
International research activities

1. International research activities at the National Institute for Land and Infrastructure Management

The National Institute for Land and Infrastructure Management (NILIM) is promoting international research activities based on the following three perspectives.

- (1) Improvement of the quality of research outcomes: The NILIM is strengthening the identification of the trends of overseas technological policies concerning [1] disaster management, mitigation of damage during disasters, and risk management; [2] infrastructure maintenance and management; [3] productivity reform; and [4] improvement of the comfort and convenience of life, which are important research themes of the NILIM to produce research outcomes with high value. Therefore, researchers are actively participating in international conferences to gather a wide range of information. The NILIM is acquiring detailed information about especially important fields using frameworks, such as bilateral conferences and multi-nation joint research projects.
- (2) Export of infrastructure systems: As a part of the government organization, the NILIM is conducting activities based on the policy to export high quality infrastructures to contribute to bringing profits to Japanese companies and vitalize the industries in Japan. These activities are conducted by participating in projects and transmitting information from the planning phase (upstream), application of software infrastructures, supporting companies exporting infrastructures, and bilateral research cooperation with developing countries. The cooperative activities are conducted specifically with Indonesia as a focused country.
- (3) International contribution: The NILIM is dispatching experts to technological cooperation projects that JICA is conducting in developing countries and researchers to restoration support investigations after major natural disasters outside of Japan. The NILIM is also accepting trainees in land development and transport targeting engineers and government officials from developing countries.

2. Main international research activities in FY 2017

Main international research activities conducted in FY 2017 based on the above three perspectives discussed in 1 are introduced below.

(1) Activities related to the improvement of the quality of research outcomes

Researchers of the NILIM participated in the following international conferences to gather the latest information and present information about different research fields.

i. International Maritime Organization (IMO)/Facilitation of International Maritime Traffic (FAL) Committee (UK: April 4–7, 2017)

The Facilitation of International Maritime Traffic Committee of the International Maritime Organization determined to revise the appendix of the Convention on Facilitation of International Maritime Traffic (FAL Convention) in the 40th meeting of IMO/FAL (April 2016) and mandated to digitalize ports and harbors administration procedures to ensure quick processing of administrative procedures concerning the arrival and departure of vessels in ports and harbors. Given this decision, the 41st Conference in April 2017 (photo 1) agreed to revise the entire guidelines for the establishment of ports and harbors administrative procedure processing system and the guidelines for the governments of ratified nations to digitalize the procedures. A communication group (CG) was launched for the entire period of the conference to revise the guidelines. A senior researcher of the Management and Coordination Division of the NILIM was appointed as chairperson of the CG. The CG started discussions in the summer of 2017. As of January 2018, they are discussing how ports and harbors administration procedures should be linked to customs procedures and how inter-system communication should be perceived.

ii. Inter-Jurisdictional Regulatory Collaboration Committee (U.S.: May 7–14, 2017, Singapore: November 11–16, 2017)

Inter-Jurisdictional Regulatory Collaboration Committee (IRCC) was established by building standards establishment organizations of the United States, Canada, Australia, and Japan in 1997. It is examining the development, implementation, and promulgation of building standards to specify building performance (13-member nations today). It is holding regular conferences twice a year. The Housing Bureau of the Ministry of Land, Infrastructure, Transport and Tourism and the NILIM are the Japanese members of the IRCC. In FY 2017, the 42nd conference was held in the United States and the 43rd conference in Singapore. The NILIM reported a major fire in Itoigawa (December 2016) and the fire from a warehouse in Miyoshi-cho (February 2017) and gave a presentation about the promotion of constructing and using wooden buildings (photo



Photo 1: The 41st IMO/FAL Conference



Photo 2: IRCC participating members (the 42nd conference)

- 2).
- iii. International Commission on Large Dam (Czech Republic: July 1–9, 2017)
 The International Commission on Large Dams (ICOLD) was established in 1928. It has installed various committees on the design, construction, maintenance and management, and operation of dams to conduct investigations and research. In the 85th Annual Meeting in 2017, the NILIM gave an oral presentation about some of the outcomes obtained through the development of methods to monitor displacements for wide areas and quick detection of changes in ground and structural characteristics using SAR satellites in the symposium. In addition, in the technical committee, the Committee on Earthquake Problems in Dam Designs, the NILIM researchers reported the outcomes of the analysis of recent earthquake data based on the outcomes of the activities of working groups in the Japan Commission on Large Dams that the NILIM has been participating in.
- iv. Memorial Symposium concerning the Conclusion of Research Cooperation Agreement with Sri Lanka NBRO (Sri Lanka: January 21–27, 2018)
 Upon the conclusion of a research cooperation agreement in the field of landslide disasters between the NILIM and Sri Lanka National Building Research Organization (NBRO), a memorial symposium was held at NBRO. The director of the NILIM gave a keynote lecture at the symposium. In addition, the NILIM and NBRO conducted a joint investigation at the site of a disastrous landslide that killed about 200 people in May 2017 and gathered information concerning the challenges and possibilities of methods of investigation, monitoring, and observation in regions with many undeveloped zones. He also talked about measures to mitigate landslide damage in Japan and research activities at the NILIM and discussed technical challenges to propose methods to forecast the onset of landslides in areas with many undeveloped areas such as in Sri Lanka.
- v. ITS World Congress, bilateral meeting and PIARC Technical Committee TCB.1 Meeting (Canada: October 28 to November 6, 2017)

The ITS World Congress is the largest annual international conference in the field of ITS. The 24th conference was held in Montreal, Canada, in 2017. The theme of the conference was Integrated Mobility Driving Smart City. More than 8,000 people from 65 countries and regions around the world participated in the Congress and engaged in presentations and discussions in more than 250 sessions and demonstrations and exhibits by about 300 participating groups. The NILIM participated in presentations and Q&A discussions in multiple technical sessions. The NILIM researchers held bilateral meetings with the United States, the Amsterdam group, China, and South Korea during the event and exchanged information and opinions concerning ITS technologies. They also participated in the technical committee TCB.1 (committee on road network management and ITS) in PIARC (World Road Association) that was held along with the ITS World Congress.

(2) Activities related to the export of infrastructure systems

The NILIM held an interim presentation concerning research cooperation in Indonesia, the focused country of the cooperative activities. Interim Report on Indonesia IRE-NILIM Research Cooperation (Japan: October 3–5, 2017)

An interim report session to present the outcomes of joint research was held in the city of Tsukuba based on the research cooperation agreement signed between the NILIM and the Institute of Road Engineering (IRE), Indonesia, in November 2009. Both the NILIM and the IRE gave keynote lectures and presented research in five research cooperation fields at the meeting (photo 3). They also participated in technical tours before and after the meeting to observe experimental facilities of the NILIM and the Shuto Expressway Road Bridge Junction among other facilities.



Photo 3: A scene from the interim report session

(3) Activities related to international contribution

In addition to the dispatching of staff to JICA projects (dispatched three staff to the Chile and South America Disaster Management Human Resources Base Support Program) as well as the acceptance of researchers and the dispatch of lectures throughout the fiscal year, the NILIM started to release English versions of technical references on the English website of the NILIM this fiscal year.

The release of the website for English references

The English version of technical references that the NILIM has presented at international conferences and academic societies is being released on the English website of the NILIM to provide knowledge of the NILIM to international society and further accelerate the international exchange of information and opinions (photo 4).



Photo 4: Website of English references (<http://www.nilim.go.jp/english/hottopics/index.htm>)