

PIARC International Winter Road Congress, 2002, Sapporo  
Summary of Topic V: Telecommunications Technology  
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There were 26 oral presentations and 6 poster presentations on Topic V. I will summarize the presentations concerning 1. main topics 2. issues and 3. prospects for the future.

1. Main topics

Main topics were broadly classified into 1) new technology development, 2) sharing of winter road/weather information and proposed models, and 3) evaluation on winter road information quality

1) New technology development

Some papers of Japan presented sensors detecting vehicle positions, snowfalls, and road-surface condition by using image processors. Although sensors using image are not new, these sensors have potential to make the multi-sensor monitoring function to be available for existing road monitoring video cameras. They are expected to be improved as they can stably work under cold, snowy conditions.

A paper from Norway presented a remote control snow removal system using GPS-GIS to open a road buried under snow in the mountains. It will contribute to improve safety and efficiency of mountain road snow removal under geographically and meteorologically difficult conditions. An example of Finland aims at streamlining snow removal operation, and reporting and filing of the work by sending information provided by GPS and GIS to snow removal vehicles.

A road-surface condition forecast system of France on basis of road surface conditions and weather will be identified different from existing models by on-site examination.

2) Sharing of winter road/weather information and proposed models

The Baltic countries, Estonia, Latvia, and Lithuania, cooperate with Finland in international road weather information sharing on a Web site and are encouraging other countries to join the group. Systems of Japanese, Canadian, American, and European organizations for sharing road information among the organizations and road users were reported. How the shared information on road surface conditions and road weather has changed ways of road use also was reported. The information will increasingly include not only road condition and weather but also road relevant images and traffic status. In Switzerland, efforts are made to realize a weather information provision system that will forecast even freezing rain. Another paper reported on utilization of thermal mapping technology which can continuously monitor thermal equilibrium of roads and road surroundings so as to limit the cover area of a monitor will increase accuracy of the monitoring data. This was the progressed report of that presented at the Luleå Congress.

3) Evaluation on winter road information quality

A British paper discussed if provided winter road information would deserve the subscription fee. The paper considers that the subscribers may change the subscription fee depending on the information accuracy. It is suggestive as a way of road information subscription in the future.

In a trial in Finland, an information system which carefully selects source information for weather forecast to decrease frequencies of serious weather warnings has been studied for three years since 1997. They are steadily conducting a follow-up survey on the model. 90 % of its accuracy for road-surface condition forecast is high enough to believe that it contributes significantly to traffic accident decrease. It is interesting that conventional media including radio and TV are most

frequently used as traffic information media in Finland where prevalence of a mobile phone and the Internet is significantly high. Importance of the conventional media systems is pointed out because their information transfer capacity is unlimited.

## 2. Issues

Advanced telecommunications technologies have improved various measures to enable diverse road information provision. How and what progresses in information provision are made need to be quantitatively examined. To do so, accumulation of the information data with the quality fine enough to be used for statistical evaluation is required. For safer and efficient winter road maintenance, sharing of maintenance works between the public and the private sector will be focused under recognition that snow- and ice-control is an issue for the whole community and road maintenance suitable for local climatic features should be sought.

## 3. Prospects toward the future

Social demands on safer and more efficient winter road service will continue to increase. Social sharing of road information has led snow control to get involved in comprehensive planning to realize a snow-resistant community. Sufficient road maintenance, appropriate evaluation on weather information and its utilization will be further investigated on basis of sharing of road maintenance work between the public and private sector by considering regional features and social conditions.