

Nairobi is the capital and the largest city of Kenya. The name comes from the Maasai phrase Enkare Nyrobi, which translates to “cool water”, a reference to the Nairobi River which flows through the city. The city is popularly referred to as the Green City in the Sun.\*

SWM services in the Nairobi City are managed by the Department of Environment, Water, Energy and Natural Resources of the Nairobi City Council (NCC). The final disposal site is open dumping and not operating in good condition, therefore the surrounding environment seems to be deteriorating.

Source: \* Wikipedia, Nairobi, accessed 21 February 2019, <<https://en.wikipedia.org/wiki/Nairobi>>

## Information

Population*	3.91 million (2015)
Population growth (annual %)*	3.9 (2010-2015)
Area (km <sup>2</sup> )	696.1
Climate	Subtropical highland climate
Main industries**	Clothing, textiles, building materials, processed foods, beverages, and cigarettes
Currency***	USD 1: KES 99.56 (Kenyan shilling) (March 2019)
Other	United Nations Environment Programme (UN Environment) and the United Nations Office at Nairobi (UNON) are located in Nairobi.

Sources: \* United Nations, Department of Economic and Social Affairs, Population Division (2018). World Urbanization Prospects: The 2018 Revision, Online Edition.

\*\* Wikipedia, Nairobi, accessed 21 February 2019, <<https://en.wikipedia.org/wiki/Nairobi>>

\*\*\* Oanda.com

## Current SWM Situation

Item	Outline
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### Institutional System

Legal system	<ul style="list-style-type: none"> <li>● The related laws and regulations for SWM are as follows:             <ul style="list-style-type: none"> <li>» Nairobi City County Solid Waste Management Act 2015: Provides for the management of solid waste in the County and for related matters.</li> </ul> </li> </ul>
Policy/Plan	<ul style="list-style-type: none"> <li>● Integrated Solid Waste Management Plan (ISWMP).</li> </ul>
Implementation system	<ul style="list-style-type: none"> <li>● Sector of Environment, Water, Energy and Natural Resources of the Nairobi City County (NCC): in charge of SWM in the city (street sweeping, collection, and final disposal site operation) and preparing the Integrated SWM Plan and SWM Act. The current workforce is 533.</li> <li>● Ministry of Environment and Forestry: in charge of coordination and giving policy direction for national environmental and forestry concerns.</li> <li>● National Environmental Management Authority: in charge of national regulation and control of environmental concerns.</li> <li>● Ministry of Health: responsible for management of medical waste.</li> </ul>

### Technical System

Waste generation amount & characteristics	<ul style="list-style-type: none"> <li>● Waste generation amount: 2,500 tons/day (estimated by multiplying population and waste generation rate).</li> <li>● Waste generation rate in residential area: 0.61 kg/person/day (refer to data in 2010).</li> <li>● Waste collection amount: 800 tons/day (data obtained by weighbridge at disposal site).</li> <li>● Waste collection coverage rate: 72% (estimated with the percentage of waste disposed at the final disposal site).</li> <li>● Waste composition of recyclables (weighted average):             <ul style="list-style-type: none"> <li>» Food 62.4%, plastics 10.9%, papers 14%, metal 0.7%, glass 1.5%, other (textile, ceramic, wood, rubber, leather) 10.5 % (study conducted by professionals, 2010).</li> </ul> </li> </ul>
Storage and discharge/ Collection and transportation/ Road sweeping	<ul style="list-style-type: none"> <li>● The private sector participates in provision of waste collection, sweeping services, and disposal site operation. However, they are not working well because their activities are not stringently monitored by the authority, they are not paid according to the contract, and the contractor doesn't provide adequate resources.</li> <li>● There are over 4,000 waste pickers at the final disposal site. There are also people who collect recyclables from waste collection points and are involved in the pre-processing and re-use of recyclables.</li> <li>● The community is informed about how to discharge waste (e.g. collection day and time), separation of waste, and the hazards associated with mismanaged waste through public consultation meetings and waste collection service providers.</li> <li>● A road-sweeping service is provided by the city in the city centre and major public areas.</li> <li>● Waste is collected three times a week or more in the city centre and twice a week in residential areas.</li> <li>● Separate collection is in place but by individual initiatives.</li> <li>● Hauling distance from the city centre to the disposal site is about 14 km (Location: S 1°14'53.9" E 36°53'46.7").</li> <li>● There is no transfer station in the city.</li> <li>● The NCC has one compactor truck of 20 tons capacity, which is non-functional 50% of the time due to irregular maintenance.</li> <li>● The NCC also has other waste collection trucks (13 15-ton tippers, 29 6.5-ton side loaders, and 17 four-ton skip loaders). Of these, 44% are functional and 56% are non-functional due to inadequate maintenance, scarcity of spare parts, and frequent breakdowns as a result of the poor state of the final disposal site.</li> <li>● The NCC has 13 dump trucks, of which 50% are non-functional due to inadequate maintenance, scarce spare parts and poor state of the final disposal site.</li> <li>● The NCC has 47 other trucks of different types for the transportation of waste, of which 32% are functional but 68% are non-functional due to inadequate maintenance, scarce spare parts, and poor state of the final disposal site.</li> </ul>

Item	Outline
Intermediate treatment/ Recycling	<ul style="list-style-type: none"> <li>● There is no Materials Recovery Facilities (MRFs) nor composting facility in the city.</li> <li>● Self-disposal at home exists, and includes open burning, animal feeding, composting, burying, and selling recyclable materials to recyclers.</li> <li>● There are many waste sorting sites.</li> <li>● There are many licensed recycling firms.</li> </ul>
Final disposal	<ul style="list-style-type: none"> <li>● There is one designated dump site managed by the NCC: <ul style="list-style-type: none"> <li>» Location: S 1°14'53.9" E 36°53'46.7".</li> <li>» Capacity: 1.8 million m<sup>3</sup>.</li> <li>» Operation hours: 24 hours.</li> <li>» Waste disposal amount: 800 tons/day.</li> <li>» Data obtained by weighbridge.</li> <li>» Facility: weighbridge.</li> <li>» Operation plan: daily operation plan exists.</li> <li>» Operation: compaction of waste but no covering with soil.</li> </ul> </li> </ul>
<b>Financial system</b>	<ul style="list-style-type: none"> <li>● Total revenue for waste service: KES 106,600,000/year.</li> <li>● Total expenditure for waste service: KES 700,000,000/year.</li> <li>● Amount to be spent per ton of waste: KES 1,850/ton.</li> <li>● The NCC charges independently waste collection fee.</li> <li>● Tipping fee of KES 100/ton is charged.</li> </ul>
<b>Environmental and social considerations</b>	<ul style="list-style-type: none"> <li>● There is a policy or law for supporting the informal sector through the provision of job opportunities and empowerment of youth and women groups.</li> </ul>
<b>Donor support</b>	<ul style="list-style-type: none"> <li>● The European Union Delegation is supporting a pre-feasibility study for Energy-from-Waste as of 2018.</li> <li>● The World Bank is supporting Consultancy on Solid Waste Management in Kibra informal settlement and 3R and Composting in Nairobi County.</li> <li>● Danish Government through Danish Embassy provided Funding and and Technical support on Strategic Sector Corporation on Green and Circular Economy for Industries in Ruaraka Sub-County.</li> <li>● Japan International Cooperation Agency supported Capacity Development of SWM of Nairobi City</li> </ul>
<b>Areas for improvement (in order of priority)</b>	<ul style="list-style-type: none"> <li>● Financial issues: Inadequate funding for proper solid waste management, particularly in collection, transportation and final disposal.</li> <li>● Institutional issues: Need for independent institutional management of solid waste through an established company.</li> <li>● Technical issues: Need to build the technical capacity of staff.</li> </ul>

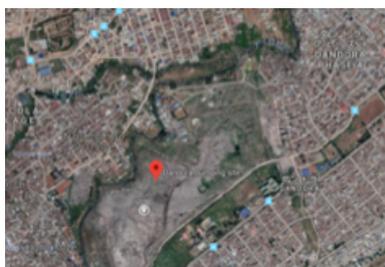
### Waste Amount at Each Stage of Waste Flow\*

Waste flow	Amount ** (ton/day)	Remarks
① Waste generation	2,500	Waste generated at houses, offices, shops, restaurants, etc.
② Discharge to collection	N/A	Waste discharged for collection services.
③ Self disposal	N/A	Disposal at generation sources, such as burning and burying.
④ Recycling at source	N/A	Reuse of materials, composting, sold to recyclers.
⑤ Collection and transport	800	Waste amount collected and transported.
⑥ Clandestine dumping	N/A	Waste illegally disposed of in unknown location.
⑦ Treatment	N/A	Material recycling, composting, incineration, etc.
⑧ Recycling/Reduction	N/A	Recycled and/or reduced waste amount by material recycling, composting, incineration, etc.
⑨ Residue	N/A	Residue from treatment facilities.
⑩ Final disposal site	800	Waste amount brought into disposal sites.
⑪ Recycling	N/A	Recycled at disposal sites.
⑫ Final disposal	N/A	Waste amount finally disposed of at disposal sites.

\* Based on the waste flow chart on page.

\*\* Figures include estimated value.

### Location of Waste Management Facility and Related Photographs:



Final Disposal Site (coordinates: S 1°14'53.9" E 36°53'46.7")