AFRICAN CITIES RESEARCH CONSORTIUM

Research Report

Dumpsites: A community-led study of waste accumulation in Mathare

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A note on photos

Unless otherwise stated, all photos in this report were taken by the Nairobi co-research team and are used here with permission.

About the African Cities Research Consortium and this report

The African Cities Research Consortium (ACRC) is funded by FCDO to explore and develop new modalities for urban programming in the African continent.

Foundational scoping research across city politics, systems and domains identified entry points for action research interventions designed to address complex problems.

For Nairobi, this research can be accessed at: www.african-cities.org/nairobi

The city systems research identified Nairobi's insufficient provision of solid waste management as a key challenge, with a particular emphasis on the environmental and health hazards arising as a result of inadequate removal.

Building on this foundational research, as well as the dumpsites research captured in this report, an action research project led by SDI Kenya is underway in Nairobi's Mathare informal settlements, aimed at improving holistic waste management and establishing productive public spaces.

For more information, please visit: www.african-cities.org

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Contents

Key takeaways

1 **Community knowledge is a vital research tool for understanding how urban systems operate.**
It allows for the complexities of Mathare's waste value chain to be understood in ways that conventional datasets miss and ensures that those directly affected by urban issues are actively involved in the research process. Employing waste workers as co-researchers and learning from their lived experiences creates a far more accurate picture of local dynamics and how different systems interact.

2 **A huge gap exists between waste generation and removal in Mathare.**
Of the 169 tonnes of waste generated daily in Mathare, only 57% is collected. Most of this collected waste ends up in the subcounty's holding grounds, before eventually being transferred to the Dandora landfill. Waste collection alone therefore does not remove the environmental burden borne by the subcounty. The remaining 43% of waste ends up flowing into illegal dumpsites or "dumping hotspots", often clogging drainage systems, sewers and the Mathare River.

3 **An informal waste industrial complex has emerged to fill gaps in government services.**
Although not sufficient to deal with the scale of the problem, the informal waste system acts as a critical substitute for municipal services and provides thousands of waste workers with low-level incomes. It includes a diverse range of actors – from waste pickers to aggregators – who drive an informal circular economy by reclaiming and recycling materials usually ignored by formal systems.

4 **Government waste policies are often counterproductive, prioritising compliance over infrastructure.**
In treating illegal dumping as a compliance issue instead of a service failure, the Nairobi City County Government (NCCG) tends to penalise informal waste workers, rather than addressing deficits in its waste management infrastructure. The government effectively punishes these informal workers for what can be understood as rational adaptations to a persistent, systemic issue.

5 **Informal settlements bear the burden of Nairobi's broader waste issues.**
Waste flow dynamics are complex and heavily influenced by administrative boundaries and cross-border movements. Valuable commercial waste from wealthier areas of Nairobi flows into Mathare's dumpsites, leaving the informal settlement to manage large volumes of waste without the necessary financial or operational support from the city.

Acronyms

ACRC	African Cities Research Consortium
AMT	Akiba Mashinani Trust
CBD	Central Business District
CBO	Community Based Organisation
CHP	Community Health Promoter
GDC	Green Development Circle
KEMT	Kiamaiko Environment Management Team
KEPRO	Kenya Extended Producer Responsibility Organisation
LVCT	Liverpool Voluntary Care and Testing, Care and Treatment
MRF	Material Recovery Facility
NCCG	Nairobi City County Government
NEMA	National Environment Managing Authority
NRC	Nairobi River Commission
NYC	National Youth Service
PAKPRO	Packaging Producer Responsibility Organisation
PSP	Private Service Provider
SDI-K	Slum Dwellers International Kenya
ToR	Terms of Reference

Sheng' words and their definitions

Chirambe – Food waste used as animal feed, primarily for pigs. While the term can sometimes refer to chicken feed, chickens are more likely to get sick from eating this kind of food waste and are typically fed relatively clean remains consisting of rice and ugali.

Kanjo – Local government enforcement officers; the word is a local rendering of the word 'council' linking back to when Nairobi was administered by a municipal council. The word is synonymous with rough enforcement.

Kazi ya kudhora – The work of scavenging, sorting and selling material from dumpsites, drainage areas or rivers. A waste scavenger – also known as a waste picker – is therefore referred to as *mtu wa kudhora*.

Mkokoteni – A pushcart, used by manual labourers to transport goods.

Introduction: Just how much community is good enough?

Community knowledge refers to the information, interpretations and lived understanding held by people within a place. Unlike conventional datasets, it is textured, contextual, occasionally contradictory, and explains why systems operate as they do. In September 2024, we set out to explore what it would mean to study a city system in Nairobi through this lens in order to generate a body of community-held knowledge focused on a single urban issue: solid waste. Specifically, we aimed to generate evidence about waste flows in Mathare Subcounty – one of Nairobi's 17 subcounties – which hosts both informal settlements and low-income houses.

This approach evolved from the original community knowledge Terms of Reference (ToR), which had emphasised supporting "action research" projects as they developed their own community engagement processes. There were two reasons for this:

First, only one action research project in Nairobi had been contracted, and it was far from beginning its community work. Second, we had already spent three months interpreting the community knowledge ToR and developing a Nairobi community knowledge strategy through discussions with Slum Dwellers International Kenya (SDI-K), Akiba Mashinani Trust (AMT), Liverpool Voluntary Care and Testing, Care and Treatment (LVCT Health), the Muungano wa Wanavijiji federation and other community actors. These discussions led us to conclude that there was no drawback to building a community team early; co-researchers identified at this stage could later integrate into action research processes.

A related insight drove this approach: that communities do not organise themselves along strict thematic domains such as those used in the African Cities Research Consortium (ACRC). Whether engagements begin with SDI-K, LVCT, reform coalitions, political elites or local government, communities respond through the same leadership structures and the same internal logics. This reinforced the decision to generate an independent body of community knowledge – something that could stand on its own and feed into multiple research domains.

To choose a thematic area, we looked for a city system rooted deeply in everyday life and widely experienced across the city. Solid waste stood out simply because every resident generates waste. This universality creates an opportunity: solid waste interventions can engage every household, regardless of income, positioning or tenure, and are therefore a strong organising entry point. Waste offers a way to build a community knowledge process that is **inclusive by design**, because no one is outside the system.

The jurisdiction for this research was identified as Mathare subcounty, which hosts both informal settlements and low-income housing. These areas operate through systems that are largely self-organised, with services delivered by residents rather than formal institutions. In the context of solid waste, collection, sorting and disposal depend almost entirely on informal workers and locally negotiated arrangements. Because these systems function without stable income, infrastructure or consistent government

support, waste accumulates visibly – on narrow paths, beside homes and in large heaps. This visible accumulation is not simply an aesthetic problem; it signals deeper systemic dysfunction.

From this position, the natural progression was to develop a community knowledge strategy focused on a city system, to meet three distinct but equally important goals:

1. **To position community knowledge as a critical starting point for understanding and analysing urban complexity.**
   Arguably, certain city systems cannot be sufficiently researched without taking time to understand how residents of a city interact with the system. The waste management system was chosen for further exploration because of its strong connections to city residents; all residents of Nairobi are waste generators, and all informal settlements host dumpsites. The strategy aimed to showcase the pivotal role of community knowledge in understanding a city.
2. **To add to existing knowledge regarding cities, supported by the ACRC contextual framework.**
   Solid waste overlaps with multiple city systems, including law and order, water, sanitation, transportation and food distribution. These intersections provide an initial glimpse into the functioning of these systems. The solid waste system, additionally, provides a glimpse into the political settlement, which involves actors contracted to take away waste and how they leverage male-dominated waste groups for political support.
3. **To support action research processes using proven ways of working alongside communities.**
   Given that SDI-Kenya had an anticipated action research project on waste management, the strategy aimed to create “checkpoints” or key questions that practitioners could utilise to understand complexities within communities. Moreover, the strategy aimed to document and disseminate proven inclusive research processes – whether data analysis or dissemination practices – that development practitioners could use in their own action research work.

Research questions and objectives

The research questions emerging from this framing were:

- Who is the “community” within the context of solid waste?
- What do communities know about how the system works?
- How can this knowledge be gathered in ways that are locally appropriate?
- What does this knowledge reveal about Nairobi’s systems and political dynamics?
- What can communities learn from a structured research process, and what can researchers learn from them?

In simple terms, our goal became to craft a community-driven methodology for studying solid waste. Because the process was community-led, the methodology was not predetermined. We assumed only that the research would broadly follow the sequence of identifying a topic, collecting data, analysing it and disseminating findings. The

specific methods within each stage were left for the co-researchers themselves to shape.

The work therefore began with meetings to understand existing dynamics around waste in different parts of Mathare subcounty, followed by a focused literature review. Co-researchers were then identified based on their deep, practical knowledge of solid waste. Only after this did the research process itself begin. The following sections of this report detail that process and the findings that emerged.

The community knowledge research strategy[1] (study design)

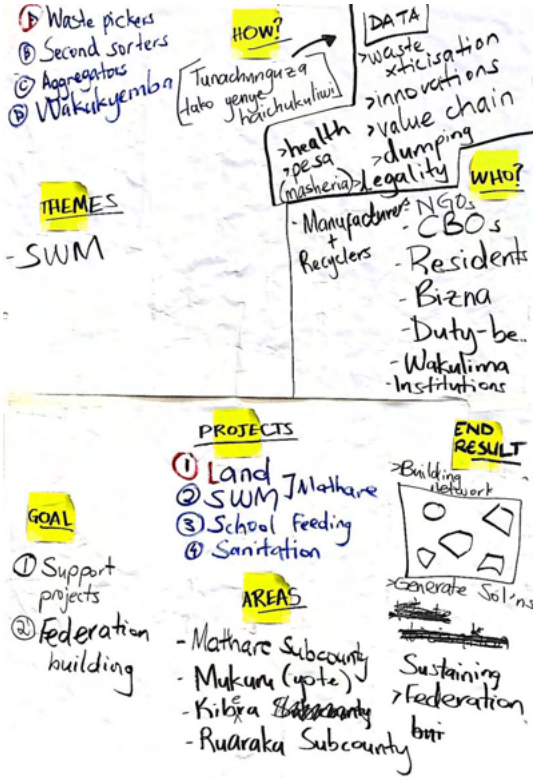
Preliminary scoping – meetings, walking and gossip over a cup of tea

To understand the current conversation and dynamics of solid waste, the community knowledge team lead spent time listening to communities and high-level actors in solid waste in Nairobi.

Focus group discussion on solid waste

The first stop was a meeting with Muungano wa Wanavijiji, the Kenyan federation of slum dwellers. Our conversation created an understanding of how waste is handled in informal settlements: who does what, how the system (formal and informal) runs and how the Nairobi City County Government (NCCG) shows up (or fails to show up). This meeting also helped shape a research strategy focused on solid waste across all Nairobi's informal settlements.

Figure 1: Meeting minutes from the conversation with Muungano wa Wanavijiji



Observing community inclusion in city-level conversations

Next came a different scene: a conference hall. The CK team lead, accompanied by two waste collectors, attended the Africa Waste is Wealth Summit,[2] a high-level gathering of the big names in waste, like Takataka Ni Mali, the FlipFlopi Project and the East African Business Council. This two-day event provided an insightful snapshot of the national and regional conversation on solid waste – and how much this conversation includes or excludes community knowledge.

[1] See Appendix A for the full research strategy.
[2] See: Africa Waste is Wealth Summit.

Gossip, gossip, gossip

The most extensive part of scoping occurred over the course of one month, during which the community knowledge team lead walked through all the six wards of Mathare subcounty – identified as the jurisdiction for this research. She talked to everyone: households, businesses, community-based organisations (CBOs), NGOs and members of Muungano wa Wanavijiji. The CK team lead wrote notes from these conversations and held a briefing with the federation. The briefing, in turn, helped to sharpen the research strategy.

The value of gossip cannot be overstated when trying to understand a community. It delivers a lot of information such as:

- Who does what, and why?
- Which interventions have been attempted – and which ones worked?
- What information is hidden, and why?
- Who are the gatekeepers and power brokers of waste-related interventions?

Even for an organisation that spends a major part of its time in slums, it was surprising that the expenses claim from the scoping exercise consisted largely of receipts for cups of tea from roadside kiosks. In the end, the receipts, mostly for many 20-shilling cups of tea (about GBP 0.12) added up to a grand total of GBP 30.

So many cups of tea. So much gossip. So much knowledge.

Action research stage

Following this, the co-research team was identified, who then determined the specifics of the action research process. Because the process was shaped by the needs, preferences and working rhythms of the co-researchers, it evolved into a highly specific and context-responsive sequence that could not be predetermined in either timing or form. The steps summarised below therefore describe a process that is not strictly reproducible, but fully community-driven in design and execution.

Study site: Mathare as a starting point

Mathare is one of Nairobi's 17 subcounties, and is subdivided into six wards: Kiamaiko, Huruma, Ngei, Mabatini, Hospital and Mlango Kubwa. Its headquarters, located at Kiamaiko Dispensary, anchors the area's administration and services (Boroughs Administration and Personnel Office, n.d.)[3]. Mathare subcounty spans just 2.95km^2.[4] Yet, according to the 2019 census, it is home to an estimated 206,564 people. This makes it the most densely populated subcounty in Nairobi, with 68,855 people per km^2.

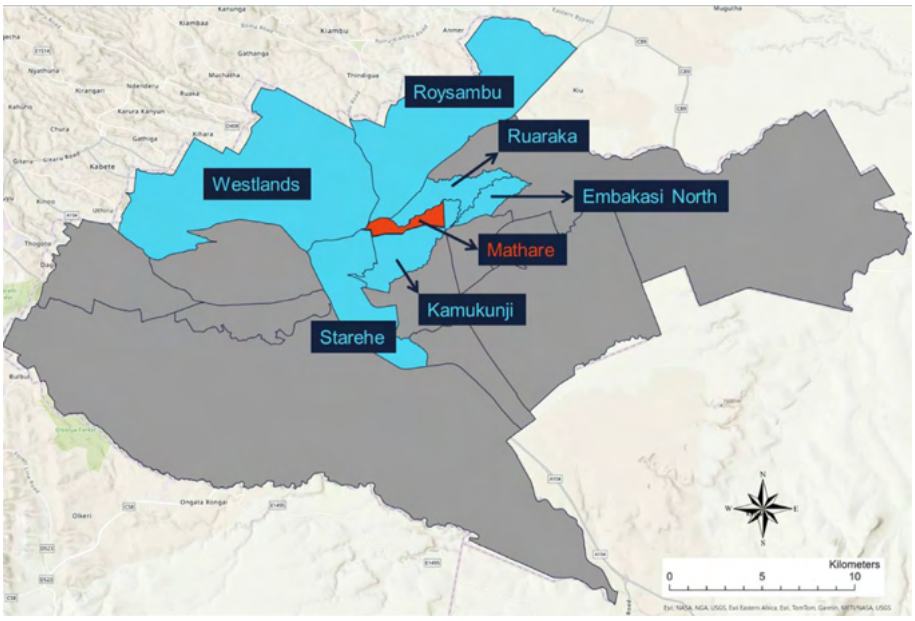
[3] Note that the Kiamaiko Dispensary houses the administrative offices of Mathare Subcounty, headed by a Subcounty Administrator, who is a county officer. On the other hand, the Deputy County Commissioner's Office, located at Mathare No. 10, is a national government office under the Ministry of Interior and is responsible for security oversight across Mathare Subcounty.
[4] As measured on Google Earth.

To put this into perspective, Kamukunji – the second most crowded subcounty – is only a third as dense (24,389 people per km^2) (Nairobi City County, 2023). With such a concentrated population, Mathare is probably one of the highest waste-generating subcounties in Nairobi.

Waste in Mathare is managed by the Environment subsector of the Department of Green Nairobi.[5] This office handles refuse removal, dumpsite management and solid waste disposal. Its structure mirrors the county administrative system, with a Chief Officer supported by subcounty and ward-level environment officers (Nairobi City County, nd).

Our research aims to understand the dynamics of waste across Mathare subcounty. Working within the county's administrative structure proved surprisingly useful. For example, we found that waste from neighbouring subcounties – Starehe, Kamukunji and Westlands – ends up in Mathare. Yet the Subcounty Environment Officer refuses to transfer this waste to the Dandora landfill site simply because it originates from a different jurisdiction. This refusal highlights how government officers interpret subcounty boundaries and how these interpretations affect waste flows.

Figure 2: Mathare subcounty and its neighbours



The Mathare and Huruma settlements

Past research in the subcounty has focused on two distinct areas: the *Mathare settlements* and the *Huruma settlements*, shaped by historical settlement patterns rather than administrative boundaries. For further information on the differences between the villages of the settlements and wards of the subcounty, see Appendix B.

[5] The other departments of Green Nairobi include Food, Agriculture and Natural Resources; and Water and Sewerage.

In the following boxes, we explore both areas – tracing their histories, current dynamics and the interventions that have shaped them.

Box 1: Mathare settlements

The Mathare settlements (also known as the Mathare valley) encompass **Hospital**, **Mlango Kubwa** and **Mabatini** wards, which have mixed housing arrangements, ranging from corrugated iron shacks to tenements. Before the 1950s, this land was largely owned by Asians who mined it for stones. Therefore, the terrain slopes steeply from Juja Road in the south towards the Mathare River in the north.

The valley is divided into 13 villages, all with unique settlement histories. For instance, in Kwa Josphat village, an Asian quarry owner is said to have directly handed over the land to one of his workers, Josphat. In Mathare 4B, the chief illegally sold off plots to individuals. Kiamutisya is the oldest village, established during the 1952 state of emergency as a hideout for Mau Mau fighters during the curfew. Kosovo village, on the other hand, is home to displaced people. In 1968, settlers from Kaburini (modern day Kariokor), moved there after a fire. In 2002, families evicted from Village 2 Kwanduru (modern-day Highridge, Westlands subcounty) were also relocated to Kosovo (Muungano Alliance, 2008).

Houses of corrugated iron sheets in 3A Village, Mabatini ward

Box 2: Huruma settlements

The latter three wards of Mathare – **Ngei**, **Huruma** and **Kiamaiko** – are collectively known as the "Huruma settlements" and are primarily composed of highrise tenements.

The history of the land is similar to that of the Mathare valley. Initially owned by Asians for quarrying, the land was sold back to the government post-independence, then later subdivided and sold to private landlords. In Ngei, for instance, most land is owned by the Kibichoi landlords' association. Notably, Ngei is the only ward in the subcounty with no public land, schools or amenities.

Both Ngei and Kiamaiko were sites of Nairobi's earliest community-led slum upgrading projects, initiated in 2003 by Pamoja Trust and Muungano wa Wanavijiji (Ettyang, 2011; Alam et al., 2005). Kiamaiko also hosts a large Ethiopian and Eritrean immigrant community and is home to the city's largest goat abattoir – an economic hub with complex liquid waste challenges.[6] Lastly, Huruma ward houses the Huruma flats – a government municipal housing scheme from the 1980s.

Highrise tenements in Huruma

Source: Abala, Nyambuga, Wairutu and Kori (2022)

[6] For more on the battle between slaughterhouse owners and the National Environment Management Agency (NEMA), see Kanyi Wyban, 'The nine lives of Kiamaiko slaughterhouses', Debunk Media (available online, last accessed 23 December 2025).

Because the subcounty is often viewed as two distinct areas – the Mathare settlements and the Huruma settlements – population data are typically presented separately. The difference between the population estimates given by the NCCG (206,564 people) and by development partners are significant and worth highlighting.

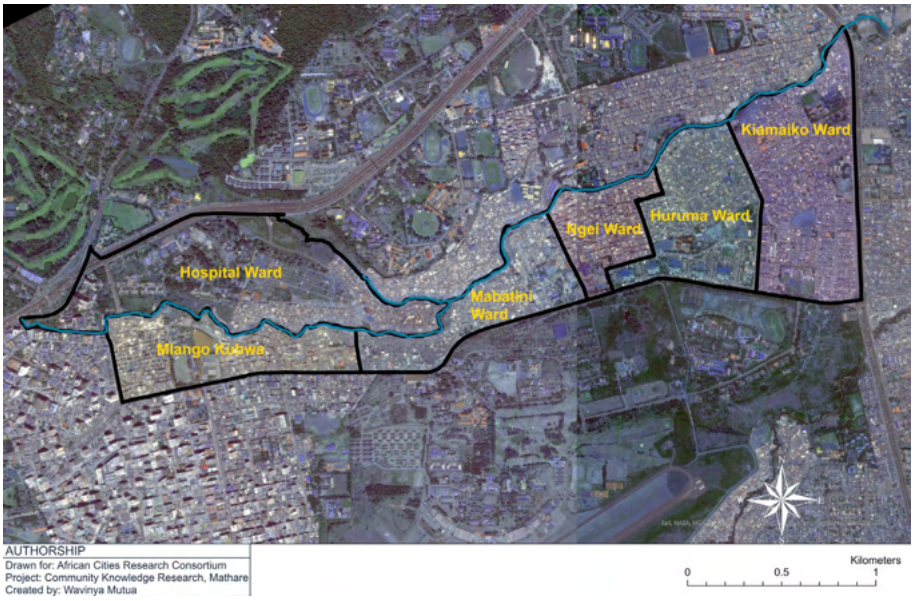
An enumeration exercise undertaken in 2022 by SDI-Kenya and Muungano wa Wanavijiji estimated that Mabatini, Mlango Kubwa and Hospital wards (the Mathare settlements) were home to 230,504 people (Abala et al., 2022). Reliable population data for the Huruma settlements are scarce, since most research focuses on the Mathare settlements. However, one study placed the population density of Huruma at 1381.4 inhabitants per hectare in 2020 (Ren et al., 2020), which translates to 192,015 residents.[7] Combined, this suggests that 422,519 residents live in just 2.95km^2 (see Table 1).[8] Following the 2024 demolitions, the population declined, although the extent of displacement has not yet been documented.

Given that Mathare subcounty has the highest number of waste generators in the city, as well as limited land availability because of its population density, it serves as a critical testing ground for solid waste interventions that could be replicated in other settlements in Nairobi.

Table 1: Approximate population of Mathare subcounty using existing research

Area	Population
Mathare settlements (Abala et al., 2022)	230,504 residents
Huruma settlements (Ren et al., 2020)	192,015 residents
TOTAL (Mathare subcounty)	**422,519 residents**

Figure 3: The six wards of Mathare subcounty



[7] The total area of the Huruma settlements is 139 hectares, as calculated from Google Earth.
[8] The population density of the subcounty is therefore 143,226 people per km^2.

Solid waste: A brief look at existing systems, interventions and actors

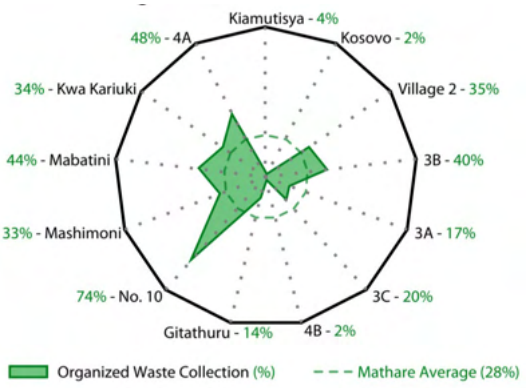
Solid waste systems generally involve three actions:

- Collection;
- Disposal;
- Segregation, pre-processing and sale.

Waste collection

Mathare's system varies in structure and participation. In areas with highrise tenements (such as Ngei, Huruma and parts of Mlango Kubwa located next to Juja Road), waste collection is relatively organised and often dominated by local youth groups who compete over the monthly household collection fee. In contrast, Hospital ward has historically lacked an organised household waste collection; instead, residents often dispose of their waste directly into or near the Mathare river.

Figure 4: Organised waste collection in the Mathare settlements (Hospital, Mlango Kubwa and Mabatini wards)



Source: Muungano Support Trust, Slum Dwellers International, University of Nairobi and University of California Berkeley (2012).

Note: The two villages with the lowest coverage of organised waste collection are Kosovo and 4B – both of which are in Hospital ward.

Solid waste interventions across Mathare have largely focused on strengthening waste collection groups. The most common strategy is to support local CBOs in forming waste networks, which help these groups coordinate activities, expand household coverage and collectively engage with local government. Two such networks are the Kiamaiko Environment Management Network (KEMT) in Kiamaiko ward, and the Green Development Circle (GDC), in Ngei and Huruma wards, whose creation and activities have been supported by SDI-K and Muungano wa Wanavijiji.

Another example of community waste collection is the Mathare Area River Adoption Group[9] in 4B Village, Hospital ward. With support from SDI-K/Muungano wa Wanavijiji, the group now provides free door-to-door waste collection and disposes of the waste at a designated skip near Mathare Community Park.

Waste disposal

According to the NCCG, legal dumping takes place at designated sites known as holding grounds; illegal dumping occurs everywhere else. Mathare has three legal holding grounds, which are further discussed in a later section.

[9] See: Mathare Area River Adoption Group.

In recent years, the county government has shifted its strategy from holding grounds to Material Recovery Facilities (MRFs).[10] Nairobi's first MRF was launched in Korogocho (Ruaraka subcounty) in March 2025 (Nairobi City County, 2025), providing a framework for future sites. In Mathare, the county government announced plans to construct an MRF at the Kiamaiko holding ground. However, construction is yet to begin; delays have been attributed to ongoing land disputes and the high startup cost required to kick off the project.

Waste in informal settlements and the river are highly intertwined. To quote a 2012 study: "[solid and liquid] waste management in the Mathare slums is the greatest contributor to pollution of the Mathare River" (Mwaniki, 2012). This close link has shaped solid waste interventions, which often aim to rehabilitate river-adjacent dumpsites into green spaces. Notable examples include the Ghetto Farmers' space in Kiamaiko and the Mathare Community Park near MCEDO School in Hospital ward, both of which have transformed river-adjacent dumpsites into green spaces.

In 2023, President Ruto launched the Nairobi Rivers Commission (NRC)[11] to co-ordinate efforts to rehabilitate the Nairobi River Basin. Then came the floods of 2024, which brought widespread devastation to Mathare. In response, a presidential directive – issued after the peak of the flood season – ordered the demolition of homes within the 30-metre riparian buffer.[12]

From May to July, houses located within the riparian zone in informal settlements were demolished, but not in middle- or high-income areas. Roughly 4,000 families were displaced in Mathare alone. Compensation of Ksh10,000 was promised, but the funds were channelled through area chiefs, many of whom reportedly redirected the money to friends and relatives.

The government has since staked a claim to the riparian land, designating the Nairobi River Corridor a Special Planning Area on 6 March 2025 (Kariuki, 2024). However, before the demolitions, the NRC had built relationships with river-adjacent CBOs in informal settlements, even supporting the creation of the Mathare River Regeneration Network.[13] The abrupt evictions fractured this trust. Although the NRC continues its planning, community enthusiasm and involvement has significantly declined; river restoration is now deeply emotive. Lastly, following the demolitions, much of the waste previously dumped directly into the river is now dumped onto the now-vacant riparian land.

[10] MRFs are designated spaces where solid waste is to be delivered, sorted, processed and then stored for further processing. For more on MRFs, see Ayub Macharia, Material Recovery Facilities for Waste in Kenya. Nairobi: NEMA.
[11] See: Nairobi Rivers Commission (NRC).
[12] Despite strong pushback from development partners, the national government went ahead with demolitions in Mathare, Mukuru, Korogocho and Dandora. For more on this opposition, read the Solidarity Statement on the Recent Evictions in Nairobi Informal Settlements.
[13] See: Mathare River Regeneration Network.

Waste along the riverbanks, Mabatini ward

Segregation, pre-processing and sale

This part of Mathare's waste system is the least complex. Existing interventions have typically focused on value addition of waste products. For example, Downtown CBO, located in Hospital ward, uses combustible inorganic waste as fuel for baking bread.[14] Additionally, Motobrix Limited is a social enterprise that manufactures eco-friendly briquettes from organic waste such as charcoal dust, sawdust, paper, cassava peel and vegetable stalks (Akoth, 2023).

In 2018, UN-Habitat donated a plastic waste shredder to Pequi Group (formally Mathare One Stop) in Mlango Kubwa ward.[15] However, the machine is no longer operational, reportedly because of conflict within the CBO. A similar shredder used by Ngei 1 Development Youth Group of Huruma ward also faces challenges; it is often turned off because it draws more electricity than the local grid can supply. Additionally, the location is frequented by environmental officers because of hazardous smoke emissions. Therefore, the viability of plastic shredding for value addition would realistically require long-term engagement with youth groups, re-planning of the area, a proper Environmental Impact Assessment and installation of a step-up transformer.

Household-level waste segregation remains a major challenge; most homes are too small to accommodate multiple bins, and there are no known interventions in Mathare that have successfully implemented it. At dumpsites, segregation is done by waste scavengers, yet no programmes in Mathare currently support or engage them. Similarly, we found no evidence of interventions targeting local waste aggregators, who act as key middlemen, selling to larger aggregators and recycling companies.

[14] A short video on the small-scale waste incinerator can be found here: A Different Taste to Waste.
[15] See: Plastic upcycling set to make Nairobi Informal Settlement a cleaner place.

Baking oven in downtown CBO (left) and briquettes prepared from organic waste, sold along Juja Road (right)

Preliminary findings

Waste workers in Mathare

Informal waste workers are the backbone of the city's circular economy. They move from households to dumpsites, then to recyclers, farmers, businesses, electricians and other end-users. While informal waste workers within the Dandora landfill have been extensively documented (Osman, 2019; Hirshfeld, 2023), little is known about those operating in the rest of the city. Additionally, their positioning as low-income residents doing "dirty" work results in systemic, policy-level and interpersonal prejudice. The result is a near-total absence of intentional, structured engagement.

This section therefore outlines the categories of waste workers operating in Mathare subcounty, as well as their role in the community-level circular economy. Three categories of waste workers were identified: **waste collectors**, **waste scavengers** and **low-volume waste aggregators**.

NOTE

Waste work requires no specific schooling, formal qualifications or startup costs, making it one of the few accessible income streams for vulnerable populations in Nairobi.

Waste collectors

In most waste-sector interventions, waste collectors are the most visible and the most frequently engaged. They collect waste from households, small businesses and institutions like schools and churches. Their primary income comes from the weekly or monthly service fee paid by residents. Some collectors supplement this income by selling higher-value items sorted from household waste. In Meta Meta Village, Ngei ward, for example, collectors sell food waste directly to nearby pig farmers.

In Mathare, collectors may be organised into self-help groups, CBOs or networks – umbrella bodies formed by multiple CBOs. Three networks currently operate in Mathare:

- **KEMT** (Kiamaiko ward);
- **GDC** (Ngei and Huruma wards);
- **Takataka Solutions** (Mabatini ward).

Thanks to its low coverage of organised waste collection, Hospital ward is still setting up a functional waste collection network. Mlango Kubwa ward, on the other hand, is saturated with overlapping political interests and internal conflict, which has made collective organising extremely difficult.

A pushcart (*mkokoteni*) with house waste

NOTE

Waste collectors often struggle to collect a monthly service fee from residents. One team member told us about a policeman who pulled a gun on him when he asked for a fee of Ksh100. A few days later, he found a dead, bloated dog in the Mathare River and dumped it at the policeman's doorstep. Problem very quickly resolved!

Waste scavengers[16]

Waste scavengers earn their income from selling recovered materials. They are locally known as *watu wa kudhora* or *watu wa kuchemba*. Scavengers target materials recovered from dumpsites, streets, drains, rivers and public spaces. Their customer base is wide and hyperlocal: farmers buying pig feed, businesses needing firewood or clean bottles, second-hand clothes sellers, neighbourhood hotels replacing cutlery, or local aggregators, to name a few.

We found *no example* of a private sector waste intervention targeting scavengers in Mathare, even though their work is significant in moving materials into recycling streams. Meanwhile, local waste aggregators rely heavily on scavengers to supply materials that they then aggregate and resell. One straightforward way to quantify waste scavengers' contribution would be to track how much material local aggregators receive from them.

[16] Globally, this category of waste workers is referred to as "waste pickers". During the research process – done primarily in Sheng' – the co-researchers simply used the phrase, "*watu wa kudhora*". When drafting the report, they felt that "waste scavengers" was a more direct translation of the Sheng' phrase. Additionally, we often confused waste pickers with waste collectors during our discussions ("pickers take waste from houses. Us, we scavenge. We don't pick"). Therefore, for this report, the category of waste workers who segregate and sell recyclables, either from households, dumpsites, dustbins, roadsides or drainages, are simply referred to as waste scavengers.

NOTE

Training waste collectors on the value of waste

KEMT is a waste management network of 18 groups from Kiamaiko. A team member revealed that the waste collection CBOs had little awareness of the financial value of waste before the creation of the network. Previously, they charged households for collecting waste, then handed over the bags to scavengers for sorting and selling. It was the creation of KEMT – a donor-funded initiative – that taught collectors about the waste market.

Waste scavengers, by contrast, already operate with this knowledge. Their daily survival depends on understanding the waste market. In many ways, supporting waste scavengers is a more direct and efficient way to work in Nairobi's circular economy.

A waste picker in Mlango Kubwa ward (left) and a local waste aggregator (right)

Note: Local waste aggregators are known as "*watu wa makilo*", which translates to "the people of the kilograms".

Waste aggregators

Local waste aggregators, also known as low-volume aggregators, purchase waste from collectors and scavengers, then resell these materials to high-volume aggregators (who operate storage yards) or directly to companies. For this research, the team mapped aggregators across the subcounty and identified 36 active local waste markets.

Like many small-scale informal businesses, many local markets operate for a short time. Profit margins are narrow, and businesses often close when owners are unable to accumulate sufficient stock. However, others have shown significant longevity: we documented two aggregation businesses that have operated for more than 30 years.

A major determinant of longevity is access to storage space**.** The prices of waste materials often fluctuate for reasons that are sometimes predictable and sometimes unclear. Prices typically drop during the rainy season; a sudden influx of imported

recycled paper can depress local prices, and every December many companies close for the full month, causing prices to fall. For local aggregators, storage space provides a buffer against these fluctuations; the ability to delay selling can be the difference between operating at a loss and running a sustainable business. While conducting research, more than half of the local aggregators interviewed complained about the limited space in which to conduct business.

It is unclear if the local aggregators of Mathare have been involved in waste interventions. One promising next step would be to trace where Mathare's aggregated materials are sold – using the aggregators themselves as co-researchers – to generate a clearer picture of how materials move from informal settlements into formal recycling and manufacturing systems.

A peek at the city's waste value chain

Outside Mathare, waste moves to large-volume aggregators, then to recycling companies. Some low-volume aggregators move their items directly to recyclers, whereas at least two of the aggregators identified in Mathare qualify as high-volume aggregators.

NOTE

Preliminary research results indicate that the informal circular economy has the capacity to reuse and recycle a significant portion of the city's waste.

Informal businesses purchase a wide variety of goods that require no special training, technology or research to be absorbed, nor do they need to be purchased in bulk.

Understanding and supporting this economy is a critical and significant waste intervention.

For each product, there is a dumpsite or holding site, a scavenger, one to three aggregators and a recycler or manufacturer. Nairobi's recycling rate – currently less than 10% (Kloettschen et al., 2024) – has traditionally been tracked by engaging recyclers and manufacturers. However, this rate does not account for the sheer number of goods purchased by informal businesses, such as clothes that are resold by hawkers and *uhuru* bags (reusable cloth bags) resold to roadside chefs, who use them as fire lighters when cooking.

***Chirambe* (pig feed), milk packets and synthetic hair (left to right)**

The scoping exercises also helped to further elucidate community-level dynamics on waste. See Appendix C for an outline of Nairobi's waste value chain, based on this work.

Identifying waste workers

Identifying waste collectors through CBOs or networks is usually the simplest entry point. However, preliminary scoping revealed two common distortions that can mislead interventions.

1. **The chair has moved up:** As a group's chairman gains exposure and access to higher-earning opportunities, they may step away from waste collection, while still speaking as waste workers. They may even represent their groups without explicit member consent. This creates internal conflict and frustrates interventions that rely on their input.
2. **Waste work is outsourced:** Because of alternative income sources or organisational conflict, CBOs may have only one or two active members. If needed, they outsource day-to-day waste collection to workers from other CBOs, or simply to non-organised community members. Meanwhile, the leadership may continue to represent their group in sector discussions. This disconnect between representation and actual labour is significant.

The implication is straightforward: any intervention targeting waste workers must invest dedicated time to understanding who performs the work. Walking through communities on waste collection days remains a simple and reliable way to see the system as it functions.

Ward-specific dynamics

The wards of Mathare subcounty had different local dynamics which shaped how team members were identified.

- **Hospital ward.** As previously noted, this ward has the lowest coverage of organised waste collection, largely because of historical conflict between from *Nyumba Kumi*,[17] *Wazee wa Kijiji* (village elders and youth). Such intergenerational conflict necessitates the involvement of non-waste worker community members who double as community organisers and who have good relations with village elders. This can ensure buy-in, if any intervention is carried forward.
- **Mabatini ward.** The illegal alcohol brewing industry in this ward impacts waste collection services. Because the industry is highly protected, establishing and organising waste collection groups is difficult. Instead, waste collectors often work as individuals.
- **Mlango Kubwa ward.** Politically, this is considered one of the hardest areas to work in; many waste collection CBOs are linked to local politicians, creating

[17] *Nyumba Kumi* ("Ten Houses") is a community policing initiative in which residents are organised into clusters of ten households to support crime-prevention efforts. In practice, the initiative is almost exclusively led by elders, which has intensified intergenerational conflict within settlements. See Wamaitha Ndono et al, Effectiveness of the Nyumba Kumi Community Policing Initiative in Kenya.

overlapping interests that make ward-level interventions highly divisive and contentious. The politics of the ward are so notorious that the political settlements analysis lead explained, *"to work in Mlango Kubwa, you need an entry strategy* and *an exit strategy. It's that bad."* Therefore, to prevent conflict, the identification process avoided engaging multiple waste workers from multiple youth groups.

- **Ngei Ward.** The waste dynamics in this ward differ from the north (towards Juja Road) to the south (towards Mathare River). The northern part of Ngei has less organised waste collection, with workers disposing of waste into or next to the river. In fact, many operate at night or before 7am to avoid meeting government officers. Additionally, political tensions and conflict between CBOs further complicate engagement in this area. Both Huruma and Kiamaiko wards also exhibit this same north–south divide.

Team selection

The goal of this phase was to create a research team of 18-20 waste workers from across the subcounty. For each of Mathare's six wards, three waste workers were identified. Two additional members, identified by Muungano wa Wanavijiji, were included to support documentation, data analysis and reporting processes, given the wide range of literacy levels among the waste workers.

The identification phase aimed to create a diverse team in terms of:

- **Role within the waste value chain** (waste scavenger, collector or aggregator);
- **Age and gender;**
- **Areas of operation;**
- **Market relations** (who they sell to or buy from);
- **Type of site** they work in (legal holding ground vs illegal dumpsites);
- **Organisational structure** (CBO or self-help group vs independent workers).

For those working in groups, we sought representation from self-help groups, CBOs and waste networks.

An unexpected subcategory emerged during the scoping phase: drug-addicted waste workers. Their work follows the same pattern as other waste workers – collection, sorting and selling of recyclables – but their positioning shapes labour relations. Their specific vulnerability means that they are routinely paid less to collect waste, paid less for selling the same materials and are treated as expendable labour. We therefore worked to ensure their inclusion in the co-research team.

We now detail the ward-by-ward process used to select team members. Note that a full breakdown of team members' details can be found in Appendix D.

Hospital ward

Four co-researchers were identified from Hospital ward: three waste collectors and one solid waste champion. The solid waste champion – who doubles as a community

organiser – came from Kosovo village, which completely lacks organised waste collection.

Two waste collectors – both young women – were identified by their respective collection groups. Lastly, an individual waste collector struggling with addiction was identified by a village elder; he collects waste from Shofco School for Girls and disposes of it into or next to the Mathare River.

Mlango Kubwa ward

Two waste workers were identified. The first – a waste scavenger – was simply approached while working from a dumpsite. The second, a waste collector from Beavers' Youth Group, was identified by a community mobiliser from Mabatini ward.

Identifying additional co-researchers was difficult. The community knowledge team lead attempted to recruit waste workers from the Kiamutisya holding ground, but its manager suspected that she was a government informant and declined to participate. A scavenger from the same dumpsite, who had initially agreed to join the team, later withdrew, explaining that her supervisor – the aforementioned manager of the holding ground – had assigned her too much work. These challenges underscored how access to key waste infrastructure is tightly controlled by local power relations, shaping what knowledge can be generated and who is able to participate in its production.

This phase of the research also revealed the importance of building trust as a precondition for conducting community-driven research within contested waste spaces. In recognition of this, the community knowledge team lead and several co-researchers made repeated courtesy visits to the holding ground throughout the research process, just to discuss the emerging findings together.

As outlined in the section Mlango Kubwa is special below, Kiamutisya is significant to Mathare's waste economy: it is the subcounty's largest dumpsite, receives waste from three different subcounties and employs the largest number of waste workers. Understanding its complexity provides insights into Nairobi's broader system issues. Sustaining trust with workers from the holding ground is therefore critical to any potential interventions.

Mabatini ward

Four waste collectors were identified from Mabatini ward. Two are members of Takataka Solutions Group, the ward's umbrella organisation for waste collection. One of these two collectors also aggregates plastic bottles, selling directly to a high-volume aggregator from Baba Dogo. The third collector is a member of a waste collection youth group, operating in Kwa Kariuki village.

The fourth collector works independently, collecting waste from clubs in Mashimoni village. Mabatini ward has a large illegal alcohol brewing industry, with *busaa* and *chang'aa* production concentrated in Mashimoni, 3C and 3A villages. Drinking den owners and brewers are notoriously protective and routinely resist external

interventions.[18] The waste collector, Edu, has successfully worked here for many years because he is from the area and is unaffiliated with any organised group.

Edu's work as an individual waste collector underscored a key insight: in highly protected or politically sensitive locations, trusted individual collectors with deep community ties are often the only viable entry point for waste capture.

NOTE

The **Nairobi City County Solid Waste Management Act**, **Sections 23(2) and 23(3)**, requires that waste be collected by licensed Private Service Providers (PSPs), but does not specify the characteristics of these providers (Nairobi City County, 2015). The Ministry of Environment, Climate Change and Forestry elaborates that PSPs should be licensed businesses. To receive a waste transport licence, a PSP should have a tax ID, corporate bank account, registered vehicles and proof of vehicular insurance, among other requirements (Ministry of Environment and Forestry, 2006; Capita Registrars, 2025).

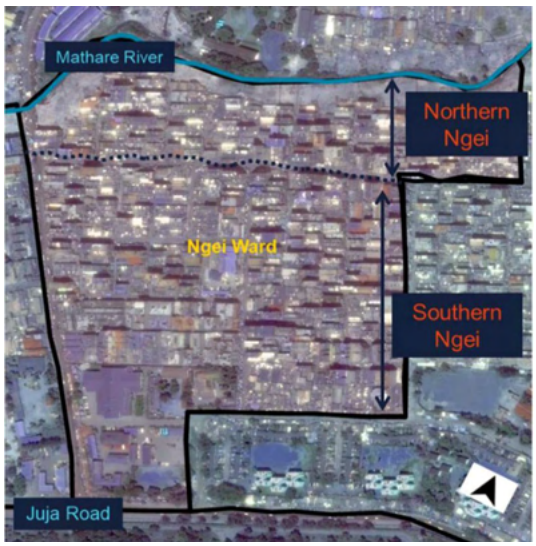
To engage informal waste workers, the NCCG Environment Office allows CBOs to register as PSPs. Environment officers enforce this consistently, requiring PSPs in informal settlements to operate under a registered CBO, which simplifies enforcement. No mechanism exists for licensing individual informal waste collectors. This means that the contributions of individuals such as Edu are considered illegal, going unrecognised and unsupported in waste interventions.

Ngei ward

The community knowledge team lead sought to identify waste workers from both the north and south of the ward.

In the south, one waste collector from the umbrella organisation (GDC) was identified. In the north, several workers from four different CBOs were approached, but none ultimately joined the team. Repeated engagement during dissemination has helped decrease mistrust among waste scavengers and collectors but significant outreach gaps remain.

Figure 5: The two sides of Ngei ward



[18] This fear is well founded. A police raid targeting the alcohol economy resulted in the destruction of bars and deliberate arson by the police. For more about this economy, see Fire and Chaos: Mathare's Chang'aa Problem and the Optics of Policing, published by *The Elephant*.

Huruma ward

Because of the north–south dynamic, two waste collectors were selected: one from the north, identified by GDC, and one from the south, identified by Kochez, a community mobiliser from Muungano wa Wanavijiji.

One waste scavenger was also identified; she scavenges exclusively in Mathare North ward (Ruaraka subcounty), having been chased away from Huruma ward, despite working there for a few years. During the research process, we learned two things: 1) that women scavengers are chased away from certain sites; and 2) that waste scavengers are highly mobile, moving across multiple dumpsites and waste markets. This makes asserting jurisdictional boundaries impractical.

Kiamaiko ward

Waste in Kiamaiko ward is highly centralised and coordinated by KEMT, a network of 18 CBOs across the ward. Waste workers were identified by Jonte Kimani, a community mobiliser from Muungano wa Wanavijiji. Interestingly, when the community knowledge team lead specifically requested younger group members actively involved in waste collection, the high-ranking officers from KEMT went quiet. The two waste workers identified operate primarily as individuals, but are affiliated with KEMT CBOs for compliance purposes.

Documentation support

Two documenters were identified by Muungano wa Wanavijiji – one from the Huruma settlements, one from the Mathare settlements.

Workplan creation and data collection

After the team was formed, the first two meetings focused on relationship building. Members crafted a basic working constitution, agreeing on how to collaborate, on actions that would suspend or expel a co-researcher and norms for respectful conduct.

Meetings were to be held rotationally across all wards for each phase of work. Additionally, the team emphasised that no meeting hall would belong to the CBO of a team member. Instead, meetings were to be held in neutral locations like churches and schools, to prevent conflicts whereby members profited disproportionately from the work.

Next, team members discussed their waste work and preliminary research topics, as suggested by the coordinators of Muungano wa Wanavijiji (see preliminary scoping).

Workplan creation at the Salvation Army Hall, Kosovo Village, Hospital ward

They decided to focus on two areas: dumpsites and the local waste market. The team was subdivided into three ward-specific groups, each with one documenter and at least one ward-level "expert".

Group 1: Mlango Kubwa and Kiamaiko wards;
Group 2: Mabatini and Hospital wards;
Group 3: Ngei and Huruma wards.

Dumpsites in Mathare

The team collected qualitative data on dumpsites, choosing to focus on nine thematic areas:

1. **History.** Why and how the dumpsite originated, revealing information on community dumping habits, land conflict (in instances where the site is located on disputed land) and government interventions.
2. **Stakeholders.** These are the individuals or groups who stake some claim to a dumpsite. They may hold power over existing dynamics or simply interact daily with the site.
3. **Problems.** This was intended to create conversations on issues that stakeholders and community members next to the dumpsites experience.
4. **Formal and informal rules.** The rules are typically agreed upon and enacted by the dumpsite's stakeholders. They elucidate how stakeholders organise themselves.
5. **Permits.** Permits speak to the legal relationship between dumpsite stakeholders and the government.
6. **Type of waste that enters the dumpsite.** This was to identify the sources and categories of waste found in dumpsites. Is it only Mathare's waste that is found in Mathare's dumpsites?
7. **Sale of waste.** To map categories of waste sold within the waste market.
8. **Movement of waste to Dandora landfill site.** Because the NCCG typically moves waste from dumpsites to Dandora, this was another way to scrutinise the relationship between the dumpsite's stakeholders and the NCCG.
9. **Health risks.** To understand the health impact of dumpsites on waste workers, as well as to identify potentially hazardous waste dumped in the settlement.

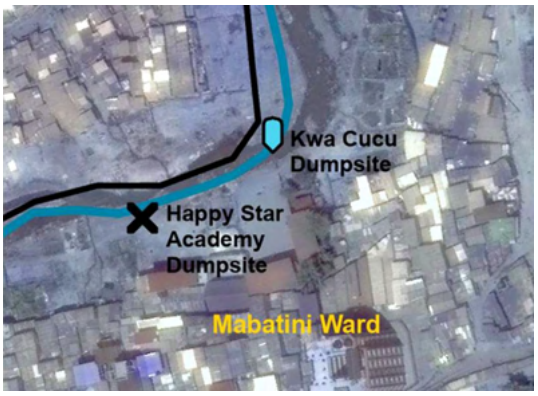
Data was collected using three methods:

- **Mapping of dumpsites across the subcounty**. Teams walked through all wards, noting dumpsite locations and local names related to the location or dynamics. Local names were given to assist with community-to-community dissemination. Thereafter, during debrief meetings, the team gathered in a hall with a projector, where co-researchers used a stick to indicate dumpsite locations on the projected map. These points were then pinned in Google Earth. While not highly precise, this approach was democratic and inclusive.

- **Visual documentation.** The co-researchers took photos of some dumpsites, where it was safe to do so. Team members noted that some dumpsites were highly protected and they could not take photos, mostly because of community experiences of harsh or persistent enforcement.
- **Interviews.** The team members conducted semi-formal interviews on site. To put stakeholders at ease, draft questions for these interviews were created in Sheng' (see Table 2). The co-researchers developed the questions by reviewing each thematic area and crafting prompts designed to elicit information from stakeholders.

All data was entered into Google Forms.[19]

Figure 6: Local names for local dumpsites, Mabatini ward



Note: "Kwa Cucu dumpsite" was so named because most of the area's structures are owned by Cucu and her family. Cucu means "grandmother", so the name Kwa Cucu refers to "Cucu's place". Happy Star Academy dumpsite is simply located next to the Happy Star Academy.

Table 2: Dumpsites in Mathare – guiding questions, written in Sheng'

Thematic area	Sample questions
History	Hii tako ilikujaanga aje hapa? *(How did this waste get here?)*
Stakeholders	Wenye kusimamia hii dumpe ni kina nani? *(Who is in charge of this dumpsite?)* Kuna tofauti kati ya kazi wa wanaume, wanawake na watoi? *(Is the work done differently for men, women or children?)*
Problems	Huku kuna shida ya magroups? *(What issues are faced here?)*
Informal and formal rules	Huku masheria ni gani? *(What are the working rules?)*
Permits	Ni permits gani zinahitajika? (*What permits are needed for this work?*) Mliskiaje kuzihusu? nalipwa how much? *(How did you hear about them [the permits]? How much do they cost?)*
Type of waste	Ni tako aina gani inaingianga hapa? *(What kind of waste enters this dumpsite?)*

19 The form can be viewed here: Mathare Reporting Template: Dumpsites.

	Inakaanga hapa siku ngapi? *(How long does waste remain in this dumpsite?)* Kuna tako yenye huchomwa? *(Is waste here typically burned?)*[20]
Movement of waste to Dandora	Lorry zinakujanga hapa? Ni lorry kama ngapi? *(Do lorries typically come here to remove waste? How many of them?)*
Selling of waste	Huku kunauzwanga tako gani na gani? Bei ya hiyo tako ni gani? *(What kind of waste is sold here? What is its price?)* Watu wangapi wanasaidikanga na hii shughuli? *(How many waste pickers participate in sorting and selling waste?)*
Health risks	Unajiprotektingi aje? *(How do you protect yourself?)* Huku kuna tako aina fulani yenye inasumbuanga mwili ukiisort? *(Is there a specific type of waste that affects you negatively when you sort it?)*

Data collection process



Note: Left to right – team members in Hospital ward, Huruma ward and Kiamaiko ward.

Data analysis

Before analysing the data, we asked ourselves: **is community-driven data analysis possible?** In typical research processes, once data are collected, they "go" to the office for analysis, then return to the community for validation. We wanted to approach this differently. Therefore, the community knowledge team lead convened the urban development lead and two randomly selected co-researchers to brainstorm. Together, we spent at least eight hours reviewing and designing an analysis process that the entire team could participate in.

[20] Burning waste is more likely in dumpsites where waste is rarely or never removed, as a way to control the size of the sites.

However, we later learned that literacy differences among team members were creating unequal levels of understanding. These differences were disclosed much later, during the dissemination phase. In response, the CK team lead spent two weeks slowly walking through the data with the entire team. These sessions were light, interactive and highly participatory – filled with cross-checking of knowledge, editing maps, sharing stories, juicy gossip and retaking photographs. This guided conversation allowed for a much more inclusive data analysis process.

Community-led data analysis (left) and the CK team lead walking through the data

Dumpsite dynamics: Stick figures and storytelling

The aim was to develop an understanding of dumpsite dynamics and the patterns behind their spatial distribution. The analysis approach included several participatory methods:

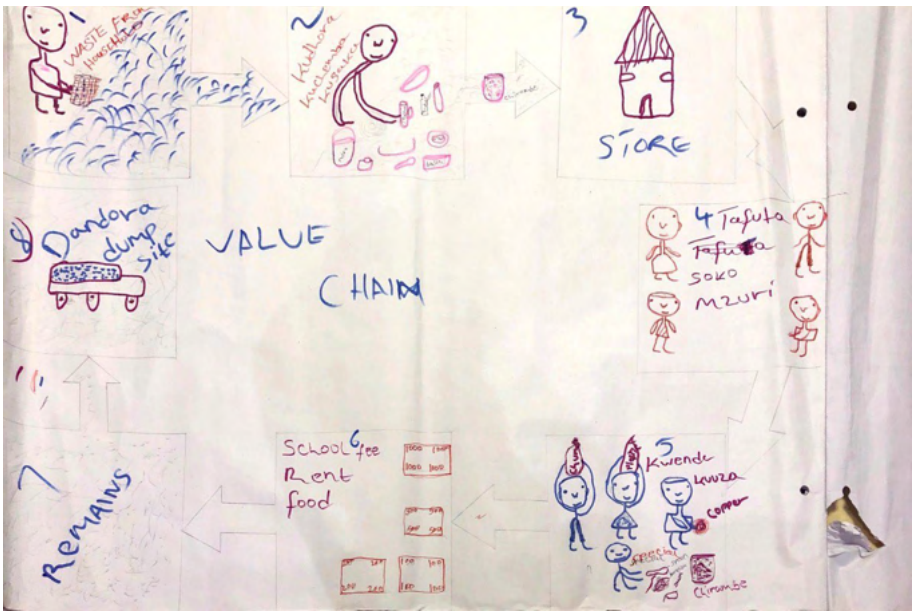
1. **Story sharing:** Team members narrated what they knew about the different dumpsites.
2. **Story trees:** These stories were organised into story trees to consolidate information and reveal underlying relationships or recurring themes.
3. **User journeys:** Members drew simple user journeys to trace how waste moves into and out of dumpsites, based on the collected qualitative data. These were especially useful for visualising the movement of waste across the subcounty, showing what ends up where.
4. **Facilitated discussion:** This came later. The team slowly reviewed each dumpsite, discussing their observations, sharing experiences and cracking jokes. This was especially helpful in identifying the different stakeholders involved in dumpsites and clarifying existing power dynamics.

After this came practice dissemination**.** The team organised a series of low-pressure presentations to friendly audiences, designed to test both content and delivery. First, members collectively agreed on the structure and sequencing of the presentation, then

practised with each other. The community knowledge team lead developed a visual presentation to act as a memory aid for the presenters.

Different co-researchers presented to Muungano wa Wanavijiji, SDI-Kenya, NCCG environment officers and visiting ACRC staff. The second presentation was anything but friendly; the environment officers reacted strongly to the scale of dumping and number of dumpsites documented!

Figure 7: Value chain from the perspective of a waste worker



Results and findings – dumpsite dynamics

Dumpsites across Mathare subcounty: An overview

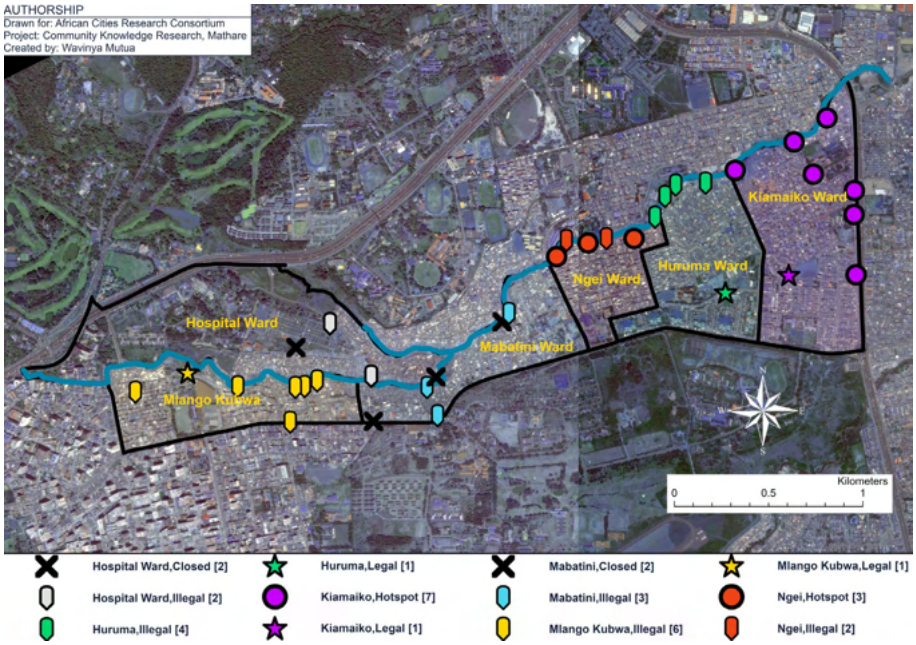
The team identified 34 waste sites across Mathare subcounty,[21] categorised into four types:

1. **Legal holding grounds.** These are formally designated by the NCCG to temporarily hold municipal waste until its eventual transfer to Dandora landfill. The subcounty has three legal holding grounds.
2. **Illegal dumpsites.** These are areas where dumping occurs without the knowledge or approval of the NCCG. Illegal dumpsites typically emerge in neglected public spaces, disputed land, near rivers and roads, or in demolished areas. We identified 18 illegal dumpsites.
3. **Dumping hotspots.** Unlike dumpsites, which accumulate waste in static heaps, hotspots are characterised by flow. They are located along rivers, stormwater drainage areas or sewer lines, where water carries the waste away, spreading pollution downstream. We identified ten hotspots across the subcounty.

[21] For the full dataset, see Dumpsites – All Compiled Data. (Google Spreadsheet. Analysts: Molly Adawo, Njoki Decho, Jane Wairimu and Wavinya Mutua.)

4. **Closed sites**. Some dumpsites are transient, appearing then disappearing primarily because of solid waste interventions. In the case of Mathare, four dumpsites had been closed – one by the Environment Office, two because of government construction and one by an adjacent school. However, closure of a dumpsite does not mean a reduction in dumping; the waste is simply taken to a different location.

Figure 8: The waste sites of Mathare subcounty



Legal holding grounds

The strategy behind holding grounds has been shaped by successive city governments.

Governor Evans Kidero (2012–17): The NCCG operated a morning collection schedule from 3:00am-6:00am, with lorries taking waste from all wards except Hospital ward. Waste collection groups paid a Ksh2000 monthly fee to access this service.

Governor Mike Sonko (2017–20): Upon taking office, Governor Sonko proposed that the NCCG absorb this monthly collection fee to relieve the financial burden on waste collection CBOs. While well intentioned, this shift resulted in a sharp decrease in collection frequency. Waste began to be held in piles until its eventual transfer to Dandora. Hence the term “holding grounds”.

Today, the Environment Office views these grounds as legitimate transfer stations and prefers to work with registered CBOs affiliated with them. There are three legal holding grounds, whose dynamics are further elucidated in Table 3:

1. **Kiamaiko holding ground (Kiamaiko ward).** Established in 2016 following negotiations between community members and waste groups to centralise waste disposal, Kiamaiko is managed by KEMT, which has partnered with VSO, SDI-Kenya, and the Environment Office to set up a buy-back centre for the

subcounty. However, the site faces land-use disputes: although waste groups manage the space, factions within the community are lobbying to replace it with a mosque or social hall.

2. **Salama holding ground (Huruma ward).** Designated in 2017, this site serves both Huruma and Ngei wards (Ngei ward lacks its own designated space). Managed by GDC, an umbrella organisation of 15 groups, the site was originally located opposite the Huruma chief's camp. It was moved to its current location – next to the Salama Primary School – after the Air Force raised concerns regarding waste accumulation near their perimeter.
3. **Kiamutisya holding ground (Mlango Kubwa ward).** This was established in 2017 following a clean-up by the National Youth Service (NYS) under the *Kazi Mtaani* programme, as well as by consultations with Green Park CBO and community leaders. The site was specifically designated to combat haphazard dumping that was clogging drainage systems in the ward.

Table 3: Dumpsite dynamics – a breakdown

	Kiamaiko holding ground	Salama holding ground	Kiamutisya holding ground
Rules regarding children	All holding grounds officially prohibit children from dumping or scavenging. However, the enforcement of these rules is haphazard and children – especially boys – continue to work at these sites.		
Permits and registration	To operate legally, all waste sites and affiliated groups are required to obtain waste management permits. These permits are secured through the ward's environment officer at an annual fee of Ksh3,000.		
Reformist focus	All sites serve as reformist spaces, engaging individuals who are transitioning from crime or drug use.		
Scavenging rules	A critical rule across all sites dictates that waste collectors are prohibited from scavenging once waste has been dumped. This is intentional, because collectors earn their money from household fees. It ensures that waste scavenging/waste picking remains a distinct and protected income stream.		
Operational hours	Dumping is limited to between 6am and 6pm to curb criminal activity.	There are no specific operational hours. To avoid arrest, unregistered collection groups typically dump waste at night.	Scavenging and sale occur primarily during the day. Most collectors dump here at night to avoid arrest, because the waste comes from other subcounties.
Management	Management of both sites falls to the umbrella organisations KEMT and GDC. In both instances, however, certain individuals hold disproportionate influence over decision making. However, they actively shy away from public scrutiny and government engagement.		While the site is officially managed by Green Park CBO, a single individual holds disproportionate authority, unilaterally determining the allocation of work and income.

The Kiamaiko, Salama and Kiamutisya holding grounds (left to right)



Note: The Kiamutisya holding ground is the largest in the subcounty. The NCCG has not collected waste from this site in two years. According to the Environment Office, 455 trucks were required to transport all waste out of the holding ground the last time this was done. Given that each truck weighs 19 tonnes and the city pays Ksh3,000 per tonne delivered to Dandora, the entire exercise costs Ksh24.6 million.

The case of Depot holding ground

Depot holding ground, located in Kosovo, Hospital ward, originated in 2021, when police officers from the adjacent police housing began dumping there because of the lack of waste collection from their homes. The site's location was solidified when a caterpillar, in the process of mining sand, excavated a deep hole, effectively "officialising" the depression as a dumping site. Its proximity to local offices led the ward administrator and local chief to eventually acknowledge it as a legal holding ground. This proximity also ensured that waste was removed at least biweekly by the NCCG.

The holding ground was unexpectedly and quickly closed on 11 March 2025 to clear the way for President Ruto's social housing project, with no immediate plan for an alternative holding ground. All waste in Hospital ward is now redirected to the Gitathuru dumpsite – which was classified as illegal. Since the NCCG now removes waste from Gitathuru, this raises questions: is this illegal dumpsite now a *de facto* holding ground? Is this informal process similar for other holding grounds?

NOTE

Legal holding grounds are another example of a semi-formal system adopted by the NCCG to bridge the gap in service provision in informal settlements. The **Nairobi City County Solid Waste Management Act**, **Section 30(1),** specifies that waste disposal may take place either by controlled tipping, recycling, composting, incineration or "any other disposal method that may be in place depending on the type, quality and quantity of the waste".

Section 31(1) states that "no person may dispose of waste in the county's final disposal facility or transfer station unless such person has paid the prescribed disposal fee…" with no prior definition of a transfer station given.

Legal holding grounds therefore exist in the grey area between "any other disposal method" and the undefined "transfer station". The NCCG's regulations do not explain how legal holding grounds are determined, nor how often waste should move from these sites to Dandora.

Holding grounds: Is it enough?

Waste generation in Mathare subcounty

Accurately determining the daily amount of waste generated in Mathare is complicated. There are two reliable methods to estimate this tonnage:

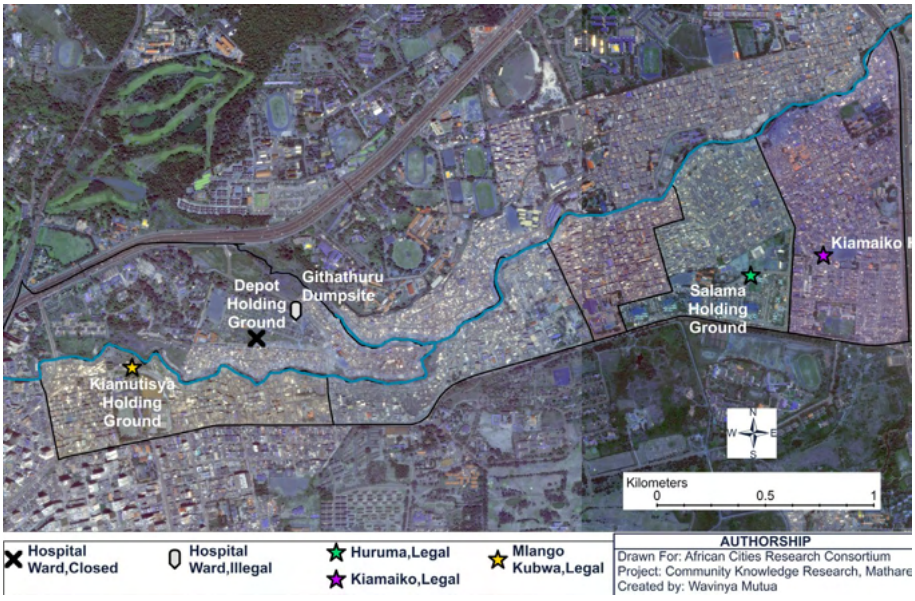
1. **Per capita estimation (2010 JICA survey).** The study established waste generation in informal settlements, noting that the average amount generated for a resident of Kibera is 0.489 kg/day/person, and 0.340 kg/day/person for a resident of Mukuru (JICA, 2010). This comes to an average of 0.4145 kg/day/person for informal settlement dwellers.

Depot holding ground

$$0.4145\,\frac{kg}{person/day}\,x422{,}519\;people = 175{,}134\,\frac{kg}{day}\;\text{v}\;175\,\frac{tonnes}{day}$$

2. **Subcounty estimation (waste wise cities tool, 2019).** The survey estimated that Mathare subcounty generates 169.1 tonnes of waste daily. While population growth since 2019 would suggest an increased tonnage, the 2024 government demolitions also decreased the subcounty's population. Given this uncertainty, the estimation of 169.1 tonnes/day remains reasonably reliable.[22]

Figure 9: Legal and semi-legal holding grounds



[22] It is important to note that this figure does not include waste generated by informal business. No existing research in the city has accurately captured the tonnage of waste produced by this sector.

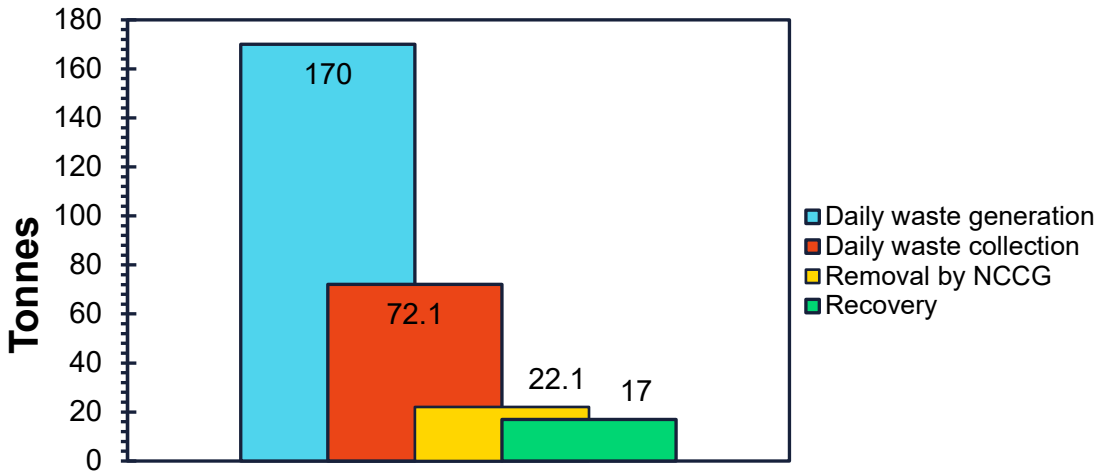
Waste collection in Mathare subcounty

Data on organised waste collection across the subcounty primarily comes from work done by SDI-Kenya and Muungano wa Wanavijiji, focusing on the Mathare settlements (Mabatini, Hospital and Mlango Kubwa wards (SDI-Kenya and Muungano wa Wanavijiji, 2025)), as well as Kiamaiko ward (Wera, 2023). Workers in the subcounty collect an estimated 72.1 tonnes of waste daily, as shown in Table 4.

Table 4: Estimated waste collection in Mathare Subcounty

	Mlango Kubwa	Hospital ward	Mabatini	Ngei and Huruma	Kiamaiko	TOTAL
Waste collection (kg / week)	2,460	1,880	573	[No data – assume the waste collected is twice that of Kiamaiko[23]] 333,246	166,623	**504,782**
Waste collection (kg / day)	351.4	268.6	81.9	47,606	28,803	**72,110.9**

Figure 10: Estimates of waste generated and collected



Comparing the waste generated to the waste collected reveals a significant deficit. On any given day, up to **57% of waste generated is not collected**. Recall that Mathare subcounty has a population density of 143,226 people per km^2; where does all this uncollected waste go?

[23] During the 2019 census, both Ngei and Huruma were considered as one ward. According to the 2019 Kenya Population and Housing Census Vol II, p.239, the two wards combined have a population of 107,805 people in 0.7 km^2; Kiamaiko has 55,040 people in an area of 0.7 km^2. The population of the two wards is almost exactly double that of Kiamaiko. Assuming that all three wards have the same waste collection coverage, these two wards would therefore collect twice the amount of waste as Kiamaiko.

Dumping hotspots: The river pays the price

The uncollected waste goes either to illegal dumpsites or to dumping hotspots. Dumping hotspots are waste dumping areas where the waste does not pile up, but is carried away by water or liquid waste, invariably ending up in the river.

The data collection exercise identified nine dumping hotspots in two wards – Ngei and Kiamaiko. The hotspots in each ward had unique characteristics.

Figure 11: Dumping hotspots identified in Ngei and Kiamaiko wards

Hotspots in Ngei ward

The two hotspots in Ngei Ward are both managed by individuals, “management”, meaning that they push waste dumped there into the river. The first hotspot, Gateway hotspot, gets waste from businesses on Mathare North Road. The second hotspot, Kwa Aunty, receives household waste.

Gateway hotspot, the Mathare River before the 2024 demolitions and the Mahira hotspot (left to right)

Hotspots in Kiamaiko

Seven hotspots were identified in Kiamaiko. There were three business-related hotspots along the Outer Ring Road, neighbouring small-scale businesses such as pool table makers, garages and food vendors. It was noted that waste collection groups primarily collect from households, leaving local businesses as a huge waste collection gap. One hotspot near the Kiamaiko slaughterhouse receives waste from the adjacent Muungano houses of Mahira village. Lastly, there are three riparian hotpots, where household waste is dumped.

Some reasons for the development of hotspots

- **Economic strain:** Many small-scale traders and vendors operate on minimal profit margins. Paying for waste collection feels burdensome, leading them to seek free dumping options.
- **Lack of enforcement:** Since the businesses are often informal, there is minimal regulatory oversight, making it easy to avoid paying fees.
- **Group mentality**: If a few businesses start dumping waste at a particular spot, others follow, normalising the behaviour and creating a hotspot.
- **Insufficient community awareness:** Despite efforts from community groups, many residents and business owners may not know the designated dumping areas or that they can access these areas. Additionally, dumping there requires a fee to be paid to the network or individual who manages the holding grounds. For people in wards like Ngei and Mabatini, accessing dumping grounds is hard.
- **Misconceptions about drains and sewers as dumping points:** Since some people have always seen waste dumped in drains and sewers, they consider it acceptable. This is doubled by the fact that the drains wash away the waste.
- **Accessibility:** Drains and open sewers are often more accessible than designated collection points, making them convenient for illegal dumping.
- **Lack of waste infrastructure:** In some parts of Mathare, the absence of proper bins or collection services pushes people to use drains as dumping points. There are some instances of collectors who take from *vibandas* (local restaurants), but this food is often given away for free.

NOTE

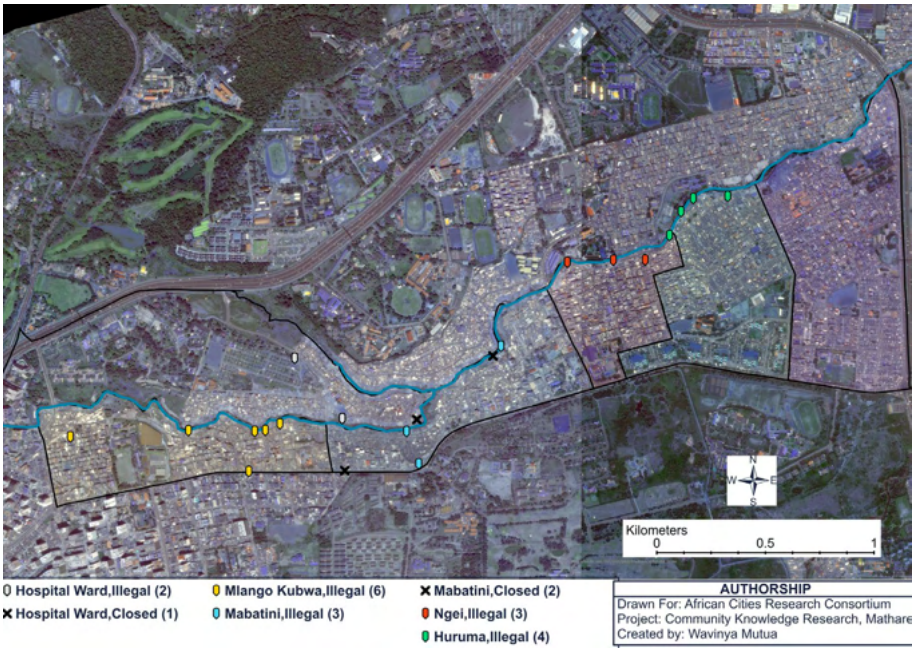
It is important to note that the nine hotspots identified do not comprise all the sources and locations of waste that end up in the river. Hotspots were more defined before the demolitions, when there was little space to dump, because dwellings went all the way to the river. After the demolitions, hotspots have become more amorphous, and illegal dumpsites have proliferated all along the river (because now there is land to dump on).

Dumping hotspots are what happens when you have significant uncollected waste and no space to dispose of it.

Illegal dumpsites: A ward-by-ward breakdown

Illegal dumpsites are unauthorised dumping areas where waste is disposed of without NCCG approval. They often emerge in neglected public spaces, near rivers and roads, or in demolished areas. The number of illegal dumpsites far exceeds both hotspots and legal holding grounds, with 21 dumpsites identified, three of which have been closed since the data collection exercise in November 2024.

Figure 12: Illegal dumpsites – both closed and still in existence – across Mathare subcounty



Mlango Kubwa has the highest number of illegal dumpsites – six of them – as well as the oldest and largest dumpsites by volume (see Mlango Kubwa is special section below). Both Ngei and Huruma have their illegal dumpsites located along the river. This doesn't mean that all other waste ends up in the Salama holding ground. It is possible that waste is extensively dumped into sewer lines (as is evidenced in the breakdown of dumpsites in Ngei ward). However, without conducting research, it is just not possible to track how waste flows. Hospital ward, having the smallest population, has only two illegal dumpsites. Recall, however, that the ward also has the smallest waste collection coverage; the river is doubtless a big dumping hotspot. Lastly, Mabatini, has two closed dumpsites – one of which was closed by the government, the other closed by an adjacent school.

Before elucidating dumpsite dynamics, it is helpful to give a breakdown of all the dumpsites, ward-by-ward.

Kiamaiko ward

Kiamaiko has no illegal dumpsites; KEMT has worked to consolidate all waste dumped and ensure that it enters the legal holding ground. Instead, the ward has the highest

number of known dumping hotspots, meaning that, even with the creation of a network, not all waste has been captured.

Huruma ward

Huruma ward has four illegal dumpsites – all located along the river, as shown in Table 5. They mostly contain household waste, with one dumpsite – Kelly Bridge – receiving construction waste from Eastleigh (a neighbourhood outside Mathare). Their location implies that this waste does not end up at the Salama holding ground, with collectors opting to dispose of it at the river.

Kelly Bridge dumpsite, Huruma ward

Table 5: Dumpsites of Huruma ward

	Name	Management	Details
1	**St Martin dumpsite**	Viat Group	Floods killed many pigs reared along the riverbanks, which in turn shrank the local *chirambe* markets. Then the demolitions destroyed Viat Group's structures. These significantly reduced the group's income from waste.
2	**Sonorwa dumpsite**	Kevin (an individual waste scavenger)	The six-year-old dumpsite has accumulated waste from nearby households.
3	**Kelly Bridge dumpsite**	Waste scavengers, who are not organised into a group	This dumpsite spans the entire Kelly Bridge, which connects Ngei and Huruma to Mathare North ward (Ruaraka subcounty). It receives construction waste from Eastleigh (Kamukunji subcounty), which is then sold at Ksh70 a bucket.
4	**Madoya dumpsite**	Uptown CBO and Strikers CBO.	The dumpsite has existed for about 11 years. The two groups managing it also managed adjacent showers and toilets, making an estimated Ksh1,300 daily. However, they abandoned the area after floods and demolitions destroyed their property.

Ngei ward

As in Huruma, all Ngei's dumpsites are river-adjacent. They all receive household waste, except Kwa nature dumpsite, where dredged waste from river clean- ups, overseen by the NYS), is disposed of. Notable also is the Furaha dumping spot – a hotspot that became a dumpsite after the sewer line was constructed, cutting off liquid waste flows. Table 6 summarises dumpsite dynamics in the ward.

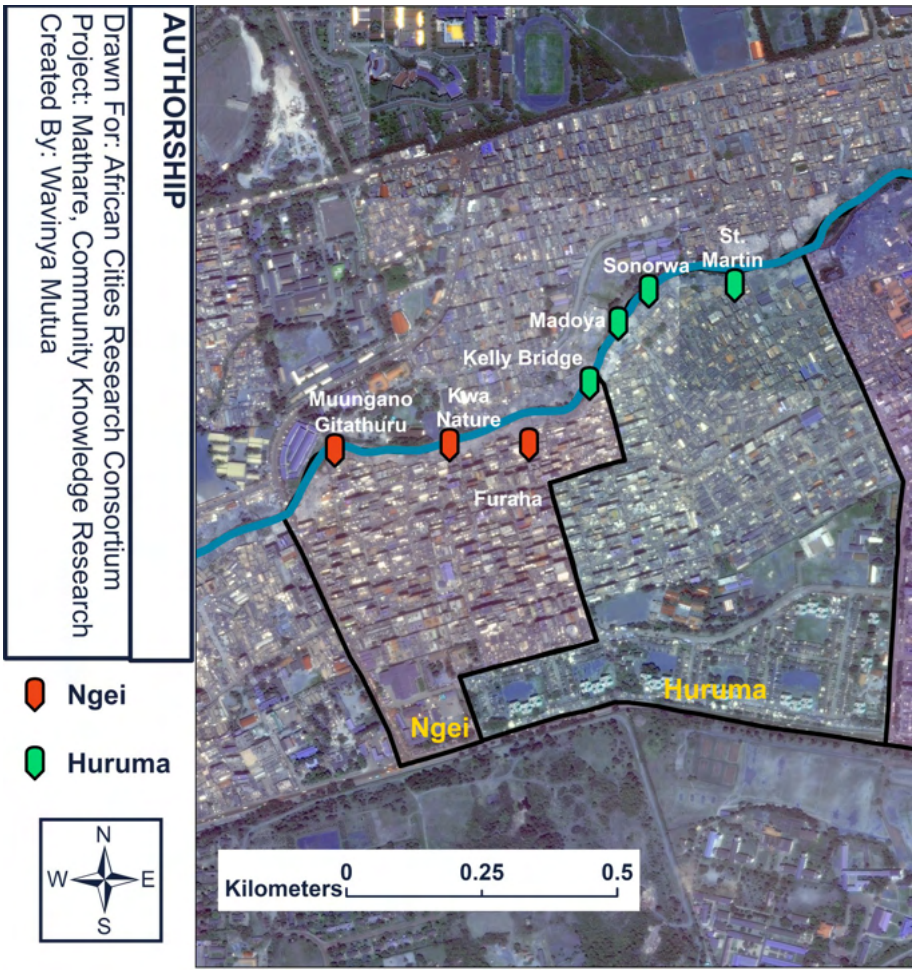
Table 6: Dumpsites of Ngei ward

	Name	Management	Details
5	**Muungano Gitathuru dumpsite**	Vinny (an individual)	Originated in 2008, when Nairobi City Council vehicles collected household waste daily – between 3am and 9am – from a central point. After the 2010 Constitution restructured the city, daily collections stopped and the site started to expand.
6	**Kwa nature dumpsite**	Pillar CBO	Located opposite Still I Rise School, the dumpsite mushroomed from 2017, following the city's deadliest building collapse (April 2016) and the demolition of nearby structures. The Mathare subcounty cleared it in 2024, but it grew again following the 2024 demolitions. Climate Worx[24] – a programme under the NYS – deposits waste dredged from the river at this site.
7	**Furaha dumping spot**	Unmanaged	This site was formerly a hotspot whose garbage was carried away by liquid waste. After the 2024 demolitions, a sewer line was constructed to divert liquid waste. However, residents continue to dispose of their solid waste here.

Furaha dumping spot (left) and Muungano Gitathuru dumpsite (right)

[24] Climate Worx is a youth employment initiative that is tackling rehabilitation of the Nairobi River Basin. For more, see 'Explainer: 'What you need to know about Climate Worx Mtaani initiative', *The Star*, 23 September 2024.

Figure 13: Illegal dumpsites in Ngei and Huruma wards



Mabatini ward

The ward has five dumpsites – three located along the Mathare River and two located along Juja Road. As summarised in Table 7, because of their proximity to the Moi Air Base, the two dumpsites on Juja Road are strictly managed; one of them was closed in early 2025; the other is managed directly by Green Army.

Table 7: Dumpsites of Mabatini ward

	Name	Management	Details
8	**Mathare 3A dumpsite [closed]**	Unmanaged	There were unverified reports of aborted babies from local chemists being dumped here; this dumpsite was closed in early 2025 by NCCG.
9	**Airbase dumpsite**	Green Army	The dumpsite initially received waste from nearby food businesses, then expanded after adjacent homes were demolished following security concerns raised by soldiers. Because of its proximity to Moi Air Base, its waste is collected every two weeks. Additionally, Green

			Army deposits waste here for eventual transfer to Dandora.
10	**Bondeni dumpsite**	An anonymous individual	The dumpsite initially received waste from food businesses, then mushroomed after the demolitions. It is located in Bondeni, a hub for manufacture and drinking of *chang'aa*.
11	**Happy Star Academy dumpsite [closed]**	An anonymous individual	The dumpsite mushroomed after the floods deposited lots of waste at the riverbank. In January 2025, a youth group cleared the garbage and currently uses the space for urban farming. The garbage now ends up in Kwa Cucu dumpsite.
12	**Kwa Cucu dumpsite**	Unmanaged	The space started as a dumping hotspot in 2008, growing as more people settled in the area. Climate Worx frequently deposits river waste here during clean-ups.

Kwa Cucu dumpsite, Bondeni dumpsite and Airbase dumpsite (left to right)



Hospital ward

Hospital ward has three dumpsites. Interestingly, the legal holding ground in Hospital ward (Depot holding ground) was closed to create space for the social housing project. This project also directly closed one of the illegal dumpsites – Kwa Odongo – by depositing mud excavated from the social housing site at the riverbank where this dumpsite was located, for flood protection. Table 8 summarises the ward's dumpsite dynamics.

Table 8: Dumpsites of Hospital ward

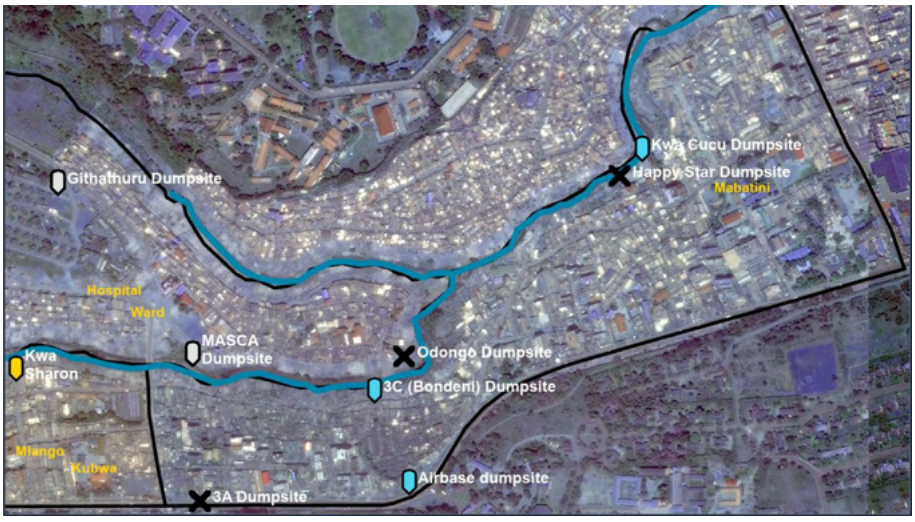
	Name	Management	Details
13	MASCA dumpsite	MASCA Youth Group	Garbage collected from the 4B community is stored in a skip – making this the only dumpsite in Mathare subcounty where waste is contained. Previously, this waste was transferred to the Depot holding ground but it is now taken to the Gitathuru dumpsite.

14	Kwa Odongo [closed]	Unmanaged	This dumping ground was established in 2015, receiving waste from adjacent households and NGO-run schools such as Shofco School for Girls and Patmos. It was closed in June 2025, after being buried by soil, deposited there to raise the riverbank's height (for flood protection).
15	Gitathuru dumpsite	NYS	Started in 2017, the dumpsite primarily receives household waste. After the closure of the Depot holding ground in March 2025, the site effectively became the new holding ground for Hospital ward. NYS clears this waste every two weeks.

MASCA dumpsite (left) and the raised riverbanks (right)

Note: The waste at MASCA is held in a skip (left) – the only contained waste in Mathare subcounty. The raised riverbanks (right) led to the closure of the Odongo dumpsite.

Figure 14: Illegal dumpsites of Mabatini and Hospital ward



Mlango Kubwa ward

This ward has the subcounty's largest and oldest dumpsites. Of its six illegal sites – as outlined in Table 9 – four are located along the river, one along Juja Road and one in between highrise apartments and shacks. The unique dynamics of this ward's waste are further elucidated in the section Mlango Kubwa is special.

Table 9: Dumpsites of Mlango Kubwa ward

	Name	Management	Details
16	Kwa Sharon	Unmanaged (An anonymous woman previously managed it, charging Ksh50/- to dump waste. However, she was arrested in November 2024 and rescinded control of the site. Her arrest did not change the rate of dumping at the site.)	Established in 2016, this dumpsite expanded rapidly after the 2024 demolitions. Most of its waste is not from Mathare, instead coming in via *mkokoteni* from Eastleigh (Kamukunji Subcounty). In early 2025 the city removed nine trucks of waste weekly without recognisably reducing the size of the dumpsite. After April 2025, waste collection ceased entirely, leading to rapid growth and encroachment onto both the river and adjacent roads.
17	Kwa Ng'ombe dumpsite	Unmanaged	Adjacent households dump their waste here. The site is also adjacent to cow sheds, which contribute animal waste and feed. It is an open hole – the remnant of a basement left exposed by the 2024 demolitions.
18	Kwa kina Sarum	Unmanaged	This site was just three weeks old at the time of data collection (November 2024). Waste there mostly comes from adjacent households; it is so unmanaged that nobody even scavenges from here.
19	Gaza dumpsite	Unmanaged (If managed, this information is highly protected due to its location.)	Due to its proximity to Gaza – a drug hub within Mlango Kubwa – there is significant interference to prevent government access. As a result, this waste has likely never been transferred to Dandora; controlling the dumpsite's size likely involves pushing its waste into the Mathare River.
20	Ola dumpsite (along Juja Road)	Unmanaged	The dumpsite began after a fire in 2022, when residents stacked the burnt remains by the roadside. Since then, roadside businesses and households continue to dump here.
21	Village 1 dumpsite (in between houses)	Unmanaged	The dumpsite is the oldest in the subcounty, dating back to the 1980s. Piled nearly two storeys high and located between highrise apartments and shacks, it poses a significant landslide risk to residents.

Kwa Sharon dumpsite, Ola dumpsite and Village 1 dumpsite (left to right)

Figure 15: Dumpsites of Mlango Kubwa ward

Illegal dumpsite dynamics

Management

One way to approach dumpsite interventions is to ask: who is most involved with this dumpsite? Mathare's 21 illegal dumpsites are managed by five distinct types of stakeholders:

1. CBOs: There are four CBO-managed dumpsites (out of 21) in Mathare subcounty. Typically, this means that the group collects household waste from its coverage area and dumps it at the site. CBO-managed sites exercise strict control over scavenging. They often regulate who can and cannot scavenge or allow other scavengers to sort waste only after their members or preferred individuals have had the first selection. Women waste pickers are reportedly sometimes denied access

Notable examples include MASCA CBO, which manages the MASCA dumpsite in Hospital ward and has been able to use a skip to contain the waste. MASCA is also a registered collection group and has worked with the NCCG.

NOTE

An interesting example is Kwa Sharon dumpsite, Mlango Kubwa ward. It was formerly managed by an individual who charged Ksh50 per *mkokoteni* of waste. She was arrested in November 2024 by the chief, in an attempt to curb river dumping. She no longer manages this dumpsite, but waste is still dumped here.

The other three CBO-managed dumpsites are located in Ngei (one) and Huruma (two) wards. The registration status of the three CBOs is unclear. The CBOs are often sanctioned for dumping at these sites, instead of at the Salama holding ground. Therefore, they prefer to dump waste at night or before 7am, when NCCG officers are not working.

2. Individuals: There are instances where an individual person profits from a dumpsite. Typically, this means that they "oversee" waste dumping, collecting fees for each *mkokoteni* that comes to dump.

There are four individually managed dumpsites: one in Huruma (Sonorwa dumpsite), one in Ngei (Muungano Gitathuru dumpsite), and two in Mabatini (Bondeni and Happy Star Academy dumpsites; the former closed in early 2025). The Sonorwa dumpsite is managed by an individual waste picker who disclosed his name. For the other three dumpsites, it is unclear how these individuals profit or participate in management. All the individuals who managed the Mabatini dumpsites declined to disclose their identities.

3. Unmanaged: When a dumpsite is unmanaged, this mostly means only scavengers work there. Waste scavengers are typically left out of waste-related interventions and therefore don't view dumpsites as their exclusive territories. Typically, scavengers can move from dumpsite to dumpsite. There is only one instance in which scavengers may be denied access; women may be chased away when they try to scavenge, but this occurs exclusively in CBO-managed dumpsites.

Mathare has ten unmanaged dumpsites. Two of these have reportedly no scavengers who regularly sort from them: Furaha dumping spot, in Ngei, which is located between houses, and Kwa kina Sarum, in Mlango Kubwa, which is fairly new and has ostensibly not yet accumulated enough waste to draw a regular crowd.

4. Waste Picking Group: Kelly Bridge dumpsite, which borders Ngei, Huruma and Mathare North wards, is managed by a group of waste scavengers – collective but not formally organised. They are unregistered but move together. It is an old dumpsite – going back to 2012 – that has been worked from for over a decade. This is the only instance identified of a group of scavengers working together.

5. Government: There are two instances of the government directly managing a dumpsite. This means that the waste is regularly transported to Dandora, and the frequency of collection is consistent over a long time, without the community needing to push.

Airbase dumpsite, Mabatini, is located opposite the entrance to Moi Air Base – a military airport used by the Air Force. This proximity means that it is regularly cleared. Gitathuru dumpsite, Hospital ward, is slowly becoming the new legal holding ground, taking over from Depot holding ground. Depot was located next to the chief's office, so the chief personally ensured that waste was frequently collected by the NYS (not even by the NCCG). The Gitathuru dumpsite has therefore inherited this consistent collection legacy.

Kwa Sharon dumpsite, Mlango Kubwa, could have been considered government-managed from May 2024 to April 2025, when the NCCG collected and transported nine trucks of waste weekly. This ceased after April 2025, and the dumpsite has since grown exponentially.

Formal and informal rules

Overall, illegal dumpsites lack rules. The only space that has some formal rules is the MASCA dumpsite. MASCA CBO is well recognised, works consistently with the government and has been able to secure a skip. The site is located in 4B, so all waste from Village 4B is moved to the skip, before it is taken to the Gitathuru dumpsite (before then going to Dandora). This is the nearest to a formal setup for illegal dumpsites.

CBO-managed sites have rules about who can sort and sell waste once it has been dumped. In most instances, only waste scavengers affiliated with the group, or the waste collectors themselves may pick the fresh waste, then mobile waste scavengers may sort it afterwards.

NOTE

Recall that waste work does not require any qualifications or any specific schooling. We noted many underage boys – and girls, albeit rarely – sorting waste in dumpsites and in the Mathare River. It is unknown how many children carry out waste picking. It is a simple path for those who have dropped out of school or need to somehow sustain themselves. Our research did not have ethical approvals for working with children. However, we noted a strong need for child-centric welfare structures, and greater involvement of the Children's Office.

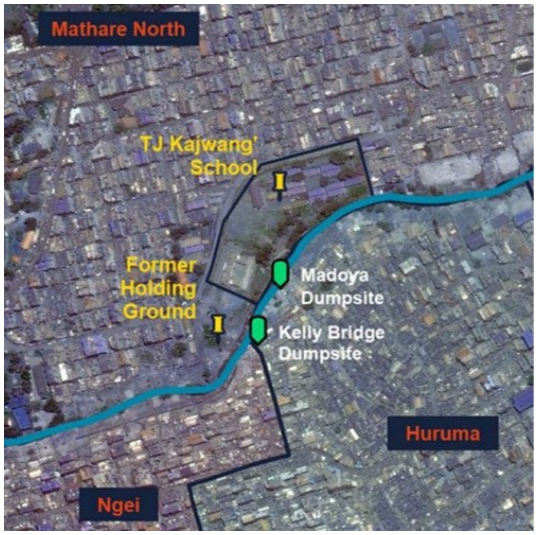
Unmanaged dumpsites, dumpsites managed by individuals and government-managed dumpsites often lack structure outside of any profit-making from dumping. It is common to find underage boys working in these sites.

Government involvement

Government involvement in illegal dumpsites in Mathare depends on proximity to government institutions or offices, existence of interventions that directly or indirectly target the dumpsites and the level of protection of the site.

- **Level of protection**: There are dumpsites that are unknown to the government. A good example is Gaza dumpsite, Mlango Kubwa ward (next to the drugs hub) which is in a highly protected area.
- **Location**: Ola dumpsite, Mlango Kubwa ward, has been cleaned on several occasions because of its location on Juja Road but it still grows, because the waste has nowhere else to go.
- **Direct government involvement:** Kwa Nature dumpsite, Ngei ward, was fully cleared by the NCCG in 2023, then regrew after the 2024 demolitions. The dumpsite was specifically cleared as part of a Rapid Results Initiative (RRI) project for Mathare subcounty, spearheaded by the Mathare subcounty admin.

Figure 16: Influence of the former Mathare North holding ground on dumpsites in Huruma ward



- **Indirect government involvement:** There was a big clean-up effort for the Madoya dumpsite, Huruma ward, with each worker allegedly paid Ksh500 to clear the dumpsite. Nothing really changed. Both Madoya and Kelly Bridge dumpsites have been targets because of their location opposite Mathare North School (now called TJ Kajwang School). The area MP, the Honourable TJ Kajwang, has personally overseen renovation of the school now named after him, which was the former holding ground for the ward. These two dumpsites grew precisely because of their proximity to this holding ground.

Impact of the 2024 floods and demolitions

It is difficult to overstate the impact of the 2024 floods and demolitions. Within the context of this report, they impacted waste dynamics in three ways:

1. **Shifting or destroying waste CBO structures:** Pillar CBO (Kwa Nature dumpsite, Ngei ward) had its playing field and vegetable garden washed away by the floods. The field was formerly a dumpsite that had become a public space. After the floods, it reverted back to a dumpsite. MASCA CBO *(*MASCA dumpsite, Hospital ward) and Strikers and Uptown CBOs (Madoya dumpsite, Huruma ward) had their structures partially or fully destroyed by the demolitions. Strikers and uptown CBOs abandoned the dumpsite shortly after this.
2. **Loss of waste-related income:** Viat Group (St Martin dumpsite, Huruma) lost a large market for selling food waste sorted from the dumpsite, because of the sheer number of pigs kept in pens next to the rivers killed by the floods. Downtown Youth Group (a waste collection group, which does not manage any dumpsite, Hospital ward) explained that their income from selling bread had also decreased because the number of people in the 4B village had decreased by almost 40%.

3. **Mushrooming of dumpsites (thanks to available space):** Of the 18 open illegal dumpsites, 14 (78%) are located next to the river. A 2012 study of the Mathare settlements supports this, detailing that 60% of dumpsites were located within a 50m buffer of the river (Mwaniki, 2012). Of these 14 dumpsites, ten grew directly after the demolitions – implying that this waste was previously thrown into the river, and had now ended up on the riverbanks because of the available space.

Riparian zone next to the Gitathuru River (Hospital ward) after the 2024 demolitions

Considering the vast amount of waste produced in Mathare, and that more than half of it ends up in or next to the river, it is clear that the solution is not to simply close dumpsites or take enforcement measures against dumpers. The solution is as complex and involving as the problem.

Mlango Kubwa is special

There are three dumpsites in Mlango Kubwa ward that deserve special attention because of the sheer complexity of their dynamics.

Village 1 dumpsite

This is the subcounty's oldest dumpsite, originating in the 1980s. It was initially a field where adjacent residents openly disposed of waste. As Village 1 slowly became filled with highrises, structure owners would push the waste into a heap to create space for their houses. The end result is an active dumpsite that sits between apartments and shacks. It is at least one story high. At its zenith, one can see shacks underneath. It borders two stone houses whose walls have warped from the weight of the waste. Lastly, raw sewage from the highrises runs underneath this monstrosity, before flowing in between shacks.

In 2017, Bishop Wanjiru, the former Mathare MP, tried to clear this dumpsite but gave up because even reaching it would require demolishing houses. Mlango Kubwa, has 297 parcels of land – with only nine being publicly owned (Ouma et al., 2022).[25] Addressing a public issue with private landowners is a conflict that nobody wants to touch.

[25] Green Army is the NCCG's current outfit of manual labourers who sweep streets and clear drains.

Two different views of the Village 1 dumpsite

Note: The arrow marks the building visible from both angles.

Kiamutisya and Kwa Sharon dumpsites

Another common dynamic for Mlango Kubwa is waste coming in from Eastleigh (Kamukunji subcounty) that is collected by workers from Mathare. The reasons are twofold: the income from collection fees is at least consistent with and often higher than that from Mathare households. Second, Mathare's waste is called *boiler* – meaning that it contains few valuables. Eastleigh Business District, on the other hand, is the city's second largest commercial hub – second to the Central Business District (CBD) – generating 40% of Nairobi's revenue (Khalif, 2025). Its waste is considered highly valuable.

One study found that 48% of households discard their waste along roads, in drainage channels or other undesignated points, creating garbage heaps throughout the district (Muiruri et al., 2020). The questions here are: Who collects the other 52% of waste? Does it all end up in Mathare? What about waste from businesses?

The two dumpsites that receive waste from Eastleigh – Kiamutisya and Kwa Sharon, are the biggest in the subcounty, and by a wide margin. In late 2024 and early 2025, the NCCG collected nine truckloads of waste from Kwa Sharon weekly but could not completely remove the dumpsite. Once they ceased removal in May 2025, the site grew rapidly.

Kwa Sharon dumpsite, *chirambe* (pig feed) set aside for farmers and Kiamutisya Holding Ground (left to right)

Note: The first image shows Kwa Sharon dumpsite three months after NCCG stopped removing nine trucks of waste per week. The last image shows the sheer size of Kiamutisya Holding Ground, where waste has not been removed for two years.

Eastleigh's waste is a lifeline for many waste workers. At the Kiamutisya holding ground, roughly 50-60 workers pass through every single day. Some are collectors dumping waste, others are pickers sorting waste. In fact, waste pickers from Dandora come all the way to Kiamutisya to collect *uhuru* bags – an item with a good market in Dandora landfill site, but rarely found in its incoming waste. The dumpsite's managers earn an estimated KSh 200,000 monthly from its waste. The NCCG views this differently. The waste at Kiamutisya holding ground has remained uncollected for two years, with the Environment Office claiming that they cannot use their money to collect waste originating from a different subcounty. Additionally, they explain that the workers can afford to ferry this waste to Dandora themselves. (It costs KSh 7,000-10,000 to transport one lorry of waste to Dandora). This longstanding dispute has grown into an adversarial government–community relationship: the waste workers fear that the

government will close down a crucial source of income; the government needs to address the immense waste accumulation and environmental exposure.

The Kiamutisya holding ground is emblematic of the complexity that comes with waste, revealing how the privatisation of waste removal is a simpler solution to address dumpsites, how the NCCG asserts its jurisdictional boundaries and how government–community conflict grows. The assertion of jurisdictional boundaries may no longer hold. On 7 January 2024, the NCCG created six boroughs, aiming to decentralise public services. Mathare is located in the Central borough, alongside Starehe and Kamukunji subcounties (Nderitu, 2024). Each borough is to be headed by a city manager. In practice, it is unclear how this move has played out. Residents have not heard about city managers, nor have they asked to report to their borough office. This restructuring of the city may assist with pushing back against the refusal to remove waste, because the three subcounties now fall under one jurisdiction.

Figure 17: The three special dumpsites

Note: The arrows show movement of waste from Pangani and Eastleigh to Mlango Kubwa.

Other types of waste found in Mathare's dumpsites

Medical waste

Medical waste from local institutions was identified in multiple dumpsites.

There are some typical approaches to management of hazardous waste in Nairobi. Well-endowed private facilities outsource to certified incineration companies, whereas public hospitals resort to a mixture of open burning or incineration in simple chambers without pollution control systems. However, this assumption does not hold for Mathare.

Medical waste in one of Mathare's dumpsites

In September 2025, medical waste from Baraka Medical Centre**,** a public level 2 hospital, was impounded on its way to Huruma ward, following complaints from waste workers (Mosiria, 2025).

The smaller the facility, the more likely it is that the owner(s) will opt to dispose of its waste in a dumpsite. A 2020 study found 31 health facilities in the Mathare settlements, with over 70% being clinics and dispensaries. Across all facilities, 85% were managed by individuals (UN-Habitat, 2020). Kiamaiko ward reflects this trend, hosting two small private hospitals, one government dispensary and three clinics (SDI-Kenya, 2024). There are no existing data for Ngei and Huruma. However, Ngei has no public land, meaning that health facilities are most likely to be privately owned dispensaries and clinics.

Although the precise volume of medical waste dumped is unknown, its presence is significant enough that being pricked by contaminated needles and syringes is a common complaint among waste pickers.

Construction waste

Construction waste, primarily originating from Eastleigh, represents another significant yet unrecognised category of waste dumped in the subcounty. The waste is highly coveted because it is rich in metals and scrap plastics, and a portion of it can be re-sieved and reused for construction.

This material is fed into the informal economy through a system that offers a profitable alternative to formal disposal. In Huruma ward, for example, one anonymous dumpsite owner charges a fee of Ksh150 per load of construction waste dumped. This arrangement is a win-win: trucks avoid the expense of tipping this waste at Dandora landfill, while the dumpsite owner generates an additional, reliable source of income.

Construction waste in Mabatini ward

Recommendations for further research

The burden and opportunities of waste in informal settlements

The recommendation here is to accurately determine the amount of waste generated by the city's informal settlements – given that they have the highest populations and population densities across the city. Then, to track how much waste moves from adjacent middle- and high-income neighbourhoods into informal settlements. Understanding this is critical to quantifying the environmental burden shouldered by informal settlement communities, as well as the opportunities created by waste.

Nairobi's informal circular economy

The value chain shown in Appendix C looks at the city's waste value chain as it moves from informal waste workers to formal recycling yards and companies. What is unaccounted for is the movement of waste from informal waste workers to informal businesses. How many scavenged clothes are resold by hawkers? How many scavenged perfume bottles are resold in stalls in the CBD? In fact, given that most businesses in the city are informal businesses, it is highly likely that a significant portion of the circular economy operates informally. Documenting this informal economy is highly recommended, as a critical approach to supporting and recognising the informal sector.

Tracking electrical waste through secondhand sellers

In discussing the data, we realised that we did not look at secondhand sellers. They often take electrical components such as electric heaters, blenders and old phones and use them to fix other electrical parts. We hypothesise that tracking this system will help us to understand how e-waste is handled at the community level and potentially elucidate a full e-waste value chain.

Health impact of dumpsites

The research revealed scant information on the health impact of dumpsites. Later, we realised that this was because waste workers have adapted to the health strains of working with waste, so many of their responses were, "I don't feel it". There was one instance of a very personal loss (resulting from exposure to a dumpsite) by a team member, which was quietly disclosed. We therefore suspect that this is the range of health impacts: from none to devastating. For future research, we recommend speaking to Community Health Promoters (CHPs) instead about the health impacts of dumpsites.

Waste collected from holding sites

GDC (Ngei and Huruma wards) estimated that the NCCG sent over 100 13-tonne lorries to the Salama holding ground between April and October 2025, which amounts to 1,300 tonnes of waste over a period of seven months. Given that Ngei and Huruma

wards have a collection rate of 47.6 tonnes per day, this translates to 9,996 tonnes of waste collected over the same period.

By this metric, the NCCG has only managed to transport 13% of the waste collected – or 7.46% of the waste generated – in these two wards. Gathering data long-term on how much waste the NCCG transports from holding grounds, and how often, would be critical to showcasing how the use of holding sites does little to provide a clean environment for the people of Mathare.

Conclusions

Community knowledge experts grow when engaged in research

A key result, maybe anticipated but not designed into the research process, has happened within the team. The research has enabled many waste practitioners in the team to improve how they work. Some have discovered better paying markets or expanded the range of waste products they know how to handle, and so on. Engaging community members directly affected by interventions as data collectors offers a clearer peek into local dynamics, and influences how they move and work.

The informal waste industrial complex

The protracted failure of the (NCCG to provide reliable solid waste services has led to the emergence of a highly sophisticated informal waste industrial complex. This complex operates within informal settlements, provides thousands of low-level incomes, and functions as a critical, albeit deficient, substitute for municipal services. Like other community coping mechanisms (such as informal housing and water provision), this system has consolidated itself into the urban fabric. However, its longevity has created entrenched vested interests that resist formal integration or change, making systemic reform difficult to achieve.

The role of philanthropy

Philanthropy and development assistance have been readily integrated into the informal value chain. However, current assistance tends to be singular, primarily focusing on periodic waste clean-ups and supporting collection groups (a single link in the chain). If assistance continues to replicate this narrow focus, it risks fuelling an inadequate, unsustainable solution rather than driving the systemic infrastructure investment or policy reforms needed to address the 57% collection deficit.

The County's approach: Punishing a survival mechanism

The NCCG's enforcement-first approach to illegal dumping results in a strange and counterproductive policy, as it fails to acknowledge the underlying reality of waste management in Mathare.

With a population density of 143,226 people per km^2 and an estimated 57% of generated waste going uncollected, illegal dumping is not primarily a choice of non-compliance, but a necessary survival mechanism for both the community and waste workers – a way to avoid being overrun by accumulated refuse.

The NCCG typically assumes that illegal dumpsites are caused by collectors being unwilling to comply with holding ground rules or pay fees. In response, it attempts to solve the problem by pushing collectors to transport waste the entire distance to Dandora, effectively outsourcing its own core responsibility to provide essential collection services to the very informal workers it simultaneously seeks to penalise. This approach is fundamentally flawed because enforcement against dumping does not decrease the amount of waste generated.

NOTE

***Kanjo* enforces, waste workers adapt**

Sometimes, the enforcement against dumping leads to intense and violent adaptation.

We listened to a story of a collector who would dump at 3am, armed with a machete, in case they bumped into *kanjo*.

Kanjo officers sometimes seize *mkokotenis* used by collectors. Another tactic employed is to smear their handles with faeces, so that the officers leave them alone in disgust.

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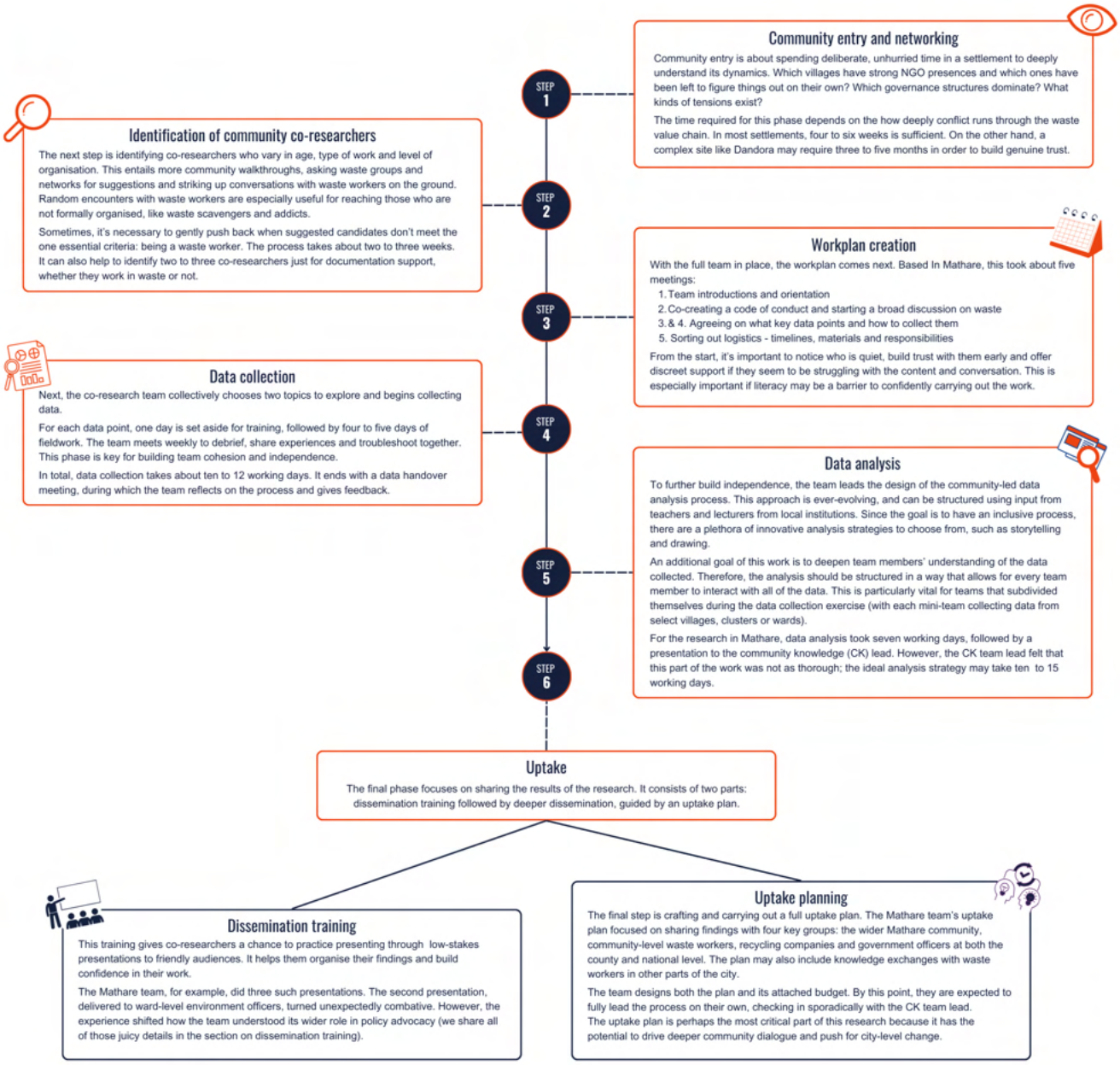
Appendix A

Figure A1: The community knowledge strategy



Appendix B

Figure B1: The Mathare settlements

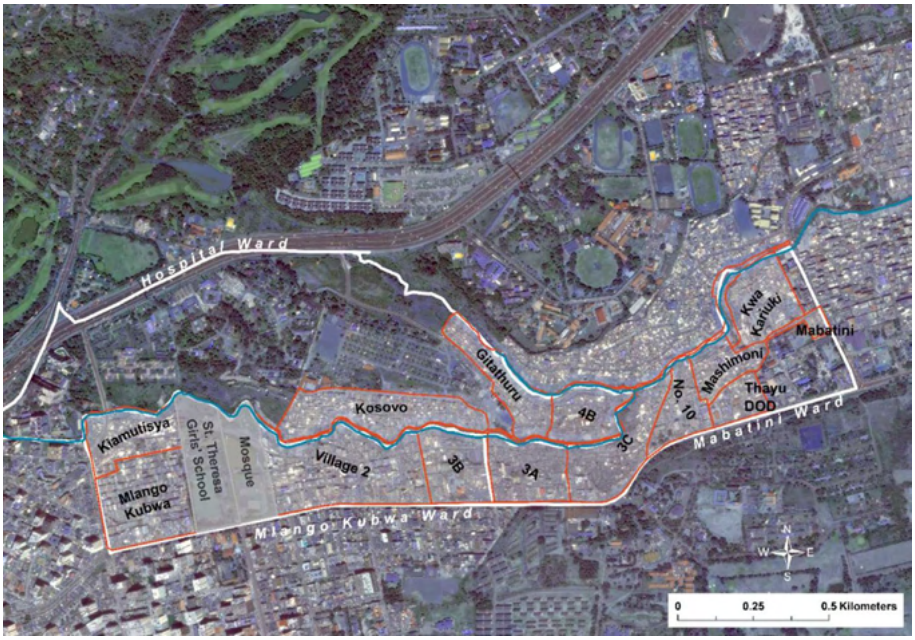


Table B1: Villages by ward

Ward name	Villages
Mlango Kubwa ward	Kiamutisya, Mlango Kubwa/Village 1, Village 2, 3B Village NB St Theresa's school and the Mosque are not considered settlements
Hospital ward	Kosovo, Gitathuru, 4B Village Note: The area with no settlement is public land hosting police houses and the Mathare mental hospital
Mabatini ward	3A Village, 3C Village, No 10, Mashimoni, Thayu DOD, Mabatini, Kwa Kariuki. Note: The area with no settlement hosts the chief's and DCC offices

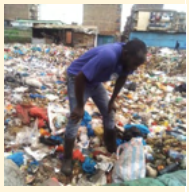
Appendix C

Figure C1: Nairobi's waste value chain

Appendix D

Figure D1: The full Mathare co-research team

Table D1: Demographic information and overview of the Mathare co-research team members

	Formal name (given name)	Village	Gender	Work	Organisation	Role in org
Kiamaiko						
	**Grace Wangari** (WaMaina)	Grogon B	F	Scavenger	KEMT	
	**Anthony Kang'ethe** (Mandevu)	Valley Bridge	M	Waste collector	KEMT	
	**Njoki Decho**	Grogon B	F	Documentation support	None	
Huruma						

	**David Mwiti** (Mwiti)	Various	M	Waste collector	One Stone CBO	Secretary
	**Steven Otieno** (Otiale)	St Martin and Madoya	M	Waste co-ordinator	254 CBO	Treasurer
	**Melin Adhiambo** (Adhis)	Mathare Area 3 (Mathare North)	F	Waste scavenger	None	
Mabatini						
	**Andrew Maingi** (Buba)	Thayu	M	Waste aggregator and collector	Big Brothers CBO	Chair
	**Nelson Ouma** (Lastie / Smallie)	Kwa Kariuki	M	Waste collector	Madola CBO	Vice Chair
	**Edward Onguko** (Edu)	Mashimoni	M	Waste collector	None	
	**Wilfred Odhiambo** (Zidan)	Mashimoni	M	Waste collector	Takataka CBO	Treasurer
	**Jane Wairimu** (K2)	No 10	F	Documentation support	None	
Hospital ward						

	**Priscillah Musumbi**	Kosovo	F	Community mobiliser	None	
	**Molly Adawo**	Mathare 4B	F	Waste collector	Downtown CBO	Wellbeing Officer
	**Lavender Awuor** (Lady)	Mathare 4B	F	Waste collector	Mathare Adopt a River	Member
	Odongo	Mathare 4B	M	Individual waste collector	None	
Ngei						
	**Cosmas Kilonzo** (Alonzo)	Ngei and Kibichoi	M	Waste coordinator	Solidarity CBO	Chair
Mlango Kubwa						
	**Sharon Munga** (Mama Kafura)	Mathare 3B	F	Scavenger	None	
	**Joseph Matika** (Jose)	Village 2	M	Waste collector	Beavers CBO	Chair

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