

Workshop Summary

Covered Lagoon - Applications to Swine Farms in China

March 2010, Hunan, China

Introduction

As part of the Methane to Markets Partnership's activities in the agriculture sector and following the demonstration project implemented at Haidong Ecological Agriculture Company, a training workshop on the applications of covered lagoons to swine farms in China was organized in Hunan, China, on March 15-16, 2010.

Specifically, the objectives of the workshop were:

- To introduce covered anaerobic lagoons as an option for treating livestock wastes,
- To provide guidance for designing, constructing and operating covered anaerobic lagoons on swine farms,
- To present a methodology for preliminary site assessments of the feasibility of incorporating anaerobic digestion in swine manure management systems, and
- To discuss how anaerobic digestion with biogas capture can generate revenue through the greenhouse gas emissions reductions realized

The present report aims at summarizing the main information of the workshop regarding the participants, the content, the organization and the results.



Entrance of the hotel and conference room with all the participants

Participants

See Appendix 1 for the complete list of participants

20 people attended the workshop, including:

- 5 people from Guangdong
- 2 people from Sinotech
- 3 people from Hunan
- 7 people from Yueyang
- 3 people from Haidong

The two main presenters were:

- Jack Martin, Hall Associates
- Dennis Shanklin, EFI

The invited presenters from China were:

- Li Jingming, Division of Energy and Environment, CSTD, MOA
- Lin Ruiru, Guangdong General Station of Agricultural Environmental Protection and Rural Energy Resource – replaced by Zhou Chaoxian

The organizers present on-site were:

- Han Mei, PA Consulting
- Tong Zhao (Tina), PA Consulting
- Qingguo Gao (George), PA Consulting

Content of the workshop

Agenda

See Appendix 2 for the detailed agenda

Time	Presenter	Presentation
Day 1	Li Jingming	China's Rural Biogas Policy and Development Strategy
Day 1	Zhou Chaoxian on behalf of Lin Ruiru	Working Report of the GEF Livestock, Waste Management in East Asia Project, China
Day 1	Jack Martin	Section 1: Options for livestock manure management Section 2: Anaerobic digestion process fundamentals Section 3: Options for anaerobic digesters Section 4: Covered lagoon design
Day 2 - am	Dennis Shanklin	Section 5: Construction Section 6: Start-up and O&M Section 7: Troubleshooting
Day 2 - pm	Dennis Shanklin	Site visit: Cover installation at Haidong farm

Site visit

On the afternoon of Day 2, the participants went to Haidong Ecological Agriculture Company to witness the installation of the cover.



Cover installation at Haidong Ecological Agriculture Company

List of the training material

Power Point slides for the following presentations:

- Jack Martin
- Dennis Shanklin
- Li Jingming
- Lin Ruiru

Hand-out material:

- Integrated Livestock-Fish Production in China
- ASAE table on swine manure characteristics
- Pre-screening forms for swine farms

Organization of the workshop

Time: Monday 15 March - Tuesday 16 March 2010 (8:30am-6:30pm)

Venue: Wanfulai hotel, Yueyang county, Hunan province, China



Translation:

- The Power Point slides were projected in both English and Chinese
- Two interpreters from New World Company in Beijing provided simultaneous translation and consecutive interpretation for the Q&A sections and the site visit

Equipment

- The training material were printed in Yueyang
- The projection equipment was rented in Yueyang
- The translation company provided the headsets

Accommodation

- Wanfulai hotel

Transport

- Provided by Ecological Energy Administration Bureau of Yueyang County

Food

- Provided by Ecological Energy Administration Bureau of Yueyang County



Picture of the conference room and the translators' booth

Results

General comments on the workshop

- The participants seemed very interested; they asked a lot of questions.
- At the beginning of the workshop, the participants from Guangdong did not see covered lagoons as an option for China. However, as the workshop progressed they accepted to consider the idea, especially after the site visit at Haidong farm.
- Their main concern was the land area required for the lagoon; they thought that lagoons about one-fifth the size of Haidong's lagoon would probably be easier to promote in China.
- The participants agreed that the design of covered lagoon is simple and the construction period is short. Purchasing all the materials and equipments could also reduce the cost.
- Hunan provincial officials hope that U.S. EPA will continue to support gas power generation in Haidong farm.

Next steps

- Organize a ribbon-cutting opening ceremony
- Identify Chinese laboratories to perform the analysis necessary for the evaluation and monitoring of the covered lagoon installed at Haidong farm
- Prepare a detailed operation and maintenance manual

Appendix 1: List of the participants

#	Last name (姓)	First name (名)	Affiliation (单位)	Hotel 住宿宾馆	Room 房号
1	Dr. Li 李	Jingming 景明	农业部科技发展中心能源生态建设处处长	万福来	320
2	Gao 高	Qingguo 庆国	PA Consulting	万福来	318
3	Zhao 赵	Tong 彤	PA Consulting	荷花宾馆	
4	Han 韩	Mei 梅	PA Consulting	荷花宾馆	205
5	Shanklin	Dennis	EFI	万福来	321
6	Martin	Jack	Hall Associates	万福来	315
7	Lopez Obregon	Raul	EFI	荷花宾馆	208
8	Pechuli	Luys	EFI	荷花宾馆	505
9	Zheng 郑	Evonne 艺平	广东省农业环保与农村能源总站	万福来	316
10	Zhou 周	Chaoxian 超贤	广东省农业环保与农村能源总站副科长	万福来	319
11	Liao 廖	Xindi 新倮	华南农业大学教授	万福来	421
12	Ai 艾	Shaoying 绍英	广东省农业科学院土壤肥料研究所	万福来	517
13	Cheng 成	Ganrong 淦荣	广东省农业环保与农村能源总站科长	万福来	425
14	Yu 于	Dongxiu 东秀	Sinotech 华忠青岛环境有限公司	荷花宾馆	203
15	Li 李	Fei 菲	Sinotech 华忠青岛环境有限公司	万福来	310
16	Zhou 周	Xiongjun 雄军	Hunan 湖南省能源办副主任	万福来	422
17	Tan 覃	Daomin 道敏	Hunan 湖南省能源办副主任	万福来	510
18	Pu 卜	Jingbo 静波	Hunan 湖南省能源技术推广站	万福来	518
19	Ling 凌	Xiaoming 晓明	Yueyang 岳阳市能源局局长	万福来	426
20	Huang 黄	Rihui 日辉	Yueyang City 岳阳市能源局副局长	万福来	426
21	Wang 王	Youxin 有新	Yueyang 岳阳县能源局局长		
22	Dai 戴	Xiangbo 湘波	Yueyang 岳阳县能源局		
23	Li 李	Haidong 海东	Haidong farm 海东生态农场	万福来	408
24	Zhao 赵	Qianggen 强根	Haidong farm 海东生态农场	万福来	408
25	Zhao 赵	Hongxing 红星	Haidong farm 海东生态农场	万福来	408
26	Chang 常	Aijun 爱军	Yueyang 岳阳县技术员	万福来	407
27	Zhao 赵	Hongbing 红兵	Yueyang 岳阳县技术员	万福来	407
28	He 何	Guohui 国辉	Yueyang 岳阳县技术员	万福来	407

Appendix 2: Agenda of the workshop

时间 Time	演讲人 Presenter	内容 Title
3月15日星期一 Monday, March 15		
8:30----8:45	Jack Martin Hall Associates	项目介绍 Introduction
8:45----9:45	李景明 Li Jingming 农业部科技发展中心能源生态建设处处长 Division Chief of Centre for Science & Technology Development, MOA	中国农村沼气政策与发展战略 Biogas Policy and Development Strategy in China
9:45----10:00	林瑞如 Lin Ruiru 广东省农业环保与农村能源总站站长 Director of Guangdong General Station of Agricultural Environmental Protection and Rural Energy Resource	全球环境基金东亚家畜废物管理项目(中国) 工作报告 Working Report of the GEF Livestock Waste Management in East Asia Project, China
10:00----10:15	休息 Break	
10:15----12:00	Jack Martin Hall Associates	第一部分：家禽废物管理的选择 第二部分：厌氧发酵过程的基础 Section 1: Options for livestock manure management Section 2: Anaerobic digestion process fundamentals
12:00----14:00	午饭和休息 Lunch & Break	
14:00----15:45	Jack Martin Hall Associates	第三部分：厌氧发酵的选择 Section 3: Options for anaerobic digesters
15:45----16:00	休息 Break	
16:00----17:30	Jack Martin Hall Associates	第四部分：加盖厌氧发酵池设计 Section 4: Covered lagoon design
17:30----18:00	答疑 Question & Answer	
18:00	晚餐 Dinner	
3月16日星期二 Tuesday, March 16		
8:30----10:00	Dennis Shanklin EFI	第五部分：施工 Section 5: Construction
10:00----10:15	休息 Break	
10:15----12:00	Dennis Shanklin EFI	第六部分：启动、管理和维护 第七部分：疑难解答 Section 6: Start-up and O&M Section 7: Troubleshooting
12:00----13:00	午饭 Lunch	

13:00----14:00	前往海东农场 Hotel to Haidong	
14:00----17:00	厌氧池加盖 Cover installation in Haidong	
17:00----18:00	返回酒店 Haidong to hotel	
18:00----18:30	Jack Martin Hall Associates	研讨会总结 Closing of the workshop