City University of Hong Kong
Department of Public Policy
SAGE Tokyo Post-Study Trip Report 2013/2014
January 6 – 11, 2014
Foreword

Dr. CHEUNG Kam Chuen, Arthur, SAGE Coordinator

Thanks to the support of the Department of Public Policy, we could conduct a wonderful study trip to discover the waste management facilities and culture in one of the cleanest cities – Tokyo in Japan. The study trip is one of the whole-person development activities of the Department’s SAGE Scheme which has been launched by the Department since 2006 to provide a wide-range of student-centered activities to enhance students’ learning culture, contributing to the growth of ideal graduates according to the institution’s mission statement.

Based on the successful learning experience from two prior study trips in January and December 2012 to study the presidential election in Taiwan and South Korea, respectively, a group of the Department’s students initiated to plan another study trip to Tokyo. With their devotion and the generous support of the contact persons in Tokyo, the trip was successfully conducted from 6th to 11th January 2014 with 36 students taking part in the learning activity from planning of the trip to producing this report. It is a great pleasure to witness the students’ intellectual and personal growth during the process, especially their leadership and coordinating abilities. It is also great fun to read what they have discovered during the trip. Enjoy reading!
Foreword

Dr. JOHNSON, Thomas, Assistant professor

With Hong Kong facing a serious waste management challenge, government officials have begun to search for solutions overseas. Is Japan’s waste treatment model something that Hong Kong can learn from?

This study tour — generously supported by the Department of Public Policy — was a valuable opportunity for students to consider this question first hand. Through the various site visits, which included landfills, incinerators, and recycling facilities, students could witness one of the most advanced waste management systems in the developed world.

For me, the most pleasing aspect of this trip was the organisational work done by Department of Public Policy students in preparation for, and during, this trip. Thanks to these efforts, the trip went very smoothly, with a full and interesting itinerary. I am certain that this experience will be immensely valuable for our students, and will make all of us reflect more about the ways in which human activities affect the environment — and how societies can tackle pressing environmental issues.
Acknowledgement

We would like to place on record our deepest gratitude to the Department of Public Policy of City University of Hong Kong, Dr. CHEUNG Kam Chuen, Arthur, SAGE Coordinator and Tokyo Trip Leader and Dr. JOHNSON, Thomas, Assistant Professor of Department of Public Policy and Tokyo Trip Leader for your generous guidance, help and advice throughout the trip.

We also wish to extend our heartfelt appreciations to all the related organizations and staff in Japan for their wonderful hospitality and comprehensive information that made our trip a fruitful and a successful one. They include but not limited to (in the order of visiting places): Sakura Hostel Asakusa; CHUBO Disposal Facilities; Kawasaki EcoLife Museum; Shin-Koto Incineration Plant; Yumenoshima Tropical Greenhouse Dome; Re-Tem Corporation; and Waseda University.

Of course, we are extremely thankful to the following students who provided us an intensive and rewarding learning experience. They are the trip planners, which include FUNG Michael Jhon Sison; KU Yiu Chung, Felix; and treasurer, LO Chun Yin, Albert. Also, the Japanese translation team, which was comprised of AU-YEUNG Wing Shan, Chloe; FUNG Michael Jhon Sison; LAU Wai Ning, Winnie; LEE Sze Wing, Tracie; YIM Shun Tee, Sharon; and YU Shuk Ting, Tiffany. Without their dedication and support this trip would not have been held possible.

Last but not least, special thanks must be given to our group mates. They are AU-YEUNG Wing Shan, Chloe; CHAN Hung Hing, Tim; CHOW Wai Man, Candy; and KAN Hugo. It is impressive and intriguing to read all the remarkable reflections done by our fellow classmates. We truly believe that this Tokyo SAGE study trip has enlightened our awareness on environmental protection, which continues to lead us to think, serve, and inspire our society.

Chief Editors, Report Editorial Board
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Itinerary

Day 1 (Jan 6, 2014: 月曜日):
Direct flight from Hong Kong to Tokyo in the afternoon; Get familiar with the area in the evening.

Day 2 (Jan 7, 2014: 火曜日):
Visited CHUBO Disposal Facilities (中防処理施設) that consists of recycling plants, incinerators and related facilities; and the Central Breakwater Outer Landfill Site, the only landfill site in Tokyo; Visited Odaiba area, an artificial island in Tokyo Bay.

Day 3 (Jan 8, 2014: 水曜日):
Visited Kawasaki area to observe waste-related habits of local residents in the morning; Visited Kawasaki EcoLife Museum for the Future (かわさきエコ暮らし未来館) in the afternoon.

Day 4 (Jan 9, 2014: 木曜日):
Visited Shin-Koto Incineration Plant (新江東清掃工場), the largest incinerator in Tokyo in the morning; Visited Yumenoshima Tropical Greenhouse Dome (夢の島熱帯植物館), a greenhouse utilizing heat energy generated by the incinerator in the afternoon.

Day 5 (Jan 10, 2014: 金曜日):
Visited Re-Tem Corporation in the morning; Visited Waseda University for a waste management lecture by Tokyo Environmental Public Service in the afternoon; Tourd around Waseda’s campus; Enjoyed a group dinner with debriefing on campus.

Day 6 (Jan 11, 2014: 土曜日):
Free time in the morning; Left Tokyo in the early afternoon.
Group Visiting Reports
Shin-Koto Incineration Plant was completed in September 1998. It plays an important role of processing combustible waste and recycling energy since the heat generated during the incineration process helps to produce electricity for energy recycling. It has a capacity to process 1,800 ton of waste per day and generates 50000 kW with a steam turbine generator. In addition, the incineration plant is equipped with the state-of-the-art air pollution preventive facilities to removes most of the hydrogen chloride contained in exhaust dust sulfur oxides and mercury. It burns combustible waste continuously at high temperature (800-900 deg C) to ensure complete destruction of dioxins, which successfully maintains the emission of dioxins at much lower level than legally stipulated.

Although recycle has been stressed by the Tokyo Metropolitan Government as the key to deal with waste problem, incineration has still been playing the main role in
Handling waste in Tokyo, almost 76% of waste was handled by incineration in 2010. Shin-Koto Incineration Plant, as the biggest incineration plant in Tokyo, has played a crucial role in handling waste in the city. First, the incineration plant can minimize the volume of waste, since the volume of waste can be reduced to 0.05% after incineration, and this can reduce the pressure to expand landfills in Tokyo Bay. Second, using incineration to handle waste, especially food waste, can reduce the sting of the waste and this can prevent the outbreak of decease.

Apart from handling waste, Shin-Koto Incineration Plant, as a sustainable incineration plant, provides heat energy for nearby public & community facilities through steam generated from boiling water from waste combustion, an energy recovery process known as WtE (waste to energy). The steam is transported through large pipes to multiple neighbouring buildings including a sports center, a swimming pool, and also the tourist spot Yumenoshima Tropical Greenhouse Dome. At the greenhouse dome the heat energy is used to maintain a stable indoors temperature of 22 degrees Celsius in order to sustain tropical plant species on exhibition. The energy recovery from combustion of waste is said to be a ‘green’ practice since it utilizes trash that has no other beneficial purpose and it generates enough energy to replace fossil fuel generated electricity for the neighborhood. We are informed that the collected waste, with thorough sorting and categorizing according to industry standards, contains enough calories that it needs little or no additional fuel for combustion. However, we were not able to obtain enough information at the visit to confirm whether the steam directly supplies heat to maintain the temperature at the greenhouse dome, or goes through a process with turbines to generate electricity to run the facility. Further research is required at this point for clarification.

In the last century, Hong Kong has suspended four incineration plants, but proposed
a new one recently. Our group thinks that Hong Kong could learn from the features of Shin-Koto Incineration Plant. Since the city structure of Hong Kong is compacted, the pollutants generated from the plant should be controlled with extra care. With the advance air pollution preventive facilities, the harmful pollutants will be well controlled around the areas of proposed sites. Also, the waste heat exchange technologies could be borrowed to alleviate the reliance on coal in electricity generation, as to meet the target of energy portfolio by 2020.

On the other hand, construction on incinerator in Hong Kong will face many difficulties. Firstly, it should stress that building an incinerator alone without a holistic waste management approach, which included reduce waste at source and wastes sorting before disposal, cannot alleviate the solid waste problems in Hong Kong. In the absence of strategies to reduce waste at source, an incineration plant will simply become a big fancy to burn the waste, which may even encourage people to produce more waste as they think that all the waste can be disposed of in a convenient way. Also, feeding the unsorted waste into incinerator will lead to the emission of large quantities of toxic pollutants that strongly affect the health of the surrounding residents, regardless of how advance the incineration technology is. Secondly, the location of the incinerator is another key factor. One of the proposed sites of incinerator is the artificial island in Shek Kwu Chau, which locates at South-west of Hong Kong. The prevailing wind may often bring the pollutants back to inland. Though pollutants emitted can be controlled in a minimum level that meets the international safety standard under the current technology, intake the pollutants in trace amount chronically will still impose risk for the local residents. Hence, opposition from the general public is also another difficulty that the government faces.
Overall, Tokyo has developed their waste management model which is, on the one hand, using incineration to deal with waste in short-term, and, on the other hand, promoting the 3Rs (Reuse, Recycle and Reduce) to solve the waste problem in long-term. Shin-Koto Incineration Plant demonstrate how an incineration plant coexist with the local community and its success has made it become the signatory incineration facility in Tokyo, even in the region. Hong Kong should learn from their model and try to apply some parts into our local contexts so as to develop a waste management policy which can be able to solve the waste problem.
1. **Introduction – Yumenoshima Tropical Greenhouse Dome (9th JAN 2014)**

We are glad to participate in the study trip to Tokyo at the beginning of 2014. During these six days, we had learnt a lot from the waste management in Japan. We found that it is very important to establish a well waste-managing culture, including Recycle, Reduce and Reuse (3Rs). Besides, we got a very precious chance to lead a visit in the Yumenoshima Tropical Greenhouse Dome, while facing some difficulties. In the following parts, we would like to talk about what we had learnt from this trip, as well as the difficulties and limitations that we had faced.

2. **Preparation and Running of the Event**
It is a new experience to us that we have to plan a trip for a group of people. Since we knew nothing about the Tropical Greenhouse Dome, first we searched its background information with Google. The information we got are mostly from its official website and Wikipedia. Then we were going to make routine maps. We needed to make sure how to get to that place from the previous visit place and the way to the subway station. The day before the event, we had our last meeting for division of labour. Some of us were assigned to lead the way, be the translator, make the information leaflets and hold the briefing session. During the event day, everything was running smoothly. Indeed, there were some parts that we can do it better and we will discuss the limitations in the later part.

3. Reflection on Waste Management

The smooth operation of the Yumenoshima Tropical Greenhouse and the neighbouring public facilities, and the surrounding green environment of the Shin-Koto Incineration Plant provide the public with a good impression of waste incineration. Using the heat and energy supplied by the Shin-Koto Incineration Plant, the Yumenoshima Tropical Greenhouse serves the educational purposes of letting the public experience the benefits of energy recovery from the municipal solid waste and acquire the environmental knowledge of tropical plants and their relationship with human beings. The fresh air around the Incineration Plant eliminates people’s negative impression of unpleasant odour surrounding waste treatment facilities and black ashes giving out from incinerators. The spacious green public area around the Incineration Plant also enhances the public’s acceptance of the occupying of a spacious land for noxious industry. The Hong Kong government can learn from these tactics of getting the public’s acceptance of incineration by allowing the public to experience the residual benefits of incineration directly.

Although generation of electricity benefits the community facilities nearby and selling of electricity earns income for the incineration plant, these are only the by-products of incineration. We should still consider discreetly the impacts of incineration over
effective waste reduction, the emission of air pollutants and greenhouse gases, the cost effectiveness of waste management. There are still great controversies over the negative impacts of incineration over the environment. Additionally, can the sales of electricity and heat compensate for the high cost of running an incineration plant? From the 2014 Waste Report of the Clean Association of TOKYO 23, the initial plant maintenance and waste management costs of incineration plants were about HKD 5 billion in 2013. The income earned from electricity and heat sold was about HKD 500 million only. Can the land saved, the waste reduced and the energy produced by using incineration compensate for the high running cost of incineration plants or pollution caused by incineration? Will the eager for generating energy from waste, which is thought to be an environmental-friendly energy generation method, deter people from engaging in reducing, reusing and recycling wastes? Thus, when considering the choices of waste treatment, we should not be obsessed by the benefits of their by-products, but should thoroughly consider other effects produced by them.

4. Difficulties and Limitations

- Difficulties:
  When we were preparing for the visit to Yumenoshima Tropical Greenhouse Dome, our group members found that it was difficult to recognize and differentiate the tropical plants inside the Greenhouse Dome, because we have not seen or learnt about those tropical plants before. Moreover, some tropical plants names were “jargon of botany”, which increased the difficulties in memorizing those scientific names and translating them from Japanese into English. And we had jotted down some information of those tropical plants, and also their English and Japanese names on our notes for reference, In order to reduce the possibility for causing any troubles during the translation. Fortunately, the translation was going smoothly during the visit.

- Limitations:
  Because of the time limit, we could not have a comprehensive visit in the Greenhouse Dome, and we missed out the theatre where a video about tropical forests and tropical plants is showing. In general, we visited most of the area of the Greenhouse Dome and acquired the knowledge about the operation of the Greenhouse Dome that relies on the Shin Koto Incineration
Plant, and we had learnt more about the tropical plants and the reptiles too. It was a valuable experience in knowing more about the tropical rain forests, which are not tangible in a concrete forest like Hong Kong.

5. Conclusion

This study trip had given us many valuable learning experiences and made our university lives more flourishing. Preparing the routine of visiting the Tropical Greenhouse Dome was a great challenge for us, since we were responsible to all participants in the trip. We needed to be very familiar with this facility in order to introduce it to our fellows, and bring them to the destination in a safe and efficient way. Although the language barrier and the difficulty in translating those specific science terms were obstacles to us, still, we could overcome it and held the event smoothly. It was really a precious experience for us that we were working as a team and leaders. Not only enhancing our leadership and organizational skills, but also learn more about the environmental policy and waste management in Tokyo. The correlation of the Incineration Plant and the Tropical Greenhouse Dome is so inspiring for us to re-examine the possibility of building incinerators in Hong Kong. Although there are still many considerations, the experience form Japan has demonstrated a good example that we can learn from.
Our first visiting facility during the trip is the CHUBO Disposal Facilities Administration Office. The site is the final disposal site of waste from Tokyo. The waste treated in this site including the incombustible garbage and large size garbage. We divided our visiting into two parts; we had a brief introduction about the facility in the site in the morning. After that, we visited the bulky waste crushing process facilities and non-flammable waste processing facilities by travelling a tour bus in the afternoon.

We firstly visited the bulky waste crushing process facilities. The facilities process large-size waste starts with separating combustibles from incombustibles. The waste is separated at large-sized waste transfer station in each city or at the receiving yard at the pulverization processing plant for large-sized waste. Citizens who want to throw out their bulky waste need to pay. After separation, refuse from processing large-sized combustibles is incinerated and whose refuse from pulverized incombustibles is disposed of as landfill. There is a very clear guideline and instruction to deal with the waste.

The second facility that we visited in the morning was the Chubo Incombustible Waste Processing Centre completed in 1996. The Centre does two important tasks – pulverization and separation of incombustible waste. Garbage trucks first dump the waste into a storage yard, which is covered by a roof to prevent exposure to rainwater
and spread of bad smell. Waste received from the yard is pulverized into pieces of less than 15 cm for subsequent separation and disposal. The pulverized waste then undergoes a separation process in which iron and aluminium are sorted out by a magnetic selector and recycled whereas the remaining incombustibles are disposed of in landfills.

Instead of transporting the incombustibles directly to the landfill sites, the Tokyo authority introduces two intermediate steps between collection and final disposal. The pulverization process ensures that the size of the waste is not too large for further treatment and landfill, while the separation process maximizes the effort of recycling.

In this sense, the Japanese have two levels of waste segregation – one at the households and the other at the processing centre. One would be surprised by how careful and serious the Japanese are. However, unlike Tokyo, Hong Kong does not have so many restrictions on handling waste. Waste is directly taken to and dumped into landfills with neither compulsory waste sorting at the household level nor intermediate treatment before final disposal. This is one aspect of waste management which Hong Kong lags behind Tokyo.

When it comes to landfill, common impression is everything smells, garbage flying out, surroundings polluted, barren ground, to conclude, really bad. After we went on the bus and had a tour around the Central Breakwater Landfill Site in Tokyo, it came to our surprise that no odour is released, which would annoy residents living nearby, and looks like a coastal plain nature preserve. Scattered around the site are small trees, bushes and flowers. The ground can be reused after covering asphalt and concrete, building another district in Tokyo in the future. It is quite shocking since all we have been hearing about landfills are the negatives but in fact, most of the negatives are not
true here.

We doubt the phenomenon of the graceful atmosphere here and asked for the reason behind, and the tour guide gives all the credits to the comprehensive and systematic waste management, which wastes are sorted into categories spontaneously by the citizens and processed separately.

In contrast to Hong Kong waste management, not focusing on the incineration plants in Japan, Hong Kong does not even establish a waste separation system as the bedrocks of waste treatment and recycling. Waste is the most pressing problem now, and the three strategic landfills will be saturated within decades, regrettably, the dawns could never be found with a chaotic development vision the government proposed, for instance, the construction of incineration plants in Hong Kong is a high controversial issue with no simple solution.

It is time for Hong Kong government to have their reflections on their development of waste management. Little improvement could be made with present waste treatment in the lack of waste classification and a healthy recycling industry. Donald Tsang, our ex-chief executive had also been to Tokyo to draw lessons from Japanese, and the successful story of Japanese waste treatment came from the strict restrictions on the waste collection statutory scheme for both the public and private companies. Establishing a fundamental waste separation and collection scheme with statutory support should be the way for the development of waste management in Hong Kong to go. Meanwhile, the construction of the incineration plant should be granted as a bridge for reaching a more sustainable waste management system but not an ultimate solution for the waste, and Hong Kong government should figure out the ways to deal with the dilemma facing now.

To conclude, we have learnt much in this visit. It was not so difficult to lead this activity because there was a shuttle bus. There was miscommunication problem with the bus driver because the facilities are too big. However, thanks to the staff there and the tour guide, we solved the problem very quickly. After visiting this office, we really appreciate the Japanese. We learnt much in the waste management and what
impressive us a lot is that they do these things voluntarily. Most of the waste processing facilities do not run by the government but run privately.

Another thing is that Japanese people integrated waste management with land use planning. They do not just leave the landfill become saturated but make it become a park, make it become useful and become a part of their life. Therefore, they really have a very good planning on their city’s development. The staffs there make us feel that they really proud of their job because they were happy and willing to answer our questions and show us their technologies. We think that this is also what Hong Kong should do, to open mind and exchange ideas with other counties, and more importantly, to take action.
Before the day we left Japan, the last two stations we visited were Re-tem Corporation and Waseda University. Re-tem Corporation is a resource recycling business company located in Japan. It handles tons of electronic goods being dumped by Japanese every day. They would be broken down into small pieces, but rare and expensive metals can sometimes be found in those electronic wastes and would be collected. It was impressive that Re-tem Corporation expands its business outside Japan and one of its goals is to “create horizontally linked communities via a humble mindset”. The corporation is willing to share its expertise and exchange knowledge with others for the sake of protecting the environment.

For example, it breaks the geographical boundary and endeavors to protect and promote the message of environmental protection globally. The electronic manufacturers in Japan would use those electronic wastes, which can still be reused. It is not only a matter of individuals, but business companies in other regions should also have the consciousness to protect the environment without putting the environment at risk.
After the visit to the Re-tem Corporation, we visited to Waseda University. We had a seminar with the staff in the university regarding to the issue on how they deal with waste in the campus. In effect, the government did not provide lots of support to the incorporate company and other sectors for promoting waste management. But in Waseda University, the scholars and researchers have been studying on how to manage waste in the campus by adopting the 3Rs approach (Reuse, Reduce and Recycle), which is taken in the account with the cost and effectiveness analysis. An answer they came up with was that they should reduce the budget of producing such kinds of products, which would further diminish the amount of waste produced within university.

We were being told that there is only few number of students who really have the consciousness to protect the environment or adopt the habit of 3Rs. Even the number of such students is still limited, but they are still being the platform to communicate with their school on how to improve the waste management.

On the contrary, the staff from the university would practice the waste-sorting habit. For example, there are boxes and bags provided, which could be found in their office, to facilitate the practice waste sorting effectively. Paper or other materials, for instance, would be sorted into designated boxes. In comparison with the students’ awareness of waste sorting, the staff has higher motivation in doing so, which is quite a surprising
The seminar followed with a lecture hosted by a Japanese government official in Waseda University as well. He sketched out the strategy of waste management in Japan and the changes and development of waste management throughout the history of Japan, especially from 1950s to 1980s. In the initial stage, problems regarding to how waste was dumped or processed were far from satisfaction. Garbage triggered fire accidents, the crisis of flies, illegal dumping and garbage war. Then the government finally realized the severity of such problems and has begun to tackle this issue since 1990s. With just 20 years, Japan have performed really well in terms of the reduction of waste, encouraging its citizens to adopt waste sorting and other environmental protection practices, enacting and exercising laws strictly.

For example, Tokyo generates 13,000 tons municipal solid waste (MSW) daily. 80% of them are combustible and 23-ward in Tokyo has 21 incineration plants but it operates with a strict control of syngas emission. Also the government holds positive attitude to speak with the neighborhood and runs various kinds of voluntary community recycling activities. The key to the great success of the waste management in Japan is the tight cooperation among the government, citizens, business sectors and other parties in society. In Hong Kong, every one of us should emulate the unity of different parties in Japan; it is not only the key to tackle the waste problem in Hong Kong, but other social problems as well.

To conclude, this trip was worth visiting. We have benefited from how Japanese deals with their social problems, their culture. For example, lots of them are very committed to the place they live in as some of them might even volunteer themselves to clean the
streets, many of whom are young citizens, and there is actually not much waste could be seen on the streets.
Introduction

In the recent years, solid waste problem has become a huge challenge for Hong Kong. Hong Kong’s three strategic landfills will be saturated by 2018/2019. There is an urge for us to come up a sustainable method to handle the huge amount of municipal solid waste produced per day. The government has proposed to expand the landfill sites and construct the Integrated Waste Management Facilities which adopted incineration as the main technology. However, both of the proposals faced strong opposition.

As same as Hong Kong, waste problem is one of the crucial issue in Tokyo. Japan is excel in waste management, which even attains a leading status in this field around the world. Tokyo 23 districts produce a great amount of waste each day. However, the land available for landfill is limited. In order to make their landfill sites more sustainable, Japanese government applies various technologies such as incineration and recycling in waste management.

On the 3rd day of the trip, we visited Kawasaki. In the morning, we interviewed local citizens about their opinions of waste management and observed their waste disposal habits. We discovered that citizen’s awareness is essential for waste management. We visited Kawasaki EcoLife Museum for the Future after lunch to explore the development of renewable energy in Tokyo. We gained valuable knowledge and experiences in Kawasaki area.

Observations and interviews in Kawasaki
Before visiting the Kawasaki EcoLife Museum for the Future in afternoon, we conducted a few interviews with the local citizens concerning waste management in Tokyo, and observed their waste disposal habits.

We interviewed four people in their age of 20-30 in Kawasaki. They caught our attention because they were picking up rubbish left on the road. They told us that they worked as volunteers once a month to make the environment cleaner. They explained that “collecting rubbish can make our community to be a better one. As it is good for the community and it is worth to do so.” After collecting the rubbish, they would send the rubbish to the assembly point for further processing. Moreover, they said “unlike Taiwan and China, there are very few rubbish bins on the road in Japan; we have to bring our rubbish back home for garbage sorting and disposal.” Our interviewees told us that most of the Japanese learnt about waste sorting from their family and teachers since they were young. Japanese takes garbage sorting as a daily habits and they are used to it.

We found that there were very few rubbish bins on the road. Waste sorting bins could only be found insides or in front of convenience stores, department stores or next to vending machines. Recycling bins next to vending machines were provided by the companies who own the vending machine. In other words, the
business companies shared the responsibilities to recycle or reuse materials. In
addition, we found that some restaurants had their own rubbish bins to collect their
waste. They had to pay extra fee for using the rubbish bins or hiring related companies to
handle their waste. Moreover, we discovered that recycling labels were clearly printed on products
or goods. The categories which the recyclable materials belong to were well-indicated. Hence,
citizens would not get confused easily when they were doing waste sorting. On that day, Kawasaki
city was collecting plastic wastes. Citizens had to pack all plastic bottle or wastes into garbage bags
and placed them on the street. Blue garbage trucks would collect and transfer them to the
processing centre.

Visiting the Kawashaki EcoLife Museum for the Future and the Ukishima Solar
Power Plant

We visited the Kawashaki EcoLife Museum for the Future in the afternoon. The Museum
has been opened since August 6 2011. It focuses on three main themes: global
warming, renewable energy and resource recycling. Other than exploring the
exhibition of the Museum, we also went to see the Kawasaki Mega Solar Power Plant
which is adjacent to the Museum and the recyclable resources selection area.

The Kawasaki Mega Solar Power Plant is a joint project between Kawasaki
City and Tokyo Electric Power Company. We paid a visit to one of the two solar power
plants of the project - Ukishima Solar Power Plant (The other power plant is in
Ohgishima). The two plants have a total power generation capacity of 20000 Kw and
the output is equivalent to the annual energy consumption of 5900 households.
Besides, we observed how garbage being separated by men. The waste separation studio near the Museum only handles two separations of resources, which is paper and plastic. After the selection, the separated resources will be sent to recycling factories for producing tissue paper, book, chair, and clothes stand etc.

We visited the second floor of the Museum. It is divided into three zones - renewable energy zone, resources recycling challenge zone and global warming zone. Unfortunately, we did not have enough time to explore the three zones thoroughly.

Summary for whole day activities
The experience we gained on that day is much more than our expectation. We learnt more about the perspective of the front line of Japanese society on waste management and disposal. Other than that, visiting the Kawasaki EcoLife Museum for the Future equipped us with knowledge about how Japan effectively utilizes her land resources to develop renewable energy.

The interview and observation session in the morning allowed us to collect primary information concerning the issue of waste management in Japan. The most unexpected discovery was seeing four Japanese collecting wastes voluntarily as mentioned. All of us were surprised by their devotion and determination in making a cleaner, better community. We found that they had strong civil awareness and sensitivity on waste sorting through the interview. We believed that it was attributed by planned behavior. The Japanese receive environmental education since they were young. Also, they live in a society which everyone is doing waste sorting. They tend to be more aware of waste management and treat it as a daily affair.

Visiting the Kawasaki EcoLife Museum of the future was a great opportunity to for us to learn more about recycling and renewable energy. It also raised our concern about environmental problems. After the visit, we realized the limit of the solar energy plants to collect the solar energy per day. We were quite surprised that summer is not the “peak season” of collecting solar energy. Apart from that, we
found out that the areas where the Kawasaki EcoLife Museum of the future and the Kawasaki Mega Solar Power Generation Plant are lent by the Kawashaki government to the Tokyo Electric Power Company for the sake of providing energy for the Tokyo area. Once, the rental is expired, the Company has to returned the land to the government and moved out of that area. No matter Tokyo or Kawashaki, both of them are actually facing the same problem - the lack of land for public utilities, such as waste processing and renewable energy generation.

**Activity reflection**

Day 3 was the first day that all the 38 of us traveled by public transport to the visiting area, we had done some preparation beforehand. As the railway in Tokyo is very complicated, it was quite difficult for us to identity which line should we take and which station should we take off. Nevertheless, we found out the best way to get there and everything went smooth in that morning.

In the morning session, the activity was well-organized. We were happy to see that the groups had used the information and questionnaires provided by our groups as their references to conduct interviews with people living in the region of Kawasaki. We were grad to know that all of the groups have obtained fruitful morning. They gained valuable interview experiences and observation.

We did not do well in the afternoon session. The Kawasaki EcoLife Museum for the Future only provided Japanese tour guide. One of our schoolmates translated the messages for us. Since we spent almost half of the time outdoor, especially in the specious area, it was very difficult to hear his voice clearly. As the leading group, we should have made a better arrangement on translation during the tour in the Museum, so as to facilitate the conveyance of messages delivered by the tour guide. This might help everyone to receive information better.
Individual Reflection Reports
Hong Kong is facing a disposal problem same as Tokyo, Japan. However, Japan has been the leading country in waste management and continues to improve the disposal problems by effective measures including recycle rule, garbage sorting, incineration plant, landfill sites and encouraging citizens to perform garbage sorting and reduce waste disposal.

In the Tokyo Study Trip, we have visited many different disposal or waste management facilities, for example, CHUBO Disposal Facilities, Central Breakwater Outer Landfill Site, Kawasaki EcoLife Museum, Shin-Koto Incineration Plant, and Re-Tem Corporation.

The most impressive facilities

There are many facilities which have impressed me such as Central Breakwater Outer Landfill Site and the Shin-Koto Incineration Plant. However, the most impressive one is the Shin-Koto Incineration Plant. Recently there are many oppositions in constructing incineration plant in Hong Kong because many citizens fear that incineration plant would produce toxic gas or smell and cause air pollution. Citizens who live nearby the proposed incineration plant worry that their living environment will be affected.

Before the trip, I have little knowledge about incineration plant and have the same thinking that incineration plant may produce more negative effects than benefits. In the trip, we visited the Shin-Koto Incineration Plant. It is the largest incinerator in Tokyo. It is surprising that the incineration plant is like a museum which contains a lot of teaching machines, games and videos to let the visitors know how the incineration plant functions, how to control the pollution by removing most of hydrogen chloride, dust, sulfur oxides and mercury, how the incineration plant can be more environmentally friendly and sustainable, etc.

The Shin-Koto Incineration Plant is one of the biggest plants in Japan. It incinerates 1,800-ton of waste daily and plays an important role of processing the waste produced within 23 cities in Tokyo. The Shin-Koto has done a lot to ensure the air pollution during the incineration process is controlled well below the regulatory standards. It is not surprising that the incineration plant in Japan can control the toxic gas and dioxins exhausted under the regulatory standards. However, the most impressive feature of this incineration plant is that it uses the heat generated from wastes incineration to supply electricity to itself and also the nearby public facilities including Yumenoshima House of Tropical Plants Tokyo and Tatsumi International Swimming Pool Tokyo.

It is impressive that the incineration plant does not only incinerate waste but also provide energy to other public facilities in order to make its image become more environmentally friendly, sustainable and helpful to the public.

The pollutants from the incineration plants are far below the regulatory standards through using high technology. I think it is not difficult to learn this technology and use it in Hong Kong. However,
the most important challenge is what the Hong Kong citizens think. Japan can continue to improve its disposal problem not only by improving the technology but also the norms of the citizens.

In the study trip, the most impressive learning besides the waste management facilities is the norms of the Japanese citizens. They have a high level of consensus in performing garbage sorting. After visiting the waste management facilities, it is believed that garbage sorting is really effective for reducing waste, better operation of landfills and incinerations. If Hong Kong citizens have the same norms or consensus to reduce garbage and perform garbage sorting, incineration plants and landfills can be better constructed and utilized. Besides advanced technology, it is important that citizens have the consensus to reduce waste.
Japan is one of the leading countries in waste management around the world. It adopts different measures and technologies, including sorting of waste, recycling, incineration and landfill to handle the municipal solid waste. The Japan Study Trip was a valuable learning experience. It allowed me to visit various waste management facilities in Tokyo, such as CHUBO Disposal Facilities, Tokyo Metropolitan Government Landfill Site (Central Breakwater Outer Landfill Site), Kawasaki EcoLife Museum, Shin Koto Incineration Plant, and some related organizations – Yumenoshima Tropical Greenhouse Dome, Re-Tem Corporation and Waseda University. I learnt a lot from my visit to the above sites. Among all of them, the Tokyo Metropolitan Government Landfill Site impressed me most.

Generally, people have negative perception of landfills as they usually emit unpleasant smell and degrade the quality of the neighborhood. For instance, the three strategic landfills in Hong Kong are criticised for realising strong smell that seriously affects people living nearby. Therefore, I used to think that there was no way to eliminate the smell emitted from landfills. After visiting the Tokyo Metropolitan Government Landfill Site, the idea I used to have on landfill has been overthrown. The landfill there had no disgusting odor and the site was indeed very clean as well. I was so amazed by the pleasant environment of the Landfill site.

I learnt about the operation of the Tokyo Metropolitan Government Landfill Site and disposal practice of Tokyo during my visit. The landfill site is the final disposal site of Tokyo port area which handles the waste disposal from Tokyo’s 23 districts. It adopts Sandwich Method for landfilling; in other words, a layer of wastes will be covered with a layer of soil before laying down another layer of waste. This method has some advantages such as preventing waste from scattering, eliminating offensive odors, preventing fires caused by waste and preventing vermin. The landfill
site will be covered with a layer of soil when it reaches a certain thickness. Gas drainage and anti-scattering provision are constructed to drain the landfill gas and prevent the scattering of waste into the sea. In fact, the three strategic landfills in Hong Kong have adopted similar measures. However, our landfills remain unpleasant and smelly.

Other than the outstanding landfill management, the odorless, clean landfill in Tokyo is attributed by incineration of combustible garbage like food waste, and sorting of waste.

Usually food waste is the main source of unpleasant smell. Incineration turns organic wastes into ash which can prevent the smell emitted during fermentation and degradation.

The said landfill will reach its capacity in the coming future. In order to lengthen the lifespan of the last landfill disposal site in the port of Tokyo, the Japanese try to minimize the volume of wastes. The combustible unrecyclable garbage will be sent to incineration plant while the incombustible unrecyclable garbage will be processed and pulverized. The processed waste will then be disposed of at the Landfill.

I was really impressed by the waste management and disposal practice of Tokyo. Each step of waste disposal is well-planned and well-organized. I hope that Hong Kong can handle the waste well someday.

Hong Kong is now facing the problem of waste disposal. The 3 landfills will be full by 2018/2019. However, both the proposals of expanding landfills and constructing the Integrated Waste Management Facilities (Incinerator) have been turned down. Although we still do not have a feasible measure, I think Hong Kong should start carrying out sorting of wastes just like Japan, so as to improve the usage of our landfill sites. Though we do not have incineration to process our combustible waste, sorting can help separate out food waste. We can still find other ways to process it, such as recycling food waste into pig food and fertilizer, etc.
Hong Kong has been facing a severe problem which is lacking proper and sufficient sustainable waste treatment facilities, since Hong Kong highly depends on disposing of the municipal waste onto the landfills but the capacity of its three landfills are becoming full very soon. The lack of sorting waste into different recycling categories furtherworsen the landfill problem by quickening the speed of getting full.

The visit to Tokyo Shin-Koto Incineration Plant consolidates my idea about the operation process of an incineration plant that it can function in such a manner that the nearby area will not be affected by polluted air or odor. The people in Hong Kong, including myself, have long been misguided by the traditional operation of an incinerator. We believe that the air will get dark in color and become toxic and extremely harmful to the health of human beings. This visit makes me believe that actually Hong Kong government can introduce such technology to solve the waste problem in Hong Kong by showing the convincing fact of Japanese technology, since it will likely benefit the communities through a cheaper electricity price and significantly less stinking smell in the humid and hot season.

In Table 1, Hong Kong is the city that produces the largest amount of municipal solid waste but it is the one which only depends on landfills to treat wastes due to serveral factors in which the main obstacle is the opposition from citizens because of health concerns, while Taipei, Tokyo and Seoul have 3, 21 and 4 incineration plants respectively.

According to Table 2, the incineration plant controls air pollutants in a well manner in which the self-measured level of dust, hydrogen chloride, sulfur oxides and nitrogen oxide are all far below the regulatory standard, meaning that the operation of incinerator will not be so evil like our traditional imagination. The performance of the Japanese incineration plant can dispel the doubts of citizens of Hong Kong if the government would like to do such kind of waste treatment.
Moreover, the plant also gives me an understanding that the whole operation process, including putting the waste into the incinerator (see picture), involves very few human resources because of the computer controlled process. A system highly based on the computer can avoid the careless human mistakes causing serious damage to the nearby area and facility, so it can to a certain degree ensure that the neighborhood won’t be injured by fire, explosion and toxic chemicals.

Not only the plant can minimize accidents to human beings, but also it can generate electricity and then sell it to the power plant. With the minimization of toxic chemicals and substance, chance of accident, and the cheaper electricity, the visit to Tokyo Shin-Koto Incineration Plant has changed my previous concept of incineration because it seems to have become a welfare for the citizens instead of a harm to the public health.
Table 1: Air pollution caused by the Tokyo Shin-Koto Incineration Plant

<table>
<thead>
<tr>
<th></th>
<th>Regulatory</th>
<th>Self-regulatory</th>
<th>Reading (average)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dust (g/m³N)</td>
<td>0.08</td>
<td>0.02</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Hydrogen Chloride (ppm)</td>
<td>430</td>
<td>15</td>
<td>&lt;2</td>
</tr>
<tr>
<td>Sulphur Oxides (ppm)</td>
<td>28</td>
<td>20</td>
<td>&lt;1</td>
</tr>
<tr>
<td>Nitrogen Oxide (ppm)</td>
<td>80</td>
<td>60</td>
<td>34</td>
</tr>
<tr>
<td>Mercury (mg/m³N)</td>
<td>---</td>
<td>0.05</td>
<td>&lt;0.005</td>
</tr>
</tbody>
</table>

Table 2: Municipal solid waste volume in different countries’ family (unit: kg/person/day)

<table>
<thead>
<tr>
<th>City</th>
<th>Daily Production</th>
<th>Daily Disposal</th>
<th>Disposal Rate (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Taipei</td>
<td>0.88</td>
<td>0.41</td>
<td>46.6</td>
</tr>
<tr>
<td>Tokyo</td>
<td>1.03</td>
<td>0.79</td>
<td>76.7</td>
</tr>
<tr>
<td>Seoul</td>
<td>1.08</td>
<td>0.35</td>
<td>32.4</td>
</tr>
<tr>
<td>Hong Kong</td>
<td>1.45</td>
<td>0.87</td>
<td>60.0</td>
</tr>
</tbody>
</table>

(Source: http://www.epd.gov.hk/epd/msw_consult/document/)
Currently, Tokyo is facing the same problem of Hong Kong, i.e. shortage of land to build landfill site. This reflection paper will focus on what Hong Kong can learn from the waste management system in Tokyo developed since 1955. In this six-day study trip of visiting waste management facilities in Tokyo, I gained a deeper understanding of how Japan’s waste management system works and why it can be a model for Hong Kong.

Recently, there was a huge discussion on whether Hong Kong should restart using incineration to reduce its reliance on landfill. The discussion was dominated by the opposing ideas saying that incineration will pollute the air and make people unhealthy. However, citizens refused to have a new landfill site near their living place. As a result, it created a dilemma on waste management in Hong Kong.

Donald Tsang, former chief executive of HKSAR, visited the Tamagawa incineration plant in 2010. The visit aimed to learn Japan’s advanced technology to solve the dilemma in Hong Kong. Tamagawa incineration plant is an incineration plant smaller than Shin-Koto incineration plant, the facility we visited in day 4. As the Tamagawa incineration plant impressed Mr. Tsang, Shin-Koto incineration plant also surprised me in its location and incineration process. Firstly, the location of Shin-Koto incineration plant is located near the commercial area in Shin-kiba. As you can see in the picture, the incineration is near the plant museum and close to the commercial buildings. It reminded me that waste management facilities might not absolutely confront with people’s life. In Tokyo, many incineration plants were built within the society. Some of them may be even built near residential areas like the Tamagawa incineration plant. However, we interviewed local citizens in Kawasaki about their preference toward the incinerator and we found that they did not very welcome an incineration
facility near their house. Their answer made me curious about the reason why the incinerator can be built near the households so closely.

The visit to Shin-Koto incineration plant answered my question after discovering the incineration process in the plant. In each stage of the process, all combustible waste will be processed with advanced technology to minimize pollutants in the process. According to the waste report offered by the clean association of Tokyo 23, the quality of air output from the incinerator is all purified and pollutants are much lower than the legally stipulated level. Therefore, the incineration plant can operate within the society without hurting people’s health.

Apart from this, the most impressive session of the incineration plant was the steam turbine generators. They make use of the heat from burning in the incineration process to generate power and sell it for profit. It reshaped my concept of incineration plant about their additional usage. It may be an incentive for private sector to get involved in the waste management industry in Hong Kong.

However, apart from the incinerator, the recycle culture in Japan gave me the most reflection. From my observation in these six days, the Japanese government has successfully embedded the recycle culture in citizens’ life. When we interviewed local citizens in Kawasaki, all of the respondents (two university students and one high school student) responded that recycle was a norm in their lives and there was no regulation to force them to do so. In my point of view, it is not difficult to copy the technologies from Japan. Indeed, the recycle culture is the key point in dealing with the waste management issue. In Japan, it is difficult to find a rubbish bin and most of the rubbish bins are recycle bins. It makes people, at least myself, think before we create garbage. For Hong
Kong, I think waste management issue can be improved by establishing the recycle culture. Government may replace the traditional rubbish bin to recycle bin to assist the development. It is just one step further for everyone in our daily life and it will change the current situation. I think it is possible for Hong Kong to be the next Japan in handling waste.
This study trip to Tokyo was an enlightening experience, especially with the visit to CHUBO Disposal Facilities and the Central Breakwater Outer Landfill Site on the second day of the trip. Waste is being categorized into combustible, incombustible, resources and waste that are large in size. CHUBO is a waste processing center and tons of waste from the Japanese households are being processed every day. It is a center filled with waste, and surprisingly, there is no bad smell, no flies. What I saw was how organized this center was. As seen from the picture below, waste is being handled in an organized manner and would be shredded later for the sake of reducing its volumes and increasing convenience for subsequent treatment. Meanwhile, the surroundings in the picture are very neat indeed.

The visit to the Central Breakwater Outer Landfill Site was another highlight of this trip as well, in my opinion. Look at the picture below, it is difficult to image this land with so many grass is actually a landfill site.

Picture in below actually displays the profile of landfill site, which is actually constructed with garbage that was already reduced in volumes or burnt into ashes. During this visit, we were told that actually there were some facilities being constructed to prepare for the Olympic Games in 2020. Comparing to the landfill sites in Hong Kong that are filled with obnoxious smell and flies, Japan has managed to somehow “beautify” and redefine the stereotype of landfill sites. Also, in Japan, it has managed to tackle the sources of waste by encouraging the Japanese households or companies to adopt the 3Rs approaches (Reuse, Reduce and Recycle) and exercise strict regulations on how companies or factories should dispose their waste.
This visit to the waste processing center and the landfill site were the very beginning of this trip but questions were being raised already, why the same could not happen in Hong Kong? In particular, Hong Kong is already equipped with lots of talents and advanced technologies. Whenever there is a proposal of constructing a new landfill site, oppositions from different parties in the society would arise claiming that the landfill site would have undesirable effects on their living environment and might affect the property price. However, what we have seen from Japan is a different story, waste processing center and landfills are all neat and tidy. We also visited a greenhouse (Yumenoshima Tropical Greenhouse Dome) on Day 4. It operates smoothly with the heat generated by an incineration plant nearby. These visits have made me realized that development of a country or city can co-exist with the protection of environment and there is no need to sacrifice one for another. We should stop giving excuses to ourselves when the landfills in Hong Kong are expected to be full very soon. If we keep turning down the expansion of landfill sites by the government because of our own interests, problems will arise, for instance, harms to ecology. We should start being more responsible to the place we live in, and adopt a greener living style.
It is not the first time for me to be in Tokyo but it is the first time to get an in-depth investigation into their waste management system, for instance, to have a close look on their incineration plants and landfills. Among all the facilities and sites we have been to during the trip, my favorite one is the Outer Central Breakwater Landfill Site.

I live near to the South East New Territories Landfill in Hong Kong. During bad weathers, the stench of the landfill bothers my family and me, and it makes us really unhappy. However, while standing on top of the Outer Central Breakwater Landfill, it does not even smell stinky. It is unbelievable that the Japanese can manage the landfill in such a manner that it doesn’t look like and smell like a landfill. To figure out how the Japanese manage to do that, we have chased back to the origin, the collection and the separation of the waste before they are incinerated and landfilled.

Wastes in Japan are classified into four groups, combustible waste, incombustible waste, large-sized waste and resources. Each of the categories will undergo different path of treatment before running into the landfills, for example, combustible waste will be incinerated directly and processed within the ash-melting plant to change the ashes into slag while incombustible waste will undergo pulverization and selection and landfilled directly. This classification of the waste and the separate treatment of the waste have reduced the volume of the waste and hence, it becomes easier to manage them in the landfills, not same as Hong Kong, where both organic waste and inorganic waste are landfilled directly.

In Hong Kong, there is no incineration plant to combust the waste into ashes and it makes a huge net volume of waste to be landfilled each day. Furthermore, without a comprehensive sorting
system of the waste, organic waste and inorganic waste are all collected together and undergo the same treatment. The stenches of the waste are actually coming from the organic waste, and Hong Kong has no pre-treatment to solve the problem. This is why the Outer Central Breakwater Landfill does not carry the stinky smell because they have incinerated their organic waste before disposing in the landfill.

In my own opinion, after visiting the Outer Central Breakwater Landfill, it is surely that landfill is an inevitable way to treat our waste at the end, even after the incineration, ashes have to be landfilled. The most important point is the process of treatment for the waste. A well-rounded separation and collection system is crucial for implementing the 3Rs, reduce, reuse and recycle. The 3Rs are the fundamental components that we have to follow in order to deal with the waste in a sustainable manner. Moreover, although incinerators may not be the ultimate and ideal goal for Hong Kong waste treatment, it seems that it is the bridge for Hong Kong to reach a more sustainable waste management system. All in all, Hong Kong now faces serious waste problem and decisions have to be made for betterments, Hong Kong should use some of the successful cases from other countries as a prototype to make modifications and develop its own waste management.
The SAGE Tokyo study tour was my first study tour in university life. The previous study tours were mainly in mainland China and just gave me a passing glance at things. But this Tokyo study tour was the most fruitful one and I gained lots of knowledge related to my major. I deeply appreciate the garbage management done by Japan’s government and the citizens’ attitude.

In this six-day study tour, I learned much about Tokyo’s garbage management in every day. The most memorable one is the Shin-Koto Incineration Plant. In fact, Hong Kong had four incineration plants before. Unfortunately, based on the environmental concerns, they had been already closed. The Shin-Koto Incineration Plant uses extremely high technology and does the utmost to prevent producing pollutants. I remember that the refuse crane can carry around 30 tones and the length is 6.5m while height is 4m. It can carry all the participants of this study trip!

Moreover, I had never thought that the incineration plant could emit the heat energy and provide electricity before. The steam gives energy to the nearby swimming pool while the heated water gives energy supply to Yumenoshima Tropical Greenhouse Dome. It is amazing to hear that! These reflect that the Japanese government treats wastes as resources and uses them well.

Besides, I think the Shin-Koto Incineration Plant is the most attractive incineration plant in the world. It is because we can enjoy the surrounding view. In Shin-Koto Incineration Plant, I can see Asakusa Sky Tree, Odaiba Ferris wheel and the Rainbow Bridge, etc. The peaceful and beautiful environment is indeed enjoyable. Unfortunately, I think the Hong Kong government will treat such area as a prime location and sell it to the commercial developers and then build a lot of mansions. I have no doubt to say that developing is far more important than environment protection in Hong Kong.
This incineration plant very warmly welcomes the general public to visit it. When I was visiting it, I saw many primary students visited it before and wrote down some encouraging words or feeling on the cards. To compare with Hong Kong students, do they have opportunities to visit the environmental facilities in Hong Kong? Or the fact is that Hong Kong does not have any valued environmental facilities for the school kids to visit.

The Japanese students studied how to protect the environment when they were young. Therefore they treat the environment and the division of garbage very well. As we were doing observation in Kawasaki area, we interviewed some teenagers who were doing voluntary work which was collecting the rubbishes. How about Hong Kong students? Can Hong Kong students do like this? My answer is probably not or they will do this in order to get the “OLE”. We learnt the three colors of recycling bins when we were in primary school. However, this scheme seems failed.

To ensure a cleaner environment, effective precautionary measures must be taken and an overall environmental protection strategy formulated. The landfill is getting full; the Hong Kong government should educate the public on the sensible use of the environment through the mass media. I know it is hard to do like what the Japanese do. But we must do our best to protect our environment if we are to enjoy a better quality of lives. It is the responsibility of every citizen to protect Hong Kong’s environment.
Tokyo is renowned for its shopping paradise and appealing snacks. But a lot of people did not realize that this city, as metropolitan as Hong Kong, has very distinguished environmental policies that excel its Asian counterparts. This 6-day trip was truly an eye-opening experience that I gained insight from the waste management and matured 3R (Recycle, Reuse, Reduce) skills in Tokyo, particularly from the daily habits of the locals, the practice of the resource recycling corporates and the all-rounded governmental disposal facilities. This report reflects my thinking and learning processes throughout the trip, and my opinions towards the environmental issues of Hong Kong.

The trip was organized with various key spots that I found them all inspirational, but Shin-Koto Incineration Plant and Re-Tem Corporation are the places that I like the most.

Shin-Koto is located at the southeast of Tokyo. It is a national top-class waste disposal plant and is among the largest in Japan. Without experiencing how an incineration plant is like before, I expected that the site would be filthy or filled with compost that smelled noxiously. Apparently, the hi-tech dioxin removal and air-pollution prevention facilities had put my worries aside. What warmly welcomed us was a series of interactive video games that excited me in an early morning, followed by an informative guided tour to different sections of the plant. For example, I observed how the sorted garbage was dumped into the refuse bunker and how the gigantic refuse cranes worked. Additionally, it is pleased to see that the authority has designed the whole plant for educational use. For instance, the boards’ description and sound navigation provide with a number of languages to cater a diversity of visitors; the large windows also allow visitors to witness most of the incineration processes.
Yet, what surprised me most is their broad utilization of energy from the incinerated waste. While solar energy is one of the few renewable energy generated for buildings in Hong Kong, heat and electricity produced from waste can support large infrastructures like Tatsumi International Swimming Pool Tokyo, Yumenoshima Tropical Plant Dome, and also amenities like toilet flushing and water sprinkling. Furthermore, I reckon that the reason why incinerators can be sited near to residential and commercial areas is because their supplementary facilities can harmoniously match with the local social use. Not only are the above-mentioned structures surrounding the plant, but also a yacht (Yumenoshima Marina) and a BMX cycling sports ground. The user-friendliness and urban planning are undoubtedly assets for Japan’s waste management’s success.

Another environmental protection approach I appreciate is the initiatives from their local corporates, such as Re-Tem Corporation. While the street interviews from Kawasaki tell me that citizens preserve both early family and school education on 3Rs, I realized that companies’ effort cannot be underestimated too. For example, Re-Tem aims at humbly conserving the environment with advanced technology, experience and knowledge, and considers waste as a valuable resource. Essentially, they hold regular tours and workshops to raise civilians’ environmental awareness, and enable global exchanges of ideas on waste treatment. Moreover, under economic globalization, what we comprehend now should not be constrained by merely business transactions anymore, but also the many possible resource recycling strategies in manufacturing industries. For instance, Re-Tem visions sustainability and is starting to develop...
Hui Wai Sum, Vincci

eco centers in multiple core international cities. It has also opened up factories and consultancies in mainland China, which facilitates global resources recycling and interchange of raw materials.

As the saying goes, ‘No Pain, No Gain’. It took Japan half a decade and trillions of dollars to establish such consciousness and facilities after several major devastations (e.g. outbreak of flies in 1960s, illegal dumping in 1990s). Although Japan still has problems with landfills and packaging wastes, its government must have put enormous determination to integrate waste management plants into the communities. In the meantime, whilst Hong Kong’s landfills are going to be full in no time and we are still struggling with incinerator disagreements, the growing environmental risk will burst one day. It is regretful to see that related legislatures are always held and swayed by various party political concerns; policies and laws are ineffective and stagnated; and responsibilities and cooperation from individuals and corporations are confusingly missing.

To conclude, I am very impressed by Japan’s efficient and technologically advanced waste disposal facilities. Nonetheless, incinerators or landfills are just the temporary resolutions to us or any other cities, what matters is the collective perseverance attitude of all people to advocate the importance of 3R culture and the cohesive education to our next generations.
Landfill sites usually give an impression of heavily polluted, terribly smelly, visually disruptive and environmentally harmful. After entering the Central Breakwater Landfill Site in Tokyo, it is contrary to what I have expected. There is surprisingly no odour around the site. It is because organic waste, which releases odour while decaying, is separated from main waste stream and prevented from entering landfill. You can see vegetation growing on this island, creating a new district in Tokyo in the future. This reminds me again the importance of waste separation and sorting.

Though intermediate and final waste treatment in Tokyo deserves much appreciation, it could have done better in waste reduction as an Asian leading country in this area. Heavy packaging can be found nearly everywhere in Tokyo from my observation. Modern practices of mass production, as well as the need to attract consumers by the use of fancy, but superfluous, packaging, could lead to shocking rise in packaging waste. Though most of them are recyclable that may be taken back to manufacturers or recycling companies, some non-combustible and combustible, which the latter is turned into ash after incineration, will still end up in landfill. It is preposterous that recycling rate is getting higher with more waste generation at the same time.

Nevertheless, new reclaimed landfill site can only stand for another 50 years. Apparently, Tokyo cannot solely rely on incineration as it is only the lesser of two evils comparing to landfill. It is important to cut down waste at source and implementing waste charging will be a considerable incentive for citizens to do so. As Tokyo is already home to a mature and comprehensive
Lam Hiu Tung, Alice

Waste management system, from collection, sorting, transportation to handling, implementing waste charging will not be a difficult step. Having incinerator in Hong Kong or not has undergone a controversial ongoing debate up to date. The main argument against it is the harmful pollutants emitted. In fact, there are modern technologies minimising the toxic pollutants to benchmark international safety standards. The plant can also be certificated with ISO14001 like what Shin-Koto Incineration Plant did. To me, incinerator is needed to tackle imminent waste problems but it is not a permanent and ultimate approach. More importantly, waste should be sorted well before burning and incinerator should be well-managed to avoid emission of toxic pollutants.

In the long term, we should prioritise our waste policies regarding the waste management hierarchy: prevention and minimisation, reuse, recycling, energy recovery (incineration) and disposal, with the first being the most favoured option and the last being the least. Hong Kong, having similar human development index and population density to Tokyo, could have done better than it appears to be now.
To me, the most impressive and favourite site is first day's visit to CHUBO Disposal Facilities Administration Office. The facilities handle the waste before sending to the landfill and to the incinerators. I am very surprised that Japanese people do not just put all the waste to the landfill but they have some procedures to process the waste first.

In the morning, we saw the procedure of how they cut down the waste into small pieces. We were very curious about why they had to do such things because the waste would go to incinerators or landfills anyway. However, they said that this procedure was very important because it could save space in landfill and also save energy when burning the waste. I think this answer is very impressive because I can know how they cherish their environment and places. They do not mind to do more although it may cost much more time and money.

In the afternoon, we had a brief introduction of the facilities. We knew more how they recycled the waste and made a new product out of the waste. After that, we visited the landfill and this visit was also my favourite and impressive part in this trip. I felt very touching that a landfill could be such a beautiful place. And after saturation, landfill can also become a park or a sport centre for recreational use. The landfill did not have any bad smell and it was actually developing very well because I could see plants starting to grow there. The photo I took at the landfill with a Japanese sentence, that sentence means that 'space is limited, we should cherish the landfill space'. A short sentence can also show their attitude towards their environment.

I studied Japanese culture before and I knew some characteristic of Japanese people. They do not like to bring trouble to others and
they try their best to not affect others. Therefore, they are always on time, they do not use mobile phone on the train. In this trip, I understand a new thing about Japanese people. I think the major reason why they are doing well in the waste classification and waste management is that they do not want to bring trouble to other people and also the environment. They have to protect the environment for the future generation. They cherish the nature very much as they also do well in protecting their historical assets. They think that it is not a big deal to do more individually and it is worthy because they can have a better living environment.

Then how about Hong Kong people? Although the technology cannot be learnt and build in a short time, we can do some first for example to do more in waste recycling. I think this is a small but important step because this can let individual to develop a habit to do such thing. In my opinion, it is not difficult to develop a habit but the problem is when to take action. Therefore, it is time for Hong Kong to take action to deal with the waste problem and it should be started individually first.
Lo Chun Yin, Albert

*Are Incinerators Necessarily Evil?*

With the LegCo rejected government’s proposal of expanding the three ready-to-full landfill sites in the New Territories, *how to dispose of the waste in the coming years* has become a critical question. Since every citizen contributes, to different extents, to the massive amount of municipal solid waste in the city every year, everyone has the responsibility to think of solutions for the problem. This is the main reason why I joined the 6-day Tokyo Study Trip.

Comparing with other Asian countries, Japan has been doing extremely well in waste management. Tokyo, capital city of Japan, adopts a combination of methods – incineration, recycling and landfill – to handle general waste. Of course, such comprehensive approach requires a good system of waste sorting. As I observed in Tokyo and Kawasaki, citizens are legally and socially obliged to separate their daily waste into groups, which are collected on different days of a week and are transported to different locations, e.g. incineration plants, incombustible waste processing centres, pulverization processing plants and recycling facilities. The ash from incinerators, the incombustible waste, and the pulverized waste are dumped into the two landfill sites in Tokyo Bay. The efficient Re-Tem Recycling Corporation and the non-smelly landfills caught my eye. But what impressed me most was the Shin-Koto Incineration Plant.
The Shin-Koto Incineration Plant, one of the biggest plants in the country, burns and decomposes more than 400,000 tons of combustible waste per year. It is equipped with the latest technologies such as gasification, ash melting, and 3Ts (temperature, time, and turbulence). It has to comply with the environmental standards set by laws, as well as internal exhaust control on the emission of toxic substances. All these help to minimize environmental impacts. As an effort to follow the government initiative to build a material-cycle society, ashes produced by the burning process are recycled into eco-cement and slag. Both of them are valuable pavement material which can be inputted back to society. Moreover, with energy recovery technology, the incinerator not only generates electricity for its own powering, but supplies heat energy to nearby facilities like the Yumenoshima Tropical Greenhouse Dome and the Tatsumi International Swimming Pool. It is so neighbor-friendly and beneficial to local community, which is one reason why it can be situated next to residential areas. Last but not least, its attractive design eliminates the stereotypes that incineration plant must be a burden to the image of a city. Its appearance as a ship in the sea is highly compatible with the surrounding area. Given all these benefits, I think Hong Kong should learn from Japan.

In fact, there used to be three old-style incineration plants in Hong Kong, all of which were built in the 1960s and 70s but closed down in the 1990s. Some major reasons accounting for their closure included the emission of dioxins which could cause cancer, the release of greenhouse gases which intensified global warming, and the violation of the principle of environmental justice as the incinerators were situated in relatively poor communities. However, from Tokyo’s experience, I would say that these problems can be solved. The concern over human health and the environment can be eased by the use of advanced, reliable and “green” incineration plants and the observation of state and international emission standards. The minimization of environmental impacts, the energy recovery technology, and the postmodern designs together make incinerators an environmental good (rather than a burden), thus the issue of environmental injustice no longer matters.
In recent years, there seems to be a revival of using incineration in Hong Kong. The Government announced in 2013 the construction of the Integrated Waste Management Facilities (IWMF) in Shek Kwu Chau. It is expected to be completed in 2018 and handle 3000 tons of waste per day. The official target is 23 percent of municipal solid waste to be dealt with by modern incineration in 2022. Not surprisingly, this proposal has been meeting fierce opposition from local environmental groups. In my opinion, such opposition stems from unreasonable fear of incineration, which stems from lack of education. During the visit to the incineration plant, I saw boards with comments and reflections written by primary students. From the comments and the lovely drawings I understood that the Japanese children were taught about the purposes and operation of incinerators, not in classrooms, but in field trips. The education strategy is contributive to the general public acceptance towards incineration. In contrast, students in Hong Kong learn about waste management in classrooms. Their thoughts are bounded as their bodies are physically bounded by the walls. If we want to create a generation who are more open-minded about incineration, we have to imitate the Japanese approach to education.

We have to recognize the merits and value of modern incineration. Since there must be waste which cannot be re-used, reduced and recycled, incineration is needed to deal with this group of “inevitable” waste. There is an essentiality and urgency to build more up-to-standard incinerators – one is not enough – because of shortage of land and large amount of waste induced by consumerism. All in all, Hong Kong should adopt a comprehensive strategy for waste management incorporating landfill, recycling and incineration in a balanced way.
After participating in this study tour, I had learnt a lot on the topic of waste management.

In Day 2 of the tour, we went to the CHUBO Disposal Facilities for visiting. During that visit, I found that the private sector in Japan did a great job in dealing with the rubbish. Firstly, they will divide the garbage, and manage the rubbishes separately. For me, it is an unexpected experience for visiting the facilities. The reason is that it is unbelievable that the facilities for dealing with rubbish would not have the bad smell of rubbish. Moreover, when we went to the Central Breakwater Outer Landfill Site, it was an amazing time. How a beautiful place it was. Although we stayed in a landfill site, it did not have any bad smell. The site visit changed my view about landfill site completely. During the visit, I raised a question, i.e. why the Japanese would separate the rubbish before throwing those rubbish into the rubbish collecting point.

In Day 3, we went to the Kawasaki area to observe waste-related habits of local residents. During the interview, we found that most of the local citizens would be volunteers to gather rubbish on the street. To my belief, such doing is impossible to happen in Hong Kong. However, the Japanese people are proud of having a clean place. Therefore, they will become volunteers for collecting rubbish on the street twice a week. Besides, for solving my question, the interviewees told us that there was a law that required them to undertake the recycle process before throwing rubbish to the rubbish point.

On the other hand, the citizens would separate the rubbish in their home first. Generally, they would have six rubbish bins in their home for recycling waste materials. Through the recycle process, it is easy for the company to recycle the materials before going to the incineration plant and landfill site.

The landfills in Hong Kong are going to be full. According to the head of environmental protection department, reducing waste at source is not the most effective solution since there are plenty of products being produced or wasted, and about 6,000 metric ton domestic wastes is disposed in
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Landfills every day. After this Japan study tour, I find that there are several ways for reducing the waste in Hong Kong. By referring to Japan’s facilities on waste management, it can help Hong Kong to solve the problem of accumulating rubbish.
In the 4th day, we visited the Shin-Koto Incineration Plant. It is one of the largest incineration plants in Japan. The incineration plant impressed me a lot. The plant has advanced design and is equipped with state-of-the-art air pollution preventive facilities which remove most of the air pollutants to far below the regulatory level, especially for dioxins that can have serious adverse health impacts. Also, the plant has made full use of the heat that is generated in the incineration process. The excess heat is collected for electricity generation by the waste heat exchanger and supplied to other nearby facilities, such as greenhouse and swimming pool.

Recently, the construction of incineration plant has undergone intense debate in the local communities in Hong Kong. Hong Kong once had four incineration plants but ceased using incineration in disposing municipal solid waste after the issuance of white paper in 1989 due to the considerable amount of pollution generated. However, the government has suspended this decision and proposed to construct a new incineration plant as most of the existing strategic landfills are expected to be full by 2015. Although the past experience shows that contamination took place in the site, I personally still support the construction of incineration facilities in Hong Kong. During the visit, I understood the technologies that Shin-Koto Incineration Plant employed to control air pollution and other types of contamination which were far more advance and different from the old design that was used in the old days. I have confidence in applying incineration in Hong Kong in the technological perspective.

To me, the implementation is more likely to be an issue of social justice than the environmental one. The government has proposed two sites for selection, namely the Tsang Tsui Ash Lagoons sites in Tuen Mun and Shek Kwu Chau site near the south of Lantau Island. Though both sites have undergone Environmental Impact Assessment (EIA) and have been approved under the EIA Ordinance, the proposal faced strong opposition from the local communities and the district councilors. The public resistance has been widely observed in other societies, which is called “Not In My Back Yard” (NIMBY) Syndrome. The nearby residents would feel that it is unfair for them to bear the negative externalities caused by the entire society, such as lower land prices and fear of adverse health impacts.
In order to compensate the local communities and make the development more favorable, Japan has set up a good model by locating other public facilities near the plant to reduce the resistance from the residents. The electricity supply of those public facilities is supported by the incineration plant. The government can develop a bundled proposal to enhance the feasibility of the project. Besides the public facilities, the government can also consider building vertical green walls and other tourist facilities on the rooftops of the plant to promote the local economy by tourism and introduce the environmentally friendly integrated waste management system to the world.
I am so glad that I have the chance to join this study tour. I feel very lucky because I was on the waiting list at the beginning. The site visits to some environmental facilities really broaden my horizon, especially the Shin-Koto Incineration Plant. But actually, the thing that mostly impressed me is the habit of Japanese people to sort the garbage at the source. They intrinsically think that they have the responsibility to do so. The sense has already become the norms.

In the Shin-Koto Incineration Plant, there is a consummate system for combustible waste treatment, including the garbage transportation, refuse crane and incinerator. Also, the plant uses waste incineration to generate heat, which can be supplied to the nearby public facilities such as the Yumenoshima House of Tropical Plants Tokyo and Tatsumi International Swimming Pool Tokyo. And the plant collects the steam to generate electricity by a steam turbine to maintain its daily operation. It was impressive that the smell of waste was not very strong even inside the plant, especially when we were looking at the refuse crane through the glass window.

In the last summer, I had visited the Yan Oi Tong EcoPark Plastic Resources Recycling Centre in Hong Kong. It is the only local plastic recycling organization. This organization aims at reducing the burden on landfill and also strengthening the public awareness of environmental protection.

At that time, I was only the ambassador to take care of the children who were visiting the site. I did not have a very strong feeling about the recent serious situation of waste treatment in Hong Kong or even the whole world. But after this study trip, I realize that we must do something if we want our future generation to have a suitable environment to live in, maybe just some minor things in our daily life, like sorting the waste before we throw it away, and reducing the production of waste. Compared with the Japanese government, our city does not have enough policy or method to protect the environment. Since we have too much rubbish bin on the street, which is too convenient to let people throw away the rubbish, we should lower the number of garbage bin on the roadside, so as to reduce the motivation of people to produce rubbish. Moreover, the waste treatment should also be improved. This trip is very meaningful to me. In fact, this is my second time to visit Japan, but this is the first time for an academic purpose. Study tours always bring me to some places that I will never visit if I travel for pleasure only. Apart from the technology, I have learnt that the nationals’ quality is
very important to promote the government policy. During the trip, I observed that Japanese people were all disciplined, they would not easily break the rule. I think this is also one of the reasons why Japan can implement public policies easier than Hong Kong. Finally, I really feel thankful to the organizers of this trip so that I can have a memorable tour in my final year of university life.
After visiting various waste management sites such as landfill and incinerator, I fully appreciate the attitude that Japanese government has tried the best to pay great efforts in environment protection. I am in particular amazed by the connection of the whole waste management plan in Tokyo. The Shin-Koto Incineration Plant shows us the procedures of the incineration processes which not only can burn waste, but also can generate electricity to support its operation. Apart from burning combustible waste, the ash created after burning will be used for other purposes. Making good use of everything, even the ash, greatly decreases the amount of waste in the landfill. It is very important to make wise use of all materials until they cannot be used anymore.

In Hong Kong, the landfills are going to be full in an alarming rate. Learning the new technologies in waste management may not be difficult to the Hong Kong government. However, even if the Hong Kong government builds incinerator to deal with the municipal waste, the problem of creating enormous amount of waste in Hong Kong still cannot be solved. Obviously, the government needs to solve the problem concerning the limited capacity of landfills. But at the same time, the government needs to implement a comprehensive recycling plan covering both households and the business sectors. It is because only when we can greatly decrease the amount of waste, the burden on landfills or even the incinerators can be lessened. Otherwise, how much incineration plants we need to have if we continue to produce tremendous amount of wastes every day. Therefore, recycling is the key to alleviate the problem directly from the source. Recycling in Tokyo is successful and we can learn from it. In the Kawasaki EcoLife Museum for the Future, we saw the recycled plastic and paper being processed there to reproduce new things. Although I know that plastic and paper can be recycled, I can never think of recycling in such comprehensive way because I do not put every piece of paper into the recycle bin but the Japanese do so. The recycling policy in Hong Kong has
been in practice for many years without amendments and the results are dissatisfactory. Hong Kong government should draft a comprehensive recycling plan so that citizens can follow the new recycling practices easily. For recycling industry, the government should offer help such as short-term loan as a start to promote the recycling business. If the government turns a blind eye to recycling, we will continue to waste many valuable items and further destroy the environment. One example is plastic bag. In Hong Kong, the plastic bag levy is just a start to encourage people to bring their own bags for shopping. But the government has not provided channels to recycle the plastic bags. Recycling has to be promoted and practiced as soon as possible.

Although we had visited quite a number of waste management facilities, we did not have the opportunity to listen to the views about waste management from different angles throughout the trip. For example, we had not visited NGOs or environmental concern groups so that we might not hear their voice about waste management policies from their perspectives, especially the views about the reclamation of land to build landfill in Tokyo. I really appreciate the design and the advanced technology used in the waste management facilities in Tokyo. But I also concern about the opposition views about constructing these facilities and the relevant bargaining processes between the Tokyo government and other parties. It would be good to know more about how the Japanese government overcomes difficulties to build waste management facility which local people also have certain resistance because the Hong Kong government is also facing the same problem nowadays to carry out construction plans.
As a student majoring in environmental policy, I was glad to join this study trip to investigate the waste management system in Japan. Among all the visits and activities in Tokyo during this six-days trip, the visit to Shin-Koto Incineration Plant impressed me the most. One of the reasons is that this incineration plant has tried to transfer the waste management message to us via many interactive and attractive instruments, just like the mini virtual tour in a dark room before the tour. It has allowed me to have a deeper understanding about the function of different components of the incineration plant even though it was only a brief tour that had not included all the segments in the plant.

In fact, whether to build an Integrated Waste Management Facilities is a hot debate in Hong Kong. Personally, I support the construction of incinerator in Hong Kong as I realize that the current technology can control the toxic pollutants to a minimum level that meet the international safety standard. Moreover, I know that the energy generated from the combustion in the plant can actually benefit the surrounding neighborhood. Therefore, I reckon that incineration is not an ultimate method to deal with waste, but it may be the best method to release the stress of the current landfill sites in this moment. Moreover, after the trip in Tokyo, it is necessary to stress that building an incinerator alone cannot achieve waste reduction in the society as burning all the waste without sorting will lead to the release of toxic substances. Citizens in Tokyo have already cultivated a social norm that waste sorting before disposal is a must, so that the incinerator can work with the best efficiency in Tokyo. Nevertheless, it seems that Hong Kong government has proposed to build an incinerator without strongly promoting the waste sorting practices that would materially hinder the effectiveness of the incinerator, and even encourage the massive consumption and waste disposal as people may simply regard the incinerator as a mega-rubbish bin.

Apart from the incineration technology, I strongly appreciate the transparency of the management of Shin-Koto Incineration Plant. As mentioned by the staff in the plant, the Shin-Koto Incineration Plant is the first plant certificated with ISO14001 standard in Tokyo. In the lobby of the plant, there is a specific area designed to demonstrate the document of ISO14001, including a set of record samples. As I have handled the ISO14001 issues during my previous internships, I am quite familiar with the documentation of ISO14001 system that allows me to realize the content of those documents that is disclosed to public in that area. For example, I could recognize that
the monthly water and electricity consumption, environmental factors identification form and risks identification form of the plant and training record of the staff are disclosed. The disclosure of all this information to public is far more beyond the requirement of ISO14001 standard, implying that the incineration plant indeed has a good management that does not mind to disclose the information for public monitoring. This attitude impressed me very much.
After such an intense six-day study tour in Tokyo, I was so worn-out. However, this trip gave me a lot of delightful memories and had me discovered my interpretation skills that I hadn't used for several years since I got back from Japan. I wasn't so participative and active in any school activities throughout my college life but this six-day study tour can be regarded as a happy wrap up of my very last semester because I have made lots of friends and gained a lot of knowledge about Tokyo CHUBO disposal facilities and how Japanese people deal with the pressured landfill.

Tokyo CHUBO disposal facilities was my favorite visit because, first of all, the staff were really friendly and informative, especially one of the female staff of the facilities, although her English was not really that good but she did try her best to give us the information as much as she could. Secondly, I was really surprised that it was so close to the landfill site but it didn't smell at all. I didn't feel like I was actually in the landfill site, when one of the staff explained the landfill maps of Tokyo to us – where the originally landfill area was situated and back then when Japanese dealt with the expanding garbage problems. I was shocked by the government's planning on the landfill site and how they turned Yumenoshima, a landfill site into a greenhouse and gardens. I can't help but wonder why Japan can do that but Hong Kong cannot, Tokyo and Hong Kong are modern cities and both are facing the same problem – increasing amount of waste, but when Tokyo has successfully put down the amount of waste, in Hong Kong, the amount of waste is staggering. What dragged our feet? Why we cannot confront with the real problem. The landfill site in Tsueng Kwan O is going to be full soon, this is exactly like the elephant in the room, we see it but we don't talk about it.

Referring to the incineration plants and compulsory separation of waste as practiced in Tokyo and other Asian countries, we should take them into account and evaluate the possibility of building incineration plants in Hong Kong as the landfills are reaching its boiling point. If we compare the landfill site in Tokyo and Hong Kong, it is not difficult to see why Japan is so successful because people in Japan are all putting effort to create a better environment for the next generation whereas Hong Kong people keep giving excuses and turning down the idea of the incineration plants.

I remember I had a chance to interview some of the residents around Kawasaki in Kanagawa prefecture. There was a group of well-dressed youngsters picking up garbage on street with their white gloves on and I asked them why they volunteered to do that. In their early education, they had been taught to be responsible to the environment and be responsible to the school work. Unlike Hong Kong, I was very lucky (maybe) that I didn't have to clean up the blackboard, wipe the window glasses and sweep the floor. But this kind of education is extremely crucial to kids because they can be trained to be more responsible people and cherish the neighborhood that we are living in.
Japan is a fantastic country to me. Since I was young, I had been influenced a lot by Japanese culture, such as movie, cartoon, music...so I very much desired to visit Japan. Finally, my dream came true – I joined the SAGE Scheme of Public Policy Department to visit the center of Japan – Tokyo. More importantly, I hope I can gain a lot of knowledge and experience about Tokyo’s waste management through the study trip.

In recent years, Hong Kong is facing a huge challenge of waste problem. Especially, Hong Kong’s landfills are almost saturated, and the expansion of Hong Kong’s landfill sites has been facing strong opposition. The problem is becoming more serious and has raised our concern. Japan's waste management is more successful than Hong Kong’s and has gained a leading status in the world. Not only using landfill, Japanese government also sets up waste incineration facilities to solve waste problem.

In this trip, we visited different waste management facilities in Tokyo and we also interviewed Tokyo residents about their attitude toward solving waste. It was a valuable learning experience for me.

Japan’s waste management emphasizes 3Rs: Reduce, Reuse, and Recycle. Besides, Japan classifies all the waste into 4 categories: Combustible, Incombustible, Large-sized, and Resources. It is a strict waste classification system, and different with Hong Kong: General, Plastic, Metal, and Paper. Different kind of waste will be handled in different way. For example, we visited Shin-Koto Incineration Plant, which is one of the biggest plants in Japan, and incinerates 1800-ton combustible waste per day. Setting up incineration plant can lower the pressure on landfill effectively. However, it will generate dioxins in the incineration process and this has raised many concerns in Hong Kong. But the Shin-Koto Incineration Plant is equipped with state-of-the-art air pollution preventive facilities, which removes most of hydrogen chloride, and reduces the emission of dioxins to low level effectively. Moreover, heat will be generated in the incineration process, and supplied to nearby public facilities, e.g. Yumenoshima House of Tropical Plants. The Shin-Koto Incineration Plant not only eliminates fear of dioxins but also achieves environmental-friendly purposes.
In the trip, my favourite activity was observation and interview with local residents in Kawasaki, not visiting any incineration plant. The success of waste management in Japan has a strong relationship with local residents' support. So we went to Kawasaki area and observed waste-related habits of local residents. In the observation, we were very surprised that there were few rubbish bins in the street, but the street was clean. Also, bins were classified into combustible and incombustible, recycled and non-recycled, not a single general rubbish bin. And there were a lot of plastic bags full of bottles on roadside; we found that Tokyo clean association would collect one specific kind of waste each day, and they were collecting bottles on Wednesday. It reflected that Japanese waste management was quite strict and systematic. Furthermore, we met five local residents who were fashionable; we felt surprised that they were collecting rubbish from the floor. They worked in salon in Kawasaki and performed one day volunteer to pick rubbish. They explained that collecting rubbish voluntarily would be beneficial to the environment which was quite important for them. Also, they thought it was not special, it was just a habit and responsibility developed since they were primary students. I appreciate the Japanese’s positive attitude toward protecting the environment.

Japan has a lot of advanced facilities, e.g. incineration plants to solve waste, however, I think it is not the only one and the most important factor that helps Japan solve the waste problem successfully. It requires other factors to work together to achieve the final goal effectively. Japanese people’s support and self-discipline characteristic are also essential. To be honest, I think Japan’s waste classification is quite inconvenient for me, but it is a part of life of Japanese people, they will classify the waste seriously, e.g. they clean the bottle before recycling it. Their co-operation is effective for Japanese waste management to run smoothly. Hong Kong has implemented recycling policy for more than 10 years, but there is still the "only collection and no recycling" dilemma within the recycling industry, e.g. many recycling bins are placed on the streets of Hong Kong, but general waste is mixed within the recycling bins, which increases sorting and transportation costs. Therefore, citizen awareness is quite essential for waste management. Even if Hong Kong uses Japanese technology, it will not help solve the waste problem if there is a low level of citizen awareness.
The landfill sites in Hong Kong will be full in the near future. This issue has drawn a lot of attention not only among the members in the Legislative Council, but also the general public. As a citizen in Hong Kong, I do hold some responsibility to solve the problem. The Japan study tour does open my eyes and inspire me that Japan’s waste management, to some extent, can actually be adopted in Hong Kong, especially the incineration in Japan.

The waste management in Japan is entirely different from that in Hong Kong which is limited to using landfills. In Japan, the waste is treated with incineration, recycling first and landfill is only the last resort which accepts the unavoidable waste, such as ashes produced from treating waste in incineration plant. Incineration plants in Japan have a very important role since all the combustible wastes will be processed there. In Tokyo alone, there are 19 incineration plants. In fact, Hong Kong heavily relied on incineration until 1980s. The environmental problem induced by the incineration plants was the major issue that put them into an end.

However, the trip to Japan has taught me that environmental protection and incineration are not two mutually exclusive concepts. The experience from Japan indicates that incineration would not necessarily damage the environment and, in the meantime, can reduce the load on landfills. The Shin-Koto Incineration Plant, the largest incineration plant in Tokyo, adopts the latest technology, such as ash melting process, to tackle the environmental problem. The emission from the plant is no longer as harmful as that of the old incineration plant in Hong Kong as it is more than just fulfilling the international standard. Apart from generating non-harmful gas, the plant also generates electricity for sale and heat for use by the near public facilities, such as the Yumenoshima Greenhouse.

Introducing incineration seems to be a perfect method for Hong Kong. In fact, it has to operate along with good waste sorting. Without waste sorting, the waste can hardly be combusted when mixed with incombustible waste. After interviewing the ordinary Japanese citizens during the trip, I realized that waste sorting in Japan was really a personal habit.
Everyone and every family sort their own waste in the first instance. This is why the waste management in Japan is so efficient. This is also the reason that introducing incineration to Hong Kong will probably become an inferior imitation. Waste has to be sorted before incineration which will surely exert huge pressure to the industry since Hong Kong people seldom sort their waste. Introducing hi-tech incineration plants is not a perfect solution.

The main challenge of waste management in Hong Kong cannot be solved in a macrocosmic way, but in a microcosmic way which involves ordinary citizens. In this sense, there are some values that can be identified from Japan’s waste management. To establish a comprehensive strategy, these values have to be recognized by Hong Kong people who must get involved in the waste management. Waste sorting is by all means the most urgent waste management problem for Hong Kong. However, it cannot be achieved overnight. Japanese people spent over 10 years to reach the current level. What about Hongkongers?
The Japanese Government has spent more than two decades to develop their waste management policy and their effort has been widely recognized by many countries. Recently, the expansion of landfill has been a heated topic in Hong Kong and the discussion on waste management has been much fiercer than before. Hence, it is a good opportunity for us to visit Tokyo and learn from them. This trip not only has given me a better understanding of the waste management policy in Japan, but also let me discover the gist of their success.

First of all, this trip has helped me clarify that incineration is not the panacea of waste problem. In this trip, we visited the Shin-Koto Incineration Plant which is the largest incineration plant in Japan and it is able to handle 1,800 tons garbage per day. Surprisingly, the Japanese Government has not over-rely on the advanced incineration technology and it has been endeavoring to promote recycling of waste as a resources. For instance, the Tokyo Metropolitan Government has introduced the “Super Eco Town Project” to support the recycling industry in Tokyo. Luckily, we managed to visit the Re-Tem Recycling Company in the SuperEco Town in our trip and we have learnt how the recycling industry operate in Tokyo. The experience of Tokyo tells us that incineration is not able to solve the waste problem entirely, though it may be useful to alleviate the problem, and the key to solve the problem is the 3-Rs (Reduce, Reuse and Recycle).
In addition, the experience of the Shin-Koto Incineration Plant has given us some insights into creating a harmonious relation between the incineration facilities and the community. It is a common perception that incineration plant is not sustainable and it produces a lot of pollutions which jeopardize the health of nearby residents, and this perception has set a huge obstacle for any government to introduce incineration plant in any district.

However, the Shin-Koto Incineration Plant has made good use of its side-products to benefit its neighborhood. The heat produced by the plant is used to generate power to support nearby community. For example, the Tatsumi International Swimming Pool Tokyo and the Yumenoshima House of Tropical Plants Tokyo are relying on the power generated by the incineration plant. At the same time, the incineration plant is open for the public to visit and this can help the public understand how the plant works in order to reduce their adverse attitude toward the facilities. These experiences should be taken into account by the Hong Kong Government for formulating incineration policy in Hong Kong.

Furthermore, the experience of Japan shows us that a good policy should be interacting with the attitude and the behavior of the targeted group. The waste management policy is a good example to illustrate how a policy interacts with the public. For example, there are two types of rubbish bins including “Combustible” and “Incombustible” in Tokyo, and the government has successfully cultivated the citizens with a serious attitude toward waste-sorting which significantly makes the waste management policy more effective.

Last but not least, it is not difficult to understand that a successful waste management policy is not only based on technology and facilities, but also determined by the leadership and policy making power of the government. If you have watched a Japanese movie called “The Wind Rises”, you will know that the quality of Japanese airplanes were far behind the German airplanes in the 1930s, but the Japanese did not give up and spent just a few years to catch up the German standard in the 1940s. Although Hong Kong has fallen behind Tokyo in waste management for at least two decades, I still believe that Hong Kong can catch up if the government determines to do so.
During the six-day trip, we visited five facilities which were related to waste management and Waseda University which shared with us how they treated their campus waste. They were all inspiring, very new to me and the most impressive one to me was the CHUBO Disposal Facilities.

Inside the huge site, first we saw an area handling quilts. As our visit was just after the New Year, some Japanese citizens changed their old beddings to new ones. The site has some large-scale machines which we have never seen before. The staff wetted the quilts and used a machine like a catcher to grab them and put them into a crushing machine to cut them into small pieces. First of all I did not know how to deal with wastes like beddings before coming to CHUBO Disposal Facilities. More important is that the Japanese people have invented many machines and tools which make the process faster, like the crushing machine that I have no idea about how it operates, and the weight measuring boards, called waste truck scale placed on the floor next to checkpoints. Whenever the trucks carry waste to CHUBO, the weight of the wastes is measured when the truck passes the scale. This is such a convenient way to simplify the process.
I was also impressed by their landfill disposal sites. Usually when we talk about landfill, the image of smelly, insects such as flies all around the site will pop up in our minds. We got on a hired tourist bus to go to the landfill. What we saw was a huge piece of land with short yellow plants without any fly. We had the chance to walk inside the landfill and we found that it was not smelly at all. Glad that we had a bus carrying us around the big facility, we could get into it in a very close distance. According to the staff, there were plants because the seeds were blown in by wind from the neighborhood. They did not intend to do so but it looked quite pleasant during summer as the plants would turn to green. In Hong Kong, the news about landfill always show mud and many colorful rubbish in different sizes. Landfill should be a place filled with dirty waste so I expected it to be dirty. It is a discovery to see such a very clean landfill.

There is a stele with words “treasure the limited landfill space” written on it. It makes me feel that they are really working very hard, thinking of many new ways to treat the wastes. CHUBO Disposal Facilities is the last landfill site in Tokyo. After it is filled up, there will be no other place for landfill and Tokyo cannot do any more reclamation because it has already used all of its port area. This visit reminds me the waste management in Hong Kong. The Japanese people are undoubtedly equipped with excellent technology in this field. Hopefully our government can learn from the experience in Japan to improve the way to deal with wastes. It obviously requires time, money, the understanding of people, and the determination of the government. It seems still a long way to go.
Building waste disposal facilities, landfills or incinerators is often looked upon with disfavor by the inhabitants, since they appear to be harmful to the living environment. Hong Kong, as a small city with dense population, is facing the saturation of landfills. It is inevitable to expand the landfill sites or find new ways for refuse disposal, but it is hard to find a place to build such facilities without affecting any resident. Having enjoyed the study trip in Tokyo, I was impressed by the Shin-Koto Incineration Plant. It inspired me to rethink about the waste management and environmental policy in Hong Kong.

In Japan, it is stipulated that the wastes should be sorted as combustible waste, incombustible waste, large-sized waste and resources. Those combustible wastes will be incinerated into ashes before disposal. Shin-Koto Incineration Plant is the biggest incinerator in Tokyo and demonstrates a high-tech, efficient and environmentally-friendly method to cope with refuse disposal. In Japan, in order to alleviate the burden on the landfills, the size of the refuses will be minimized by 90% of its original size after incineration. It greatly increases the life-span of the landfills. Yet, it will not harm the environment by equipping with air pollution preventive facilities which successfully maintain the emission of pollutants at a much lower level than the legal standard. Moreover, it is compatible with the local environment. Since the process of incineration generates heat, the collected heat will be transformed as energy to supply electricity to the nearby facilities, including the Tropical Greenhouse Dome.

I think that this incineration plant and the idea of using the collected heat as energy provide a good lesson for Hong Kong to learn. As we know, the landfills in Hong Kong are nearly full. It is urgent to find a new place for building landfill or another refuse disposal method. Hong Kong government has suggested building the incinerator in some districts, such as Tseung Kwan O and Tuen Mun. However, it arouses intense dissatisfaction from nearby inhabitants. Most of them hold the attitude of “NIMBY” (Not in My Back Yard), as they believe that such facilities will affect their living environment although it is needed in society. Shin-Koto Incineration Plant and Tropical Greenhouse Dome can provide us a good example that the incinerator is not necessarily bad to the local community and environment. It is possible to go well with
the surrounding environment. Even more, it can act as an energy supplier to the community. Shin-Koto Incineration Plant not only supports the operation of the tropical greenhouse dome, but also other public facilities, such as the sport center and swimming pool.

The technologies of incineration of Japan, undoubtedly, are worth for Hong Kong to think how to prevent harm to the surrounding residents and utilize the incinerator to benefit the public. However, the complete set of environmental policy in Japan should not be neglected. The success of the incineration technologies greatly relies on the effort of waste sorting from the public. In Hong Kong, if we want to introduce the technology of incineration, the first and foremost problem we have to resolve may be how to sort the waste before incinerating. It is time to reexamine our environmental policy.
WtE (Waste to energy) technology is one of the greatest selling points about new incineration. Utilizing the heat from combustion of waste to generate steam to in turn mobilize turbines for generation of electricity for nearby facilities can theoretically be called a green practice, since it saves the carbon cost of generating the same amount of electricity from fossil fuels (e.g. coal, natural gas). The Hong Kong government in attempts to gain public support for plans to build mega-incinerators at Tuen Mun and Shek Kwu Chau has largely emphasized on the WtE aspect, with an aim to change the widespread perception that incineration causes heavy air pollution and is destructive to the environment.

Yumenoshima Tropical Greenhouse Dome located next to Shin-Koto incineration plant relies on the steam transported to the facility through large pipes to generate enough heat energy, in order to maintain an indoors temperate of 22 degrees Celsius to sustain the tropical plant life housed within. The vibrant and colourful plant species that thrive within the glass domes are displayed to great effect and guided tours are provided to make the visit educational and pleasant, leaving the visitor with a long-lasting positive impression that incinerator technology makes multifaceted beneficial contributions to the community and is a pillar to local society.

Following the visit to Yumenoshima it is certainly more difficult to remain suspicious and critical of incineration technology as a potential environmental threat. The aesthetic arrangement of greenery within the dome is a convincing argument that an incinerator development project can be presented to the public as an educational facility that incorporates the principle of sustainable development. Presented thus it would fall to the most hardcore opposition to find fault with the idea. Connecting the incinerator to public benefit by making it into a source of power on the energy grid; as well as integrating it into a megaproject
along with other facilities that serve a strong community purpose, such as the greenhouse dome and the sports center nearby, shows us a corner of the sophisticated urban planning policy from which Hong Kong can certainly take a lesson.

The questions that continue to concern me after the visit are that what could define a ‘green’ industrial practice: does the WtE aspect of incineration renders the whole project a ‘green’ one? How should we calculate the amount of carbon reduced from utilizing steam for electricity production replacing fossil fuels combustion? How should we compare that to the effect of greenhouse gases generated from combustion inside the facility? At another visit to Kawasaki EcoLife Museum I saw a card on display next to a sample of the steam pipe used for transferring steam from incinerator that stated a clear numerical figure for ‘carbon saved’ in using this method of energy generation. I would like to further know the process of arriving at this figure and the relevant procedures for carbon auditing an incineration plant in order to gain a comprehensive picture of the realistic environmental impact of this technology.
This six-day Tokyo Japan study tour was very meaningful and full of fun. We met friends and we learnt much knowledge. We explored many advanced technological environmental protection facilities like visiting landfill centre, incineration plant and electronic recycling plant. The advanced technologies were very impressive. And we had chance to interview Japanese people on the streets. We could see that the Japanese people were so engaged in the green jobs. There are many places worth learning.

The waste management in Japan is mature, technologically advanced and comprehensive. From collecting civilian waste to incineration then to transfer to other uses, every procedure is precise and highly efficient. Tightly interlocking relationship brings the success of Japan's waste management. I very much appreciate the Japanese civilians' strong cooperation in refuse sorting. The Japanese civilians respect justice and are abide by the laws to sort the waste without any complain. In the interview with a Japanese housewife, she said that it was a habit to sort the waste and she had not felt that it was troublesome. It is not easy to maintain such a clean environment in that hustle and bustle city. But when I travelled to some shopping districts like Shibuya (渋谷) and Ikebukuro (池袋), the wastes were much more on the streets than in the other districts, especially the cigarette butts.

Another thing that I appreciate is the incineration plant. It is so impressive that the combustible waste becomes only 1/20 in size after being incinerated and the slag would also be used for reclamation. During the visit in the plant, I found that the education of environmental protection in Japan was very good. The plant has lots of areas, models, games and other resources to introduce the recycle industry and the operation of incinerator to the public. The staff of the plant were also very nice and professional to answer questions from us.

Looking back to Hong Kong’s current situation, it seems like Japan’s situation in the 60’s. To solve this environmental crisis in Hong Kong, the first thing is that Hong Kong government needs a strong determination and an all-rounded proposal. From late 90s to now, the Hong Kong government has been stuck in a sticky situation of staying in the consultation phrase. And over these ten years, only some small policies were launched like implementation of plastic bag tax and increase of recycle bins in public. But it is so far away from solving the whole waste problem. Many areas are inadequate such as the supporting measures- the support to the recycle industries, environmental education to the public and the terminal waste treatment. I believe that there are many environmental specialists and talents in Hong Kong, but the government needs to highlight the importance of this issue first.
I was looking forward to visiting those excellent waste management facilities in Japan when I studied environment and society some years ago. So this study trip really gives me a chance to visit those facilities in reality. All facilities that I have visited during this study trip in Japan are very impressive, like the smell-less landfill, the systematic disposal facilities and the modern incineration plant. I discovered that waste management could be so modern, technological and professional. What we call "waste" can be important resources if we are able to reuse and recycle them properly. Besides, the education in Japan, the environmental consensus of citizens, and the public participation also impressed me a lot. Thus, this Tokyo study trip is very fruitful.

Shin-Koto Incineration Plant that I visited in day 4 is totally different to those classical harmful incinerators, it can be a national symbol that brings many advantages to local people. The site area of the plant is 61,000 m² and its incineration facility can burn 1,800 tons of waste per day. This environmental incinerator can release energy from heating or electricity generation when burning the waste. And they have a strict pollution control on air, water, noise, vibration, odor and dioxins. Moreover, they integrate the incinerator with the heated indoor swimming pool, national sports center, and even the greenhouse. All energy used to operate those facilities is provided by the incineration plant. Accompanied with the development of advanced technology, incineration plant with the principle of sustainable development is safe, technologically proven and has stringent emission standards. So it helps to build up national environmental image too.
From Japan’s experience, modern incinerator is a good method to solve the urgent waste problem because it can reduce the weight of trash by 80-85% and volume by 95-96%. And it brings a good consequence of releasing energy for surrounding facilities. Although modern incinerator still creates ashes to the landfill, but it also tries its best to reuse and recycle the waste before sending the remaining to the final disposal site. In the other words, it is a facility to minimize the pollution of sending the waste to landfill.

Compared with Tokyo, Hong Kong is left behind and lack of facilities to tackle with the waste problem. The total solid waste is growing annually since being recorded but Hong Kong currently only has three landfills to manage them. Unfortunately, all landfills are estimated to be filled within 2014-2018. Thus, the government has tried to learn from Japan and build a modern incinerator to deal with waste problem in HK. However, in my opinion, only copying the technology from Japan cannot achieve the goal because there are not enough supporting policies such as comprehensive source separation. People in Japan only send some combustible and non-recyclable waste to incinerator. That means they have done a lot on source separation, so they will not send some toxic things to be burnt in incinerator. Besides constructing the incineration plant, Hong Kong should do much more on managing waste if they want to have a clean city like Japan.

To sum up, sustainable incinerator and strong government are not all the factors contributing to the success of Japan’s waste management. It is also a consequence of education, active public participation and the cooperation of private sector. People in Japan have spent 20 years’ efforts for today’s success. Hong Kong should also learn from their comprehensive waste policies gradually but not copy their technology only.

(The energy generation of the Shin-Koto Incineration Plant)
This study trip to Tokyo is to learn and discover Tokyo’s waste management. To me, the most impressive location that we visited is the Shin-Koto Incineration Plant. Shin-Koto Incineration plant is one of twenty-one incineration plants in the twenty three districts in the whole Tokyo. In the following, I would like to talk about how the incinerator contributes to the society other than burning waste into ash, which helps slow down the usage of landfill because of the reduced waste size.

The tour in the incinerator shows us how the incinerator works. It is very surprising that the incinerator can be run by the electricity generated by the incinerator itself. By burning the waste, steam and heat are generated. These sources of energy are transmitted to an electricity generator, and then electricity is generated to transfer back to the incinerator for its daily functioning. Moreover, the electricity generated is not only supplied to the plant, but also the facilities surrounding the plant including the Yumenoshima Tropical Greenhouse Dome, a swimming pool which is up to international standard and also some households.

Besides, the incinerator does not only generate electricity, but also supply heat energy to the greenhouse and the swimming pool. It is a message to the citizens that incinerator is not as negative as people think. In contrast, the plant provides the heat source to a greenhouse and swimming pool, which shows that the incinerator in fact, can be a part of communal life.

Although the tour has showed us the fruitful results of running an incineration plant, like slowing down the usage rate of landfill and generating electricity to the society, there are still many things that have not yet been discovered. For example, Japanese people also concern the pollution of incinerator like Hong Kong citizens do. Although we can see that the incinerator can help the society, but such a large burning machine also draw people’s attention to the pollutants generated and potential danger like explosion. According to staff working there, Japan which is well known as having very good
sense of waste management, also needs 10 years to change the image of incinerator, for example holding study tour to introduce the plant to primary school students and still, there are opponents of the plant.

Also, incineration plant is a component of the whole waste management chain. It cannot work alone to manage all the wastes. The most important thing on waste management is to set up the whole chain and make it cooperate smoothly with each other. It is not only to set up different kind of waste management plant for recycle, land fill or incineration but also to educate people that waste is not just rubbish, but contains different kind of resources, and to make sure that the resources go to where they should go. It is also a necessary condition to let only combustible, non-recyclable and not explosive or toxic waste go to the incineration thus reducing the pollution and dangerous incident of the incinerator.

After all, we can see that to an incineration plant, although it can contribute to the society and it is a very effective way of waste management, it still needs a long time and many efforts before it is accepted by the public. And most importantly, the incinerator cannot do so well if it is the only way to manage waste. It needs many other things, like recycling site, resource sorting company and even the citizens to cooperate in waste management.
Tsui Fai Keung, Zephyr

The most impressive part to me in the study trip is the visit to the only landfill site of Tokyo. It is because this part of the trip has changed my impression of a landfill site. In the past, I believed that a landfill should be dirty, full of fumes and it would not be suitable to human beings to live nearby like the situation in Hong Kong. The residents in Tsuen Kwan O always complain that the foul smell from the nearby landfill seriously affects their daily life.

Unexpectedly, we cannot find any disgusting smell there. I believe the reason why the landfill is “cleaner” than the landfill in Hong Kong is because there is a good classification system on the refuse in Tokyo. The system tries to sort the trash into four groups, and the trash which is flammable will be sent to other parts of the refuse disposal system. The refuse which is non-flammable will be first compressed and pulverized in the factory nearby the landfill site, and then buried in the landfill. As the refuse is not food waste or other things which contain the nutrition to the bacteria, no fuel gas like methane will be emitted.

Going back to Hong Kong, we are facing the same problem of filling up the landfill sites and the government tries to look for a new location to have another landfill or incinerator. Desperately, I strongly believe that another Tsuen Kwan O Landfill problem will come out again as the government does not develop a well-organized system in refuse disposal method. It is due to the poor performance of the Hong Kong government. For example, in the previous years, she encouraged the residents to use recycle bins in order to promote environmental awareness. Unfortunately, some media discovered that the refuse in the recycle bins would only have the same destiny as the non-recyclable garbage. This seriously discourages the intention of Hong Kong people to use the recycle bins. The policy implemented only encourages the people to use the recycle bins but the government does nothing in the follow-up process. In Japan, the government provides a helping hand to the recycling company in order to recycle different kind of refuse from the residents and shops at different days. For example, the burnable garbage will be collected in every Tuesday and Friday, unburnable garbage will only be collected in every month on the first and the third Wednesday. With the cooperation of the society, the treatment of refuse can be well operated. I do not believe that the recycling system can be fully copied from Japan to Hong Kong, but the Hong Kong government should also give follow-up supports to the policy it implements. In Japan, it sorts the garbage into 10 kinds. We can start the recycling system from the easiest way first, i.e. 3 kinds of refuse – the can, paper and plastic bottle.

Although the system in Japan is very good, it does less on the concept of reduction. We have to admit that no matter how well we do on dealing with the refuse produced, a reduction on the
refuse that we made would be the best way to protect our environment. I had taken a photo with a stela. The Japanese words on the stela (限りある埋立空間大切に) mean that we should cherish the land use for the purpose of landfill as it is a limited resource. We should not only focus on recycling as I mentioned, we should also encourage reduction in order to produce lesser refuse to our environment.
In Hong Kong, garbage management is a serious topic and a thorny issue that bothers both Hong Kong people and Hong Kong government. Garbage management is ‘unable’ to be solved systematically in Hong Kong because of the outdated technology and method adopted such as landfill with garbage dumped over there without any treatment such as sorting and combusting before. During this SAGE scheme study trip, Japan’s well-developed garbage management gave the answer to me and also the Hong Kong people and Hong Kong government.

After a visit to Yumenoshima Tropical Greenhouse Dome, I can understand that the reason for Japan’s success in the adoption of incineration as a means of garbage management is due to the magic of ‘transformation’ of the incineration. Regarding the operation of the Yumenoshima Tropical Greenhouse Dome, its energy comes from Shin Koto Incineration Plant, transforming the burnt garbage into reusable resources and sustainable energy to support the operation of greenhouse, that can change the public view on incineration plant that is not harmful to the community but beneficial to it. Thus the Greenhouse Dome can attain its educational purpose by introducing tropical plants, closely related to our lives, to the visitors in order to promote the information of environmental protection which can link up to the whole Japan’s society atmosphere emphasizing 3Rs in garbage treatment, that is, reuse, reduce, and recycle. Moreover, the Greenhouse Dome can transform education on environmental protection from school’s boring lessons - maybe most of students regard, no matter where they come from - into an entertaining experience during the visit to the Greenhouse Dome. In particular, the Greenhouse Dome sets up a Yumenoheya, a place of ‘Toy City’ made by wooden toy from the tropical plant combining the environmental protection education with entertainment- I argue that this is the great success of the Greenhouse Dome because every change in the society is not only dependent on the adult but also mainly on the next generation to actively participate in, inherit, and more importantly enrich the movement on environmental protection. In fact, children are the true sustainable human resources to transform the society from a country full of useless garbage to a vibrant, sustainable society.

Outside the Greenhouse Dome, I discovered that Japan was a highly self-disciplined nation reflecting in the Japanese daily life such as their order standing on the left side when using escalator. I was surprised to learn that garbage management, to Japanese people
Wong Chong Kwan interviewed by my groupmates, was not a policy, because they were not informed about the incineration and other details of garbage management, but a lifestyle of environmental protection which could be performed every day. This self-discipline is in correspondence with their attitude towards environmental protection. There is no doubt that environmental protection is not a slogan or any short period of Territory-wide Cleansing Campaign but a lifelong campaign performed in our daily lives - no matter how trivial the garbage sorting is, this small step of ours is a giant leap for the whole society.
The harvest from the Japan study tour is much more than my expectation. The complete and mature environmental policy on waste management in Japan is very impressive. Throughout the trip, the Re-Tem Corporation in Chiyoda-ku on the fifth day is my favourite site.

Re-Tem is a company dedicated to environmental preservation as well as metal and industrial waste recycling. The factory can treat up to about 100 10-ton truckloads of waste from Greater Tokyo Metropolitan Area per day. When I first stepped in the company, it was unbelievable to see such a modern and tidy factory. Before the trip, I was under the illusion that all recycling factories were dark, dirty and dilapidated. The bright and tidy environment changed my old impression about recycling industry. Besides visual shock, same as the Tokyo landfill, no odor was found in the site. All metal wastes I saw were clean. The tidy environment in this facility is totally different with those in Hong Kong.

Superficially, the findings in this site were similar to those other sites. However, the Q&A session within the visit brought me a new understanding towards recycling industry in Japan.

In the 21st century, not only the world economy has been undergoing rapid globalization, eco-technology and recycling factories have started to spread out under the relocation of manufacturing factories to less developed countries. As more and more Japanese factories locate their production lines in China, demand for recycling factories are increasing and hence Re-Tem company constructed a factory in China in 2005 in order to recycle the industrial waste in China from Japanese enterprises. In my opinion, it is a very good practice from the economic and environmental perspectives. Also, Japan can hence transfer the advanced technology, knowledge and skills of resources recycling to China by providing recycling services to local firms. The eco-friendly culture can also be inculcated to countries with lower environmental awareness.

Other surprising discovery to me is that Japan is able to turn the waste recycling management into a profitable and competitive industry. Re-Tem maintains its business
by selling back the recycled materials to the company providing the waste. It also has to formulate strategies to compete with other companies in the same business. This success constructs a big comparison with Hong Kong in which recycling factories are still struggling to balance their revenue and expenditure. The case study in Japan proves the possibility of developing profitable recycling business in Hong Kong. Hong Kong government should refer to the success in Japan in order to foster the development of recycling industry in Hong Kong.

In conclusion, waste management policies in Japan are in line with the principles of sustainability. Socially, waste sorting succeeds to turn into a normal routine even without command-and-control policies. Environmentally, construction of the incinerator and recycling factories can reduce the size and volume of waste and lengthen the life expectancy of the landfill. Different recycling factories can also lower the rate of resources exploitation by producing recycled materials. Economically, recycling industry has developed maturely. Factories can survive without excessive government assistance. Politically, the all-rounded environmental policies succeed to address the problem of waste disposal from the 23 cities in Tokyo Metropolitan Area. Policy-makers can encompass all possible difficulties and prepare all-rounded policies to coordinate all factors. Nowadays, policy makers in Hong Kong formulate policy in a superficial and fragmented manner. In my opinion, they must formulate policy in an all-rounded manner like that of the Japanese government because it is the only method for Hong Kong to solve the waste disposal problem completely.
In this six-day study trip to Japan, I was glad to have the chance to visit many of the sites about waste management. Before the trip, I thought the Hong Kong government was making steady and increasing effort in promoting environmental protection in recent years due to a number of actions taken, such as the environmental levy on plastic bags, promotion of recycling, and also due to the raising consciousness of people about environmental protection. Nevertheless, I came to realize how naïve was my perception after the trip. Among the several visits to waste management facilities in Japan, one that has impressed me the most is the Kawasaki Eco Life Museum for the Future.

When we arrived at the museum, the staff there first took us to see a large area of solar panels which were built on a used and abandoned landfill. I was quite shocked about the number of solar panels and I was surprised to know that these panels could provide sufficient electricity to the nearby neighborhood. Solar energy seems to be impossible in Hong Kong as many people always claim that the land in Hong Kong is limited and the energy generated is far from adequate. However, the practice in Japan tells me that those are only excuses and if we have the determination to do so, there is always a way out. One thing I really appreciate the Japanese people is their thoughtful consideration on how to fully utilize the resources and to protect the environment. For instance, landfill is not just regarded as a landfill with only one purpose; rather, Japan has long-term planning towards landfills and how to make use of the landfill after it is full. The release of the bad smell and toxic chemicals arisen from the landfill were taken into great consideration by using the advanced technology and so as generating electricity from solar panels.

Another thing that impressed me in this museum was the demonstration about how to sort the different recycle materials by using manpower through glass windows. We could see clearly how people pick up the unwanted or unsuitable materials from certain type of recycle materials, such as plastic and paper. People working there were wearing masks and gloves and they were highly concentrated at their work even we were watching them through the glass windows. I could hardly imagine how they could bear with the bad smell from those recycle materials for months or even for years. This also reminded me about the morning interview section with local residents.
on the same day. We had interviewed three local residents and they voluntarily grouped themselves together and picked up the rubbish on the street. From these two visits, I can see that Japanese people are quite considerate towards the environment and they make effort to contribute to the society as a whole. Japanese people are much more farsighted in the environmental aspect and this is what Hong Kong people should humbly learn from and pursue.
The study tour aimed at discovering the waste management in Tokyo, Japan and examining the role of government, commercial sector and NGOs concerning incineration and recycling. During the six-day trip, what impressed me most was the interview with Japanese people living in Kawasaki area to discover the waste-related habits of local residents in one morning.

During the interview, we were divided into 6 groups, and we were responsible to interview the local residents, to ask them questions about waste management. In my group, we interviewed two citizens and their attitude towards waste management impressed me very much.

Firstly we interviewed an old man who had lived in Kawasaki for more than 20 years. We saw him when he was going to throw the rubbish which were all separated into different categories and looked like the cans and bottles had been cleaned before. We tried to ask him the waste management skill in the area, and he told us that in Japan, all the rubbish needed to been separated into different types: combustible and incombustible, can, bottle, and paper, and they could only throw out each category on specific day. For example, they could only throw out metal on Monday and paper on Tuesday. I really felt interested when I knew that all Japanese citizens followed the instruction and obeyed it without any complain as I thought it might cause some inconvenience to the public. When we asked how the residents establish the habit to follow the guideline, he told us that it was in fact very easy and there was no special skill but just to do it day by day. As I know, they even don’t know the landfill situation in Tokyo and the main reason
they do recycling is that they see their neighborhood do it. If they reject to do it, they may be discriminated by the others. We may say that the social norms of environmental protection and recycling in Japan are very strong, and there is no doubt that such kind of belief helps Japan to implement waste management in a much easier way.

The second citizen we interviewed was a man who worked for a recycle company. We interviewed him when he was collecting some recycle materials in the convenience store. During the interview, he told us that his company was responsible for collecting waste from shops between two streets, and all the materials they collected would be sent to another company, for recycle or reuse purpose. He also told us that for the big business companies, they had their own connection for waste recycle and some small companies would use the small recycle companies to help them collect rubbish twice a week. During the interview, I could see that not only the residents try their best to recycle rubbish, but also the companies. It is no excuse for Hong Kong to implement a better waste management, not just for household waste, but also to apply in the business sector. The interviews in Japan strengthen my belief that Hong Kong can implement better recycling one day.
My favorite part of the trip is the visit on 9th January, in which we visited the Shin-Koto Incineration Plant in the morning and Yumenoshima Tropical Greenhouse Dome in the afternoon.

During the Shin-Koto Incineration Plant visit, first we were warmed up by an interactive activity, we needed to watch a video related to refuse management in Tokyo and answered some challenging questions by pressing the buttons. Then we had a tour and observed the facilities with informative guidance. This incineration plant amazed me; the whole incinerating process is very systematic and safe that I did not have any dangerous feeling during the visit. Besides incinerating the waste, this plant is significant in recycling and protecting the environment. The ashes will be collected and used to reclaim lands; the plant generates electric power by steam turbine generator; collected heat is supplied to the Yumenoshima Tropical Greenhouse Dome and other facilities; air pollution is prevented by dioxin removal facilities etc. The whole thing is well planned and organized; the incineration plant is extremely effective in managing waste, producing electricity and heat, recycling ashes and protecting the environment.

What I have learnt from the Shin-Koto Incineration Plant is that; it is not a factory, which simply incinerates waste and harms the environment, but it can be producing useful resources and protecting the surroundings. I hope that we can also build a multi-functional incineration plant just like the Shin-Koto Incineration Plant in Hong Kong. However, we must do the waste classification thoroughly, just like what the Japanese citizens do everyday, in order to maximize the effectiveness of the plant.

Regarding the Yumenoshima Tropical Greenhouse Dome, it uses the heat that supplied by Shin-Koto Incineration Plant to run the greenhouses, which
Yim Shun Yee, Sharon

exhibits 1000 species of tropical and subtropical plants. There are three main domes: A Dome exhibits rain forest with ferns and a beautiful waterfall; B Dome represents a tropical village with palms; C Dome shows the vegetation of the Ogasawara Islands. The curator also kindly recommended us to visit the carnivorous plants, succulent plants and retiles. Moreover, I like the plant exhibition that related to horse, since 2014 is the year of horse in Chinese Zodiac.

It was such a special experience that we can see all those rain forest plants during winter in this prosperous city. The heats produced by the incinerator are not wasted or harming the environment, but they are used as a kind of energy in a meaningful way. What I have learnt from Yumenoshima is that Japanese government had done a great job in planning the whole island; none of the places or elements is wasted or bringing bad influence. It really deserves the name of ‘Dream Island’. I think Hong Kong government should take this as an example, in which a long-sighted, detailed and practical plan is needed for solving the waste problem in Hong Kong.
The visit to the CHUBO Disposal Facilities gave me an insight into the effective ways of managing waste.

In the storage yard of the incombustible waste processing center, numerous green plastics were piled up in a section of the yard. According to the staff of the Facilities, they were decorations for Christmas and New Year events. They said after those main festivals, they received a large number of these kinds of decorations which were incombustible. I was shocked by such large amount of decorations dumped and sighed for the wastage made by people.

The experience of Tokyo shows that incineration of waste is not a long term means of treating waste. The newly planned landfill sites in Tokyo will be saturated in 15 years. If the waste disposal rate in Tokyo remains the same, it will face the same problem of using up of landfill sites promptly as Hong Kong.

The best way of lengthening the life span of landfills is not to produce waste. Although the Tokyo government actively promotes 3Rs, i.e. reduce, reuse and recycle, to reduce the amount of waste treated in incinerators and ultimately dumped to landfills, its efforts focus on promoting recycling. In the six days of visit, from the contents of the museum, the messages sent during the tours arranged for the public, the promotion leaflets distributed in communities, the recycling facilities in the communities, and the recycling habit of residents, we saw recycling, as an important way of reducing waste, was successfully implemented in Tokyo. Yet, “reduce” is not actively publicized and thoroughly practiced among Tokyo citizens. Japanese products are infamous for much packaging. For example, a pack of cakes has four packaging items: one cake is wrapped with a sheet of plastic paper and further with plastic bag individually, then three wrapped cakes are packed in a larger plastic bag with a plastic container separating three cakes, finally three bags of cakes are put in one paper box. I bought four boxes of cakes and apart from a large plastic bag used for carrying them, the shop gave me four more plastic bags which were of no use to me. In fact, the packaging of cakes can be reduced and the shop can ask customers if they need extra plastic bags. Even though plastic materials can be recycled, if less plastic packages are
produced, less resources and energy will be consumed for production, recycling and disposing
of them. In regard of waste treatment, the importance of “reduce” should be the main promotion
target.

**Nonetheless, from an economic point of view, “reduce” may not be the appropriate
promotion target.** “Reduce” is about reducing consumption. Yet, the main indicator of the level
of prosperity of an economy is the amount of consumption in one city. In the face of stagnant
economy in Japan in recent decades, do the Japanese city governments have the courage to
encourage their citizens to greatly reduce consumption so that the waste problem can be tackled?
Thus, the issue of waste treatment also relates to the change of people’s values over
lifestyle and economy. Are we willing to give up pursuing rich materialistic lifestyle and
traditional standard of prosperous economy for the sake of protecting our living environment?
CHUBO Disposal Facilities is my most favorite site of this trip. CHUBO Disposal Facilities include various kinds of garbage management facilities like incombustible waste processing center, pulverization processing plant for large-size waste, ash fusing plant and landfills. This site is responsible for handling the incombustibles and large-size wastes within Tokyo’s twenty-three districts. After we arrived, a staff gave us a brief introduction about the history and daily operations of this facilities. After the introduction, we travelled around the site by bus tour.

After they received the incombustible and large-size garbage from households, they further separate garbage according to garbage sizes and types. As it is easier for them to process the waste, like removing toxic or iron components inside the garbage and then transfer them to the landfills or incinerators, or they further pulverize large-size waste into smaller pieces. Everything is well organized for waste processing, different waste will go to different areas for further processing. Moreover, I think the environments of the faculties are up to standard. Even when it is a disposal facilities, it is not messy and does not have any unpleasant smell.

After the lunch break, we visited landfills located inside this facilities. I think it is the most impressive part in this visit. In my opinion, landfill must be very dirty and have unpleasant smell. As the news reports in Hong Kong usually mention that the residents who live near Tseung Kwan O landfill are affected by annoying stench and ash. However, I find that situation in Japan is very different from Hong Kong. Landfill does not have any unpleasant smell or many insects. I know that the Japanese government has put many efforts to improve landfill’s environment, as landfills in Japan had also not operated well in previous decades. Therefore, I think Hong Kong government can also get some inspirations from the Japanese government about how to manage our landfills.

Before I went to this facilities, I just thought that there were only two kinds of refuses. One is recyclable garbage like bottle, can and paper, the remaining wastes are treated as another category. I do not know that the garbage we disposed can be categorized into combustibles, incombustibles, resource and large-size refuse. After this trip, I found that I were not familiar with waste sorting or management. Maybe one of the reasons is that Hong Kong government does not have enough promotions about waste sorting and recycling. As our landfills are going to be saturated soon, I think it is time to promote waste sorting and recycling in Hong Kong. It can
help reduce the volume of the refuse, so it can lengthen the life span of landfills. In addition, recycling of the reusable materials can help promote the recycling industry and also reduce the waste and abandonment of valuable materials.

After I am back from Japan, I find that we are wasting many valuable materials when we dispose garbage. Although there are recycling bins in Hong Kong, they only have limited usage. However, every citizen in Japan does waste sorting every day. Waste sorting becomes their daily habit. Moreover, the types of recyclable materials in Hong Kong are limited. Unlike Japan, even the plastic bag or the package of snack can also be recycled. In addition, I think the reason why the landfill in Japan does not have bad smell is because of waste sorting. Good waste sorting practice can help to solve the bad smell from mixed disposal in landfill.

Therefore, I think Hong Kong government and citizens can learn from Japan about the issue of waste sorting and management in order to have sustainable development.
Hong Kong is under tremendous pressure to find effective ways to meet the demands of waste processing since the landfills will soon reach saturation. I always wonder if there are other waste treatment methods besides expansion of the landfill. After this trip, I think the waste management in Tokyo can be one of the answers to deal with the current situation in Hong Kong.

In 1990s, Tokyo was facing various solid wastes issues which were similar to Hong Kong’s current situation, they generated huge amount of solid waste each year, and also had the problem of saturated landfills when the Central Breakwater Outer Landfill Site became the only and last landfill site in Tokyo. However, they started to reform their waste management. They divided garbage into 4 categories, namely combustible waste, non-combustible waste, large-sized waste and recyclable waste for different treatment. They also encouraged the concept of Reduce, Reuse and Recycle (3R) to citizens. Finally, Tokyo successfully reduced the waste volume from 4.9 million tons in 1989 at the highest to 3.8 million tons in 2012. The volume of waste going into landfills also decreased from 2.4 million tons in 1989 to 0.36 million tons in 2012, which effectively relieved the pressure on landfill. I am astonished that Tokyo can handle the problem so quickly and efficiently.

Shin-Koto Incineration Plant is my favourite visit in the trip. It is the largest incinerator in Tokyo to incinerate combustible waste. Before visiting the site, I had the wrong concept that incineration plant would lead to the emission of toxic substances such as dioxins and carbon dioxides, which would be harmful to the environment and human health. Therefore, I was surprised by the structure of Shin-Koto incineration plant. When I entered into the plant, it was clean and sanitary, didn’t have any foul odor. It seemed not a place for processing wastes. The whole incineration process applies advanced technology and stringent procedures, the emission of toxic substances from the incineration plans is controlled and far below the ISO emissions standards, which will not endanger public health and the environment. The most impressive thing is the heat energy of waste incineration can perform power generation and heat supply. It not only can sold electricity to power company for household use but also supply heat to neighboring facilities of the incineration plant such as Tatsumi international swimming centre and Yumenoshima Tropical Greenhouse Dome. We had visited the Tropical Greenhouse Dome at the same day. It is a
beautiful place and it is hard to imagine that the electricity and temperature of the gardens are supplied and maintained by the incineration plant. I had never thought that incineration plants could function so safely, reliably and efficiently, and work on using resources and energy effectively.

The waste management in Tokyo can be a good example for Hong Kong to learn so as to handle the problems with solid wastes. But the most important task is to enhance the citizens’ awareness of 3Rs, since the participation and self-discipline of the public to separate the waste according to different categories properly is the foundation of waste management in Tokyo. Therefore, the government is playing an important role and needs to put more effort in implementing policies and enacting legislation in order to drive the society achieve sustainable development in Hong Kong.
Gallery
Day 1: Arrival
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Day 3: Kawasaki EcoLife Museum
Day 4: Shin-Koto Incineration Plant
Day 4: Yumenoshima Tropical Greenhouse Dome
Day 5: Re-Tem Corporation
Day 5: Waseda University