



Study Tour Grant 2019 Report
Supported by International Scientific Exchange Fund-ISEF
(Japan Society of Civil Engineers -JSCE)



By

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Recommended by Thailand Section of Japan Society of Civil Engineers

Introduction

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.

Furthermore, JSCE will implement such new indispensable programs as Civil Engineers' Qualification System, Continuing Professional Development, etc., for the benefit of creating an environment where civil engineers can widely take on an active role in the international community, and where civil engineering technologies may contribute to the amenity of the people both in and outside of Japan.

Study Tour Grant (STG)

JSCE Study Tour Grant (STG), supported by International Scientific Exchange Fund (ISEF), is a unique program for young civil engineers to learn Japanese civil engineering technology and projects. The STG program invites the civil engineering students who are nominated by the AOC societies to Japan to stay for about one week. During their stay, those students visit project sites and research institutes, meet leading civil engineering professionals and academics, and share their projects with other students. At the end of the program they are requested to submit a report on their experience gained in Japan to JSCE and also to the AOC to which they belong home. This program gives a chance not only to see technological innovations, but also to experience them in the environment that they are achieved.

Application

In April 2019, I heard about the STG program from my advisor and Dr.Varameth who is a member of the JSCE Thailand section. It is a good opportunity to learn and get a new aspect by many activities of this program such as sites visiting public and private organizations, that hard to get a chance specially visit their project. Thus, I am very interested in the STG program. I was starting to prepare the requirement document by the introduction of Ms.Shibuya Yukiko who is the secretariat of IAC, JSCE. The requirement includes paper for presentation at the 21st International Summer Symposium. At the beginning of June, I received good news from the announcement of STG participant and invitation letter from JSCE.

Participants in STG 2019

The participants	Affiliation	country
Mr. Nguyen Bao Lam	Road and Bridge Dept., Faculty of Civil Engineering, University of Transport and Communications	Vietnam
Mr. Munkhsaikhan Battumur	School of Construction and Architecture, Mongolian University of Science and Technology	Mongolia
Mr. Wai Yar Aung	Technical Research Engineer, Myanmar Earthquake Committee	Myanmar
Ms. Gül Pinar Avci	Civil Engineering Dept., Istanbul Technical University	Turkey
Mr. Mark Allen T.Zapanta	Aboitizland Inc. Civil Engineering Major in Structural Engineering Tarlac State University	Philippine
Mr. Washirawat Praphatsorn	Department of Civil Engineering, faculty of Engineering, Kasetsart University	Thailand
Mr. Omar Faruqe Hamim	Master Student Civil and Structural Engineering, Bangladesh University of Engineering and Technology, Lecturer, Dept. of Civil Engineering, BUET	Bangladesh

JSCE STG 2019 Activities

Day	Date	Activities
1	September, 1, 2019	Arrive at Narita airport and go to NISHITETSU INN (Shinjuku)
2	September, 2, 2019	STG orientation session with ISEF committee, KAJIMA Technical Research Institute. Nishichofu Complex
		Tunnel Construction Site of Tokyo International Airport
3	September, 3, 2019	21 st International Summer Symposium
		Illegal Dumping site of Industrial Waste , Teshima Island
4	September, 4, 2019	Kabagawa Dam Construction Site, Takamatsu, Kagawa
		Sanuki Mannou Park, Nakatado, Kagawa
		Kurushima Kaikyo Bridge
5	September, 5, 2019	Disaster Waste Disposal Site, Aga, Kure
		The Area Affected by Sediment-Relate Disasters, Tenno, Kure
		Damaged Areas on National Highway 31, Mizujiri, Sakacho
		Temporal Housing, Sakacho
		Hiroshima Peace Memorial Park, Hiroshima
		Disaster Affected Area on Misawa River, Asami Kita-ku, Hiroshima
The Torigoe Bridge and Water Sewereage Pipes, Asami Kita-ku, Hiroshima		
6	September, 6, 2019	Disaster Reduction and Human Renovation Institution, Kobe, Hyogo
		Akashi Kaikyo Bridge
		Sightseeing in Kobe
7	September, 7, 2019	Departed from Kansai International Airport

JSCE Study Tour Grant 2019

September/1/2019

I took a flight from Bangkok by TG0642 and arrived at Narita airport in Tokyo.

September/2/2019

KAJIMA Technical Research Institute and STG orientation session with the ISEF Committee

In the morning before start site visiting in KAJIMA Technical Research Institute area, we had a meeting with the committee of ISEF and introduced ourselves and had lunch together.

KAJIMA Technical Research Institute (KaTRI) was established as the first research institute for the industry in 1949. The main purposes include research and development, technical cooperation & consultation and training and disseminating information. Moreover, KaTRI extremely wide field of technology was covered such as civil engineering, building science, disaster prevention, and environment deliberation.

For STG 2019 participants visit about shaking table laboratory, large-size structural testing laboratory, concrete laboratory, wind-tunnel laboratory, and disaster prevention technology exhibition.



Figure 1 STG orientation session with the ISEF Committee



Figure 2 Group photo with wind turbine at wind tunnel lab

Tunnel Construction Site of Tokyo International Airport

In the afternoon, I visited to tunnel construction site at Tokyo international airport. This 1.854 km length tunnel connect between domestic and international area. This tunnel can reduce transportation time between both areas to 5 minutes from 19 minutes. The tunnel construction was operated by a tunnel boring machine (TBM). This project was initiated in 2018 and plan to finish up in 2020.



Figure 3 Group photo at Tunnel Construction Site

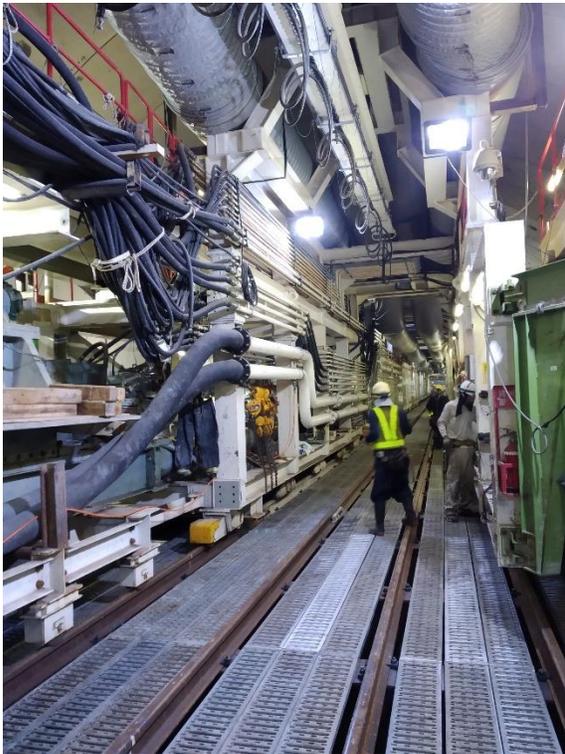


Figure 4 inside of tunnel



Figure 5 pump for drain slurry out

September/3/2019

The 21st International Summer Symposium

In the morning, I had a good experience to participate in the 21st International Summer Symposium at Nagoya University. All of the STG participants attend in 2-morning sessions. My presentation topic is “A Long Term Study of Pore-Water Pressure Behavior in Geosynthetically Reinforced Soil GRS Wall: a Case Study of Rural Road Kanchanaburi no. 4088”. From this symposium, I got a good chance to learn many interesting topics and improve my research more completed by attendance mentioned.



Figure 6 Group photo at Nagoya University

Illegal Dumping Site of Industrial Waste, Teshima Island

After finished the presentation in the morning we took a ferry boat to Teshima Island. This island was an industrial dumping area in 1990. Toxic from 18 m height waste infiltrate to soil and water, which made suffering to people on the island. In 1993, people call for stop waste dumping and island treatment. All of the waste was moved out and land treatment was finished in 2017 by government assistance. I learned about the land recover technique and how to respond to the environment in this site visiting.



Figure 7 on the way to Kajima Island



Figure 8 Area was a waste dumping



Figure 9 the waste was cutoff for demonstrate



Figure 10 the history boards of Teshima Island

After we went back from Techima Island, we had joined the IAC networking reception at Kagawa University.



Figure 11 IAC networking reception

September/4/2019

Kabagawa Dam

In the morning we visit the Kabagawa dam with JSCE member by technical tour bus. Kabagawa dam locates in Kagawa prefecture. Dam crest height is 88 m and construction as a concrete dam and uses anchored with grouting in slope stabilization on the abutment.



Figure 12 overview of Kabagawa dam



Figure 13 the slope protection on the abutment



Figure 14 Group photo at Kabagawa dam

Sanuki Mannou Park

After Kabagawa dam site visit was finished we went to Sanuki Mannou Park. Sanuki Mannou National Government Park is plenty of flowers and nice pasture.



Figure 15 Dragon statue at the front of Sanuki Mannou Park



Figure 16 verdurous pasture in Sanuki Mannou Park



Figure 17 old style Japanese house

Kurushima Kaikyo Bridge

We stop at Kurushima Kaikyo Bridge before going to a hotel in Hiroshima. The Kurushima Kaikyo Bridge is a suspension bridge. The bridge consists of 3 successive suspension bridges which connect to Ehime prefecture and Hiroshima prefecture.



Figure 18 group photo with Kurushima Kaikyo Bridge background

September/5/2019

In the morning we have a good chance to visit 4 difference sites which damaged from disaster for learning how to repair and prevent disaster.

Disaster Waste Disposal site

This area was damaged by debris flow that made soil, sand and garbage were mixed in this area. This land treat by two-step sieving for separate material and move to 2 difference site for the dump by ship then.



Figure 19 Disaster Waste Disposal site

The Area Affected by sediment-Related Disasters

In July 2018 typhoon no.7 made heavy and prolonged rain in Hiroshima prefecture. Debris flow took a large amount of earth and sand flowed into the city. From this disaster, the 5 emergency treatments (waterway guiding, sandbag installation, rockfall prevention by net, rock retaining by rope and removed some bolder) were applied for safety. The Sabo dam (retaining wall) was construction for preventing debris flow.

From this site visiting, I lean about how to prepare and management in a situation of the disaster which can help to improve for my country because of Thailand also have many steep slopes and prolong rainfall period in some area. Thus, this is a great chance to learn to develop disaster management system in the future



Figure 20 The Area Affected by sediment-Related Disasters and Sabo dam construction site

Damaged Areas on National Highway 31

Route 31 and JR express Kure Line was damaged by a landslide from the back slope caused by heavy rain in July. The huge amount of soil has covered the road. For the restoration, the slope was stabilized by slope cutting and compaction. Land of highway 31 provided as working place and temporary sediment storage during the sediment removal process and detour road was used as approach road. Road construction was finished in 2 months ahead of schedule and JR Kure line resumed operation on September 2019.



Figure 21 overview of damaged areas on national highway 31 from detour road

Temporal housing

From torrential downpour accident in July 2018, 80 persons died and other people have to evacuate. The temporal house was required for victims immediately. I learn about how to manage and operate the temporal housing for disaster.



Figure 22 temporal housing session



Figure 23 group photo at temporal housing session

Hiroshima Peace Memorial Park

In the afternoon, I visited Hiroshima memorial park to learn about the history of Hiroshima atomic bombing.



Figure 24 Hiroshima Peace Memorial Park

Disaster Affected Area on Misawa River

In 2018, heavy rain was increasing water level in the river to over the erosion protection facing, which made erosion failure at 4 areas along the Misawa River. Embankment facing restoration was removed old material and reconstruct by concrete block facing. From 4 areas was a failure effect to material transportations had difficult.



Figure 25 Disaster affected area and new facing at Misawa River

The Torigoe Bridge and Water Sewerage Pipes.

The Torigoe Bridge include water sewerage pipes was a failure by water level increasing and 3100 households were cut off. The exposed pipe was used as temporary water pipes. The construction operated throughout the day and night and finished in 3 days.



Figure 26 the failure bridge and new line pipes

After site visiting, we went to Kobe by Sanyo Shinkansen.



Figure 27 on the way to Kobe by Sanyo Shinkansen

September/6/2019

Disaster Reduction and Human Renovation Institution

In the morning, I had a visit to Disaster Reduction and Human Renovation Institution (DRI) to learn about the history of the great Hanshin-Awaji earthquake, damage and effect from the earthquake. Disaster warning preparation and demonstration of earthquake & liquefaction experimental.



Figure 28 Disaster Reduction and Human Renovation Institution

Sightseeing at Akashi Kaikyo Bridge

After lunch, I had a chance to get sightseeing at the Akashi Kaikyo Bridge. The Akashi Kaikyo Bridge is a suspension bridge. We can walk through under the bridge for a sea view and structure of the bridge.



Figure 29 Akashi Kaikyo Bridge

September/7/2019 Departed from Kansai International Airport

Speech of Gratitude

First and foremost, I would like to express my thankfulness to the Japan Society of Civil Engineering (JSCE) for supporting me in this program. Not only total expense but also all of supporting include suggestion, organization, and opportunity. Moreover, I would like to thank Dr.Varameth, Dr.Apiniti, Ms.Suzuki, Mr.Yasuyuki and other staff from the company where I visited, especially Ms.Shibuya who given kind helping in everything. Also, thank my lovely international friends who treat me nicely. At the first time, I feel scared to communicate with each other but in great one week of the program everyone is very nice and made me feel familiarity.

For the special study tour program, this is my second time in Japan but still excited and impressive to get a chance to get a lot of knowledge in the field of civil engineering, advance technology for construction and research and especially disaster management and prevention. Furthermore, in term of research, I got a great chance to present and inspiration from the 21st International Summer Symposium that would motivate me to improve my research in the future.

Finally, I am so impressed with all of the program that gives me invaluable experience. Besides, I had the opportunity to create a good relationship with Japanese organizations. All knowledge and experience would advantageous and contributing to my work in the future and I would like to suggest these to students who want to study or work in Japan.



Great Memorials with All of You