2017 STUDY TOUR GRANT REPORT

Japan Society of Civil Engineers

Participant: Ganzorig Tsevelsuren (MACE)

2017

CONTENTS

1.1 About Japanese Society of Civil Engineers (JCSE)

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.

A. To propose an idea for social infrastructure development in the future from civil engineers' perspective.

B. To acquire a steadfast relationship of mutual trust with the society.

C. To promote scientific and technological researches/studies with a high degree of transparency.

D. to evaluate public works from a neutral standpoint, and to reach a social consensus on those proper standards.

The activities and implementing projects of the STG is supported by ISEF. The representatives and participants are selected and invited officially by the branches of JSCE. Moreover, the full expenditure of the study tour is invested by ISEF. During the study tour the participants visit project fields and research organizations. As well as they have great opportunities to meet professionals of construction branch and exchange experience with them. At the same time, the participants have chance to discuss about the projects which are being implemented by these experts.

1.2 Schedule of 2017 Study Tour Grant

	Date	Time	Event	Attend
1	9/10 Sun		Arrive at Narita Airport	
			Go to Nishitetsu Inn Shinjuku	Ms.Suzuki (Tour Conductor TC)
2	9/11 Mon	7:30	Leave the hotel for KAJIMA Technical Research Institute, Nishichofu Complex	Ms.Suzuki (TC) Mr.Yoshizawa (KAJIMA)
		8:30-11:30	KAJIMA Technical Research Institute Complex	Mr.Yoshizawa (KAJIMA) Ms.Suzuki (TC)
		11:30-12:00	Lunch at KAJIMA Technical Research Institute	Mr.Yoshizawa (KAJIMA) Ms.Suzuki (TC)
		12:00	Go to HANEDA Airport by charter bus	Mr.Yoshizawa (KAJIMA) Ms.Suzuki (TC)
		14:00	Arrive at HANEDA Airport	Mr.Yoshizawa (KAJIMA) Ms.Suzuki (TC)
		15:00-16:45	Leave the HANEDA Airport for FUKUOKA Airport by Flight ANA634	Mr.Yoshizawa (KAJIMA) Ms.Suzuki (TC)
		16:45-17:30	Go to BIG SAND at KYUSHI UNIV by charter bus	Mr.Yoshizawa (KAJIMA) Ms.Suzuki (TC)
		19:30	Pick up bus at BIG SAND and go to NISHITETSU Grand Hotel	Mr.Yoshizawa (KAJIMA) Ms.Suzuki (TC) Mr.Katayama (JCSE)
3	9/12 Tue	7:30	Go to KYUSHU UNIV by charter bus	Mr.Yoshizawa (KAJIMA) Ms.Suzuki (TC)
		9:00-12:00	Participate and deliver a presentation at the 19th International Summer Symposuim	Mr.Yoshizawa (KAJIMA) Mr.Katayama (JCSE)
		13:00	Go to Project sites by charter bus	Mr.Yoshizawa (KAJIMA) Ms.Suzuki (TC) Mr.Katayama (JCSE) Ms.Ito (JR East)
		14:30-14:40 14:50-15:00 15:25-15:55	Yabegawa Bridge Yabe-river levee breakdown site Miike Coal Mine Site	Mr.Yoshizawa (KAJIMA) Ms.Suzuki (TC) Mr.Katayama (JCSE) Ms.Ito (JR East)
		17:15	Check in Hotel ROUTE INN KUMAMOTO EKIMAE	Mr.Yoshizawa (KAJIMA) Ms.Suzuki (TC) Mr.Katayama (JCSE)
4	9/13 Wed	9:00 9:10-9:40 11:00-11:30 13:20-13:40 14:30-14:50 14:55-15:05 15:30	Visit Kumamoto earthquake disaster affected sites by charter bus Leave the hotel Kumamoto Castle Site Tsujun Bridge Daikanbo View-site of Mt. Aso Aso Bridge Area Sabo Works Aso Bridge Replaced Site Arrive at KUMAMOTO Airport	Mr.Yoshizawa (KAJIMA) Ms.Suzuki (TC) Mr.Katayama (JCSE)
		17:25-19:00	Leave KUMAMOTO Airport for HANEDA Airport by Flight JAL634	Mr.Yoshizawa (KAJIMA) Ms.Suzuki (TC) Mr.Katayama (JCSE)
		20:00	Check in Hotel KEIO PRESSO INN	Ms.Suzuki (TC)
5	9/14 Thu	8:50	Leave the hotel for TOKYO Gaikan Expressway Tajiri-Area project by charter bus	Ms.Suzuki (TC)
		9:30-12:00	TOKYO Gaikan Expressway Tajiri-Area project by charter bus	Mr.Sakata (TAISEI) Ms.SUZUKI (TC)
		12:00 13:00-15:00 15:00 15:30- 17:30 17:30 17:30 18:30	Leave TAJIRI-Area Project for SHIMIZU Institute of Technology SHIMIZU Institute of Technology Leave SHIMIZU Institute of Technology for JR Tokyo Station Site JR Tokyo Station Site Leave JR Tokyo Station Site for Exchange Meeting Venue Budo no mori-Godanya Arrive at Budo no mori	Ms.SUZUKI (TC) Mr.Kamata (SHIMIZU) Ms.Suzuki (TC) Ms.Shibuya (JCSE) Mr.Arai (JCSE)
		18:30-20:30	Dinner at Budo no mori-Godanya with ISEF Committee Members	
		21:00	Arrive at hotel KEIO PRESSO INN Otemachi	
6	9/15 Fri	12:00	Free time	
		12:30-17:00	Go on a sightseeing in Tokyo	Mr.Arai (JCSE) Ms.Suzuki (TC)
		20:00	Arrive at hotel KEIO PRESSO INN Otemachi	Mr.Arai (JCSE) Ms.Suzuki (TC)
7	9/16 Saturday		Check out the hotel and go to NARITA AIRPORT	Ms.Suzuki (TC)

1.3 2017 Study Tour Grant participants

1. Mr. Mai Hoang Bao from Ho Chi Minh University of Technology, Vietnam.
2. Mr. Ganzorig Tsevelsuren from MACE, Mongolia.
3. Mr. Pau Sian Muan from MES, Thailand.
4. Ms. Tugce Ceran from JSCE Turkey Section, Turkey.
5. Mr. Al-Adzhar P. Usman from PICE, Philippines.
6. Mr. Pornnarong Lueanpech from King Mongkut's University of Technology, Thailand

2. 2017 STUDY TOUR GRANT Activities

1st Day, September/10th on Sunday

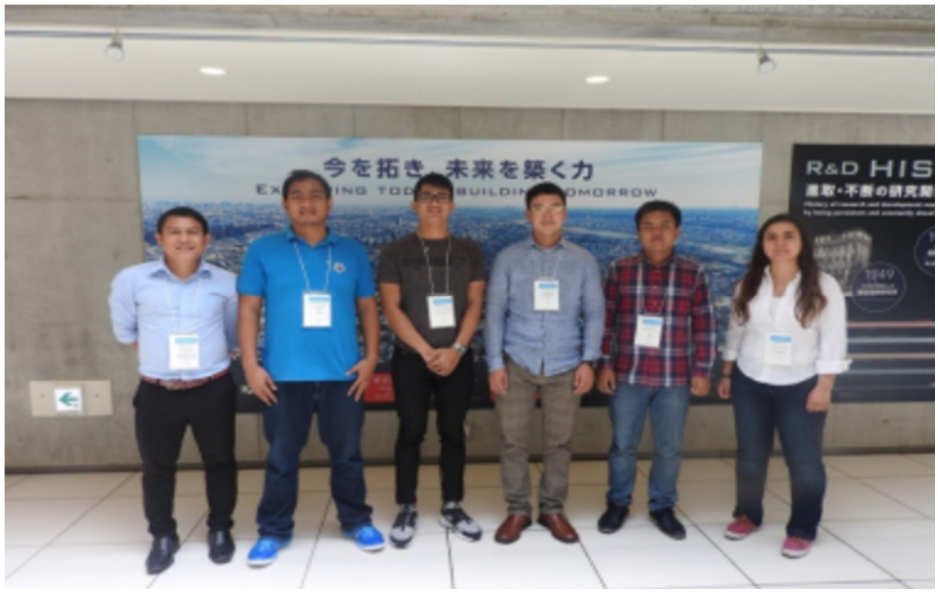
On September 10th was flight time. I arrived at Narita Airport from Ulaanbaatar, Mongolia. Then I took a bus to the hotel which is in Nishitetsu Inn Shinjuku. After the bus time I met Ms.Suzuki. She took me to the hotel and she gave me tomorrow morning plan.

Pic-1.On the bus to go Tokyo

2nd Day, September/11th on Monday

The first day activity was visiting in the KAJIMA Technical Research Institute. There we met Mr.Yoshizawa who is general manager of the Kajima Technical Research Institute then he introduced us Kajima institute and we visited shaking table laboratory building #21. This day shaking table laboratory is testing interior room which made by drywall. 3D dimensional 6 D.O.F. shaking table is large shaking

table that can meet various requirements, including accurate simulation of ground motion and long period high amplitude shaking.



Pic-2. 2017 STG Participants at KAJIMA Technical Research Institute

Next building is #23 large size structural testing laboratory. The size of the laboratory building is L60m×B34m and it has 2 reaction wall and bigger reaction wall is 12м high, 16м wide, and 3m thick. The Structural testing laboratory, which is maximum scale in the construction industry, is used for verifying the strength and seismic behavior of large structures and structures that need to be highly resistant to earthquakes.

After that, we went to #22 which is Concrete and Wind tunnel laboratory. Three wind tunnels, including a large wind tunnel, that are used for studying and verifying the effect of wind on building and surrounding environments. Another laboratory which is concrete laboratory. There comprehensively adapting to concrete tests at various stages to evaluate material characteristics, workability, and durability. We had extra time to visit the world first laminated rubber based foundation building. The isolated laminated rubber foundation which one of the foundation max load capacity is 165 ton's and life time is 60 years. After the Kajima technical Research Institute tour, we went to the Haneda Airport by charter bus. We arrived at Fukuoka by flight ANA634 then went to the Kyushi University by charter bus. There we met JCSE international members and Mr. Katayama (JCSE). After the meeting and dinner we went to the hotel Nishitetsu Grand hotel with Ms. Suzuki, and Mr.Yoshizawa.

3rd Day, September/12th on Tuesday

This day is big day because all Study Tour Grant participants and other researchers are going to present the presentation for 19th International Summer Symposium which is at Kyushi University, in open learning plaza lecture room #5 and #6. My presentation title is Recycling concrete structures. During the Symposium, researcher-engineers and lecturers gather together and discusses about their experiences and research work. Symposium consisted of five different categories of sub meetings which are Structural Engineering, Hydraulic Engineering, Geotechnical Engineering, Infrastructure planning and management, materials and concrete structures.

Pic-3. At Kyushu University after the 19th international Summer Symposium

After the STG participants presented our presentation we had lunch at Kyushu university's food court then we moved to Yabegawa bridge, Yabe-river levee breakdown site, and Miike Coal Mine site.

First site was Yabegawa bridge site. General information this bridge is

- largest span prestressed concrete cable stayed bridge with in Japan. The bridge has 216m main span that is the largest in Japanese concrete cable stayed bridge.
- Curvature in plan R1150m. Included pylon is employed to easy the influence of the curvature in plan.

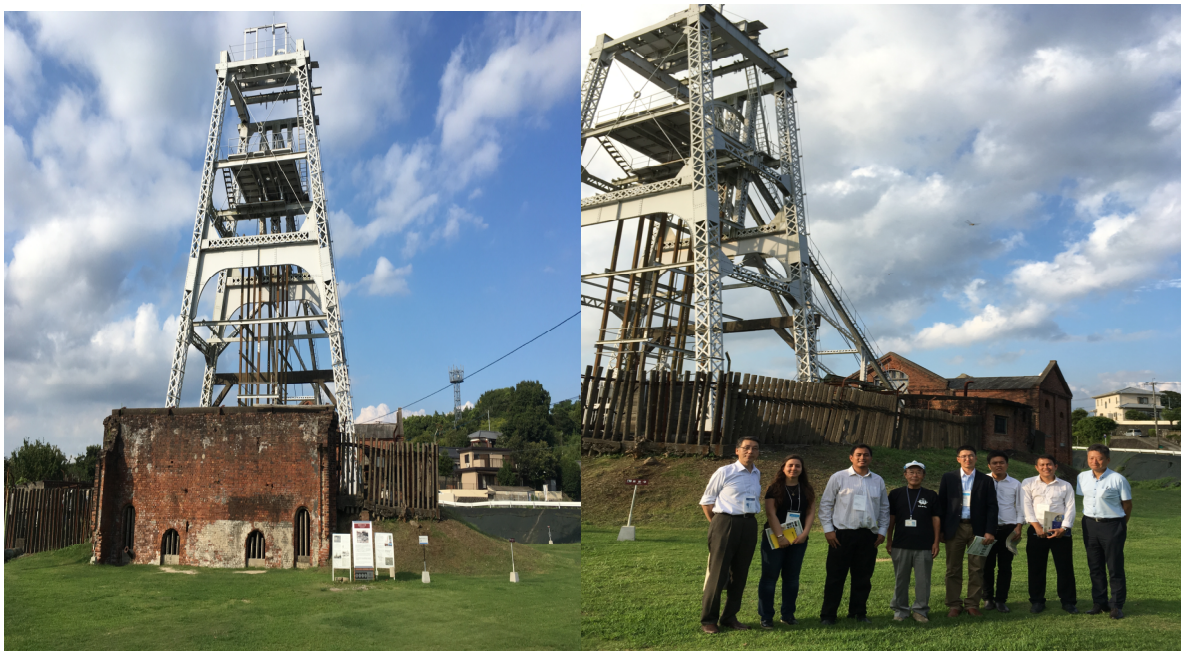
- Cost down by innovative technology.

Pic-4. At Yabegawa Bridge

Second site was Yabe-river levee breakdown site.

Pic-5. At Yabe-River levee breakdown site

Third site was Miike Coal Mine site. Mining began in the region during the Kyoho era, with the Miike mine under the control of the Tachibana clan. The mine was nationalized in 1872 by the Meiji government. The Mitsui zaibatsu took control in 1899. The mine closed in 1997, with devastating effects on the local economy. From 1960 to 1962 the mine was involved in a much-reported labor dispute which divided the workers and involved violent strike-breaking actions. After that we had hit to the hotel Route Inn Kumamoto then all participants and Ms. Suzuki Mr. Katayama Mr.Yoshizawa we had fantastic dinner in local food restaurant.



Pic-6. At Miike Coal Mine site

4th Day, September/13th on Wednesday

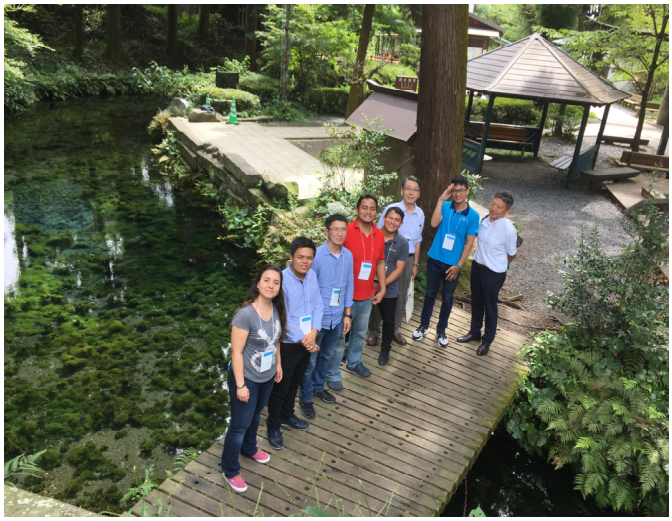
This day we visited Kumamoto earthquake disaster affected sites by charter bus. First we visited at Kumamoto castle site which is hit by earthquake on 2016. The Kumamoto castle has three towers this time reconstructing two of them and one interesting thing is collecting affected castle's big stone's one by one. They took a picture before the earthquake and after the earthquake they analyzed the stone one by one and stones will come their positions. This is very organized and planned everything.

Pic-7. At Kumamoto Castle collapse and group photo

Second site was Tsujin bridge made by stone. This is Japanese heritage bridge and the bridge is an aqueduct in Yamato, Kumamoto, Japan. It is an arch bridge completed in 1854 and is 84.0m long. The arch spans 27.3m. It is the largest stone aqueduct in Japan. During this time, they are reconstructing the bridge.

Pic-8. At Tsujin Bridge and group photo

After that we visited to Shirakawa Fountainhead (spring water place). This place is well organized and we enjoyed this place.

Pic-9. At Shirakawa Foundation head and group photo

Next point was Aso Bridge area Soba works. This site was effected occurrence of massive slope failure about 500.000 m3 around Aso Ohashi bridge triggered by the Kumamoto earthquake of 2016 the central government directly began to conduct the emergency restoration works to prevent secondary disasters. The affected area dimensions are 200mX700m. Here well-equipped site because all heavy equipment which are excavator, bulldozer, and truck etc. There have all remote controlling system. Because this construction site is very dangerous condition.


Pic-10. At Aso Bridge Area Sabo Works and group photo

Pic-11. At Aso Bridge Area Sabo Works controlling mobile room

Pic-12. At Aso Bridge damaged by earthquake

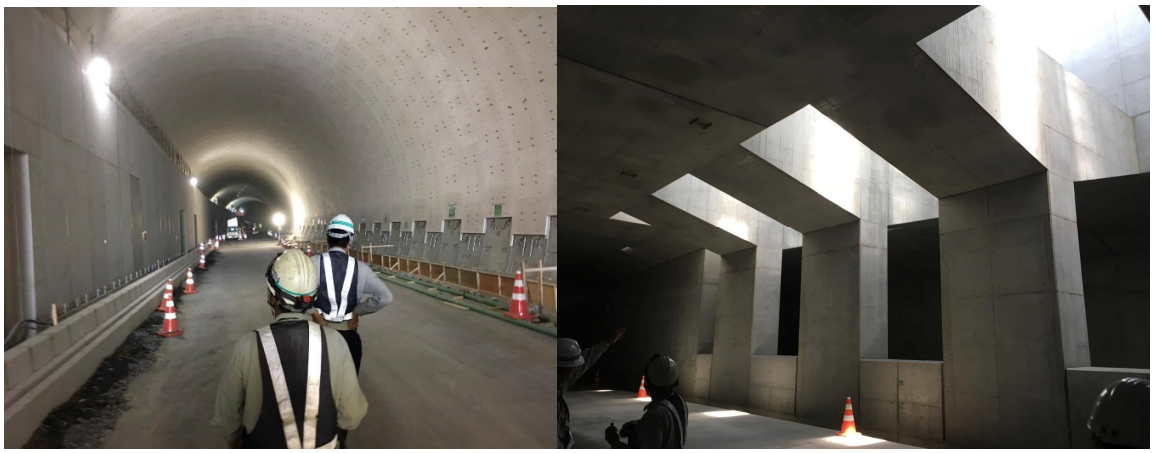
After this site's we had to go Kumamoto Airport for Haneda Airport by flight JAL634.

5th Day, September/14th on Thursday

We left the hotel for Tokyo-Gaikan expressway Tajira area project by charter bus. In the construction site we met Mr. Sakata from Taisei. There are doing underground express way for more comfortable life and safe driving and save time. What is the benefit this infrastructure's?

- Shorter driving times
- Safer residential roads

- Abundant greenery
- Disaster response
- Vital utilities stored underground

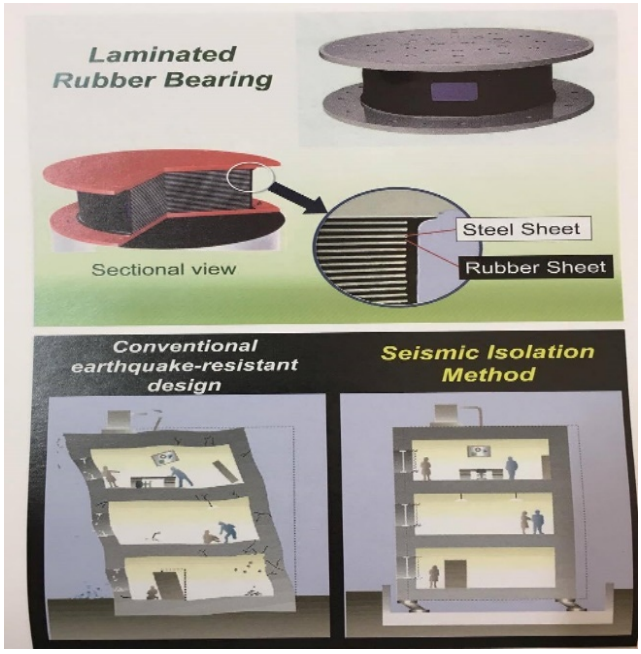


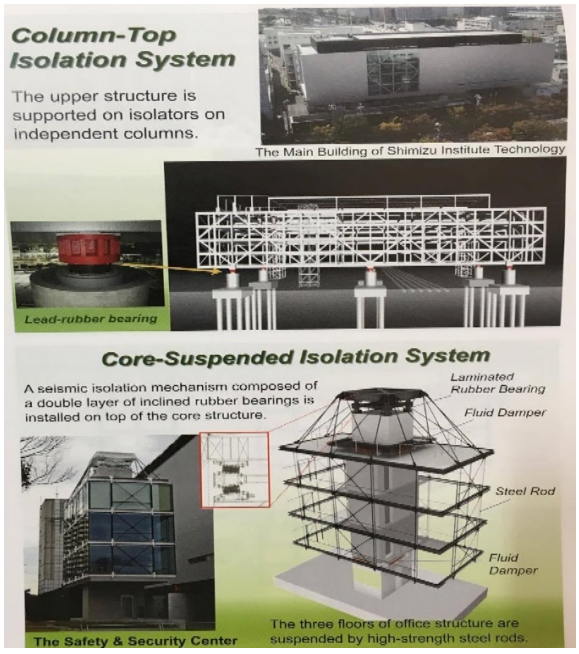
Pic-13. At Tokyo-Gaikan expressway Tajira area

Our next point is Shimizu Institute of Technology. This institute is not approve take a photos. But Mr. Katama gave us so much information during the tour. One interesting main building is earthquake resistant building which the building foundation is made by laminated rubber. This is totally new technology for us. The Shimizu institute of technology established in 1944 was the first such institute of the construction industry. The Shimizu institute has four sectors.

- Safety against disasters
- Environment friendly community
- Health and comfort
- Advanced technologies

Pic-14. At SHIMIZU Institute of Technology





Pic-15. At SHIMIZU Institute of Technology column-top isolation system and core suspended isolation system

Our next point is JR Tokyo station site. Mr. Asano (Obayashi) presented us Obayashi Corporation then he guided us to underground construction site which is Tokyo Station site. The site has very limited time to do construction work because they cannot stop train schedule. Obayashi corporation managed very well. After the tour we had dinner at Budo no mori with ISEF committee members.

Pic-14. At Budo No Mori

6th Day, September/15th on Friday

The final day of the trip was a free day for casual trip. We have started the day trip at 12 and took the public train and had a tour around the city center. We traveled by Tokyo cruise then we visited in Azakusa area and Skytree Tower. Azakusa is located in the Tokyo city center and it is one of the most famous tour sites. Tokyo Skytree tower is 634m high and the tallest free-standing broadcasting tower in the world.

Pic-15. At Tokyo Cruise

Pic-16. At Asakusa Temple

Pic-17. At Tokyo Skytree

Gratitude and Accomplishment

It was a great honor for me to attend the 19th International Summer Symposium which was held at Kyushu University. Young engineers and researchers give presentations and exchange their recent activities during International Summer Symposium. The presentation was my first time to give presentation in foreign language, hence I was very nervous, although it was a great experience to me.

It was my first time in Japan and when I first come to Japan, I was thrilled by the huge bridge and road constructions and underground constructions. Thank you so much for JSCE for giving me this chance to visit Japan and experience these amazing visits. It was a huge effect on my perspective of my Civil Engineering profession and I think it will help me so much for developing my country's future. STG 2017 Tour gave lot of opportunity and I understand my future master degrees thesis.

I appreciate to JSCE sincerely and this study tour helped me to widen my outlook and knowledge as well.