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POLICY BRIEF #1:

INTEGRATION OF SMALL-SCALE WASTE BUSINESSES INTO THE URBAN ECONOMY

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Overview

This policy brief focuses on briquette-making as an alternative livelihood for the urban poor in Kampala. It examines the integration of the urban poor into the urban economy via briquette-making. Briquette-making consists of practices to manage organic waste and turn it into useful products such as energy briquettes. At the current micro-level of operation, these practices recover less than 5% of the organic waste generated in the city. Briquette-making thus has enormous potential for improving waste management at the city level supporting alternative livelihoods. Briquettes also provide a sustainable source of renewable energy for impoverished households.

Examples of existing community-based organisations and enterprises producing briquettes, show that briquette-making could replace up to half of all the charcoal used in the city. Partnerships with community-based briquette enterprises can generate multiple economic and social benefits in both the informal and formal waste management sector.

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1. Introduction

Current practices to manage organic waste in Kampala (including both human and solid waste) are unsustainable. They degrade the environment and have adverse health outcomes. In Kampala, the local waste management company. Kampala Capital City Authority (KCCA), has focused on a linear model of waste management, including collection, transport, and disposal of waste in a landfill. In landfill sites, the waste generates pollution and the accumulation of leachates. KCCA has disputes with people whose livelihoods depend on waste picking, which KCCA regards as an unproductive activity amounting to little more than scavenging. Solid waste management interacts with the climate system through the generation of methane, a potent source of greenhouse gas emissions. This approach to waste management largely overhauls landfill, resulting in high costs to communities.

Above: A photo showing some of the women from Kasuubi Women Briquette Group visualizing the process of briquette-making. (Image by D. Heymann, 2018)

On the covers: Holding hand-made briquettes. (Images by D. Heymann, 2019)

Knowledge about wastes exists from various studies and institutional archives, on generation, management practices, associated environmental problems, and costs incurred by KCCA. The knowledge about the transformation of organic waste into usable products has remained at the microscale in communities. Organic waste is a resource which can be used for nutrients recovery, or turned into energy briquettes. These practices can provide alternative livelihood strategies beyond scavenging.

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 (Oates, Gillard, Kasaija, Sudmant, & Gouldson, 2019). However, the city lacks clarity about how these partnerships should operate, with what objectives, and under which governance structures.

This policy brief, analyses the potential of small-scale briquette making businesses and how they can be successfully integrated into the urban economy. Community experiences show that briquette-making is a feasible strategy and that it can have a transformative impact on developing alternative economic opportunities for the urban poor in the city of Kampala.

Harnessing this transformative impact will require:

1. Linking formal and informal activities of community organisation and briquette-making;

2. Reforming regulations to support locally-led initiatives.

Pictured: View over Kampala from Makerere University (Image by D. Heymann, 2018)

2. The circular business model for waste management

Circular business economy models emphasise reusing, recycling, and recovering materials in production, distribution, and consumption processes. This may include practices at the micro-level (products, companies, consumers), at the meso-level (eco-industrial parks), and the macro-level (city, region, nation, and beyond) (Word Economic Forum, 2018). Circular business models have the potential to drive the transition towards resource efficiency, and, in doing so, significantly reduce the environmental pressures resulting from economic activity (Ferguson, 2012).

Kampala's waste generation rate increased by 48% between 2011-2017 from 0.26 to 0.46Kg/Capita/day with an annual increase of 0.03Kg/capita/day, based on a 2015 populaton of 1,507,000, with an annual growth rate of 3.0 (UBOS, 2017) (Aryampa, Maheshwari, Sabiiti, & Bateganya, 2019). At the moment, there is a pressing need to find more viable methods to ease the burden of waste in Kampala. Our proposal is in the support and development of small-scale community briquette enterprises.

The most relevant links between the circular business model for waste management and the Sustainable Development Goals are:

Table 1: Circular business model for waste management links to the SDGs *(continued overleaf)*

SDG Goal (No.)	Target	How the community-based briquette enterprises meet the target
(1) No Poverty	(A) Eradicate extreme poverty for all people everywhere, currently measured as people living on less than $1.25 a day.	Source of alternative income for households and individuals engaged in the business.
(7) Affordable and Clean Energy	(A) Ensure universal access to affordable, reliable and energy services.	Provision of affordable and reliable cooking energy.
	(B) Increase substantially the share of renewable energy in the global energy mix.	Contributions towards the share of renewable cooking energy in Kampala and Uganda.

Table 1 continued from previous page		
(10) Reduce Inequality	(A) Progressively achieve and sustain income growth of the bottom 40 per cent of the population at a rate higher than the national average.	Progressive increase of household income growth through community-based briquette enterprises.
	(B) Empower and promote the social, economic and political inclusion of all, irrespective of age, sex, disability, race, ethnicity, origin, religion or economic or another status.	An improvement of the livelihoods of women, men and youth in the community-based briquette enterprise facilitates their access to basic services like health, education, and jobs. This leads to self-reliance and helps them integrate into the wider society. Through capacity-building and empowerment of the community-based briquette enterprises, they become aware of their rights and entitlements and are equipped with skills to make informed choices and negotiate for resources for their development.
(11) Sustainable Cities and Communities	(F) Reduce the adverse per capita environmental impact of cities, including by paying special attention to air quality and municipal and other waste management.	Manage solid waste within communities by recycling organic waste and turning it into energy briquettes.

These community-based organisations and small community-briquette enterprises have enormous potential to not only respond to the SDG's, but also the '*Uganda Vision 2040*', which highlights the need to 'strengthen the fundamentals of the economy to harness the abundant opportunities around the country' (National Planning Authority Uganda, 2013).

Community-based organisations and small enterprises from Kampala's informal settlements, like *Bwaise* and *Kasubi*, are already engaged in briquette-making. Briquettes are unique, because they provide a fuel wood-alternative from resources that are right under their feet, or in their waste bucket. Briquettes can be made

relatively quickly and at a low cost to the manufacturer and consumer *(figure 1)*. They can be adapted and applied in a wide variety of settings, making them an appropriate and sustainable fuel alternative.

For example, *Lubaga Charcoal Briquette Cooperative Society* (LUCHACOS) is a consortium of individuals and community-based organisations, which act collectively as a registered company, operating in the *Lubaga Division* of Kampala. LUCHACOS has developed a model that engages people in time-saving briquette-making practices. The LUCHACOS model has the potential to be scaled-up in Kampala, providing additional business and employment opportunities.

The National Government and KCCA can improve and expand solid waste management services by supporting municipalities to take a more strategic and multi-stakeholder approach to waste management, including the emerging practices of briquette-making. Cities can adopt a framework, which requires the systematic inclusion and support of community-based and small-scale enterprises in waste management processes. This provides an important alternative to seeking partnerships with large private firms.

Figure 1: Diagram of the briquette-making process (Image by Urban Action Lab/KNOW, 2020)

Above: Women from the 'Kyosimba Onanya group' in the Kasubi Settlement, visualising the process of briquette-making, (Images by Y. Padan, 2019)

Above: Handmade briquettes (left) versus those made by a briquette machine (right), presenting the opportunities for up-scaling (Images by D. Heymann/T. Kisembo, 2018)

3. The potential of the briquette business model

Briquette businesses offer opportunities to increase urban productivity in many ways. For example, in communities, where briquette-making takes place, these enterprises help to reduce the amount of localised solid waste, they reduce the costs of energy for households, and they provide alternative sources of income, especially for impoverished families.

The environmental benefits of briquette businesses, if integrated into the urban economy, can also be significant. The magnitude of emission reductions varies depending on the materials, but it is significant in almost all cases (OECD, 2018). The carbon-offset of making briquettes comes from avoiding disposal, reducing the extraction of raw materials, and returning secondary raw materials to the production cycle, therefore, using less energy in recycling processes.

Working side-by-side with community-based briquette enterprises can generate multiple economic and social benefits

Community briquette enterprises can also support the most vulnerable in the city. The majority of people contracted by these organisations are women, who earn nearly three times as much compared to individual waste pickers (Oates et al., 2019). Such community briquette enterprises operate alongside more nimble individual briquette enterprises in and around Kampala.

Partnerships, working side-by-side with community-based briquette enterprises, can generate multiple economic and social benefits within a sector otherwise notorious for appalling conditions. Partnerships reduce the vulnerability of workers through advocacy, research and innovation, and training. Areas for new interventions include, but are not limited to, improving existing technology, fostering skills for entrepreneurship, facilitating capital, and developing a delivery network.

Improving and expanding solid waste management services by supporting a more strategic, partnership-based approach to urban waste management can stimulate positive social, and economic impacts.

We propose designing a framework that is systematically inclusive, supporting community-based, small-scale enterprises in waste management processes by:

1. formulating procurement policies that are more accessible for community-based organisations and small-scale enterprises,
2. providing public land for waste sorting and briquette-making,
3. facilitating links between formal and informal operations,
4. reforming regulation to favour locally-led initiatives,
5. aligning waste management objectives with those of the circular economy,
6. promote a coherent policy approach to waste management by sharing best practices at municipal and inter-municipal levels,
7. support business infrastructure for business models that consider the 'end-of-life' recovery options, and,
8. considering the wider role of economic instruments in promoting circular economy objectives.

This will enable municipalities to systematically include community-based organisations and small-scale enterprises into formal solid waste management strategies.

Partnerships develop through the formulation of waste management policies that favour locally-led initiatives rather than technological fixes proposed by actors such as the KCCA or academia. There needs to be lobbying for finance and advocacy from civil society, including the facilitation of platforms for co-learning and co-production by government agencies like the National Environment Management Authority, Ministry of Energy & Mineral Development, academia and NGOs. Partnerships also enhance leadership training, conflict and gender resolution, networking and project management skills, advocacy and resource mobilisation, along with production and marketing skills. This occurs by delivering support to small organisations from development agencies, civil society, and various other actors. With this partnerships approach, social and economic benefits can be generated, including more secure livelihoods for the urban poor, the capacity to expand waste collection services to more households, and, ultimately, healthier urban environments for local residents.

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 (Oates et al., 2019). These community-based organisations and small enterprises are uniquely positioned to contribute to alleviating urban poverty and tackling climate change. In Kampala, most community-based-organisations (CBOs), or enterprises working in solid waste management, are made up of women and youth who are responsible for the collection, sorting, and recycling of waste into briquettes. These CBOs *(table 2),* are informally organised to improve their livelihoods through briquette-making. This helps with the management of solid waste at a household level, improving their living environment.

Some of the community-based organisations/ enterprises within Kampala are:

Table 2: Community-based organisations/enterprises within Kampala
(continued overleaf)

No.	Group/Enterprise	Location	Composition	Structure
1.	Akwata Empola Lubya Women's Group	Rubaga division	25 members (5 males and 20 females)	Community-based Organisation (CBO)
2.	Kasuubi Women Briquette Group	Rubaga division Kasuubi II	20 members (all female)	Cooperative under LUCHACOS
3	Mawanda Family Enterprise	Rugaba division	10 members (family enterprise)	Cooperative under LUCHACOS
4	Daala Ku Daala	Kawempe division Bwaise	73 members (youth; 34 males and 39 females)	CBO (supported by Actogether)
5	Mutundwe Wakiso Youth Organization	Wakiso	50 members (youth; 20 males and 30 females)	CBO (supported by Go Green Uganda, Ministry of Gender and JWACU)
6	Kyosimba Onanya	Kawempe division Bwaise	30 members (6 males and 24 females)	CBO (supported by AMREF and Actogether)
7	Masanafu Women Development Agency	Rubaga division Masanafu Mukukuki zone	24 members (women living with HIV)	Cooperative under LUCHACOS

Table 2, continued from previous page				
8	Youth Development Link	Rubaga	12 members (youth 7 males and 5 females)	Cooperative under LUCHACOS
9	Nakulabye Briquette Making Technology	Rubaga	15 members (6 males and 9 females)	Cooperative under LUCHACOS
10	Namungoona Women's Empowerment Initiative	Rubaga	19 members (all female)	CBO
11	Peace Development Group	Kawempe division Bwaise	17 members (7 males and 10 females)	CBO (supported by Actogether)
12	Wealth in Diversity and Entrepreneurship	Makindye Sabagabo	3 members (all female)	CBO (supported by FOWE)
13	Kamu Kamu	Kawempe division Bwaise	50 members (24 males and 26 females)	CBO (supported by Actogether)

Briquettes can be used similarly to charcoal, and so require little behavioural change within households. Briquettes have a variety of advantages over charcoal like, (a) creating use for waste that incentives collection and treatment; (b) by replacing firewood and charcoal as an energy source, briquettes help reduce deforestation; (c) since their production is relatively low-tech, they can provide income-generating opportunities for virtually anyone.

According to the KCCA, the estimated per capita generation of all types of waste (*Kitezi landfill*) is 1kg per day. With a population of about 1.5million, this works out to about 1500tons. The city council can only manage to dispose of 40%-50% of this quantity, of which 80% is organic matter; a key source of material for briquettes.

Based on the waste hierarchy (*figure 2*), the most effective environmental solution is to reduce the generation of waste, while products and materials can sometimes be used again, for the same or a different purpose.

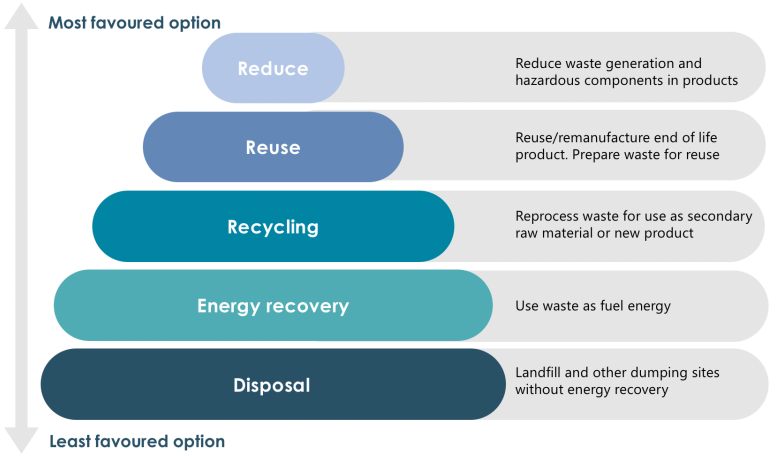

Figure 2: Waste management hierarchy (Image by Urban Action Lab/KNOW, 2020)

Waste reduction:

Avoiding and reducing waste is at the basis of the waste hierarchy *(figure 2)* and is the preferred choice for waste management measures. Waste reduction aims to achieve waste minimisation and therefore reduce the waste entering the waste stream.

Re-use, recycling and recovery:

Recovery, re-use and recycling comprise the second step in the waste hierarchy. These are very different physical processes which share the aim of reclaiming material from the waste stream and reducing the volume of waste generated, which in turn, moves down the waste hierarchy. The definition of 're-use' is, 'any operation by which products or components that are not waste are used again for the same purpose for which they were conceived'. (Word Economic Forum, 2018, p.7).

Disposal:

Disposal is any operation that involves the dumping and incineration of waste without energy recovery. As the least favoured option in the waste management hierarchy, landfill should be reserved for stabilised wastes from which no further value may be recovered.

4. Scaling-up waste businesses

Almost 80 per cent of households in Kampala use charcoal, consuming an estimated 236,908 tons per year. Kampala currently generates 1,170,190 tons of waste every year, of which 78 per cent is organic (Oates et al., 2019).

LUCHACOS (*Lugaba Charcoal Briquette Cooperative Society Limited*) is a consortium of individual community-based organisations engaged in briquette production. LUCHACOS started in 2015 with identifying local groups, individuals, or entities with a great knowledge of briquette-making. It aims to turn their micro-level production into an aggregated, cooperative-wide, medium-level production. The groups' members produce fuel briquettes from municipal and agricultural wastes by its members and do collective marketing through LUCHACOS. Such an approach has significantly enhanced the efficiency and extent of waste collection in Kampala, generating multiple economic, social and environmental benefits, and at the same time, creating decent livelihoods for some of the city's most vulnerable residents.

The World Bank estimates that 93% of micro-enterprise owners in Kampala are living below the poverty line.

A World Bank report, (2017) estimates that 93 per cent of micro-enterprise owners in Kampala are living below the poverty line. Supporting and scaling-up 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, 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 essential public services and contributing to actions on climate change.

Although operating at different scales, LUCHACOS and private companies effectively bring together community-based organisations and individual enterprises with larger formal actors, such as private firms, city governments, NGOs, and academia. These

arrangements 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. Integration of formal waste management systems can also serve to mitigate some of the discrimination that people, who work in this sector, face.

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 *(figure 3)*.

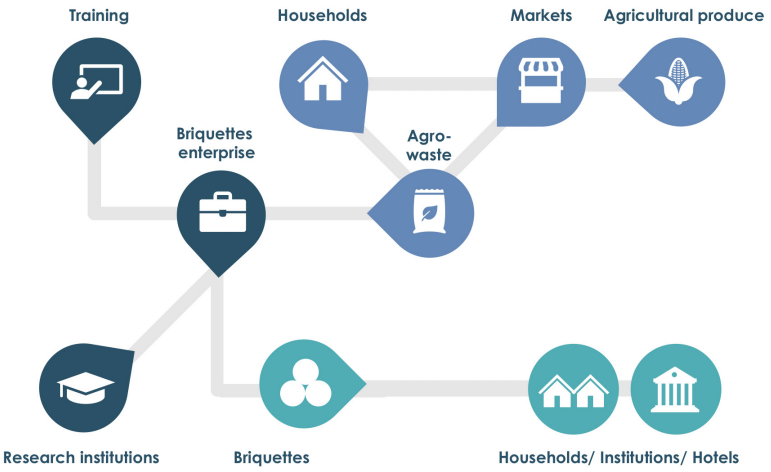

Figure 3: Value chain of briquettes from agro-waste (Image by Urban Action Lab/KNOW, 2020)

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 waste briquette production in the medium-term could have positive environmental and social implications.

5. Key policy messages

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.

KCCA and the Ministry of Lands, Housing and Urban Development can document and analyse the activities of community-based organisations and small enterprises to understand the social, environmental, and economic contributions they make. This information can also help decision-makers to appreciate how important these organisations are to both the urban economy and service provision.

Key Messages:

1. **Strengthen non-financial support** for community-based organisations and small enterprises that contribute to sustainable, inclusive urban development. This support can be in the form of providing capacity building, equipment, infrastructure, or land. The government can also review policies to ensure that they are not disadvantaging smaller, or more informal, organisations.

2. **Enhance access to finance for community-based organisations** and small enterprises that contribute to sustainable and inclusive urban development. For formal organisations, this could take on 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. The info-graphic on the following page *(figure 4)*, shows some of these policy considerations.

3. **Develop circular economies for waste management.** This requires people to reuse what they can, recycle what cannot be re-used, repair what may be broken, and re-manufacture what cannot be repaired. Measures need to be put in place to ensure that the practices are continued even when household incomes increase.

4. **Change perceptions about working with waste** by supporting awareness-raising and capacity-building interventions (by facilitating platforms for peer to peer learning), for recycling value chain stakeholders as well as academic and technical institutions.

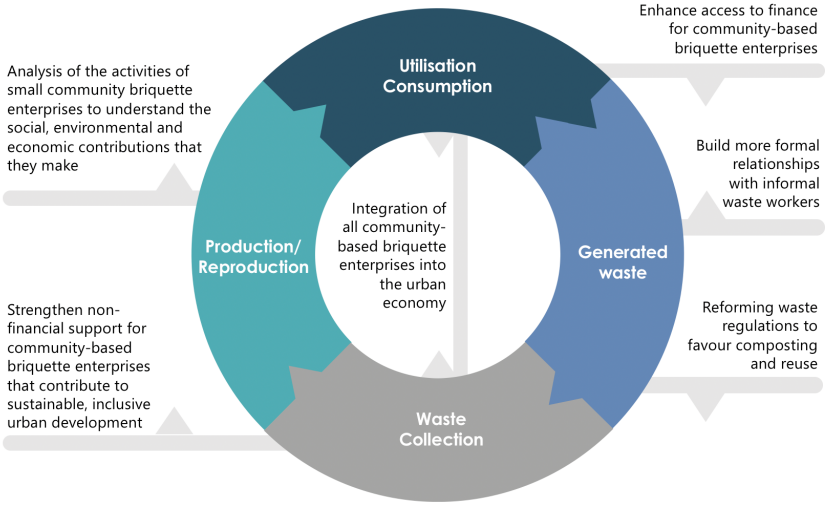

Figure 4: Waste reduction policy considerations (Image by Urban Action Lab/KNOW, 2020)

Above: Woman of the Kasuubi Zone III community (under LUCHACOS) presenting their briquettes (Image by D. Heymann, 2018)

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Above: Community members and the KNOW team engaging in the briquette-making process (Image by C. Yap, 2019)

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Partners & acknowledgment

LUBAGA CHARCOAL BRIQUETTES COOPERATIVE SOCIETY LIMITED (LUCHACOS)

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