organisations and small enterprises that contribute to sustainable, inclusive urban development.**

   Improving access to financing for community-based organisations and small enterprises is a relatively simple way to enable them to enhance productivity and achieve scale. For formal organisations, this could take the form of tax exemptions and subsidies. For informal organisations, governments may need a more creative approach such as blending public finance with the household savings kept in urban poor funds.[80] Procurement policies are also an important way to channel public finance; governments can reform tendering and contracting procedures to make it easier for community-based organisations and small enterprises to compete.[81] Preferential procurement and pricing policies for products made from waste could also support organisations adding value to waste materials. In all cases, improving access to financing should not be seen as a one-off intervention which leads to instant profit as having to meet criteria related to financial viability might exclude enterprises from accessing support that could yield social or environmental paybacks.

Conclusions

Municipal authorities with budget deficits, like those in most of sub-Saharan Africa, are increasingly seeking partnerships with large, formal corporations to provide urban services at scale. However, in Kampala, as in many cities worldwide, top-down, capital intensive infrastructure provision – such as waste-to-energy plants – has proven difficult to finance, operate and maintain.[82]

Urban policies should engage with the lived realities of such cities – namely informality, poverty and a shortage of public funds.[83] In Uganda, community-based organisations and small enterprises have emerged to fill gaps in service delivery. These are generating revenue and creating livelihoods through the re-use and recycling of waste streams. Having received varying degrees of government support in their early stages, waste management enterprises in the city are already demonstrating how partnerships with the state can contribute to economic, social and environmental goals.

Uganda is exploring an experimental and inclusive approach to service delivery, including for solid waste management.[84] New national policies encourage municipalities to form meaningful partnerships with community-based organisations and small enterprises, and to provide support that would enhance the efficiency of the organisations and the incomes of workers. These collaborations in turn offer the municipality the scope to expand waste management services to a far greater proportion of the urban population without significant additional public spending. These collaborations would generate significant benefits, contributing to better public health across the city and more sustainable livelihoods for some of the most vulnerable members of society. Meanwhile, a more effective municipal solid waste management strategy would enable Uganda to pursue lower-carbon and more climate-resilient urban development.

Different configurations of actors will be feasible and appropriate in different cities.[85] In some cases, private firms will play a key role; in others, community-based and non-government organisations may be key. National governments will need to be creative and flexible if they are to enable successful initiatives to achieve scale. However, this accommodating approach will be rewarded, equipping national governments to address major urban challenges, including persistent poverty and chronic environmental degradation, while reducing the risk of climate change.

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ABOUT THE COALITION FOR URBAN TRANSITIONS

The Coalition for Urban Transitions – launched in 2016 at the Climate Leaders' Summit in New York – is a major new international initiative to support decision makers to unlock the power of cities for enhanced national economic, social, and environmental performance, including reducing the risk of climate change. The Coalition provides an independent, evidence based approach for thinking about 'well managed' urban transitions to ensure that the growth of urban areas, and the accompanying process of economic, social, and environmental transformation, maximises benefits for people and the planet.

The initiative is jointly managed by the **C40 Cities Climate Leadership Group (C40)** and **World Resources Institute (WRI) Ross Center for Sustainable Cities**. Members include over 20 major institutions spanning five continents, including research institutions, city networks, international organizations, infrastructure providers, and strategic advisory companies. The initiative will be overseen by a Global Urban Leadership Group to steer and champion the work.

Follow the Coalition's work at www.coalitionforurbantransitions.org on LinkedIn, on Twitter @NCEcities and Facebook @coalitionforurbantransitions.

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