



REPORT
FOR
2016 JSCE – STUDY TOUR GRANT
Supported by The International Scientific Exchange Fund- ISEF

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1. PREFACE

(1) About JSCE (Japan Society Of Civil Engineers)

Japan Society of Civil Engineers (founded in 1914) is a civil engineering professional organization, representing more than 38,000 members worldwide. The Society has over 300 committees and 9 International Sections.

The Society's mission is to contribute to building a sustainable society for present and future generations through promoting and progressing civil engineering. In order to actualize the mission, the Society focuses on the following goals:

- 1) Enhance professional knowledge, skills and practices ;
- 2) Strengthen the contribution of civil engineering to society; and
- 3) Promote communication, cooperation and collaboration among members.

The members enhance their professional practices, tackle various challenges, and fulfill their responsibilities to society. Their commitment to civil engineering instills a strong sense of pride, honor and integrity among themselves.

(2) About Study Tour Grant Program (STG 2016)

Study Tour Grant Program is the grant professional program that has been supported by the International Scientific Exchange Fund (ISEF).I was invited to STG 2016 by JSCE to attend the program that has been annually organized in Japan for nearly one week. The Program provides the opportunity to learn closely the newly-used types of innovative technology that has been mostly discovered by the Japanese Engineers, to the Young Civil Engineers around the world.

(3) Participants of STG 2016

| No. | Country | STG Participants | Affiliation |
|-----|-------------|--------------------------------|---|
| 1 | Myanmar | Mr. Aung Myat Thu | Structural Engineer, Hasty Power Company Limited (TAUNGGYI) |
| 2 | Indonesia | Mr. HABIBIE RAZAK | Project Manager, ASEAN Chartered Professional Engineer |
| 3 | Vietnam | Mr. Tran Dinh Tung | Director-General, VICICO Construction & Investment Joint Stoc Company |
| 4 | Mongolia | Mr. PUREVDORJ Sosorburam | Teacher, Mongolian University of Science and Technology |
| 5 | Turkey | Mr. DogancanTelli | Student, Department of Civil Engineering, Istanbul Technical University |
| 6 | Philippines | Mr. Alben Rome B. Bagabaldo | Mapua Institute of Technology (MIT) |
| 7 | Thailand | Ms. Rattanaporn Kaewkluengklom | Student, Department of Civil Engineering Khon Kaen University |

2. JOURNEY

(1) Application & Preparation

On 31 March, 2016, I was informed about that I can attend the JSCE's Annual Event for the Young Civil Engineers & Candidates " Study Tour Grant 2016 ". This Program is the great opportunity I shouldn't miss to achieve the Newest Japanese Technologies on the Civil Engineering on the spot. Thus, I've immediately applied for the nomination thanks to My Teacher Assoc. Prof. Dr. Beyza TAŞKIN. Soon after that, I got the information on that she start to negotiate with JSCE's officials and forwarded their invitation letter to me and forwarded what kind of files they need to get started the official procedure. After my required documents for the application for e-ticket, booking had been prepared and completed, everything was okay to go to the Japan and get to know the Famous Japanese Technology on the civil engineering.

(2) Arriving at Japan (4 September, 2016, Sunday)

On 4 September, 2016, At the Ataturk Airport at 02:40 am, I was ready for boarding Turkish Airlines's TK 0052 Flight from Istanbul to Tokyo. The flight took approximately 11 hours to arrive at the Narita Airport. During the flight, I was powerfully wondering how the Japan is and how their people live. Eventually, my plane was about to landing the Narita Airport. Thus, I got gradually excited to meet the Mr. Hashimoto who would guide me during the week. Nearly at 9:30 we got together with Mr. Hashimoto at the meeting point inside the airport. Soon later, Mr. Hashimoto introduced himself to me, and accompanied me in the way to Narita Excel Tokyo Hotel near the airport to check in the hotel for one-night stay. Because we had to check out the hotel to get started the wonderful program.



Fig.1. About to land the Narita Airport



Fig.2. Mr. Hashimoto-San showing my name
& wrong surname ☺☺☺



Fig.3. The Board greeting you by saying
“ WELCOME TO JAPAN ”

(3) Public Works Research Institute (PWRI) / National Institute for Land and Infrastructure Management (NILIM), Tsukuba (5 September, 2016, Monday)

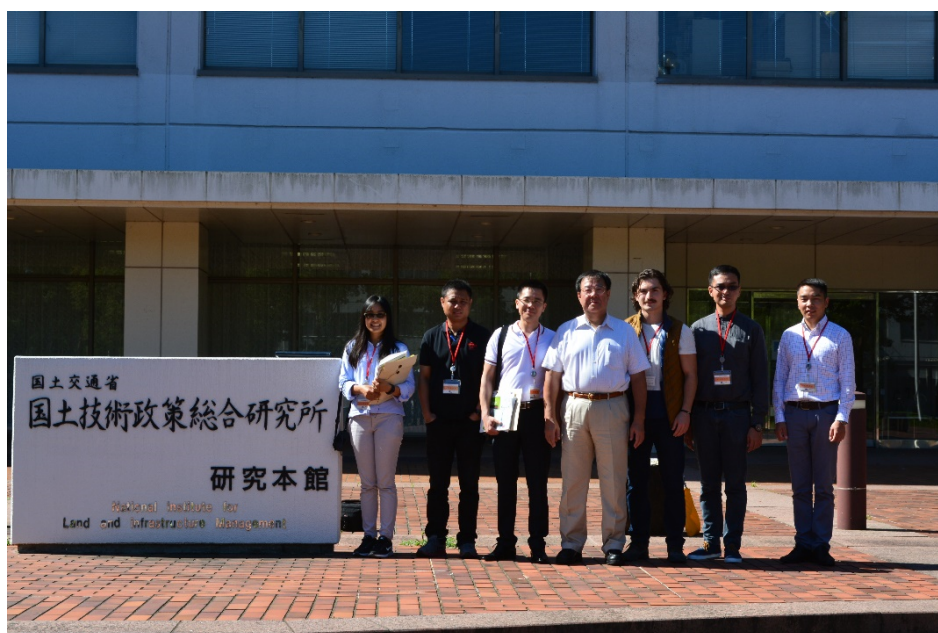


Fig.4 Group Photo at NILIM

On the morning of the 5 September, We met the members of the STG program for the first time during the breakfast by aid of Mr. Hashimoto-San. After getting to know each other, we got on our bus to go to see closely the projects of the NILIM and PWRI. Firstly, When arriving at the center of the NILIM and PWRI, Dr. Wada-San and the other staff of the institute made a presentation on the welcome greeting, both institutes's goals and why they have been founded and the streamflows of the program in one of the room available. After that, We posed for the photograph in the front of the firstly NILIM later PWRI.



Fig.5. Group Photo at PWRI



Fig.6. Me in front of the NILIM

(3.1) Test Course (NILIM's Project)

After the welcome greeting, we again got on the bus to go to the Test Track near both research centers. When arriving at the place for test track, we have been informed extensively about the target of the project and the current position. According to the information I took from the speaker sitting down next to the driver's seat, the Test Track has got the experimental facilities for impact tests and lighting, North loop (Radius 148 m, Design speed 100 Km/ h), South Loop (Radius 223m, Design Speed 120 Km/h), Full-Size test tunnel, Weather environment test truck, ITS (Intelligent Transport System) test facility, Pavement test field, Traffic sign test bridge, Porous elastic pavement and Active soft edge soundproof barrier.



Fig.7. Test Track (North Loop)



Fig.8. With Dr. Wada-San and Me on the Test Track

(3.2) Dam Hydraulic Laboratory (PWRI's Project)

As soon as the introduction for the test track has finished, we set off to take to the Dam Hydraulic Laboratory which PWRI is responsible for its administration. When we arrived at the Laboratory, One of the officials greeted us, and then firstly Dr. Wada-San and the research center's staff briefly introduced the project to us when compared with the introduction presented by the laboratory's staff. According to the information the laboratory's staff gave us on the spot, Dam Hydraulic Laboratory (L102 m * B44 m) and its Annex (L70m * B29 m) are used for investigation of the hydraulic phenomena concerning dams' reservoirs and hydraulic facilities such as spillways, outlet works and intake systems. Also, laboratories are used for hydraulic design of facilities of governments' dams especially of MLIT dams. Hydraulic design of almost all spillways and outlet works of MLIT dams are executed through model test in these laboratories.



Fig.9. Dam Hydraulic Laboratory

(3.3) Vibration Laboratory (Large-Scale 3-D Shaking Table , PWRI's Project)

The next station we visited to get information and great experience on the structural & earthquake engineering was the Vibration Laboratory that perfectly featured the Large-Scale 3D Shaking Table which is used to examine aseismicity of the ground and civil infrastructure by simulating strong motion of large earthquakes. The parameters used for the movement of the shaking table are obtained from the actual earthquake events for more realistic simulations. The shaking table is supported by a floating foundation to mitigate vibration propagating into the neighborhood. The floating foundation is supported through a vibration isolating system consisting of 216 air springs and 672 oil dampers by outer-pile foundation in relatively soft soil. Because taking any photo in the vibration laboratory is forbidden, I have no the recent photo of its view while I took a lot of experiences from that place.

(3.4) Structural Engineering Laboratory (30 MN Universal Testing Machine, PWRI's Project)

After the visit to Vibration Laboratory (Large-Scale 3-D Shaking Table) take place, we moved to the next stop “ Structural Engineering Laboratory (30MN Universal Testing Machine). It is used for compressive, tensile and bending tests for full-scale or reduced-scale bridge members/components to evaluate the ultimate strength and the behaviour to failure. It was constructed in 1978 and the control unit was updated in 1991 and 2002 to improve the safety and the usability for operation.



Fig.10. The general appearance of 30 MN Universal Testing Machine



Fig.11. The Group Photo with Dr. Wada-San and the STG Recipients in front of the 30 MN Universal Testing Machine

(3.5) Dynamic Geotechnical Centrifuge Laboratory (PWRI's Project)

The final facility that we went to was the Dynamic Geotechnical Centrifuge Laboratory which is one of the largest dynamic centrifuges all over the world (Radius 6.6 m, Max Acceleration: 150 G, Max Payload: 5t). It was said that the machine is used for the tests to understand the complicated behavior of ground, earth structures, foundations, and also to develop the techniques to rationalize design. Generally, scaled model tests are often carried out, in which the simulation rules must be satisfied in order to reproduce the prototype phenomena. Other studies may include Soil liquefaction and ground flow, seismic behavior of underground structures etc. It was stated that these studies are very important in Japan because of the coastal cities where are in high risk of experiencing liquefaction. This was an entirely new experience for me because I have never seen such an equipment , although my university ITU (Istanbul Technical University) has got such an equipments like this one at the campus apart from the 30 MN Universal Testing Machine, Hydraulic laboratory and Vibration laboratory.

(4) Tokyo Gaikan Expressway “TAJIRI-Area Project ”, Chiba

After having a lunch at the Restaurant SATO, we went to see one of on-going projects which I wonder powerfully because I have been as an intern in one of the metro-tunnel projects in Istanbul before coming to Japan. The Project is the large scale construction project. It is constructed by East Nippon Expressway Company, TAISEI-TODA-DAIHO Joint Venture. Firstly, We reached to the Kanto-Brach Chiba-Construction Office. Before going down to the site, we wore the safety accessories and were explained about the project with small model demonstration by construction manager. Then, we went to the site by bus. TAJIRI area construction is the work to construct Keiyo-junction Expressway and Keiyo-Road way. Gaikan – Expressway and Keiyo-JCT ramp are semi-basement the structure. The junction is made from many ramps that have different height and structure that are well calculated. We were also explained about expressway project by construction manager and we saw heavy steel structure strut including concrete casting work for retaining wall under construction. Then, we saw a large machine to dig earth and big crane. Afterwards, we went to the site office and 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 and
- 3- The Harmonica + Underpinning method

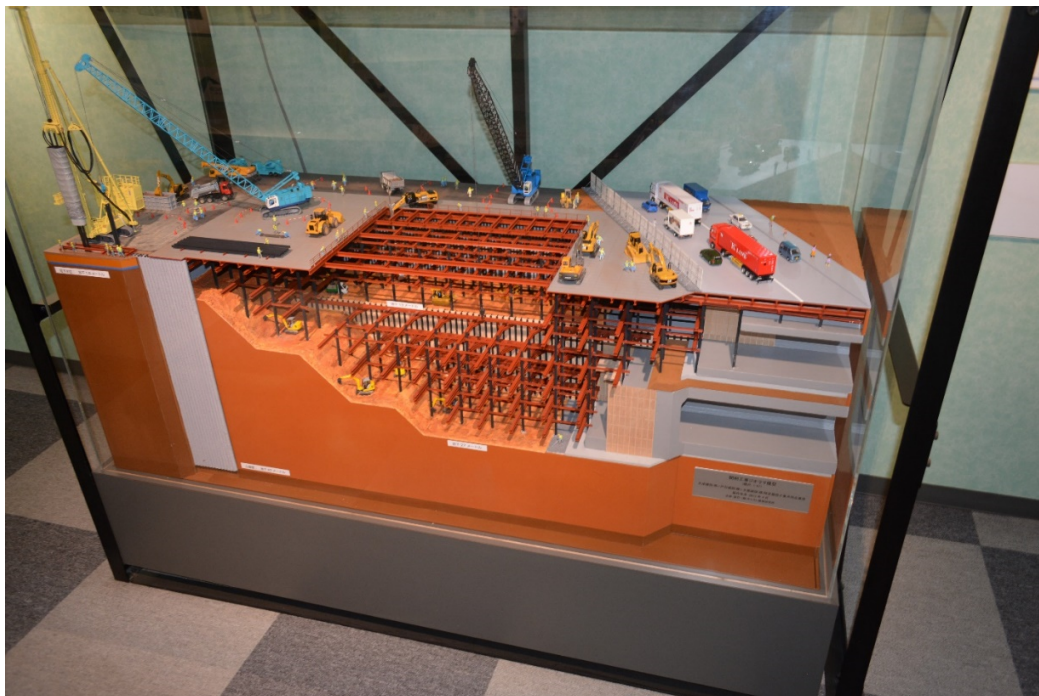


Fig.14. Small Scale Model of Tokyo-Gaikan Expressway construction site, TAJIRI-Area project

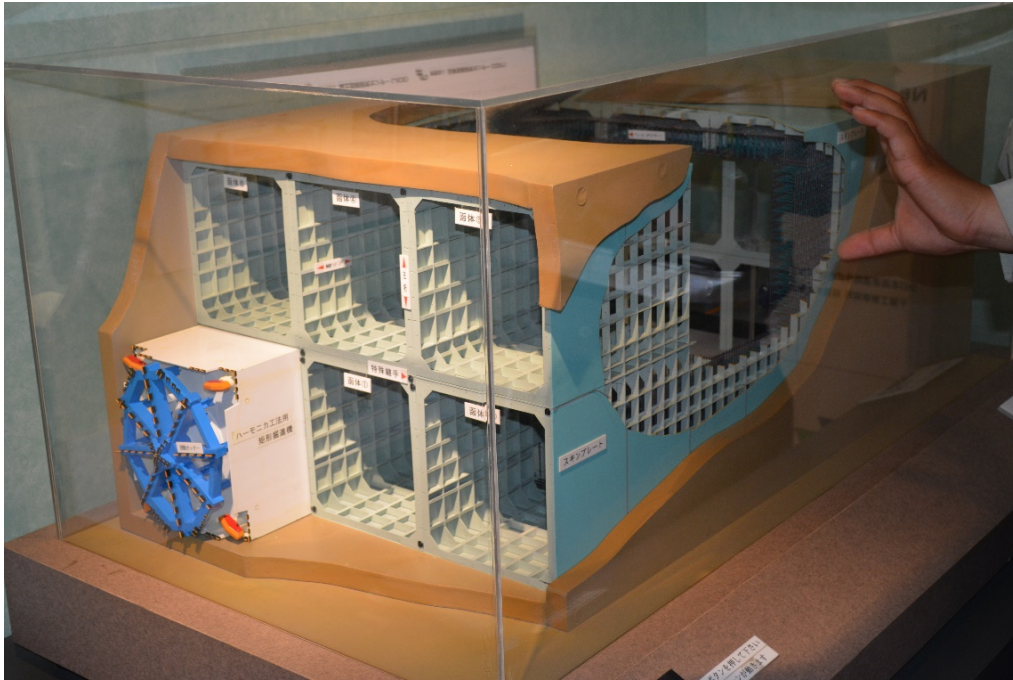


Fig.15. Small Scale Model of Harmonica-Underpinning Methods



Fig.16. The Entrance of the Tunnel



Fig.16. With Mr.Hashimota-San and STG Recipients in front of the TBM

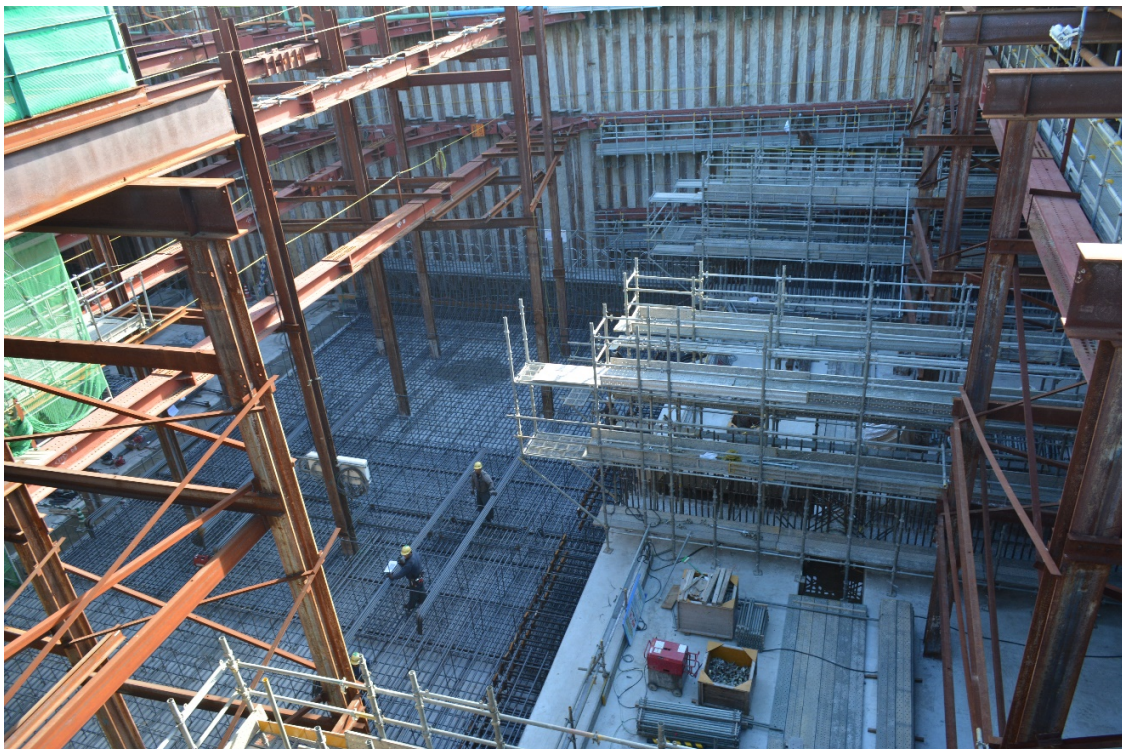


Fig.17. The top view from the construction site



Fig.18. About to go down the Construction Site

(5) Kajima Technical Research Institute KaTRI, Chofu City, Tokyo

On the second day of the STG 2016 program, as always we woke up for a new day to go to firstly Kajima Technical Research Institute abbreviated as KaTRI , secondly Disaster Prevention Center (Tokyo Metropolitan Assembly Hall and Tokyo Olympic Facilities in Shinjuku-ku, Tokyo) and finally JR Tokyo Station Extension Project. When arriving at the KaTRI, firstly we attended the meeting on welcome & greetings and they made a presentation on its foundation, on-going projects over the world, the structure of its administration. After that, they began in facility tour including Large Scale Structural Testing Laboratory, Base Isolation Building and Wind Tunnel Laboratory and additionally Exhibition Room (Various Concrete materials and OPSODIS 3D Sound Technology. Before departing from there, they served the Japanese Lunch Meal and their souvenir at the same time.

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 design 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 multitude of difficulties including the unprecedented disasters, as well as the deteriorations both in the global economics and environment, among others. In spite of these difficulties, they are determined to keep moving forward and pioneering new technological frontiers in order to achieve the dream and ensure the bright future. What makes this steady progress possible is the power within them. Their resilient creativity and ability to accomplish the mission are ensured by the intelligent

ability, 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.



Fig.19. The Group Photo at the Center of KaTRI

(6) Tokyo Metropolitan Assembly Hall and Tokyo Olympic Facilities in Shinjuku-ku, Tokyo

After we departed from KaTRI, we directed our way to Tokyo Metropolitan Assembly Hall which is also referred to as **Tochō** for short, houses the headquarters of the Tokyo Metropolitan Government, which governs not only the 23 wards, but also the cities, towns and villages that constitutes the whole Tokyo Metropolis. It is located in Shinjuku, the building consists of a complex of three structures, each taking up a city block. The tallest and most prominent of the three is Tokyo Metropolitan Main building No.1, a tower 48 stories tall that splits into two sections at the 33rd floor. The building also has three levels below ground. The design of the building (which was meant to resemble a computer chip), by architect Kenzo Tange (and associates), has many symbolic touches, most notably the aforementioned split which re-creates the look of a Gothic cathedral. The other two buildings in the complex are the eight-story Tokyo Metropolitan Assembly Building (including one underground floor) and Tokyo Metropolitan

Main Building No.2, which has 37 stories including three below ground. The building was designed by Kenzo Tange and finished in December 1990 at the expense of ¥157 billion (about US\$ 1 billion) of public money. It replaced the former Tokyo Metropolitan Government Building at Yūrakuchō, which was built in 1957 and also design by Tange. The former Tokyo Metropolitan Government Building is now the site of the Tokyo International Forum.



Fig.20. The Full-Sized View at the noon



Fig.21. The appearance of its front side

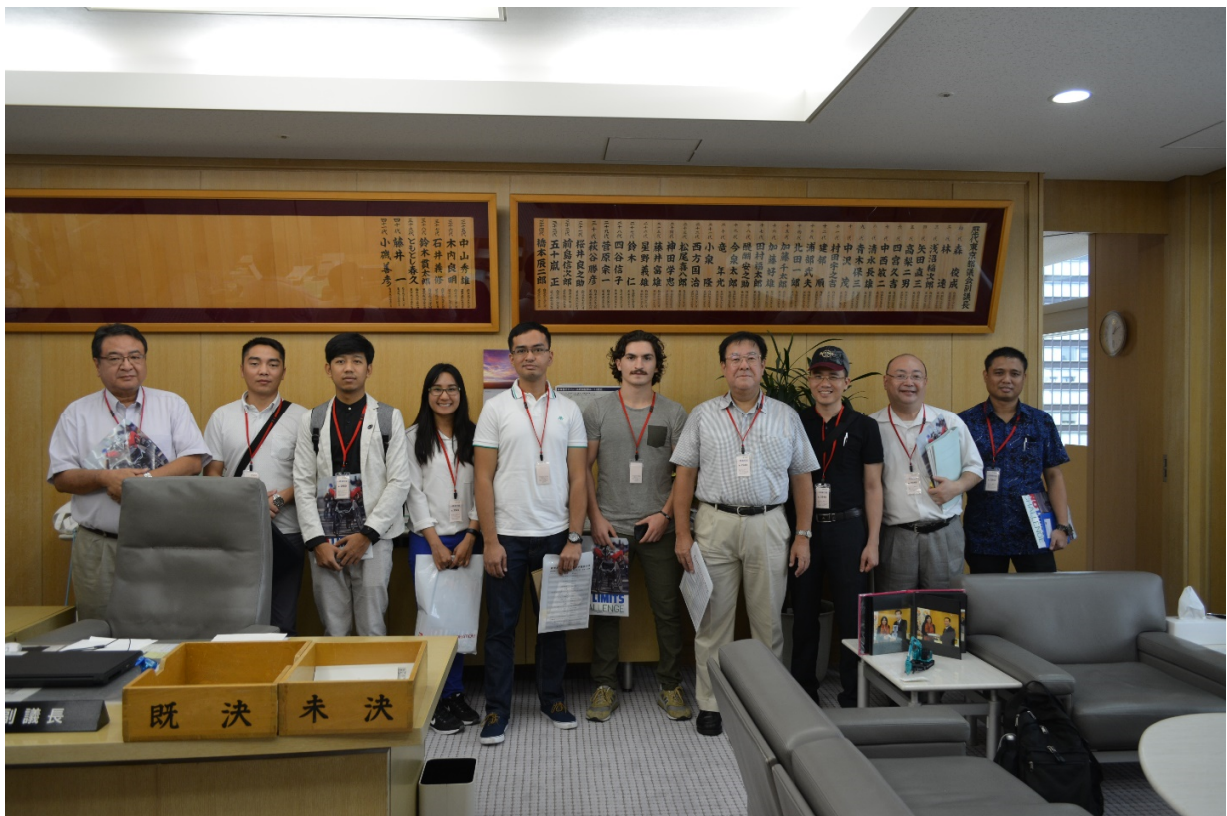


Fig.22. The Group Photo in a special room at the Tokyo Government Metropolitan Building

(7) JR Tokyo Station Extention Project, Tokyo

As a final stop for the STG 2016 on the second day, we went to JR Tokyo Station Extention Project which is the gate-way-station to Tokyo, Capital City in Japan. It is the Hub-station of High Speed Railway Networks connecting with Reginal Cities in Japan, the Hub of Personal Commuting in Tokyo Region and the Pivot of the Railway Networks in Japan with 0 km Post located at the center of Tokyo Station. In addition, I got the information that JR Tokyo Station was constructed by OBAYASHI more than 100 years ago. OBAYASHI's Presence has been continued from 1935 till to date for more than 80 years with the Stationed Project Office to support Station's Grown-ups, Improvements as well as Upgrades. Also, it has got currently 2 upgrades projects are on-going by OBAYASHI to upgrade Tokyo Station which are " Sobu-Underground Enhancement Project" as well as " North Pedestrian Underpass Enhancement Project ". Tokyo Station functioned as the Hub of Networks between Haneda/Narita International Airports and Cities in Japan. Railway Networks. It transports 1.8 million pax peassengers per day, has got approximately 15 lines connected, provide the government's treasury 3.4 million US \$ daily revenue income per line and has got 40 trains per line per hour serviced during peak hour. Due to increase of passengers, they as Japanese engineers will widen the North passage of Tokyo Station from 6.7 m to 12 m to gain sufficiently space for new stores and office.



Fig.23. With The Project's Site Engineers on the site

(8) 2016 JSCE Annual Meeting the 18th International Summer Symposium at Tohoku University, Kawauchikita Campus, Sendai

On the morning of 7 September, We left the Hotel Unisite Sendai for the 18th International Summer Symposium at Tohoku University, Kawauchikita Campus in Sendai. When we went up to the campus area, I got surprised because there are no any gate for the security while there must exist any security gate due to the increasing terror attack at most of university campus over the world. After that, a few of us directly passed into a different symposium hall which will host the 18th International Summer Symposium and the remained ones passed directly into a different hall else. I made a presentation on the project "M-7 Mahmutbey-Mecidiyeköy-Kabataş Metro Project" in which I intern in before coming into Japan yet. Fortunately, I got over the presentation because I had no so much experience for the presentation as only an undergraduate student in the

group when compared with the recipients of the STG 2016. At the end of the presentation, someone among the listeners at the hall asked me which technical standard has been used in the project, however I have no detail knowledge of which one of the technical standards has been used for the project. Thus, I replied that I had no knowledge of the project management since I have been there as an intern. After the presentation, we met some of the leading members of JSCE at the lunch. After having the lunch with Japanese traditional tastes, we took a number of photos in front of the broad staircase. In the evening of the day, we as the recipients of STG 2016 attended the meeting with open buffet and got to know the leading members of JSCE like chairman, secretary, and the members from the different countries around the world especially from Asian Continent.



Fig.24. With the leading members of JSCE at the meeting hall



Fig.25. With Ms. Yuki, Mr. Hashimoto and the recipients of STG 2016



Fig.26. My Presentation at the 18th International Summer Symposium



Fig.27. The Group Photo in front line of the greeting board

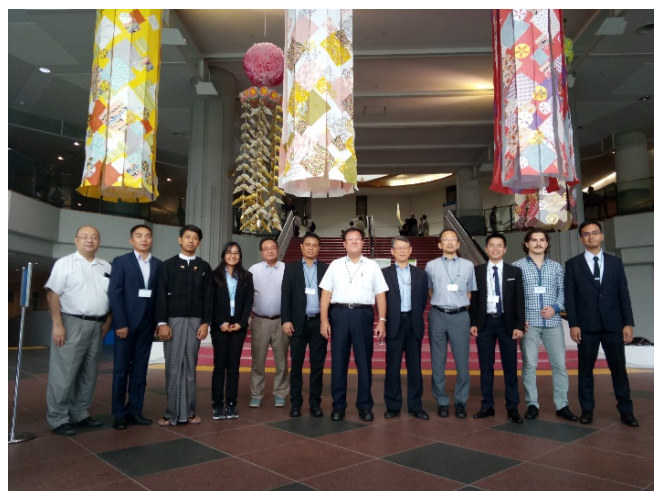


Fig.28. Group Photo in front of the large staircase

(9) Visit to The Disaster-Affected Sites located between Rikuzen-Takata and Minami-Sanriku towns in which reconstruction works have been implemented

On the morning of the 8 September, we left the hotel in Sendai to go to the disaster-affected sites located between Rikuzen-Takata and Minami-Sanriku towns by bus. Our program was planned as circular-route we would visit the areas between two towns and then, we returned to Sendai by bus again. Thus, I would admit that it was the most overwhelming route because we continuously visited so many places during the day. In addition, I have been affected adversely by what the officials said us at the site. I would like to express that we as Turkey had been affected by the incident and it caused us to sorrow. As for the program, according to the information about what they said us on the spot, the center of the town, which is located at the back of Takata-Matsubara was devastated by a tsunami after the Great East Japan Earthquake on March 11, 2011. There were about 70.000 pine trees in Takata-Matsubara before the disaster, however, almost all trees were swept away by the tsunami except one pine tree called “Miracle Pine Tree”. Besides, 90 percent of the sandy shore has disappeared by ground settlement and tsunami following the earthquake. By the way, at the beginning of the day, we firstly visited the projects which are under construction, like Shinkasennuma Bridge, Koizumi Bridge, a Railway Bridge broken by the Tsunami, finally Michi-no-eki Takada Matsubara which is currently open for the visitor who would visit to remember the devastating incident that has occurred in March 11, 2011 following the earthquake.



Fig.29. The Group Photo under the Shikasennuma Bridge



Fig.30. The General View of Shikasennuma Bridge from the right corner



Fig.31. The Group Photo in front of the Coastal Disaster
Restoration Project in Rikuzen-Takata Area

3. Free-Time

On September 9, 2016, we got the freedom following the overwhelming long journey during four days. I got really tired and needed for such a free-time because my flight probably caused me to get tired and I became the owner of the jet-lag for the first time following about 14-lasting-hours flight from Turkey to Japan. I don't want to explain my feelings about the beauty of the Japan during my trip. Instead, I would like to share my photos on the free-day with you in the report now since I cannot finish to report all of them in a narrow space on the report.



Fig.32. Asakusa Temple



Fig.33. Tokyo Sky Tree



Fig.34. Famous Japanese Smile



Fig.35. Sight-Seeing in Tokyo by Hato Bus



Fig.36 Dinner at a famous luxury restaurant

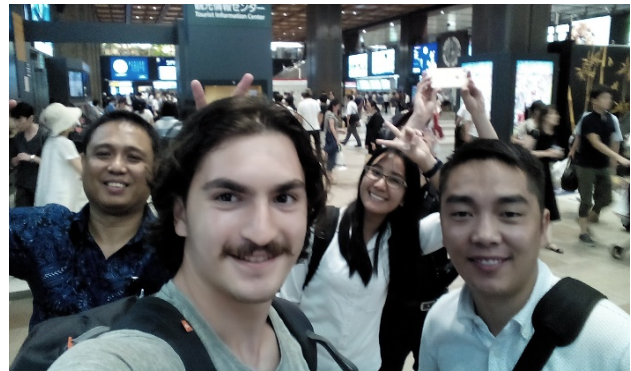


Fig.37. About to get on the Shinkansen Train



Fig.38. I loved the coincidence for the day



Fig.39. With Wada-San at Asakusa Temple

(4) Speech Of Gratitude

I don't know how I will get started my speech because I have lots of valuable memories for me. During my trip, you took care of me in the best way. I am so much grateful what you did for me and host me flawlessly. It was a great opportunity for me to experience the Japanese Civil Engineering and get to know closely the Japanese people and culture. I obtained so many things from here which would give rise to improve my skills and perspective on especially some of departments of civil engineering like geotechnical and hydraulic engineering because Japan is a earthquake-disaster zone at high rate and is surrounded by the North Pacific Ocean, Sea of Japan

and Philippines Sea . Thanks to Ms. Yuki-San who was connected with my country's officials for the nomination process, Mr.Wada-San who shared their so much precious experiences on the civil engineering with us and took care of us during trip and I would like to emphasize the fact that Mr. Hashimoto-San became my secondary father living in another country and thanks to him because I decribed as a man who is constantly scatter his happiness around. Finally, I would like to state that Prof. Dr. Beyza TAŞKIN has got so much exertion and submit my thanks to her because she nominated me unhesitatingly and kept in touch with the JSCE. To sum up, THANK YOU SO MUCH EVERYONE. AS I SAİD THAT YOU ARE MY SECONDARY FAMILİY THAT LİVE FAR AWAY. ☺ ☺ ☺

