



Japan Society of Civil Engineers

International Activities Center

IAC News No.80

JSCE-ASCE Joint Research for Infrastructural Resilience

With the passing of the Heisei era, the new era of Reiwa has now begun. Japan has experienced numerous natural disasters on a scale that is difficult to describe -examples being the 1995 Great Hanshin-Awaji Earthquake and the 2011 earthquake off the Pacific coast of Tōhoku . In the year of 2018 alone, several disasters including the Northern Osaka Earthquake, the Western Japan Floods, the Hokkaido Eastern Iburi Earthquake, and Typhoon Jebi occurred. Through the Heisei era, we civil engineers were reminded again of the necessity of the strengthening our country against recurring natural disasters. Such national strengthening can only be achieved through the gathering together of its expertise, including its civil engineering technology with all its associated knowledge and understanding. Financial resources will also be required in this endeavor.



Kiyoshi Kobayashi
106th JSCE President

The aim of such strengthening is to achieve a state of "resilience". As a Japan Society of Civil Engineers (JSCE) Special Presidential Project, the author has launched a joint project on infrastructural resilience to be undertaken in collaboration with the American Society of Civil Engineers (ASCE). Here resilience is defined as "the ability, in responding to disaster hazards producing effects at all scales, from the local to the national, both to limit the occurrence of damage and, in the unfortunate event that any such damage occurs, to realize a swift recovery." The national infrastructure, like a system of lifelines, constitutes a huge and complex system. Infrastructural resilience refers to the ability to secure the sustainability of this infrastructural system.

In the event that a disaster strikes, swift recovery of that critical infrastructure forming the lifelines for the city is of vital importance. In particular, socio-economic losses resulting from delays in restoration of supply systems such as for water, gas, and electricity, as well as transportation facilities including railways, roads, ports and airports can be immeasurable. The connecting bridge to Kansai Airport, rendered impassable as a result of Typhoon Jebi on September 4, 2018, was completely restored by April 8, 2019. This connecting bridge was already partially re-opened only 20 days after the disaster. Although the speed of restoration of Japan's infrastructure is internationally renowned, this is no "miracle", as is often reported by overseas media. It is realized through the availability of hard and soft recovery infrastructure, which includes technology, human resources, financial resources, and systems, all aimed towards bringing about a rapid restoration.

On the other hand, even with the infrastructure restored, and the reconstruction processes on track, it takes an extremely long time to rebuild completely the lives of the victims and to regenerate the community. Disaster victims struggle with various problems including those relating to provisions and subsistence, residential housing, physical and mental health, rebuilding the community, childcare and nursing. These problems are collectively linked to the process of livelihood recovery and are addressed through mutual cooperation in spaces for the rebuilding of livelihoods. Furthermore, it should be remembered that, in regenerating a community, it is desirable

to settle that local society's general issues, such as the training of local leaders, amongst residents themselves.

This joint project of ASCE and JSCE aims to systematize hard and soft technologies to support infrastructural resilience, while providing a single evaluation and management framework relating to the various activity-based performance and governance which is involved. Through "visualization" of infrastructural resilience, the author hopes for an opportunity to show the world the preparedness of Japanese society for disasters, the technologies supporting this preparedness, and the direction for its future development.

【Reported by Kiyoshi Kobayashi, President, JSCE】

Introduction to Committee on Underground Space (Part 2)

1. Introduction

Established by the Japan Society of Engineers in FY1994, the Committee on Underground Space carries out analysis and research activities aimed at the efficient use and enhanced convenience of underground space for public use. In this second part of the report, the Committee's promotional activities are described in detail. Following part one, I, Sakai, the Secretary-General of the Committee present the report. The Committee's activities cover a wide range of priorities. The details are introduced in this two-part report.



Kiichiro Sakai (Secretary-General, Committee on Underground Space)

2. Seminars

The Committee proactively holds free seminars based on the results obtained in the research activities to share the findings with the public. As shown in Table 1, the Subcommittee on Maintenance of Underground Space has held Seminars on Underground Space Maintenance; the Subcommittee on Disaster Prevention of Underground Space held Disaster Prevention and Disaster Reduction Seminars on Underground Space; and the Subcommittee on Environmental Psychology in Underground Space held Seminars on Underground Space Comfortable for Citizens across the country. Attendance at each of these seminars has been extremely positive.

Table 1 List of Various Seminars

小委員会	名称	開催日	開催場所	参加者	備考
維持管理 小委員会	富山県土木部技術職員研修	2015年8月28日	富山県教育文化会館	44	自治体維持管理関係者
	第3回福井県道路メンテナンス研修	2015年9月1日	福井県鯖江丹生土木部	52	メンテナンス関係者
	メンテナンス講習会	2015年10月1日	石川県庁	71	自治体維持管理関係者
	第1回地下空間維持管理セミナー	2015年11月6日	長崎大学	58	
	第2回地下空間維持管理セミナー	2016年9月30日	北海道立道民活動センター	70	
	第3回地下空間維持管理セミナー	2017年6月9日	RCC文化センター(広島)	48	
	第4回地下空間維持管理セミナー	2017年10月6日	ハーネル仙台	88	
	第5回地下空間維持管理セミナー	2017年12月20日	岐阜大学 サテライトキャンパス	88	
	第6回地下空間維持管理セミナー	2018年7月20日	愛知県産業労働センター	88	
	第7回地下空間維持管理セミナー	2018年8月24日	金沢工業大学 扇が丘キャンパス	155	
第8回地下空間維持管理セミナー	2018年11月16日	郡山市総合福祉センター	95		

小委員会	名称	開催日	開催場所	参加者	備考
防災 小委員会	地下空間の防災・減災セミナー①	2014年3月14日	関西大学うめきたラボラトリ	50	
	地下空間の防災・減災セミナー②	2014年10月25日	関西大学うめきたラボラトリ	-	
	地下空間の防災・減災セミナー③	2015年2月28日	中部大学名古屋キャンパス	89	
	地下空間の防災・減災セミナー④	2015年10月30日	土木学会講堂	110	
	地下空間の防災・減災セミナー⑤	2016年3月6日	関西大学うめきたラボラトリ	44	
	地下空間防災・減災セミナー⑥	2017年3月4日	中部大学名古屋キャンパス	66	
	地下空間防災・減災セミナー⑦	2017年12月9日	関西大学梅田キャンパス	60	
	地下空間の防災・減災セミナー⑧	2018年12月22日	関西大学梅田キャンパス	72	
心理 小委員会	人によさしい地下空間セミナー①	2016年10月19日	NSRI ホール(東京)	73	
	人によさしい地下空間セミナー②	2017年2月7日	土木学会講堂	61	
	人によさしい地下空間セミナー③	2018年2月21日	土木学会講堂	91	
	人によさしい地下空間セミナー④	2018年4月18日	浅草文化観光センター	50	銀座線見学共
	人によさしい地下空間セミナー⑤	2018年10月3日	土木学会講堂	51	
	人によさしい地下空間セミナー⑥	2019年2月14日	土木学会講堂		



Article on the 8th Maintenance Seminar on Underground Space



The 8th Disaster Prevention and Disaster Reduction Seminar on Underground Space

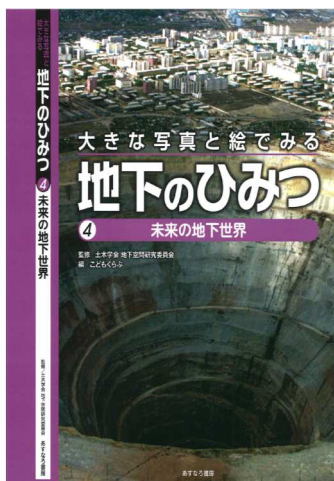
3. Promotional Activities of Underground Space Utilizing the Mass Media

We also focus on promotional activities utilizing various public media as an effective way of transmitting information to society. Since the TV program Dr. Jekyll and Mr. Hyde was broadcast in collaboration with the Committee in April 2008, underground space has attracted the public’s attention. Also, “Minna ga shiritai chika no himitsu (Secret of the underground space that everyone wants to know)”, which was written by the Committee members and published by SB Creative in April 2010, drew much public interest, and is still selling more than 100 e-books annually. Since then, the Committee has received many requests from NHK and commercial TV stations to collaborate on producing TV programs, and from various publishers to write and oversee books. A Committee member is selected to respond to each of the diverse requests. A record of our collaboration with the mass media is shown in Table 2.

Table 2 List of Collaborations with the Mass Media

日付	局	番組名	協力方法
2008年4月14日	テレビ朝日	「近未来予測テレビ ジキルとハイド」 2時間SP いま日本の地下がスゴい！！ 謎の大都市地下空間、一挙大公開スペシャル	製作協力 出演
2012年10月27日	フジテレビ	「リアルスコープ」地下探検SP	製作協力
2013年3月20日	NHK BS	BSプレミアム「探訪 東京地下迷宮」	製作協力 出演
2013年4月10日	NHK BS	「クローズアップ現代 広がる地下迷宮 都市の地下開発最前線」	製作協力 出演
2013年4月18日	FMラジオ J-WAVE	「JAM the WORLD 東京再考」	出演
2014年3月15日	TV神奈川	「みんなで参加・連携 新しい川づくりと地域の安全のために」	製作協力 出演
2015年7月20日	NHK	「プラタモリスペシャル 東京駅〜巨大地下空間は歴史の生き証人!?〜」	製作協力 出演
2015年8月5日	NHK	「あさイチ」「夏の自由研究 びっくり！地下ワールド」	製作協力 出演
2016年12月1日	NKH	時論公論	製作協力

日付	出版社	書籍名	協力方法
2010年4月25日	ソフトバンククリエイティブ	サイエンスアイ新書 「みんなが知りたい地下の秘密」	執筆、出版
2013年5月11日	宝島社	別冊宝島1995号「潜入！ TOKYO地下ダンジョン」	編集協力 インタビュー掲載
2013年9月3日	都市出版(株) 東京人編集室	月刊誌「東京人」10月号 特集「東京アンダーグラウンド 地下に伸びる都市」	編集協力、記事執筆、親子見学会取材
2015年2月28日	こどもくらぶ	「大きな写真と絵でみる 地下のひみつ」 第1巻：人間の地下活用の歴史 第2巻：上下水道・電気・ガス・通信網 第3巻：街に広がる地下の世界 第4巻：未来の地下世界	記事監修
2015年12月1日	小学館	小学校1年生	記事監修
毎年	日刊建設通信社	夏休み親子見学会記事	見学会参加
2017年5月13日	朝日新聞	「be on saturday」地下特集	記事協力
2018年11月16日	小学館	こども大百科 もっと大図解	記事監修
2018年	ミネルヴァ書房	日本の地下街	執筆中



Courtesy of Jiji Koron, NHK (Collaboration on Program Production)

Examples of Books Written Under the Supervision of the Committee

4. Conclusion

Twenty-four years have passed since the Committee on Underground Space was established. Over the years, the environment surrounding the utilization of underground space in Japan has changed dramatically. The direction of improving underground space has also changed greatly due to the formulation of laws such as the Law on Special Measures for the Public Use of the Deep Underground and the Act on Promotion of Smooth Transportation, etc. of Elderly Persons, Disabled Persons, etc. In recent years, the floor-area ratio has increased, utilizing new systems such as Special Districts for Urban Regeneration and the multi-story road system, with a large number of roads and buildings becoming multi-layered. Recent city plans involve the entire area of the district, including the ground and surrounding buildings, as well as underground development. Development beyond the traditional concept of underground space has started. However, Japan is prone to natural disasters, and the Hokkaido Eastern Iburi Earthquake of September 2018 is still fresh in our memory. Earthquakes occurring directly beneath the Tokyo Metropolitan Area and earthquakes linking Tokai, Tonankai and Nankai are predicted in the near future. In addition, underground inundation events caused by abnormal weather are reported across the nation. To minimize the damage of such events, not only hardware-side but also software-side responses are essential. In the Committee on Underground Space, we would like to strengthen the idea of disaster prevention efforts from the perspective of both sides so as to create underground space that people feel they can use safely.

【Report by Kiichiro Sakai (Tekken Corporation), Secretary-General,
Committee on Underground Space】

Student Voice Chang Hsiang-Chuan, Waseda University

I am Chang Hsiang-Chuan, now studying in the first year of my doctoral course at Waseda University in Tokyo. I am from Taiwan and had my education from elementary school until university in Taiwan. I graduated from Department of Engineering and System Science in National Tsing Hua University with a bachelor degree. Then I went to U.S.A. for a two-year master program in Department of Mechanical and Aerospace Engineering at Florida Institute of Technology. However, now I belong to transportation planning laboratory, and my research topic is related to Light Rail Transit (LRT) and other public transportation systems.



Chang Hsiang-Chu
(Waseda University)

Actually, it was a very difficult challenge to change my study place from U.S.A. to Japan. My grandfather and my mother both obtained their doctoral degree in U.S.A., so they insisted that I should continue my study in U.S.A. Nevertheless, I enjoy the life style in Asia more and I thought that Japan could also provide me with good time in not only research experiences but also intercultural experiences. As a result, I firmly decided to come to Japan for my doctoral study. Now I feel the decision I made three years ago was a right and great choice.

Firstly, I would like to share my university life in my laboratory with members. Most members in the laboratory are Japanese students; hence, it was difficult to get closer when I first joined the laboratory since my Japanese was very poor when I came to Tokyo. Although Japanese people are very shy and not so willing to use English, they are very kind to foreign students and help me a lot even carrying on communication in only English or Japanese is not easy. So now, I have many friends in the laboratory, we keep in contact and often get together even after their graduation. My professor is very kind to me and the relation among all the members is very good, that makes my life in the laboratory happy.



Went to Vietnam for International Conference with Members in Laboratory.

Another thing I would like to mention is Japanese language. Definitely, it was a barrier when I first came to Japan because most staff in restaurants or stores could not speak English well. Nevertheless, that situation made me even firmly decided that I should study harder for Japanese language, so I can have good communication with Japanese people. Instead of giving up, I started to take some courses in the language center of Waseda University. In addition, I tried to use Japanese language by all the opportunities I had. That is to say, when I talked to members in the laboratory or staff in stores, I used only Japanese if possible. That helped me a lot improve my listening and speaking skills. Although being still far from perfect, I can make many conversations with Japanese people now.



Mountain Takao

The Japanese culture is very charming to foreigners. Although, in Taiwan, most people also think that is important to be polite to other people, Japan stands at a higher level. Especially, the service industry is impressive since their attitudes and services are always so well trained and great. The Japanese festivals and other events are very interesting, too. The drinking party is another Japanese culture that I like very much. Because I enjoy drinking very much, I often join drinking parties in the laboratory in which students or graduate from the laboratory join. In addition, I often go drinking parties with friends in the laboratory. In those drinking parties, I gain a great chance to practice Japanese and come close to Japanese people.

The last reason that I enjoy here is that my hobby also fits well. Because I like travel very much, and Japan has many good spots. The planning and information of travel industry are always fantastic here, making it easier and enjoyable to travel in Japan. I am planning to complete the goal of traveling around all the 47 prefectures in Japan. Another hobby I enjoy is watching baseball games. I often went to baseball games in Taiwan and U.S.A., but I have found there are some special and interesting baseball cultures in Japan. For instance, the ways that baseball fans support their team are very special. There are many songs to support



With Beer Girl in Metlife Dome in Saitama

each baseball player and there will be lucky seven events during 7 innings to sing a song and play balloons. In addition, cute girls selling alcohol at baseball stadiums make it more interesting to enjoy baseball games in those stadiums.

In conclusion, I think Japan is a great place if you have interests and opportunity to study abroad. Not only the traditional Japanese culture, but Japan also has many international cities so you can enjoy the diversity of the different culture here too. If you are a person really like intercultural life, do not hesitate to come to Japan!

【Report by Chan Hsiang-Chu (Waseda University)】

The Asian Civil Engineering Coordinating Council (ACECC) 36th Executive Committee Meeting in Tokyo

1. Overview

The 36th Executive Committee Meeting (ECM, the supreme decision-making body of the ACECC) was held at the JSCE Hall in Yotsuya, Tokyo on April 15, one day before the Civil Engineering Conference in the Asian Region (CECAR) which is held once every three years. After CECAR7 (held in Hawaii) until CECAR8 (held this year in Tokyo), the ACECC had been administered by the administrative organization in which Japan Society of Civil Engineers (JSCE) plays a leading role. The administrative organization is comprised of ACECC Chairperson



Executive Committee Meeting

Osamu Kusakabe (president of the International Press-in Association), Secretary General Kenichi Horikoshi (Taisei Corporation), Planning Committee Meeting Chairperson Mitsu Okamura (Ehime University) and Technical Coordination Committee Meeting Chairperson Masaaki Nakano (Nippon Koei Co., Ltd.). The 36th ECM became their final ECM.

This article describes the main matters that were discussed and reported at the Planning Committee Meeting (PCM) and the Technical Coordination Committee Meeting (TCCM) and approved at the ECM.

2. Planning Committee Meeting (PCM)

(1) Federation of Myanmar Engineering Society Joining ACECC

As the Federation of Myanmar Engineering Society (Fed. MES) expressed a wish to join ACECC, we invited Fed. MES to attend the current ECM as an observer. At the PCM, the representative gave an overview of Fed. MES and it was approved as a member organization representing the 14th country joining ACECC.

(2) Future Leader Activity

A plan for the Future Leader Forum (FLF), where young engineers from Asian countries come together to share information and best practices and participate in ACECC activities, was drafted three years ago. However, due to reasons such as personnel change of the person in charge, the FLF has not held its workshop in recent ECMs. In the previous ECM held in Melbourne, Mr. Sohali Bashir of IEP (Pakistan) became the new leader, who will be running the workshop henceforth. At the current PCM, it was reported that a framework is being considered

that can support substantial activities; and such framework may be created by, for example, establishing FLF as a permanent meeting like the PCM or TCCM. Regarding these matters, it was decided that practical plans will be proposed and discussed at the next ECM.

(3) Tokyo Protocol

With regard to the final draft of the ACECC Tokyo Declaration 2019, which is signed by all presidents of the member academic societies and announced at the CECAR8, ACECC Secretary General Horikoshi provided explanations. This declaration, signed at the Presidential Meeting which was held on the first day of CECAR8, was made by JSCE President Kobayashi on the last day of CECAR8.

3. Technical Coordination Committee Meeting (TCCM)

At TCCM, the activities of all 11 committees that are currently under way were reported, and the contents of the report were approved. Among those activities, a report on T16 (Technical Committee concerning ITS for resolving urban city traffic problems) and TC21 (Technical Committee concerning disaster reduction/prevention), in which JSCE plays a leading role, was delivered.

At this year's ECM, "ACECC Technical Committee on the guidance of civil infrastructure practitioners in the design and construction of stabilized pavements in the Asia-Pacific region" was proposed (by the Engineers Australia) as a successor to TC11 which had already ceased activities. This was approved as TC25.

At the end, TCCM Chairperson Nakano delivered a management report on the creation of guidelines for TC activities that have been conducted during his 3-year term of office, website making for each TC, establishment of the Technical Committee Activity Award in CECAR and a status summary of each TC, etc. Thanks to the efforts made by Chairperson Nakano, there have been signs that TC activities have become more active during the past few years. The Committee on ACECC hopes to provide backup, so that the TCs led by JSCE can continue to carry out exemplary activities.

4. Executive Committee Meeting (ECM)

At ECM, renewed approval of ECM was confirmed concerning the matters that had been approved by PCM and TCCM. A general overview of CECAR8 was presented by Secretary General Makoto Kimura (Kyoto University) of the Local Organizing Committee for CECAR8.

With the end of CECAR8 the administrative role will transferred from JSCE to ICE, India. So, at the end of ECM, the newly-appointed ACECC Chairperson, PCM Chairperson and TCCM Chairperson selected by ICE, India were introduced. Current ACECC Chairperson Osamu Kusakabe, (president of the International Press-in Association) made his resignation speech. He, PCM Chairperson Okamura and TCCM Chairperson Nakano received "thank you" gifts from the ACECC Executive Secretariat.



ACECC Chairperson Osamu Kusakabe Delivers His Resignation Speech

5. Conclusion

The Committee on ACECC, which has conducted activities for about three years from the end of CECAR7 in September 2016, will be reset for now along with the end of CECAR8. We will make efforts to create an environment where more substantial activities can be conducted. We will encourage young members and female members to play leading roles while maintaining the sustainability of Committee activities on ACECC, and

strengthen collaboration with the JSCE International Activities Center.



All Participants of Executive Committee Meeting

【Reported by Jun Izawa, Secretary General, Committee on ACECC】

Updates

- ◆ Civil Engineer's Lounge "DOBOKU" (June 17)
<http://committees.jsce.or.jp/kokusai/>
- ◆ Japanese Civil Engineers the Global Leaders Symposium Series No.14 (August 28)
<http://committees.jsce.or.jp/kokusai/>
- ◆ The 21st International Summer Symposium (September 3-4)
<http://www.jsce-int.org/node/592>
- ◆ The International Infrastructure Archives
– A Compilation of Japan's Greatest Projects in Transfer of Civil Engineering Technology in Service –
<http://www.jsce.or.jp/e/archive/>
- ◆ Asian Civil Engineering Coordinating Council (ACECC) International Newsletter
<http://www.acecc-world.org/newsletter.html>
- ◆ IAC "News Pick Up!!" on the JSCE Japanese website
<http://committees.jsce.or.jp/kokusai/node/118>
- ◆ Summary of featured articles in JSCE Magazine Vol. 104, No.6, June 2019
<http://www.jsce-int.org/pub/magazine>
- ◆ Journal of JSCE
<https://www.jstage.jst.go.jp/browse/journalofjsce>

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