
International Research Activities

1. NILIM's International Research Activities

The National Institute for Land and Infrastructure Management (NILIM) has been promoting international research activities from the following three perspectives:

- (1) Enhancement of quality of research results: In order to deliver highly value-added research results, NILIM strives to strengthen its capability to keep up with new developments in technologies and policies globally concerning its important research themes, such as disaster prevention and mitigation and crisis management, maintenance and management of infrastructure, and productivity revolutions. Accordingly, NILIM strives to actively participate in international meetings and conferences to collect a wide range of information. In particularly important research fields, NILIM strives to grasp the latest situation in detail by utilizing bilateral meetings and a multilateral framework of research cooperation.
- (2) Exporting of infrastructure technology and systems: As one of the government agencies, NILIM strives to contribute to the benefit of Japanese companies and the revitalization of Japanese domestic industries by engaging in research activities in line with the policy of exporting high quality infrastructure technology. NILIM strives to engage in participation in and dissemination of information of a project from its planning stage (i.e. from its upstream stage), deployment of infrastructure technology, and provision of support to companies trying to export infrastructure technology through bilateral research collaboration with developing countries, especially focusing on collaborative research activities with Indonesia and Vietnam.
- (3) International contributions: NILIM strives to dispatch experts to assist with technical cooperation projects undertaken by the Japan International Cooperation Agency (JICA) in developing countries and researchers to investigate the extent of damage following a large-scale natural disaster in a foreign country to assess the level of assistance required for reconstruction. In addition, NILIM strives to accept trainees under programs sponsored by the Ministry of Land, Infrastructure, Transport and Tourism (MLIT) for engineers and administrative officials in developing countries.

2. Major international research activities in FY 2016

We would like to provide, as follows, some representative examples of NILIM's international research activities conducted in FY 2016 from the three perspectives described in 1 above.

(1) Research activities related to Enhancement of Quality of Research Results

We attended a variety of international meetings and conferences, including the following, to collect and disseminate information on the latest developments in the relevant research fields.

(i) **Asia-Pacific Economic Cooperation Conference's (APEC) Transportation Working Group (From April 4 to April 8, 2016 in Papua New Guinea, From September 5 to September 9, 2016 in Malaysia)**

In April 2016, the Head of Port Planning Division, Port and Harbor Department at NILIM was appointed Chairman of the Maritime Experts Group (MEG), which deals with ports and harbors-related maritime affairs, at the Transportation Working Group, one of APEC's working groups. MEG's major goals are to enhance the abilities of APEC member countries to promote trade and regional economic development in the Asia-Pacific region, and to address environmental issues, among other things. MEG is a forum where views and opinions are exchanged and discussed on a wide range of topics in the field of ports and harbors-related maritime affairs, including how policies should be better coordinated going forward, measures to enhance the abilities of policymakers, how individual projects should be developed and implemented in cooperation among representatives from other APEC member countries and regions, and how to share best practices. MEG's meetings were held twice in 2016. Policymakers and researchers in charge of ports and harbors-related maritime affairs attended the meetings from APEC member countries and regions to exchange opinions and discuss about future global developments in maritime affairs and policy responses, green ports, and enhancement of connectivity of supply chain, among other things.

(ii) **Japan-South Korea Joint Study Meetings on Urban Planning (May 11 to May 13, 2016, in Japan)**

NILIM signed a memorandum of understanding regarding research cooperation with the Korea Research Institute for Human Settlements (KRIHS), the main national land research institute of South Korea, in November 2012. Since then, we have researched and studied, in cooperation with KRIHS, urban redevelopment issues that are common to Japan and South Korea, as well as those unique to each country. On May 12, 2016, the 5th Japan-South Korea Joint Study Meeting on Urban Planning was held at NILIM with the participation of four researchers from KRIHS. The Urban Planning Department members, including the Deputy Director-General and the Director of Urban Planning Department attended this joint study meeting representing NILIM, and presentations were made and opinions were exchanged primarily focusing on regional revitalization and urban disaster prevention. Before and after the joint study meeting, participants conducted joint onsite research on the *Kashiwanoha* Urban Design Center and redevelopment projects for districts surrounding Yokohama Station and for the Toranomon, Yaesu, and Tokiwabashi districts, as case examples of regional revitalization, urban disaster prevention and national strategic special zones.

(iii) **The International Commission on Large Dams (ICOLD) (May 16 – May 19, 2016 in South Africa)**

ICOLD is an international organization founded in 1928. A variety of committees have been established under ICOLD to research and study technologies for the designing, construction, maintenance, management and operation of dams. At the 84th ICOLD annual meeting 2016, based on the results of

research and data collection in Japan, we reported on data of recent earthquakes, including the 2011 off the Pacific coast of Tohoku Earthquake and the results of analysis thereof at the technical committee entitled “Seismic Aspects of Dam Design.” We also made a verbal presentation on external deformation monitoring of five rock-fill dams in data [1] of Synthetic Aperture Radar (SAR) loaded in an artificial satellite at the symposium entitled “Strategies for proper surveillance of dams.”

(iv) **Japan-Switzerland Conference for Sediment Disaster Risk Management Technology (May 27-May 28, 2016 in Switzerland)**

The Japan-Switzerland Conference for Sediment Disaster Risk Management Technology is a bilateral conference held between MLIT and the Swiss government to exchange information on sediment disaster risk management technology, and the first conference was held on May 27, 2016, in Zurich, Switzerland. From NILIM, the Director of the Sabo Department and the Head of the Sabo Risk-Management Division attended the first conference, and they made a presentation on NILIM’s research results on sediment dynamics observation. Information and opinions were exchanged among the participants on the status of occurrence of sediment disasters, surveillance and forecasting technologies, hazard maps and land use planning, and planning and design of Sabo (sediment disaster prevention) facilities, among other topics, in both countries. After the conference, the NILIM members visited and toured hydraulic testing facilities at the Swiss Federal Institutes of Technology, and they visited Sabo and debris-flow control facilities, etc. on May 28.

(v) **ITS World Congress and Bilateral Meetings (October 10 – October 14, 2016 in Australia)**

The ITS World Congress is the largest annual international conference focused on intelligent transport systems, cohosted by three regional ITS associations representing three regions of the world – ERTICO (Europe), ITS America (North America) and ITS Japan (Asia-Pacific). The 23rd ITS World Congress was held in Melbourne, Australia in 2016. The theme of the 23rd ITS World Congress was “ITS – Enhancing Livable Cities and Communities.” On a preliminary basis, more than 11,000 people from 73 countries attended the congress to make presentations and discuss at more than 200 sessions, and 278 exhibitors made product demonstrations and displayed exhibits. NILIM made presentations and had discussions through questions and answers at a total of six sessions. In addition, during the period of the ITS World Congress; NILIM had various sidebar meetings to exchange information and opinions on ITS technologies; including a trilateral meeting with the United States and the European Commission; a quadrilateral meeting with Germany, Netherlands, and Austria; and bilateral meetings with ITS authorities of China and Korea respectively (Photo 1).



Photo 1. Scene from bilateral meeting

(2) **Research Activities related to Exporting of Infrastructure Technology and Systems**

We held workshops twice—in November 2016 and March 2017—with Indonesia, one of the focus countries in terms of bilateral research collaboration.

Japan and Indonesia Research Collaboration Workshop (November 3 to November 4, 2016 in Indonesia)

Based on the Cooperation Arrangement concerning Joint Research and Development in the field of Roads and Bridges between NILIM and the Institute of Road Engineering (IRE) of the Ministry of Public Works and Housing in Indonesia, which was agreed to in November 2009, the 17th Japan and Indonesia Research Collaboration Workshop was held in Bandung, Indonesia. At this workshop, NILIM and IRE reported research activities. IRE made a presentation on measurements of carbon dioxide emissions from two-wheel vehicles running on actual roads, while NILIM reviewed the results of research activities conducted thus far and proposed future plans for collaborative research activities. Also, discussions were held regarding procedures for implementing research collaboration going forward (Photo 2).



Photo 2. Scene from workshop

(3) **Research Activities related to International Contributions**

NILIM dispatched its personnel to JICA projects (in Chile) and accepted trainees or dispatched instructors for a total of 13 training courses through this fiscal year.

JAICA Training Course entitled “Project Management in Infrastructure Development for Civil Engineers” (October 31 to November 1, 2016 in Japan)

Upon request of JICA, NILIM accepted 14 trainees from a total of nine countries, including Afghanistan. NILIM gave lectures on sophisticated management of construction management information in construction projects and operational improvements in construction projects by introducing information and communications technologies (ICT), and it also gave a demonstration on a total station for controlling the progress of work by using actual equipment (Photo 3).



Photo 3. Scene from demonstration