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Introduction of the Activities of Earthquake Engineering Committee

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Japan is prone to earthquakes. The past 20 years have seen a number of major earthquakes that have caused significant damage, such as the 1995 Hyogo-ken Nanbu Earthquake, the 2004 Niigata-ken Chuetsu Earthquake, the 2007 Niigata-ken Chuetsu Oki Earthquake, the 2008 Iwate-Miyagi Nairiku Earthquake, and the 2011 Great East Japan Earthquake. Every one of these events has posed new challenges. Responding to the influences of earthquakes is an inevitable task for civil engineers who live in the Japanese archipelago. Faced with earthquakes that are still unknown phenomena, Earthquake Engineering Committee conducts researches and studies and collects information taking various approaches with a view to mitigating earthquake disasters.

The predecessor of Earthquake Engineering Committee was the Earthquake Resistant Engineering Committee that was organized in November 1955. The Hyogo-ken Nanbu Earthquake of January 1995, which caused 6,434 fatalities, shed light on various issues, such as seismic design policy and non-structural measures for safety that had been implemented before the earthquake. Dealing with these issues required interdisciplinary discussions to cover all fields of engineering and science. In April 1997, the committee was reorganized and renamed Earthquake Engineering Committee. Presently, the committee consists of specialists from a wide range of fields, structural and non-structural, from academic and governmental research institutes and private companies, such as general contractors, consultants, etc. The committee has 117 members and 46 advisors.

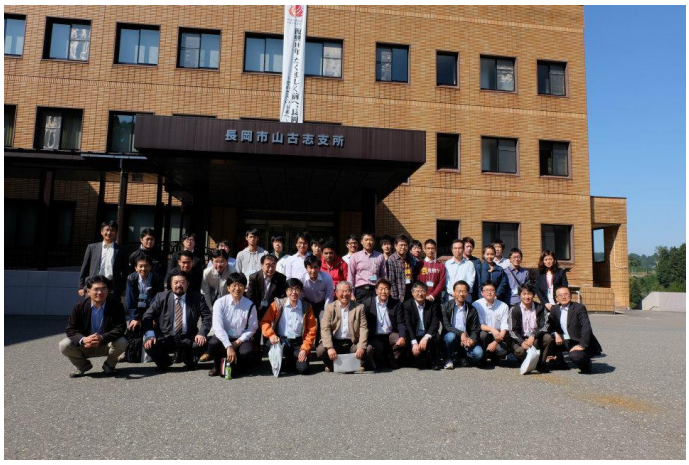
The Committee has the following permanent subcommittees: Seismic Design Standards Subcommittee develops Japanese design codes and disseminates information about them overseas; Earthquake Disaster Prevention Technology Dissemination Subcommittee plans seminars, lectures, and other events; Earthquake Damage Investigation Subcommittee investigates the damages caused by major earthquakes and publishes the results; Earthquake Engineering Journal Editing Subcommittee hosts JSCE Earthquake Engineering Symposium and publishes “JSCE Journal of Earthquake Engineering.” The JSCE Earthquake Engineering Symposium this year will be held at Institute of Industrial Science at the University of Tokyo on October 6 and 7. An international session is organized in which presentations and question-and-answer sessions will be conducted in English. (http://committees.jsce.or.jp/eec2/node/64).

Additionally, with the aim compiling a certain amount of results in about a four-year time frame, ten subcommittees are working in FY2015. Their subjects include: stone masonry retaining walls, seismic design methods for bridges and other structures, analysis of damage caused by the Great East Japan Earthquake, evacuation guides, measures to protect water circulation facilities, anti-tsunami design methods for bridges, cyclic shear testing, technology for urban disaster reduction measures, the collection and utilization of topographical data of earthquakes traces, and responses to internationalization. For example, the internationalization subcommittee has established a website of Disaster Fact Sheet (http://committees.jsce.or.jp/disaster/) The

findings of investigations on natural disasters that have occurred in Japan and overseas will be reported in English on this site. Papers are accepted at any time and will be peer-reviewed for publication.

The committee will continuously provide a variety of information to Japanese and overseas researchers. We will make further efforts to compile information on past earthquake damages and its lessons, improve earthquake design standards, and encourage young researchers to engage in cross-disciplinary activities.

Panels exhibited at 2014 JSCE Earthquake Engineering Symposium



Participants in the field survey trip after 2014 JSCE Earthquake Engineering Symposium

Tsubasa Bridge, a symbol of the friendship between Japan and Cambodia. The Construction of Neak Loeung Bridge

Nobuhiko Maruni
Sumitomo Mitsui Construction Co., Ltd.

This project features a 640-m long, three-span, continuous PC, cable-stayed bridge spanning the Mekong River at a point about 60 km southeast of Phnom Penh, the capital of Kingdom of Cambodia. The main bridge is connected to approach bridges (PCI composite girder bridges) on the east and west banks that have a combined length of 1,575 m and a 3.2-km approach road (fill section) running east and west. The total length of the constructed route is 5.4 km. The main bridge is the first long cable-stayed bridge in Cambodia. If built in Japan, it would have the country's longest span for a concrete cable-stayed bridge.

Photo 1. General view of main bridge

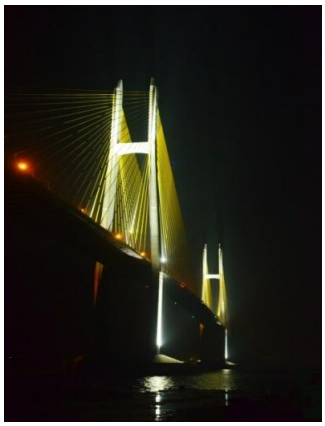


Photo 2. View at night

The main girders of the main bridge were constructed using cast-in-place cantilever erection and an underslung form traveller. These travellers were temporarily suspended at the front using permanent stay cables. This lessened the weight load of the travellers and made it possible to extend the construction block length from the initial 4 m to 8 m, which matched the arrangement interval of the diagonal cables. For the concrete form shoring work, to simplify the setting, adjustment, and stripping of the forms, the forms for the base plates and horizontal girders were fully integrated and lifted up and down using hydraulic jacks. Using this system, the concrete form shoring work was completed in the standard cycle of 10 days (daytime work).

Photo 3. Balanced cantilever erection

Photo 4. Underslung form traveller

The main towers were constructed by integrating the forms and scaffolds and hoisting them as a unit to the next lift using a tower crane. The main rebars for each lift were assembled in the yard and then hung using a tower crane. The use of jumping forms and prefabricated rebar-cages resulted in less labor at the site and reduced the construction cycle (day and night work) for the standard lift to eight days.

The two main towers soar 121 m above the river and have become landmarks in the region.

Photo 5. Construction of main towers

Photo 6. Erection of prefabricated rebar-cage

The “connection ceremony,” which was held on January 14, 2015 to connect the bridge girders at the center of the main span, was attended by Prime Minister Hun Sen and over 7,000 work personnel. At the event, the prime minister announced that the bridge, which had been called Neak Loeung Bridge, had been renamed “Spien Tsubasa (Cambodian for Tsubasa Bridge).” Around the same time, new 500-riel notes were issued featuring an image of Tsubasa Bridge together with Kizuna Bridge (constructed with Japan ODA in 2001). Tsubasa Bridge opened on April 6, 2015. We greatly hope that the bridge will be a symbol of the stronger friendship between Japan and Cambodia.

Photo 7. Opening ceremony for Tsubasa Bridge

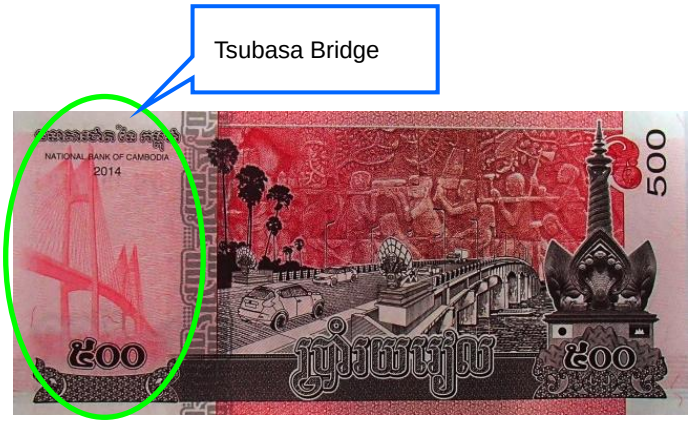


Photo 8. New Cambodian 500-riel note
(Image of Tsubasa Bridge and Kizuna Bridge)

JSCE – VCA Joint Seminar on Lifecycle Management for Infrastructure - Utilization of Chemical and By-product Admixtures for Concrete Structures - April 16 & 17, 2015 Water Resources University, Hanoi, Vietnam

The Seminar on Life Cycle Management for Infrastructure - Utilization of Chemical and By-product Admixtures for Concrete Structures, was held in Hanoi, Vietnam, on April 16 and 17, 2015. The seminar was organized by the Vietnam Concrete Association (VCA), Japan Concrete Committee (JSCE), and Cross-ministerial Strategic Innovation Promotion Program (SIP). The seminar is the third joint seminar for JSCE and VCA. The first and second joint seminars were held in Hanoi in 2012 and in Ho-Chi-Min City in 2013 respectively.

In Vietnam, the annual total amount of fly ash, an industry by-product, is expected soon to reach approximately 25 million tons. Therefore, the application of this by-product to concrete admixtures is becoming urgent. On the other hand, the maintenance of concrete structures is also a topic of concern in Vietnam. Both by-product admixtures and high-performance chemical admixtures are expected to enhance the durability of concrete structures. The theme of this seminar reflects these situations in Vietnam.

Approximately 150 engineers and researchers attended this seminar. The Vietnamese deputy minister of construction and president of the VCA, Lê Quang Hùng, as well as the vice director of the Department of Science and Technology, the vice president of Vietnam Federation of Civil Engineering Associations and the vice president of Water Resources University attended as guests.

The seminar opened with an address by Mr. Nguyern The Hung (vice president of VCA). Dr. Etsuro Sakai (Professor, Tokyo Institute of Technology) spoke on behalf of the Japanese speakers. Five Japanese speakers made presentations about basic characteristics, the latest Japanese technology, application examples, and standard specifications for concrete admixtures. Dr. Akira Ohta (BASF Japan Co., Ltd.) spoke about chemical admixtures for concrete. Mr. Yasukazu Ueki (Nippon Slag Association and Nippon Steel Sumikin Blast furnace Cement Co., Ltd.) gave a presentation on blast furnace slag. Dr. Takeshi Yamamoto (Central Research Institute of Electric Power Industry) gave a presentation on fly ash. Prof. Etsuro Sakai gave a presentation on silica fume. Dr. Shingo Asamoto (Associate professor, Saitama University) introduced the JSCE standard specification for admixtures.

Three speakers from VCA made presentations. Mr. Kim Jong Son (Silkroad Vietnam) introduced their admixture product and the development technology behind it. Ms. Naguyen Thi Thu Huong (Water Resource University) gave a presentation on general knowledge regarding the applicability of admixtures for marine structures. Mr.

Nguyen Duc Phuong (Denki Kagaku Kogyo) talked about the application of expanding admixtures in Japan.

During the discussion period, many topics of high concern for Vietnamese engineers regarding developing technologies were discussed. These topics included a new theoretical chemical admixture for use as an accelerator, agendas for Vietnam to establish design codes on the durability of concrete structures built using admixtures, mix design and strength design specifications for high-strength concrete, the consideration of admixture reactions when verifying thermal cracking, and so on.

In the seminar, VCA stated its intentions to continue holding joint seminars and enhancing technological exchanges in order to consolidate their standards. The joint seminar ended in great success.

【Reported by Concrete Committee】

>>Seminar program download
(http://www.jsce-int.org/node/370)

JSCE-VCA Joint seminar opening

Group photo of the JSCE-VCA Joint Seminar Speakers

What's Happening

2015 JSCE Annual Meeting at Okayama University

◆**2015/9/16**

●International Roundtable Meeting "Leveraging Big Data for Infrastructure Management and Sustainable Development"
(http://www.jsce.or.jp/event/active/information.asp)

●International Workshop for Young Engineers "Why Did You Come to Japan?" -expectation, reality and future-

●Special Discussion "Message to the Japanese Civil Engineering / Construction Industry from Former International Students who Studied in Japan"

◆**2015/9/16-17**

●The 17th International Summer Symposium

Updates

・The summary of feature articles in the JSCE Magazine is available on the JSCE website.
http://www.jsce-int.org/pub/magazine

・Concrete Committee International Newsletter No. 42
http://www.jsce.or.jp/committee/concrete/e/newsletter/Newsletter.htm

・Journal of JSCE
The Journal of JSCE is the collection of research papers which can be viewed on the JSCE website.
https://www.jstage.jst.go.jp/browse/journalofjsce

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Editor's postscript

I went to Izu in the summer vacation. I am caught in heavy traffic congestion every year. Therefore, I made my trip plan to avoid traffic congestion in reference to a traffic congestion prediction of NEXCO. Fortunately, I was able to drive comfortably. I realized importance of the information.（H.U.）

[Comments and Questions] JSCE IAC: iac-news@jsce.or.jp

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