

Korean Society of Civil Engineers (KSCE)

Seong-Jun Kim

Dong-guk University

Intro

In September 2010 I was invited as representative of KSCE (the Korean Society of Civil Engineers) to visit Japan as guest of JSCE (the Japan Society of Engineers) to learn Japan's civil construction industry. The tour took place between 13 and 20 September 2010. I reported briefly feeling and knowledge by doing tour.

Briefing at JSCE Head Quarters

STG start of our first began at the headquarters of the JSCE. We heard goals and schedules for STG at the meeting.

Goals of STG is inviting young engineers from the AOC (Agreement of Cooperation) Societies and introducing to leading engineers and researchers and visiting research institutions, laboratories and project sites. Then they introduce the latest civil engineering technology.

After the meeting, we met Mr. Furuki Moriyasu, Executive Director of JSCE. He sincerely encouraged us to do well.

Public Work Research Institute

The first place we visited is PWRI (Public Work Research Institute). In the auditorium, we learned about PWRI through introduction DVD.

PWRI is one of Japan's representing research institutes that has been established with an aim to efficiently develop public works technologies and

quality social capital by conducting research and development concerning public works. After watching DVD, we took a picture. Then our tour began in earnest.

We first moved the location was Geotechnical Dynamic Centrifuge laboratory. It is good place to perform prototype model tests in order to understand the complicated behavior of ground, earth structures and foundations, and also to develop the techniques to rationalize design. We didn't see the situation of an experiment. However it was shown by video.

Next, we moved Test Track. We experienced high speed driving on Test Track. In here, the road related experimental facilities for driving safety of road traffic are explained. Here, test progressed through driving a car rather than simply watching a video or DVD. We went ground many tracks. Among the tracks, I was impressed by Bank in the curved section. This slope was provided for the high-speed driving experiments of oversized vehicles so drop in the speed of the vehicles is avoided as far as possible. Our car ran at the design speed of 120 kilometers per hour. At that time, the car could turn a curve without touching the steering.

Next, we went the pavement test field. In here, a newly developed pavement, a loaded vehicle driving and a loaded pavement are experimented and observed. I was surprised to see that they experiments automatic vehicle.

Later we went to Dam Hydraulics Laboratory. This place literally means that it experiment about dam hydraulics. Hydraulic design of almost all spillways and outlet works are executed through model tests in the laboratory. I heard that Japan has approximately 2,800 many dams. I think that it is essential to develop dam hydraulics for Japan.

Next, we moved Structural dynamics laboratory. There is the Wheel Running Machine. It was actually operating. We observed the experiment to verify the damage occurrence mechanisms of pressure plates.

Finally, we went to auditorium again. Student of master's course was a presentation on IFAS (Integrated Flood Analysis System). I think that IFAS will be widely used as a basis tool for preparing flood forecasting and warning systems in many countries.

Kajima Technical Research Institute

Next day, we went to Kajima Technical Research Institute that is one of major company in Japan. It deals with total 12 fields that are Materials-Construction-Production, Rock-Underground, Hydraulics and Offshore, Wind Engineering etc.

First, we went to Hydraulic Laboratory dealing with Hydraulics and Offshore. This place was performing extensive research and development concerning offshore structures, coastal structures and river and waterway structures.

Next, we moved Wind Tunnel Laboratory dealing with Wind Engineering. This place was researching and developing the wind resistant design and safety of structural members or claddings, large space structures and so on, using the highest class wind tunnel facilities and numerical simulation techniques of the trades. I heard that these results through simulation are reflected to the design and construction of buildings and structures.

Later we went to Structural Laboratory. This laboratory was used to examine the strength and quake resisting behavior to be applied in civil engineering and various other construction works.

These days the problem of earthquakes and violent seas must be confronted in Japan. Furthermore, the increasing height and scale of structures is making the wind environment an important issue. However, kajima have enough technical skills that can solve the problem. More and more I think that besides, Kajima will offer an environment which values relations among people, other living thing things, and nature.

Tokyo Port Seaside Bridge

We visited the Tokyo Port Seaside Bridge, which was under construction. Name

of bridge had been not determined yet. It was tentative name. I heard that it is expected to name through the exhibition. If I name that, I would like to call “Dinosaur bridge” or “bird bridge”.

These days almost bridge likewise The Incheon Bridge in Korea or Akashi-Kaikyo Bridge in Japan is built of suspension bridge. However this bridge was making a truss bridge. The reasons are that there is a height limit due to its proximity to Haneda Airport, and the passage of ships needs to be secured under the bridge in the third shipping channel at Tokyo Port. Therefore, a suspension bridge or a cable-stay bridge, which requires tall towers, was not adopted. Instead, a truss bridge, consisting of an assembly of triangular truss members, was adopted. Also I heard that the amount of steel frames being used is about five times the steel frames used for Tokyo Tower. This bridge will offer us to not only car load but also sidewalks and elevators. When I walk through the bridge with sea breezes, it was first time to feel like that fresh. If the bridge complete, many people will feel like me.

I think that this bridge will create added value, such as aesthetic landscape, solving the traffic congestion and transporting material supplies and so on.

Arakawa Museum of Aqua

Next day we went to Arakawa Museum of Aqua. This museum was located to the Arakawa River. With ecological environment, insect and fish model, it has traced the story of motoring from 1900s to the present. This museum had three floors.

We were able to get basic information about Arakawa through the Arakawa information board in 1st floor. Also we could observe fish living in Arakawa River through aquarium and see all Arakawa Basin by a satellite picture. The samples of birds and insects inhabiting Arakawa Basin were on display all around.

There was a lot of information relative to Arakawa history in 2nd floor. There was a flooding simulation. It arrested my eyes. I could in directly see over flooded village by simulation.

There was the Disaster Relief Center in 3rd floor. I heard that they monitored

the river through CCTV and gathered information when flood occurs. However I could not enter this room.

Hibiya Common Utility Duct Construction

After Arakawa Museum of Aqua, we went to Hibiya Common Utility Duct Construction. When I saw the schedule of today, I can't anticipate what the construction site. When I arrived in construction site then and not till then I knew that.

Hibiya Common Utility Duct is below ground that carries more than two types of public utility lines which were Gas, Electricity, Water and Sewage and so on. I have seen many construction sites in Korea. It was first time to see this large-scale construction site under the ground.

In Korea, there is already an underground road plan and earthquake doesn't occur so we might not need that. However I think that it is good choice in case of the Japan.

Waseda University

Next day, we visited Department of Civil and Environmental Engineer in Waseda University. Now I am a university student. So it was fresh time for me to see and feel Japanese university life. Also, it was opportunity to listen to what dreams and goal of Japanese student is.

Mr. Tomoya Shibayama, the professor of Civil and Environmental Engineering, gave us a warm welcome. He explained us his field of study and Waseda University. After explaining, he introduced his teaching and research assistant to us. We toured here and there in Waseda University under the guidance of them.

Through this tour, I could widen my knowledge of civil engineering.

Furthermore, I could compare Japanese student atmosphere and Korean student. Thanks to assistant, I could finish without any accident and I felt that we were good friend so I am very happy.

The 12th International Summer Symposium

I visited Summer Symposium that is STG's last program. It was 12th opening at Nihon University in Tokyo. Professors and engineers had many kind of seminar in there. We attended Professor Shigru Morich's development of infrastructures and national growth in Asia. We had free-time after this seminar. I took pictures in the building and scenery, also we talked with people related to STG. Symposium was also ended, our presentation time came. This presentation was about my feelings during STG, but I had not enough time to ready for this presentation. I appreciate to people related to JSCE and others.

Which do you think one week is short time or not? But one week is important in my life. So i can't change anything with this time. I got pride form STG program about civil engineer. I so thank you to STG program and JSEC for their helping.