Addis Ababa City Administration
Cleansing Management Agency

Expected Effects, Challenges and Expectations of Introducing Fukuoka Methods

August 2025
Yokohama, Japan

Historical Evolution as seen from Google map

The Koshe landfill is located on the southern outskirts of Addis Ababa, the capital of Ethiopia.

Repie landfill as of 2016/17 before the Fukuoka

- Repie Koshe, the largest landfill in Addis Ababa, the capital of Ethiopia, has a long history, serious garbage accumulation, and has also experienced serious landslides.
- The landfill has been used for landfill since the 70s of the 20th century, and for more than 50 years, the vast majority of domestic waste in Addis Ababa has been dumped here, forming a garbage mountain more than 30 meters high.

Overview

- Long-term landfill occupies a large amount of land, and also leads to the pollution of groundwater and the surrounding environment, which is not conducive to the improvement of the ecological environment and
- the comprehensive utilization of resources, and also has a great impact on the lives of surrounding residents, such as emitting foul odors, breeding bacteria and mosquitoes, etc.。

Fukuoka Implementation and ACCP members Study tour atRepie Koshe Landfill (2018)

Effects of Introducing the Fukuoka Method

- **Improved Leachate management and Control**
  - Enhanced aerobic decomposition minimize harmful pollutants in leachate,
  - Reduced contamination of groundwater and nearby rivers.
- **Contribution to reduction of Methane Emissions**
  - Encourages aerobic over anaerobic decomposition, significantly reducing methane (CH_4) generation, a potent greenhouse gas.
- **Accelerated Waste Stabilization**
  - Faster decomposition of organic materials helps stabilize the landfill In a shorter time frame
- **Reduced Fire and Explosion Risks**
  - Controlled gas ventilation prevents dangerous gas build-up, lowering the risk of subsurface fires and slope failures.

Expected Effects .....

Staff facility at Repie Landfill

- **Lower Odors and Vector Control**
  - Fewer foul-smelling gases and reduced breeding grounds for flies and pests improve nearby community health.
- **Cost-Effective Modernization**
  - Utilizes locally available materials and simple construction techniques for retrofitting existing dumpsites.
- **Improved Public Perception and Safety**
  - Enhances the landfill's image from a hazardous dump to a safer, managed facility.
- **Scalability and Adaptability**
  - Can be adapted to various landfill scales (small, medium, large).
  - Appropriate for regions with limited technical and financial capacity.

Effects

- **The roads near the landfill are in poor condition, the road surface is potholed and dusty, in stark contrast to the surrounding environment**

Challenges

- **Technical Knowledge and Capacity**
  - Lack of trained engineers, landfill operators, and technicians familiar with semi-aerobic design and maintenance.
  - Need for capacity-building programs.
- **Initial Infrastructure Requirements**
  - Installation of perforated gas vent pipes and drainage systems requires some investment and proper site design.
  - Retrofitting old open dumps may be structurally complex.
- **Operation & Maintenance (O&M) Challenges**
  - Requires continuous monitoring of gas and leachate flows.
  - Neglect or poor maintenance can lead to underperformance.
- **Policy and Institutional Gaps**
  - Absence of regulatory frameworks or standards for semi-aerobic landfill management.
  - Weak enforcement or coordination among environmental and urban authorities.

Challenges ….

- **High Rainfall and Poor Drainage**
  - Seasonal rains increase leachate generation; site reshaping and drainage control will be essential.
- **Lack of Waste Segregation**
  - Non-biodegradable and hazardous materials in the waste stream reduce efficiency of aerobic decomposition.
- **Financial Constraints**
  - Even though low-cost compared to engineered landfills, pilot and scale-up require dedicated and consistent funding.
- **Limited Local Technical Capacity**
  - Requires training for landfill operators, engineers, and monitoring staff.
- **Social Considerations**
  - Needs social safeguards for waste pickers and surrounding communities affected by landfill modernization.

Expectations

- **Technical Support and Knowledge Transfer**
  - •Share practical guidance, training modules, and case studies from other African and Asian cities that have implemented the Fukuoka Method.
- **Capacity Building**
  - •Facilitate hands-on training for engineers, landfill managers, and municipal staff on semi-aerobic landfill design, operation, and monitoring.
  - •It could also be institutional capacity
- **Policy and Institutional Guidance development**
  - •Provide model policies, legal frameworks, and operational standards for integrating Fukuoka Method into national and city waste strategies.
- **It cold also be a kind of Grant cooperation especially for landfill machineries**

Expectations …..

❑Facilitation of International Partnerships

•Connect Addis Ababa with Japanese and other international partners (e.g., JICA, universities) for technical cooperation and funding.

❑Support for Pilot Project Implementation

•Assist in mobilizing funds, expertise, and equipment for a demonstration cell at Koshe or a secondary landfill.

❑Networking and Peer Learning

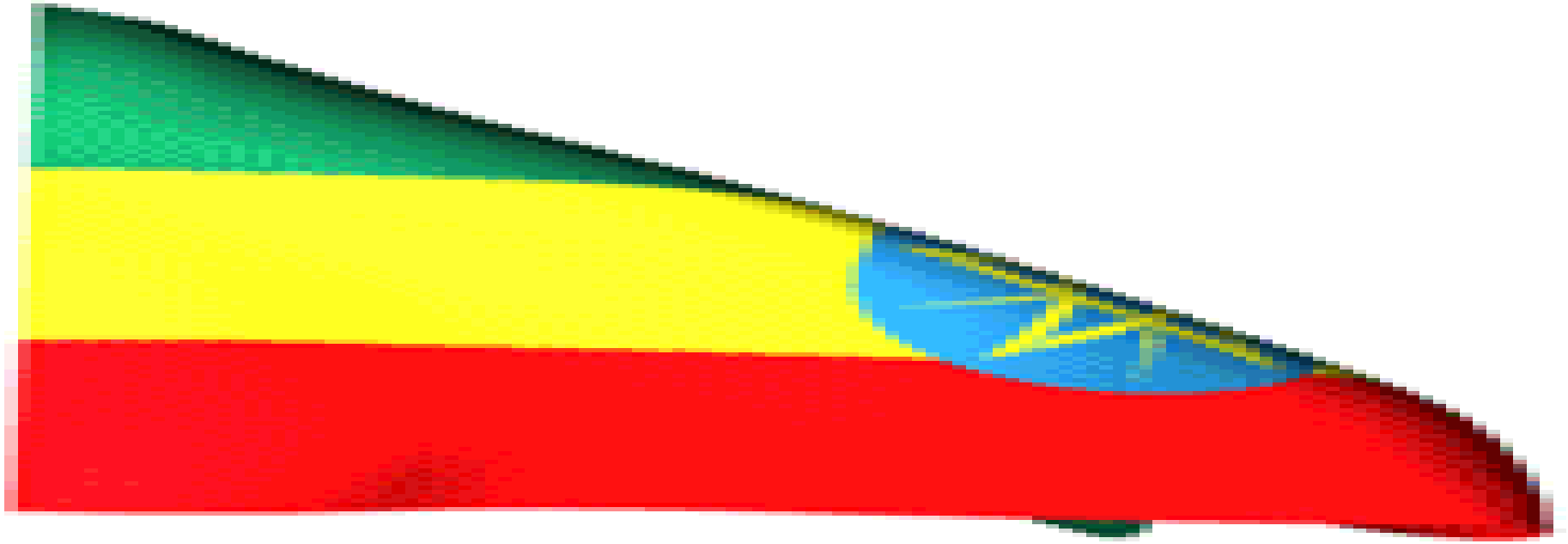
•Create opportunities for Addis Ababa to exchange experiences with other African cities facing similar waste management challenges.

❑Monitoring and Evaluation Framework

•Provide tools and indicators to track methane reduction, leachate quality improvements, and waste stabilization progress.

❑Integration of Informal Sector

•Formalize waste picker roles with controlled access, PPE provision, and alternative livelihoods, leveraging their expertise for smoother operations and community trust.



THANK YOU
ARIGATOGOZAHIMAS