



WITH THE RECOMMENDATION OF THE
PHILIPPINE INSTITUTE
OF CIVIL ENGINEERS



土木學會

JAPAN SOCIETY OF CIVIL ENGINEERS

STUDY TOUR GRANT 2019

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TABLE OF CONTENTS

I. INTRODUCTION

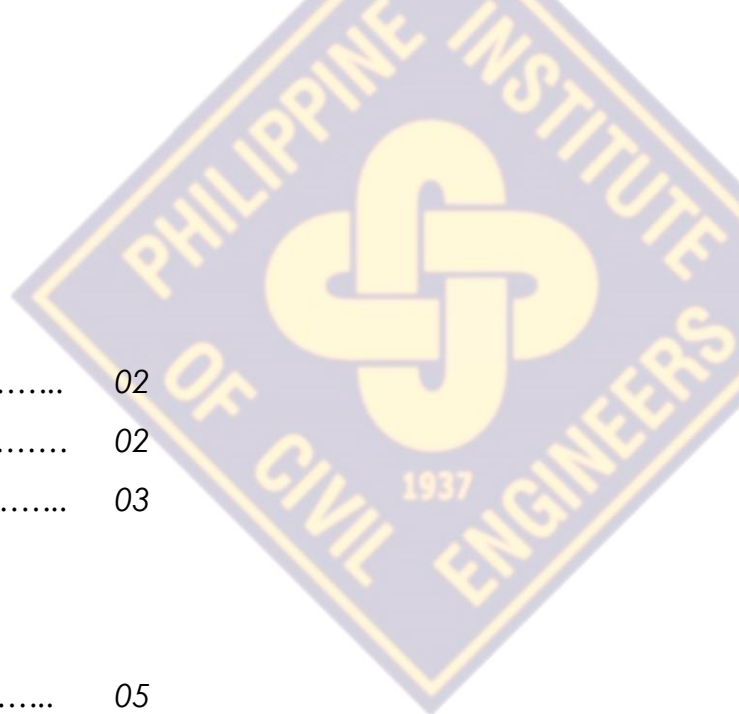
ABOUT JSCE	02
ABOUT STUDY TOUR GRANT	02
LIST OF PARTICIPANTS	03

II. STUDY TOUR ACTIVITIES

DAY 01	05
DAY 02	06
DAY 03	11
DAY 04	15
DAY 05	18
DAY 06	23
DAY 07	25

III. SUMMARY

IV. ACKNOWLEDGEMENTS



ABOUT 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.

ABOUT STUDY TOUR GRANT

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 were affiliated. This program gives a chance not only to see technological innovations, but also to experience them in the environment that they are achieved.

Study Tour Grant (STG) was established in 1992 to utilize JSCE supported International Scientific Exchange Fund more effectively and more appropriately. It was created as a program for supporting scientific study tours which make it a principle to exchange science and technologies and cultivate a deep international fellowship. At the time of establishment, the purpose of STG was to make Japanese civil engineering technologies and projects widely known among the engineers inside and outside Japan. Therefore, at the end of the program, the invitees to the STG program were expected to deliver the results of their experience gained in Japan to JSCE and also to the official bodies or academic journals back home. Based on over 20 years of experience from its launch, the STG program shall focus not only on the spread of Japanese civil engineering information but also on the development of engineers who play a role of liaison between their home countries and Japan.

PARTICIPANTS OF 2019 JSCE – STUDY TOUR GRANT

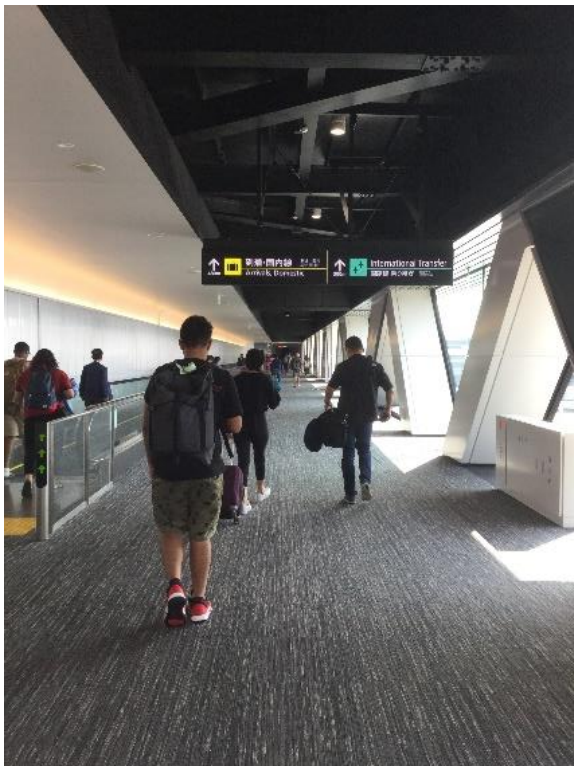
	NAME	AFFILIATION	COUNTRY
1	Mr. Nguyen Bao Lam	VFCEA , Road and Bridge Dept., Faculty of Civil Engineering, University of Transport and Communications	Vietnam
2	Mr. Munkhsaikhan Battumur	MACE , School of Construction and Architecture, Mongolian University of Science and Technology	Mongolia
3	Mr. Wai Yar Aung	MES , Technical Research Engineer, Myanmar Earthquake Committee	Myanmar
4	Ms. Gül Pinar Avci	JSCE – Turkey , Civil Engineering Dept., Istanbul Technical University	Turkey
5	Mr. Mark Allen T. Zapanta	PICE , Aboitizland Inc. Civil Engineering Major in Structural Engineering, Tarlac State University	Philippines
6	Mr. Washirawat Praphatsorn	JSCE – Thailand , Dept. of Civil Engineering, faculty of Engineering, Kasetsart University	Thailand
7	Mr. Omar Faruqe Hamim	IEB , Master Student Civil and Structural Engineering, Bangladesh University of Engineering and Technology, Lecturere, Dept. of Civil Engineering, BUET	Bangladesh

STUDY TOUR ACTIVITIES

DAY	DATE	TIME	EVENT	ATTENDED BY:
01	September 01, Sunday	-	Arrive at Narita International Airport	
			Check-in at Ninshitetsu Inn, Shinjuku	Ms. Suzuki (Tour Conductor:TC)
02	September 02, Monday	7:30 ~	Check-out, go to KAJIMA Technical Research Institute, Ninshichofu Complex	Ms. Suzuki (TC), Mr. Yamamura (JSCE)
		9:00 – 11:30	STG Orientation session with the ISEF Committee at KAJIMA Technical Research Institute	Mr. Yoshizawa (KAJIMA), Ms. Suzuki (TC), Mr. Yamamura (JSCE)
		11:30 – 13:00	Lunch Break	
		13:00 ~	Go to Tokyo International Airport (Haneda Airport)	Ms. Suzuki (TC), Mr. Yamamura (JSCE)
		14:30 – 16:30	Visit Tunnel Construction Site at Haneda Airport	Mr. Araki (Shimizu), Ms. Suzuki (TC), Mr. Yamamura & Ms. Wang & Mr. Zuo (JSCE)
		18:00 – 19:15	Flight to Kagawa Prefecture	

03	September 03, Tuesday	7:50 ~	Go to Kagawa University	Ms. Suzuki (TC), Mr. Yamamura & Ms. Wang & Mr. Zuo (JSCE)
		8:40 – 11:55	Participate in the 21 st International Summer Symposium, JSCE Annual Meeting at Kagawa University	
		11:55 – 13:05	Lunch Break, then go to Takamatsu Port, Takamatsu, Kagawa	Dr. Dang (JSCE), Ms. Suzuki (TC), Ms. Wang & Mr. Zuo (JSCE)
		13:05 – 13:40	Go to Ieura Port, Teshima Island	
		14:00 – 17:00	Visit the Illegal Dumping Site of Industrial Waste, Teshima Island	
		17:20 -17:55	Go back to Takamatsu Port from Ieura Port	
		18:40 – 19:30	Join the IAC Networking Reception at Kagawa University	
04	September 04, Wednesday	7:30 ~	Check out, go to Michinoeki-Shionoe	Ms. Suzuki (TC), Mr. Yamamura & Ms. Wang & Mr. Zuo (JSCE)
		9:00 – 9:40	Visit Kabagawa Dam Construction Site, Takamatsu, Kagawa	
		10:40 – 11:10	Visit Sanuki Mannou Park, Nakatado, Kagawa	
		11:20 – 12:00	Lunch Break	
		14:00 ~	Passed-by the Kurushima Kaikyo, Bridge	
		16:30 ~	Arrived at Kure Morisawa Hotel, Kure, Hiroshima	
05	September 05, Thursday	9:00 ~	Check-out, leave from Kure Morisawa Hotel, Kure, Hiroshima	Mr. Kanda (Kure National College of Technology: KNCT), Dr. Tanikawa (KNCT), Mr. Shimooka (KNCT), Ms. Suzuki (TC), Mr. Yamamura & Ms. Wang & Mr. Zuo (JSCE)
		9:20 - 9:40	Visit Disaster Waste Disposal Sites (Aga, Kure)	
		10:05 - 10:25	Visit the Area Affected by Sediment-Related Disaster (Tenno, Kure)	
		10:35 - 10:55	Visit the Damaged Areas on National Highway (Mizujiri, Sakacho)	
		11:05 - 11:25	Visit Temporal Housing (Sakacho)	
		11:45 - 12:45	Lunch Break	Mr. Shimooka (KNCT), Ms. Suzuki (TC), Mr. Arai (JSCE)
		13:00 - 14:00	Visit Hiroshima Peace Memorial Park, Hiroshima	

		14:40 - 5:10	Visit Disaster Affected Area on Misawa River (Asami Kita-ku, Hiroshima)	
			Visit the Torigoe Bridge and Water and Sewerage Pipes (Asami Kita-ku, Hiroshima)	
		15:40 ~	Go to Kobe by Sanyo Shinkansen from JR Hiroshima Station	
06	September 06, Friday	9:30 - 12:00	Visit Disaster Reduction and Human Renovation Institution, Kobe, Hyogo	Ms. Suzuki (TC), Mr. Arai (JSCE)
		12:00 - 13:00	Lunch Break	
		13:00 - 13:50	Go to Maiko Station from JR Sannomiya Station	
		14:00 - 15:00	Visit Akashi Kaikyo Bridge	
		15:00 ~	Sightseeing	
07	September 07, Saturday	-	Check-out, go to Kansai International Airport, Osaka	



Arrival at Narita International Airport

DAY 01 – ARRIVAL IN NARITA INTERNATIONAL AIRPORT

On September 01, 2019, Sunday morning, I departed from my hometown – Tarlac City at 3:00am and arrived at Ninoy Aquino International Airport (NAIA) Terminal 2 between 6:00 – 6:30am. Afterwards, I proceeded with all the terminal pre-boarding assessments, checking-in, immigration, security checks and waited up until 9:30am for my flight with ANA Airline Airbus A380 bound to Narita International Airport, Tokyo, Japan. It was a safe and sound flight with matching good lunch provided by the airline and comfortable sleep on-board. After 4 hours, I safely arrived at Narita Airport. After collecting my luggage and passing through the immigration and customs check on that airport, Ms. Nonoka Ito of Tobu Top Tours was waiting for me at the arrival area. She accompanied me as we rode the airport limousine for Shinjuku where Ms. Suzuki waited for me and fetch me out to Nishitetsu Inn in Nishi – Shinjuku, Shinjuku - ku, Tokyo where I spent my first night.

DAY 02 – STG ORIENTATION, KAJIMA TECHNICAL RESEARCH INSTITUTE, HANEDA INT’L AIRPORT SUBWAY TUNNEL CONSTRUCTION SITE VISIT



STG Orientation with Mr. Tanaka at Kajima Technical Research Institute (KATRI)

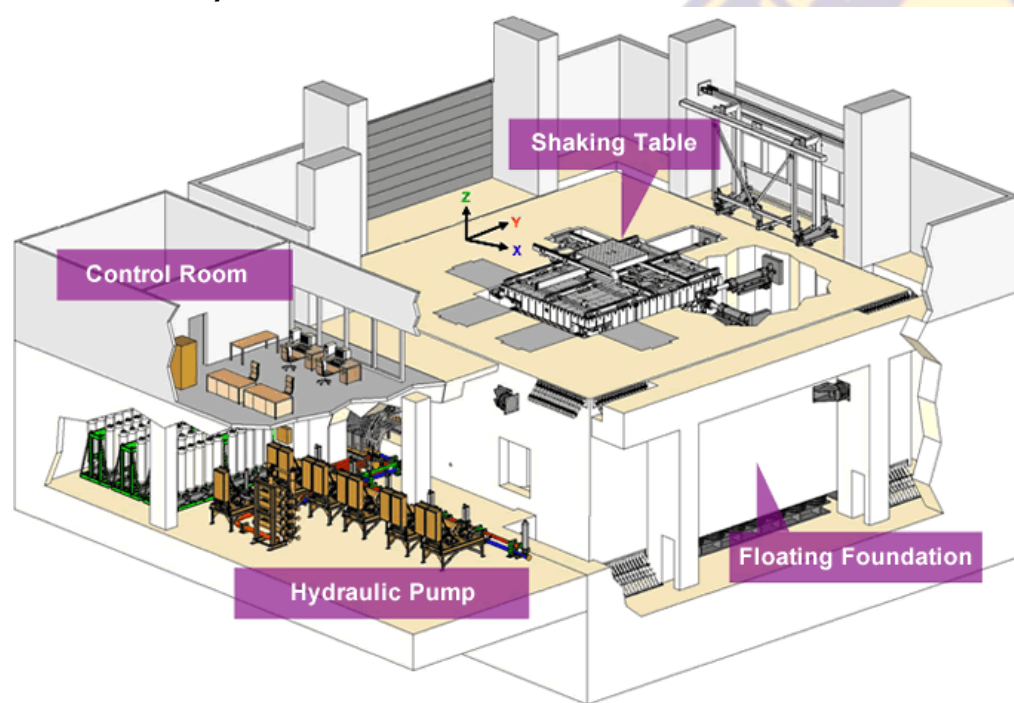
It was our first morning in Japan and it was my first time to meet the other participants at the lobby of Nishitetsu Inn together with Ms. Suzuki, our STG Tour Coordinator, and Mr. Yamamura from JSCE. After humbly introducing each other to everyone and Ms. Suzuki giving us a brief introduction of the tour and the itinerary of the day, we start it by heading to KAJIMA Technical Research Institute (KATRI) in 2 Chome-19-1 Tobitakyu, Chofu, Tokyo 182-0036, Japan.

Mr. Tanaka, the Deputy Director of KATRI together with Mr. Yoshizawa and Ms. Umehara hospitably welcomed the group and gave a thorough orientation about Study Tour Grant and presented this year seven-day tour grant's itinerary, and consecutively followed by the presentation of the brief all-about and history of KATRI established since 1949. With the Institute's mission, delivering a "technology-driven company" in (1) Research and Development, (2) Technical Cooperation and Consultation and (3) Training and Information Dissemination, brought this company further to its maximum platform both locally and international exposures with several world-class, actual-scaled apparatus and laboratories.



After the orientation proper, Mr. Yoshizawa and Ms. Umehara ushered the group around the complex by visiting the following laboratories as follows:

1. Shaking Table Laboratory



Inside the institute homed “W-Decker”, the Japan's largest 3-Dimensional 6 Degrees-of-Freedom (DOF) Shaking Table. A large shaking table used to operate simultaneously to meet various requests, such as highly accurate reproduction of earthquake ground motion and a long-period and large amplitude motion. The key design of the system is the double-deck shaking tables configuration; the larger, main table is to reproduce usual earthquake ground motion and the smaller, upper table, which is detachable, is to reproduce large amplitude displacements of a super high-rise building caused by long-period ground motion.

Design and construction of several building such as the GranTokyo North Tower, Saitama Medical University International Medical Center, Tokyo Midtown Hibiya and Roppongi Hills Mori Tower adopted the testing and results of the “W-Decker” in verification of structural integrity and safety.

2. Wind Tunnel Laboratory

KATRI even homed the Japan's largest Wind Tunnel Laboratory which consist of three (3) wind tunnels intended for the research and verification of the effects of wind pressure and wind force on structures and the impact of wind on the surrounding environment. The tunnel is a 20.8 m x 53.0 m facility composed of an axial fan, transverse equipment, main turntable, sub – turntable, sound arresting type corner vanes and flow temperature control equipment. The wind tunnel laboratory has three wind tunnels installed to conduct experiments on various winds, namely (1) Large-scale Boundary Layer Wind Tunnel, (2) Multi-purpose Boundary Layer Wind Tunnel, (3) Visualization Wind Tunnel.



Inside the KATRI's Largest Wind Tunnel Laboratory

3. Large-size Structural Testing

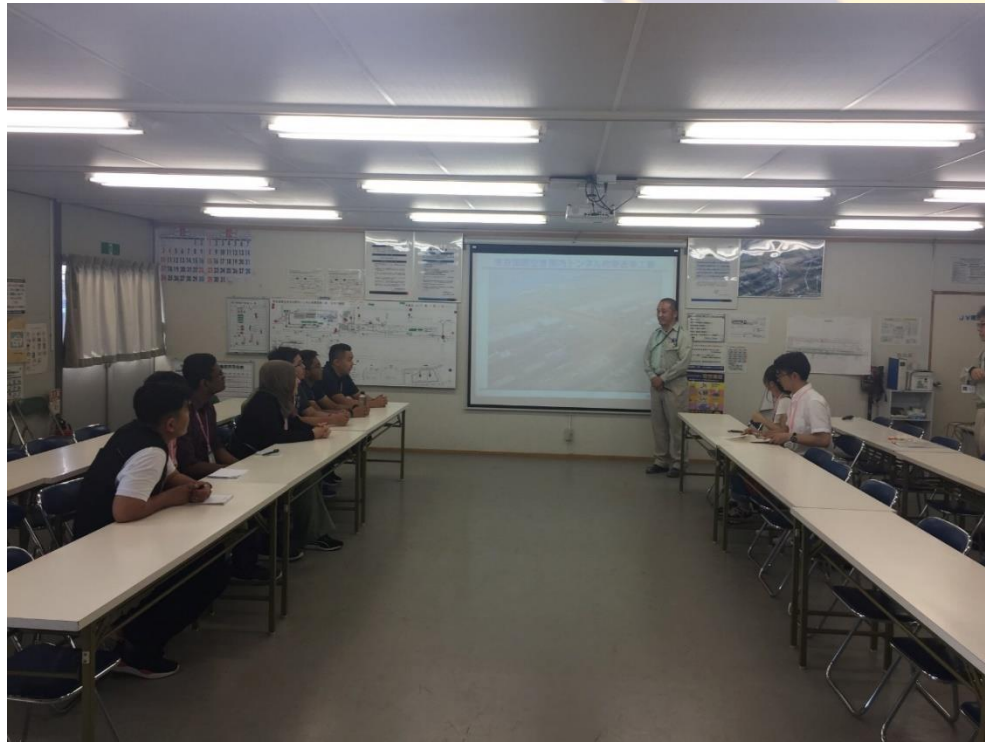
This system can be applied to various kind of structural test such as static/dynamic loading tests, fatigue tests and pseudo-dynamic tests. It is very effective especially in rapid loading, many repetitive loading and multi-axial combined loading because computers automatically control loading and measurements.

The said laboratory houses a loading test system – which applies vertical and horizontal forces to a structural member, two (2.0) reaction walls – large (12 m high x 16 m wide) and small (5 m high x 12 m wide) that can withstand a maximum load of 46, 400 kN, and finally a 2.10 meter – thick with a maximum allowable shear load of 180 kN/m.

4. Concrete Laboratory Exhibits

The Concrete Laboratory conducts research in many areas related to concrete materials, such as fly ash, slag cement, and alternative cementitious materials with little or no hydraulic cement. The laboratory collaborates with academia, other government agencies, and industry, leveraging expertise in conducting research to address issues of national significance. The Concrete Laboratory is inspected by the Cement and Concrete Reference Laboratory (CCRL) and accredited by the American Association of State Highway and Transportation Officials (AASHTO) Materials Reference Laboratory.

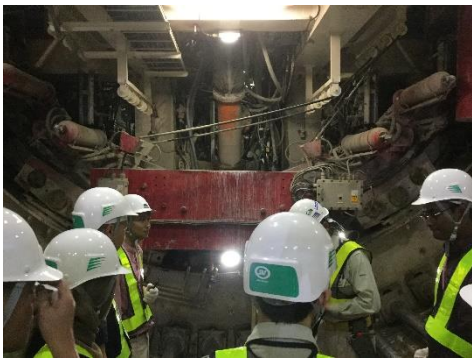
After a comprehensive tour around the complex, our lunch was served and had an ample time to rest before heading towards the next destination – the Haneda International Airport Subway Tunnel Construction. At exactly 1 o'clock in the afternoon, we were drove-off by the JSCE STG chartered bus to Haneda Airport to visit its tunnel construction that gives an ease access to the passengers by connecting domestic and international via subway tunnel.



The Project Manager together with Mr. Araki of JSCE discussed about the introductory presentation of the on-going construction. Following Tokyo's winning bid for the 2020 Summer Olympics, the Japanese Ministry of Land, Infrastructure, Transport and Tourism established a new tunnel connecting both terminals to improve domestic and international connections. After the completion of the project, transit passengers will be transported by bus to facilitate travel and reduce time. According to them, the primary aim is to make it easier for foreign visitors of Japan to move to local cities and revitalize the national tourism industry.



The Project Manager of construction inside their monitoring room. Photo on the right was the debris extracted from soil to the Tunnel Boring Machine.



A tunneling shield is a protective structure used during the excavation of large, man-made tunnels. When excavating through ground that is soft, liquid, or otherwise unstable, there is a health and safety hazard to workers and the project itself from falling materials and/or a cave-in. A tunneling shield functions as a temporary support structure.

A tunnel boring machine (TBM) consists of a shield (a large metal cylinder) and trailing support mechanisms. A rotating cutting wheel is located at the front end of the shield. Behind the cutting wheel there is a chamber where the excavated soil is either mixed with slurry (so-called slurry TBM) or left as-is (earth pressure balance or EPB shield), depending on the type of the TBM. The choice of TBM type depends on the soil conditions. Systems are also present for removal of the soil (or the soil mixed with slurry).

Behind the chamber is a set of hydraulic jacks supported by the finished part of the tunnel which are used to push the TBM forward. Once a certain distance has been excavated (roughly 1.5–2 meters (5–7 ft)), a new tunnel ring is built using the erector. The erector is a rotating system which picks up precast concrete segments and places them in the desired position.

Several support mechanisms can be found behind the shield, inside the finished part of the tunnel, which are part of the TBM: dirt removal, slurry pipelines if applicable, control rooms, rails for transport of the precast segments, etc.



2019 STG Participants together with the Project Team, Mr. Araki, Mr. Wang and Ms. Zuo (JSCE) at the approach of shield tunnel construction.

DAY 03 – ISEF 21st INTERNATIONAL SUMMER SYMPOSIUM, TESHIMA ISLAND, IAC NETWORKING RECEPTION

With all the last minute preparations and midnight oils burned last night in the final review and revisions for our presentation, our third day started as early as 7am. We were drove-off by the local chartered bus to Kagawa University Saiwai-cho campus to participate on the annual 21st International Summer Symposium spearheaded by the International Scientific Exchange Fund (ISEF). JSCE International Summer Symposium brings together young civil engineers from over 20 countries every year. Over 50 papers are presented annually. The main objectives of the Symposium are to provide a platform for young engineers to examine technological advances and issues, to share their ideas and research projects, and to encourage them to find research partners and teams across languages and distance. It is an excellent opportunity for young civil engineers to discuss their research projects, to acquire new perspectives and to network with their peers.

There were 52 presenters, which were divided into the different tracks of civil engineering, namely: geotechnical engineering, infrastructure planning and management, concrete engineering/structure, construction management / planning. Yours truly presented a research entitled, "Structural Design Analysis and Assessment of Earthquake Algorithms on Balog-Balog Multipurpose Dam".



My technical research presentation held during the 21st International Summer Symposium at the Kagawa University



STG 2019 Participants together with Mr. Wang and Ms. Zuo (JSCE) after the success of each research presentation



Accompanied by Dr. Dang, one of the profound professor of Saitama University and an affiliate of JSCE, from the symposium proper, the group were headed to Iura Port in Tonosho, Japan going to Teshima Island where the past Japan's biggest "Illegal Dumping Site" was located. It was a 30-40mins ferry ride from port to island. The group really enjoyed its well-preserved environment along coast. Finally, we arrived at exactly 2pm and we were welcomed by one of the locals that also became our tour guide alongside with some of the Geography college students in Kagawa.

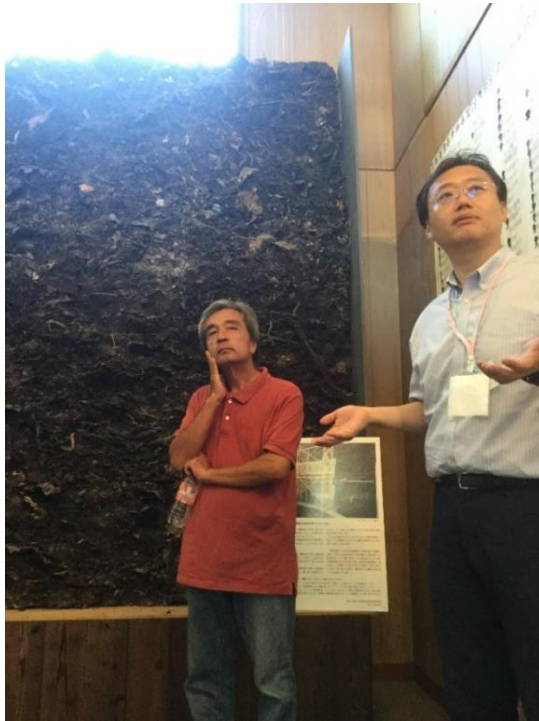
He told us a lot of the history of which the dumping of garbage originated and how it greatly affects the society, the prefecture and the whole government of Japan. He also told us that the worst case of illegal dumping of industrial waste in Japan occurred on Teshima Island in Kagawa prefecture. The heavily laden ships came wending their way past the islands that fill this Inland Sea, to dump their cargoes of shredded automobiles and other toxic waste on this island. After the year 2000, an impermeable wall was constructed on the north coast of the disposal area to prevent polluted water from flowing out to sea. A total of 600 000 tons of industrial waste was estimated to be sent to Naoshima Island. This material would be melted down and transformed into slag at a new melting furnace in Naoshima, with a capacity of 200 tons per day. Dumped garbage on the island became so massive and enormous that it can make a dump trucks lined from Teshima to Tokyo and became a serious threat on the health and environment of the locality. It gave birth to such revolution in removing all the dumped garbage on the island spearheaded by some of the local way back then.

The picture on the left was the Teshima Island and it was completely covered by dumped garbage with over 900,000 tons of industrial waste, including heavy metals, PCB, oil and shredded materials during the worst cases of illegal dumping. ShozoAki, a young resident, led a grassroots campaign after 1990 against the industrial waste disposal business. But seeing the island at its today's state, with all its greenery and well-restored environment, the Kagawa prefecture won the revolt against the detrimental issue of garbage on their island.



Teshima Island ~ considered as the previous largest illegal dumping site in Japan

"THIS OCCURRENCE BECAME A GREAT WAKE-UP CALL TO THE JAPANESE GOVERNMENT ON THE CLEANING-ENVIRONMENT INDUSTRY NOT JUST IN TESHIMA BUT IN THE WHOLE COUNTRY." Local of Teshima, 2019



Dr. Dang (JSCE) and one of the local of Teshima Island elaborately discussed the history of the locality; behind them was the sample from the massive garbage illegally dumped on the island.

The IAC Networking Reception was held at Kagawa University Saiwaicho Campus. This event paved way for professors, students and young engineers to communicate with each other. Sumptuous dinner was served, we made new friends, and discussed our researches during the reception. We even met Ms. Yukiko Shibuya from JSCE, who was the one who helped every delegate to fulfill this annual tour.



2019 STG Participants together with the representatives from Japan Society of Civil Engineers (JSCE) in the IAC Networking Reception held at Kagawa University

DAY 04 – KABAGAWA DAM SITE VISIT, SANUKI MANNOU PARK, KURUSHIMA KAIKYO BRIDGE

Starting the day at 7:30 in the morning and we straightly headed to Kagawa University to join with the JSCE International Activity Committee delegates going to the construction site of Kabagawa Dam.



Kabagawa Dam was located on $34^{\circ}9'12''\text{N}$, $134^{\circ}6'21''\text{E}$ of Kagawa Prefecture adjacent to Kaba River, principally designed by Nippon Koei Co. Ltd. and under the contract package awarded to Taisei Corporation. The said dam was primarily designed for flood control and water supply of Kagawa Prefecture. With its salient details; 89m in height, 265.5m in length, 11 million at total water reservoir capacity.



Afterwards, our group together with the other international delegates headed to Sanuki Mannou National Government Park. Sanuki Mannou Park is Shikoku's only state-run park with total area of 3.5sq.m. and is a park filled with seasonally blooming flowers. Visitors enjoy beautiful landscapes decorated with plants like narcissus, tulips, and Nemophilas in the spring, and hydrangeas and sunflowers in the summer. In the fall, kochia (bassia scoparia) leaves turn red colors and cosmos flowers bloom.



Shakkei 借景 – means “Borrowing Scenery” is the principle of “incorporating background landscape into the composition of a garden”





After the morning tour, our group had our sumptuous lunch in one of the famous Sanuki Udon Restaurant in Kagawa. Udon (饅頭) is a type of thick wheat flour noodle used frequently in Japanese cuisine. It is often served hot as a noodle soup in its simplest form, as kake udon, in a mildly flavored broth called kakejiru, which is made of dashi, soy sauce, and mirin. It is usually topped with thinly chopped scallions. Other common toppings include tempura, often prawn or kakiage (a type of mixed tempura fritter), or aburaage, a type of deep-fried tofu pockets seasoned with sugar, mirin, and soy sauce. A thin slice of kamaboko, a halfmoon-shaped fish cake, is often added. Shichimi can be added to taste.



The Kurushima-Kaikyō Bridge (来島海峡大橋 Kurushima Kaikyō Ō-hashī), which connects the island of Ōshima to the main part of Shikoku, is the world's longest suspension bridge structure and was completed in 1999. The bridge is part of the Shimanami Kaidō, an expressway that spans a series of islands and connects Hiroshima Prefecture in Honshū to Ehime Prefecture in Shikoku. The bridge and the expressway were both conceived by the Honshū-Shikoku Bridge Project.

DAY 05 – DISASTER WASTE DISPOSAL SITES, SEDIMENT-RELATED DISASTER, DAMAGED AREAS ON NATIONAL HIGHWAY, TEMPORAL HOUSING, HIROSHIMA PEACE MEMORIAL PARK, MISAWA RIVER, TORIGOE BRIDGE VISITS

Checking out from Morisawa Hotel, Kure, Hiroshima at 9am, the team were headed to Aga, Kure to visit the Disaster Waste Disposal Sites alongside with Dr. Tanikawa. First stop was the Aga Marinopolis District Disaster Sediment Separation and Management at 7-chome Agaminami, Kure City. It started last October 1, 2018 with project completion last May 31, 2019. The flow of separation of sediments - which primarily came from disaster related circumstance, mainly consist of primary and secondary sieving then followed by sorting in which sediments were classified to be 80mm more or 80mm less. After the separation and sorting process, the sediments were transported via ports from Aga to different sites where it was needed.



At the Sediment Separation and Management Site, Kure City

After which, we came to visit the on-going construction Sabo Dam used to be the main safeguard of the Tenou Junior High School and other neighboring city of Tenou District. For last July 2018, Typhoon No. 7 and the Baiu front became a record heavy rain across the country, especially in the Tokai region from Western Japan, causing serious damage and massive landslide that struck the Tenou Junior High School.



Sabo Dam slope protection serves as the safeguard of the Tenou Junior Highschool from landslides

Then the group were then chartered to visit the restoration of National Highway 31 at Sakachou, Hiroshima Prefecture. The same typhoon that triggered the massive landslide on the Tenou Junior High School, took effect on the National Highway 31 and JR Kure Line causing it to be inaccessible for number of weeks. Completion of the repair and restoration of the railway and highway took approximately two months ahead of schedule.



Next stop was the Saka-cho Government Office. Since Western Japan has been experiencing record rainfall this summer, loosening ground and producing massive the landslides along Hiroshima, about 100 prefabricated housing units were built in accordance with a national law that covers emergency disaster housing. Nevertheless, this provision, enacted in 1947, states that residents will not stay in these units for more than two years.



2019 STG Participants with some of the personnel of the Construction Department of Saka-cho, Aki-gun, Hiroshima.



After our lunch break, we went to visit Hiroshima Peace Memorial Park (広島平和記念公園 Hiroshima Heiwa Kinen Kōen) is a memorial park in the center of Hiroshima, Japan. It is dedicated to the legacy of Hiroshima as the first city in the world to suffer a nuclear attack, and to the memories of the bomb's direct and indirect victims (of whom there may have been as many as 140,000). The park is there in memory of the victims of the nuclear attack on August 6, 1945. On August 6, 1945 the US dropped an atomic bomb on Hiroshima Japan. The Hiroshima Peace Memorial Park was planned and designed by the Japanese Architect Kenzō Tange at Tange Lab.



"The Peace Memorial Museum collects and displays belongings left by the victims, photos, and other materials that convey the horror of that event, supplemented by exhibits that describe Hiroshima before and after the bombings and others that present the current status of the nuclear age. Each of the items displayed embodies the grief, anger, or pain of real people. Having now recovered from the A-bomb calamity, Hiroshima's deepest wish is the elimination of all nuclear weapons and the realization of a genuinely peaceful international community."





2019 STG Participants at the Cenotaph for the A-bomb Victims



Mr. Shimooka and the Project Manager at the Misasagawa River discussing the rehabilitation methodologies taken place in restoring its right-bank slope protection

The same dilemma from the effects of heavy rainfall from the previous site we earlier visited, the right-bank stretch of Misasagawa River was even devastated by heavy rain last July 07, 2019 and will be fully restore by the end of December this year.

Before leaving the Misasagawa River, we also toured on the rehabilitation of dropped Torigoe Bridge and wrecked water pipe system. Torigoe Bridge fell due to the increase in river water. Along with this, the water pipe attached to the bridge was also washed away and 3,100 households were cut off.



Ending the day tour at 3:40pm, we went to Kobe by Sanyo Shinkansen from JR Hiroshima Station, colloquially known in English as the bullet train, a network of high-speed railway lines in Japan. Initially, it was built to connect distant Japanese regions with Tokyo, the capital, in order to aid economic growth and development. Beyond long-distance travel, some sections around the largest metropolitan areas are used as a commuter rail network. It is operated by five Japan Railways Group companies.



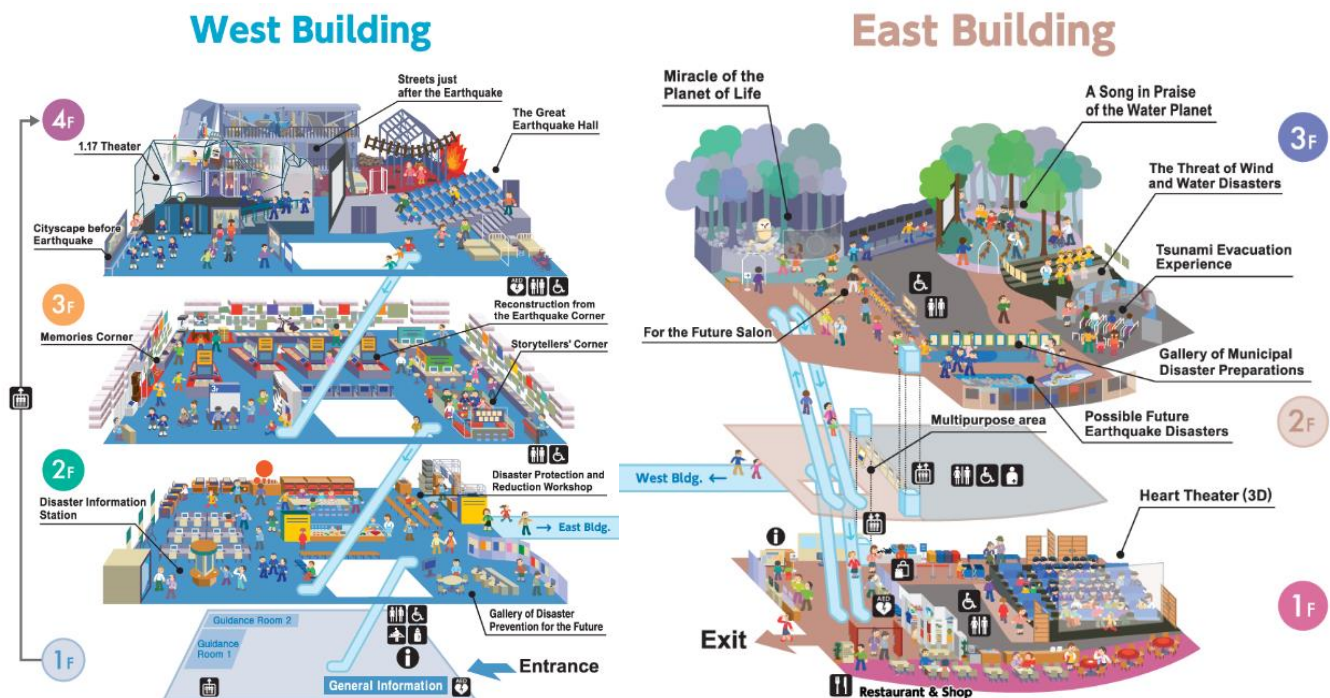
After our long fifth day, we had our great fellowship dinner from JSCE with Mr. Arai at one of the famous restaurant along Kobe. We had a great talks strengthening our friendships in knowing each other more and Mr. Arai sharing more about the Japanese cultures and traditions. It was a totally fun-filled night!



DAY 06 – DISASTER REDUCTION AND HUMAN RENOVATION INSTITUTION VISIT, AKASHI KAIKYO BRIDGE

It's the last day of our study tour and we started the day at 9:30am to visit the Disaster Reduction and Human Renovation Institution at Kobe, Hyogo. Disaster Reduction and Human Renovation Institute (DRI) is a facility that exhibits the experiences in Great Hanshin-Awaji Earthquake and vital disaster-prevention lessons to pass on to future generations. The materials related to earthquakes and disaster prevention are displayed in the West Building. In the theater, you can experience the fearsome destructive power of earthquakes through audio and video. There are also dioramas recreating the appearance of Kobe right after the earthquake. An English audio guide is available for overseas visitors.

At the DRI, their goals are to spread the word about a vital phase of local history and ensure that the lessons of the Great Hanshin-Awaji Earthquake are never forgotten. First the group were welcomed by their Head Administrator by giving a brief introduction, background, mission and vision of the company. Then came and watched at 1.17 Theater: 7 minutes' film depicting the tremendous destructive power of the earthquake, followed by a short movie, The Great Earthquake Hall: A 15-minute drama about the earthquake's aftermath and effort of residents and communities to rebuild the city.





After our lunch break, we went to Maiko Station from JR Sannomiya Station and we visited Akashi Kaikyo Bridge. The Akashi Kaikyō Bridge (明石海峡大橋 Akashi Kaikyō Ōhashi) is a suspension bridge, which links the city of Kobe on the Japanese mainland of Honshu to Iwaya on Awaji Island. It crosses the busy Akashi Strait (Akashi Kaikyō in Japanese) as part of the Honshu–Shikoku Highway. It was completed in 1998, and has the longest central span of any suspension bridge in the world, at 1,991 metres (6,532 ft; 1.237 mi). It is one of the key links of the Honshū–Shikoku Bridge Project, which created three routes across the Inland Sea.

The Bridge was constructed as one of Honshu-Shikoku Bridge project, which is one of the greatest projects in Japan to connect Honshu with Shikoku by both highway and railway. The construction work started in May, 1988 and was completed in April, 1998 after 10 years' construction period.



After six days of exploring the great works of Japan and completing the itinerary for this study tour, it's time for us to say our farewell to one another. It was really a mixture of emotions as we had our last night together. We may be from different nations, but this experience made us one team! In my heart, there will be no goodbyes, it's see you again!



DAY 07 – HOMEBOUND FROM KANSAI AIRPORT

At 6:00am, we met Ms. Suzuki at the lobby of the Tokyu REI and was accompanied to the airport limousine terminal, which will take me to Kansai Airport. There, I checked my luggage in and waited for the boarding time bound for NAIA Terminal 2, Pasay City, Philippines. After waiting for few hours in the said terminal, I got in the plane and after four hours of travelling time, I had safely arrived in my hometown, having a grateful heart from my one-week study tour experience in Japan.

CONCLUSION

Being this year Philippines' represent, I am really humbled and honored to this momentous milestone that paved way on my career and professional growth. As I finally saw the glimpse of Japan's modern technologies at work, such advancements in the field of construction and Civil Engineering and the progressive research development that became the heart and core of every company therein, it gave me a new perspective and a wider horizon on the things that every country can still achieve in advancing infrastructures growth.

This Study Tour Grant might have been so short but it was so fulfilling and definitely one of those experiences that I will gladly treasure. More than all the things that I've seen and learned, the fellowship I had with the participants from other nations that I've met, who eventually became my friends, and the wonderful works of Japan, this experience helped me to all the more appreciate this profession that I have. It greatly increased my passion to serve my nation by being a competent Civil Engineer who will work with utmost dignity and hence be a channel of help with our future Civil Engineers.

Filipino engineers, there's still hope in our country- the Philippines. Let's stop waiting for enormous project constructions that we'll be handling with or highest of positions we could possibly attain. There's no such difference with what Japanese society is trying to build up on their land today and ours. They have buildings, bridges and we have too. Rather start working with so much integrity, dedication and excellence even with the smallest work you're in today. Individual growths joined together makes a country's growth – which is every Japanese people 's key in attaining success. Serve the Filipino people, serve the Philippines!

SPEECH OF GRATITUDE

This study tour grant wouldn't be possible without all the people behind who helped me, encouraged me and believed with me from the very start. I would like to express my gratitude towards these people who greatly did a big part to make this experience a successful one.

To the **Japan Society of Civil Engineers**, who initiated this program and gave such momentous opportunity to qualified Civil Engineers all over the nation to witness their works and advances in technologies that helped broaden the knowledge of every delegate, my deepest gratitude to all of you. Thank you for your humble hearts to support and share your good works to other countries. I would like extend my gratitude to those people who had been with our team during our one week stay in Japan. To **Mr. Masahiro Araki**, thank you for becoming my technical research adviser for this grant, your great insights helped me to improve my research paper.

To the **Philippine Institute of Civil Engineers**, thank you for trusting me to be this years' representative of the Philippines for this Study Tour Grant. It was such an honor and humble privilege to be a part of this and I am overwhelmed with such an opportunity that was given to.

To **Engr. Noenette Mylene Zamora**, thank you for helping me in your kind recommendation during my application, to **Ms. Ruby Ruth Jinon** of PICE National and the whole leadership team of **PICE-Tarlac Chapter**, to your great assistance with all the documents needed as I applied for this. Thank you for your wise advices and encouragements during my preparation.

To **AboitizLand Inc.**, thank you for allowing me to go and be part of this. Truly, this experience helped me to be more competent in my field of profession.

To **National Irrigation Administration - TBBMP II**, thank you for extending your help for me to substantially complete my research study and be able to present it to the Summer Symposium. Thank you for supporting me with the data and resources I needed for my presentation.

To our City Mayor, **Hon. Maria Cristina "Cristy" Angeles**, thank you for the support that you have given to me to cater my financial needs for this event.

To my family, to Ms. Klarissa Bianca, thank you for being very supportive since the very start. I couldn't make it without your help and guidance. My success is yours!

This Japan-journey really taught me a lot of things, more on the professional knowledge, it thought me to really depend on God more than the things I could probably do, since the very first day of my application. It made me realized that even someone who is weak and insufficient, someone who is unrecognized on the platform of society, someone who doesn't know that much, God can and will surely use you to manifest His grace and power through you in every nation. Behind every success of a man, wasn't just the hustle of preparations, but it's the very grace made it to completion. This opportunity gave me such platform not to boast anything on myself neither the things I've experienced now, rather I all the more boast my God, for if God hadn't been there before me, I never would have made it (Psalm 94:17).