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N I L I M

News Letter

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■ Report on Smartway Open Field Test Demo2006 –To realize the next-generation ITS services– Intelligent Transport System Division

1. Introduction

In August 2004, the Smartway Project Advisory Committee (chairman by Syoichiro Toyoda) made a proposal titled “ITS Enter the Second Stage”. In February 2005, 23 private companies and the National Institute for Land and Infrastructure Management (NILIM) started a “Joint Research on System to Provide Next-generation Road Services”, which aims to carry out technical researches on ITS on-board units and roadside systems to create an in-vehicle environment permitting the use of diverse services to be delivered by a single ITS on-board unit by 2007. As part of this joint research, “Smartway Open Field Test Demo2006” was implemented for 3 days from February 22 through February 24, 2006.

2. Outline of Demo2006

Through Demo2006, which was held at the test course (about 6km) at the NILIM, about 1000 people tried out three new services that had been discussed in the joint research: 1) Information Provision Services along Roadways 2) Information Connection Services such as at Roadside Rest Areas and 3) Public Parking lot Settlement Services.

3. Principal Services

① Information Provision Services along Roadways

This service uses DSRC antenna to transmit traffic information such as congestion and low visibility on the road ahead. The information is provided as audio-texts or still images, which can be played either immediately after being transmitted or accu-

mulated until a specific incident occurs before it is played (see Photo 1).

By using this service, parking cars and other obstacles on the road beyond a blind curve are detected, and information to support safe driving is provided through images and voice before reaching the curve (see Photo 2).



Photo 1 Providing information by playing accumulated still pictures (Warning of a Closed Lane beyond a tunnel exit)

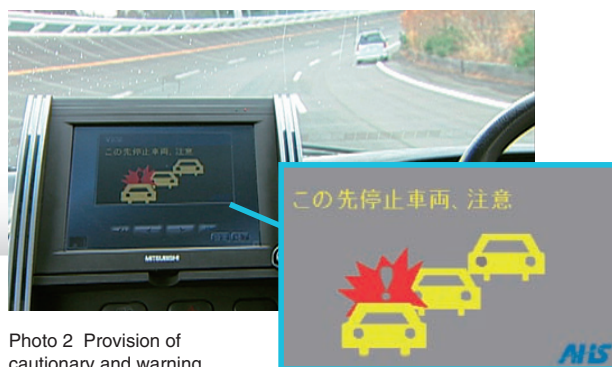


Photo 2 Provision of cautionary and warning information to support safe driving

② Information Connection Services such as at Roadside Rest Areas

This service provides vehicles parked in a Road Station or other specific area with a variety of information about the local traffic situation, local environment, and sightseeing spots, for example. The information is accessible by connecting to the internet via DSRC (see Photo 3).

③ Public Parking lot Settlement Services

This service uses ETC communication technology to automatically attests vehicles, then opens and closes gates to parking areas, and provides information through images and voice that guide vehicles to parking lots designated for those carrying handicapped people.

4. Conclusion

This Open Field Test, which was conducted as part of building the System of Providing Next-generation Road Services, showed that the technology of the DSRC-based system applied to ETC is now at a practical level and highly useful.

In the next stage, based on the results of the joint research, standardizing and specifying works will be launched while carrying out tests on actual roads, thus working toward delivering next-generation ITS services.



Photo 3 Information connection services at roadside rest areas etc.

Implementation of Support Measures for the Development of Port Logistics Hubs

Port Systems Division

To deal with economic globalization, enterprises are practicing supply chain management (SCM). The supply chain is a value-adding chain that serves to procure materials, manufacture components, manufacture finished products, and distribute the finished products to final consumers (see Fig. 1). Enterprises optimize value-adding places on a global basis to minimize costs. As international distribution centers, it is possible that ports offer such value-adding places as Logistics Hub(LH) . In Asian major seaports (Port of Shanghai: Shanghai Waigaoqiao Bonded Logistics Zone, Yangshan deep-

water port in Shanghai, Busan New Port, Port of Kaohsiung, Port of Singapore, etc.: see Fig. 2), large scale LH have been developed. Also the Japanese government has been introducing support measures for developing LHs such as the Effective Overall Logistics Law and NILIM has been conducting researches to support this policy making. Now manufacturing/distribution activities tend to extend across more than two countries, meaning that port LHs in the world are required to cooperate to each other. NILIM will continue our effort in order to support global operations.

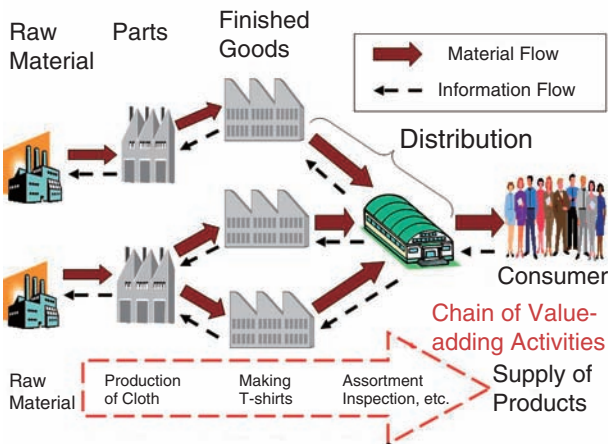


Fig. 1 Concept of the Supply Chain

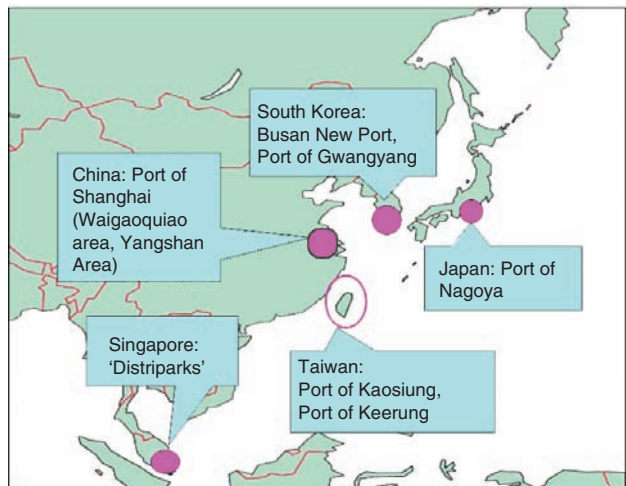


Fig. 2 Examples of Port Logistics Hub in Asia

Development of Dynamic Hazard Maps (advancement of hazard maps utilizing IT)

Coastal Disaster Prevention Division

To prevent and reduce human losses and casualties caused by tsunamis and storm surges, it is essential that each resident be made keenly aware of the risks faced and how to evacuate from such disasters. Ordinary hazard maps printed on paper may give residents a stereotyped idea of disasters and make them biased.

Focusing on these challenges we are developing a dynamic hazard map. This map is an evacuation simulation system on a PC, as shown in Fig. 1, which can provide dynamically changing information such as areas inundated by tsunamis and

storm surges, obstruction of escape routes caused by inundation, collapse of houses by earthquake, fires and so on. By using these practical dynamic hazard maps, people can learn whether it is safe to evacuate or not, which is the best evacuation method, etc. through trial and error; and can input various conditions such as where and when to begin to evacuate and evacuation routes. This system is expected to make people more aware of proper evacuation and to enhance risk-communication between residents and administrative staff.

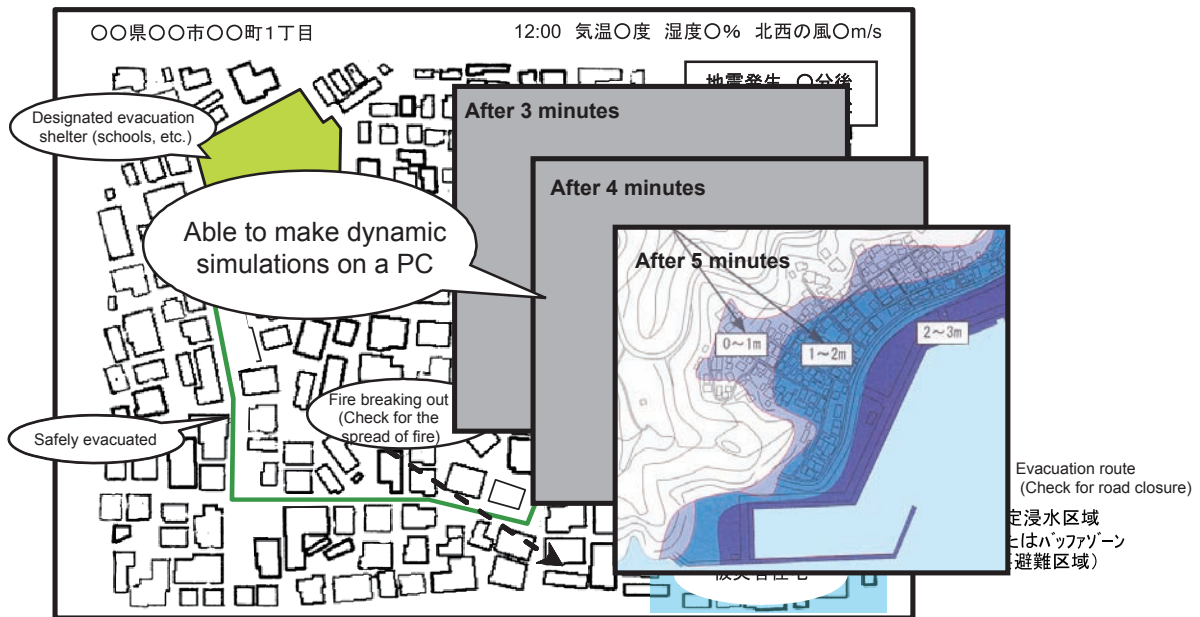


Fig. 1 Image of a Dynamic Hazard Map

Development of Accident Countermeasure Database

Advanced Road Design and Safety Division

In order to promote effective countermeasures for traffic accidents, it is important to use the experience and knowledge on past countermeasures. An Accident Countermeasure Database has therefore been developed. This will enable relevant institutions to share information from past studies and use it to discuss countermeasures for traffic accidents.

In Japan, countermeasures are focused on 3,956 accident blackspots with many accidents resulting in death or injury. These areas were designated as Accident-prone Areas in 2003. The database contains data on road structures, traffic environment, process of studies on countermeasures, effects of countermeasures and other relevant information for the designated areas.

The figure shows a screen display of the database. Most of the operations can be done with a mouse, and the screen is designed to be easy to read. By using the database, necessary data such as areas with similar road characteristics and areas with the same

factors that can result in accidents, can be readily searched.

This database has been used by road managers throughout Japan since April 2006. We will continue to make the database more user-friendly and add more data.



Fig. 1 A screen display of the Accident Countermeasure Database

■ The 2nd International Workshop on Natural Ventilation

Research Coordinator for Advanced Building Technology

The 2nd International Workshop on Natural Ventilation was held on December 1 and 2, to discuss current research on natural ventilation and generate interest in this research field among young researchers. Host organizations were the National Institute for Land and Infrastructure Management, Building Research Institute, Tokyo Polytechnic University The 21st century Center of Excellence Program and Tokyo University of Science. The venue was AIJ Hall (Shiba, Minato-ku, Tokyo).

Seven foreigners and 125 Japanese participated in the workshop; 15 researchers (6 foreigners and 9 Japanese) lectured in each of the sessions on “Wind Pressure & Airflow Characteristic”, “State-of-the-Art Review”, “Modeling”, “Heat Removal” and “Single-Sided Ventilation” for two days, and then the participants discussed the latest research results.

The panel discussion was held on December 2 (on “Natural Ventilation for Passive Cooling and its Regional Feasibility”, with Prof. Shuzo Murakami of Keio University as coordinator). In the panel discussion, 1 Japanese designer and 6 foreign researchers reported on case examples of natural ventilation in each country, and participants discussed appropriate methods to design the opening size for natural ventilation, involvement of the user in natural ventilation, and the cost of natural ventilation.

Details of the workshop were published in a special edition of “The International Journal of Ventilation” by VEETECH Ltd., UK.



Dec. 2, 2005 Announcement for 2nd day
Akira Muragishi (Deputy Director-General of NILIM)



Discussion The discussion focused on three topics:
1) Appropriate method to design the opening size for natural ventilation (NV),
2) How to link the user with NV, and 3) Cost of NV.

■ TECHNICAL NOTE of National Institute for Land and Infrastructure Management (December, 2004)

No	Title of Paper	Names of Divisions
179	Study on dynamic effects on bridges of large-sized vehicles(I)	Bridge Division
180	Reserch on the dynamic responses of bridges which are caused by large size vehicles (II)	Bridge Division
197	An Investigation of Technologies Recovering Energy from Waste	Coastal Zone Systems Division
198	The Model for Estimation of Fuel Economy of Container Trailer Running in Port Area and on Highway	Coastal Zone Systems Division
199	A Study on Functions by Port Logistics Hubs, With a View to Supporting Competitiveness of Japanese Manufacturing Firms	Port Planning Division
200	Port Calling League of World Container Ships(2004) –Analysis of the statistics concerning with port calling and Influence by the crane collapse in port of Busan –	Port Planning Division
201	An Analysis and Model Development on Port/Mode Choice Behavior of Bulk Cargo	Port Systems Division
203	Report of the Lecture Meeting of NILIM(2004)	Planning Division

■ “2006 Annual Report of NILIM” is now on our website (in Japanese only, for the time being)

We publish “2006 Annual Report of NILIM” to show our research activities and accomplishments, and you can see its contents on our website, www.nilim.go.jp. English version will be available in the future.



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