

2-6 FY2012 Partnership Project Final Meeting

Yasuhiro Matsui

1. Outline of event

Date: February 2nd (Saturday), 2013

Venue: The Main Conference Room,

Building of Graduate School of Natural Science and Technology, Okayama University

Organizer: Waste Management Research Center, Okayama University

2. Program

- 9:30 - 9:35** **Opening address**
Dr. Ken Yoshikawa (Director, Waste Management Research Center, Okayama University)
- 9:35 - 9:50(1)** **Physical composition analysis of household waste in Hanoi, Vietnam**
Ms. Luong Thi Mai Huong (National University of Civil Engineering, Vietnam)
- 9:50 - 10:05 (2)** **Performance of H₂O₂-assisted submerged aerated biofilter for landfill leachate treatment**
Dr. Pham Khac Lieu (Hue University, Vietnam)
- 10:05 - 10:20 (3)** **Comparison of operational efficiency among waste collection systems in Da Nang city, Vietnam**
Dr. Yasuhiro Matsui (Okayama University, Japan)
- 10:20 - 10:35 (4)** **Application of biochar from coconut shells to different soils in Thua Thien Hue province, Vietnam**
Ms. Tran Thi Tu (Hue University, Vietnam)
- 10:35 - 10:50 (5)** **Development of technologies for the utilization of agricultural and forestry wastes: Preparation of biochar from rice residues**
Dr. Md. Azhar Uddin (Okayama University, Japan)
- 10:50 - 11:05 (6)** **Effect of biochar application to soil on komatsuna growth and nutrient leaching**
Mr. Kazuki Miyamoto and Dr. Morihiro Maeda (Okayama University, Japan)
- 11:05 - 11:20 (7)** **Status of freshwater fish biodiversity in the Yangtze River Basin, China**
Dr. Jianhua Li (Tongji University, China)
- 11:20 - 11:35 (8)** **Sustainability assessment using ecological footprint for the establishment of a sound material-cycle society – Focusing on resident lifestyles in Shanghai, China -**
Dr. Takehito Ujihara and Dr. Hirofumi Abe (Okayama University, Japan)
- 11:35 - 12:15** **Discussion**
- 12:15 - 13:00** **Lunch break**
- 13:00 -13:15 (9)** **Evaluation of the policy effect of the Pay-as-You-Throw (PAYT) systems on household solid waste reduction and the potential environmental impacts -a case study in Taiwan**
Dr. Yu-Chi Weng (Hokkaido University, Japan)

- 13:15 -13:30 (10) Partnership project of solid waste management in Palau**
Mr. Mengkur W. Rechelulk (Ministry of Resource and Development, Palau)
- 13:30 -13:45 (11) Lactic acid fermentation of waste milk**
Dr. Hideaki Nagare (Okayama University, Japan)
- 13:45 -14:00 (12) Waste is a consequence of life: What to do with the wastes that are generated? What are the lessons to be learn for Managing waste in large Cities/Islands (Guam)?**
Dr. Mohammad Golabi (University of Guam, Guam)
- 14:00 -14:15 (13) Utilization of food waste for agricultural applications in Guam**
Dr. Mari Marutani and Dr. Hauhouot Diambra-Odi (University of Guam, Guam)
- 14:15 -14:30 (14) Conversion system using subcritical water to convert biomass to utilizable substances -Conversion from wasted glycerol to lactic acid -**
Dr. Yukitaka Kimura (Okayama University, Japan)
- 14:30 – 14:45 Tea break**
- 14:45 -15:00 (15) Environment impact of coastal restoration with used car tires as breakwater at Chulachomklao Fort, Samutprakan province**
Dr. Orawan Siriratpiriya (Chulalongkorn University, Thailand)
- 15:00 -15:15 (16) Field techniques for measuring field saturated and unsaturated hydraulic conductivity using soil moisture profile in a final disposal site**
Dr. Yuji Takeshita and Dr. Mitsuru Komatsu (Okayama University, Japan)
- 15:15 -15:30 (17) Leachate treatment from municipal solid waste landfill in Indonesia**
Dr. Tri Padi and Dr. Enri Damanhuri (Institut Teknologi Bandung, Indonesia)
- 15:30 -15:45 (18) Solid waste management in Cambodia**
Mr. Sour Sethy (Royal University of Phnom Penh, Cambodia)
- 15:45 -16:00 (19) Solid waste problem and waste characterization in Phnom Penh, Cambodia**
Dr. Takeshi Fujiwara (Okayama University, Japan)
- 16:00 -16:40 Wrap-up discussion**
- 16:40 -16:45 Closing remarks**
Dr. Takeshi Fujiwara
(Deputy Director, Waste Management Research Center, Okayama University)

SUMMARY

This Final Meeting was held as the official event of the partnership project on education and research program “Practical Research and Education of Solid Waste Management Based on the Partnerships among Universities and Governments in Asia and Pacific Countries”. The meeting’s participants consisted of the staff and students of Okayama University who were interested in the meeting’s contents and invited experts from collaborator countries who were engaged in the research

themes of the project; such as Cambodia, China, Guam, Indonesia, Palau, Taiwan, Thailand, and Vietnam.

The Debrief Meeting had nineteen presentations in two sessions, eight presentations in morning session and eleven presentations in afternoon session. The contents and discussion of this meeting were summarized and presented as follows:

Firstly, Prof. Ken Yoshikawa, Director of Solid Waste Management Research Center, Okayama University, presented the opening address for the meeting.

The first presentation was entitled “*Physical composition analysis of household waste in Hanoi, Vietnam*”, presented by Ms. Luong Thi Mai Huong from University of Civil Engineering, Vietnam. The presentation introduced the status of waste management in Hanoi, Vietnam; especially waste separation at source project at 4 wards in Hanoi. The presentation also discussed about the results of physical composition of MSW and recyclable waste discharged from representative households in Hanoi city.

Dr. Pham Khac Lieu, Mr. Ton That Huu Dat, and Ms. Hoang Thi My Hang of Hue University of Sciences, Vietnam made their presentation entitled “*Performance of H₂O₂-assisted submerged aerated biofilter for landfill leachate treatment*”. The objectives of this research were to find a possible way of using Fenton’s reaction for assisting biological process treating landfill leachate in a single-reactor. Leachate used for study was from the Thuy Phuong Sanitary Landfill in Thua Thien Hue province. The results showed that it is feasible to use H₂O₂ for assisting the biological process in a submerged aerated fixed bed reactor for treating landfill leachate.

Associate Professor Yasuhiro Matsui, Ms. Tran Thi Yen Anh, Ms. Do Thi Thu Trang, Dr. Nguyen Phuc Thanh of Okayama University and Ms. Phan Thi Nu, Ms. Le Thi Tuong Vi from Danang URENCO made their presentation entitled “*Comparison of operational efficiency among waste collection systems in Danang city, Vietnam*”. The objectives of this presentation were to get the basic data on waste collection operation on different collection systems by GPS and by GIS applications, and to estimate the collection resources and compare the operational efficiency among 5 collection systems in Danang by person-hour/ton. From the main findings, the authors concluded that it is indispensable to establish the information data basis on waste collection/transport systems and the simulations of waste collection/transport scenarios.

Ms. Tran Thi Tu of Institute of Resources, Environment and Biotechnology - Hue University, Vietnam presented the topic entitled “*Application of Biochar from coconut shells to different soils in Thua Thien Hue province, Vietnam.*” The objective of the study was to determine the influence of the biochar application to different soils on crop growth and nutrient balances under greenhouse conditions in Thua Thien Hue Province, Vietnam. The results indicated that the use of biochar from agricultural wastes would be beneficial for farmers, the environment under soil and climate conditions in Thua Thien Hue province.

Dr. Md. Azahar Uddin presented the research entitled “Development of technologies for the utilization of agricultural and forestry wastes: preparation of biochar from rice residues”. The objective of this study is to characterize the biochar prepared from rice husk and rice straw at different temperatures (350, 450 and 550°C) and heating rates (10 and 50 °C). In addition, the pyrolysis gas and oil compositions were also determined. The results indicated that the chemical, physical, morphological and textural properties of biochar are influenced by charring temperature and heating rate as well.

Mr. Kazuki Miyamoto and Dr. Morihiro Maeda presented the topic entitled: “Effect of biochar application to soil on komatsuna growth and nutrient leaching”. The research evaluated the effect of the application of two biochar materials (rice husks and coconut shells) to soil. The results indicated that biochar has a great deal of potential as a soil additive but further studies should be undertaken to clarify the N dynamics in soil.

Dr. Jianhua Li made his presentation entitled: “Status of freshwater fish biodiversity in the Yangtze River Basin, China”. The objectives of this work were to clarify the present of many kinds of freshwater fish and the threats to fish biodiversity in the Yangtze River. The study also recommended some ways for conservation of freshwater fish diversity in the Yangtze River such as: Nature reserve establishment, Artificial reproduction and releasing, Rehabilitation of habitat for fish, Enhancement of legislation.

Dr. Takehito Ujihara from Okayama University presented his research entitled: “Sustainability assessment using ecological footprint for the establishment of a sound material-cycle society – Focusing on resident lifestyles in Shanghai, China”. The authors have undertaken detailed research on the lifestyle of residents of Shanghai, the most developed region in China. Results show a relation between their lifestyles and their ecological footprint (EF). In the lifestyle-related EFs, transportation is the largest. Its standard deviation is large as well.

Dr. Yu-Chi Weng from Hokkaido University, Japan presented his study entitled: “Evaluation of the policy effect of Pay-as-You-Throw (PAYT) systems on household solid waste reduction and the potential environmental impacts – a case study in Taiwan, particularly with regard to the fees and the socio-economic attributes in different regions. Consequently, the research outcomes exploited the future policy direction for HSW reduction. In the meantime, the mitigation of environmental impacts resulted from HSW reduction was evaluated.

Mr. Mengkur W. Rechelulk from Palau presented the topic entitled “Partnership project of solid waste management in Palau”

Dr. Hideaki Nagare presented the research entitled: “Lactic acid fermentation of waste milk”. In this research, lactic acid fermentation from wasted milk was studied for improvement of lactate yield. Although the reason for the low yield was not specified, possible fermentation products such as amino sugars and monosaccharides were found.

Dr. Mohammad Golabi from Guam presented his topic entitled: “Waste is a consequence of life: what to do with the wastes that are generated? What are the lessons to be learned for managing waste in large cities/Islands (Guam)?” Dr. Mari Marutani from Guam presented the study entitled “Utilization of food waste for agricultural application in Guam”

Dr. Yukitaka Kimura from Okayama University presented the study entitled “Conversion system using subcritical water to convert biomass to utilizable substances-Conversion from wasted glycerol to lactic acid”. The results showed that the yield to produce lactic acid was 90mol%, the maximum yield was achieved within 2 mins with the flow-type reactor. Moreover, the flow-type reactor would have an advantage for the short time-operation.

Dr. Orawan Siriratpiriya from Thailand presented the study entitled: “Environment impact of coastal restoration with used car tires as breakwater at Chulachomklao Fort, Samutprakan province”. The presenter explained that in the case of utilized the used car tires as breakwater to prevent coastal erosion and restore the coastal at Chulachomklao Fort. The study measured some environmental quality parameters such as salinity, pH and dissolved oxygen. The results showed that all of above were within the seawater quality standard. The breakwater also signified reduction energy of wave, increased soil sedimentation wherewith increased biodiversity

Dr. Yuji Takeshita presented the study entitled “Field techniques for measuring field saturated and unsaturated hydraulic conductivity using soil moisture profile in a final disposal site”. This study proposed a new field experimental method of determining the hydraulic conductivity of unsaturated soils in the near surface of homogeneous sandy soils. The advantage of the proposed method is to measure the field-saturated and the unsaturated hydraulic conductivity of soil continuously by quite simple in-situ permeability tests with soil moisture profiles.

Dr. Tri Padi from Indonesia presented the topic entitled “Leachate treatment from municipal solid waste landfill in Indonesia”. The presenter introduced the characteristics of leachate in Indonesian Landfill and some methods using for leachate treatment such as: stabilization ponds, coagulation-flocculation as pre-treatment, sequencing bed reactor as biological treatment, wetland as tertiary treatment.

Mr. Sour Sethy from Cambodia presented the topic entitled “Solid Waste Management in Cambodia”. This study aims to identify and understand the existing solid waste management situation in Cambodia. The study employs a combination of exploring existing documentation, qualitative data analyses and reconnaissance studies.

Prof. Takeshi Fujiwara presented the topic entitled “Solid waste problem and waste Characterization in Phnom Penh, Cambodia”. The presentation showed that In Cambodia, there had lack of essential data of municipal solid waste for understanding current situation of solid waste generation. The study figured out the waste generation from household, physical component, calorific

value and chemical component. The results will also contribute to planning of appropriate treatment technologies and management policies.

After nineteen presentations, Prof. Takeshi Fujiwara, Vice Director of Solid Waste Management Research Center, Okayama University, presented the wrap-up discussion for the final meeting. He presented some activities that carried out the purposes of the project as follows:

First is research collaboration, there are a lot of collaborative surveys and researches between Okayama University and many Asian countries and Pacific countries such as Taiwan, Vietnam, Cambodia, Thailand, Malaysia, Indonesia, Guam and Palau.

Second is Student exchange: Many students of Okayama University visited oversea countries in this project. And some students from Vietnam and Malaysia also visited Japan.

Third is staff of Government and offices exchange.

Fourth is publication: few papers and some presentations are published but it should be more. We should write the research paper and presentation to the world. He did hope that this project name will be mentioned in the acknowledgement.

A lot of seminars as well as researches are carried out in this project.

Prof. Fujiwara also would like to discuss about the strategy for future collaboration as follows:

1. Faculty exchange as guest teacher between university and university: some teachers of faculty will come to other university for giving lectures and vice versa.
2. Collaborating system for students: Student go to other university and stay for a long time for research.
3. Promoting international lecture using telephone systems.
4. Having training and practicing courses for students and officers. For examples, Okayama University provides training courses for students and officers of other countries.
5. Collaborative application to international research or domestic research fund between 2 countries or three countries.
6. Holding this international seminar (the problem is budget), we hope to have this international seminar in the next year.

The final discussion was chaired by Professor Takeshi Fujiwara of Okayama University, and the suggestions and comments from participants were as follows:

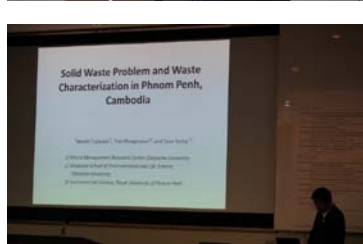
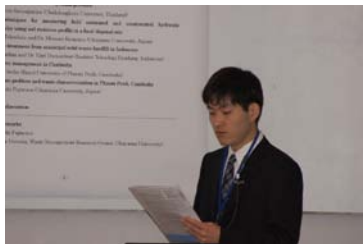
1. Assoc. Prof. Mohammad Golabi from Guam: I know budget may be is a problem but holding seminar is very beneficial because in the seminar like this, there are a lot of information get exchanges. We should apply to get fund for international conference.
2. Prof. Enri Damanhuri from Indonesia: giving idea for promoting exchange students, we send students to other university for 1 or 2 semester, then they will get the credit for their studying.

3. Associate. Prof. Yasuhiro MATSUI: for the publishing paper, actually, Okayama University has an English journal managed by our faculty. We have review process by 3 reviewers (it takes at least 1 month for reviewing process), so we can choose some presentations in this meeting, then we can offer the presenter to submit full paper.
4. Mr. Sour Sethy from Cambodia: I think name and email address of author should be included in the paper of proceeding.
5. Ms. Luong Thi Mai Huong from Vietnam recommended that we should make the network for database related to solid waste management. Then, person in charge of each country will update the information of SWM to the network.
6. Prof. Fujiwara said he will send the draft version of strategy for future collaboration to all of members in this project to fill their comments, then send him via email. He also said he will do his best to hold the next meeting in next year.

Finally, Professor Takeshi Fujiwara, Vice Director of Solid Waste Management Research Center, Okayama University, presented the closing remarks for this debrief meeting.



Commemorative Photo



Presentation session



Discussion

FY2012 Debrief Meeting on Education and Research Programs of the Graduate School of Environmental and Life Science Okayama University

Okayama University, Japan

Jan.31 Thu. 13:30~
, 2013

Debrief Session of the Project Researches on "Environmental Rehabilitation in Asia"

Feb.1 Fri. 10:00~
, 2013

International Symposium on Environmental and Life Science

Feb.2 Sat. 9:30~
, 2013

FY 2012 Final Meeting of Practical Research and
Education of Solid Waste Management Based on the Partnership among Universities
and Governments in Asia and Pacific Countries

Place

Main Conference Room in the Building of the Graduate School
of Natural Science and Technology, Okayama University

The Building of the Graduate School
of Natural Science and Technology



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