2018. 4. 2

Japan Society of Civil Engineers

International Activities Center

IAC News No.66

Looking Back at FY2017 and Forward to a More Fruitful FY2018

Tamon Ueda
Senior Director, IAC

FY2017 was another dynamic year for JSCE International Activities Center (IAC). IAC News, which is the main IAC scheme for information dissemination, launched a new column, “Alumni of DOBOKU Series.” The columns are contributed by former international students in Japan, accompanying the short message by their supervisors. The columns clearly show that supervision of excellent students is a very efficient way to keep strong connection in various senses with the countries where students come from. Needless to say that the benefits stretch beyond the professor-student relationship to cover both the students’ home country and Japan.

The exchange activities with JSCE’s partner institutions with Agreement of Cooperation (AOC) have made some new steps in FY2017. Following the establishment of IAC, JSCE has started exchange activities with AOC institutions mostly in developing countries. However, in FY2017, JSCE not only participated in the ASCE Convention as usual, but also sent the delegates twice in the MLIT’s mission to USA to discuss with ASCE on issues of mutual interest such as management for maintaining infrastructures. With the similar purpose, JSCE will send the delegates headed by President Ohishi to Germany and UK in April 2018. It is undeniable that developed countries show less interest in exchange activities with JSCE compared to developing countries. However, the lack of interest varies among different fields of civil engineering. For example, The International Federation for Structural Concrete (fib), in which European countries are rather dominant, eagerly asks for participation of the Japanese counterparts, Japan Concrete Institute and Japan Prestressed Concrete Institute. I hope that the JSCE mission to Germany and UK could find out the reason of the difference.

The relationships with our neighbor countries have recently added a new direction. Both the China Civil Engineering Society (CCES) with headquarter in Beijing and the Chinese Institute of Civil and Hydraulic Engineering (CICHE) with headquarter in Taipei have started regular joint symposium and workshop with JSCE in 2016, respectively. CCES consists of many institutions operated quite independently. Consequently, JSCE-

CCES Joint Symposium has been organized by Institutions in CCES and the counterpart Committees in JSCE, which are related to the symposium theme. The 1st Joint Symposium in 2016 was organized by the CCES Institutions and JSCE Committees in tunneling and bridge engineering. On the other hand, JSCE-CICHE Joint Workshop is organized rather directly by both headquarters. This means that the headquarters of both CICHE and JSCE have direct leadership over various activities, including international activities. JSCE-CICHE Joint Workshop has put emphasis on participation of young engineers and researchers.

The new attempt of the educational program for Japanese engineers/students was the e-learning. As the first trial, the life-televising through internet was used in the popular series of symposium, “Japanese Civil Engineers the Global Leaders Symposium Series.” Audiences in Osaka and Nagoya were able to participate in the seminar held in Tokyo. We still have several issues to solve before launching e-learning for the seminar, however we believe that this is the way we should take.

The schemes relating to international students have been steadily enhanced since the establishment of IAC in 2012. Besides International Summer Symposium, which started before 2012, International Workshop for Young Engineers, Technical Excursion, Joint Company Information Session in Civil Engineering for International Students, and Associate Membership have been started by IAC. These schemes except for Associate Membership are primarily meant for international students in Japan. Associate Membership is meant for JSCE to continue to provide services even after the international students have left Japan. Associate Membership does not require any membership fee, but is given almost all the benefits as regular member except monthly journal subscription. We encourage the international students to join Associate Member.

For FY2018, IAC will continue to strengthen the exchange activities with AOC Institution in developed countries. CECAR8 in April 2019 in Tokyo will be the big event for IAC since JSCE is the host. IAC will be the co-organizer of one session, “Comparative Study of Quality Infrastructure in Europe, the United States and Asia and Civil Engineer’s Contribution.” By integrating International Panel Disucssion during JSCE2018 and CECAR8’s organized session, IAC hopes that the exchange activities with the US and Europe would be firmly developed in a continuous way. Other activities related to information dissemination, educational program, and services to student will be also enhanced in FY2018. We look forward to your continuous support and contribution.

【Reported by Tamon Ueda (Hokkaido University), Senior Director, IAC】

My View of Principles and Approaches to International Communication

Yutaka Sunohara
Board of Director, JSCE

JSCE has been taking several approaches toward internationalization by building agreement of cooperation with overseas counterparts, international sections, and International Activities Center (IAC), and developing its activity accordingly, following the wave of economic and business globalization. I have been working to improve JSCE's international activity with the International Activities Center since the appointment of a Board of Director in charge of the International Section last year. I had the opportunity to have discussions with the International Section members at the JSCE Annual Meeting held at Kyushu University last year.

In my professional career from the year 1975 when I joined Ministry of Transport (the predecessor of Ministry of Land, Infrastructure, Transport and Tourism: MLIT) to the year 2009 when I retired from the MLIT, I have worked on port, harbor and airport affairs. My overseas affiliation started with my participation in Mexico-Japan Exchange Program for Strategic Global Partnership through July 1979 to May 1980: on that program, I received training at Universidad de Guanajuato in Mexico. The City of Guanajuato, which flourished as silver mining, is one of the popular tourist destinations in the world and was designated as a UNESCO World Heritage Site for the old colonial-era urban view preserved and silver mines surrounding the city. During my stay there, Mr. Yoshio Takeuchi (81st JSCE President, deceased in 2011), the then-president of The Overseas Coastal Area Development Institute of Japan (OCDI) visited the city as a Federal Government of Mexico-designated advisor on coastal development and planning, and I was given many opportunities to accompany him to discussions with high-level government officials, field studies and others. Then, from 1987 to 1989, I was transferred on a job assignment temporarily to the OCDI and engaged in the projects of overseas ports, harbors and coastal area development. In the meantime, I learned the developing policies of ports, harbors, airports and urban areas in Spain, working with Ministry of Public Works and Transport in Spain as a trainee of Dispatching Training conducted by National Personnel Authority from September 1983 to April 1984. The experiences and knowledge that I gained on those days have provided the benchmark for pursuing my professional career. After I left the ministry, I have been giving my time to developing ports, harbors and ocean routs and improving the use of those facilities in cooperation with civil engineers overseas and to cultivating young professionals as well.

I, utilizing my experience and knowledge, am developing and strengthening the communication and cooperation between JSCE and its overseas counterparts; I for example will take the challenge of building communication with JICA trainees in the areas of road, river, port and harbor, and railway engineering under the theme social infrastructure development, employing a multiple perspective and a multi-level approach.

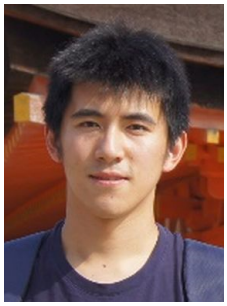
【Reported by Yutaka Sunohara (The Ports and Harbors Association of Japan), Board of Director, JSCE】

【Alumni of DOBOKU Series】

"Study in Japan: one period of precious and indelible life experience"

Qiang TANG

Associate Professor, Institute of Geotechnical Engineering, Soochow University



Qiang TANG
Associate Professor,
Soochow University

My Ph.D. journey began after my flight landed at Osaka Kansai International Airport on October 5, 2010. At that moment, I still could not believe that I had been awarded Monbusho scholarship, and I would study at Kyoto University, Japan to pursue my Ph.D. degree. My predestined affinity with Japan started in 2008, when I prepared my master thesis on the topic of soil-water contaminant interaction. After a thorough literature review, I found that many significant studies of this topic were from the Katsumi's lab in Kyoto University. I was deeply impressed by the achievements of Professor Katsumi in geo-environmental engineering, and I started inquiring the chances to join in Professor Katsumi's team for my Ph.D. study. I was excited that I received a positive response from Katsumi Sense when we met at one international conference in 2009. After that, I started applying for the Ph.D. program of Civil and Environmental Engineering from Kyoto University. After the initial selection and two rounds of interviews, I eventually received the admission letter from Kyoto University.

The time of my study in Japan flew by so fast. I obtained my Ph.D. degree on September 24, 2013 and went back to my home country, China. Although I stayed in Japan for three years, I firmly believed that this period would deeply influence the rest of my life. This impact would not only reflect in the promotion of my professional skill, but also exist in my value judgment system. It was deeply impressive that Japanese professors always have two typical academic natures: concentrated research interests and a detailed guide in experimental operation:

(1) Concentrated research interests.

Herein, I prefer to take my supervisor Professor Katsumi as an example. Katsumi Sense's research topic is hydraulic behavior of bentonite and its composite materials. After more than 15 years' accumulation, Sense expanded studies within his field: micro- and macro structures of bentonite, physical and chemical properties, hydraulic behavior towards specific contaminant, response of hydraulic behavior under time factor, soil-bentonite/sand-bentonite mixture, construction technology of soil-bentonite cut-off wall, as well as the experiment and mechanism about soil-water-contaminant interaction. Because of such great perseverance, Professor Katsumi has already stood on the peak of this research field. "Do it well or not at all!" Such a creed gradually became rooted in my mind during my stay in Japan.

(2) Detailed guide in experimental operation.

Stepping into the Katsumi's laboratory, I was greatly astonished by Sense's management style. Sense prepared detailed operational instructions for almost all the instruments, which facilitates the students to operate those instruments independently. Such kind of detailed instructions can be found not only in the laboratory, but also in

many other places in Japan, such as bus, supermarket, and restaurant. This concept improves the efficiency of the whole society, and maybe this is why Japan always leaves a well-organized impression to most of worldwide tourists.

The Ph.D. project I involved was G30 program supported by Japanese Ministry of Education, Culture, Sports, Science and Technology (MEXT). At Kyoto University, G30 program was combined with some specific training programs, among which I belonged to Environmental Management Leadership program (EML). According to requirement of EML, the graduate students are required to complete a 6-month internship in research organizations or companies. In my opinion, the fostering proposal for Ph.D. here was unique, since it uniquely took “academic communication” and “link theory with practice” into account. During my stay in Japan, it took me 5 months in National Institute of Environmental Studies (NIES, Tsukuba) to help conduct a series of lab-scale experiments, and 1 month in Okumuragumi Corporation to visit more than 10 various types of construction projects. Such a precious experience trained me how to conduct research in a more feasible and rational way.

Together with International Students during Katsumi’s Lab’s Summer Trip (The author is the third from the right)

“People always grow up in adversity!” This old saying is also suitable for graduate students. As a Ph.D. candidate, one has to know more, consider more, learn more and do more. My capacity for academics grew with leaps and bounds during my Ph.D. study. This was certainly a result of the intensive labor and study required to succeed in my program. I still remembered the experience for conducting the hydraulic conductivity test continually for almost 120 hours with only 10 hours of sleep. It was also impressive that graduate students’ office became “an exclusive Ph.D. students’ office” every weekend. Sometimes Ph.D. candidate students would feel confused and depressed when puzzled by serious research challenges, some of which the supervisors might not know the exact solutions. At that time, the literature was usually the last straw to clutch.

After graduation, I got the faculty position in Soochow University, China, and continued the geo-environmental engineering research following my Ph.D. thesis. Now I am the principal investigator of several research projects. One project was about heavy metal soil remediation which cooperated with Japanese DOWA environmental engineering company. In this project, one effective adsorbent was used to fix aqueous Cd (II), finally to prevent the migration of Cd(II) from soil to paddy (rice). Both the lab-scale and pilot scale tests were conducted to prove the efficiency of the proposed method for further promotion in the future. The project was funded by Jiangsu Provincial Department of Housing and Urban-Rural Development.

Five years have passed since my Ph.D. graduation, while the memory about studying abroad in Japan has not at all faded. Even now, I still keep in close touch with my supervisors, Katsumi Sense, Inui Sense etc. The life in Japan has become my spiritual sustenance, and Japan is deemed as my second homeland.

Profile: Dr. Qiang TANG obtained his bachelor, master and doctoral degrees in engineering in Southeast University (China), Zhejiang University (China) and Kyoto University respectively. His research focuses on geotechnical and geo-environmental

engineering field. He is a voting member of Chinese institution of Soil Mechanics and geotechnical Engineering (Environmental Geotechnics Division and Young Engineer Work Committee).

《Column》 Takeshi Katsumi, Professor, Kyoto University

One of the unforgettable memories with Dr. Tan was that the Great East Japan Earthquake occurred when he was doing his internship at National Institute for Environmental Studies, Tsukuba in March 2011. He sent me an e-mail full of realistic presence, saying "Sense, it was very terrible," which made me revealed that he was safe. He joined our laboratory after completing his Master's degree in Zhejiang University in China. In the field of geoenvironmental engineering we are working on, I believe that Zhejiang University is the leading university. One of his great contributions was to create our first step in collaboration between two laboratories of Zhejiang University and Kyoto University.

※Alumni of DOBOKU Series is in collaboration with Editorial Committee of JSCE Magazine.

JSCE UK Section Report

On 28 November 2017, the author gave a presentation entitled "Bridges in Japan" at the evening technical seminar organised by the south eastern counties regional group of the Institution of Structural Engineers (IStructE). This short article summarises what was presented at this seminar.

Presentation at the Evening Technical Seminar

The author agreed to give a talk on the topic related to Japanese bridge design and engineering since civil engineers in UK were not familiar with this topic, and the author wanted to assist Japan's initiative to export their civil engineering infrastructure system outside the county.

The theme of the presentation was the "Galapagos Syndrome" observed in the Japanese civil engineering industry, which was a challenge to be overcome in order for Japan to promote their civil engineering infrastructure system outside the country. The presentation started off comparing endemic species living in the Galapagos Islands with high-performance mobile phones developed in Japan which have no compatibility ("Galapagos" mobile phones) with smart phones elsewhere in the world. Then, the following were listed as reasons for the Galapagos syndrome associated with Japanese bridge engineering;

- Large domestic construction investment in Japan in the past (limiting overseas projects)
- Language barriers
- Unusual environmental constraints such as steep mountains, poor ground condition, and high seismicity and high population density

After the explanation of the "Galapagos Syndrome", a number Japanese bridge engineering technologies such

as those for shallow depth girders, composite structures and seismic engineering, were presented to the audience. Furthermore, bridge design projects in which the author was involved in Japan were also presented. In the final part of the presentation, customs for Valentine's Day and Halloween in Japan were also introduce to the audience as they were considered to be the "Galapagos syndrome" associated with Western culture in Japan. The author also revealed how he enjoyed Christmas at work in costumes (see the photo above), which brought lots of laughter to the audience.

It appeared that most of the technologies introduced in the presentation were not known by the attendees; many queries and positive comments were received. The author ensured strong interest in Japanese technologies from the audience in general – however the author was at a loss for an answer to the following question: "How do you adopt these advanced technologies from Japan in our UK civil engineering projects, is there any good way forwards?". The adoption of Japanese technologies in UK projects may not be straight forwards; however, the strong interest from UK engineers in Japanese bridge technologies shows potential for the future. If the Japan Society of Civil Engineers (JSCE) can exchange their engineers and technical information more with their International counterparts such as the ICE and the IStructE, this should enable Japanese civil engineering technologies to be promoted more widely outside the country. I would hope to see that the "Galapagos syndrome" associated with Japanese civil engineering to gradually diminish in the future through the JSCE's efforts.


The Institution of Structural Engineers

South Eastern Counties Regional Group

Regional Group Prize 2017

awarded to

Daisuke Saito

for the best technical talk given to the region during 2017, titled "Bridges in Japan" and presented on 28th November 2017.

President

Regional Group Chair

Chief Executive

Regional Group Secretary

February 2018

The author won the Regional Group Prize 2017

【Reported by Daisuke Saito (Mott MacDonald), President, JSCE UK Section】

Japanese Civil Engineers the Global Leaders Symposium Series No.11 "The Construction of Osman Gazi Bridge in Turkey – A Suspension Bridge with One of the World's Longest Center Span"

The 11th symposium hosted by the Project Group of the International Activities Center was held at the Auditorium, the JSCE Headquarters on January 24, 2018. Its program is as follows: Engineers from IHI and IHI Infrastructure Systems gave presentations on the story behind and an outline of the construction of Osman Gazi Bridge, a huge suspension bridge across Izmit Bay located 70 km southeast of Istanbul, Turkey. A video of the symposium was live-streamed for the first time to satellite venues in both Nagoya and Osaka with the support of the Chubu Branch and Kansai Branch. Four people in Nagoya and 11 people in Osaka attended and enjoyed watching the video, while 93 people participated in Tokyo.


Kiyoshi Watariguchi (Maeda Corporation)

- Opening Speech
  Asao Yamakawa, Acting Senior Director, International Activities Center, JSCE

- Introduction of IHI Infrastructure Systems Co., Ltd.
- Initiatives of IHI Infrastructure Systems Co., Ltd. in Turkey
  Akiho Ando, IHI Infrastructure Systems Co., Ltd.

- The Construction of Osman Gazi Bridge in Turkey (General Overview and Designing)
  Takanori Shima, IHI Infrastructure Systems Co., Ltd.

- Break

- The Construction of Osman Gazi Bridge in Turkey (Manufacturing and Erection)
  Shinjirou Seki, IHI Infrastructure Systems Co., Ltd.

- Actual Experiences of a Young Japanese Civil Engineer in Turkey
  Mototsugu Ono, IHI Infrastructure Systems Co., Ltd.

- Engagement of IHI Group with Overseas Infractructure Projects
  Ryutaro Yoshinari, IHI Corporation

- Q & A session

- Summary - Challenge to Worldwide Bridge Constructions -
  Takeshi Kawakami, President, IHI Infrastructure Systems Co., Ltd.

- Closing Speech
  Takao Kakei, Director of Project Group, International Activities Center, JSCE

Izmit Bay is a narrow bay that extends as far as 40 km eastward from the Marmara Sea. This has been a major obstacle to traveling from Istanbul to Izmir, the third largest city in Turkey. The new 3-km-long bridge has reduced the traveling time taken to cross the Bay from 90 minutes by land and 60 minutes by ferry to just 6 minutes. When the expressways at both ends are completed, the time between Istanbul and Izmir will be reduced from 10 hours to 3.5 hours. The project will have a very large economic impact. With a total bridge length of 2682 m and principal span of 1550 m, it is the fourth longest suspension bridge in the world.

Participants attentively listen to the presentation at the JSCE HQ, Tokyo

Construction started in January 2013 and was completed in June 2016, a surprisingly short period: converted to time per span length, it was the world's fastest construction of a suspension bridge. Two factors contributed to that result. First, the 420-km expressway including this bridge is being built under a BOT (build-operate-transfer) framework of 22.3 years, so rapid completion was desired. Also, the Government acted promptly throughout the entire process; such speedy construction may have been impossible in any other country.

Other characteristics of the bridge include a design service life of 100 years and a dynamically advantageous design realized by changing the angle of the main cable with the side span legs. In addition, IHI pulled out cables using horizontal reels, which have not been used in Japan. Also, under the BOT contract, the Turkish Government guaranteed to cover the payment of shortfalls if the traffic volume would not reach 40,000 vehicles.

Presentations were made by Mr. Akiho Ando, Mr. Takanori Shima, Mr. Shinjirou Seki, and Mr. Mototsugu Ono of IHI Infrastructure Systems, and Mr. Ryutaro Yoshinari of IHI. At the end, President Takeshi Kawakami of IHI Infrastructure Systems summarized the project.


Mr. Takeshi Kawakami at the Q&A session

All the presenters talked in a neutral tone, but in reality, they successfully opened the bridge after overcoming many obstacles such as accidents and leakages during drilling. It was also interesting to note that Japan's technologies for large suspension bridges, which were acquired at the time of construction of the Honshu-Shikoku Bridge, have been maintained and advanced in the design and construction of bridges in other countries.

After the symposium, participants exchanged opinions in another room while eating snacks.

【Reported by Kiyoshi Watariguchi (Maeda Corporation), Project Group, IAC】

Updates

◆The 20th International Summer Symposium in Hokkaido, August 29 and 30, 2018
http://www.jsce-int.org/node/538
◆CECAR8 Online Registration (Early Bird): June 1 – Jan 31, 2019
http://www.cecar8.jp/
◆Asian Civil Engineering Coordinating Council (ACECC) International Newsletter archives
http://www.acecc-world.org/newsletter.html
◆Online Museum of Civil Engineering "DOBOHAKU –Tokyo Infrastructure Anatomy –" (English ver.) is now open.
http://www.dobohaku.com/tokyo/en/
◆Concrete Committee International Newsletter No. 53 will be released soon!
http://www.jsce.or.jp/committee/concrete/e/newsletter/newsletter53/
◆Journal of JSCE
https://www.jstage.jst.go.jp/browse/journalofjsce
◆The International Infrastructure Archives
– A Compilation of Japan's Greatest Projects in Transfer of Civil Engineering Technology in Service –
http://www.jsce.or.jp/e/archive/
◆IAC "News Pick Up!!" on the JSCE Japanese website
http://committees.jsce.or.jp/kokusai/node/118
◆Summary of feature articles in JSCE Magazine Vol. 103, No. 4, April 2018
http://www.jsce-int.org/pub/magazine
◆IAC Students and Alumni Network
http://www.jsce-int.org/IAC_network

§ IAC News Subscription §

The IAC News is one of the communication tools to share information and ideas with the members. We would like to invite you, your friends and colleagues to join the communication and to subscribe the IAC News. Please register online: (http://www.jsce-int.org/node/150). We look forward to meeting you.

§ IAC Facebook §

Recent activity of International Activities Center is introduced on this Facebook. By all means, please see this home page. (https://www.facebook.com/JSCE.en)

Comments and Questions

Please send us your feedback and comments to help us improve the IAC news. We look forward to hearing from you.

JSCE IAC: iac-news@jsce.or.jp