Domestic Fieldwork
Assis.Prof. WATANABE (ta)
Green Asia Assistant Professor, Green Asia Education Center

Outline:
On February 2nd, 2018, Green Asia students visited Fukuoka city Rinkai Recycle Plaza and Fukuoka City Disaster Prevention Center both located in Fukuoka city. The total number of the participants of the tour was 11, including 10 GA students. 1 GA professor. The detail of the tour is as follows:

Purpose of the Tour:
• Discover the products being recycled and the various processes of production at Fukuoka city Rinkai Recycle Plaza and learn to protect oneself from natural disaster at Fukuoka City Disaster Prevention Center.
• Meet and discuss with experts in order to understand the key operational activities of the facilities and their policies/strategies.
• Provide a novel opportunity for students to increase their knowledge of modern Japanese industries.
• Provide new students with an opportunity to become more intimately acquainted with their peers.

The tour as a whole, including transportation, provided the students with the opportunity to display their leadership qualities, creativity, initiative, intellectual ability and communication skills in English.

During the tour students were asked to note the following points:
1. Students who participate in the tour will be divided into small groups. Each group will have a leader and a sub-leader designated by the GA office before the tour. The leader and sub-leader should take responsibility for all the members of their team. (Please see the group list)
2. Each group will include at least one Japanese student who is required to interpret and facilitate communication with the company staff and the team.

3. Students who have a laptop computer should bring it on the tour for the convenient writing and editing of his or her report.

Transportation:
Chartered bus and public transportations.

Tour Schedule
TIME | DESCRIPTION
--- | ---
09:15 | Students will meet up at the bus stop of Kyushu Express Bus at Bus Stop Kishi.
09:30 | Depart from Bus Stop Kishi.
10:15 | Students will meet up in front of C-Cube (Depart)
11:30 | Chartered bus will arrive at Fukuoka City Disaster Prevention Center.
12:30 | Hands-on course for learning papermaking.
15:00 | Depart from Fukuoka City Disaster Prevention Center.
14:00 | Arrive at Monosori Hama (TNC Lunchtime)
15:00 | Arrive at Fukuoka City Disaster Prevention Center (For Learners through the experience of the simulated earthquake, fire, and flood).
16:00 | Lecture on improving your judgment in critical situations (50 min), Q&A
17:00 | End of the tour, participants take public transportation to return home.

Assignments:
1. Students who participate in the tour are divided into small groups during the tour. Each group includes at least one Japanese student who is required to play a role as an interpreter for his group members during the tour.
2. Each group has a leader and a sub leader designated by the GA office before the tour.
3. After the tour each group will be required to submit a report about all the destinations respectively.
4. The leader and a sub leader of each group are responsible for editing the tour report. The report should consist of several sections and at least one section should be assigned to each group member. Each section of the report must be more than 400 words long.

5. The report should be typed, 12pt Times New Roman on an A4 sheet in the PDF format and to be sent to the GA office via email within one week.

The following is one of the tour reports submitted by one of the student groups.

Domestic Travel of Industrial System in Feb 2nd
Clean Park Rinkai Kanzyo Hibiwa

This facility is an incineration plant of burnable garbage. The capacity is 23 cubic meters, and incineration capacity is 960 tons (3,475,000,000 Kcal) per day. This facility can store about 2,700 tons of garbage. Since a garbage truck can collect 2 – 3 tons of garbage at a time, the pit corresponds to about 1,200 garbage trucks. The monthly expense of the truck for burnable garbage is 3.5 million yen. There are two other facilities of the same size in Fukuoka city.

Also, since around 1957 garbage is collected in the night to avoid traffic jam. The garbage collected by the garbage trucks is collected once in the pit. Meanwhile, the amount of water in the garbage is reduced and it becomes easy to be burned. Garbage is mixed by the crane automatically controlled by the computer, and it is carried to the incinerator. To make garbage easier burned, mix the garbage and make the type uniform. The crane can carry about 10 tons of garbage at a time. The incinerator is a stoker furnace. By the moving floor, the garbage is slowly moved. And it is burned for 4 – 5 hours. When it is sent from the gap of the floor and dry it for making perfect ash. Then it is burned vigorously. The smell of garage and harmful dioxins are thermally decomposed at 850 – 950 ° C. And it is finally burned thoroughly until it becomes complete ash. Electricity is generated by the heat, which is generated by burning this garbage. The maximum power generation is 25,000 kW, which is the usage of 67,000 households. Electricity will naturally be used to drive the plant and surplus electricity is sold to electric power company. The ash is stored in this ash pit after it is cooled with water. Also, small fly ashes contained in the combustion gas is removed by the dust collector, processed with chemicals, and collected in the same pit. By rapidly cooling this combustion gas to under 200 ° C it is possible to reduce the amount of dioxin produced. Dioxin production is considered to increase with metals such as copper contained in garbage and it is studied at Spring 9, where is owned by Riken. Finally ash of 1/20 volume of garbage is carried to the landfill site. In addition, ash burn at over 1,200 ° C, it becomes slag such like sand. This is half the capacity of ash, it is used for road etc. Finally, a few people in the control room change every 12 hours, so I am wondering if they were working too much.

Recyle & ReCycle in Rinkai Recycle Plaza
Akira Nasho

After looking around inside of rubbish disposal site of Fukuoka city, the office staffs guided us to the recycle and re-use area in Fukuoka City Rinkai Recycle Plaza, there are free re-use store. Everyone is welcomed to give anything that they do not need and throw away there. The things that put in the center are washed and sold for free in the center. If the things look old or break a little, volunteers repair as being able to use and sell. There was a lot of thing that we can use normally such as clothes, dishes, family desk and even instruments. If they cannot anymore or difficult to repair, they are recycled to other uses such as broken umbrella and used drink box. A lot of thing that were made of unnecessary timber or umbrella were exhibited: for example, apparel made from umbrella cloth, ornaments made from driftwood or waste wood.

In the activity, we made post cards from used drink box. First, sink the net attached with water frame into the water filling pieces of weather and fibers of drink box, and lift up it; do this twice. Second, after removing it from the net, decorate the set wood pieces of origami or lighting paper. Third, cover with a small amount of wet pieces of paper and fibers of drink box, and press it by tucking with two towels. Finally, using clothes iron, dry the paper and then we do it well wet it. Volunteers taught us the process so kindly, and we talked with them about the university, our research and system in Fukuoka City Rinkai Recycle Plaza. A man who seems such as organizer of volunteer told me volunteers. The people who were teaching us making post card, repairing furniture, making some ornaments and even the organizer were volunteers surprisingly.

I was so amazed because the quality of things and working level were very high. The organizer told us Fukuoka City Rinkai Recycle Plaza is not only place running with volunteers. In Fukuoka city there is a volunteer agency and many Kyushu university students participate in these. They learn how they organize volunteer and gather people. Some students are working as leaders of volunteer group in Fukuoka, Fukuoka and even in East Asian country in real, he said. Thanks to the Volunteers, we could experience this precious activity. We need to tell our friends this experiences and volunteers.
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Fukuoka City Disaster Prevention Center

3. Students who have a laptop computer should bring it on the tour for the convenient writing and editing of his or her report.

Transportation:
Chartered bus and public transportsations.

Tour Schedule

<table>
<thead>
<tr>
<th>Time</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>09:15</td>
<td>Bus students will meet up at the bus stop of kyudai asakukubou (drop off point)</td>
</tr>
<tr>
<td>09:30</td>
<td>Depart from Its Campus</td>
</tr>
<tr>
<td>10:15</td>
<td>Chikusho students will meet up in front of C-Cube Campus</td>
</tr>
<tr>
<td>10:30</td>
<td>From Chikusho Campus</td>
</tr>
<tr>
<td>11:15</td>
<td>Arrive at Fukuoka City Recycle Plaza Tour inside the plant.</td>
</tr>
<tr>
<td>11:30</td>
<td>OBA</td>
</tr>
<tr>
<td>12:30</td>
<td>Hands-on course for learning papermaking</td>
</tr>
<tr>
<td>13:00</td>
<td>Depart from Fukuoka City Recycle Plaza</td>
</tr>
<tr>
<td>14:00</td>
<td>Arrive at Mochiwa Hama (TNC Lunchtime)</td>
</tr>
<tr>
<td>15:00</td>
<td>Arrive at Fukuoka City Disaster Prevention Center on foot through the experience of the simulated earthquake, fire, and flood.</td>
</tr>
<tr>
<td>16:00</td>
<td>Lecture on improving your judgment in critical situations (30 min), OBA.</td>
</tr>
<tr>
<td>17:00</td>
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Domestic Travel of Industrial System in Feb 2nd
Cran Park Rinkai Kanoya Hiihatsu

This facility is an incineration plant of burnable garbage. The capacity is 23 cubic meters, and incineration capacity is 960 tons (264, 320 units) per day. This facility can store about 2,700 tons of garbage. Since a garbage truck can collect 2 – 3 tons of garbage at a time, the pit corresponds to about 1,200 garbage trucks. The monthly expense of the truck for burnable garbage is 1,532 million yen. There are two other facilities of the same size in Fukuoka city.

Also, since around 1957 garbage is collected in the night to avoid traffic jam. The garbage collected by the garbage trucks is collected once in the pit. Meanwhile, the amount of water in the garbage is reduced and it becomes easy to be burned. Garbage is mixed by the crane automatically controlled by the computer, and it is carried to the incinerator. To make garbage easier burned, mix the garbage and make the type uniform. The crane can carry about 10 tons of garbage at a time. The incinerator is a stoker furnace. By the moving floor, the garbage is slowly moved. And it is burned for 4 – 5 hours. Wind is sent from the gap of the floor and dry it for making perfect ash. Then it is burned vigorously. The smell of garbage and harmful dioxins are thermally decomposed at 850-950 °C. And it is finally burned thoroughly until it becomes complete ash. Electricity is generated by the heat, which is generated by burning this garbage. The maximum power generation is 25,000 KW, which is the usage of 67,000 households. Electricity will naturally be used to drive the plant and surplus electricity is sold to electric power company. The ash is stored in this ash pit after it is cooled with water. Also, small fly ashes contained in the combustion gas is removed by the dust collector, processed with chemicals, and collected in the same pit. By rapidly cooling this combustion gas to under 200 °C it is possible to reduce the amount of dioxin produced. Dioxin production is considered to increase with metals such as copper contained in garbage and it is studied at SPRING, who is owned by RIKEN. Finally, ash of 1/20 volume of garbage is carried to the landfill site. In addition, ash burrs at over 1,200 °C, it becomes slag such like sand. This is half the capacity of ash, it is used for road etc. Finally, a few people in the control room change every 12 hours, so I am wondering if they were working too much.
March 11, 2011, East Japan great earthquake occurred suddenly. Then a huge tsunami attacked and took many people life. Most cases, we cannot expect such misfortune and get involved that nature monster. Therefore, we should consider about protect my life from the emergency. At Fukuoka city disaster prevention center, we learned about the fear of disaster as earthquake, storm, flood and fire by lecture. Also we experienced such disaster by simulation and we considered how to deal with those.

At first, we thought about what to prepare for the disaster. In a big calamity, we may be lose a house and it will be difficult to gain food, so it is important to prepare evacuation bags. In particular, we should reserve many water, simple and long lasting food, durable and warm clothing, then copied identification card. In addition, pocket size self-powered equipment that can generate electricity, get radio, emit light and charge electrically is very useful for refugees. These goods will save us from a tough finding shelter life. And when something disaster occurred actually, we must behave carefully and escape to a safe place and get accurate information from TV, radio or internet.

And next, we experienced, natural disasters in the most severe case by simulation machine. The seismic intensity 7 earthquake was as violent as a scream machine, and we could not stay sit straight. In windstorm of 40 meters, the wind power was very strong, so we might fell if we had without something to support ourselves. With a depth of water of 40 centimeters, the water pressure was extremely high, so the 3 powerful men were unable to open the door. With those simulated experience, we felt how strong the power of nature is.

Finally, we tried evacuation drills and firefighting. When escapes from the fire building, hot and harmful smoke causes breathing difficulties, so we were warned not to inhale it. However, most of us sucked in fake smoke despite being covering the mouth with a cloth. It is a ridiculous story, but we gained polluted smoke by own nose. By virtual reality training, we realized that the way to protect ourselves was wrong until now. And it was a very good experience to have extinguishing fire training using fire extinguisher. If we find a fire we should turn off the fire as soon as possible, but the fire spreads fast, so we must escape when the fire reaches the ceiling. Then we must inform that a fire has occurred around us and call the fire department.

From these things, we learned the fear of natural disasters and fires, and we obtained a knowledge of way to deal with them. In something disaster, we have to take the lead and cooperate with the people around us because we know how to act the right thing. Most importantly, in order to get over from a painful disaster, we must be conscious of that and beware habitually. At this center, we could get a very precious experience of disaster.

The appearance is being shaken students by the earthquake simulation machine.

Evacuation drills and firefighting

Disaster Prevention Lecture & Conclusion
Shun Wu

The last part of the travel was a lecture about self-saving and supplies separation for sudden disaster. This was a very serious lecture for us foreigners to get ready to rescue ourselves during the disasters by preparing some supplies, such as food, water and others. We were motivated and inspired to do a brainstorm that considered about what kinds of substances should be prepared for emergency. Our ideas included a torch, medicines, blankets, even books and some alcohol. But our guider also mentioned some imperative things but easy to forget, usually, portable mechanical chargers and a radio. It is so naturally that the consideration of supplies for emergency should be as detailed and precise as possible. This was the most attractive parts in this lecture I think. In China, we usually ignore these disasters, as they are not so frequent like Japanese situation. Too peaceful life may let us leave from the aware of disaster prevention. Conversely, we could also be very sensitive and result in panic easily. once if we think these overwhelming damages actually are so close for us. This lecture and the whole experience in Disaster Prevention Center play a role of vaccine of disaster aware for me.

In conclusion, during the first part of this domestic tour, we have visited the Rinkai garbage disposal plant and the recycle/reuse store inside. We learned how the burnable garbage we create are collected, mixed, incinerated, filtered and landfilled. We have a clear concept about how much garbage a city can create in a single day and how much resource and energy that still store in those forgotten garbage. The mechanism of garbage disposal also let me feel pride for the city I live and cherish the current fluent garbage recycling regulations. The environment aware has been raised firmly, due to the better understand about how difficult and complex the recycling rules are.

For the section in Fukuoka City Disaster Prevention Center, we also got a lot of experience on securing. You always need to be calm and try to judge the environment nearby clearly and make the decision on evacuation routes. After all, all of us tasted how fear these terrible things are.
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RTW India food was delicious
Standard ending: group photo

Here we also collected some interesting points we observed in this tour: 1) the crew scheduling in Rinkai Recycle Center; 2) lacking volunteers in reuse store; 3) relatively simple drill for emergency reaction.

Finally, anyway, we spent a really practical course. We get a chance to meet each other again. And the most important thing is that smiles always appear on everyone’s face.