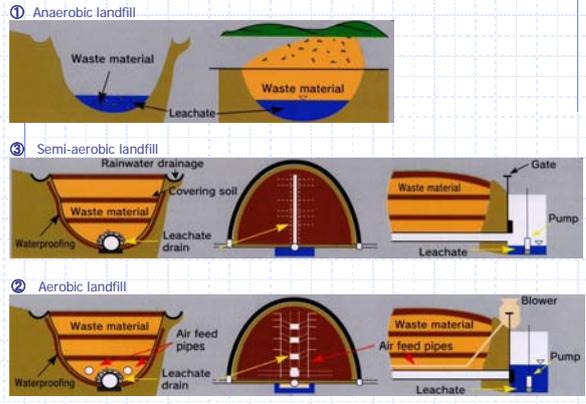


# The Fukuoka Method Semi-aerobic Landfill Type

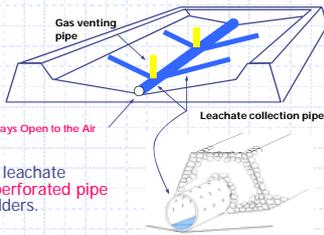


10/Feb/2010. Environment Bureau, Fukuoka Municipal Gov.

## Landfill Type



## Structure of Semi-aerobic Landfill Type (Fukuoka Method)



- Leachate is collected in a leachate collection pond through **perforated pipe** embedded in graded boulders.
- As the outlet of main leachate collection pipe is **always open to air**, fresh air is down into the layers thereby introducing an aerobic condition around the pipes.

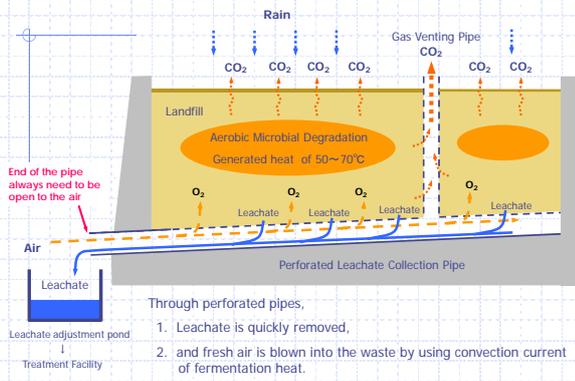
Leachate means the waste water



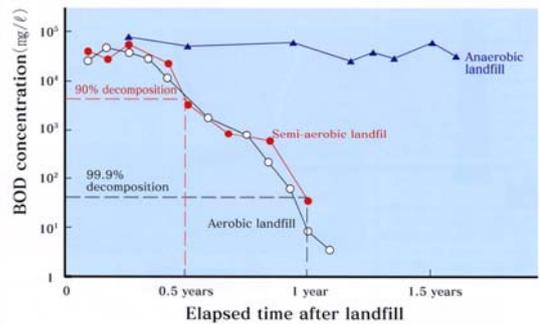
## Perforated pipe and protection rocks / case example in Samoa



## Function of Semi-aerobic Landfill Type (Fukuoka Method)



## Change of the water quality (BOD consistency)





### Advantages of the Fukuoka Method

1. **Low degree of technical demand** and machines and devices, and ease of operation and maintenance.
2. **Decrease in the load of waste water contamination** by the quick drainage of waste water.
3. Contribution to the **prevention of Global Warming** by control of the discharge of methane gas
4. **Early stabilization** of landfill ground by promoting waste bio-degradation.
5. **Wider alternatives** of material for construction and lower cost of the construction.

### After land use

Since decomposition is fast, the landfill which using Fukuoka Method can be used for another purpose after landfill in short period.



Imazu athletic park



School for handicapped children



Imazu farming park

### Improvement of landfill in foreign countries



Weifang City / China



Islamic Republic of Iran



Samoa

### Examples of using local materials

- Bamboo and waste tire for Leachate collection pipe
- Waste drum for gas venting pipe



Malaysia



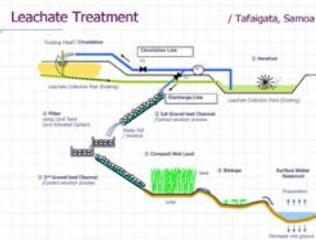
China



Mexico

### Leachate treatment in Samoa

Simplified leachate treatment system combined with biological and filtering treatment has been set.



Improved water after one month operation



### Leachate treatment in Samoa



Aerator



Circulation column with trickling filter



Filter bed using coral tip and coconut husk activated carbon



Locally available coral tip for filter and porous lava rocks for bacteria bed



Hydrophytes in the compact wetland absorb Nitrogen and Phosphorus



Thank you