Toward Appropriate Technology Transfer of the “Fukuoka Method”
(Semi-aerobic Landfill Concept)

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Topics:

1. Basic Concept and Mechanism of F.M.
2. Case-study of overseas technical transfer
3. Importances of daily landfill O/M
4. Conclusion
Open Dumping of Landfills in Fukuoka (1971)
Semi-aerobic Concept

“If Landfill is under aerobic condition, Landfill have not only dumping function but also treatment function”

Advantages

1. To reduce Pollutant of Leachate
2. To reduce Methane Emission
3. To reuse & recycle Completed Landfills

Low Cost, Simple, Eco-Friendly
Advantages of F.M

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)
Mechanism of Semi-aerobic Landfill Type

Comparing with the conventional landfill, the semi-aerobic landfill introduces air and leachate collection pipes to enhance the decomposition and leachate treatment levels. The semi-aerobic landfill introduces air to the landfill while maintaining some anaerobic conditions, promoting more thorough decomposition. The leachate collecting pipes facilitate the effective collection and treatment of leachate, reducing its environmental impact.
Intergrated Sanitary Landfills based on Fukuoka Method

Reuse of Completed Landfills in Fukuoka
Transfer Technology to Developing Countries based on Fukuoka Method

On going 21 pilot projects
Low-cost Leachate Treatment system in Malaysia
Lack of 6Ms
(Money, Manpower, Material, Maintenance, Management, and Motivation)

Low Cost, Simple and Eco-Friendly Training
Improvement Process by F.M from Open Dumping to SLF

Malaysia

1988

1992

1996

2000

2003
Case-study based on F.M in Iran
Case-Study in China
Pilot Project by F.M and Leachate Treatment in Vietnam

Eco-Fan

Tornado Treatment Facility
夜を徹しての作業
泣き叫ぶ人々
惨状
Vegetation sprouting by effect of Fukuoka Method.
Toward appropriate Technology Transfer of Fukuoka Method?

- Daily Operation and maintenance are important

- Step by Step is needed
Conceptual Diagram for the Components of Sanitary Landfill Facilities (Fukuoka Method)

- **Completed Site Zone**
  - Collection Vehicle
  - Recirculation Pit
  - Leachate Control Pit
  - ECO-FAN

- **Existing Site Zone**
  - Working Face
  - Bulldozer
  - Leachate Control
  - Pond
  - Recirculation Pump
  - Embankment

- **Proposed Site**
  - Retention Ditch
  - Buffer Zone
  - Workshop
  - Site Fence
  - Notice Board

- **Management Facility Zone**
  - Access Road
  - Working Face
  - Gas Venting Pipe
  - Landfilled Waste Retaining Bund
  - Tornado Device

- **Leachate Treatment Facility Zone**
  - Leachate Collection
  - Recirculation Pit

Source: NPO SWAN
Wrong Design of Fukuoka Method
A ROAD TO SEMI-AEROBIC LANDFILL TYPE BY FUKUOKA METHOD Vol.0: -Concept and Practices of Fukuoka Method for Technical Transfer to Developing Countries- (English Edition) [プリント・レビュー] Kindle版

Yasuhi Matsui (著) | 形式: Kindle版

This book introduces and explains on the Fukuoka Method which is a technology for waste final disposal site. Because the Fukuoka Method don't require high technology and high cost, it is appropriate for developing countries. And because the Fukuoka Method creates semi aerobic condition inside waste landfill, it has significant effect for reducing pollution level and with no complains from final disposal site
Daily Operation and Maintenance

* Show it to them, Do it together with them and Help them understand it

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* On-site training/ Step by Step/Human resources

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Fukuoka System
Thank You! , Merci! , ありがとう！