

## ADDIS ABABA, ETHIOPIA



POPULATION  
**5.7 mil.**  
Inhabitants (2024)

### Operational Improvement of Disposal Site

The Koshe-Reppie Dumpsite Rehabilitation Project was introduced in 2018, following the fatal collapse of the landfill at Koshe in March 2017.

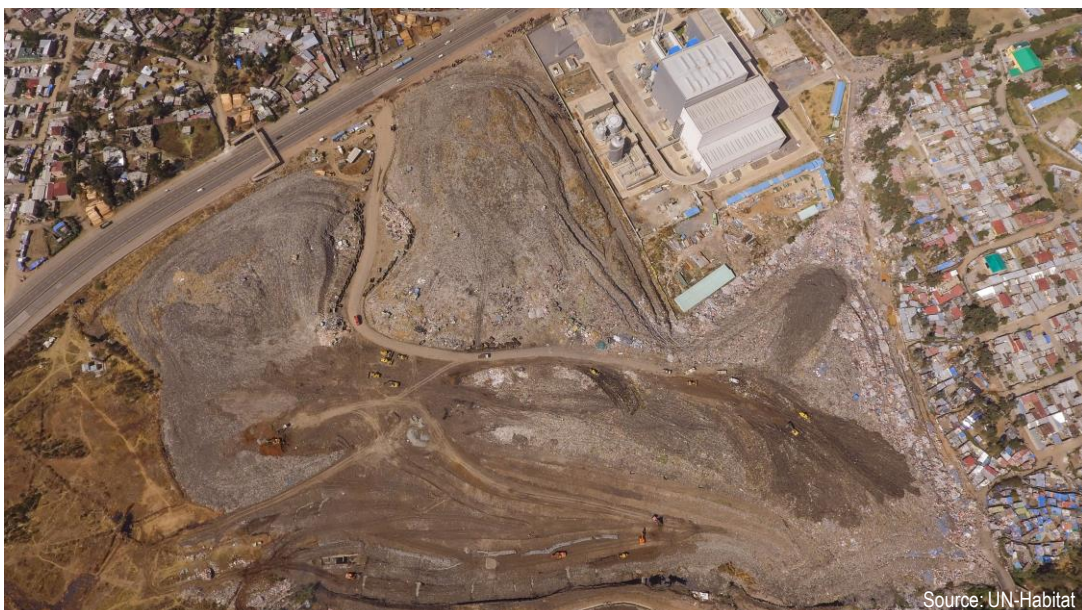
The rehabilitation project, initiated in 2018, was made possible through the financial and technical support of the Government of Japan, amounting to USD 2.4 million, and active involvement from the Addis Ababa City Administration and the UN-Habitat. This 36-hectare landfill, which had served the city for over half a century, witnessed a transformation driven by international cooperation, increasing its control level from no control, to limited control, as defined by the Waste Wise Cities Tool (WaCT) methodology.

Central to this transformation was the implementation of the 'Fukuoka Method,' a sustainable landfill and solid waste management system. This ingenious technique, developed in Japan by Professor Yasushi Matsufuji of Fukuoka University, had garnered global recognition for its simplicity and cost-effectiveness. The 'Fukuoka Method' operates on a semi-aerobic landfill concept, effectively transitioning from anaerobic to aerobic conditions. This transition is pivotal in accelerating waste decomposition while simultaneously mitigating the generation of methane gas, a potent contributor to climate change. The project featured additional ingenious solutions, such as compacted roads to facilitate water runoff and reduce water leakage through the waste. A gas venting pipe system was also integrated, lowering the heat levels within the decomposing waste, thereby reducing its environmental impact.

Between 2017 and 2019, the dedicated team working on the project successfully rehabilitated 19 hectares of land. At present, out of the total 36-hectare area, 10 hectares are actively utilized for waste disposal operations, while 19 hectares are equipped with a landfill gas flaring system. This essential system works to minimize the environmental consequences associated with landfill waste decomposition.

The Koshe-Reppie Dumpsite Rehabilitation Project is the result of international collaboration and the innovative potential of waste management solutions. Confronting a longstanding environmental challenge, this endeavor has reinvigorated a landfill that once posed significant environmental and health problems. Thanks to the implementation of the 'Fukuoka Method' and the collective efforts of governments and organizations, an environmental crisis has been transformed into a narrative of resilience and revitalization.

Today, this project serves as an example for sustainable waste management in regions worldwide grappling with similar issues.





## IMPACTS TO ACHIEVE SDG 11.6.1

- The operational control level of the disposal facility went from “no control” to “limited control”.
- Access road creation – compaction of roads to allow access of heavy machinery and vehicles; rainwater can run on the surface and leachate volume is reduced
- Gabion Structure – a stone structure was installed at the bottom terrace of the facility which acts as a blockage and prevents landslides
- Gas venting pipe system – uses the decomposition heat inside the landfill body to intake more oxygen into the landfill body and create aerobic decomposition, thus reducing methane emissions
- Leachate treatment and management introduced
- Covering disposed waste with bottom ash is introduced
- Regular inspections have been observed
- Informal Waste Collectors Training and Discussions were organised
- Organic waste treatment – composting is introduced



## INSTITUTIONAL SUSTAINABILITY

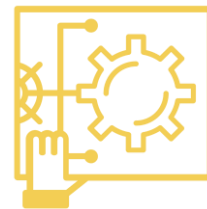


The Federal Environmental Protection Agency’s Solid Waste Management Proclamation 513 (2007) lays the legal framework for Ethiopia’s solid waste management policies and responsibilities, and the Addis Ababa Cleansing Management Agency (AACMA) is the responsible unit of Addis Ababa’s municipal solid waste management. With the request of Addis Ababa city administration, UN Habitat Ethiopia had implemented the Koshe/Reppie disposal site rehabilitation project using the Fukuoka method in between 2018 and 2020. The project (1) reduced the immediate and high risk of further collapse and slides of the Koshe dump site through improved operation and management of the site; (2) stabilized and improved the most critical areas of the dump site to reduce the environmental risks and negative impact on the surrounding 100,000 residents and the entire city’s population; and (3) provided technical support to Addis Ababa City through implementation of the project and capacity development through on-the-job training of the city administration staff, site workers, heavy vehicle operators, waste vendors and pickers.

## PLANNING & MONITORING

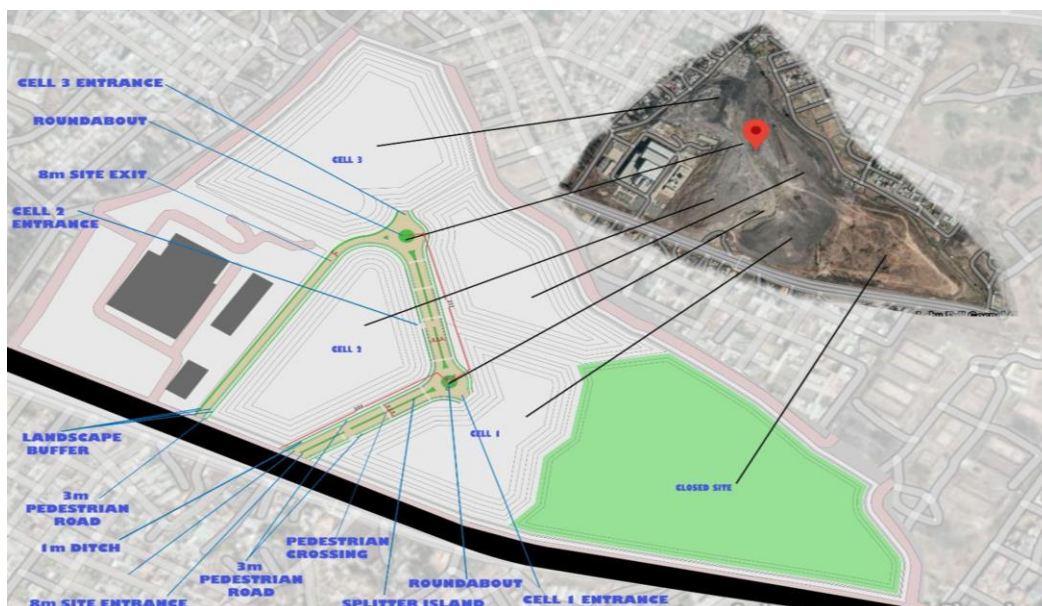


With the financial support secured from the French government, Sendafa Sanitary Landfill was constructed and opened in February 2016, being located 30 kilometers to the Northeast away from Addis Ababa in the Oromia Special Zone. Following the new landfill opening Koshe disposal site was closed after 53 years of operation. Due to some historical reasons, it re-opened, and a monitoring survey of the landfill’s operational control level was conducted through the UN-Habitat’s SDG 11.6.1 survey using the Waste Wise Cities Tool (WaCT). Currently, the city keep using Koshe disposal site, which is estimated with 3-4 years remaining.it.



## APPROPRIATE TECHNOLOGY

- To improve the level of control of the waste disposal site operation the Fukuoka Method was adopted.
- It is operationally sustainable and replicable, as the Fukuoka Method has garnered global recognition for its simplicity and cost-effectiveness.



Source: Addis Ababa City Solid Waste Management Agency

## FINANCIAL SUSTAINABILITY



The primary source of revenue for municipal solid waste management comes from the water bills paid by households. The Addis Ababa City Administration introduced a major reform of the OPEX financing system in February 2010, that stimulated a massive expansion of collection service coverage. The reform introduced an indirect revenue collection from waste generators, linked to the water bill, with percentage surcharges differentiated between communal water points, households and commercial. Currently, Out of the AACMA's annual operational expenditure (OPEX) for waste management service, it is accounting 7.5% of total amount for "Landfill". The expenditure for landfill management is lower compared to other items such as "Waste Collection".

## STAKEHOLDER INVOLVEMENT / INCLUSION OF INFORMAL WASTE SECTOR



The main actors/stakeholders in this initiative are the Addis Ababa City with the support of UN-Habitat, funded by the Government of Japan. When the Fukuoka method installed, it is always provided technical support to the city through implementation of the project and capacity development through on-the-job training of the city administration staff, site workers, heavy vehicle operators, waste vendors and pickers. This way, important stakeholders has been continuously involved in the initiative to improve the disposal facility. Especially, one of the programme under Fukuoka method installment, informal waste collectors training and discussions were conducted.

## SOURCES



- Addis Ababa City Solid Waste Management Agency, Ephram Sisay - <https://drive.google.com/file/d/1RBiFM0d6SN-HDlyPC5yblX8xjslfjAGt/view?pli=1>
- UN-Habitat - <https://unhabitat.org/news/05-jul-2019/after-the-tragic-landslide-that-killed-116-koshe-landfill-in-addis-ababa-is-safer> ; [https://www.youtube.com/watch?v=qk59ycumyfs&t=344s&ab\\_channel=UN-HABITATWORLDWIDE](https://www.youtube.com/watch?v=qk59ycumyfs&t=344s&ab_channel=UN-HABITATWORLDWIDE) ; [https://unhabitat.org/sites/default/files/2022/07/addisababa\\_en.pdf](https://unhabitat.org/sites/default/files/2022/07/addisababa_en.pdf)
- London School of Economics - <https://www.lse.ac.uk/Cities/Assets/Documents/RRR/RRR-field-report-01-Addis-Ababa.pdf>
- French Development Agency - <https://www.afd.fr/en/carte-des-projets/new-sanitary-landfill-addis-ababa>
- NUA Campus - <https://nuacampus.org/llcu/africa-waste-webinar-series-towards-clean-healthy-and-circular-cities-in-africa-webinar-3-how-to-turn-open-dumpsites-to-controlled-waste-disposal-facility-in-african-cities/>
- Semonegna - <https://semonegna.com/koshe-reppie-dumpsite-rehabilitation-project-in-addis-ababa/>



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