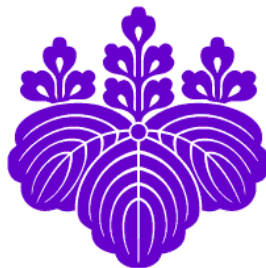


University of Tsukuba

International Internship 2013

Vietnam Internship



2014/2/10

Completion Report

Vietnam Internship

September 3-13 and December 14-22, 2013

Organized by

Master's Program in Environmental Sciences,
Graduate School of Life and Environmental Sciences,
University of Tsukuba

Supported by

JASSO Student Exchange Support Program (FY2013), JDS and WMEC Programs



Preface

This report compiled by the participants describes the activities and their learning outputs from Vietnam (Hanoi and Ho Chi Minh) Internship conducted during September 3-13 and December 14-22, 2013. This internship was carefully designed as a field survey oriented program with a particular focus on applicable technologies and management systems of waste and wastewater treatment in developing countries with Vietnam as an example. The internship was implemented jointly with Vietnam National University, Hanoi University of Science (VNU-HUS) and Ho Chi Minh City University of Technology (HCMUT).

Participants were firstly quite fascinated by the natural environment, Ba Vi National Park, then they visited an industrial wastewater treatment plant in Ba Vi Milk Co, a municipal solid waste treatment plant (Son Tay Waste Treatment Complex) and a biogas production project in rural area, and were impressed by the rapid development of community based economy in Vietnam (Tay Tuu Commune). After attending the classes given by VNU-HUS counterpart professors, the participants understood more about the environmental management and current environmental treatment technologies in Vietnam.

On the last day, the participants had a wrap-up group discussion with

Vietnamese students with respect to the main related phenomena and findings during the internship activities. The participants presented their specific view based on their understanding of the environment, management and policy in Vietnam, especially the culture, transportation, and environmental problems, which received a high evaluation by Vietnamese counterpart professors.

This internship was designed and implemented as a part of strengthening SUSTEP (Sustainability Sciences, Technology and Policy) collaboration with VNU-HUS and HCMUT in Vietnam. We sincerely appreciate our Vietnamese counterparts, such as Professor Luu Duc Hai, Prof Nguyen Manh Khai, Prof Nguyen Xuan Hai, Professor Tran Van Thuy, Prof Nguyen Thi Ha, Prof Phu Le Vo, and so on. From the bottom of our hearts, we thank Dr. Nguyen Thi Hoang Lien, Dr. Pham Hoang Giang and Dr. Tran Thi Huyen Nga for their careful arrangement, generous guidance and support to enable this successful internship.

This internship was supported by JASSO Student Exchange Support Program (FY2013) funded by the Japan Student Services Organization (JASSO), Japanese Grant Aid for Human Resource Development Scholarship (JDS) Program, and Waste Management Expert Course (WMEC) Program, an English-teaching graduate program aiming to nurture experts in waste management which has been implemented in the Master's Program in Environmental Sciences at the Graduate School of

Life and Environmental Sciences, the University of Tsukuba.

We are grateful for their supports. Our last but not least thanks go to Ms. Daitoku and Ms. Kimura who helped us a lot to arrange and guarantee the internship activities smoothly and successfully.

Vietnam (Hanoi and Ho Chi Minh) Internship Instructors Team

Zhongfang Lei and Helmut Friedrich Yabar Mostacero

February, 2014

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List of Participants and Vietnam Counterparts

Participants of the Vietnam Internship

Students

Full Name (Family name/given name)	Scheme or program	Trip
KANEMOTO/ Yuji	JASSO	Hanoi & Ho Chi Minh
TAKAYAMA/ Haruka	JASSO	Hanoi
THANH/Hoang Trung	JDS	Hanoi
AI/Lingxue	WMEC	Hanoi
DING/Jielu	WMEC	Hanoi
FENG/Sisi	WMEC	Hanoi
LI/Bing	WMEC	Hanoi
SUN/Shuang	WMEC	Hanoi
ZENG/Yang	WMEC	Hanoi
ZHU/Feng	WMEC	Hanoi

JASSO, Japan Student Services Organization Program; JDS, Japanese Grant Aid for Human Resource Development Scholarship (JDS) Program; WMEC, Waste Management Expert Course (WMEC) Program.

Supervisors

Dr. Zhongfang Lei, Associate Professor

Dr. Helmut Friedrich Yabar Mostacero, Associate Professor

Counterpart supervisors at Vietnam National University, Hanoi University of Science (VNU-HUS) and Ho Chi Minh City University of Technology (HCMUT)

VNU-HUS:

Dr. Nguyen Thi Hoang Lien

Dr. Prof Luu Duc Hai,

Dr. Prof Nguyen Manh Khai,

Dr. Prof Nguyen Xuan Hai,

Dr. Professor Tran Van Thuy,

Dr. Prof Nguyen Thi Ha,

Dr. Pham Hoang Giang,

Dr. Tran Thi Huyen Nga

HCMUT:

Dr. Prof Phu Le Vo

Dr.Thang

Dr.Khoi

Dr.Phong

Dr.Khoa

Schedule

Hanoi Trip

Date	Day	Venue	Activity (-ies)
14 Dec, 2013		From Tsukuba to Hanoi	Arrival at Hanoi
15 Dec	1	Hanoi – Ba Vi	Ba Vi National Park and Ancient Village
16 Dec	2	Ba Vi	Ba Vi Milk Co Ltd. (AM) Son Tay Waste Treatment Complex (PM)
17 Dec	3	Ba Vi – Vinh Phuc – Hanoi	Biogas in Vinh Phuc
18 Dec	4	Hanoi – Tay Tuu - Hanoi	Tay Tuu Commune
19 Dec	5	VNU-HUS	Lectures (9:00 – 11:00 AM) Lectures (14:00 – 16:00 PM)
20 Dec	6	Group working (self-study)	
21 Dec	7	VNU-HUS	Workshops
22 Dec	8	Ceramic Village From Hanoi to Tsukuba	Back to Tsukuba
9 Jan, 2014	9	Tsukuba	Reports and presentation

Ho Chi Minh Trip

(Please refer to Part 2.2)

Part 1-Daily Activity Records in Hanoi



1.1 Day 1. Field Survey in Ba Vi National Park and Ancient Village

On the early morning of 15th December, 2013, all the participants (including Prof Luu Duc Hai, Dr. Pham Hoang Giang, and three Master students from VNU-HUS) departed from Hanoi and took the rent car to go to Ba Vi National Park, and started this internship journey.

Ba Vi National Park is 60km from Hanoi to the west, with typical tropical and subtropical flora in Vietnam with green trees and fresh air during four seasons. High mountain terrain and large forest covering bring to Ba Vi region the cool climate, especially in summer. Ba Vi National Park is not only known as the lung of Hanoi capital but also the home to hundreds of wildlife species, many of which are rare and precious species.





In the afternoon, we paid the visit to two ancient villages. The participants experienced the historical changes in the environment, economy, and society, especially the life style and living conditions of the Vietnamese people.



1.2 Day 2. Field Survey in Ba Vi Milk Co Ltd. and Son Tay Waste Treatment Complex

On the morning of 16th December, 2013, the participants had a chance of visiting Ba Vi Milk Co Ltd. Prof. Tran Van Thuy joined this trip.

The company's main product is yogurt. Before seeing around, the technical staff gave a detailed instruction of the manufacturing process and then all the participants visited the wastewater treatment facilities. The participants were very concerned about their control of the influent and the qualified discharge of the effluent. Possibly due to the well operated treatment facilities, the effluent was said to be qualified.



In the afternoon the participants moved to Son Tay Waste Treatment Complex. This is an indoor small-scale municipal solid waste treatment plant. Part of the solid waste are collected and transported to this plant. After simply sorting, most of the organic portion are piled up for 3-5 days and then sent to a small-scale incinerator in this treatment plant with no energy or heat recovery. Due to no other protective measures for the operators or workers, the whole plant was really smelling around, which may be a big problem to their health.



1.3 Day 3. Field Survey in Biogas Project in Vinh Phuc

On the morning of 17th December, 2013 the participants visited a biogas project site in Vinh Phuc on the way back to Hanoi. The farmer raised about 300 heads of pigs, which is planned to increase clearly seen from the on-going extended construction of the biogas plant. This biogas project is said to be the first one in the rural area, in which the processes are still needed upgrading due to the deteriorated water environment and stringent environmental standards.



1.4 Day 4. Field Survey in Tay Tuu Commune

On the morning of 18th December, 2013 Prof Nguyen Manh Khai and Prof Nguyen Xuan Hai guided all the participants to the Tay Tuu Commune which is located in the west of Hanoi.

The commune covers more than five square kilometers, among which about three-fifths is used for agriculture. Before 1994, local farmers used to grow fresh vegetables and rice like most other farmers, but this was a subsistence living. After 1994, the Commune has seen change in economic development since the farmers started growing flowers, gradually from which the standard of living in the village improved remarkably, and the income of each family improved to about 30 million Don/person/year.

Tay Tuu Commune has become famous for its large variety of beautiful flowers that not only grace local markets but are also exported abroad.





1.5 Day 5. Lectures on Environmental Management and Treatment Technologies in VNU-HUS

On 19th December, 2013 all the participants attended the lectures kindly given by Prof Luu Duc Hai and Prof Nguyen Thi Ha, respectively. Their topics were concentrated on the local environmental conditions, management and applicable technologies in Vietnam. During the lectures the participants had a good interaction with the professors and VNU-HUS students.



1.6 Days 6 & 7. Group Working and Workshops

On 20th and 21st December, 2013 the participants participated in the workshops with VNU-HUS students.

Firstly all the participants briefly introduced themselves, and then all the students (including VNU-HUS students) were divided into two groups, and each group had Japanese, Vietnamese and Chinese students. They analyzed and discussed the findings in Vietnam during this internship and attempted to arrive at some promising suggestions and solutions for the observed phenomena and environmental problems. Finally each group gave a summary report about their discussion.



1.7 Day 8. Visit to Ceramic Village

On the last day in Hanoi, 22nd December 2013, the participants visited a ceramic village, Bat Trang, where we experienced how to make ceramic from mineral clay and how to make the products into artworks. The ceramic village made this trip more unforgettable and all the participants were impressed by the hardworking and excellence of Vietnamese people.



Part 2-Final Presentations and Reports



2.1 Report from Hanoi Trip (Group I)

The debriefing session was held in the University of Tsukuba on 9 January, 2014.

Here the slides prepared by one of the two groups (Group I) are attached to briefly summarize their understanding of Vietnam after Hanoi internship.



Activities in Vietnam

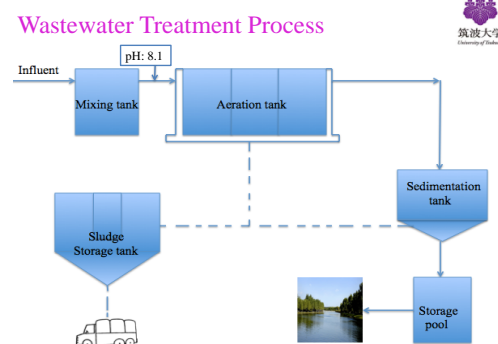
Time	Activity	Place
Dec. 19	Attended lectures in HUS	Hanoi
Dec. 20	Group working	Hanoi
Dec. 21	Participated workshop in HUS	Hanoi

Activities in Vietnam

Time	Activity	Place
Dec. 15	Visited Ba Vi national park	Ba Vi district, Hanoi
Dec. 16	-Visited Ba Vi Milk Co Ltd. (AM) -Visited Son Tay Waste Treatment Complex (PM)	-Ba Vi district, Hanoi - Son Tay district, Hanoi
Dec. 17	Visited Biogas system in pig farm	Vinh Phuc province
Dec. 18	Visited Tay Tuu Flower farm	Tu Liem district, Hanoi

- Presentations**
1. Wastewater Treatment System of Bavi milk factory
presenter: Sisi Feng
 2. Solid waste management in Hanoi
presenter: Zhu Feng
 3. Vietnamese food and culture
presenter: Haruka Takayama
 4. Transportation in Hanoi
presenter: Sun Shuang

Wastewater Treatment System of Bavi milk factory in Vietnam trip



Bảng 1: Giá trị C của các thông số ô nhiễm trong nước thải công nghiệp

TT	Thông số	Đơn vị	Giá trị C	
			A	B
1	Nhiệt độ (Temperature)	°C	40	40
2	pH	—	6-9	5,5-9
3	smell	—	Không khó chịu	Không khó chịu
4	Độ màu (Co-Pt ở pH = 7) colour level	—	20	70
5	BOD ₅ (20°C)	mg/l	30	50
6	COD	mg/l	50	100
7	Chất rắn lơ lửng TSS	mg/l	50	100
8	Asen (Arsenic)	mg/l	0,05	0,1
9	Thủy ngân Hg	mg/l	0,005	0,01
10	Chì	mg/l	0,1	0,5
11	Cadimi (Cadium)	mg/l	0,005	0,01
12	Crom (VI)	mg/l	0,05	0,1
13	Crom (III)	mg/l	0,2	1
33	Tổng Photpho (Total Phosphorus)	mg/l	4	6
34	Coliform	MPN/100ml	3000	5000
35	Tổng hoạt độ phóng xạ α	Bq/l	0,1	0,1
36	Tổng hoạt độ phóng xạ β	Bq/l	1,0	1,0

Domestic Industry Wastewater Standard



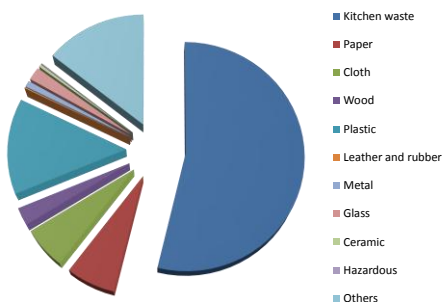
SOURCES & AMOUNT OF SOLID WASTE GENERATION

No.	Types of waste	Generated amount (ton/day)	Collected amount	Source	Main composition
1	Municipal solid waste	6,000	5,500	Households, business entities, markets, companies, schools, restaurants, hotels etc	- Inorganic substances, crushed bricks and stones, coal ash, ceramic, etc. - Organic substances: vegetables, fruits, kitchen waste... - Plastic, nylon, metal, paper, glass... - Others
2	Construction waste	1,500	800	Construction and demolition works	Soil, brick, tile, mortar,...
3	Industrial waste	350	150	Industrial plants and facilities	Paint residue, solvent, industrial waste sludge, oil contaminated rag,
4	Hazardous Medical waste	50	50	Hospitals, health centers	Bandages, contaminated medical instruments

Solid waste management in Hanoi

Graduate School of Life and Environmental Sciences
Zhu Feng

COMPOSITION OF SOLID WASTE



SOURCE SEPARATION OF SOLID WASTE

No.	Item	Description
1	Scale	4 wards in 4 districts, about 17,000 households
2	Implementing agency	Hanoi URENCO and relating Ward's People Committees
3	Categories	1. Organic waste: used for composting 2. Inorganic waste: transported to Nam Son landfill site 3. Recyclable waste: sold/given to junk buyers
4	Collection system	At sources: households are given two bins with different color for source separation. At collection points: - 240l container system - Discharging time: 6.00pm-8.30pm - Regulated points

SOLID WASTE COLLECTION AND TRANSPORTATION



MUNICIPAL SOLID WASTE TREATMENT

No.	Facility	Management unit	Serviced area	Current status
Landfill sites				
1	Nam Son landfill site	Hanoi URENCO	10 urban districts and 5 sub-urban districts	Receiving: ~3,000 tons/day Expected maintaining time: 12/ 2011
2	Kieu Ky landfill site	Gia Lam Urban Environment Enterprise	Gia Lam district	Receiving: ~100 tons/day
3	Nui Thoong landfill site	Xuan Mai Urban Environment Enterprise	Ha Dong, Chuong My, Thanh Oai	Temporarily closed due to pollution
4	Xuan Son landfill site	Son Tay URENCO	Son Tay town, Ba Vi district	Receiving: ~100 tons/day
Composting plants				
1	Cau Dien composting plant	Hanoi URENCO	Organic waste from 04 center districts (mainly from markets)	Receiving: 50 tons/day Compost production: 8 tons/day
2	Kieu Ki composting plant	Gia Lam Urban Environment Enterprise	Waste from Gia Lam district	
3	Seraphin plant	SERAPHIN	Waste from Ha Dong district and collected waste by Thanh Cong Cooperative	Receiving: 50 ~ 60 tons/day Composting production: 6 tons/day Coal production: 23 tons/day

SOLID WASTE MANAGEMENT



- 65% of domestic waste was collected.
- Only 17 out of a 91 disposal facilities in the country are reported to be properly designed sanitary landfills with leachate collection and treatment facilities.
- Government has designated 50 waste dumps as environmental hazards that should be closed as soon as possible.
- Smaller towns are facing increasing problems of solid waste management.

Son Tay Waste Treatment Complex in Ba Vi



Famous foods



Vietnamese foods are influenced by Chinese and French culture. They are mild seasoning.

Vietnamese food and culture



pho; Vietnamese noodle soup



social life was recognized.
spring roll
(Fried spring roll and raw spring roll)

Street stall



Clothes, souvenirs, and toys were sold at street of Hanoi. Fruits and vegetables, which are used in cuisines can also be found in these street stalls. For example, Chinese cabbages, cabbages, corns, doriens, and mangoes were commonly seen.



We have eaten a lot of delicious foods.



at street of Hanoi

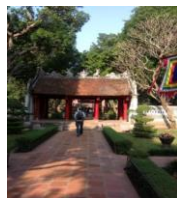


at Bat Trang, HaNoi

Confucian temple



Confucian temple in Hanoi was built in 1070. In 1076, University and Kokushi-kan were built on premises, and Children of royalty and aristocracy was learning. Thereby, as a place of divine favor in an academic, many Vietnamese people as well as tourists are visiting.



Transportation in Hanoi





Vietnam is among the developing countries whose urban environment has undergone significant changes due to industrialization and urbanization. These changes leading to the increase in the number of motor vehicles

The population of Hanoi approximately 6.23 million. More than 1.5 million motorbikes are registered in Hanoi.

Motorbikes account for nearly 96% of all local transportation.

The daily average number of vehicles from all sites is estimated at about 128,000 vehicles in Hanoi. Which results in chaotic traffic flow and excessive horn blowing throughout the day.



The maximum amount of motorbikes was observed in the morning and evening rush hours, and the least density of motorbikes was observed from 01:00 a.m. to 6:00 a.m.

The large quantity of motorbike have probably cause an increase in air pollution levels that have negative effects on the citizens.

Road safety is a major issue in Vietnam. It has one of the highest traffic accident rates in the world.



2.2 Report from HCMUT Trip

Outline of Ho Chi Minh City internship

Period: September 3- 13, 2013

Study site: Ho Chi Minh City
University of Technology
(HCMUT)

Quota: Kanemoto Yuji

Instructor: Phu Le Vo

Dr.Thang/Dr.Khoi/Dr.Phong/D
r.Khoa



My background

✦ My major

: Environmental policy(Master degree)

: Civil engineering(undergraduate)

✦ Topic of my research

: The simulation about the optimal policy for renewable energy promotion

Motivation

✦ I want to engage in **Urban planning** as a member of Japanese company , in order to remove **Environmental problem** in **Developing country** in future

But

I've **never seen** the spot where the environmental problem has **actually occurred**.

Objective

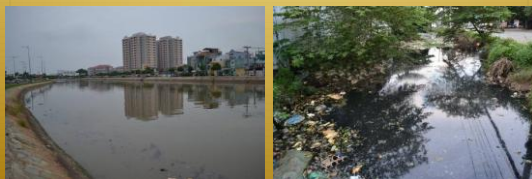
- ✦ **Watching** the present situation in developing country
- ✦ **Feeling** how large is this problem
- ✦ **Knowing** how dose the government in HCMC act to these problem

What did I do



Water treatment

- ✦ I visited the some **dirty canal**
- ✦ I consulted Dr.Phu about some kind of **water problem**.



Water treatment

- ✦ I visited the **wastewater treatment plant**
- ✦ I consulted Dr.Khoi about **sewage management and policy**.



Air pollution

- ✦ I have felt the **air pollution on the street** everyday, because of motorbike.
- ✦ I consulted Dr. Bang about **policy of air pollution**



Waste management

- ✦ I **saw so many garbage** on the street.
- ✦ I consulted Dr. Khoa about **urban solid waste management and recycling practice**.



2014/12/1

What did I think

- ✦ **Every problem is related complexly**
- We should see a problem more wide perspective
- ✦ **Awareness is quite important to remove environmental problem**
- If they understand that their behavior is connected with environmental problem, they will change their behavior
- ✦ **Policy is most important to tackle environmental problem**
- If the policy is not good or obscure , people would not know what is right behavior

Difference between south and north

- ✦ Thier characteristic
- ✦ The extent of seriousness of pollution
- ✦ Food
- ✦ Climate

2014/12/1

Appendix: General Comments from Group Leader

Feedback for Hanoi internship 2013, Vietnam

Overall

We, students come from the University of Tsukuba, Japan, had the first interesting international internship in Vietnam from 14th to 22th, December, 2013 in Vietnam. Although this trip was only 9 days, it gave us good chance to visit and explore many places in Vietnam. Beside the scientific knowledge obtained from visiting several factories, waste treatment facilities, we also visited and understood traditional and ancient villages and other historical relics in Hanoi. Our professors both from the University of Tsukuba and Hanoi University of Sciences kindly facilitated efficient activities for participating students during the trip.

Through the trip, we could understand which and how the environmental issues happening in Vietnam and also basically understood how host country, Vietnamese government and people, responds to environmental issues as well. It seems to be similar with other developing countries, for example in China. On the other hand, we could compare the environmental status and management system between Vietnam and China, Japan practically. Personally, this trip was suitable and necessary for students.

Some improvable areas

After taking this internship in Hanoi, some ideas came to my mind and i would like to mention here to give experiences for next pickers.

1. Regarding the belongings preparation of students before the trip:

Student should bring warm coat (check weather forecast carefully before departure) and some basic personal medicines for the trip because there are some troubles for foreigners to buy medicine when they get sick because of language and other inconveniences.

2. Regarding the preparation of host university:

I think it was better if the host university could have **detail or basic handout** about the places/factories/facilities which students visited. In experience, when we came to waste treatment facility (e.g incineration), because of very terrible odor

emitting from waste decomposition, most of students were not able to concentrate on lecture/explanation from staff. Therefore, we had not much information of treatment facility. In this case, handout will be useful for students to make report and presentation after the trip.

Thanks from the participated students:

First of all, we would like to express our thanks to The University of Tsukuba and Hanoi University of Sciences who supported this interesting trip. The most special thanks for Professor organized and guided the trip, especially Prof. Lei Zhongfang for her kind help, without her support surely we could not complete our trip successfully. For most students, this first international internship will be an unforgettable experience in Vietnam.

Thank you very much for being my friends!

Best wishes,

Hoang Trung Thanh

14 January, 2014