

Informal settlements' vulnerability mapping in Kenya

FACILITIES AND PARTNERS' MAPPING IN NAKURU SETTLEMENTS



The Case of Nakuru Town Settlements

September, 2020

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OVERVIEW

Globally, cities are and have recorded the highest number of covid-19 cases. In sub-Saharan Africa and many other developing regions with more presence of slums in cities, covid-19 is likely to spread faster and also take longer to control once it crosses into the slum and informal settlements' populations. With high tenure insecurity, low-quality housing, limited access to basic services, and poor sanitation, informal settlements offer the perfect settings for risk factors to accelerate the spread of any infectious disease. Informal settlements are also classified as highly vulnerable to numerous risks including climate change impacts, disasters, and socio-economic shocks. This is because they are densely populated, and households have inadequate access to water and sanitation, little or no access to waste management, public transport and limited access to formal employment and health care facilities.

In Kenya, informal settlements vary in size, character and their levels of need vary among and within settlements. Governments and numerous agencies work in informal settlements, each addressing a specific felt need in line with its organizational goals, often with little coordination. Consequently, access to services has not been evenly distributed across settlements, resulting in pockets of spatially disadvantaged communities.

In this mapping exercise, the UN-Habitat sampled settlements in Nairobi,

Kisumu and Nakuru town/cities and comprehensively mapped all the key facilities and development partners operating in those informal settlements. This was done with a goal to identify gaps and limitations in service provision, access to services and support by development partners. The mapping outputs identified critical gaps that can be helpful when planning for responses to covid-19 or any other emergency response in these slums. The newly collected data on sample of informal settlements advances the discourse and policy dialogue on how to improve the lives of people who live in informal settlement, and ensure that no one is left behind in COVID-19 response.

The mapping Approach

This report focuses on the study findings for sampled settlements in Nakuru town. The mapping exercise was carried out between 1st and 10th October 2020 and involved field data collection on two aspects: Households and facilities. For the household survey, the mapping sampled households within the study informal areas and sought to establish the levels of access to services and costs associated to service provision, particularly on WASH aspects.

For facilities mapping, the survey collected data on more than 18 facility types, including water and sanitation

facilities (water points, handwashing facilities, solid waste disposal sites, communal toilets, and bathrooms), health facilities, including chemists and pharmacies, community spaces (halls and public spaces) and institutional spaces such as schools, local NGO offices, administrative offices and religious institutions.

Data collection utilized a mobile phone application hosted on an open source data collection toolbox (KoboToolbox). Field data collection was done by community volunteers, who were mobilized by KARA (Kenya Alliance of Residents Association) and trained by UN-Habitat experts over a period of one day. Community volunteers were drawn from the targeted slums which allowed them to work for extended hours. In addition, UN-Habitat ensured that there was gender-balance among the volunteers who participated in this exercise.

Survey Limitations

The informal settlement areas of Nakuru are known by authorities but have not been spatially demarcated. Delimitation of the boundaries for use in the study as units of analysis was therefore done using GIS technologies with the support of local experts. It has been noted that there are formal areas within informal areas and vice versa which has limited generation of spatial statistics exclusive to informal settlements.



Settlement in Nakuru, Kenya © ICLEI Africa

NAKURU INFORMAL SETTLEMENT

Nakuru town is among the 5 most populous urban areas in Kenya with an estimated population of 570,674 (KPHC¹, 2019). The town has numerous informal settlements, the major ones being Bondeni, Manyani, and Lakeview in Nakuru East, and Ronda, Kaptembwo, and Githima in Nakuru West (Nakuru CIDP²). The nature of formal-informal settlements' continuum in the city makes it challenging to demarcate settlements' boundaries.

This survey covered major informal settlements areas, and used spatial data technologies and local experts to roughly demarcate the settlements' extents.

A total of 8 settlements were surveyed: Kapembwa, Rhonda, Githima, London, Pangani, Lake View, Bondeni and Manyani.

The 8 settlements are different in character. Some settlements such as Kaptembwa and Rhonda have both informal and formal settlements character and spread out over expansive areas; others settlements such as Bondeni exist as small and compact clusters of fully informal settlements (Figure 2).

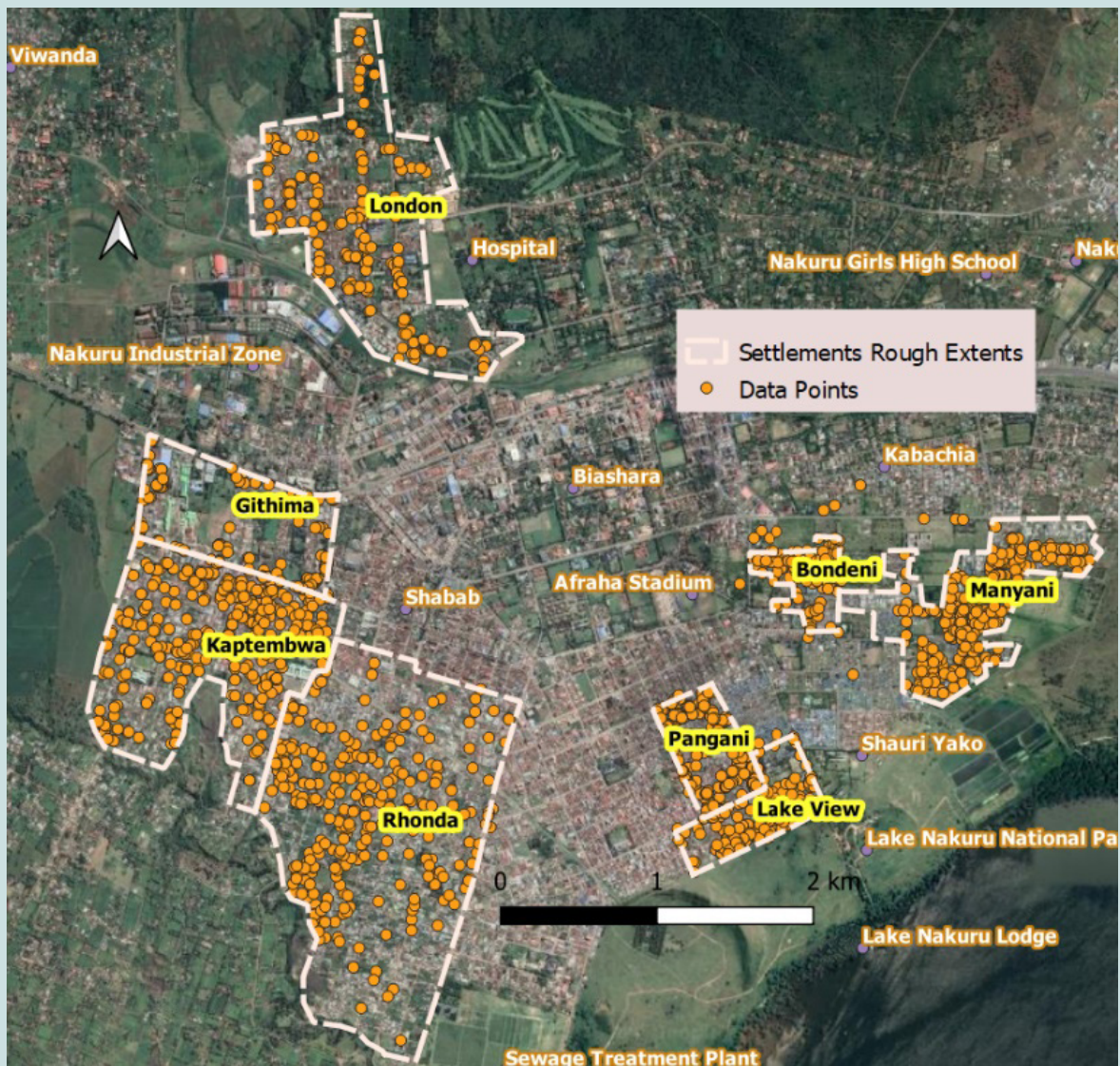


Figure 1: Mapped informal settlements areas and locations of data points

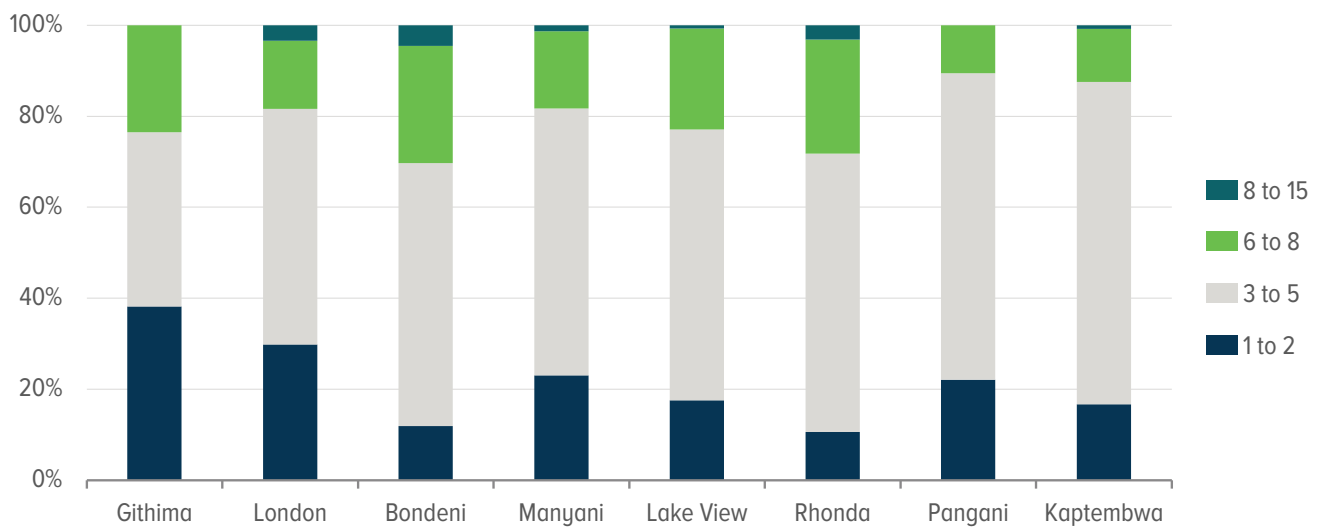
1. Kenya Population and Housing Census, Vol II (2019).
 2. Nakuru County Integrated Development Plan, 2018-2022 (2018)



Figure 2a and 2b: Bondeni informal settlement (satellite view and field photo).

Household level survey established that majority of households in the surveyed settlements have between 3 to 5 members, which is about the average family size in Kenya (estimated at 3.9 person according to the KPHC (2018)). Bondeni, Githima,

Lake View and Rhonda have the highest proportion of large families, having at least 20% of their households with more than 6 persons. This point to likely overcrowding as most family dwell in either a single or double roomed structures (Figure 3).



1. Assessment of Settlements' WASH Situations



i) The state of water supply

From the household survey, it was established that Nakuru settlements, different from the settlements in Nairobi, majorly relies on water either piped to the house or to the plot/ housing block level where it is shared by a few households (Figure 4). In effect, settlements have very few communal water points, with only Lake View and Kaptembwa having more than 10 water points (Figure 5).

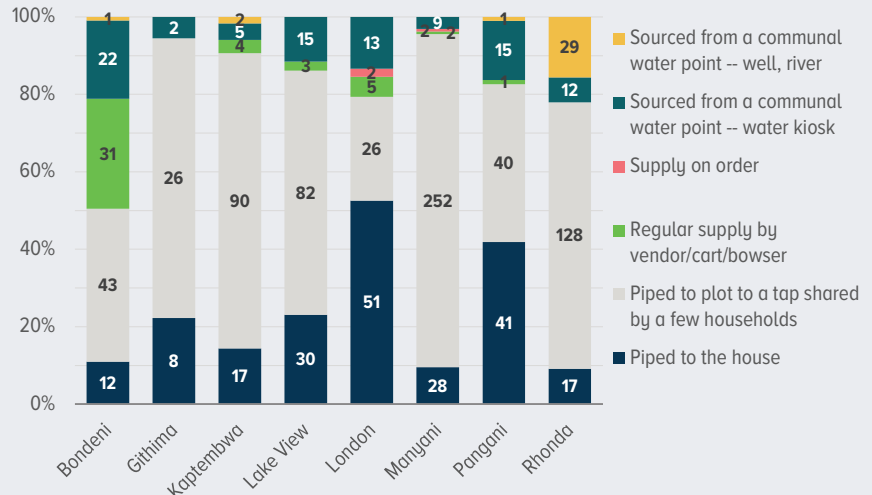


Figure 4: Nature of water supply in different settlements

The survey established that a project designed to build pre-paid water points (using tokens) at Lake View was not implemented to completion, which explains the numerous non-functional water points at Lake View (Figure 5).

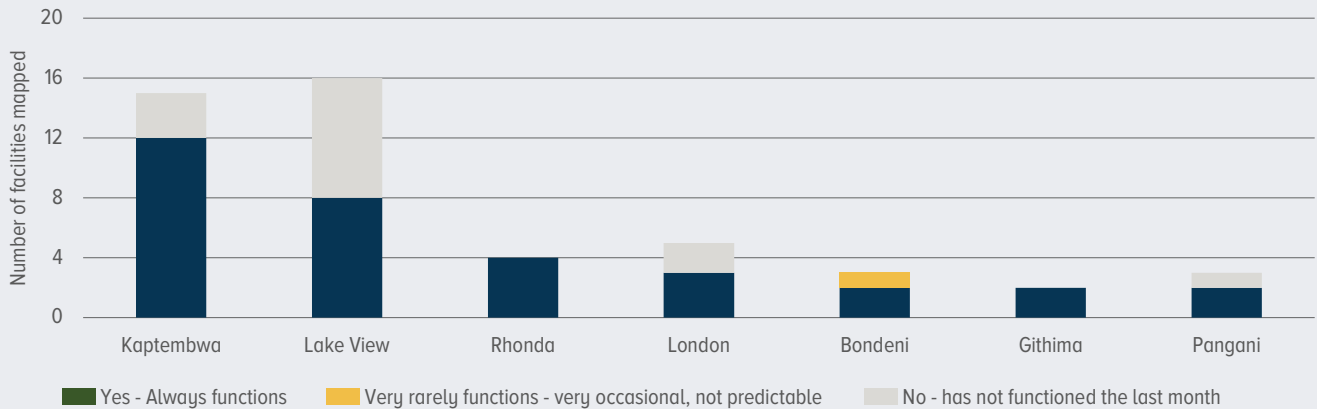


Figure 5: Number of communal water points and their levels of reliability

Data shows that 73% of residents pay for water, with the average cost of water being Kes. 5 for a 20 litre gallon (Figure 6). It is noted that at least 60% of the residents rely on the water from the water company (NAWASCO), but private companies and private individuals have a significant role (at least 30% share) in managing the water supply deficit (Figure 7).

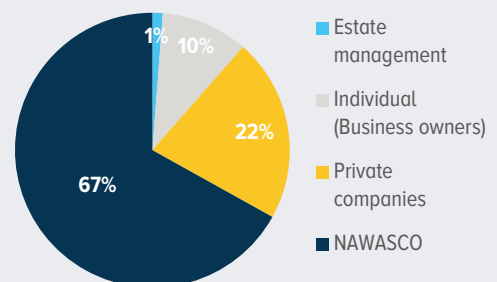
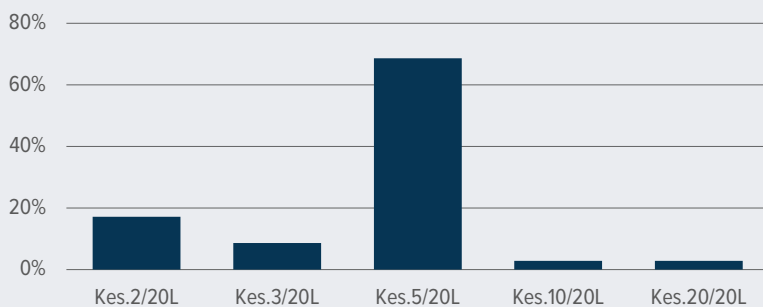


Figure 6 and 7: Cost of Water, and organizations supplying water

It is further noted that over 70% of resident source their water from shared water points at the housing block or plot level; however, this source of water is the most unreliable among of all sources (Figure 8). On average, residents in the settlements access water for two days in a week.

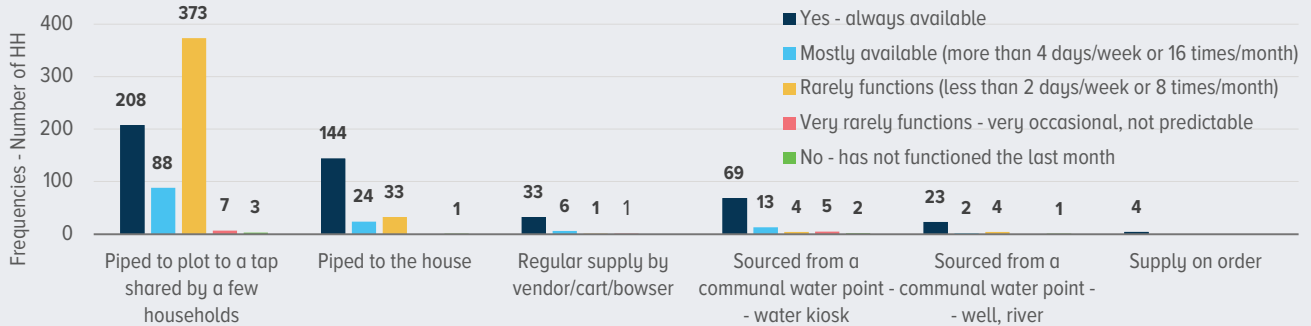


Figure 8: Sources of water and their reliability

Analysis of water consumption trends shows that the longer the distances residents travel to access water, the lesser their daily water consumption (Figure 9). While this is an expected observation, it has implication on household hygiene as handwashing and related water uses may be considered to be of lesser priority in the face of water shortage. The settlements most affected in this regard are Bondeni and Rhonda.

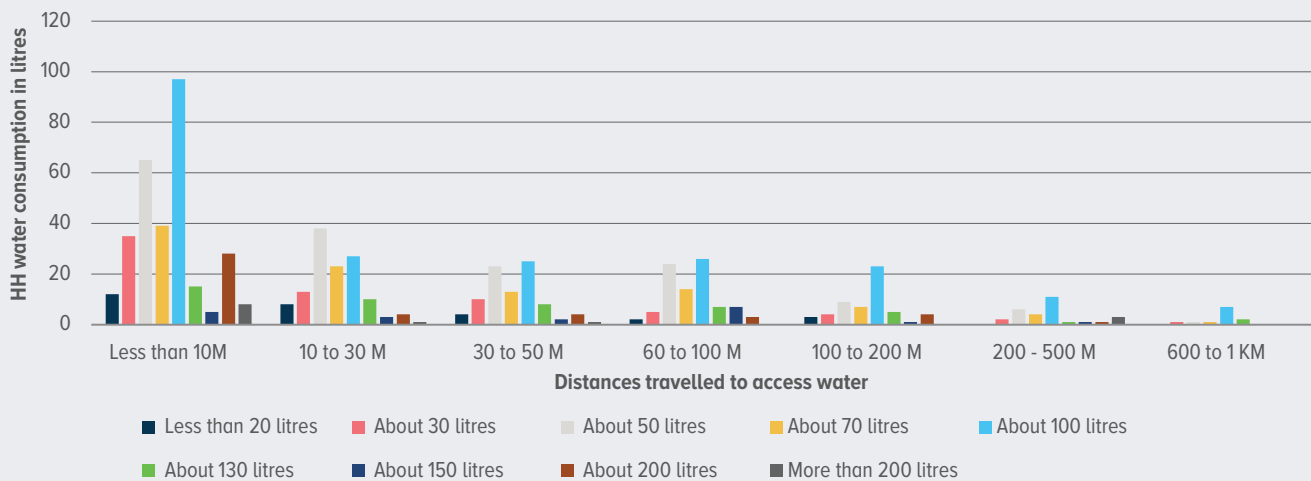


Figure 9: Distances from water points and water consumption patterns

Another key observation is that water supplied on order is the most expensive, reaching a maximum of Kes. 3,000 per month (Figure 10). Water from other sources cost about Kes. 5 per 20 litres container. With average consumption of water per family being 80 litres (Figure 11), this translates into a cost of Kes. 600 on water monthly. This cost is high, especially is considered alongside other costs associated with accessing the water such as time spent on water point queues.

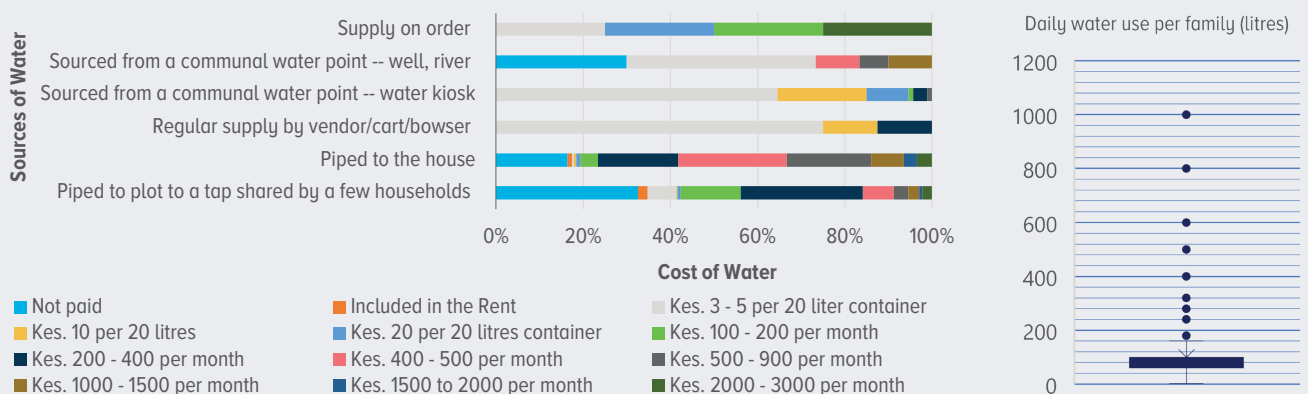


Figure 10 and 11: Cost of water by sources and daily water consumption per family

Water reliability is higher on water supplied by individuals and private companies. This source however only covers about 30% of residents, and its associated costs is higher. About 40-50% of those that get water from the Water Company (NAWASCO) and estate management get water for about 2 days in a week (Figure 12). Considering that the population covered under this category is up to 60%, this is a significant gap that requires attention.

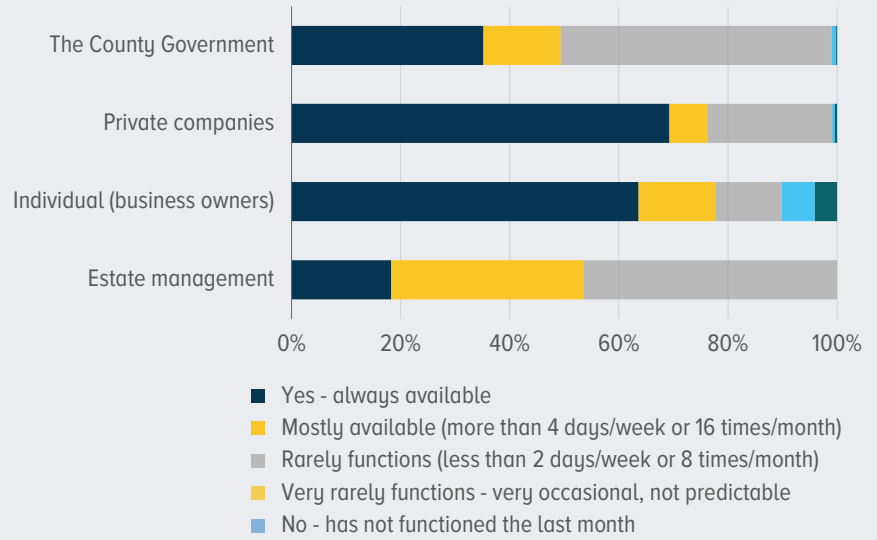


Figure 12: Reliability of water by source

ii) The State of Handwashing Facilities

Access to handwashing facilities was assessed at the household and facility levels. At the household level, the survey sought to establish the number of households that have access to handwashing facilities in their daily outdoor activities. It emerged that only 3 settlements have over 60% of respondents having access to handwashing facilities (Figure 13).

While the survey did not seek to establish locations where household individuals had their daily interactions, it established that about 70% of all informal settlements residents are not able to access handwashing facilities during their daily outdoor activities.

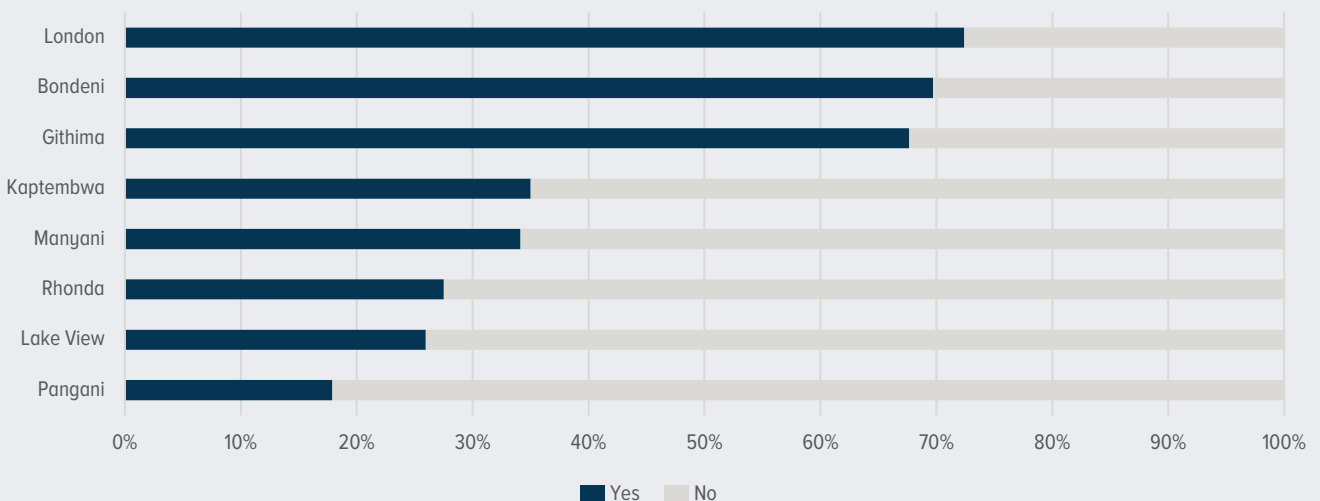


Figure 13: Access to handwashing facilities while outside homes

Spatial mapping revealed that there are higher densities of handwashing facilities at Pangani and Lake View settlements and barely no facilities in Rhonda settlement (Figure 14a). A key observation from the mapped facilities is that while there are still huge gaps in handwashing facilities coverage, the numbers of facilities installed over time has been reducing over time (Figure 14b). Data further revealed that over 90% of facilities are manually fed with water (Figure 14c).

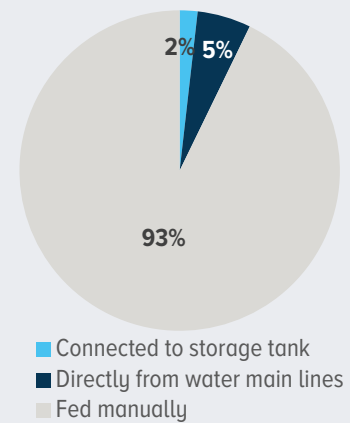
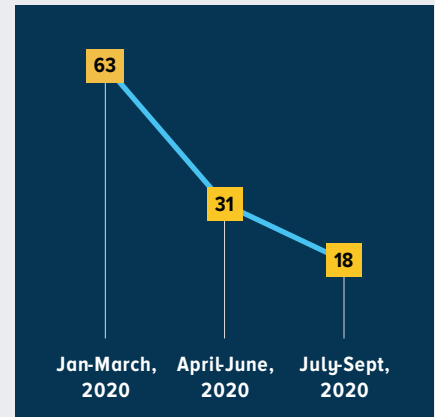
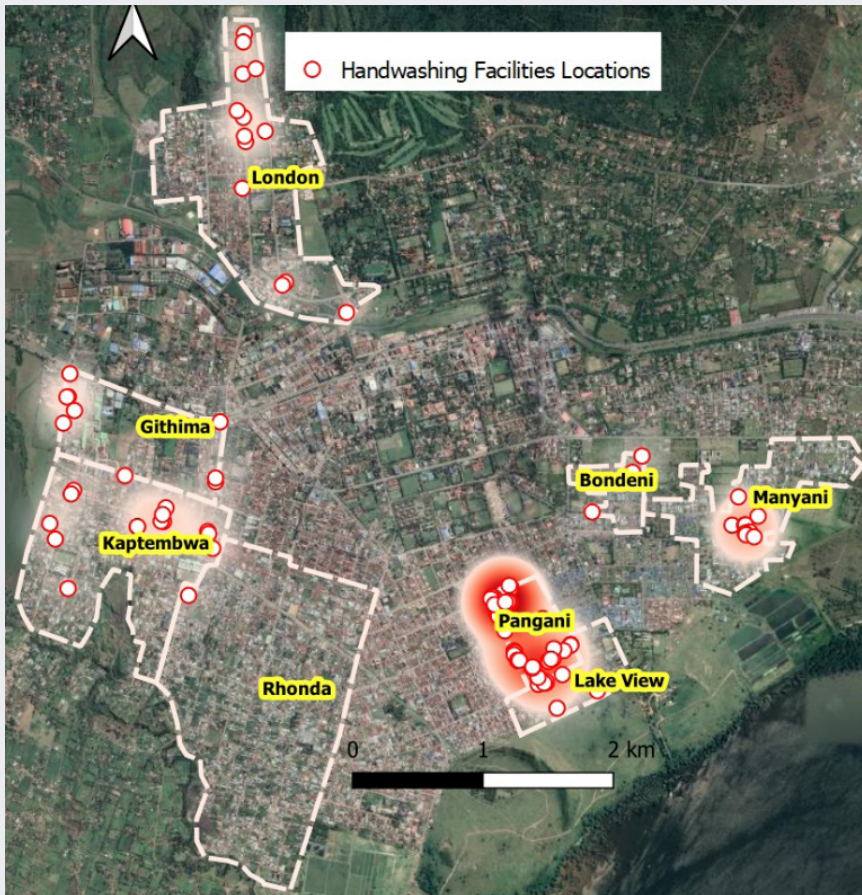


Figure 14a, b and c: Location of handwashing facilities, number of facilities installed over time, and facilities water sources.

The survey further established that only about 15% of handwashing facilities buy water to feed handwashing facilities, with the average cost of water being Kes. 5 per 20 litres container. While having handwashing facilities manually fed with water has a negative impact on their sustainability, having water easily affordable has a positive impact on handwashing (Figure 15 a and b).

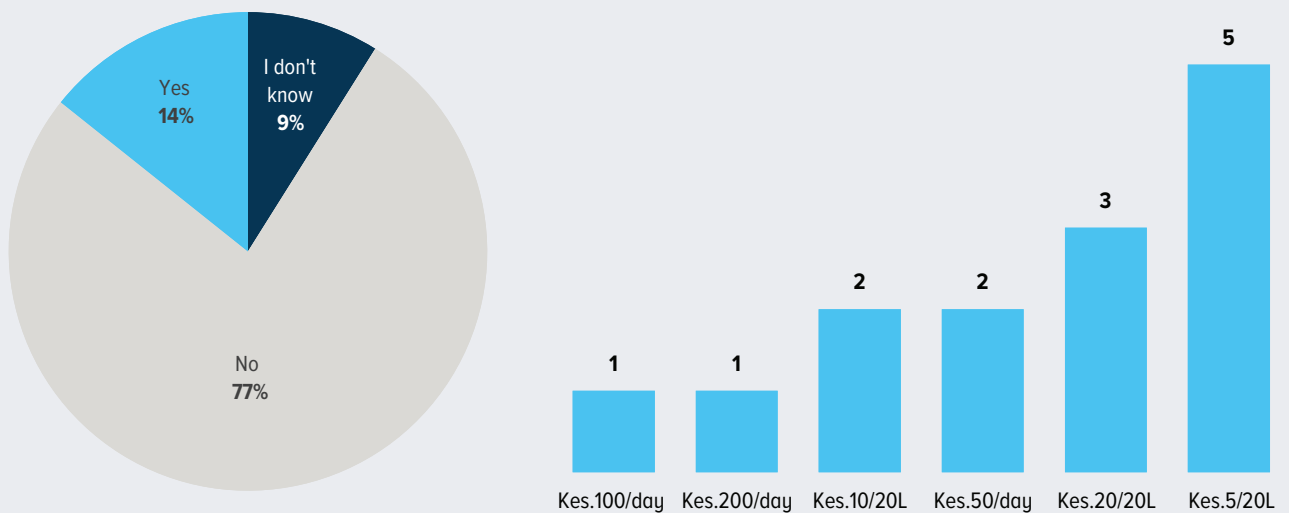


Figure 15 a and b: Costs involved in feeding handwashing facilities with water

There are notable gaps in available of handwashing facilities at key areas such as at Boda Boda sheds (Figure 16a). There are however ongoing efforts to increase facilities coverage with the most recent project involving joint efforts by the County Government of Nakuru, KARA (Kenya Alliance of Residents Association), and the UN-Habitat (Figure 16b).



Figure 16 a and b: Boda boda sheds with no handwashing facilities, and a handwashing facility installed in August jointly by the County Government, KARA and UN-Habitat.

Comparing responses from the household and facilities survey, it is established that about 30% of all handwashing facilities do not have soap and water throughout the day. This is concerning for the fact that most facilities have only been in existence for an average of 3 months.

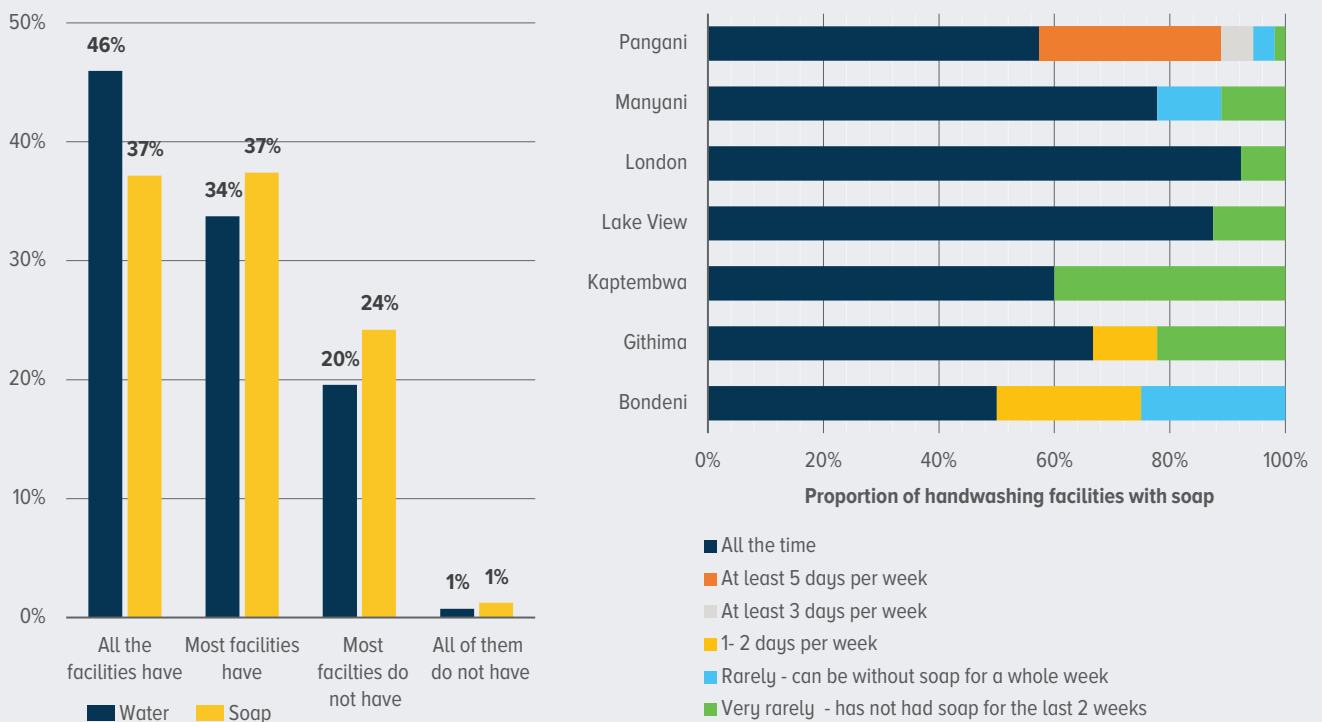


Figure 17a and b: availability of water and soap for handwashing facilities at household level (a) and facility level (b).

It is also established that while Pangani has the highest number of handwashing facilities, the facilities are generally small, serving an average of 20 people per day. Kaptembwa, on the other hand, has fewer facilities but serving huge population ranging between 300 and 1000 per day (Figure 18).

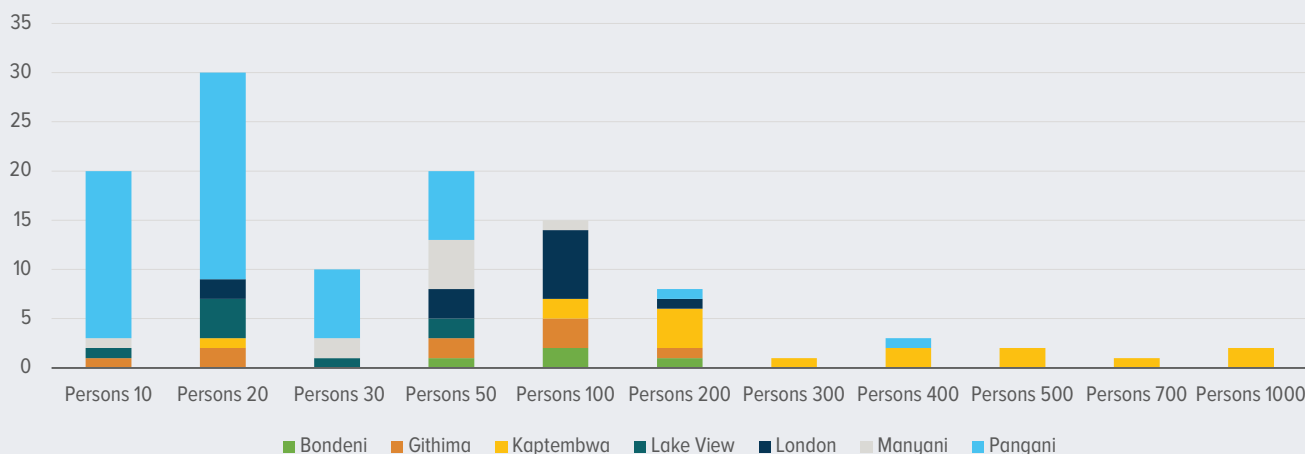


Figure 18: Capacity of handwashing facilities by settlements

iii) The State of Sanitation Facilities

Sanitation facilities in Nakuru are not uniform across settlements. Only London and Pangani settlements have over 60% of their households using sanitation facilities which are shared by other families. Bondeni, Manyani, Githima and Rhonda predominantly use toilets shared by a cluster of households. Settlements where over 30% of households use shared latrines include Kaptembwa, and Lake View. Sanitation facilities shared communally beyond a housing block or plot are uncommon in Nakuru settlements, with only Bondeni having at least 15% of its households using communal toilets (Figure 19).

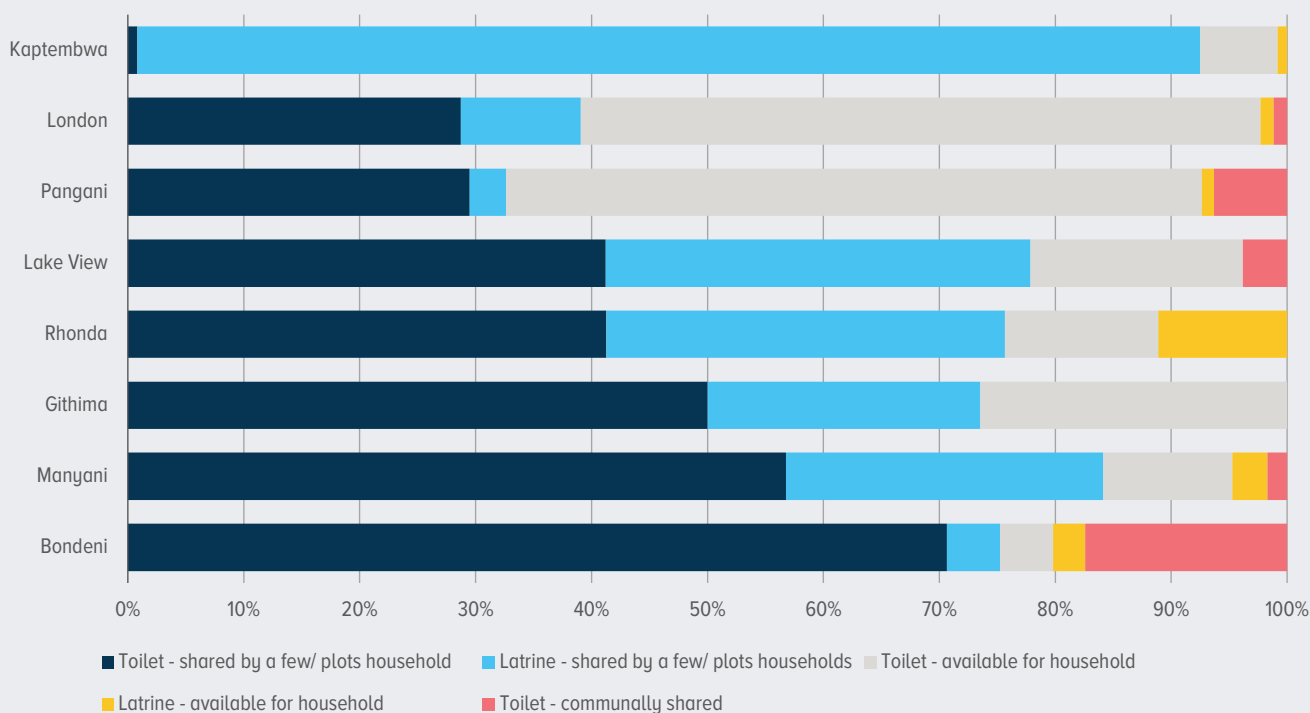


Figure 19: The nature of sanitation facilities by settlements

Bondeni and Lake View settlements have the highest numbers of communal sanitation facilities. While the facilities in Lake View are in fair to good conditions, facilities in Bondeni and Manyani are in dilapidated conditions and needs improvement (Figure 20 and 21).

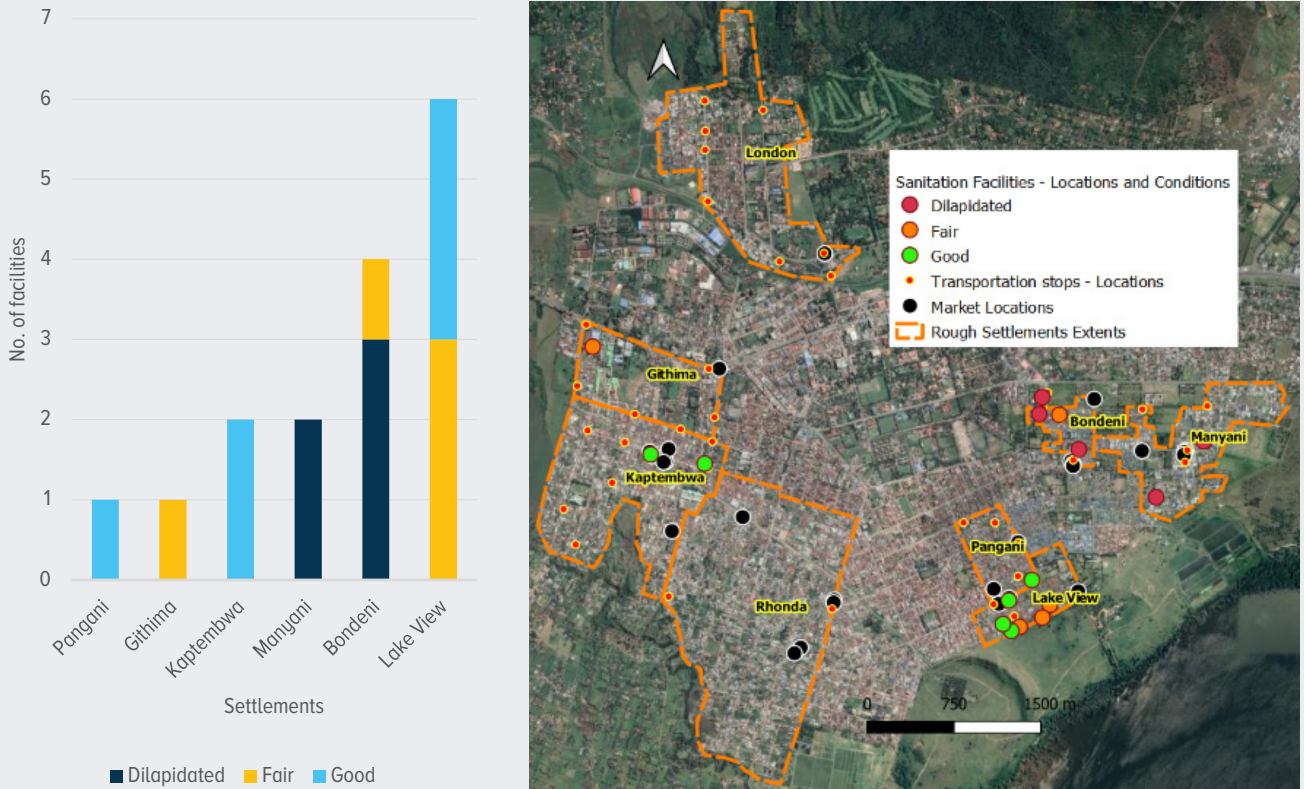


Figure 20 (Left): Sanitation facilities and their conditions: Figure 21 (Right): Location and conditions of sanitation facilities.

Generally, sanitation facilities are within short distances from households. Only a few residents cover more than 50 metres to access sanitation facilities: those using communal toilets (30%), those using shared latrines (5%), and those sharing toilets at the plot level (15%) (Figure 22).

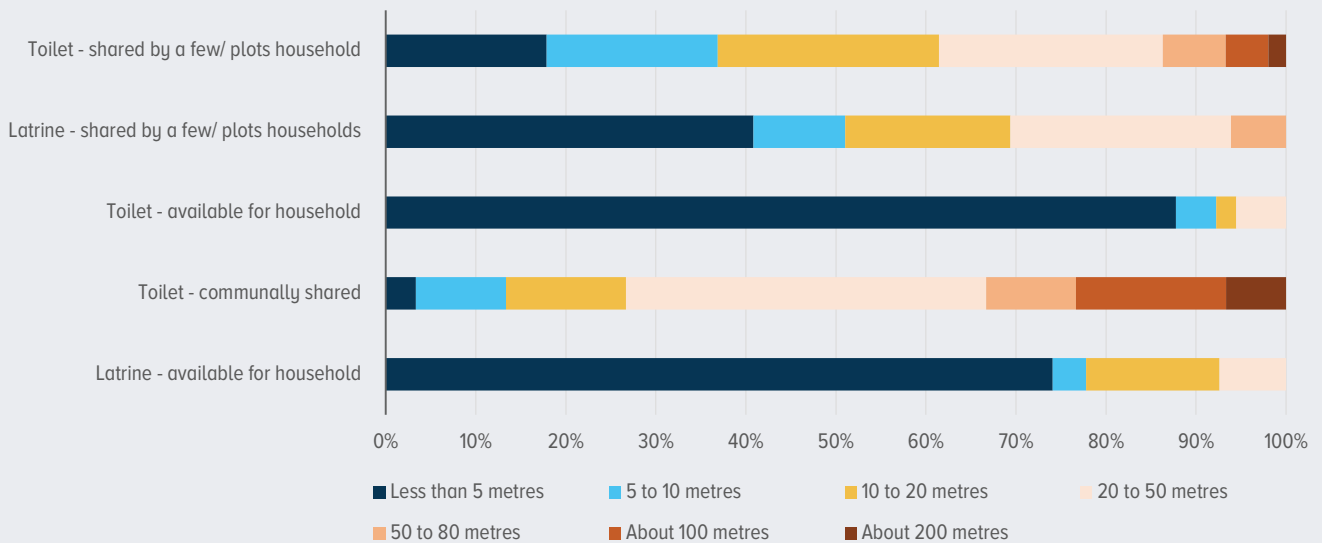


Figure 22: Distances of sanitation facilities from homes

In terms of conditions, toilets available for households are generally in good conditions while shared toilet facilities are in fair to poor conditions. A good number of communally sanitation facilities are in poor conditions (Figure 23 and 24).

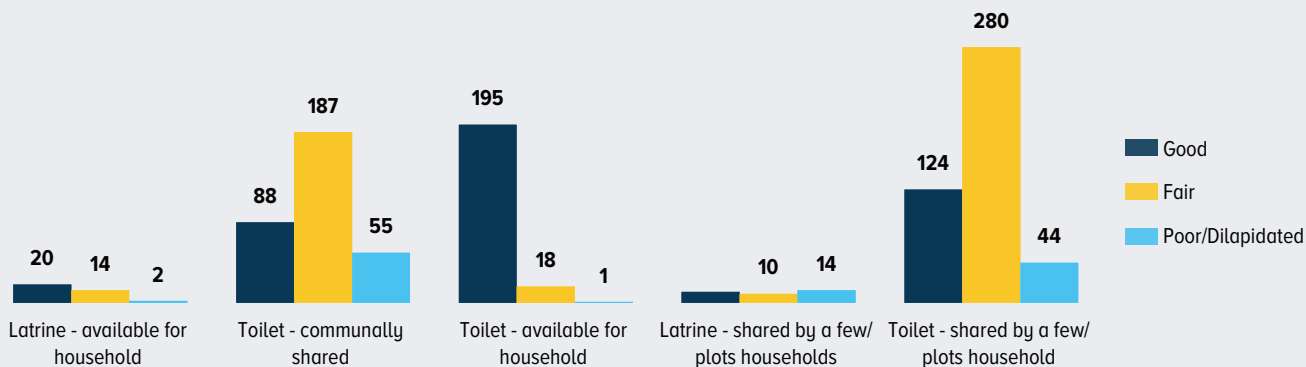


Figure 23: Conditions of sanitation facilities



Figure 24: Poor conditions of Sanitation facilities in Bondeni

Household level data revealed that majority of shared sanitation facilities lack water and soap; in fact, over 70% of the facilities could be without for about a week while over 65% could be without water for a week.

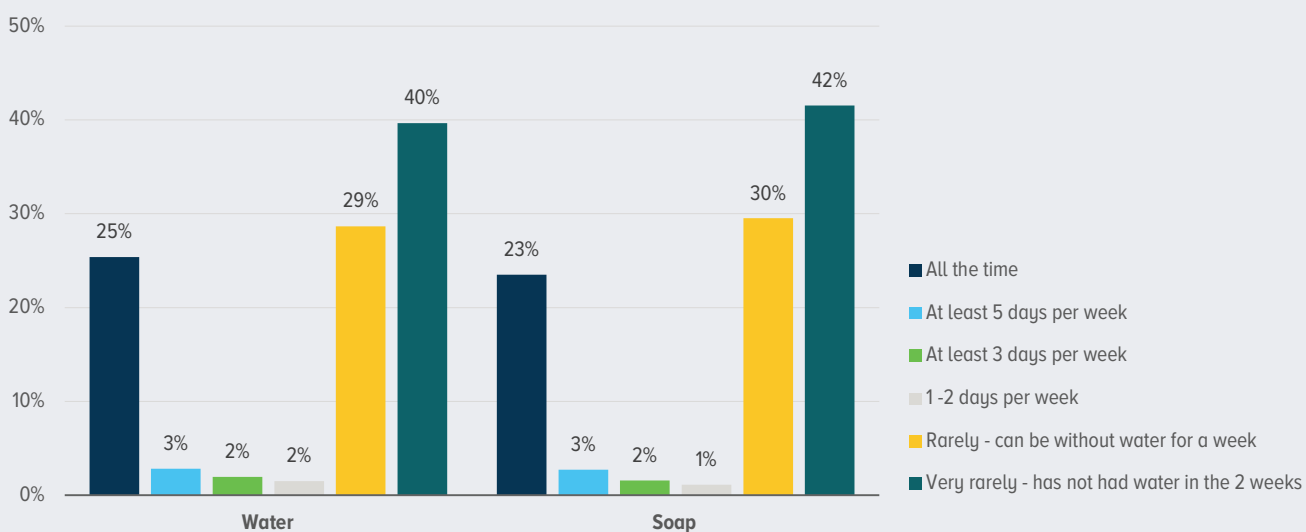


Figure 25: Availability of water and soap for communal sanitation facilities

iv) State of Solid Waste Management

In terms of waste collection, about 60% of all households have waste collected from their houses or plots. Only Githima and Bondeni have over 60% of their household disposing wastes in undesignated areas and/or burning (Figure 26).

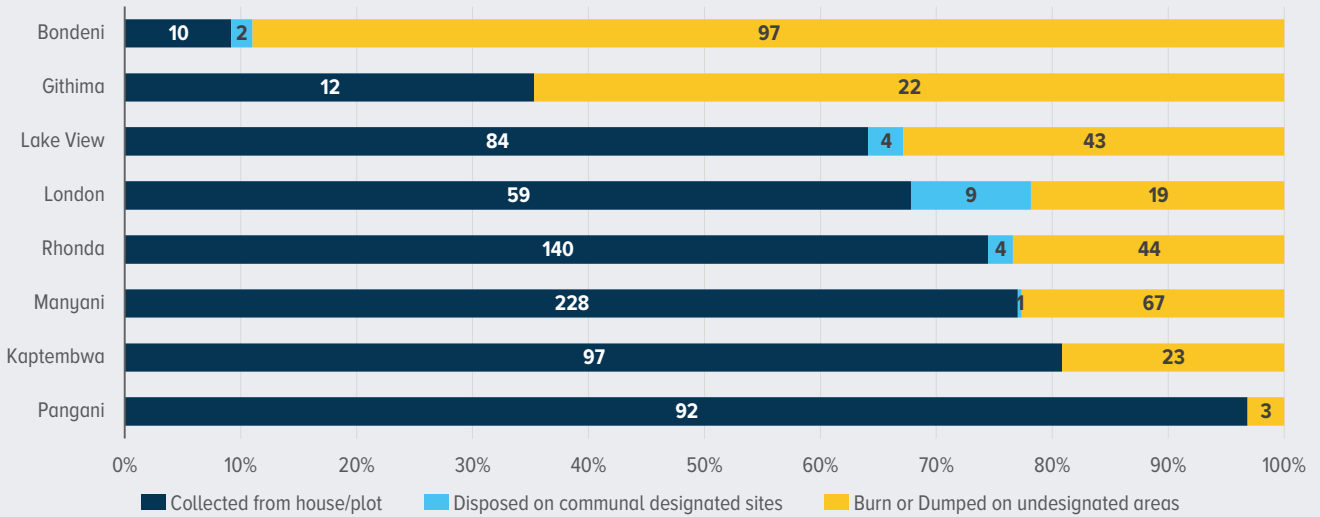


Figure 26: The nature of waste collection facilities used by settlements

Bondeni has the poorest system of solid waste management among the settlements, with over 80% of its waste managed by ‘no one’. This settlement alongside Githima need to be prioritized for interventions in solid waste management (Figure 27).

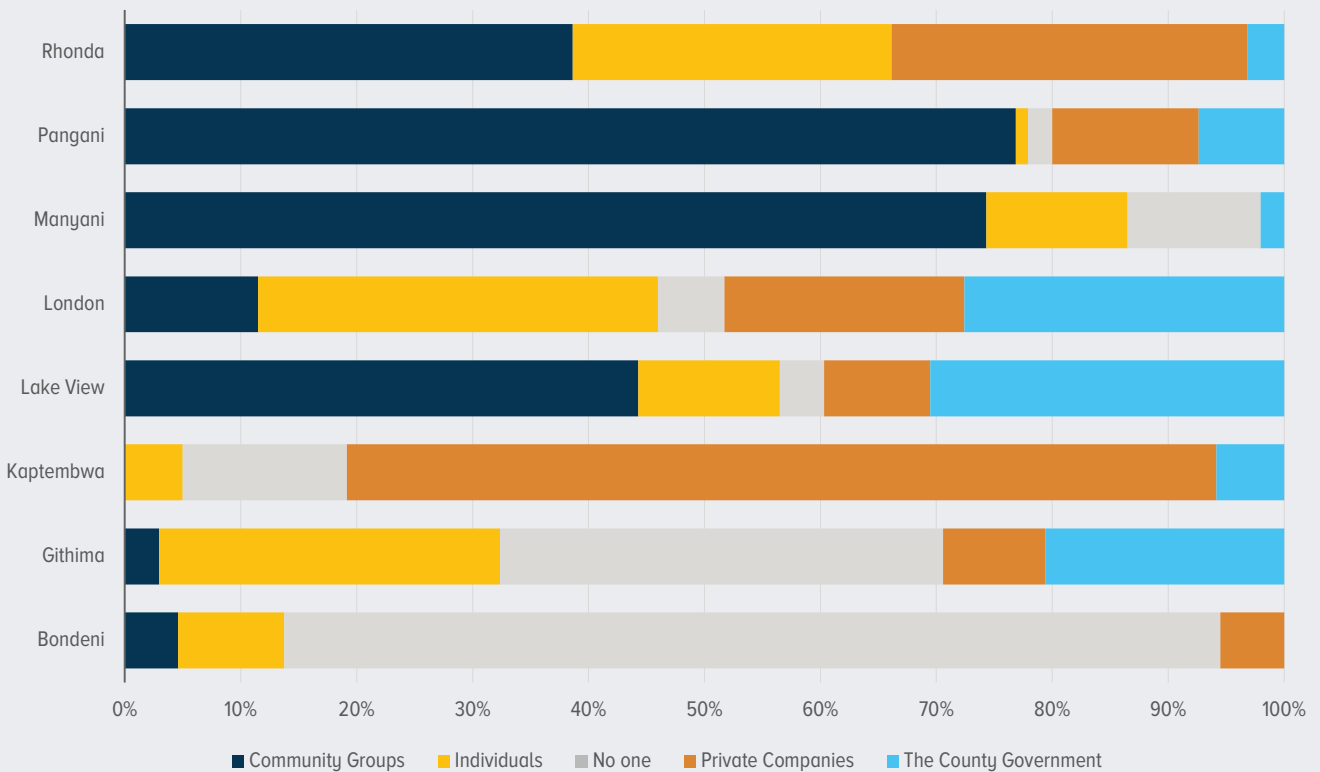


Figure 27: Organizations managing solid waste by settlements

The household survey established that only 64% of residents pay for waste management, with majority of payment ranging between Kes. 50 and Kes. 100 per month (Figure 28).

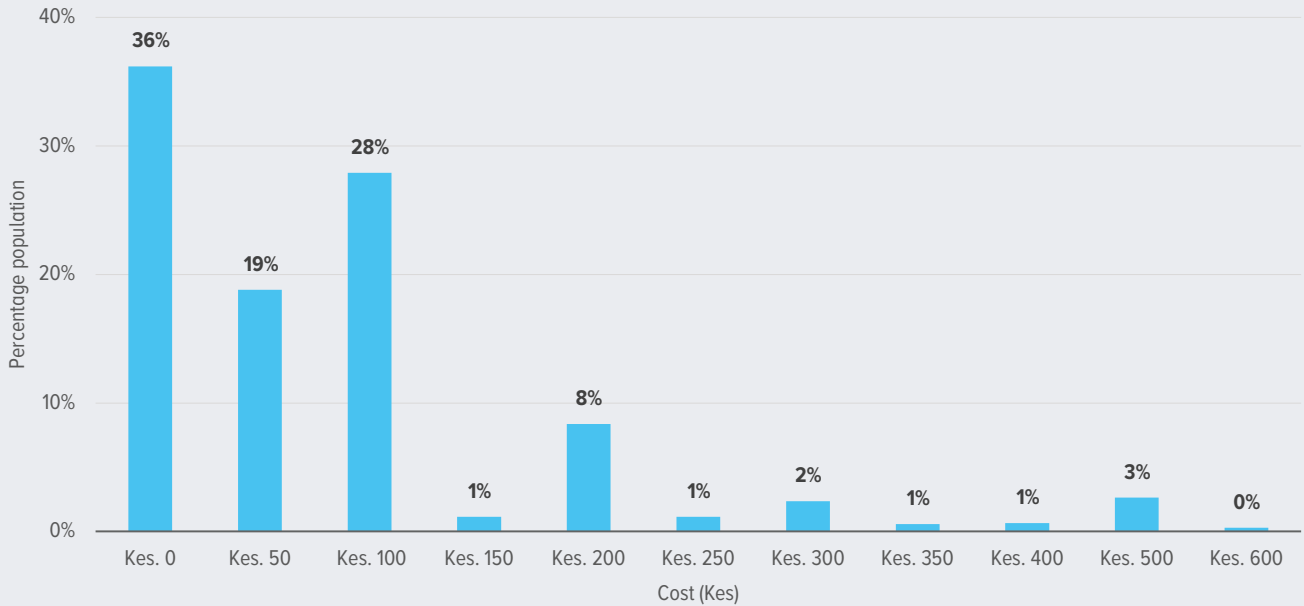


Figure 28: Cost of waste management by households

In terms of management, majority of those that do not pay for solid waste management have their waste managed by individuals or left unmanaged by anyone. Community groups charge between Kes. 50 and Kes. 100 per month to manage waste. Private companies charge different rates ranging from Kes. 50 to 500, depending on the location (Figure 29).

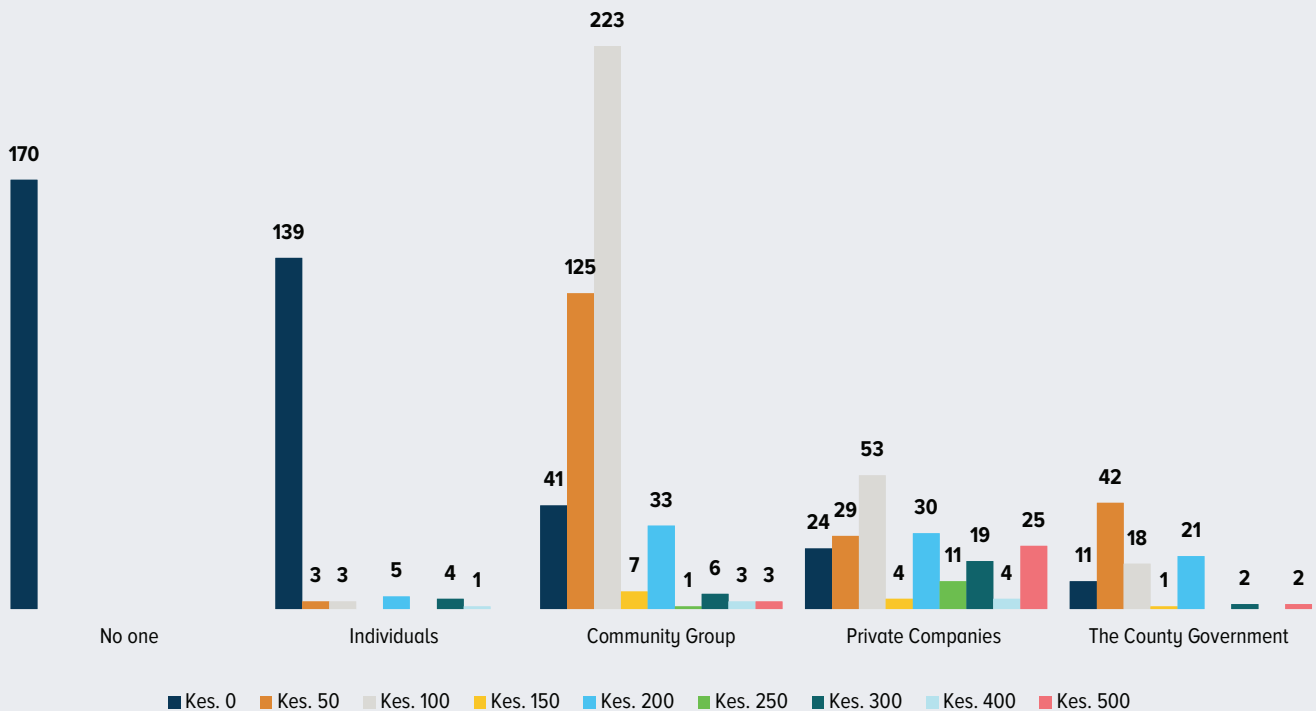


Figure 29: Cost of solid waste management by organizations

v) Facilities Spatial Dynamics: An Assessment of WASH Component by Settlements:

a) London

The settlement has few communal water points which is explained by the fact that 51% of households can access water at the household level.

Handwashing facilities in the settlement are along major roads, and household survey shows 70% of resident's access handwashing facilities during their daily routines.

The settlement has only one communal toilet, also consistent with the fact that only about 2% of its residents depend on communal sanitation facilities.

All households except 19% (who dump or burn waste on undesignated areas) have their solid waste collected from households. The settlement has one solid disposal point which is in a dilapidated condition.

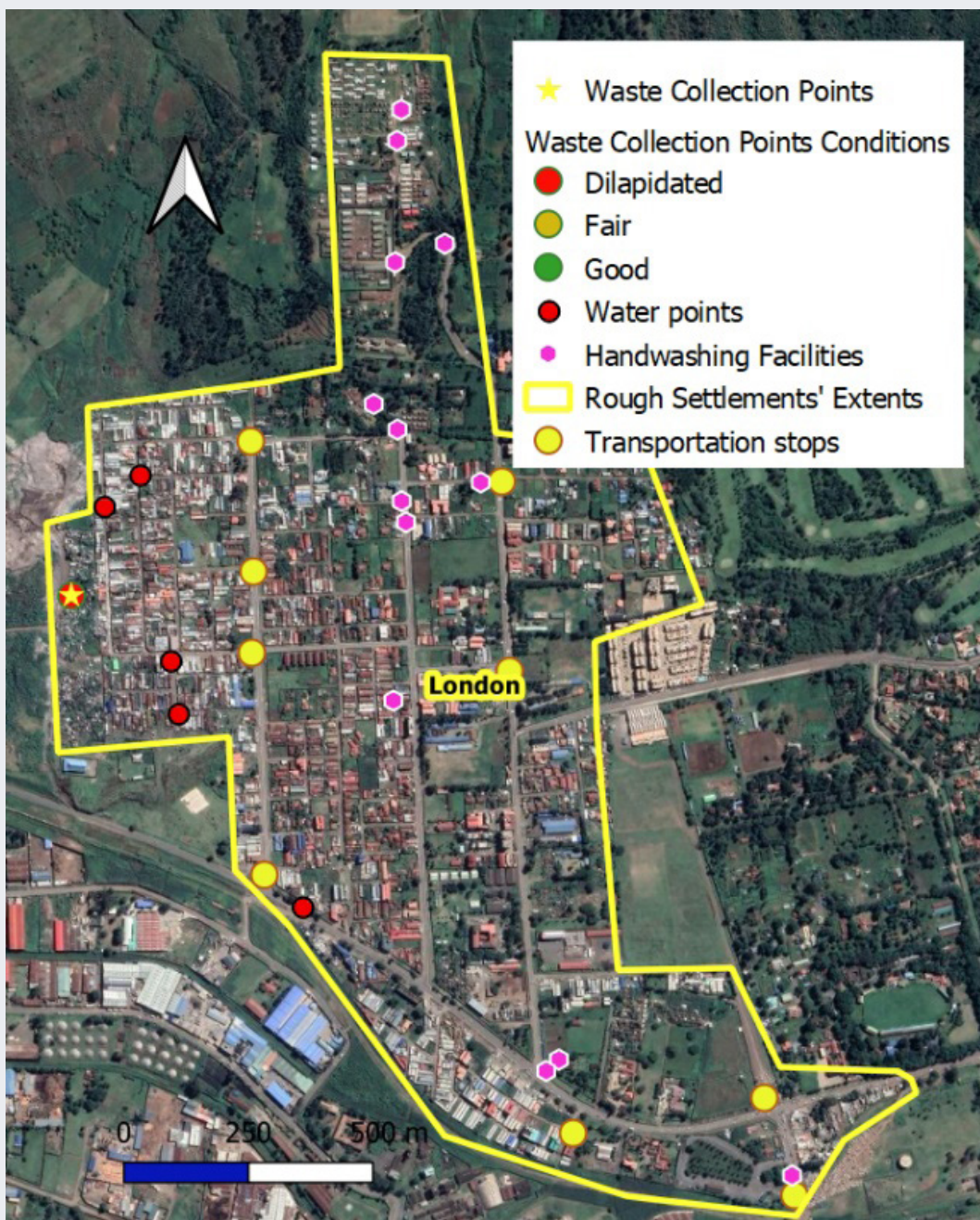


Figure 30: Location of sanitation facilities in London settlement

b) Githima, Kaptembwa and Rhonda

For this cluster, there are more communal sanitation facilities in Kaptembwa than Githima and Rhonda (Figure 31).

There are notable gaps in water provision for Rhonda settlement, the only settlement with over 20% of households sourcing water from either a communal water kiosks or a well.



Figure 31 and 32: Distribution of WASH facilities in Githima, Kaptembwa and Rhonda; and a water point sponsored by Nakuru west Church of God at Kaptembwa

A focus on handwashing revealed that there are fewer facilities in Rhonda settlement than other settlements, and household data shows that only 25% of the households in Rhonda are access handwashing facilities during their daily outdoor activities (Figure 13).

Data on sanitation facilities show that the residents of Kaptembwa predominantly use pit latrines (up to 90%), while about 45% of residents in Githima and Rhonda have plot level toilets (Figure 19).

Regarding solid waste management, Kaptembwa and Rhonda have waste of over 70% of its residents collected from households; this figure is at 35% for Githima with the rest of its waste (65%) being dumped on undesignated areas. Almost all (90%) of solid waste collection places mapped in the settlements are all in a dilapidated condition.

c) Pangani and Lake View

Pangani and Lake View settlements have about a third of their households accessing water piped to their homes.

The settlements have few communal water points, which household data shows serves about 15% of the residents. Other residents source water from shared water points at the

plot or housing block levels. A notable water project in Lake View settlement was funded by USAID through Nakuru Water and Sanitation Company and involved use of prepaid water (Token). Residents reported that there are 18 such water points in Lakeview but the project was abandoned without facilities ever functioning.



Figure 33 (Left): A disused water point in Lake View. Figure 34 (Right): Locations and conditions of WASH facilities in Lake View and Pangani

On handwashing, only about 20% of respondents from the two settlements informed that they have access to handwashing facilities during their daily outdoor activities. Concentration of handwashing facilities in high at the northern part of Pangani. Lake View settlement has very few handwashing facilities.

In respect to sanitation in the two settlements, only less than 10% of households rely on communal sanitation facilities. The rest have toilets and latrines at their households or within small community blocks.

On waste management, household data shows that over 95% of household waste is collected from houses/plots. On the other hand, facility mapping picked over 15 waste disposal sites which are in dilapidated conditions. With over 50% of the waste from these two settlements managed by community groups, there is need to review the waste management cycle from collection to its final destination, particularly to establish if there is a link between waste collection by community group and open dumping.

d) Bondeni

Bondeni is comparatively more disadvantaged than other settlement in WASH aspects. The settlement is relatively small (approx. 0.11 KM²), but dense/ compact.

Three communal water points were mapped during the survey, and household data shows that about 30% of its residents source water from vendors while 20% source from communal water points. Only about 10% have water connection to their households.

For sanitation, only 5% of its residents have household level sanitation facilities; the rest uses shared facilities – 70% sharing facilities at housing block/plot level and 10% using communally shared toilets.

The settlement does not generally have a solid waste management system, with about 90% of the waste being openly dumped; all the waste collection points mapped are identified as being in dilapidated conditions (Figure 35).

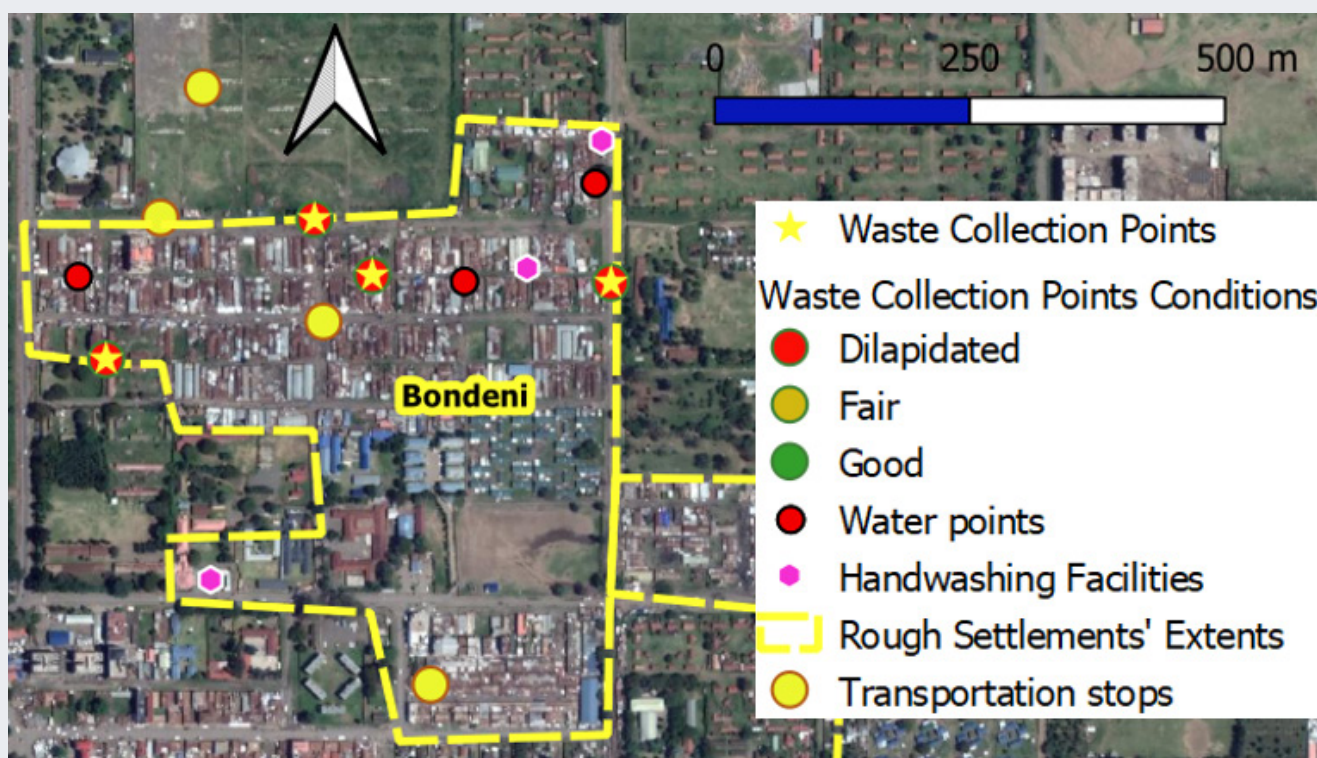


Figure 35: Locations and conditions of WASH facilities in Bondeni

e) Manyani

The settlement is less compact than Bondeni, and has some green spaces between settlement blocks. Water is shared at the block/plot levels with only 10% of households having water piped to their houses. It is therefore understandable why the settlement does not have communal water points. Handwashing facilities are few and concentrated at a commercial zone at the centre of the settlement (Figure 36). Household survey established that only 30% of residents access handwashing facilities during their daily outdoor activities.

Regarding sanitation, only 10% of residents have household toilets; other use shared toilets at the settlement block level (50%) and latrines (25%). About 2% of residents use communally shared toilets. For solid waste management, about 25% of households dump waste on undesigantated areas, a likely explanation why all the mapped solid waste collection locations are in dilapidated states.

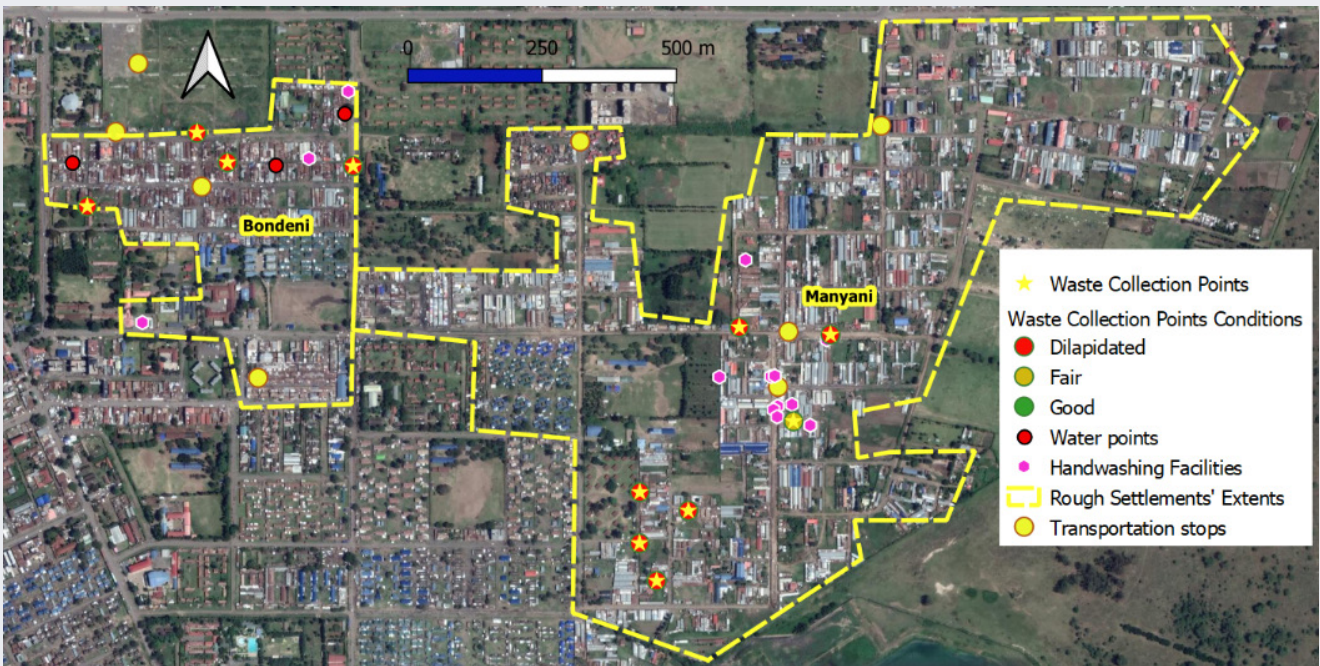


Figure 36: Locations and conditions of WASH facilities in Manyani

2. Health Facilities



A total of 46 health facilities were mapped: 38 dispensaries, 5 health centres and 3 hospitals.

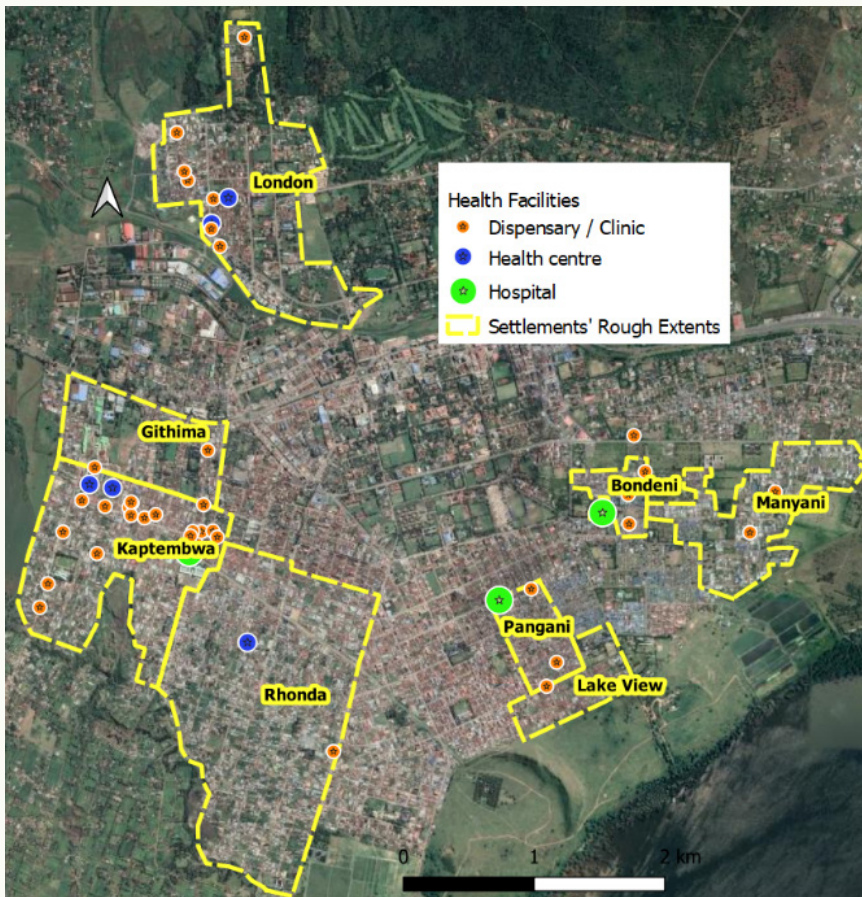


Figure 37: Location and level of health facilities

Mapping and proximity analysis revealed that Rhonda and the eastern part of London settlement areas have poorer access to health services than other areas.

From these two settlements, residents have to travel for over 1 kilometre to access the nearest hospital (Figure 37). Majority of the health facilities mapped are dispensaries, and Kaptembwa has the highest health facility density.

In terms of access to services, 'hospital level' facilities have access to all the requires basic services.

While water, electricity and sanitation facilities are available for almost all health facilities, about 30% of dispensaries/clinics lack solid waste management systems and about 40% of dispensaries and clinics lack connection to the sewerage system, exposing a critical gap that require urgent attention.

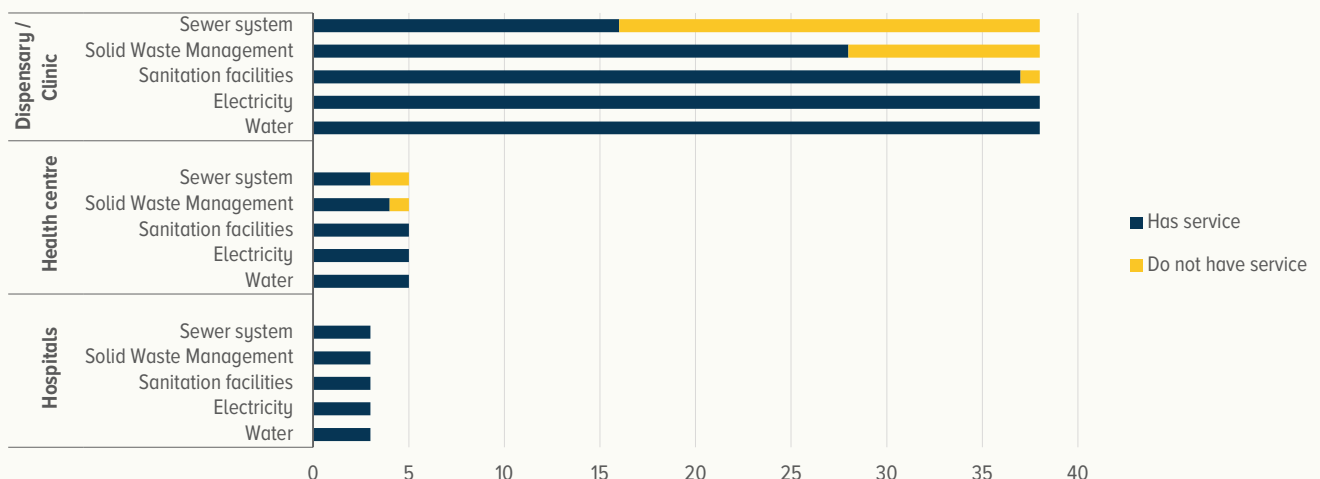


Figure 38: Health facilities and availability of services



3. Education Facilities

A total of 99 education facilities were mapped, 80% of which are pre-primary and primary schools. Secondary and tertiary schools/institutions within informal settlement areas account for only 20% of education facilities. It is noted that Nakuru county has a huge population under the age of 15% -- currently estimated at 37% (CIDP³, 2018), and this population is expected to migrating into the secondary and tertiary school age categories in the next few years.

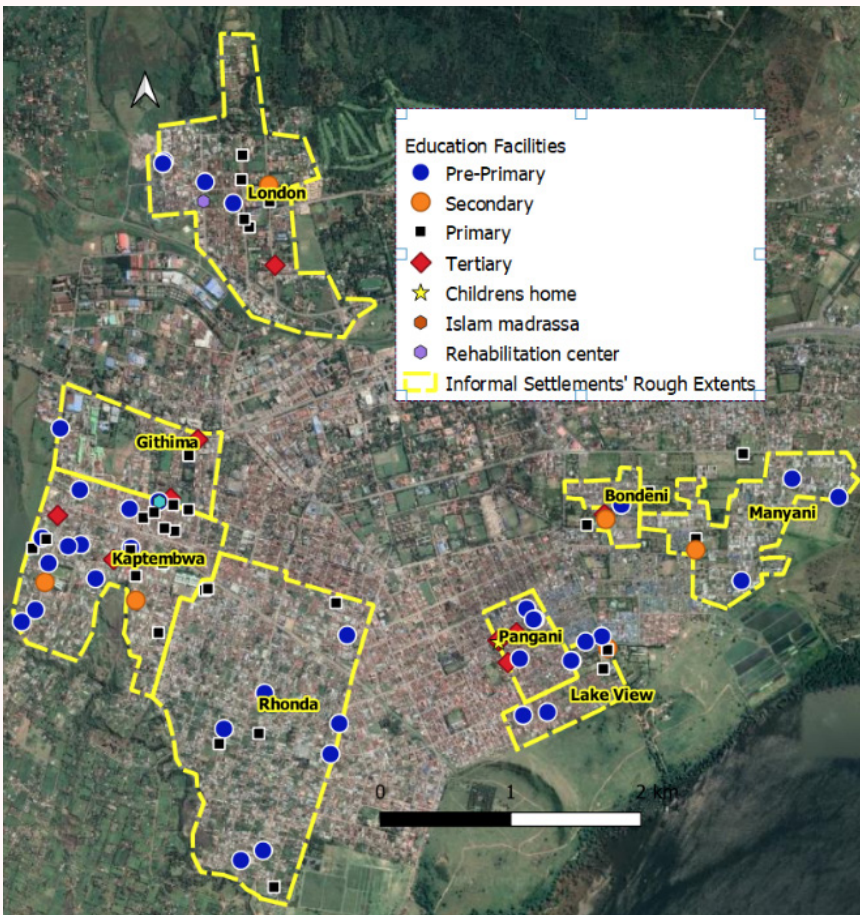


Figure 40 (Top) and 41 (Bottom): Location and levels of education facilities; & a photo of primary schools

This general trend points to the need to review and project the changing demands for access to education at post-primary levels. The few numbers of facilities recorded shows a trend that may disadvantage huge populations in terms of access to education in the near future, particularly in informal settlement areas.

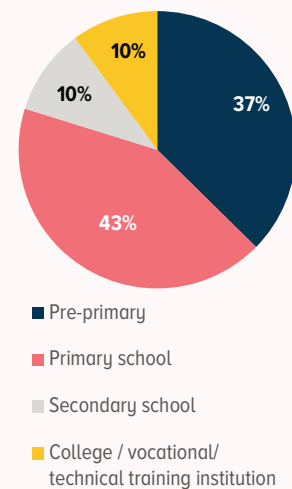


Figure 39: Statistics of education facilities by the levels

From mapping and spatial analysis, residents of Kaptembwa, Pangani and Lake View are generally able to access pre-primary and primary schools within 200 metres from their homes. This distances increases to 400 metres in London and 700 metres in Rhonda (Figure 40).

While the study shows that additional education facilities are desired in Rhonda, London and Manyani settlements, at least to reduce distances to schools, further analysis on school-going populations, cost of education and affordability is required to enhance precision of policy action.

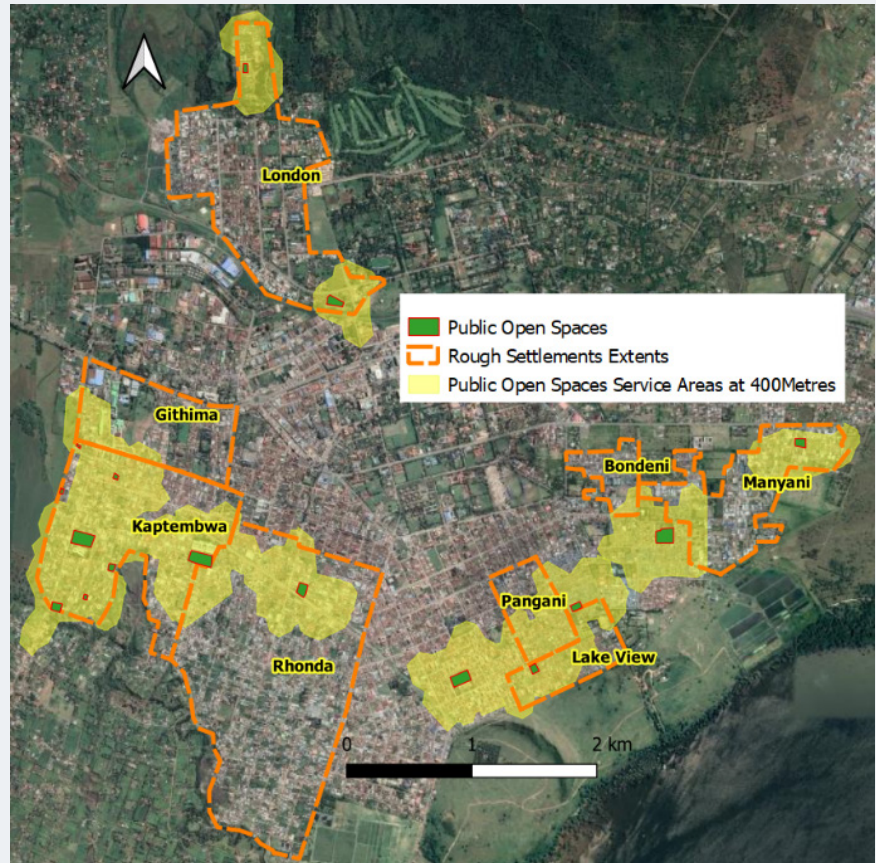
For informal areas in Nakuru – unlike the informal areas in Nairobi and Kisumu – education facilities are in less compact built up areas, and most have at least a small playfield and a gated compound.



4. Public open spaces

While there are numerous green areas in Nakuru town, only a few public open spaces are accessible to the residents of informal settlements areas. For example, Bondeni is only 500 metres from Afraha stadium, the biggest recreational facility in the town, yet the stadium is not open for access by anyone at any time without costs. According to SDG indicator 11.7.1., it is desirable that urban populations be in a position to access open/ recreational spaces within 400 metres from their homes.

Mapping of public spaces accessible to the settlements in Nakuru within 400 metres (Figure 42) shows that only Kaptebwa, Lake View and Pangani have at least 60% of their population with sufficient access to public open spaces.



It is key to note that open spaces are a core component of improved quality of life in human settlement, and having more people accessing open spaces is key in achieving the sustainable development goals. Authorities can achieve this through protecting already existing green areas as well as preplanning neighbourhood. A comprehensive strategy in improve access to open spaces is detailed in the Citywide public spaces guide for city leaders⁴.

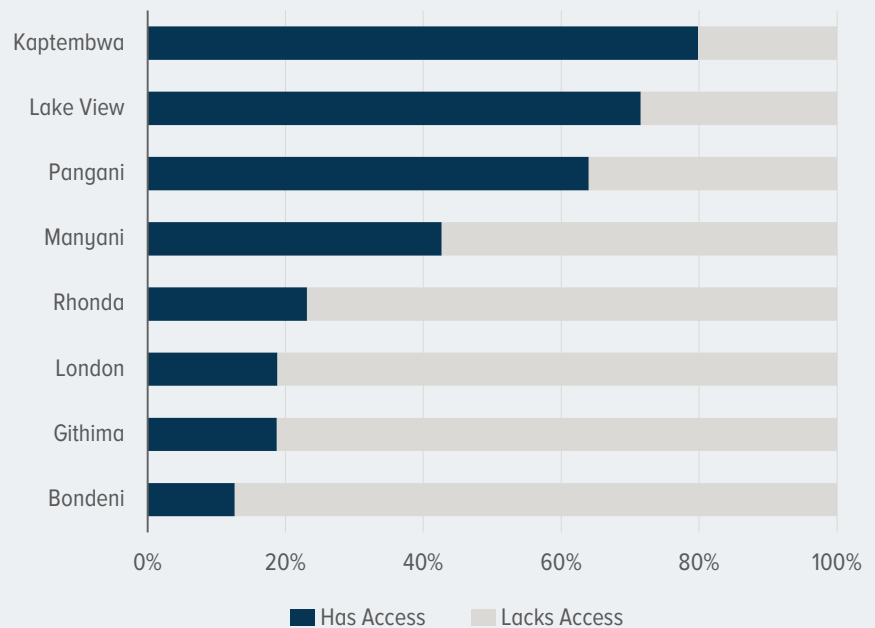


Figure 42 and 43: Location of public open spaces and their service areas at 400M; statistics on access to open spaces

4. https://unhabitat.org/sites/default/files/2020/03/cwpss_guidebook_20200116.pdf



5. Social Halls and Religious Facilities

The survey mapped 14 social halls accessible to the 8 studied settlements. All the mapped halls are open for use by all community groups. In term of their management, half of the facilities (7 halls) are managed by community groups, 3 by County Government, 2 by church organization and 2 by NGOs.

The halls are all functional and reliable except 1 halls at Manyani which is noted to be in a dilapidated situation. The halls is managed a community group. In respect to the facilities' levels of access

to key services, there are notable gaps that need to be addressed, particularly in ensuring users of the facilities are able to maintain high levels of hygiene, made highly vital by the current COVID-19 situation (Figure 45).

For religious facilities, there are numerous facilities accessible to the residents of the informal settlements. A total of 213 facilities were mapped (Figure 44), and the distribution is almost even across the settlements.

Spatial analysis revealed almost all residents of Pangani, Lake View, Bondeni and Manyani can access a community hall roughly within 500 metres from their homes. Locations with poor access to community/social halls include southern parts of Rhonda, western parts of Kaptembwa and eastern parts of London settlements. Spatially targeted interventions are desirable in improving access to services in these areas.

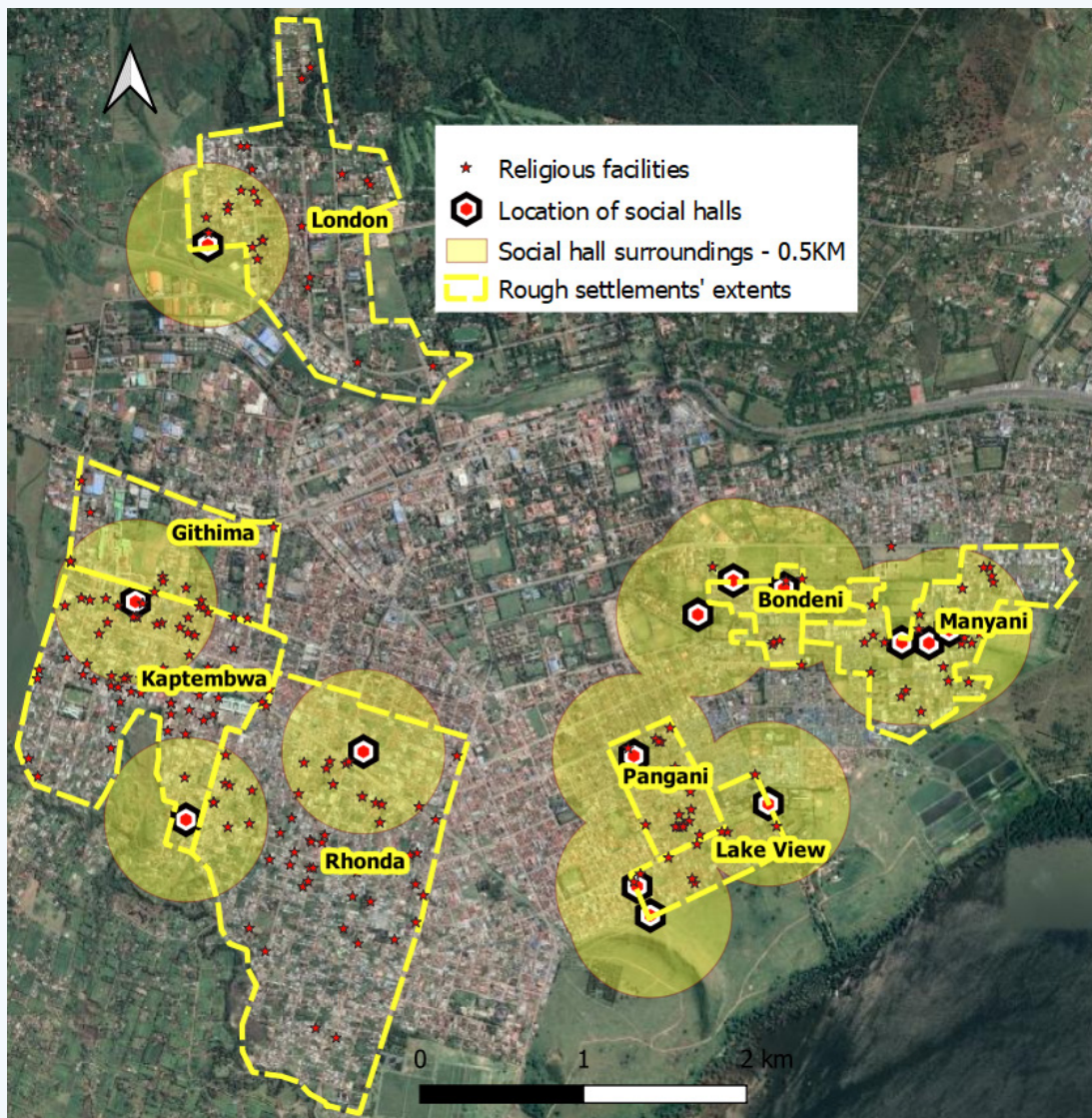


Figure 44: Locations and services of social halls and religious facilities

The study has further revealed that social halls and religious facilities lack solid waste management systems and connections to the sewer system. Religious facilities have better access to water, electricity and sanitation services than social halls – while only about 15% of religious facilities lack the three, this figure is at 30% for social halls (Figure 45 and 46).

Halls are generally in good conditions and are accessible to the residents; 11 out of the 14 mapped halls are accessed for free while the rest charge between Kes. 500 to Kes. 3,000 to users per day.

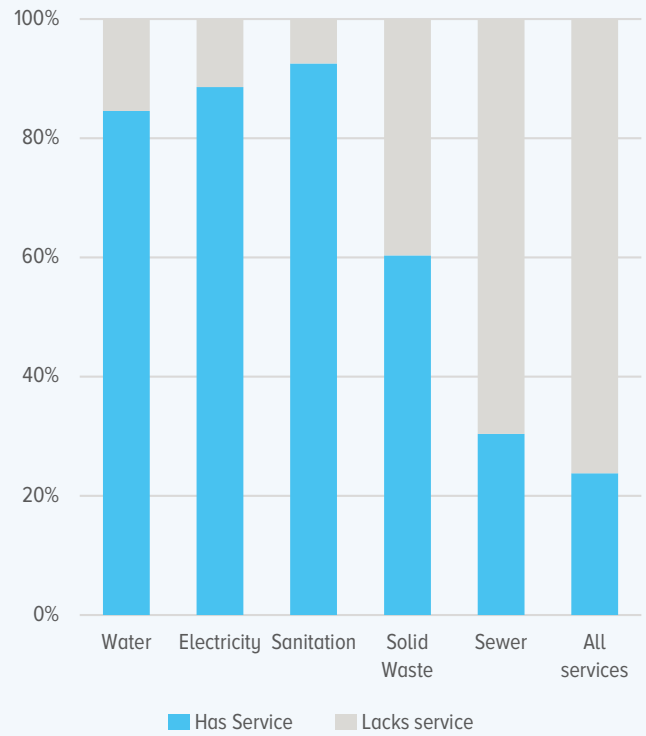
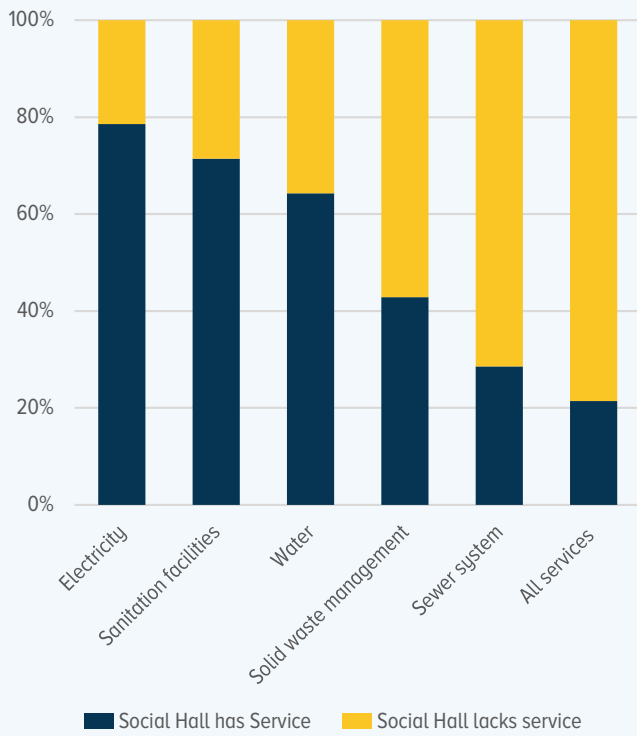


Figure 45 and 46: Access to services in social halls and religious facilities



Figure 47: A religious facility, not connected to water supply system but with handwashing facilities installed



6. Organizations Operating in the Settlement

The settlements are supported by numerous organizations, thematically summarized as:

Water supply



10 organizations were mapped, including NAWASCO and several community based organization. A total of 17 water donor were identified, with those supporting several facilities including USAID, NAWASCO and privately sponsored organizations.

Handwashing



Installation of facilities has been supported by at least 20 different parties ranging from the County Government, organizations, political leaders and institutions.

Sanitation



There is limited support from agencies in supporting sanitation facilities. Besides landlords, parties that have taken part in the provision of sanitation facilities include the County Government, the water company and one NGO.

Waste management



Waste collection is managed by the County Government, various community groups and a few private organizations.

Other services



Other facilities such as education and health facilities are mostly under the management of private investors with the exception a few government run facilities.

Key organizations



Some organization that had running programmes at the time for the mapping are listed in annex 1.

Key observations

The following are key observation from the mapping, and their associated action areas:

1. An overwhelming majority of informal settlements residents (70%) share water points within plots or community blocks, relying on piped water. Apparently, the water, which is supplied by the Nakuru Water and Sewerage Company, is unreliable, mostly available for about 2 days a week. Actions towards improving reliability of the water supply are desired.
2. For the population of about 30% who are supplied with water by private companies and individuals, associated costs are high enough to limit water consumption at the household level which has an implication on household hygiene.
3. With about 70% of informal settlements' residents not access handwashing facilities during their daily outdoor activities, and installation of new handwashing facilities on the decline, it is concerning that the currently popular handwashing practise may not be sustained. There is need to establish permanent handwashing systems, particularly connected to water supply systems (current ones are manually fed with water), and strategically located.
4. Spatially targeted interventions are key; key locations such as Boda Boda shed should be prioritized. Settlements with few facilities such as Rhonda deserves special attention in this regard.
5. Most residents of informal settlements are still not connected to the main sewer system, and it is concerning that settlements such as Kaptembwa, Lake view and Rhonda have over 30% of their residents using pit latrines, a sanitation option often associated with poor hygiene (insects, odour, filling). For communal sanitation facilities, which are apparently not many, facilities in Manyani and Bondeni are in dilapidated conditions and requires improvement. Additionally, over 70% of shared toilet and latrine facilities lack soap and water.
6. Solid waste management is emerging as a key urban challenge in most informal settlement areas. Settlements such as Bondeni and Githima have over 60% of their residents disposing waste in undesignated areas. For other settlements, despite having most of their waste collected from their households, open dumping is still evident, which points to likely link between parties collecting waste from homesteads and open field dumping on undesignated areas.
7. Regarding health, majority of the facilities mapped in the settlements are dispensaries; the facilities' spatial distribution is poor, and settlements such as Rhonda are spatially disadvantaged. Incidentally, most facilities have key basic services, except a few dispensaries which lacks solid waste management systems and connection to the sewer system.
8. A key observation regarding education is that there are very few post-primary school facilities, and if these facilities are not increased, the population already in primary school and below will be disadvantaged in access secondary and tertiary education. Luckily, existing education facilities are not in compact urban spaces as observed in the informal settlements of Nairobi.
9. The fact that majority of education and health facilities are managed privately implies raised cost of accessing the facilities, and this is a burden which is passed to the residents of informal settlements.
10. Access to open spaces in the mapped informal settlements is far below the recommended standards. Authorities should work to create more spaces, particularly through spatial planning.
11. Community and social halls are generally accessible, but mostly lack some key services such connection to water and the sewer system. However, religious facilities have applied considerable efforts in ensuring that facility users are able to access handwashing facilities.
12. For organizations working in the settlements, data shows that there are numerous parties working in WASH and other sectors, but the fact that some locations are spatially disadvantaged than others points to lack of coordination between partners in service provision. More stakeholder/partners coordination is required for effective service provision.

SUMMARIZING THE MAPPING

The informal settlements in Nakuru are not only unique from other informal settlements in Kenya, but are also individually unique. This survey has shown that the settlements desire targeted interventions, particularly in the area of WASH. Water supply is a major challenge affecting virtually all

settlements areas. More handwashing facilities are desired, especially those with large capacities; it is preferred that they be connected to the water supply mains for sustainability. Incidentally, there are efforts by different partners to provide services and improve access to facilities.

These actors largely work independently, sometimes duplicating each other's efforts. Proper coordination between actors – which is highly desirable – will harmonize the efforts of actors and bring about better services to the residents of informal areas.

Annex 1: Organization and their programmes in the informal settlements

Organization	Programme
Kenya Alliance of Residential Associations (KARA)	Environmental Management, Water, Health and Sanitation, Governance & Advocacy Security, Safety and Disaster Management, Education and Capacity Building
Nakuru Family Hope Project	Educational services (primary school, St. Gabriel's Learning)
Victorious Teens Bridge International/Women Like Us Centre	Capacity building, Impartation of life skills, safety for mothers.
Mwangaza Street Children Rehabilitation	
St. Francis Street Children Rehabilitation Project,	Rehabilitation of street children, feeding programme, life skills impartation, guidance and counselling, pastoral programmes, school placement after successful rehab, follow-up.
Kaptembwo Bio-Digester Public Toilet	Public toilet and related services
Central Rift Community Development Programme	Community empowerment, youth skills, family education Water project. Not working, though.
Magharibi Medical Centre	Provision of healthcare services
Childcare Worldwide Kenya	Catering to the physical needs of children and providing for their education
German Co-operation/European Union	Supply of water to the community
New Life International Africa	Rehabilitation, capacity building for life skills
Daavshi tv, London	early childhood development education (Nursery School)
International Humanity Foundation	Rehabilitation centre for street children, educational services, university fees sponsorship
Naroka Community Water Project, Kaptembwo	Supply of water
Prepaid (Token) Water Project	project not functional and in some cases being vandalised
Little Sisters of St. Francis of Asisi	To reach out with compassion to the marginalized in the spirit of St. Francis and Mother Kevin, Provision of healthcare services (Mother Kevin Hospital)
Rotary Club of Nakuru	Hand washing water point, went down during survey as it was being refilled. The 6T (Trees, Training, Toilet, Tank, Table banking and Transformation)
Holy Cross: Kiosk 7	Supply of water
Nephack	Works with HIV patients in the community, immunization programmes, disseminating knowledge on income generating projects, malaria awareness
Love and Hope Centre	Economic Empowerment, for women, Violence against women and girls. Policy framework making, HIV management and sensitisation
Centre for Enhancing Democracy and Good Governance	social accountability for effective service delivery in Nakuru Municipality (Nakuru Town West/East) through engagement in county budget processes, Legal aid awareness and promotion of access to justice for the vulnerable groups such as survivors of GBV, PWDs, youth
Little Sisters of St. Francis of Asisi	To reach out with compassion to the marginalized; Provision of Educational institution Mother Kevin School (Nursery and Primary)