



Contents

- Expert dispatch to the regions devastated by the Great East Japan Earthquake
- New Project Researches in the Fiscal Year 2011
- Technology exchanges carried out by amusement facility experts
—Symposium: Maintenance and Operation of Attraction Facilities which Visitors can Enjoy without Worry—
- Project Research on Restoration of Port and Harbour Environments using Integrated Coastal Management
- The 19th Conference on Public Works Research and Development in Asia
—Ending a series of international conferences dating from the era of the Public Works Institute of the Ministry of Construction—
- Joint Survey and Meeting on Technological Market in INDONESIA
—Report on the 3rd International Conference—
- Joint Survey and Meeting on Technological Market in VIETNAM
—Report on the 2nd International Conference—
- Nationwide Deployment of ITS Spot Services

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Damage Investigation

Expert dispatch to the regions devastated by the Great East Japan Earthquake

Planning and Research Administration Department, Planning Division

Since immediately after the Great East Japan Earthquake of March 11, the National Institute for Land and Infrastructure Management (NILIM) has been dispatching various experts to the devastated regions.

Table 1 shows the number of the dispatched experts up to May 2.

Their missions were to survey and analyze the damage to civil engineering structures, evaluate their safety and provide technical guidance to emergency recovery in response to requests by the headquarters of the Ministry of Land, Infrastructure, Transport and Tourism, regional development bureaus, and local government bodies.

Table 1 Number of Experts Dispatched to the Disaster Regions

Expertise	Total number
Sewage systems	15
Rivers	5
Dams	3
Coastlines	8
Bridges	14
Road disaster prevention	2
Building structures	28
Building fire prevention	5
Airports	3
Ports and harbors	8
Sediment controls	17
Earthquake disaster prevention	5
Total	113

(May, 2, 2011)

The NILIM announced the survey results obtained by dispatching these experts on April 26 at a report session held jointly by the Public Works Research Institute and the Building Research Institute (at the Information Media Center, Hitotsubashi Conference Hall). The event was attended by 597 participants of private corporations mainly in the civil engineering and building construction sectors, regional governments, concerned corporations, and so on. Up-to-date results of disaster surveys will be continuously reported through the NILIM's announcement media such as the web site of the Tohoku Region Pacific Offshore Earthquake page (<http://www.nilim.go.jp/lab/bbg/saigai/h23tohoku/index.html>). Please refer to this site.



View of the Session



Opening Greeting by Nishikawa, Director-General

New Project Research

New Project Researches in the Fiscal Year 2011

Planning and Research Administration Department, Planning Division

In the fiscal year 2011, the National Institute for Land and Infrastructure Management (NILIM) started the following eight new Project Researches in the fields of earthquakes, tsunamis, etc.

Project Researches refer to priority researches which the NILIM organizes and intensively implements in order to support the planning and enactment of policies of the Ministry of Land, Infrastructure, Transport and Tourism. Each Project Research is implemented by a project leader gathering a group of researchers in necessary fields to achieve its goals under an approximately 3 to 5 year plan.

Table of the New Challenges

1. Research on immediate estimation system of tsunami inundation for better disaster response (tentative title)
2. Research on immediate damage estimation technology to improve crisis management for mega-earthquakes
3. Study on introduction of LCA for infrastructure
4. Research to improve the collection, analysis, and application of data obtained by constant monitoring of road traffic
5. Research on the introduction of new technologies to buildings focused on renewable energy
6. Development of existing housing performance evaluation technologies to promote circulation and utilization of housing stock
7. Development of land suitability assessment method for sustainable land use planning
8. Research on restoration of port and harbour environments using integrated coastal management

<http://www.nilim.go.jp/lab/bcg/kisya/journal/kisya110331.pdf> (Japanese only)

Event

Technology exchanges carried out by amusement facility experts

—Symposium: Maintenance and Operation of Attraction Facilities which Visitors can Enjoy without Worry—

Building Department, Standards and Accreditation System Division

As an effort to improve safety of operation and management of amusement facilities, a symposium with a site tour was held with the cooperation of operating companies, which aims to act as an opportunity for technology exchange between experts.

As the people's leisure demands diversify, concern with safety and security is growing. An accident in an amusement facility is likely to have a large impact not only on the lives or well-being of visitors, but

also on the management of the amusement park, the local economy, and on the operation of other amusement facilities.

Because the operation of amusement facilities is basically performed manually, it is necessary for their business managers to secure capable technicians. Also, it is pointed out that the desirable system for safe operation and management may differ according to the scale of operation. Thus there is a good demand for a flow of technical information between concerned parties who operate, maintain and manage amusement facilities.

In this context, following up the event in Tokyo last year, a symposium accompanied by a tour of a maintenance site was held in Osaka on February 23 and 24, 2011 with the cooperation of Universal Studios Japan, aiming to make an opportunity to exchange information between those involved in amusement facility operation. There were 216 participants for the symposium and 160 participants for the site tour. The press covered these events, revealing growing interest in this issue among the public.

Details of the symposium are introduced on the Building Accident Prevention Knowledge Base (<http://www.tatemonojikoyobo.nilim.go.jp/kjkb/>) operated on the NILIM web site. Such initiatives are counted on to encourage further action by amusement facility operators to manage their facilities more safely.

Such initiatives are counted on to encourage further action by amusement facility operators to manage their facilities more safely.



View of the Symposium



Research Introduction

Project Research on Restoration of Port and Harbour Environments using Integrated Coastal Management

Marine and Coastal Department, Marine Environment Division

Research on integrated environmental management methods has begun with the wise use of coastal regions as its goal.

The Marine and Coastal Department is working to technologically support directions in national and regional land-use in harmony with nature and to contribute to the planning, implementation, and evaluation of urban ecosystem restoration, which is the government's aim. It is including (1) technology to clarify and diagnose the state of the environment, (2) technology to promote nature symbiosis projects to conserve, enhance, and restore the environment, (3) technology to evaluate nature symbiosis projects, (4) and to coordinate the dissemination of information about marine and coastal environments, technical support on environmental projects.

The Basic Act on Ocean Policy enacted in 2007 incorporates the

need for integrated management and demands integrated initiatives to conserve and restore the environment while also achieving economic growth. The people's concerns are also turning towards the ecosystem restoration of watersheds (restoration of eelgrass beds and habitats for sweetfish and gobies) along with the appearance of the key words, sato-umi (wise use of coastal environment by communities), regional restoration, and biodiversity.

Coastal restoration projects are being implemented as advanced initiatives aimed at integrated coastal management (ICM) of such coastal regions, and a ten-year restoration action plan has been enacted and is now being implemented, with its target years set as 2013 and beyond, in Tokyo Bay, Ise/Mikawa Bay, Osaka Bay, and Hiroshima Bay.

Research on the conservation and restoration of port and harbour environments through the integrated management of coastal regions began in 2011, in order to help further implementation of the restoration action plan which requires numerous links to and prepare to enact the next action plan. ICM methods (sharing of environmental information, problem resolution processes, project evaluation) are being prepared and developed, and as research to develop technologies capable of achieving a break-through, technologies in coastal restoration initiatives such as those permitting links transcending diverse conflicting interests and goals.

Contents of Research on the Conservation and Restoration of Port and Harbor Environments Through Integrated Coastal Management

Individual contents of research	Targets	Target achievement evaluation	Perspective of methods and concepts
1) Preparation of maps and information tools to be used to promote understanding and sharing of coastal environments.	<ul style="list-style-type: none"> Development of monitoring data visualization technologies Development of NPO and citizen participation type monitoring technologies 	<ul style="list-style-type: none"> Publicizing and obtaining users as a database Increasing the extent of public participation in the bay-wide monitoring campaign. 	<ul style="list-style-type: none"> Ocean weather maps, ocean Google maps, environmental maps Bay-wide monitoring campaign and environmental learning experiences, fishing services, Monitoring Site 1000
2) Development of standard methods for problem resolution processes which reflect the properties of marine environments.	<ul style="list-style-type: none"> Presenting study process sharing method development/concepts for use during planning, design, and execution. 	<ul style="list-style-type: none"> Summarization of findings as a guideline, and obtaining feedback from stake holders regarding whether or not it can be practically used (by holding workshops or seminars). 	<ul style="list-style-type: none"> PCM methods, flexible management, integrated coastline management, concept modeling, port and harbor environment maps, food mileage, communication strategies
3) Development of comprehensive evaluation methods to be used to evaluate integrated coastline region management projects.	<ul style="list-style-type: none"> Construction of individual project evaluation indices (administration → citizens) Development of methods of presenting results of restoration activities etc. in easily understood form (citizens → administration) 	<ul style="list-style-type: none"> Encouraging its use to evaluate projects Encouraging use of the method presented to announce the results of activities by NPO. 	<ul style="list-style-type: none"> Sea-blue projects, blue carbon, biodiversity, and indicator species Ecosystem services, ecological footprints



Conference Report

The 19th Conference on Public Works Research and Development in Asia

—Ending a series of international conferences dating from the era of the Public Works Institute of the Ministry of Construction—

Planning and Research Administration Department, International Research and Promotion Division

Achievements of the conference

The NILIM held the Conference on Public Works Research and Development in Asia from November 16 to 19, 2010 at the NILIM. Held annually since 1992, these conferences have promoted international research relationships in Asia.

This year, delegates from the participating countries of India, Indonesia, and Myanmar gave presentations and took part in discussions on the theme, "Infrastructure development considering global and local environment (for sustainable development of society)".

Professor Mimura Nobuo of Ibaraki University was invited to give the keynote lecture titled, “Impacts and Responses of Climate Change -New Challenge for Infrastructure Management-”. A total of 152 researchers and core administrators from a total of 19 countries participated in past conferences in this series, where Japan’s infrastructure technologies and related policies were introduced to the countries of Asia.

Enhanced New Scheme

The government enacted the New Growth Strategy in June of last year, clearly establishing the Asian Economic Strategy as one of Japan’s growth areas. In this background, the NILIM has decided to end this conference to shift priority from its past activities directed broadly at the entire Asian region to activities focused on bilateral research links, so as to deepen the cooperation in line with individual technological needs of each country.



Group Photograph from the 19th Conference on Public Works Research and Development in Asia



Conference Report

Joint Survey and Meeting on Technological Market in INDONESIA

—Report on the 3rd International Conference—

Planning and Research Administration Department,
International Research and Promotion Division

The NILIM held its third workshop with the Research and Development Center of Road and Bridges (RDCRB) at the Ministry of Public Works of Indonesia for two days: January 25 and 26.

The workshop carried out the final adjustment of road maps for joint research projects designated at the previous international conference as a measure intended to strengthen research links between the two countries, and its participants agreed on specific researches for several years and on the respective role of the two research institutes.

And it was decided to soon arrange field tours and to carry out research on the field of pavement strategy.

- The specified research areas (partial)**
- Road Traffic
Traffic (quantity and trajectory) measurement methods using image processing technologies
 - Road Environments
Evaluating the impact of road environments on motorcycle and automobile traffic
 - Traffic safety
Research on road traffic accident countermeasures by category



Photos of Presentations
(Left: Senior Researcher Sekiya, Right: Senior Researcher Dohi)

- NILIM web site (International Activities)
<http://www.nilim.go.jp/english/coop/conference.htm>



Conference Report

Joint Survey and Meeting on Technological Market in VIETNAM

—Report on the 2nd International Conference—

Planning and Research Administration Department,
International Research and Promotion Division

The NILIM held the 2nd joint workshop for 2 days on February 16 and 17 at the Institute of Transport Science and Technology (ITST), MOT, of Vietnam.

This workshop followed up the first workshop by discussing the preparation of road maps for future research collaboration. And the two institutes discussed establishing four laboratories as requested by ITST (roads, road environment, ITS, port/harbor related).

Based on the discussion at this workshop, the two research institutes reached a conclusion regarding the specification of four research challenges and setting the road maps.

- NILIM web site (international activities)
<http://www.nilim.go.jp/english/coop/conference.htm>

Research Collaboration Items Specified
(1) Research on road noise surveying (to advance these surveys, etc.) (Road environment field)
(2) Research on porous paving and waterproof specular surfaced paving (Paving and bridge field)
(3) Existing tunnel conservation Research on (the Hai Van Tunnel project, report etc.) (Tunnel field)
(4) Research on the evaluation and restoration of port and harbor functions (Port and harbor area)



Facility tour (ITST Danang Branch)

Research Result

Nationwide Deployment of ITS Spot Services

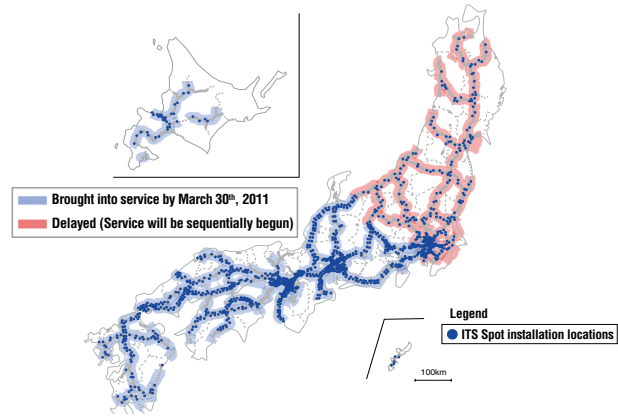
Research Center for Advanced Information Technology
Intelligent Transport System Division

In response to the August 2004 declaration, "ITS For the Second Stage" by the Smartway Project Advisory Committee, the National Institute for Land and Infrastructure Management (below, "NILIM") has been conducting research intended to realize an on-board environment permitting reception of diverse ITS services using a single on-board unit.

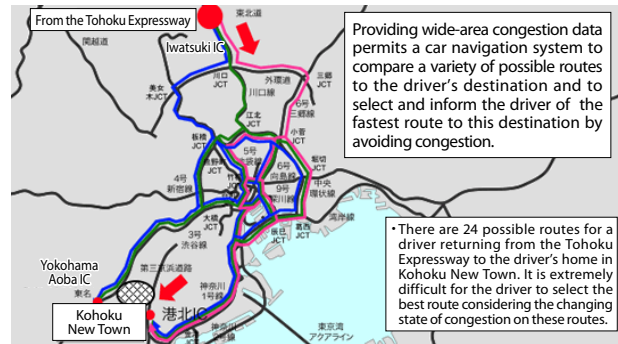
Since February 2005, NILIM has been cooperating with 23 private companies in joint private and public sector research, and based on the results, NILIM has studied the functions etc. of roadside radio systems and on-board units which provide road-vehicle communication services using ITS Spot services (DSRC: Dedicated Short Range Communication). Following large-scale proving tests in 2008 and trial operation on Metropolitan Expressways in 2009, NILIM enacted specifications for equipment used to provide ITS Spot Services in September 2009 (Technical Note of NILIM No. 571).

Based on these specifications, approximately 1,600 ITS Spot facilities have been installed throughout Japan -mainly on expressways, and have been successively brought into service during the period from January to March 2011. However, service in the Tohoku district, Hokuriku district, and part of Kanto district has been delayed due to the impact of the Great East Japan Earthquake of March 11, 2011.

ITS Spot locations offer Dynamic Route Guidance, providing car navigation systems with wide area congestion data permitting these systems to intelligently select routes. They also offer safe driving support services to give drivers advance warnings which prevent near misses during driving.



Locations of ITS Spot throughout Japan



Dynamic Route Guidance

TECHNICAL NOTE of National Institute for Land and Infrastructure Management (January-April, 2011)

No.	Title of Paper	Names of Divisions
596	Report for quality of road runoff	Road Environment Division
607	Research on Control of Odor released from Wastewater pumped from Underground Pit to Sewers	Wastewater System Division
608	Research on structural improvements with damage evaluation for orthotropic steel deck	Bridge and Structures Division
609	Research on New Technology Evaluation for Highway Bridges - Draft of Guidelines for New Technology Evaluation -	Bridge and Structures Division
613	Research on Upgrading of Soundness Evaluation Method for Highway PC Bridge	Bridge and Structures Division
617	4. Noise 4.1 Noise Caused by Road Traffic (Revision of FY 2010) Environment Impact Assessment Technique for Road Project	Road Environment Division
618	The Analysis on the Net Flow OD Matrix of Domestic Unit Load Cargo	Port Systems Division
619	Implementation and future directions of a new legislation From the viewpoint of the transition about coastal zone management	Environment Department
621	Manual of countermeasures against typhoon damage on urban planting trees in Okinawa	Landscape and Ecology Division
623	Landscape and Ecology Division, Annual Research Report (25th)	Landscape and Ecology Division
624	Annual Report of Road-related Research in FY 2009	Road Department, Research Center for Advanced Information Technology
625	THE 19TH MEETING ON PUBLIC WORKS RESEARCH AND DEVELOPMENT IN ASIA	International Research Division

- Documents issued by the NILIM can be viewed at our web site. (<http://www.nilim.go.jp/lab/bcg/siryou/index.htm>)
- NILIM research activities and achievements are now available on the web site (<http://www.nilim.go.jp/lab/bcg/siryou/2011report/index.htm>), as Annual Report 2011.



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