



Circumstances surrounding CDM Project

Feasibility Study

Landfill Gas-to-Electricity Project in Thailand



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OBAYASHI CORPORATION



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Company Introduction of Obayashi Corporation

- Business Fields
 - Building construction, Factory/Plant engineering & construction, Civil Engineering, Overseas Business, Environmental Business, etc.
- Founded : Jan. 1892
- Established : Dec. 1936
- Capital : 57,752 Million ¥
- Employees : 10,652 (as of Sep. '02)
- Head Office : Tokyo Japan
- Network
 - Japan : 10 branches
 - Overseas : NORTH AMERICA :5, EUROPE :3, ASIA-OCEANIA :12



Please visit our web site: <http://www.obayashi.co.jp/>



Project Introduction

Landfill Gas to Electricity Project in Thailand



Project Introduction (1/5)

General information

- Type of Project : Landfill Gas to Electricity
- Location of Project: Nontaburi Province, Thailand
- Project Activities :
 - Collection of Landfill Gas (LFG)
 - Generation of Electricity by Recovered LFG
 - Electricity Generated to be fed to the Grid



Project introduction (2/5)

General Information

■ Project Profile

- Landfill Capacity : 1.2 Million ton
 - Receiving of waste: 800 ton/day (2003-2006)
- LFG to Elec. System
 - Capacity : 1,070 kW
 - Well Configuration: Horizontal Well
- Project Duration : 10 years (2007-2016)

Project Introduction (3/5)

Emission Reduction

- Boundary :
 - ER due to LFG Collection & Combustion
 - ER due to Replacement of Electricity
- Baseline :
 - LFG to be Released to the Atmosphere
- Expected ER : Approx. 550,000 CO₂-t
 - Collection & Combustion (90%), Replacement of Electricity (10%)

Project Introduction (4/5)

Preliminary Feasibility

■ Preliminary Feasibility

- w/o CO₂ CR : FIRR 15.51%
- w/ CO₂ CR (@\$3/CO₂-t) : FIRR 29.18%

Return Rates shown are pretty high, but please note,

Costs Excluded in This FS:

- LFG purchase, Land Lease
- Landfill site operation, Waste collection
- Financial Loan
- Expenses associated with CDM application

Project Introduction (5/5)

Summary

Study in 2002

- Indicates Potentiality as CDM Project
- Highlights Issues to be Resolved, such as:
 - LFG Generation/Collection Rates
 - LFG Purchase Cost
 - Landfill Operation, Waste Collection - Plan & Actual Execution
 - Local Rules of Waste Handling (Seamy Side)

Study in 2003 is designed to Resolve Part of Issues.

To Promote CDM Project Findings from FS



- 1) Difficulties Experienced during FS
- 2) Requests from “a” Participant



Difficulties experienced (1/2)

- **Appropriate Person(s) to Contact**

- Finding right / responsible person
- Making appointments

- **Local Information**

Official statistics, Analytical data, Law, Policies, Regulations etc.

- Finding latest and official information
- Language handicap: Most of information in local language

- **Understanding of CDM**

- Finding appropriate “easy to understand” explanatory materials
- Language handicap: No materials in local language



Difficulties experienced (2/2)

- Additional Costs to be Assumed for CDM Projects

| | | |
|----------------------------|-----------|-------------|
| ■ Consultant Fee (NM, PDD) | ??? | US\$ /apply |
| ■ Validation Cost | 2,500,000 | US\$? |
| ■ Registration Fee | 10,000- | 15,000 US\$ |
| ■ Verification Cost | ??? | US\$ /year |
| ■ Others, If any | ??? | US\$ |
| <hr/> | | |
| ■ Total | ??? | US\$ |

<In General>

- Interpretation of Eligibility Conditions as CDM Project
 - Additionality, Sustainability



To Promote CDM Project Requests to Host Country(1/2)

- CDM Guideline/Policy Publication
 - Eligibility Guideline
 - Approval Procedures in CDM Application
- Capacity Building
 - Especially for Officials in working-level
 - Explanatory Materials
Kyoto Protocol, Kyoto Mechanism, CDM in “Local language”


To Promote CDM Project Requests to Host Country(2/2)

- Easy Access to Information
 - Essential/Necessary Data/Document per Project Type
 - with Name of Responsible Office/Organization to Contact for Clarification
 - in International Language (English)
- Cooperation by Local (Provincial Level) Official in Project Area
 - Support by Letter of Introduction from Host/Donor Country Government
 - Assignment System of Appropriate Organization/Officials per Project Type, Area

To Promote CDM Project Requests for CDM in General



- “Easy-to-Use” CDM Application Guidelines
- Information on Additional Costs to Execute CDM Projects
<for example>
 - Cost Data of CDM Projects/FS supported/subsidized by Government Organization such as GEC, NEDO
 - Data to be Categorized per Project Type, Size, Area etc.



Conclusions



Conclusion

- LFG Project in Thai has High Potentiality as CDM Project
- CDM Projects are Intended to be Beneficial to the Planet as well as All the Parties Concerned in each Project
 - Host Country / Donor Country / Business Organization
- Hurdles/Issues are Observed in the Way of CDM Projects
- Cooperation / Efforts of all the Parties are Crucial to make CDM Projects Successful