Japan Society of Civil Engineers
International Activities Committee

Newsletter

No. 14 March 2004

New Year's Message from President Mikanagi

President
Kiyoyasu Mikanagi

Many large-scale disasters, which occurred during the past year affected JSCE and the civil engineering sector as well as the general public. In Japan, large-scale earthquakes such as the Miyagi-Oki Earthquake (May 26), the Northern Miyagi Earthquake (July 26), and the Tokachi-Oki Earthquake (September 26) took place, and during concentrated downpour in Kyushu region between July 18th through 20th, 23 precious lives were lost. In overseas, The Turkey Bingol Earthquake (May 1) claimed 176 lives and the Algeria Boumerdes Earthquake (May 21) claimed over 200 lives.

In response to these disasters, JSCE promptly dispatched its investigation teams to the sites in order to grasp the situations and to find out the causes of these disasters. Such JSCE activities were broadcasted on television and reported by newspapers. Thus, they were made visible to the public eyes. It is indeed gratifying that the public understands a part of our activities. I would like again to express my appreciation to the members who have contributed to the disaster investigations.

In midst of the recent fiscal reform, the situation surrounding the public works is increasingly strained. On the other hand, it is a fact that the public strongly demands safety, security, and especially the measures against unpredictable disasters. In May 2003, the Central Disaster Management Council formulated the Outline for the Tokai Earthquake Countermeasures, which was endorsed by the Cabinet in July. It is an urgent task for the nation and the players within to enforce various measures according to this policy, such as "Earthquake Resistant Measures," "Tsunami Countermeasures," "Building of High-level Disaster Information Network & Establishment of Emergency Response System," and "Improvement of Regional Disaster Countermeasures." In addition to the Tokai Earthquake, the imminence of the Tonankai Earthquake, the Nankai Earthquake and other strong earthquakes in the Metropolitan area is suggested. The estimation of the damage as well as the preparation of an outline for the countermeasures are currently in progress, led by the expert panel of the Central Disaster Management Council.

After the Kobe Earthquake of 1995, JSCE investigated the damages, held debriefing sessions, and published reports, as well as proposals such as the standards of earthquake resistance and seismic reinforcement in order to improve the seismic resistance of civil engineering structures. In November 2003, to synchronize with the action of the Central Disaster Management Council, JSCE has established the Special Committee on Measures against Huge Earthquake Disasters and thus began to examine the actions and the roles that are required of JSCE in face of huge earthquake disasters. It is our hope to publicize the findings of the committee in the near future while taking into consideration the comments from various sectors.

Beyond the information exchange in times of disaster, another important theme for JSCE is the communication with the public, as exemplified in the responses to the questions raised by the society about civil engineering sector or infrastructure development. From this standpoint, JSCE has established a new communication system with the society, in accordance with JSCE 2005, which was formulated in May 2003. Our aim is to accurately detect the demands of the society and to fulfill various functions in order to respond promptly in times of emergency and in ordinary times.

Year 2004 will see the beginning of substantial JSCE efforts under this new system. It is my sincere hope that our members understand such efforts and participate in our effort to further strengthen the communication with the society.

JSCE Study Tour Grant

Tulga Gantumuur

JSCE is active in developing its relations with overseas and supporting developing countries. One such example is the Study Tour Grant since 1990. The main goals of this tour are to strengthen cooperation with other countries, exchange skills and to propagate Japanese building technologies and success of scientific research to overseas. Mongolian Association of Civil Engineers is the 21st society to conclude the cooperation agreement with JSCE. As JSCE offered the 2003 Study Tour Grant to the Mongolian Association of Civil Engineers (MACE), I had the opportunity to observe and study the latest achievements and successes of Japanese building sector.

Japan's topography and soil condition create much difficulty for the building sector, and even more for the infrastructure sector activities. Japan's territory is located on the crossing of 3 tectonic plates: Eurasian, Pacific Ocean's and Philippines', causing about 70 percent of the total earthquakes in the world to happen in this region. For these reasons, Japanese engineers pay great attention in overcoming these natural factors with smallest risk possible. It is the main goal of their research and their great effort in this work is bringing success.

During the Study Tour, at every place I visited, I came across laboratory equipments that are considered highly in the world. For example, in Building Research Institute in Tsukuba, I saw the highest Reaction Wall in the world that measured 20Wx25Hx6.6T, and another one that measured 15Wx15Hx3.0T. In Public Works Research Institute, I saw the biggest three-dimensional shaking table, which measured 8x8m and had the capacity of 300 tons. In Kajima Technical Research Institute, by one of Japan's building sector giants, Kajima Corporation, I saw a wind tunnel with 4.3meter diameter fan, which is also considered the biggest in the world.

Achievements in minimizing damages caused by the earthquakes that harm Japan's economy more than any other natural disasters, are obvious from the conclusion made by the international experts' group after the 1995 Kobe Earthquake. Nevertheless this earthquake claimed 6,000 lives and a considerable number of buildings were ruined. It is difficult to imagine how much damage a 7.4 magnitude earthquake would cause, if it would occur in a big city in any other country with the same population.

With sparsely populated vast territory and cities occupying a small area of the entire territory, earthquake is not the number one problem in Mongolia. However, the government pays much attention to this issue in recent years and had taken definite measures, after the September and October 2003 earthquakes of magnitudes 6.9-7.1, which occurred in Russian territory, not far from the Mongolian border.

Cooperation between JSCE and MACE plays vital role in propagating Japan's skills, which can be the model in decreasing the risks of earthquake disasters in any other countries. Therefore, I intend to work hard to develop the cooperation between our societies. Finally, I would like to express my gratitude to MACE for providing me the opportunity to attend the study tour; to JSCE for granting the Study Tour Award to MACE; to JSCE's International Affairs Section for organizing the tour on a high level and to others.

By Tulga Gantumuur（MACE）

The International Symposium on "Approaches for Global Water Hazard and Risk Management in the 21st Century" by Public Works Research Institute

The International Symposium on "Approaches for Global Water Hazard and Risk Management in the 21st Century" which is open to a wide range of participants from many regions of the world was held on the 23rd of January 2004. The symposium aims at the discussion of emerging approaches such as researches and countermeasures, required in the field of water hazard and risk management in view of present and future trends in the world, as well as the directions on how Japan can contribute in the field for the benefit of other nations. To this aim, officials, researchers and top-level experts from relevant national and governmental agencies and research institutions are invited.

Professor Katsumi Musiake in his keynote address noted that a major focus of recent world water problems consists of both "too little water" and "too much water" issues and proposed that Japan is dedicated to contribute to mitigating water disasters problems by making efficient use of its knowledge and expertise.

After the keynote lecture, the panel discussion opened with the introduction of Professor Kuniyoshi Takeuchi as the chair of the panel discussion and six panellists, Mr. Akira Kitagawa (PWRI), Dr. Andras Szollosi-Nagy (UNESCO-IHP), Mr. Avinash C. Tyagi, (WMO), Prof. Victor Pochat (Universidad del Litoral, Argentina), Prof. Kenji Nakamura (NyARC) and Ms. Joanne Linnerooth-Bayer (IIASA) delivered their opinions and actively discussed world water related disasters issues. Professor Kuniyoshi Takeuchi, reviewing this discussion, emphasized that the word "coping capacity" for water related disasters should represent all the views and opinions presented in the discussions, and that it is an important step to seek the widest cooperation from both national and international institutions and programs.

By Hirotaka Hiyama (CTI Engineering Co., Ltd)

"Civil Engineering" Nov. 2003 Feature Article: "Advancement of General Contractors"

Keiichi Fujita
GEOTECH Corp.

The progress and the development of construction technologies after the Second World War was due to the effort to carry out civil engineering projects that respond to the social needs of the time, to the economic growth, as well as to overcome strict construction requirements at the site. This development was made in the direction of economizing on construction cost and laborsaving.

The economic stability was largely due to the construction of Allied Forces base as well as energy-related facilities such as electric and coal power plants, and to the special procurement boom caused by the War (1950-1951) in Korea. Later, major construction projects by steel and shipbuilding industries followed one after the other. Such projects were assigned to general contractors through the bidding including designs proposal, with the condition that they would be awarded a cash reward when they completed the job earlier than the target date. As a result, general contractors increased the number of research engineers and expenditure in order to develop the technologies to reduce working period (Table-1).

In the background of the construction technology development, we must not forget the advancement in civil engineering, other engineering fields and science, as well as the production and supply of high performance / high quality machineries and materials as a result of the industrial development.

The various opportunities that prompted the development of construction technologies are the increase in the amount of projects, lack of construction laborers due to occupational hazards and the perception that the public works are dirty, harsh and hazardous, pollution and environment, weakened concrete issues, large-scale projects with work organizations, systems related to construction technologies certification / qualification, and technological exchange with overseas.

The notoriety of the work condition in the construction industry has resulted in difficulty in collecting young laborers. As a result, construction methods were largely rationalized and mechanized. However, during busy periods, the tendency of increasing occupational hazards has been seen.

As urban civil works have markedly increased, public hazard issues such as noise, vibration, heavy traffic and ground subsidence occurred. In 1971, Environmental Standards on Noise, Wastewater, and Water Pollution were enacted, requiring various technological measures against hazards. Around 1980, the offshore development gave birth to the Waterfront Plan, and the Deep Underground Utilization was announced around 1985. Thus, the government, the academia, and the private sectors cooperated to develop construction technologies. It could be said that the level of Japanese construction technology reached a top level in the world at that time.

However, the 1990s was a period when construction projects were unwelcome and the amount of projects rapidly decreased. Comparing the two JSCE publications of "Japanese Civil Engineering History: 1966-1990" (published in 1995) and "Infrastructure Development under Decreasing Population: A Design from Expansion to Contraction" (published in 2002), one is surprised to find the great change in social circumstances in the 10 years between the two centuries.

Big changes such as the withdrawal from the suburbs into urban districts, which would bring additional employees into businesses, the establishment of bases related to energy systems, lifelines, transportations / distributions, health / safety, and a balancing system between wastes and materials will take place. Under such circumstances, the development of construction technologies related to said facilities will be further called upon.

Table-1: GNP, Construction Investment, Construction Machinery Production, Number of People Employed, and Research Expenditure in Construction Industry.

Year	GNP X 10^{12} YEN (A)	Const. Inv. X 10^{12} YEN (B)	C.E. Const. Inv. X 10^{12} YEN (C)	Mach. Prod. X 10^{12} YEN (D)	N. of Employed X 10^{4} (E)	B/A %	C/A %	D/B %	General Contractors	
									Research Expenditure (X 10^{8} YEN)	No. of Researcher (People)
1966	39.6	6.78	2.74	0.11	328	17.4	6.9	1.6	159	1000
1990	436.93	81.48	29.66	1.82	555	18.6	6.8	2.2	1852	7699
'90 /'66	11	12	10.8	16.5	1.69	1.1	1	1.4	11.6	7.7

An Arab Engineer Digging his way in Japan

AHMED Saad Eldin MORGAN
Construction Project Consultants, Inc

It was the night of February 18th, 1994 when I first arrived in Nagoya airport after a long journey from Egypt. Since this moment, a new path for my life has been drawn; unforgettable days and wonderful memories.

In my first days in Nagoya, I met with Prof. Junichiro Niwa and Prof. Tada-aki Tanabe, both professors at the Faculty of Civil Engineering, Nagoya University. Although I was a little relieved by their friendly attitude, I was requested to accomplish my doctorate degree requirements in a very limited period of 3 years. It was really hard to do so because I had to work from morning till midnight every day, seven days a week.

During my doctorate course I published more than 15 technical papers about concrete structures; these papers were published in top journals in the world such as JSCE, ASCE, JCI and Engineering Structures Journal in UK. Also, I had an opportunity to attend and present my work in some international conferences in Japan, Australia, Taiwan and USA.

When I started my practical career in Japan, I was faced with many challenges, and I tried very hard to overcome them. One of these challenges was to acquire a professional engineering license in the USA. I did get it from the state of Oregon in 2001 after I passed the required exams. Also, I was qualified for RCCM (Registered Civil Consultant Manager) in Japan.

Because of my involvement in many construction and consultant companies in Japan, I had great opportunities to work and acquire an intensive practical experience in many large-scale civil engineering projects. I was fortunate to work with very experienced engineers such as Mr. Yoshihiko Nishigaki of P.S. Corporation, Mr. Fumio Kamada of Obayashi Corporation, Mr. Teruya Oota of Izumi Consultant and Mr. Shozo Inoue of Construction Project Consultants, Inc. (CPC). I had an intensive experience in prestressed concrete bridges. I did corrugated steel web girders bridges, cable stayed bridges, extradozed bridges and many others. In Obayashi Corporation, I was involved in prestressed concrete LNG tanks. I also had an opportunity to work for the world largest upper LNG tank. Adding to my experience in concrete structures, I worked for steel bridges design in Izumi Consultant.

Now, I am working in the Overseas Department at CPC, where I am given an opportunity to develop my practical working experience not only in Japan but also worldwide. I like my work at CPC, and I am doing my best to become an international engineer that CPC envisions for me.

Here in Japan, I married my wife in 1997, and now I have three kids, all born in Japan, who are very much involved in the Japanese society. With three kids in one house, it looks like a circus, and it is hard to get rest. My family and I like Japanese cuisine, especially sushi although it is very expensive.

I really appreciate and am grateful to all Japanese people who have been assisting me to become what I am now. I owe a lot to Japan, and I hope the day will come when I can pay back. With my Arab background and familiarity with Japanese society, I am looking forward to the time when I can bring Japan and the Arab world closer, despite our differences, which I personally overcame, and to create for all of us a better world to live.

Call for Abstracts to The Sixth International Summer Symposium

The International Summer Symposium provides a platform for international students in Japan and engineers to present, discuss and exchange their research interest in English. International students and engineers are strongly encouraged to participate in the Symposium. (Note: International students and engineers include Japanese, overseas students and engineers who are interested in international activities.)
Date: July 31st (Saturday), 2004
Venue: Saitama University
Please refer the details on our website (http://www.jsce-int.org/).

Publications

ARTICLES (From Dec. 2003 to Feb. 2004)

International Information Forum 2003 Part 2 (in Japanese), JSCE, February 2004, CD-ROM, Price: JPY2,500.-, ISBN4-8106-0404-7

Concrete Library International Vol. 42, 2003.12, JSCE, January 2004, CD-ROM, Price: JPY3,150.-, ISSN1347-2119

Structural Engineering Series 14, FRP Bridges – Technologies and their Future- (in Japanese), JSCE, January 2004, Pages 264, Price: JPY4,830.-, ISBN4-8106- 0445-4

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