2017 JSCE – STUDY TOUR GRANT REPORT

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1. About JSCE (Japan Society Of Civil Engineers)

Japan Society of Civil Engineers (JSCE) ,was established as an incorporated association in 1914, is a civil engineering professional organization, representing approximately 39,000 members worldwide.

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

2. About Study Tour Grant

JSCE STUDY TOUR GRANT is an important program for young civil engineers, supported by ISEF, to be informed about Japanese civil engineering technologies and projects. The program gives a opportunity young civil engineers to visit research institutes and project sites, meet with leading professional members of civil engineering and learn about newly-used types of innovative technology that mostly belongs to the Japanese Engineers.

3. Participants of STG 2017

No.	Organizaton	Name	Affilication	Presentation Title for the 19th Int'l Summer Symposium
1	Ho Chi Minh City University of Technology	Mr. Mai Hoang Bao	HCMC University of Technology	Vietnamese Traffic Congestion Under the View of Young Civil Engineering
2	MACE	Mr. Ganzorig Tsevelsuren	Engineer, Mongolian Engineering Construction LLC	Improving the quality of reinforced concrete structures, andreusing concrete structures
3	MES	Mr. Pau Sian Musan	JICA study team	Current Significant Development of Yangon
4	JSCE Turkey Section	Ms. Tugce Ceran	Istanbul Technical University	Performance Evaluation of School Building Damaged during Van Earthquake, Turkey (Alternative title: Yavuz Sultan Selim Bridate)
5	PICE	Mr. Al-Adzhar P. Usman	DPWH-ARMM	Feasibility Study on a Proposed Hydro Power Plant in Camp Abubakar in Maguinodanao
6	JSCE Thailand Section	Mr. Pornnarong Lueanpech	King Mongkut's University of Technology/ Office of Engineerig Research & Development, Expressway Authority of Thailand	The Application of Microscopic Traffic Simulation Model to Lane Utilization Estmation of Expressway

4. Study Tour

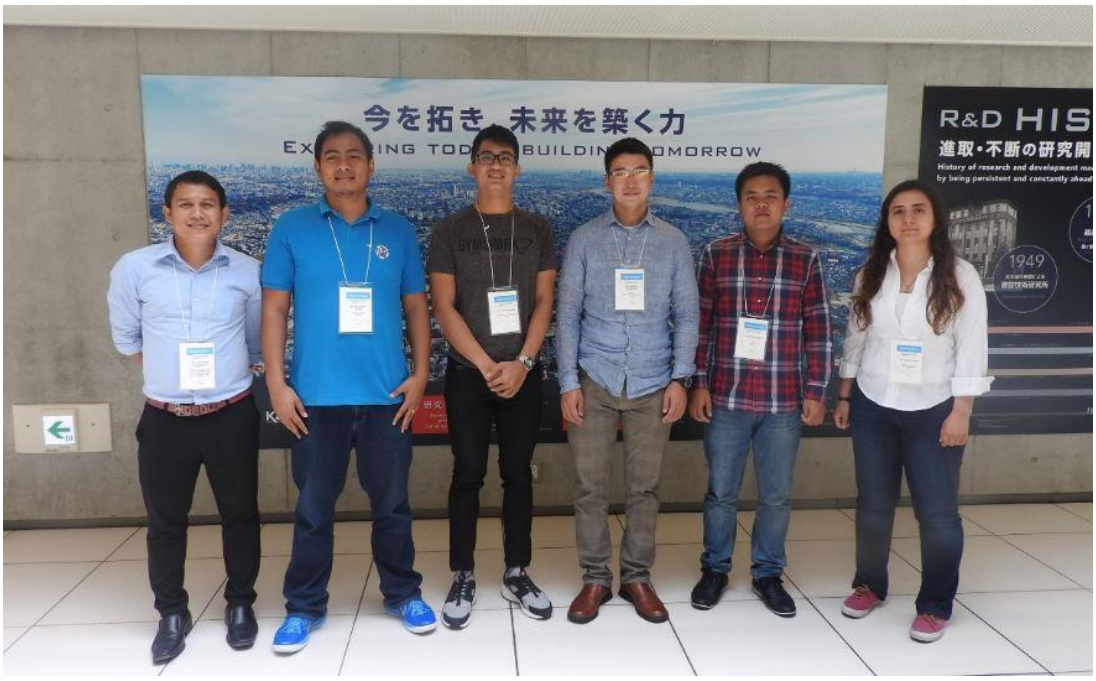
Day 1

On 10 September, 2017, I was ready for boarding Istanbul to Tokyo. My flight took approximately 11 hours to arrive at the Narita Airport. During the flight, I was really excited about everything how Japan is and what will happen. Eventually, I arrived to Tokyo and Ms. Suzuki, who would guide us during the week, met with me near the hotel to check in the hotel for one-night staying.

Day 2

On the morning of the 11 September, after breakfast, we got on our bus to go and see closely Kajima Institute of Technology. Firstly, When we arrived, then we met with Mr. Yoshizawa and they made a presentation ongoing projects over the world, the structure of its administration. After, they began in facility tour including Large Size Structural Testing Laboratory, Base Isolation Building and Wind Tunnel Laboratory and High Performance 3-Dimensional Shaking Table System, Concrete Material Facilities additionally Fire Testing Laboratory and OPSODIS 3D Sound Technology. Before departing from there, they served the Japanese Lunch Meal and their souvenir. After that, we took a photo in front of the Kajima Instıtute.

The skyscrapers, long-span bridges and deep tunnels exemplify their endeavors to make their society better, safer and more secure. Their main mission is to desing and build these buildings and infrastructures to continuously provide good services to the future generations for one hundred years and more. They are building the Future now. The Future is what the clients and the society envision as a Dream. And that Dream is also the dream of their researchers at KaTRI who believe in the limitless potential of technology. They are now facing maltitude of diffuculties including the unprecedented disasters, as well as the deteriorations both in the global economics and environment, among others. In spite of these diffuculties, they are determined to keep moving forward and pioneering new technogical frontiers in order to achieve the dream and ensure the bright future. What makes this steady progress possible is the power within them. Their resellient creavitity and ability to accomplish the mission are ensured by the intelligent abilitiy, mental strength and physical toughness of theirs as a group of professionals. Their pride and confidence are brewed by the great accomplishments of their predecessors at KaTRI's long history. With these pride and confidence they will continue to explore the TODAY and build the TOMORROW.



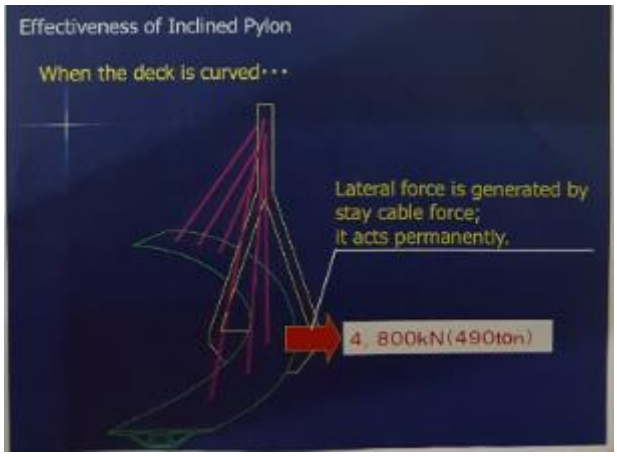
Then we left Kajima to go to HANEDA Airport for Fukuoka. After we arrived to Fukuoka, we attended to the JSCE Networking reception at 'Big Sand ' at Kyushu University. Then We met with Mr. Katayama.

We are in JSCE Networking reception with Mr. Yoshizawa

Day 3

On the morning of 12 September, We left the Hotel for the 19th International Summer Symposium at Kyushu University. After that, a few of us directly passed into a different symposium hall which will host the 19th International Summer Symposium and the remained ones passed directly into a different hall. I made a presentation about performance analysis of school building in Van in Turkey. Making a presentation in front of such a large community was a great experince for me.
After all the presentations we had lunch at Kyushu Universty. Then we went to see Yabegawa Bridge, Yabe-river levee breakdown site and Miike Coal Mine Site.

Yabegawa Bridge is the largest span prestressed concrete cable stayed bridge with in Japan, curvature in plan (R=1150 m). Additionally this bridge did not get any damage when Kumamoto Earthquake occured.



Yabegawa Bridge

The last stop was Miike Coal Mine Site for that day. The mines played an important role toward the rapid industrialization of Japan during the Meiji Period. Japan constructed its foundation to become an industrialization nation and rapidly industrialized the heavy industires, which were

iron and steel manufacturing, ship building, and coal mining. Miike Port and the railway that connected the mines with the port received world heritage status in July 2015 as part of the Sites of Japan's Meiji Industrial Revolution. the history of the mines, the purpose of the remaining structures and the harsh working conditions in Japanese were explained.

Miike Coal Mine Site (1)

Miike Coal Mine Site (2)

Day 4

Kumamoto Castle is one of the most impressive castles in Japan. Kumamoto Castle suffered serious damage in the two earthquakes of April 2016. While the keep itself withstood most of the earthquake with little structural damage, two of the castle's turrets were severely damaged and partially collapsed, more of the exterior walls at the foot of the keep also collapsed. Also the efforts to repair the castle have begun.

Tsujun Bridge is an arch bridge completed in 1854 at Yamato town in Kumamoto to send water for agriculture, and also, it suffered damage during 2016 Kumamoto earthquake.

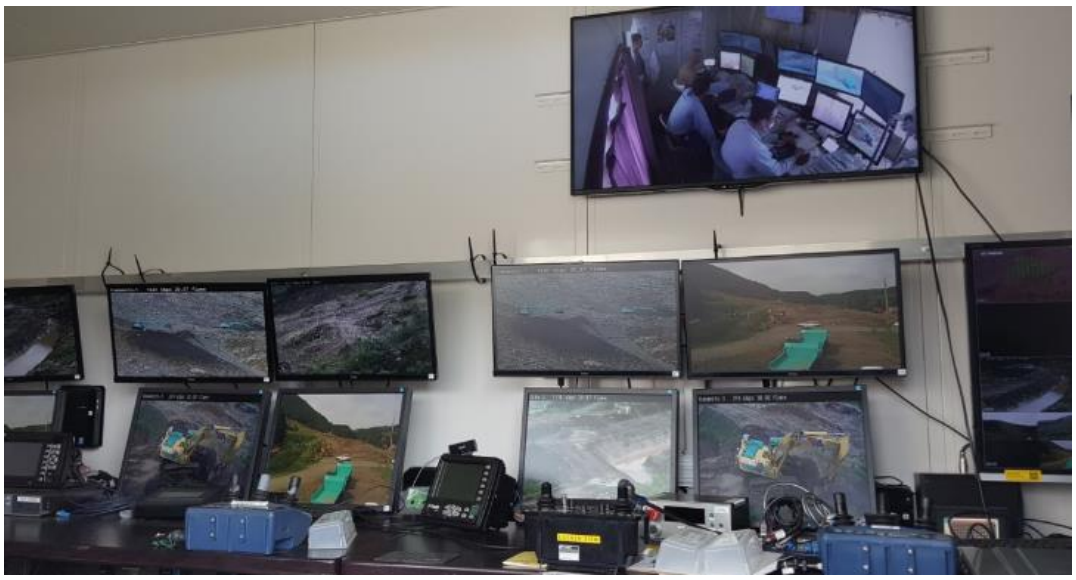
Tsujun Bridge

On the way coming back from Tsujun Bridge, we visited Shirakawa Fountainhead- mineral water spring. Additionally, 60 tons of water are bubbling up here every single minute. I think this water is curative, because my eyes were swollen due to allergy, I washed my face with water and after a while my eyes healed.

Shirawaka Fountainhead

Our next step was Aso Bridge area. The massive earthquake, which occured on April 16, cut the trunk route from Kumamoto city to the Aso area. Following the occurrence of massive slope failure (approximately 500000 m3) around Aso Ohashi Bridge triggered by the Kumamoto Eartquake of 2016, the central government directly began to conduct the emergency restoration works to prevent secondary disasters. To assure the construction worker's safety, this has been done with heavy unmanned construction machinery. Unstable surface layer on sharp cliff sections requiring urgent attention, and loose rocks and boulders with the potential to cause

rock falls were removed. An unmanned excavator, suspended by wires set in a V shape, conducted excavation while being moved up and down, right and left. The operator conducted remote operation from a safe location. Since it was difficult to carry construction machinery overland to the top of the slope, it was disassembled and air-lifted be helicopter.



This machine informs about earth movements


Then we went to Kumamoto Airport for Haneda Airport. After arriving to Tokyo, we checked in our hotel.

Day 5

After breakfast, we went to see one of on-going Tokyo Gaikan Expressway ‘‘TAJIRI-Area Project ’’ is constructed by East Nippon Expressway Company. Besides, TaiSei is constructing jointly with other companies the Keiyo Junction underground, to connect the Gaikan Expressway with the Keiyo Road in Ichikawa City, Chiba Prefecture. This is a complex and extremely difficult construction that includes a total of about 1 km of main line and 4 ramps (connecting roads) in both directions.

We watched a video of the construction methods used mostly in the project. According to that video, there are three construction methods used in that project. These methods are as follow;

1- Cut-Cover Method

2-Shield Tunneling Method

A ramp, which passes under the tunnel box sections of the Gaikan Main Line, is being constructed using a large cross-section shield machine. The latest large section slurry earth pressure shield method has been adopted to enable stable excavation by injecting an additive to the soil excavated at the front surface of the machine, and enhancing the fluidity of the soil and the water tightness.

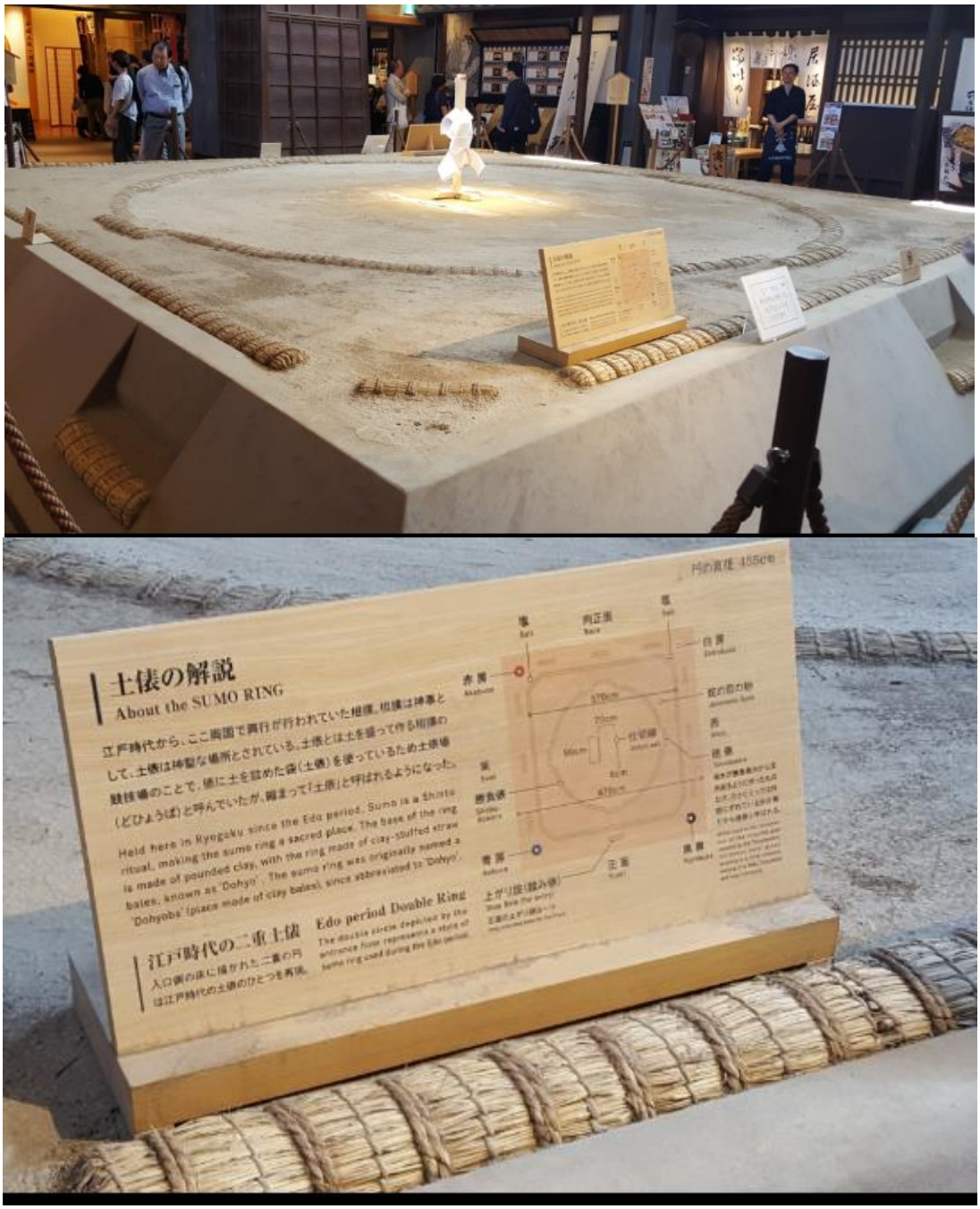
3-The Harmonica + Underpinning method

-The top portion of the tunnel is constructed by repeatedly using small box type propulsion devices.

-After completion of harmonica propulsion, support piles are driven from the box members of the tunnel top portion into the ground, the tunnel top slab is constructed, and supported by the piles.

-The space in the bottom portion of the tunnel is excavated, and the tunnel bottom slab and side walls are constructed to complete the tunnel.

While we were going to Shimizu Institute of Technology, we had a little time to see Sumo wrestling arena.



We went to SHIMIZU Institute of Technology. Because taking any photo in the institute is forbidden, I have no the recent photo of its view while I took a lot of experiences from that place. Chief Engineer Mr. Yutaka Nakamura gave us information in great detail about their old and new projects and showed us around. After, we began in facility tour including Wind Tunnel Laboratory, Geotechnical Centrifuge Laboratory. He gave us some information about Safety and Security Center which is most interesting building for me because It is the world's first building which has installed the Core-Suspended Isolation (CSI) System. A seismic isolation mechanism composed o a double layer of inclined rubber bearings is installed on top of the core structure. Furthermore, The three floors of Office structure are suspended by high-strength steel rods.

As a final stop for that day, we went to JR Tokyo Station Project as well as ‘‘ North Pedestrian Underpass Enhancement Project ’’which is the gateway station to Tokyo, Capital City in Japan, therefore Tokyo Station is the busiest. Also, it is pivot of the railway networks in Japan with 0 km post located at the center of Tokyo Station. In addition, in 1914 Obayashi Corporation went on to build Tokyo Central Station (present-day Tokyo Station). It service 1.8 million peassengers per day, has got approximately 15 lines connected, has got 40 trains per line per hour serviced during peak hour. Beause of passenger increasing, the scope of the project is to widen the underground station in this area.
After visiting JR Tokyo Station we moved straight to our hotel and went to outside to eat. The night ended with a dinner at a nice restaurant.

Day 6

We had free time and I was really tired and needed for such a free-time. After that, we had a sightseeing in Tokyo, we attended to cruise tour. Then we reached Asakusa Temple, there was a shopping street in front of the temple and I bought some souvenier for my family and friends from there. After that, we passed to Skytree. It became the tallest free-standing broadcasting tower in the world with 634m-high in 2011.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TOKYO
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TOKYO SKYTREE TEMBO DECK TICKET
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大人/日付指定
Adult
東京スカイツリー
天望回廊入場券
TEMBO GALLERIA TICKET
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02-00269

Conclusion

Actually I don’t know how to describe my feelings. I think I can not thank you enough for this experience. It is a great honor for me. I am greatful to you for giving me this opportunity to join special study tour program, to experience the Japanese Civil Engineering and to know closely Japan.

Thanks to Ms. Yuki and Mr. Koji who were connected with us for the application and preparation process. And special thanks to Ms. Suzuki, Mr. Katayama and Mr. Yoshizawa for accompanying us, attending to all of our needs and making us feel like at home while we were in Japan. Additionally, I would like to thank my advisor Prof. Dr. Beyza Taşkın who guided me through the process of applying this STG program.

Finally the everything that I have learned and seen, will contribute to my future study and work as well as I will suggest these to younger students, although a short period staying in Japan.