



Newsletter

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**“Civil Engineering” Oct. 2003 Feature Article:
“The Competitive Edge of Japanese Construction Technologies and Future Overseas Projects” (Summary)**

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The Overseas Construction Association of Japan



The competitive edge of Japanese construction technologies is a topic, which is often discussed. Among the places from which Japanese construction companies procure contracts every year, Singapore, Hong Kong, Taiwan and the United States are at the top of the list. This fact indicates that in these places, Japanese companies are winning the price competition with overseas companies.

Among the contracts obtained by the Japanese companies, especially prominent is the tunneling works using shield method. In fact, it would not be an exaggeration to say that Japanese shield technologies, especially the closed face types such as the earth pressure balanced shield and the mud shield are the most sophisticated in the world.

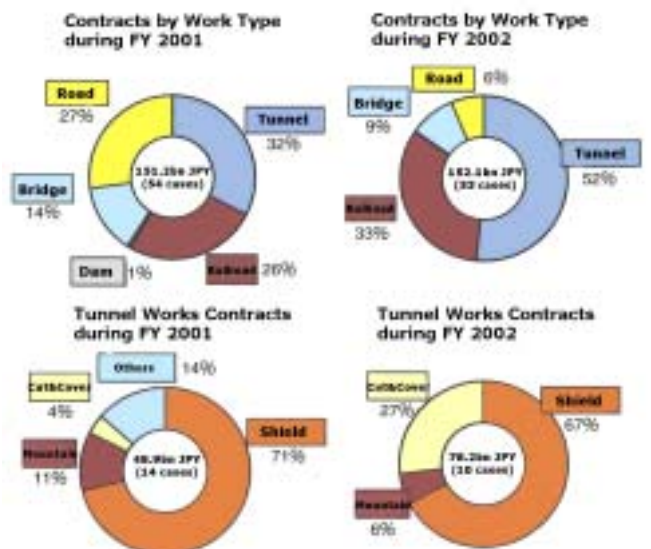
In overseas, design build shield works are often tendered. Often in such cases, the inner section, the depth, and the alignment are provided, leaving the choices of shield machine or segment to the discretion of the tenderer. This would increase the areas, in which the prospective contractors could demonstrate their abilities, and the relative merit of their technologies would be an influencing factor. Therefore, the key to winning the bid would be to use the technologies to the fullest extent while keeping the cost at minimum. Having an international competitive edge is not a simple question of technological sophistication; it is ultimately linked with the cost.

Other than shield technologies, Japan excels in technologies for urban facilities such as diaphragm walls and the underground facilities such as stations, malls, or parking. Among bridge technologies, long span bridges like the cable-stayed bridge or the suspension bridge are our

specialties. Japan also excels in ground improvement technologies.

Japanese construction companies are also known for keeping the deadlines and for their superiority in quality and safety management compared to other countries. Their earnest attitude towards work also contributes to give a positive impression on the clients. It would now be necessary to find ways to take advantage of these tools in the international competition.

Another characteristic of Japanese construction companies is that they often own technological research centers, technological development divisions, or infrastructure and building design headquarters in order to work on basic researches and the development of new technologies. Although there is a demerit of higher overhead costs, its advantage is the overall strength of covering the project from its start until its completion. I believe that it is important to make a full use of this advantage in participating in the international competition.



Percentages represent the proportion of work types to the total sum.

Overseas Contracts won by Japanese Corporation

The JSCE Annual Meeting 2003 in Tokushima

The JSCE Annual Meeting took place from Sep. 24th through 26th in Tokushima City, located in the eastern Shikoku Island. The region is known for its Awa dance and its puppet theatre, among other things. 6,128 people participated in the Annual Meeting and 4,011 papers from various fields were presented by engineers and students. The roundtable meeting, the panel discussion, and the English common session among others were held as the international events.

Roundtable Meeting “Promoting International Activities - Issuing International Journals in Asian Regions”

On Sep. 24th, the first day of the Annual Meeting 2003, the roundtable meeting was held at Nichia Hall in Tokushima Univ. During the meeting, the delegations from Chinese Institute of Civil and Hydraulic Engineering, Korean Society of Civil Engineers, Mongolian Association of Civil Engineers and JSCE discussed about the publication of an English journal in Asian Region.

The participating societies agreed upon the need for a high quality English journal that would be internationally recognized and agreed to consider this issue within their respective societies.



Attendees of the Roundtable Meeting

English Panel Discussion -“ITS Development in Asian Regions”-

At the 58th JSCE Annual Meeting in Tokushima University, the English panel discussion on the topic of “ITS Development in Asian Regions” was held on September 24, 2003. So far, ITS, which stands for Intelligent Transport System, has been regarded as a system for the developed countries. From the beginning, ITS was discussed mainly among North America, Europe, Australia and Japan. However, looking at traffic problems such as accidents and congestions in developing countries, especially in Asian region, we recognize that these countries have the same or worse situations compared to the developed countries. The traffic experts are gradually turning to ITS to improve these traffic problems. The objectives of the panel discussion were to discuss about the roles

ITS could play in developing countries in Asia and the suitable form of ITS for the situation of transportation in Asia. For the discussion, we had four panellists from four countries who are Dr. Edward Chung from Malaysia, Dr. Wuhong Wang from China, Ms. Kim JinYoung from Korea and Mr. Tomokazu Kawabata from Sumitomo Electric Ind., Japan. After introduction of the panellists and agenda of the meeting by the chairperson, Dr. Yasuhiko Kumagai from Kochi University of Technology Japan, each panellist introduced the latest ITS movement in their respective country. This was followed by discussions, during which we focused on three subjects; the benefits of ITS, what kinds of ITS will be suitable, and what Japan can do for the development ITS in Asia.

The Information can be viewed on JSCE website (<http://www.jsce-int.org/>)

By Yasuhiko Kumagai
(Kochi University of Technology)

“The KSCE-JSCE Joint Seminar on Durability of Concrete Structures”

In the KSCE annual convention, the KSCE (Korean Society of Civil Engineers)-JSCE Joint Seminar was held in Daegu, Korea, on October 25, 2003, on the theme of “Durability Concern on Concrete Structures for the Future”. The seminar began with the opening speech by Mr. Furuki, Executive Director of JSCE, and Professor Moon, President of Korean Concrete Institute. 10 presentations (5 from KSCE and 5 from JSCE) chaired by Professor Song of Yonsei University, Korea then followed. About 80 Korean engineers attended the seminar. At the end, Professor Kim, President of KSCE, presented a gift of appreciation to each speaker. The seminar was publicized nationwide by several newspapers and recognized as one of best products of the 2003 KSCE annual convention by President Kim of KSCE and the organizing committee members.

The seminar is the second of its kind, an effort that JSCE International Activities Committee makes to promote the cooperation with the societies/institutes having a cooperative agreement with JSCE.



Gift from KSCE (Left: Prof. Takewaka, Kagoshima Univ.; Right: Prof. Kim, President of KSCE)

By Eiki Yamaguchi
(Kyushu Institute of Technology)

Reconnaissance of the damage caused by the May 1, 2003, Bingöl Earthquake in Turkey



Location of Bingöl Province

An earthquake with a magnitude of 6.4 (M_w) occurred on May 1, 2003 in Bingöl province located in the East Anatolian Region of Turkey. This earthquake was officially called *Bingöl Earthquake* and was felt at neighbouring cities. This province was also hit by an earthquake, which occurred in 1971 and caused heavy damages and loss of life particularly in Bingöl. The Kandilli Observatory and Earthquake Research Institute (KOERI, 2003) of Bogaziçi University estimated that the earthquake was centred at 39.01 N and 40.49 E, which places its epicentre about 15 km NW of Bingöl city.

According to official estimates the earthquake caused the loss of 176 lives and injured about 520 people. About 200 buildings collapsed and was subjected to heavy damage, and 5,000 buildings were moderately - to - lightly damaged in Bingöl city centre. The number of collapsed buildings in the whole earthquake affected region is announced as 570 and a total of 6,000 were subjected to damage in different degrees.

Landslides and a large lateral spreading triggered by the earthquake also occurred. Landslides were mainly in the mode of earth flows in highly weathered volcanics and rock falls from steep slopes, which were observed in rural areas. Focal plane solutions from several institutes indicate two possible strike-slip faults striking NW-SE and NE-SW. On the contrary to those observed in the devastating 1999 Kocaeli and Düzce earthquakes of Turkey, evident surface rupture could not be traced on the land in this earthquake. However, very short and thin cracks observed at a location in the epicentral area are considered to be associated with the possible causative fault.



Large lateral spread induced by soil liquefaction at Hanocayiri

Most of the buildings in Bingöl are typically multi-storeys commercial/residential reinforced concrete structures. A large percentage of collapsed and/or severely damaged buildings were generally in 3 to 6 story range. The damage seems to have resulted mainly from poor quality construction and inappropriate construction materials. The minarets of mosques exhibited a very good performance, except a few in Bingöl city and Karakoçan town.

Japan Society of Civil Engineers (JSCE) decided that it would dispatch an investigation team to Turkey. Though JSCE covers quite a vast area of interest, the reconnaissance consisting of two members from Japan (Dr. O. Aydan, Professor of Tokai University and author) and one investigator from Turkey (Dr. R. Ulusay, Professor of Hacettepe University) conducted a field investigation in their special fields of civil engineering for five days from May 30 to June 3, 2003. During the field investigation, team members visited strong motion observation station located in Bingöl city centre, carried out some observations and took some measurements on the collapsed and damaged structures and lifelines. In addition, local site conditions were also assessed with the aid of data from recently drilled geotechnical boreholes and trial pits at some collapsed and heavily damaged buildings in Bingöl. The preliminary strategy of the JSCE team was to discuss with Turkish specialists about possible future collaborations that could be beneficial for both Turkish and Japanese sides.

Turkish National Earthquake Committee and Turkish Earthquake Foundation, in particular Prof. Dr. Rifat Yarar, kindly encouraged and supported the team's reconnaissance activity. Research assistants Zeynal Abiddin Erguler, Nilsun Okan and Ergun Tuncay, and laboratory technician Ahmet Bay from the Geological Engineering Department of Hacettepe University, and Geological Engineer Elif Avsar are acknowledged for their kind help in editing some parts of the report, data assessment, and laboratory classification tests.

The report of JSCE team is now available at the following URL: <http://www.jsce-int.org/>.

By Masakatsu Miyajima
(Kanazawa University)

Foreign Engineer Trying to Fit into the Japanese Society



Shengchuan Zhao

December 26, 1988 and Nagasaki. An unforgettable day and memorable place. My fifteen-year life in Japan started here.

I thought that I would return back to China after a two-year technical training at a software developer in Yokohama. However, the course of my life completely changed since I met my advisor, Dr. Katsutoshi Ohta, a professor at the University of Tokyo. I represented my strong desire to pursue my PhD degree in urban transportation planning and became his first Chinese student in 1993.

After graduating with a thesis on travel behavior and information, I was lucky enough to obtain a JSPS Research Fellowship for Young Scientists and had an opportunity to conduct further research at the University of Texas at Austin in 1997. After returning back to Japan, I was offered a position to work with The Institute of Behavioral Sciences, an urban planning consulting firm based in Tokyo.

Since then, I have been working at IBS as a transportation planner. I have been involved in a number of projects from modelling works to planning practices. I worked with Japanese central and local governments, academia and private sectors. I have worked in many Japanese cities such as Tokyo, Utsunomiya, Hitachi, Takasaki, Sendai, Sapporo, Kyoto, Kobe, Osaka, Okayama, Hiroshima, Fukuoka, Miyazaki, Kumamoto, Kagoshima, Kitakyushu and Naha as well as South Africa. I have coordinated Japan-China government conferences in the field of urban and transport planning. I have organized a number of technical and academic delegates to China. I have attended at 9th World Conference on Transport Research in Seoul in 2001, 24th PIARC conferences in Durban and 3rd North American Chinese Overseas Transportation Association Conference in Beijing in 2003, and have co-organized the International Conferences on Traffic and Transportation Studies since 1998.

I met my wife and got married in Japan and we are now living with our lovely four-year old son in Yokohama. During our stay in Japan, we have made lots of Japanese friends from young to old, women to men and in Tokyo to local towns.

All of these experiences deepened my understanding of the country, as well as the culture,

society, tradition and practices. This beautiful and attractive country has deeply influenced me and inspired me to make ahead in fulfilling my goals. As I cultivated my friendships with Japanese, I learned about and became familiar with the Japanese lifestyle and their worldviews. I respect the Japanese team spirit and their hard-working spirit. I love Japanese cuisine very much: tempura, sukiyaki, miso soup, etc.

I might return back to China someday in the near future. I appreciated that I could expand my views, thoughts and essence of myself. I enjoyed my life here very much. These experiences form one of the most wonderful times in my life.

Thanks to all. I will always remember the whole experiences and the friends I have made. I will be playing a role in bridging China and Japan and do my best to contribute to our society as much as possible in the years to come.

Shengchuan Zhao
(The Institute of Behavioral Sciences)

Publications

ARTICLES (From September to November 2003)

List of Faculty Members in Universities, Institutes and Colleges (2003), JSCE, September 2003, Page 219, JPY2,100.-, [ISBN4-8106-0446-2](#)

Coastal Engineering Journal Vol. 45, No.3, JSCE, September 2003, Pages 189, Please inquire the price as below.

[ISSN0578-5634](#)

Structural Engineering Earthquake Engineering Vol. 20 No.2, JSCE, October 2003, Pages 88, Price: JPY2,039.-, [ISSN 0289-8063](#)

Journal of Global Environment Engineering Vol. 9, JSCE, October 2003, Pages 149, Price: JPY6,000.-, [ISSN1341-1268](#)

Recommendation for Design and Construction of Concrete Structures Using Epoxy-Coated Reinforcing Steel Bar (in Japanese), November 2003, Pages 216, JPY3,570.-, [ISBN4-8106-0411-X](#)

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