

IAC News No.89

Technical Cooperation by Establishing Paving Technical Standards in Myanmar

In recent years, the international development of Japan's construction technology has been strongly promoted under the leadership of its government. As an example of international development in the field of paving technology, the following introduces a technical cooperation project that, through utilizing the JICA's Grassroots Technical Cooperation Projects, has been undertaken since 2012 by NPO International Infrastructure Partners with the full support of the Japan Road Association with the goal of establishing paving technical standards in Myanmar.

This project was kick started by Mr. U Han Zaw (currently the Minister of Construction of Myanmar), whom was chairman of Myanmar Engineering Society of when he participated in the 2011 Road Conference, requesting that Myanmar also create its own paving technical standards with the cooperation of Japan. The project was initiated by International Infrastructure Partners (JIP) in 2012 by utilizing JICA's Grassroots Technical Cooperation Projects. From a technical perspective, the project received the full support of the Japan Road Association's Pavement Committee, and in Phase 1, implemented from 2012 to 2014, a technical manual was created for the penetration macadam method, which has been widely implemented in Myanmar, in reference to the Japanese Handbook for Asphalt Pavement. In Phase 2, which has been implemented since 2016, a technical manual was created for so-called high-grade pavement in Japan that uses a plant-produced heated asphalt mixture and ready-mixed concrete. Both manuals were translated into Burmese based on the high acclaim and expectations of everyone on the Myanmar side, and the translated text was printed side-by-side with the English text before binding it as a book.

As a result, Myanmar's unique paving technical standards have been established based comprehensively on Japanese technology, and in the future it is expected to greatly contribute to the establishment and maintenance of pavement in Myanmar, which has huge development needs.

In this project, a test paving was implemented in Myanmar based on the content of each manual. With the test



<Non-Profit Organization Japan Infrastructure Partners (JIP)>

Kouji Kaminaga
(President)



Hidenori Yoshikane
(Myanmar Road Surface Treatment Technical Committee)

作成したマニュアル

- フェーズ1マニュアル (2014)
Manual on Labor-intensive type Pavement Works for Low-traffic-volume Roads (英語・緬語)
- フェーズ2マニュアル (2018)
• Manual on Pavement Works Using Hot Mix Asphalt and Ready-mixed Concrete (英語・緬語)
- フェーズ2施工手引き (2019)
Handbook on Pavement Works (英語)

「貧困地域における労働集約型簡易舗装工事の持続的な自立実施支援事業」

Result of this Project

paving, we were able to effectively transfer the skills involved by directly teaching the Myanmar engineers and workers about logical and efficient methods such as quality control required for each curriculum of production at plants and construction on site, rather than simply checking the contents of the manual. Furthermore, during the test paving, it was observed that the Myanmar engineers and so forth were still lacking basic knowledge, and so although it was not part of the original plan, on site we also created construction guides (in English) for on-site engineers that clearly show the technical items to be learnt for quality control, confirmation, and efficient construction through the use of photos and the like, and this was later handed to the personnel involved on the Myanmar side. We believe that this guide will significantly improve the skills of engineers in Myanmar.

The results of this project were featured in a seminar hosted by the Japan Society of Civil Engineers on December 17, 2019 where they were explained to over 90 attendees. It received a positive response.



Reconfirmation of Safety Awareness at Morning Assembly

【Reported by Kouji Kaminaga and Hidenori Yoshikane, NPO International Infrastructure Partners】

The 7th Joint Company Information Session in Tokyo 2019

The 7th Joint Company Information Session in Civil Engineering for International Students was held at the Headquarter of Japan Society of Civil Engineers (JSCE) in Tokyo on December 7th, 2019. 54 international students and 9 companies joined it. IAC International Student Network Group has hosted the joint company information session, which is carried out in English, every year since 2013. The session's objective is to provide international students studying in Japan with an opportunity to acquire the knowledge and understanding of the Japanese construction industry, latest technologies, construction companies businesses, their overseas projects, and job recruitments. This year, after a successful one held in Kansai, the 7th joint company information session in Tokyo had participants more than before.



Ji Dang (International Student Network Group, IAC)

《Participating Companies》

TODA CORPORATION, OBAYASHI CORPORATION, HAZAMA ANDO CORPORATION, TOKYU CONSTRUCTION CO., LTD., Eight-Japan Engineering Consultants Inc., Nippon Koei Co., Katahira & Engineers International, Yachiyo Engineering Co., Ltd., Oriental Consultants Global Co., Ltd.

After the host gave the outline of that session at the opening, Mr. Luong Van Binh and Mr. Sabin Singh gave speeches about their experiences as an international student studying at a Japanese university and as a engineering professional working in Japan. They also introduced their companies' overseas projects with simple and clear-cut English.

Next, 4 general contractors and 5 consulting companies delivered a presentation on their company profiles, specialities, and major projects. Some of them used a short video and some invited their international staff members to discuss their businesses. It was most impressive for the participants that those companies had been running business for many years, leading the Japanese construction industry.

Then, Booth Session lasted for two hours. The participants visited company booths and had time to directly talk with the company staff one by one. The company staff listened to the participants about their majoring fields, research projects and interests, and kindly answered their questions.

Many of the participants realized the importance of acquiring Japanese skills if they like to work in Japan in the future. Japanese construction companies generally don't give international students special treatments and scaffolds in the job recruiting and hiring process; thus, it is essential for them to acquire the high-level of Japanese skills. In the meantime, some companies came to realize that it was necessary to review their international recruiting strategies back to office. Both the participants and companies noticed that the Session offered a meaningful and informative opportunity to build commination between them.

Last, I, representing International Students Network Group, IAC, would like to express my gratitude to all the speakers, the companies and the students who attended the 7th Session. Thank you for your continued support.



Mr. Binh Gives a Speech



Company Presentation



Interaction at Company Booth

【Reported by Ji Dang, International Student Network Group, IAC (Saitama University)】

A Seminar in Vietnam to Present the Project to Deal with Concrete in Hot Weather and the Maintenance of Concrete Structure

In December 2019, a half-day seminar to introduce the project related to hot weather concreting and maintenance was held in December 2019 at the National University of Civil Engineering (NUCE) and the Hochiminh City University of Technology (HCMUT) in Vietnam. The seminar is financially supported by a JSPS core-to-core program entitled “Collaborative research network on standardization of design and construction for hot weather concreting based on Asian climate and materials” and one of activities of JSCE infrastructure management technology deployment research. In order to discuss the practical problems of deterioration in concrete structures, the author asked the maintenance master of Japan Railway East, Dr. Yoshinori Matsuda to give a presentation to practical engineers. At the National University of Civil Engineering, the deterioration of the buildings at the university and the bridge pier with large cracks were studied with advice by Dr. Matsuda. At the Hochiminh City University of Technology, Mr. Yuji Mitani of TAIHEIYO CEMENT CORPORATION also gave a presentation of fly ash cement effect on massive concrete in hot weather conditions. Dr. Phan Huu Duy Quoc of SHIMIZU CORPORATION gave a presentation of fly ash application in Vietnam and translated all presentations to Vietnamese in order to discuss with practical engineers in Ho Chi Minh straightforwardly. About 30 participants, mainly students, and about 60 company engineers and more than 40 students and lecturers joined the seminar at the National University of Civil Engineering and the Hochiminh City University of Technology, respectively. In discussion, the cathodic protection method, the countermeasure for large cracks, what occurs when the maximum temperature reaches 71 degrees, the possibility to inhibit ASR and DEF when the alkali in fly ash is high and others were asked by Vietnamese engineers. Since Vietnam has expressed interest in construction issues in hot weather conditions and maintenance related to cracking, it is of importance to discuss the causes of and countermeasure for concrete problems based on the conditions. The author set up a Technical Committee (TC) in Asian Concrete Federation (ACF) to deal with the concrete practices and feasible measures for construction and design in hot weather conditions. The TC aims to develop construction and design standards for concrete in the hot weather conditions of Asia based on the climate and materials through the discussion with researchers and engineers in Asia.



Seminars at NUCE and HCMUT

【Reported by Shingo Asamoto (Saitama University)】

- The Earthquake Engineering Committee - FY2019 Joint Seminar (CECAR8)

1. Overview

We, Earthquake Engineering Committee JSCE, have continued international exchange activities for promoting and exchanging ideas on the ISO23469 (Bases for design of structures-Seismic actions for designing geotechnical works (2005)) with a support of the International Scientific Exchange Fund.

We organized the technical session "Advanced Concept and Implementation of Seismic Design Methods for Resilience Against Intense Earthquake" at the 8th Civil Engineering Conference in the Asian Region (CECAR8) held in Tokyo in April 2019. Also, we held the international workshop "International workshop on seismic design of civil structures"

at the conference room of the Railway Technical Research Institute (RTRI), Kokubunji, Tokyo. We invited four experts on seismic design from overseas (Republic of Korea, Turkey, USA, Republic of Chile) to attend and make presentations on these meetings.



Masayuki Yoshimi
(Secretary-General, the Earthquake Engineering Committee)

2. International Workshop on Seismic Design

On April 16 the day before our Organized Session at CECAR8, we held the international workshop "International workshop on seismic design of civil structures" at RTRI. Five experts made a technical presentation on the current status and issues of seismic design in each country, and gave a lively Q & A session.



The Speakers and Secretary at the Workshop in RTRI.

Dr. Dong Soo Kim (Korea Advanced Institute of Science and Technology: KAIST, Korea) gave a lecture on a new style of pile foundation invented considering seismic response of soils under centrifuge tests. Prof. Beyza Taskin (Istanbul Technical University, Turkey) made a presentation about a newly revised seismic standards in Turkey, and explained that building owners' understanding was essential to resilient society to earthquakes. Dr. Akihiro Toyooka (RTRI, Japan) gave a lecture on the development of earthquake resilient railroad structures improving reparability or redundancy after strong ground motions. Mr. Victor Pabro Diaz (Ministry of Public Works, Chile) gave a talk on Chile's seismic design standards revised in 2017. Dr. Stephen Dickenson (New Albion Geotechnical, Inc., USA) made a presentation about some issues on US design standards for pile foundations on the soft ground, claiming importance of considering non-linear behavior of the ground in evaluation of pile response under diverse input ground motions. After the workshop, a technical guided tour in the RTRI campus was held courtesy of the RTRI.

3. CECAR8 Organized Session

On April 17, the organized session of CECAR8, "Advanced Concept and Implementation of Seismic Design Methods for Resilience Against Intense Earthquake," was held as a 90-minute-long session. Professor Riki Honda (The University of Tokyo, Japan) and Dr. Dong Soo Kim (KAIST, Korea) co-chaired the session. Five technical presentations, four by invited speakers from overseas and the other by Dr. Shojiro Kataoka (National Institute for Land and Infrastructure Management, Japan) were made each with 20 minutes time slot.

Dr. Kim (Korea) gave a lecture on "Evaluation of seismic coefficients for pseudo static analysis of gravity type quay wall by centrifuge tests" and talked about earthquake input to gravity type quay wall using centrifugal model experiments. Mr. Diaz (Chile) gave a lecture on "Seismic design methods for resilience against intense earthquake in Chile" and explained about the damage to bridges due to earthquakes in Chile. Dr. Kataoka (Japan) gave a lecture on "Implementation and new approach for resilience design against extreme events: seismic design of highway bridges in Japan", and showed a concept of ensuring



CECAR8 Organized Session

earthquake resilience of road viaducts. Prof. Taskin (Turkey) gave a lecture on "Strong ground motions to be employed during the design and performance analysis of the building type of structures according to the New Turkish Seismic Code." Finally, Dr. Dickenson (USA) gave a lecture on the performance design of port structures, entitled "Overview of the state of the art in performance-based design of port waterfront structures."

There were nearly 100 participants, and lively questions and answers were exchanged after each presentation.

4. Conclusions

These organized session and workshop were successfully implemented. We could make a strong connection between key experts abroad thanks to these activities. We believe that it become a great asset for future activities for the promotion and enhancement of the ISO23469, or other technical and engineering issues in earthquake engineering. We thank great support by the International Scientific Exchange Fund.

<The Invited Experts>

Dr. Dong Soo Kim, Korea Advanced Institute of Science and Technology, Korea

Prof. Beyza Taskin, Istanbul Technical University, Turkey

Dr. Stephen Dickenson, New Albion Geotechnical, Inc., USA

Mr. Victor Pabro Diaz, Ministry of Public Works, Republic of Chile

【Reported by Masayuki Yoshimi, The Earthquake Engineering Committee (AIST)】

JSCE Taiwan Civil Engineering Heritage Visit

The JSCE Communication and Public Relation Center planned an event titled “Reiwa’s First History, Journey to Civil Engineering Heritage, Visiting Historical Heritage in Taiwan, Let’s Experience Yoichi Hatta’s Wushantou Dam Facilities, Jiufen, and Historical Railway Heritage!” The tour ran for four days from Wednesday, December 4 to Saturday, December 7, 2019.

The main event of this annual tour (seventh time) was special civil-engineering sightseeing and included Wushantou Dam facilities, which was recommended by JSCE as the FY 2009 Civil Engineering Heritage, a boat tour on the Wushantou reservoir, and a supply-channel tour. Participants also saw the special discharge of water from the former



Hideki Ogata (Director of Civil Engineering Literacy Promotion Group, JSCE Communication and Public Relation Center)

outlet, visited the mechanical room, and saw the mold of Yoichi Hatta's bronze statue in the management office of the Taiwan Chia-Nan Irrigation Association. Thanks to the efforts of the Taiwan Chia-Nan Irrigation Association, which was established by Yoichi Hatta and continues to function, friendships were deepened.

Our relationship with the Irrigation Association has continued through events such as the JSCE tour, since it helped us produce the animation film featuring Yoichi Hatta: Batain Lai!! Minami no Shima no Mizu Monogatari. The Ministry of Culture, Executive Yuan of Taiwan Government, Tainan County, private film companies, and many other organizations in Taiwan supported us during the production of the film. In November 2009, before the general release, previews of the film were held in Hsinying, Tainan County and Taipei. Former President Ma Ying-jeou visited the Tainan event, and Former President Lee Teng-hui, Former President of the Executive Yuan Hsieh Chang-ting, and Judy Ongg attended the Taipei event.

Apparently, participants of the visit were surprised and pleased to find that people in Tainan still deeply appreciate the achievements of the civil engineer Yoichi Hatta.

They also learned that Yoichi Hatta, who conducted irrigation projects in Taiwan, is liked by people because of the Taiwanese concept of *insuishigen*, that is, "When you drink water, you have to thank those who dug the well and pass on the fact to your offspring."



Special Discharge of Water from the Former Outlet



Questions and Answers at the Headquarters of Taiwan Chia-Nan Irrigation Association Went on for a Long Time.



FY2019 JSCE Taiwan Civil Engineering Heritage Visit

【Reported by Hideki Ogata, JSCE Communication and Public Relation Center】

Updates

- ◆ IABSE-JSCE 4th Joint Conference, Advances in Bridge Engineering
<http://www.iabse-bd.org/2020/>
- ◆ 【Call for Abstracts】 ASCE Lifelines Conference 2021
<https://samueli.ucla.edu/lifelines2021>
- ◆ JSCE Concrete Committee International Newsletter No. 59
<http://www.jsce.or.jp/committee/concrete/e/newsletter/newsletter59/index.html>
- ◆ jhappy - JICA's Grant Aid Cooperation -
Facebook: <https://www.facebook.com/jhappy20161110/>
Twitter: https://twitter.com/jhappy_official
- ◆ 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/>
- ◆ 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. 105, No.3, March 2020
<http://www.jsce-int.org/pub/magazine>
- ◆ Journal of JSCE
<https://www.jstage.jst.go.jp/browse/journalofjsce>



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