



# Japan Society of Civil Engineers International Activities Committee Newsletter

No. 29, July 2009

June 2009- May 2010

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## Greetings from President of JSCE



*KONDO Toru  
President*

I was elected in May this year as the president of JSCE for the 2009/2010 term.

I have worked at the sites of rivers, dams, disaster and construction administration in the Ministry of Construction (currently the Ministry of Land, Infrastructure, Transport and Tourism).

After retirement, I participated in the founding of the Ecology and Civil Engineering Society (ECES), which is a society to advance the inter-discipline sciences across ecology and civil engineering. Now I support its activities as a vice-president.

Now, I think that civil engineering is used as the generic name for technology to enjoy safety and affluent life.

In Japan, we will face many challenges in the society and nature. In these situations, civil engineers have to clear up their roles and to tell to civil engineers who are responsible for the next generation, when they resolve the challenges occurred by nature and society. Through doing these activities, it will be possible to recognize importance of civil engineering to the people.

## **Announce of 2009 JSCE Annual Meeting in Fukuoka -International Programs-**

The Annual Meeting will feature the international programs focusing on current issues surrounding the civil engineering profession. All registrants of the Meeting are cordially invited to the following meetings. Please take this opportunity to listen to distinguished professional civil engineers from home and abroad.

**Venue: Fukuoka University, Nanakuma Campus,**

### **1. International Roundtable Meeting**

Topic: *"Cross-Disciplinary Collaboration and Technological Progress"*

Date: *Wednesday, 2nd September*

Time: *15:00-17:00*

Venue: *Room 5, 15F, Humanities and Social Sciences Center*

### **2. WFEO-JFES-JSCE Joint International Symposium - Disaster Risk Management**

Date: *Thursday, 3rd September*

Time: *9:00-12:00*

Organizers: *WFEO, JFES, JSCE*

Venue: *Room 5, 15F, Humanities and Social Sciences Center*

### **3. International Session**

Date: *Thursday, 3rd September*

Time: *9:00-12:15*

Venue: *Room 842, Classroom Building 8*

*\*For more information:*

*[http://www.jsce-int.org/event/2009/annual\\_meeting/international\\_programs.shtml](http://www.jsce-int.org/event/2009/annual_meeting/international_programs.shtml)*

## **Announce of 11th International Summer Symposium in Tokyo**

The International Summer Symposium provides a platform for international students and engineers to present, discuss and exchange their research interest in English. International students and engineers are strongly encouraged to participate in the Symposium. From last time, full papers will be reviewed. (Note: International students and engineers include Japanese, overseas students and engineers who are interested in international activities.)

Organizer: The International Activities Committee, JSCE

Date: September 11, 2009

Venue: Tokyo Institute of Technology, Tokyo

Registration fee: Participants are charged 2,000 yen for registration.

## **Joint Seminar in 2009**

In this year, Joint Seminars will be held in Nepal and Greece with support from International Scientific Exchange Fund, JSCE.

JSCE has Agreements of Cooperation (AOC) with 26 counterparts around the world. Joint seminar is one of collaborative activities with the AOC counterparts, to exchange information with them to better serve the members and civil engineering profession and to contribute to building better infrastructures, a better quality of life for present and future generations.

International Activities Committee (IAC) plays a major role to organize joint activities in cooperation with committees in Research Division of JSCE. Since 2004 the IAC has received support from International Scientific Exchange Fund, JSCE.

In this year, the joint seminars are as follows:

1. JSCE-NEA Joint Seminar on Construction Management

Date: *September 21-23, 2009*

Venue: *Kathmandu, Nepal*

2. JSCE-TEE Joint Seminar on Concrete Engineering

Date: *November 20, 2009*

Venue: *Athens, Greece*



*Photo of Joint Seminar in 2008*

*\*These seminars' information will be updated.*

Please check the latest information at JSCE English Website: *<http://www.jsce-int.org>*

## Report of International Symposium on Preservation and Development of Great Mekong Sub-region and International Support

An international symposium introducing the people living around the Great Mekong River, and his technical, cultural assistances about the preservation and development of Great Mekong Sub-region support was open on April 9, 2009 at Tokyo JSCE hall.

This Symposium was organized by JSCE, ACECC, and supported by Public Works Research Institute, University of Yamanashi.

This Symposium covered currently the environmental, cultural, and preservation of The Mekong river his international activities. And through the sponsored by JSCE/ACECC, one aimed at human resource development, disaster prevention lecture and discussion through international cooperation concerning use of the river valleys and control of better understanding.

Symposium begins with the greetings given by the present President of JSCE Dr. Kayahara, and invited speaker Prof. Tambo (former JSCE President), entitled "World Water Resources", and the uneven distribution of water resources of the world was explained the need for water supply for system aiming at the century of the current crisis situation, new water-energy and the resource consumption. Titled "Capacity building & International Support", "Valley development, disaster prevention and international support" and 5 name speakers (Thailand, Laos, Cambodia, Myanmar and Japan) speeches and discussions.

Themes of the Symposium were:

- Water resources and international support
- World heritage and international support
- Capacity building and international support
- Sub-region development and international support
- Disaster prevention and international support

and the Symposium program were as follows,

### Morning Session (9:00 – 12:05)

- Opening Ceremony
- Special Lecture

**Norihito Tanbo**, *Professor emeritus of Hokkaido University*: Water aquatic environment

- Session I: Water resources, capacity building and international support

**Hiroshi Ishidaira**, *Yamanashi Univ.*:  
Evaluation of the amount of water

resource in the Mekong Basin with the distributed hydrological model.

**Chhouk Chhay Horng**, *Institute of Technology of Cambodia*: Water Resources and International Supports

**Sanda Thant**, *Mekong Institute*: Capacity Building Programs in the Greater Mekong Subregion and International Supports.

### Afternoon Session (13:30 – 17:40)

- Session II: World heritage and International Support

**Shinobu Yamaguchi**, *Tokyo Institute of Technology*: Use of information technology for sustainable development and management of the heritage town of Luang Prabang, Lao PDR

**Ricardo Favis**, *UNESCO*: Community Empowerment in Heritage Conservation and Management in the Greater Mekong Sub-Region

- Session III: Sub-region Development and Disaster prevention and International Support

**Tadashi Yamada**, *Chuo Univ.*:

**Pornwilai Pumira**, *Mekong Institute*:

**Vimane Phoummavong**, *National University of Laos*: New Lao infrastructure development plan and current Lao Professional staff development

**Katsuhito MIYAKE & Kazuhiko Hukami**, *Public Works Research Institute*: ICHARM activities concerning capacity building on disaster prevention on a local community scale in the Mekong river basin.

- Summary and ACECC TC Report

**Osamu Kusakabe**, *Tokyo Institute of Technology*

- Closing address



Lectures and organizing committee members

by Ellen Wang, Secretary,  
Committee on ACECC, JSCE

## ICE Brunel International Lecture Series came to JSCE



Mr. Peter Head

The ICE Brunel International Lecture Series were convened at the JSCE auditorium on June 15, 2009, co-hosted by ICE and JSCE.

Since 1999, the lecture series have been held in key cities every year, and leading British engineers have delivered presentations on various challenges facing society. The name of the lecture series was named after the great 19<sup>th</sup> century engineer Isambard Kingdom Brunel, who was voted one of the greatest Britons in 2002.

On that day, one hundred and nine people assembled in the JSCE auditorium to listen to Mr. Peter Head, out of which twenty-three were from ICE. The lecture began with the opening remarks delivered by Dr. Toru Kondo of the JSCE president, Mr. Gordon Masterton a former ICE president and Dr. Alan Burden who gave the background of the Brunel Lecture and the lecturer Mr. Head respectively.

Mr. Head OBE an ICE Fellow and Director of Arup presented his unique views and opinions on the development of infrastructure, policy, legislation and the role of engineer to tackle the problems caused by

the growing threat of climate change and burgeoning world population.

His speech lasted one and a half hours including a question and answer session in the end. The lecturer addressed to the audience directly and it listened to him keenly: the two parties expressed each other's ideas freely from the British public's attitudes toward nuclear power, how to manage construction materials such as concrete and steel, the enforcement and influences of City Planning Law and to the needs for leadership in urban areas.

After the exchange made between the above two, Mr. Masaaki Yamamoto a JSCE board member delivered a closing remarks in which he mentioned the past ICE-JSCE relationship and wished that relationship would be strengthened in the future.

It was the very end of the event when Mr. Head and others including JSCE President had their photos taken.

Last, it should be added that the ICE visitors and JSCE members had a meeting before the lecture on that day. The participants were Mr. Masterton, Dr. Burden, Mr. Yamamoto, Prof. Teruhito Yoda Chair of Civil Engineer's Qualification System Committee, Mr. Katayama the manager of International Affairs Section. They talked about JSCE's history, activities, international cooperation in post-disaster activities, Continuing Professional Development (CPD) and professional code of ethics. Also the participants agreed that both ICE and JSCE members could learn a great deal from each other because their countries shared similar urban features and problems and promised to increase their communication.



## Construction of the World Deepest Immersed Tunnel

### - Republic of Turkey, Bosphorus Crossing Railroad Tunnel –

#### 1. Outline of the Project

The Bosphorus Strait is located at Istanbul City in the Republic of Turkey and separates the Asian side from the European side. The strait has a length of about 30km and extends from the Black Sea to the Sea of Marmara.

The road traffic condition of Istanbul is suffering a chronic traffic jam, which causes air pollution to the environment, mainly due to the shortage of the railway network system in the city. The construction of Bosphorus Crossing Tunnel is intended to reduce the air pollution by way of the relaxation of the road traffic jam by introducing the railroad as alternative transport method. The whole project line consists of 11km of the tunnel section with approximately 1.4km of the Bosphorus section, which is built in an immersed tunnel method of construction (Fig. 2). The immersed tunnel section is constructed by connecting 11 tube elements to be placed on the sea bottom and the tube elements are made of steel reinforced concrete with length (135m) x width (15.3m) x height (8.6m) and produced in a dry dock (Fig. 3). The construction site of sea areas has water current of around 3 knots in general, which in case of adverse weather condition reaches to a range of the highest current of 6 knots. The water flow consists of the two-layers having reverse phase in the upper-layer from the lower-layer. In addition,



Fig.1 Location of the Bosphorus Straits



Photo.1 Ceremony for success of Immersion and Connection

the deepest location of the element setting is about 60m under the sea level, which becomes the world deepest immersed tunnel.

Several new technical developments were introduced to overcome the difficult construction conditions in order to lead to the successful completion under such a sever condition, as shown in this report.

#### 2. Immersion and connection success of the world deepest immersed tunnel

On October 11, 2008, with attendance of Mr. Erdogan, Prime Minister of the Republic of Turkey, Mr. Yildirim, Transport Minister and Mr. Tanaka, Japan Ambassador, the ceremony in commemoration of immersion and connection completion of 11 immersed elements (extension



Fig.2 Plan of the Project Line

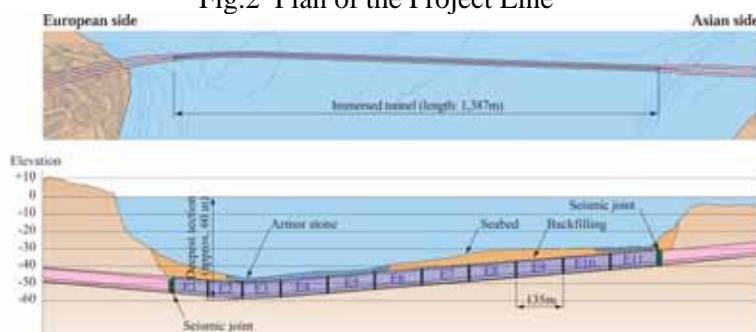


Fig.3 Plan/Vertical of the Immersed Tunnel

1,387m) was performed (photo. 1). The construction of this Bosphorus undersea tunnel was a earnest dream of the Turkey nation since a primary plan was accomplished about 150 years ago, as the Prime Minister strongly expressed with excitement and emotion in his speech in the ceremony. During the ceremony, the Prime Minister walked through the immersed element at the depth of 60m under Bosphorus Strait with the press people.

**3. The technical challenge that overcame much difficulty**

It goes without saying that the greatest difficulty of this construction was a continuous high current and a deep depth under the water. Listed below are the main items where the technical developments were introduced to lead the construction to the successful completion by overcoming those difficulties.

*1) Current Velocity (6 knots at the maximum, Stratified current )*

Development of the Current Forecast System, Mobilizing of a Placing Barge specially built for immersion of the elements,



Fig.4 Bird's-Eye View of the Immersed Tunnel



Photo.2 Placing Barge for Immersion

*2) The great depth under the water (60m at the maximum )*

Development of the Underwater Grading Robot ( Photo.3 )

*3) Device of works under lack of the construction yard for elements construction*

Construction in Dry Docks --- the Lower part of the elements

Construction afloat on the sea --- the Upper part of the elements (Photo. 4)



Photo.3 Underwater Grading Robot



Photo.4 Element Construction on the sea (Floating Condition)

*4) Temporary Access Shaft Construction in the sea*

Construction of the temporary access shaft (34m) on the first immersed element for ventilation and supplying materials (Fig.2, Photo.5, 6)



Photo.5 Temporary Access Shaft (Before Connection)



Photo.6 Temporary Access Shaft (After Connection)

5) *Connection method between Immersed Tunnel and TBM Tunnel*

Development of the direct joining method of the immersed tunnel and the shield tunnel Development of the artificial ground (mixture soil mortar)

6) *Security of the international navigation and the local traffic*

Enforcement and measures through the extended risk management for the shipping traffic

7) *Injection Grout under the Elements*

Development of long-distance (1,800m) hauling method of injection grout materials

**4. Closing**

We would like to express our greatest gratitude for the cooperation and encouragement rendered from many people for five years to immersion and joining completion of all 11 elements. In addition, we would like to announce the technology and know-how, which we obtained from this project, positively in order to contribute to the further development of the civil engineering technology.

*KOYAMA, Fumio (Taisei Corporation)*

**Information from Korea Section**

The 13th REAAA(Road Engineering Association of Asia & Australasia) Conference will be held at the Songdo Convensia in Incheon City, Korea from September 23 - 26, 2009.

More than 300 papers from all over the world are expected to be presented under the theme of 'Future Roads - Safer, Greener & Smarter'. The conference will offer a great opportunity to present the results of current research projects, to learn best practices from regional experts and to network with international delegates. This four-day event

Also available on web: <http://www.jsce-int.org/>

will be an international festival providing opportunity to experience various ceremonies and entertainment for road & transportation engineering experts as well as participants. Your kind attention to this conference would be much appreciated and hope to see you in Incheon. Registration for the conference is now available and details are as follows.

- Title : The 13th REAAA Conference
- Theme : Future Roads - Safer, Greener & Smarter
- Date : September 23 ~ 26, 2009
- Registration Period
  - Early Bird : June 30, 2009
  - Standard : July 1, 2009 ~ September 11, 2009
  - On-site : September 23, 2009 ~ September 26
- Registration guide: Refer attached document or visit website ([www.reaaakorea2009.com](http://www.reaaakorea2009.com))
- Organizer : Road Engineering Association of Asia & Australasia, Incheon Metropolitan City, Korea Road & Transportation Association
- Management : Korea Expressway Corporation, Incheon Tourism Organization, Korea Road & Transportation Association, REAAA Korean Chapter

**Registration and Inquires**

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**Information**

**Event Calendar**

**The 11th International Summer Symposium, JSCE**

Date: Sept 11, 2009  
Place: Tokyo Institute of Technology, Tokyo, Japan

\*For more information: <http://www.jsce-int.org/>.

Send your comments and suggestions to: [iad@jsce.or.jp](mailto:iad@jsce.or.jp)  
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