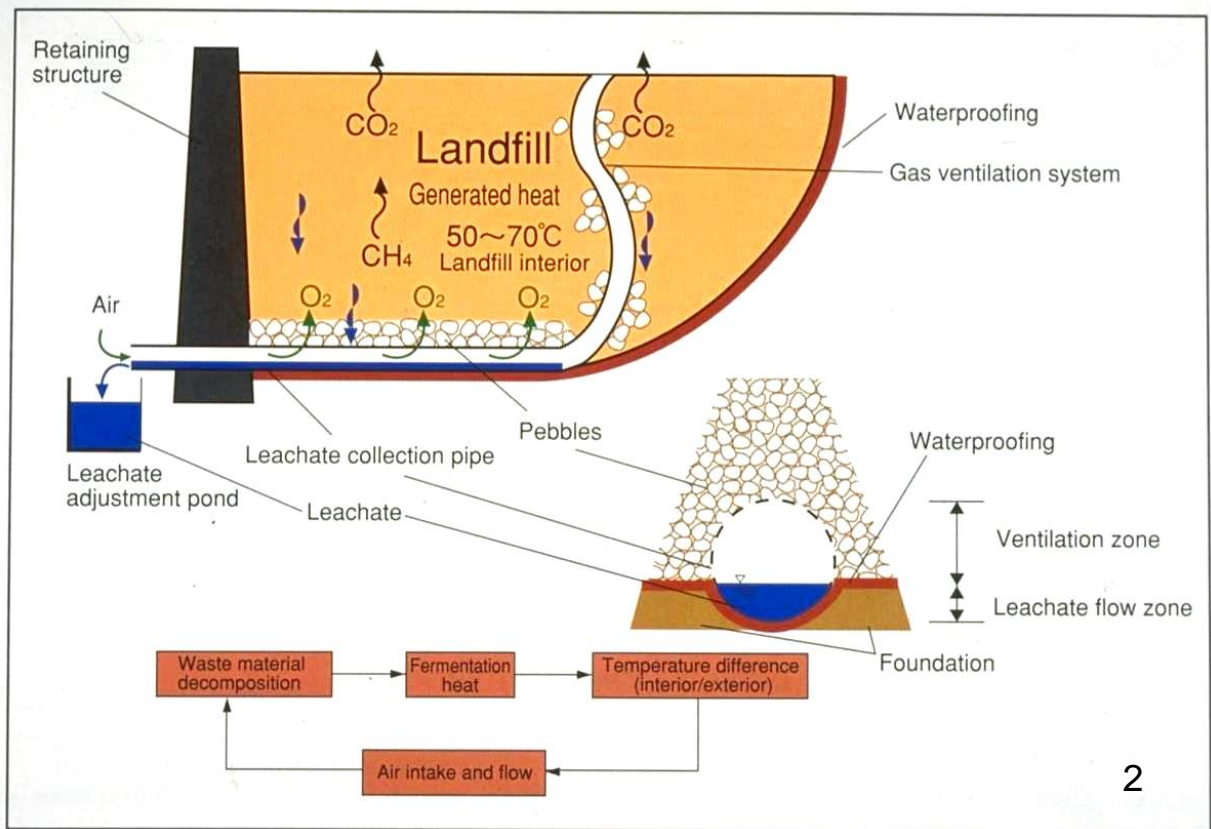
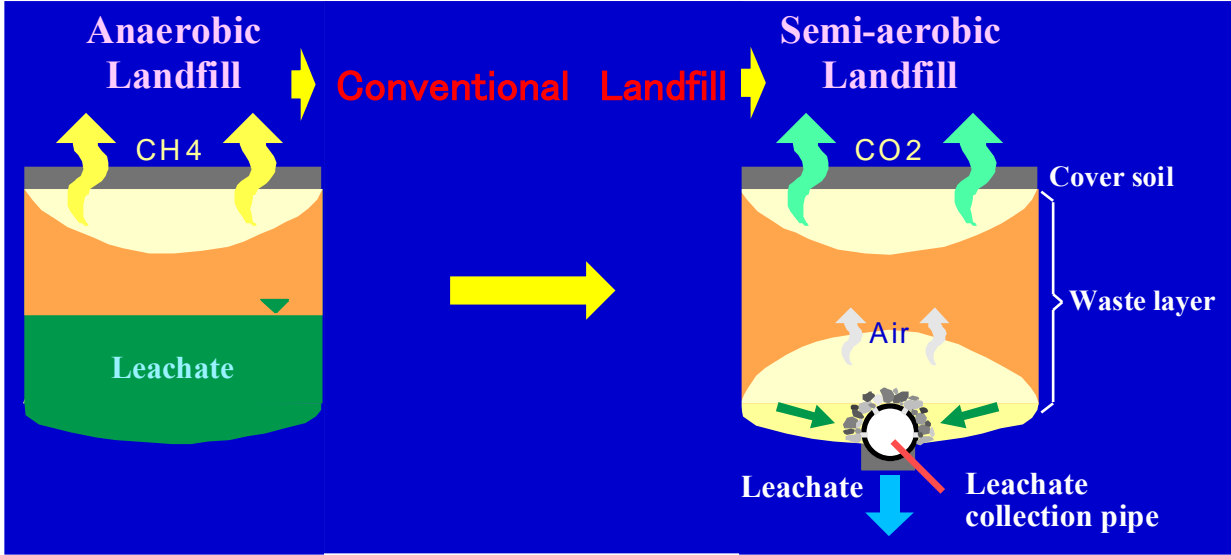


2nd General Meeting of  
the African Cities Platform (ACCP)  
August 27, 2019 in Yokohama, JAPAN

# 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>**





## Dr. Matsufuji's site visit after the disaster

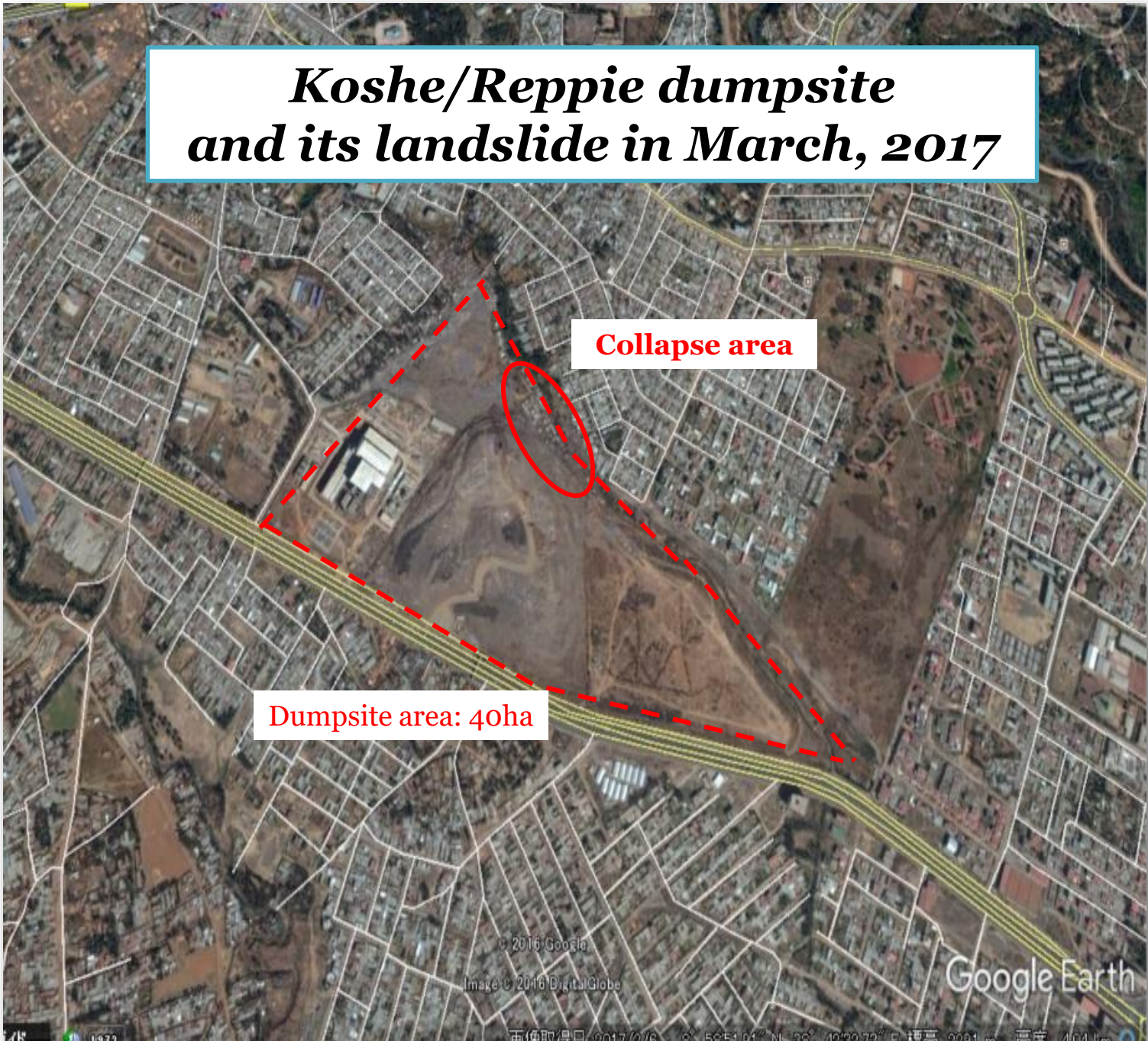




# *Koshe/Reppie dumpsite and its landslide in March, 2017*

**Collapse area**

**Dumpsite area: 40ha**



## Past management

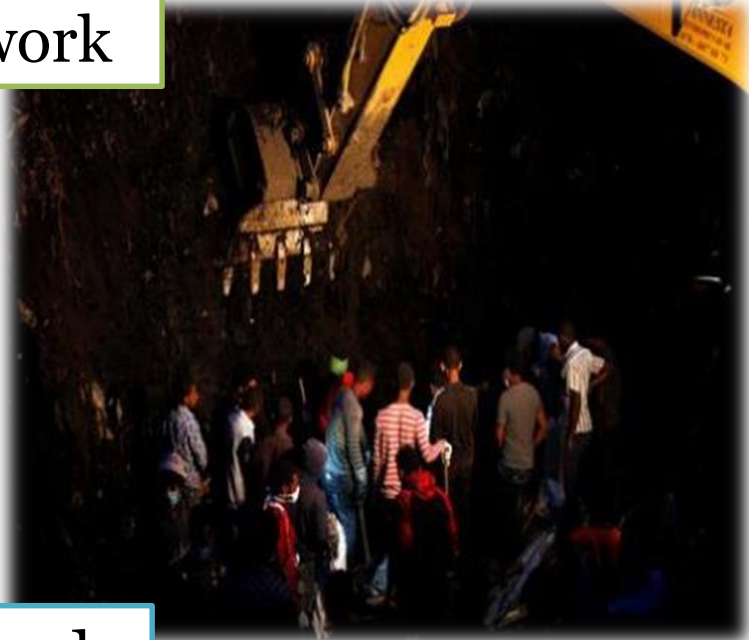
- Embankment was too steep (over 45 degrees)
- Rainfall causing instability in sustention
- Leachate drainage was not installed at the end of the slope
- Insufficient compaction on the embankment





**March,  
2017  
disaster**

Rescue work



Victims and  
the families













# Proposed Rehabilitation Plan

Image of completed embankment

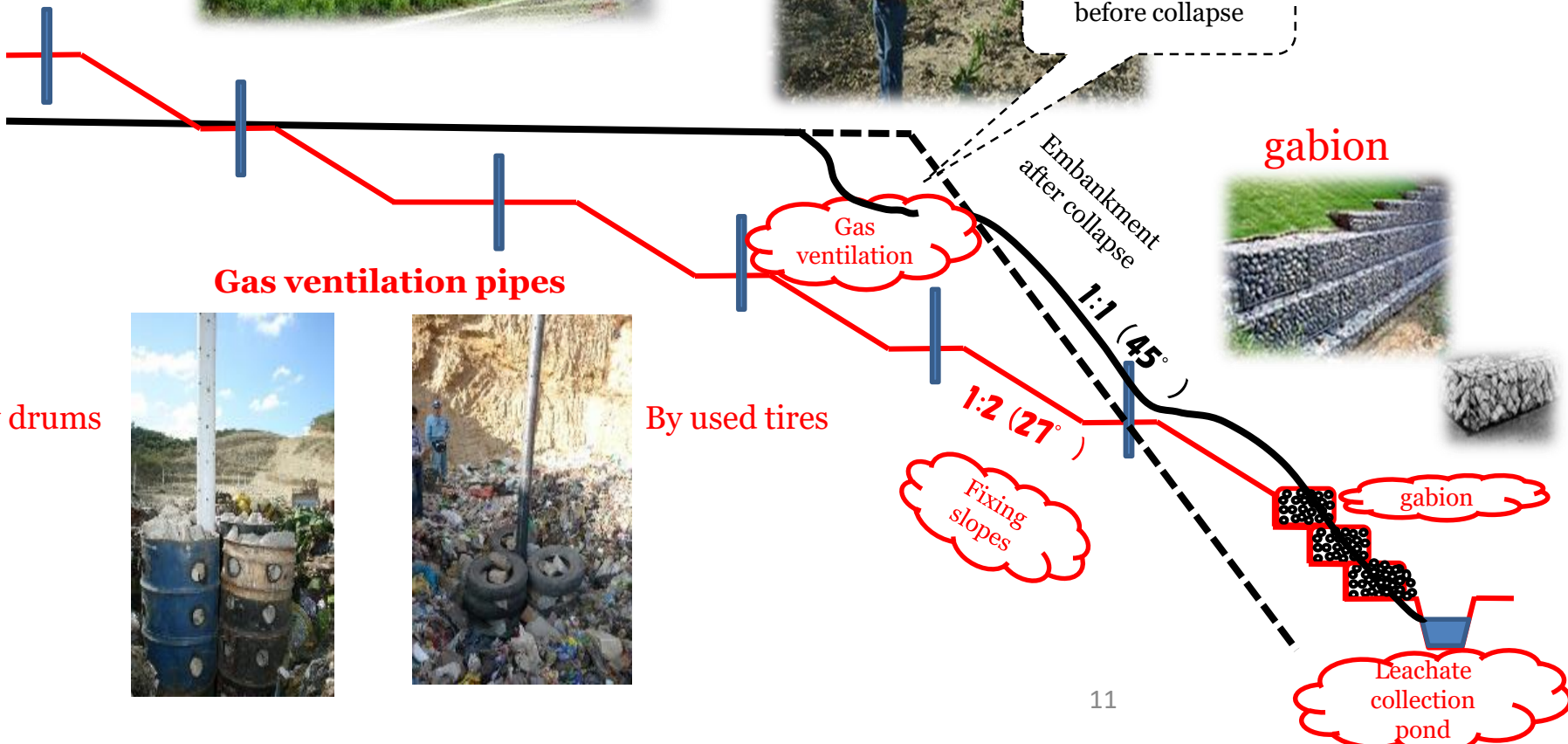


- Building safer and secure slope by embankment compaction
- Early stabilization of the dump layers by installment of gas ventilation pipes
- Establish leachate draining functions with gabion

Vegetation on steps

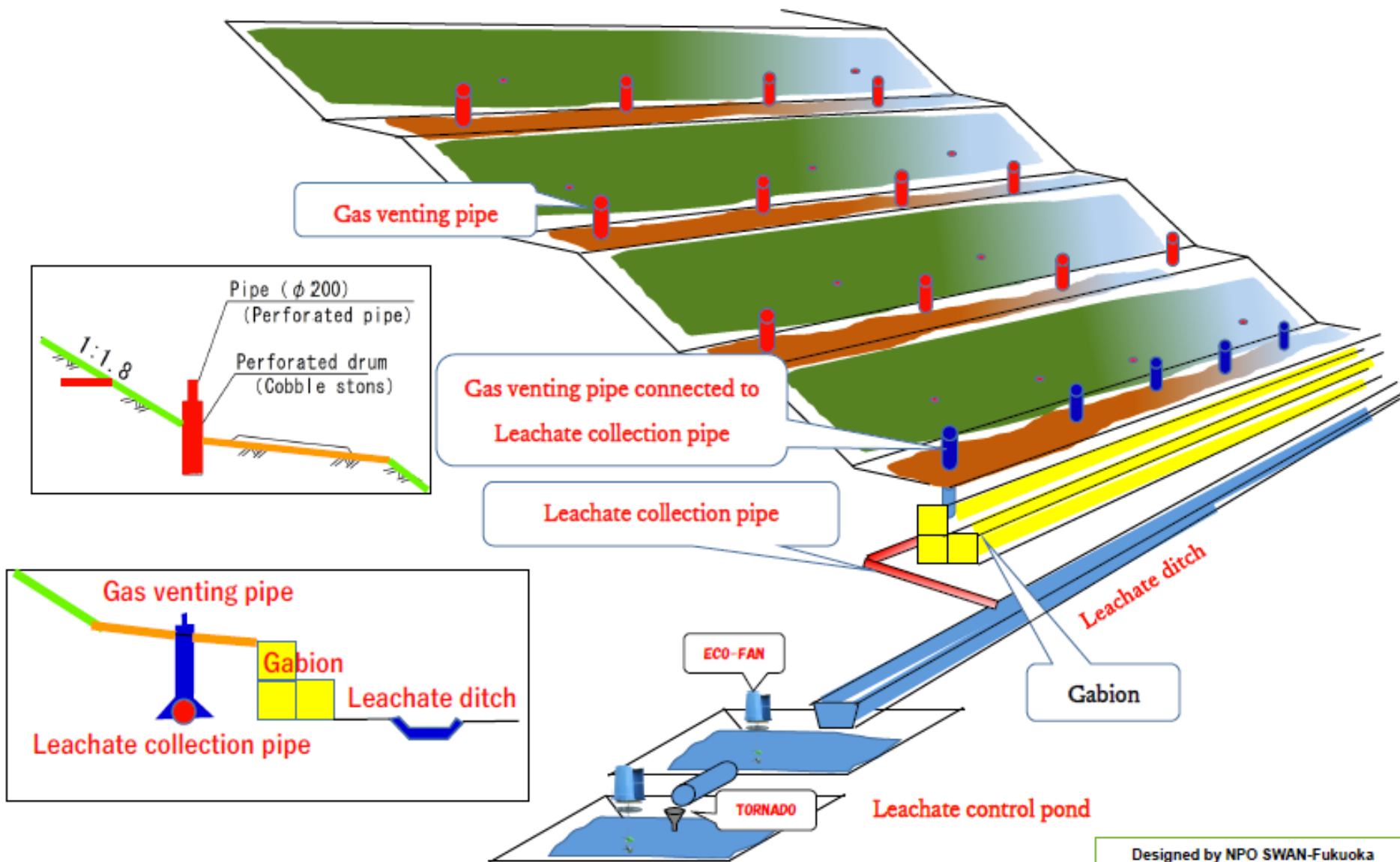


The embankment before collapse



# Completion Drawing of Improvement and stabilization of landslide area of Koshe Dump Site

Construction Period : JUL 2018 – FEB 2019

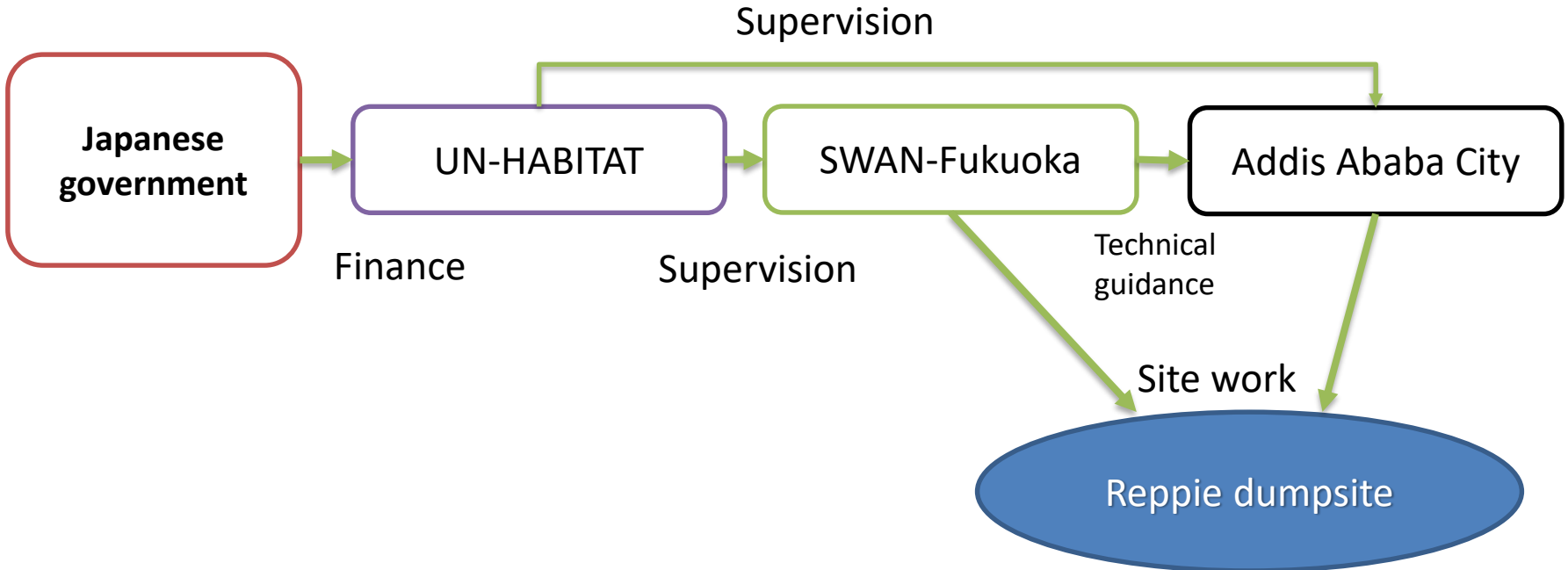


Designed by NPO SWAN-Fukuoka



# Reppie dumpsite improvement project (2018-)

■ 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



工チバア

原水

凝沈液



# Current view form nearby community





Recent view: July 2019







**Vegetation sprouting by effect of  
Fukuoka Method**



# Our work team members



28





# 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







# Fukuoka System is a road to SDGs

## Fukuoka System

=

\* Fukuoka Method(Landfill )

+

\* Night Collection

(Collection and Transportation of Waste)

+

\* Capacity Building



# Conclusion

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!!***

