2nd General Meeting of the African Cities Platform (ACCP)
August 27, 2019 in Yokohama, JAPAN

Rehabilitation of Landfill Site by” Fukuoka Method “
in Addis Ababa, ETHIOPIA

Emer.Prof. Yasushi Matsufuji (Fukuoka University)
Mechanism of Semiaerobic Landfill Type (Fukuoka Method)
Advantages of Fukuoka Method

1. Low Cost
2. Simple
3. Eco-Friendly

1. Title: **NM0333**: Avoidance of landfill gas emissions by passive aeration of landfills
2. Approved date by UNFCCC: **July 15, 2011**
3. URL: [http://cdm.unfccc.int/EB/index.html](http://cdm.unfccc.int/EB/index.html)
Dr. Matsufuji’s site visit after the disaster
Koshe/Reppie dumpsite and its landslide in March, 2017

Dumpsite area: 40ha

Collapse area
Past management

- Embankment was too steep (over 45 degrees)
- Rainfall causing instability in sustentation
- Leachate drainage was not installed at the end of the slope
- Insufficient compaction on the embankment
March, 2017

Rescue work

disaster

Victims and the families
Proposed Rehabilitation Plan

- Building safer and secure slope by embankment compaction
- Early stabilization of the dump layers by installment of gas ventilation pipes
- Establish leachate draining functions with gabion

Image of completed embankment

Vegetation on steps

The embankment before collapse

Gas ventilation pipes

- By drums
- By used tires

Fixing slopes

Leachate collection pond

○ Building safer and secure slope by embankment compaction
○ Early stabilization of the dump layers by installment of gas ventilation pipes
○ Establish leachate draining functions with gabion

Gas ventilation

1:1 (45°)

1:2 (27°)
Completion Drawing of Improvement and stabilization of landslide area of Koshe Dump Site
Construction Period: JUL 2018 – FEB 2019

Gas venting pipe

Pipe (Ø 200)
(Perforated pipe)
Perforated drum
(Cobble stones)

Gas venting pipe connected to
Leachate collection pipe

Leachate collection pipe

Leachate ditch

Gabion

Leachate control pond

Designed by NPO SWAN-Fukuoka
Main task: Emergency improvement of Reppie dumpsite
Before the project intervention (June, 2018)
During the project intervention (October, 2018)
After the project intervention (March, 2019)
Improvement of Access road
Gas venting system by Fukuoka Method
Gabion for Landslide Counter-Measures
Leachate drainage pipe by Fukuoka Method
Low Cost Leachate treatment pond
Leachate treatment facility by Eco-Fan

ECO-FAN: aeration system by natural air
Possible Leachate Treatment Measures

原始水

混凝沉降
Current view form nearby community
Vegetation sprouting by effect of Fukuoka Method
Our work team members
Ways forward

Continuity of the project (to Phase 2)

Further improvement of leachate treatment

More capacity development of site daily management

More capacity development for site work safety

Koshe → Konjo

From Dirty Dump Site to Beautiful Eco Park
Toward Night Collection

Time and Motion Study on Solid Waste Collection System in Kiambu County Kenya

by JICA,(NPO)SWAN-Fukuoka, SWAN-Kiambu
Message for ACCP

Fukuoka System is a road to SDGs

Fukuoka System =

* Fukuoka Method (Landfill)
+ * Night Collection
  (Collection and Transportation of Waste)
+ * Capacity Building
Success of Fukuoka Method Transfer is a road to ★ Peace ★ Friendship & Sustainable Society by Fukuoka Method & SWAN-Fukuoka (Solid Waste Adviser Network)

Win-Win Strategies for Conservation of Environment
Thank you very much
Arigato gozaimasu!!