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Learning Sustainable And Integrated Municipal Solid Waste Management Systems Through Fukuoka Method

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Fukuoka Method project in, Ethiopia - Overview of the Rehabilitation of Open Dump Sites Through Implementing The Fukuoka Method

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Ethiopia

- located in the Horn of Africa region of East Africa
- The 10th-most populous country in the world, the 2nd-most populous in Africa after Nigeria, and the most populated landlocked country on Earth
- Addis Ababa is the capital with its 5 million population, is the seat of important institutions such as the African Union (AU), Economic Commission for Africa (ECA) and more than one hundred embassies and diplomatic missions.



Waste Context : Ethiopia



population of
>120 million



low coverage of solid waste
management service, with formal
collection system picking not more
than 50%



Rapid urbanization coupled with
booming industrialization



Most of the collected waste is not
properly managed

Addis Ababa - The city with its rapid growth rate uses the Koshe/Reppi dump site, which covers an area of about 36 hectares located in a densely populated area, since about 60 years.

- Such overuse of the part of the old dump site that is still active has, led to the catastrophic landslide on **11 March 2017**, provoked by methane-induced explosions, taking more than 113 lives away as houses were built nearby.



Project Details



Name of the project	Emergency technical support to Solid Waste Management (SMW) in Addis Ababa, Bahir Dar and Hawassa cities : Rehabilitation of the Koshe dump site through implementing the Fukuoka Method
Value of project	USD 3 M
Duration of project	Phase I: April 2018 – March 2019 Phase II: April 2019 - July 2020 Phase III -
Partners	Addis Ababa, Bahir Dar and Hawassa City Governments; Ministry of Urban Development and Housing, Solid Waste Advisory Network (SWAN) Fukuoka-Japan; Fukuoka University – Japan
Donor	Government of Japan
location	Addis Ababa, Bahir Dar and Hawassa, Ethiopia
A Brief description	<p>The project aimed to contribute to the establishment of resilient, safe, and sustainable environmental administration systems for the cities through the implementation of the Fukuoka Method of Solid Waste Management; specifically, to</p> <ul style="list-style-type: none">i) Emergency rehabilitation of dumpsite -ii) Stabilization of the dumpsite area –<ul style="list-style-type: none">• For both outcomes i) and ii), the Fukuoka Method Solid Waste Management technology applied.iii) Provision of technical support to the Addis Ababa City Government-

Before Project Interventions





Reppie Dumpsite Rehabilitation



Actual field renovation activities were guided on site/virtually by Solid Waste Advisory Network - Fukuoka, an expert group of the Fukuoka Method, implementation technical staffs of UN-HABITAT, City government and peoples from dumpsites (i.e. ex-waste pickers).

Rehabilitation work menu

1. Construction of access road



Rehabilitation work menu (cont.)

1) Creation of safe embankments:

The steep waste cliffs before the intervention were planned to be reshaped into less steep waste embankments

- This construction was critical to avoid another waste collapse. Also, compaction of the embankments and soil coverage were done.



Rehabilitation work menu (cont.)

Gabion: More than 160 pieces of 2m-long gabion have been installed at the bottom terrace to avoid further landslides



Rehabilitation work menu (cont.)

2) Installation of gas venting pipes

The system to reduce methane gas (CH_4) generation and enhance organic waste decomposition were installed at the embankments



Rehabilitation work menu (cont.)

3) Installation of leachate collection pipes



Rehabilitation work menu (cont.)

4) Leachate control and treatment:

A simple leachate treatment system was installed in the leachate treatment pond for enhancing agitation and aeration of leachate (i.e. polluted water from the landfill main body), which promote biological decomposition of organic matters in the leachate



Rehabilitation work menu (cont.)

Greening



After Project Interventions





Lessons-learnt



Fukuoka Method is applicable

Commitment/ Machine / human involvements are essential for daily management

→ No machines + skilled operators + commitment = back to non-sanitary open dumping



Continuous sustainable landfill operation by Fukuoka Method and diffusion/scale up of the method to other cities in Ethiopia

Thank you



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