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N I L I M

No.35
Winter 2011

2011 Budget

Overview of NILIM FY2011 Budget for Priority Researches

Planning and Research Administration Department,
Planning Division

The National Institute for Land and Infrastructure Management (NILIM) is funded by the Ministry of Land, Infrastructure, Transport and Tourism (MLIT) as a research institute of the MLIT to perform survey and research projects regarding the development of housing and infrastructures, such as rivers, roads, ports, harbors, and airports.

In addition, the NILIM independently requests budgets to conduct priority researches. In 2011, the NILIM will work on 24 priority researches including the following 7 new researches in 1. to 4. areas.

In 2011, the total value of its priority research budget is 258 million yen (0.86 times last year's), and through its research activities, the NILIM aims to achieve the NEW Growth Strategy and ensure safety and security.

New Researches

1. Research to strengthen international competitiveness
 - Development of new port and harbor planning methods to increase the efficiency of international dry bulk shipping
 2. Research to supply high quality housing
 - Study on new methods of providing housing to secure stable living for the elderly people
 3. Researches on the environment
 - Research on the introduction of new technologies in buildings focused on renewable energy
 - Research on the technology potential of a municipal wastewater treatment plant as a regional resources and energy recycling center
 - Development of land suitability assessment method for city planning
 4. Researches on safety and security
 - Research on immediate damage estimation technology to improve crisis management for mega-earthquakes
 - Research on immediate estimation systems of tsunami inundation for better disaster response
- <http://www.nilim.go.jp/lab/bcg/kisya/index.html> (Japanese only)

Research Achievements

Development of "Specification for the Circulation of Information about Charger Facility for EV and PHV (draft)"

Research Center for Advanced Information Technology,
Information Technology Division

Standardizing information items about charger facility for EV and PHV will realize unified nationwide services such as route guidance based on locations of charger facilities or battery reserves.

In Japan, it is expected that Electric Vehicles (EV) and Plug-in Hybrid Vehicles (PHV) are gradually put on the market because of recent growing concern about problem of global warming. But continuous running distance of EV is shorter than gasoline vehicles, so it is predicted that drivers often charge battery. However there is a problem that drivers don't know where charger facilities for EV and PHV are located, so drivers can't take EV and PHV at ease.

The National Institute for Land and Infrastructure Management is considering

how to collect and provide information about charger facilities by unified format in order to resolve this problem. In this research, we developed "Specification for the Circulation of Information about Charger Facility for EV and PHV (draft)". In this specification, we standardized information items required for collecting and providing information about charger facility. That will realize unified nationwide services such as route guidance based on locations of charger facilities or battery reserves (Figure). So drivers can take EV and PHV at ease. Therefore we can support that EV and PHV are gradually put on the market. In the result, it is expected that environmental loads including carbon dioxide emissions are reduced.

• http://www.nilim.go.jp/lab/qbg/eng/cfi_e.htm

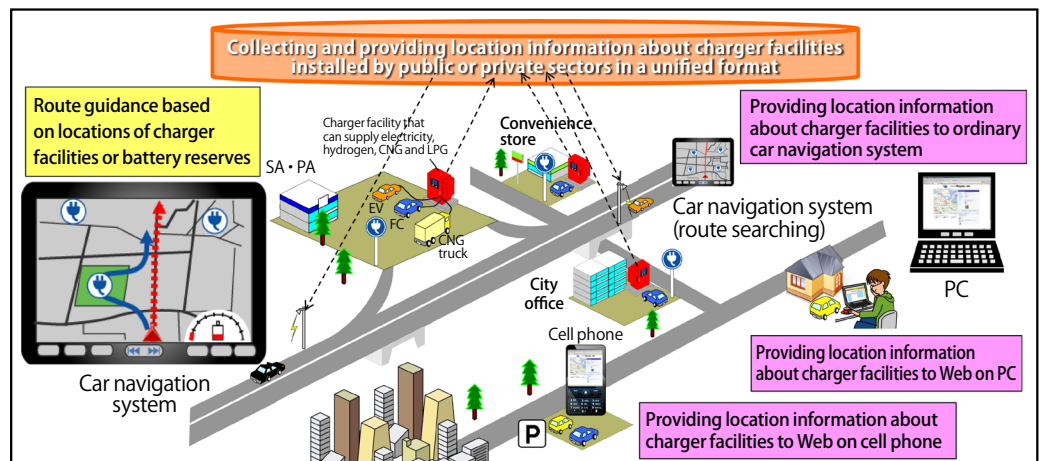


Figure: Image of services by collecting and providing information about charger facilities

Research Introduction

For Promoting Rebuilding to Improve Densely Built-up Areas

- Development of the Supporting System on Making Harmonious Rules for Rebuilding in Densely Built-up Areas -

Urban Planning Department, Urban Development Division
 Research Center for Land and Construction Management,
 Construction Economics Division

Housing Department, Residential Environment Planning Division
 Building Department, Environmental and Equipment Standards Division

To promote the rebuilding of deteriorated housing in order to improve disaster protection and the living environment in densely built-up areas, research and development of simple methods of estimating and evaluating fire safety performance, living environment performance, etc. at the block level in support of making harmonious rules for rebuilding multiple buildings is being carried out.

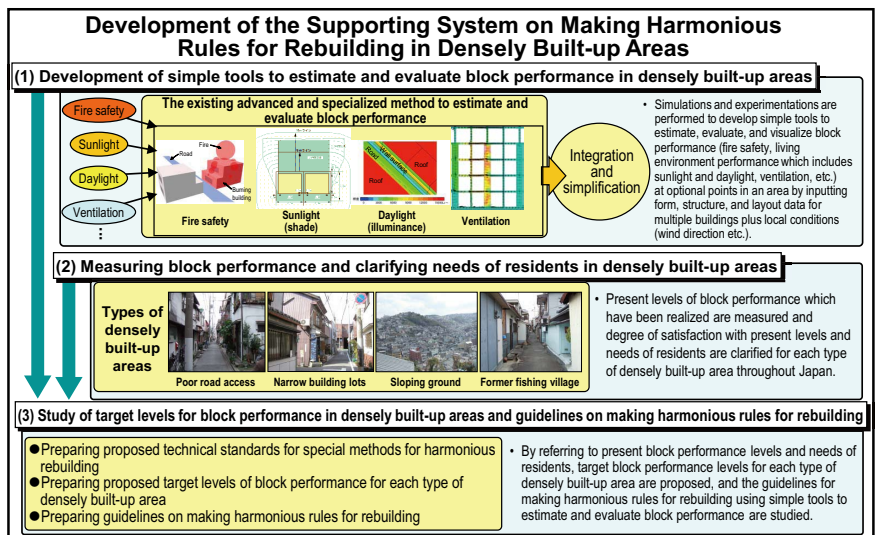
Within Japan, there are many densely built-up areas where the levels of disaster protection and living environments are low, demanding the acceleration of improvement projects. But, because the interior of blocks in densely built-up areas consist of narrow roads and small building lots, restrictions by the Zoning Code under the Building Standard Law (road access regulations, road slant plane restrictions, allowable building coverage ratio restrictions, etc.) are strictly enforced, either preventing rebuilding or reducing building volume below previous scales, so there are many deteriorated wooden houses which are difficult to rebuild under the law, seriously obstructing improvement of such areas.

For such situation, the Building Standard Law provides special methods of inducing and encouraging private sector rebuilding by relaxing or excepting restrictions under the Zoning Code at the block level. These are what is called “Special Methods for Harmonious Rebuilding”, such as the street scenery-improving district planning, the special permission to add to allowable building

coverage ratio, the road designation under Article 42 paragraph 3 of the Law, the combination building design system, the permission based on the proviso to Article 43 of the Law to except road access regulations, and so on. These are not large-scale demolition type joint projects, but the methods of separately rebuilding on each building lot within an area in accordance with local rules which replaces general building restrictions according to performance with the permission and authorization of the Designated Administrative Agency.

This research includes the development of simple tools to estimate and evaluate block performance (fire safety performance, sunlight and daylight, ventilation and other living environment performances) under present circumstances or in cases where harmonious rebuilding rules are applied, the measurement of the actual state of block performance in densely built-up area, the study of the clarification of standards for block performance which should be ensured and the guidelines on making harmonious rules for rebuilding, in order to popularize the use of special methods for harmonious rebuilding intended to accelerate improvement in densely built-up areas. (Period of the research: 2010 to 2013)

• <http://www.nilim.go.jp/lab/jeg/index.htm> (Japanese only)



Steps in the Development of the Supporting System on Making Harmonious Rules for Rebuilding in Densely Built-up Areas

Conference report

Joint Workshop Successfully held on 15th, 16th September in HANOI, VIETNAM

Planning and Research Administration Department,
 International Research and Promotion Division

NILIM held a joint workshop in Hanoi with the Institute of Transport Science and Technology (ITST) of the Ministry of Transport of Vietnam on 15th and 16th in September, last year. The workshop included 5 technological sessions (TS) concerning roads and traffic (related technical standards, pavement management, environmental countermeasures, traffic jam measures, ITS, etc.), where researchers from the both research institutes took part in discussions after making presentations of related policy and technology.

NILIM is to have a second joint workshop in the near future based on the minutes of this workshop to proceed the cooperation and at the same time, clarify the contents of real needs in Vietnam in these technological fields, which is thought will contribute to the Asian Strategy of Japanese central Gov. making the economy into the growth again. See the NILIM web site in details of the workshop. (TS11: pavement strategy, TS12: road traffic and technology, TS21: road environment, TS22: Bridge and tunnel, TS23: port and airport)

• <http://www.nilim.go.jp/english/coop/conference.htm>

Simple outlines of each TS
TS11: (Japan) State and maintenance of pavement, reuse of pavement materials (Vietnam) Pavement technology standards
TS12: (Japan) Road traffic survey methods and ITS technologies using probe data (Vietnam) Present state of traffic congestion and accidents
TS21: (Japan) Air pollution, noise problems, research by the greenhouse effect gases reduction strategy WG (Vietnam) State of domestic disaster occurrence accompanying global warming
TS22: (Japan) Tunnel construction and maintenance methods (Vietnam) Number of bridges and tunnels constructed in Vietnam, and methods of maintaining these bridges and tunnels
TS23: (Japan) Present state and systems for the management of ports and harbors (Vietnam) Port and harbor management systems, obsolete and deteriorated port and harbor structures



Group Photograph

Conference report

International Symposium for Environmentally Friendly Road and Transport Successfully held on 14th, 15th October in BALI, INDONESIA

Planning and Research Administration Department,
International Research and Promotion Division

NILIM held an international symposium jointly with the Research and Development Center of Road and Bridges (RDCRB) in the City of Denpasar (Bali Island) in Indonesia on 14th and 15th in October. This symposium was the second international conference following a workshop held in March of last year. Its theme was Environmentally Friendly Road and Transport in Climate Change –Highways Technology Suitable to Adaptation and Mitigation against Climate Changes for Asia - Pacific Countries–. Researchers and government officials from seven participating nations attended. A joint delegation from Japan formed by members of NILIM, Public Works Research Institute (PWRI), and private companies attended. They also introduced Japan's new infrastructure policy and technology in related sphere to attending countries in Asia and the Pacific. The Declaration, as a summation of the symposium, calling for "future road traffic environment research cooperation," was announced. Also, six cooperative research projects were initiated. (For details, refer to the NILIM web site.)

• <http://www.nilim.go.jp/english/coop/conference.htm>

List of the cooperative research projects

- 1) Guideline Development for Environmentally Friendly Roads
- 2) Guideline Development for Tunnel and Underground structures
- 3) Guideline for: i) Bridge Foundation Scouring Monitoring; ii) Technical control in Construction of Bridge Structure; iii) Corrosion Detection and Prevention Technology; iv) Fatigue Detection and Prevention Technology
- 4) Traffic Data Collection Technologies
- 5) Data base development of 2-wheel vehicles
- 6) Asbuton (Indonesian Natural Rock Asphalt) Research Project for Environmental Mitigation



Group Photograph

Conference report

6th Japan-Sweden Workshop on Road Science and Technology

Road Department, Advanced Road Design and Safety Division

The 6th Japan-Sweden Workshop on Road Science and Technology was held at the National Institute for Land and Infrastructure Management (below, "NILIM") in October 2010. The workshop, which is held under an agreement by the NILIM and the Swedish Transport Administration, is the sixth in a series held about every 2 years since the first workshop in December 2000.

The Technical Sessions held for 2 days on October 6 and 7, dealt with the themes, ITS, tunnel technology, winter road management, and traffic safety.

The traffic safety session introduced basic guidelines and contents of initiatives concerning traffic safety from both countries. Swedish delegates introduced the 2+1 roads (Photo) which prevent traffic accidents by ensuring smooth road traffic flow through the timely provision of opportunities for drivers to overtake other vehicles. There are already a total of 2,000km of 2+1 road completed, and it has cut fatalities by up to 90%. They also introduced the use of ITS technology to display speed limits on car navigation sys-

tem screens, and as other vehicle-centered measures, a function which detects careless driving caused by the effects of alcohol and fatigue, automatic emergency braking, and a lane deviation alert system, and others. Participants were able to obtain information of use in conducting future research on traffic safety.

We hope that the achievements of continued cooperative research by Japan and Sweden including this workshop will contribute to future expansion of technological research and development.

• <http://www.nilim.go.jp/lab/gdg/top-e.htm>

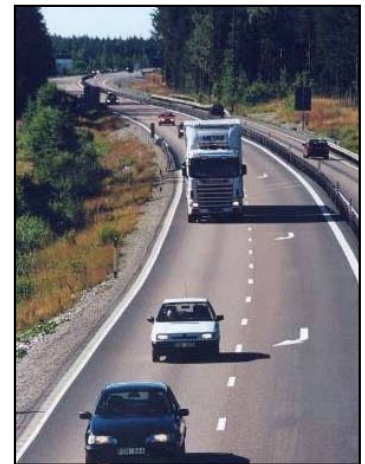


Photo: 2+1 Road with a center lane which serve as a passing lane in both directions

Event

The 11th Tokyo Bay Symposium

Coastal and Marine Department, Marine Environment Division

This extremely successful event including a symposium and a panel display was held to consider the best way to restore Tokyo Bay.

The symposium held on December 3, 2010 at Yokohama Symposia attracted a large audience of over 190 visitors. Held in conjunction with the 6th Panel Exhibition for Coastal Ecosystem

Restoration, the symposium generated a lively exchange of views among the participants.

With the "Promotion of Cooperation" as its theme, it presented topical information such as examples of academic cooperation (cooperative efforts to perform monitoring campaign of Tokyo Bay, initiatives taken by the Research Committee for Haneda Aquatic Environment, and projects to restore the clam fisheries), plus activities rooted in the region (fishing survey and other projects undertaken mainly to restore the Edo-mae goby fisheries, Odaiba Environmental Education Promotion Committee).

The panel exhibition presented thirty panels contributed by industry, academia, the private sector, and government based

on the sub-themes: setting goals, research and development, situation understanding, and systemization. Many brochures were also distributed to visitors to exchange useful information.

In his keynote address, Professor Yamochi Susumu of Osaka City University introduced the various initiatives undertaken to create habitats for living organisms in Osaka Bay and pointed out that it was vital that there be an organizer to promote projects. The following panel discussion ended by concluding that it is important to clarify the goals of restoration, deepen relationships between researchers and the government, strengthen their roles as interpreters, and to communicate the actual situation to children, and also that it is necessary to strive to accumulate information.

The achievements of the symposium will be published in information about port and harbor environments on the NILIM web site.



The 6th Panel Exhibition for Coastal Ecosystem Restoration



The 11th Tokyo Bay Symposium (Keynote Address)

Schedule of Principal Events (February to March 2011)

Scheduled days	Event name
February 3 to 4	U.S.-JAPAN Core Member Meeting, U.S.-JAPAN Panel on Wind and Seismic Effects, UJNR
Mid March	International Joint Workshop on Landslide and Related Disaster Management in India 2011

TECHNICAL NOTE of National Institute for Land and Infrastructure Management (November-December, 2010)

No.	Title of Paper	Names of Divisions
599	THE 18TH CONFERENCE ON PUBLIC WORKS RESEARCH AND DEVELOPMENT IN ASIA	International Research and Promotion Division
605	FY2009 ANNUAL REPORT OF WASTEWATER MANAGEMENT AND WATER QUALITY CONTROL	Water Quality Control Department
606	Report of the 1st Evaluation Committee of NILIM in FY 2010	Research Administration and Evaluation Division
610	Analysis about Passage Route of North America/East Asia Container Line around Japan	Port Planning Division
611	Risk management methods of the business continuity for the international air transport	Airport Department
612	Analysis of the Domestic Airfares in Japan	Airport Planning Division
614	Report of the Lecture Meeting of NILIM(2010)	Planning Division

* For details concerning the state of issuing of documents, etc., see the web site.

- Documents issued by the NILIM can be viewed at our web site. (<http://www.nilim.go.jp/lab/bcg/siryoku/index.htm>)
- NILIM research activities and achievements are now available on the web site (<http://www.nilim.go.jp/english/annual/annual2010/ar2010e.html>), as Annual Report 2010.



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