Report for 2018 Study Tour Grant

Japan Society of Civil Engineers

Supported by International Scientific Exchange Fund -ISEF

Prepared by : Mr.NGUYEN Ngoc Lan

University of Transport and Communications Hanoi, Vietnam

2018 STG Participant

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I. INTRODUCTION

1.1) About Japan Society of Civil Engineers (JSCE)

Japan Society of Civil Engineers (JSCE) was established as an incorporated association in 1914 entrusted with the mission to contribute to the advancement of scientific culture by promoting the field of civil engineering and the expansion of civil engineering activities. Since its establishment, JSCE has endeavored to achieve the above mission, through extensive activities including scientific exchange among members, researchers / promotion of science and technologies relating to the field of civil engineering, social involvement, etc. Over the years, the JSCE membership has increased significantly from the initial 443 members to approximately 39,000 members at present, and is currently engaged in various wide-ranged activities around the world.

With the birth of the 21st century, JSCE has reconfirmed its goals to exert perpetual efforts

1) to propose an idea for social infrastructure development in the future from civil engineers' perspective,
2) to acquire a steadfast relationship of mutual trust with the society,
3) to promote scientific and technological researches/studies with a high degree of transparency, and
4) to evaluate public works from a neutral standpoint, and to reach a social consensus on those proper standards.

1.2) About Study Tour Grant (STG)

JSCE Study Tour Grant (STG) is supported by International Scientific Exchange Fund (ISEF). STG is a unique program for young civil engineering who are nominated by the AOC societies in order to learn Japanese civil engineering technologies and projects for about one week in Japan. This program provides a chance to visit project sites and research institutes, meet leading civil engineering professionals and academics, and share their projects with other students as well as those experiences for applying in their countries.

1.3) STG 2018 Participants

Totally there are 7 participants from different countries as below:

No	Name	Country	Affiliation
1	Mr.Ngoc Lan NGUYEN	Vietnam	Vietnam-Japan Research and Development Center (University of Transport and Communications Hanoi, Vietnam)
2	Ms.Khaliunaa Darkhanbat	Mongolia	University of Seoul, Reinforced Structure Laboratory (full time student, assistant)
3	Ms.Khin Phyu Phyu Thandar	Myanmar	UN-Habitat Programme Associate (Structure)
4	Mr.Ali Gürkan Genç	Turkey	Istanbul Technical University, Structural Engineering Graduate Program, Istanbul - Turkey
5	ENGR.Amie Lou G.CISNEROS	Philippines	Program Head- Civil Engineering, College of Engineering and Technology, Cor Jesus College, Digos City
6	Mr.Jetsada Kumphong	Thailand	2nd year Phd Student, Department of Civil Engineering, Faculty of Engineering, Khon Kaen University, Thailand
7	Mr.Anindya Samya Saha	Bangladesh	Lecturer, Department of Civil Engineering, Bangladesh University of Engineering and Technology

Table 1. STG Participants

Figure 1. STG 2018 Participants

II. STUDY TOUR ACTIVITIES

2.1) Itinerary

This year, the Study Tour Grants included visits to leading research facilities in Japan, construction sites, attending an international conferences in Hokkaido, as well as visit a global geopark. The program schedule is shown in Table 2. below:

DAY	DATE	ACTIVITIES
1	August 26th 2018	• Arrive at Narita Airport • Go to Nishitetsu Inn Shinjuku
2	August 27th 2018	• KAJIMA Technical Research Institute • Tokyo Outer Ring Road JCT North Ramp Project
3	August 28th 2018	• Railway Technical Research Institute • SHIMIZU Institute of Technology • Fly to Hokkaido from Haneda Airport • Go to Sapporo Sumire Hotel
4	August 29th 2018	• International Summer Symposium, JSCE Annual Meeting-Hokkaido University • Kawano Museum • Oyafuru Channel • Makunbetsu Marsh • Canal Sluice • Ishikari River Drain • Ishikari River Estuary • Networking Reception, Hokkaido University
5	August 30th 2018	• Ishikari Port Ishikari LNG Terminal Station • Toya-Unesco Global Geopark • Fly back to Tokyo • Go to Keio Presso Inn Otemachi
6	August 31st 2018	• Free Time • Asakusa Temple • Tokyo Skytree • Dinner with JSCE Members
7	September 1st 2018	• Leave for Haneda Airport • Fly back to Vietnam

Table 2. STG 2018 Main Schedule

2.2) Day 1-August 26th 2018

I arrived at Narita International Airport by 7 a.m August 26th 2018. After my arrival, I was guided to the shutter bus to the city center by Ms. Uda from TOBU Top Tours, along with Mr. Jetsada Kumphong, another participant of STG Program. It took more than 1 hour for us to reach Tokyo Shinjuku Station and we were greeted by Ms.Suzuki, who took us back to the hotel to check in. We were already excited about the programs ahead.

Figure 2. Shinjuku view from the shuttle bus

2.3) Day 2-August 27th 2018

I met the rest of the STG Participants in the hotel lobby before we got in the charter bus to KAJIMA Technical Research Institute in Chofu, Tokyo. We were warmly welcomed by Mr. Yoshizawa and Ms.Umehara, who gave us a brief introduction about the KAJIMA Corporation and its Research Institute. We continued a tour of the Institute by visiting the following facilities:

- Vibration test Laboratory (Shaking Table)
- Base isolation building with Soil Mechanics and Foundation Laboratory
- Concrete Research Laboratory
- Wind Tunnel Laboratory
- Large-size Structural Testing Laboratory

In these facilities, we learnt a lot about the new technologies being studied and applied at KAJIMA and I was very impressed with their Wind Tunnel Laboratory, which has the largest wind tunnel among the Research Institution in Japan, with a maximum width of 4.3m. Actual models of buildings were used to test the effect of constructing high building to the surrounding area, in term of wind effects.

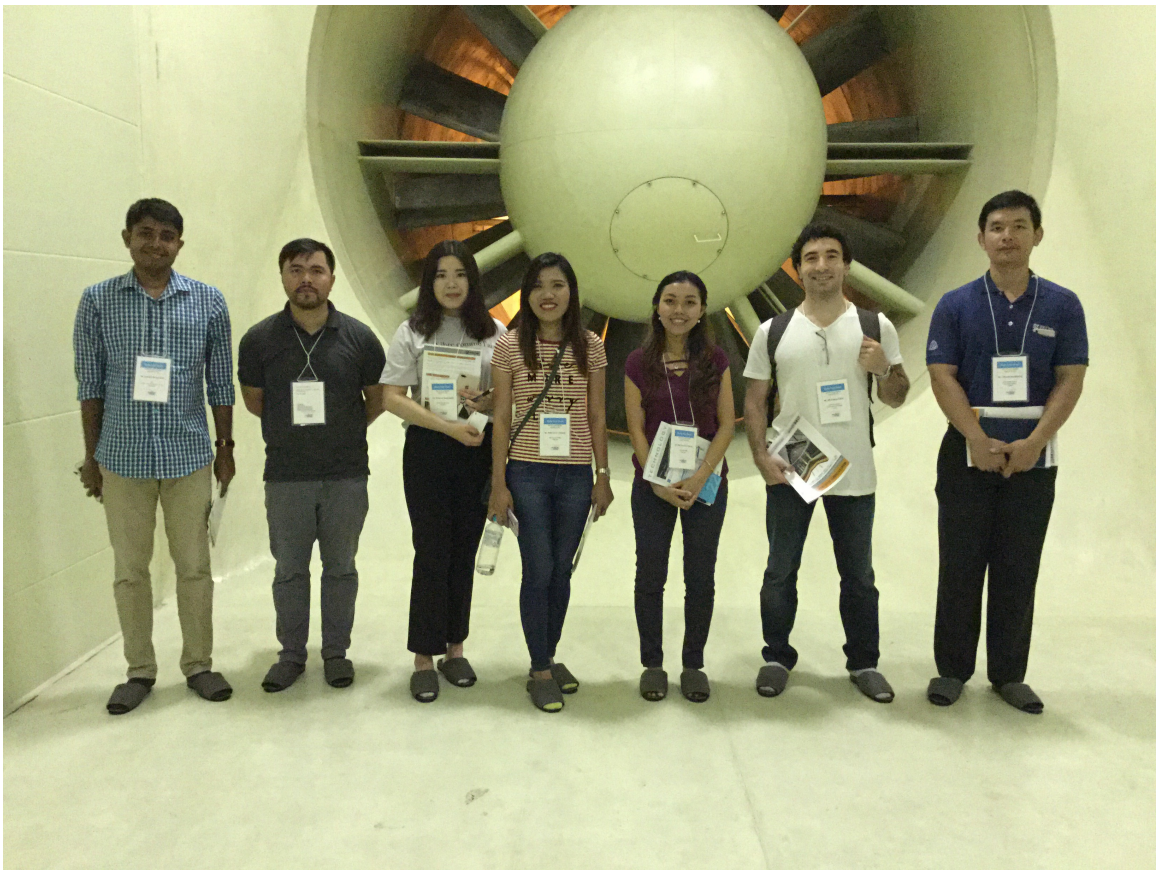

Figure 3. Participants in front of Wind Tunnel at KAJIMA Research Institute

Figure 4. Bento lunch at KAJIMA Research Institute

We had lunch with bento at KAJIMA Research Institute before leaving for the Tokyo Outer Ring Road Construction Site in Gaikan, Tokyo. We were warmly greeted by the engineers working at the site, who gave us a brief presentation about the Tokyo Outer Ring Road, especially the different methods of constructing deep-bore tunnel structure : Open Cut Section, Pneumatic Caisson and the Groundwater Preservation System. I was especially impressed by the measure of the safety factor in a construction site in Japan and how the environment was well taken care of during construction.

Figure 5. Photo with the engineers at the Tokyo Outer Ring Road North Ramp Project

2.4) Day 3-August 28th 2018

In the morning of our 3rd day of the Study Tour, we had had the chance to visit the Railway Technical Research Institute. The Institute, funded by all the JR companies, is the birthplace of the famous Shinkansen and the Maglev trains. After a quick presentation about the facilities, we got on a mini-bus to tour around the Institute. We were introduced to 5 facilities:

- Lobby and Maglev Exposition
- Track and Roadbed Testing Equipment
- 2D Shaking Table Test Machine
- Rolling Stock Test Plant
- Large-Scale Rainfall Simulator

Figure 6. Model of the first Maglev Train

Figure 7.Roadbed Test Apparatus

Figure 8. Testing under the Rain Simulator Laboratory

After the visit, we had a quick lunch and head towards the SHIMIZU Institute of Technology. We were greeted by Mr.Araki from Shimizu Corporation. We watched a video which shared the history and the vision of the Institute and had a tour of its facilities, which include:

- Geotechnical Engineering Research Laboratory
- Centrifuge Model Test Laboratory
- Concrete Walk
- Pressure Testing Machine

- Advance Earthquake Engineering Laboratory
- Wind Tunnel

We were in awe of the advanced technologies being introduced to us, especially the titan-made roof of the Asakusa Temple, which helped reduce its weight to about 60% of the original.

Figure 9. Photo with Mr.Araki outside Shimizu Institute of Technology

We left for Haneda Internation Aiport later that day to catch the flight ANA 075 to New Chitose Airport in Hokkaido. We took the bus to Sumire Hotel, Sapporo. The weather was much more cooler than Tokyo, but we were all on fire. Yes, we would have our presentations at the International Summer Symposium tomorrow.

2.5) Day 4-August 29th 2018

We left early in the morning to Hokkaido University to attend the 20th International Summer Symposium, organised by JSCE. We participants were divided into different venues to deliver our presentation. I was in the same auditorium as Mr. Ali and Ms. Phyu Phyu. I was the 7th presenter in the list. My presentation was " Research on developing a suitable superstructure for short span low cost concrete bridges in the Northern Mountainous Regions of Vietnam", in which I introduced our suggested model of bridge and I explained why we believe our model is the most

effective one with regards to the local conditions of the regions. It was an excellent chance for me to discuss and share my experiences with the rest of the presenters and get to know some of them later.

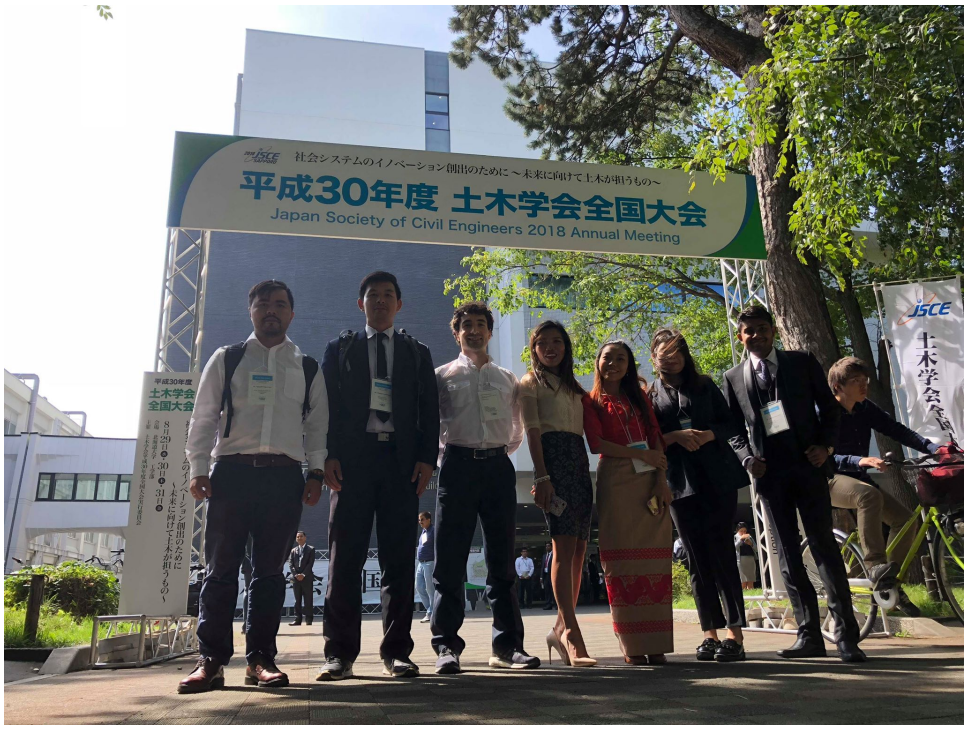

Figure 10. STG Participants at Hokkaido University

Figure 11. Presentation by me at the Symposium

After having lunch at the university, we followed the schedule of the program to the following places:

- Ishikari River Museum
- Oyafuru Cut-off Channel
- Makunbetsu Marsh
- Canal Sluice
- Ishikari River Drain
- Ishikari River Estuary

We were given an amazing tour about the history and development of the flood control system of the Ishikari river, first developed by Dr.Okazaki's investigation in 1899. From then until now, the Ishikari river's flood control system has changed the surrounding area of the river significantly, not only be able to preserve natural habitat but also boosts agricultures in the region. We were surprised to see the main monitoring system was placed in the river museum itself.

Figure 12. STG Participants at the River Museum

Figure 13.Participants at the Ishikari River Drain

After the tour, we head back to the Hokkaido University, where we attended the Networking Reception Dinner with members of JSCE and affiliates from different countries, as well as the other presenters. We had a great time getting to know with some of them and for future networking.

Figure 14. Participants with Ms.Shibuya Yukiko from JSCE

2.6) Day 5-August 30th 2018

In the morning, we visited the Ishikariwan Shinko Thermal Power Station. The Power Station consists of two side:

- Power Station side: Ishikariwan Shinko Power Station Unit 1 and the Construction Work.
- Base side: Ishikari LNG Tank and Base Expansion Work

The Power Station is fueled by natural gas with a combined cycle type Power Generation System. Gas is supped from Ishikari LNG Base, operated by Hokkaido Gas Co., Ltd through gas piping. 3 units are to be constructed, which the first one is duel to be commercially used by February 2019 and the last one is to be used by December 2030.

Figure 15. Participants in front of the LNG Tank

After the visit, we took a two-hour ride on the coastal of Hokkaido to the Toya-Unesco Global Geopark. We arrived at the Toya Volcano Science Museum and was enthusiastically introduced by " Mr.Volcano Meister", who is a volcano expert and works at the Museum. He took us around the museum, as well as the surrounding area and show us all the damages caused to the infrastructures in the region due to volcanic activitities. We were all surprised when he told us that althought being frequently disrupted by Mount Usu volcano, the number of fatal accident caused by the volcano in Toya region is actually zero!

Figure 16. Damaged car by volcanic eruption inside the museum

Figure 17. Group photo in front of an abandoned building after an eruption

After an interesting day at Hokkaido, we took the flight ANA4723 back to Haneda Airport, the bus to Keio Presso Inn Otemachi, where we would stay for the last days in Japan.

2.7) Day 6-August 31st 2018

We had free time until noon so we walked around and discover Tokyo. In the afternoon, Ms.Suzuki brought us on a sightseeing tour to Asakusa Temple and Tokyo Skytree. We had a great time bonding together before heading for a dinner with our JSCE advisors. I talked to my advisor, Dr.Ishiwatari about my presentation and about disaster management in Japan and Vietnam. We head back to the hotel and packed our luggage for the next day's departure.

Figure 18. Asakusa Temple

Figure 19. View from Tokyo Skytree

2.8) Day 7-September 1st 2018

The shutter bus left early from the hotel to the airport early in the morning. Saying goodbye to Tokyo and Japan, I took my plane back to Vietnam, with a full heart.

III. GRATITUDE AND ACCOMPLISHMENT

Firstly, I would like to express my gratitude to Japan Society of Civil Engineering (JSCE) for this Study Tour Grant. . I would like to thank all JSCE staffs for their effort in making all the necessary arrangements during my trip. This Study Tour Grant has given me a chance to get to know with young, talented engineers from different countries who are also interested in civil engineering in Japan.

I would like to say my special thanks to Mr. Yoshizawa , Ms.Suzuki, Prof.Ishizaka, Ms. Shibuya, Mr. Arai, and Dr.Ishiwatari for their tremendous helps before and during my trip to Japan. I would like to express my gratitude to Kajima Technical Research Institute, Tokyo Outer Ring Construction Site, Railway Technical Research Institute, SHIMIZU Institute of Technology, Ishikari River Museum, Ishikari Power Station, Toya Volcano Science Museum and others remaining organizations and officers who enthusiastically explained to us about their works during our site visits.

At the same time, I would like to express my gratitude to Dr. Pham Hoang Kien of University of Transport and Communications of Hanoi, Vietnam for nominating me. I believe with the experiences and ideas gained from this trip, I would be able to widen and improve my knowledge of civil engineering. As a result from this trip, I would also look for the chance to pursuit my higher study or career opportunities in Japan in the near future.