



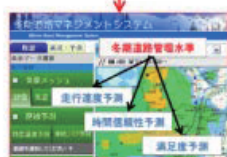
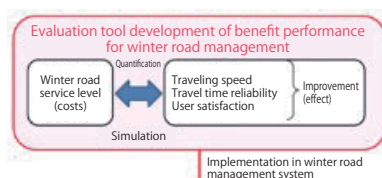
(14) Research on ensuring the safety and reliable road transport services in winter

Research Summary

Research period: FY2016-2021
Program leader: Director of Cold-Region Road Engineering Research Group

Development and establishment for the reasonable level of the winter road service based on the cost-benefit performance evaluation

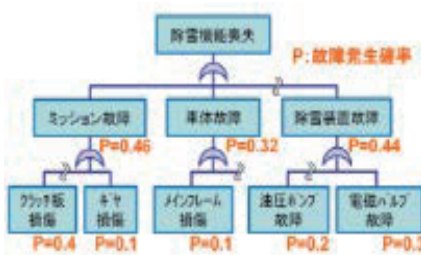
- ➡ Establishment of the quantitatively assessment method for cost-benefit performance of the winter road management
- ➡ Development of supporting technology of work plan for snow disposal



Evaluation tool for cost-benefit performance for the winter road management

Development of labor-saving operation technique using ICT and efficient maintenance technology for winter maintenance equipment

- ➡ Development of supporting technology for spraying anti-freezing agent using ICT
- ➡ Establishment of effective and efficient maintenance methods based on quantitative assessment of deterioration of snow removal machines



Analysis of probable failure of snow removal machines using FTA

Development of effective and efficient countermeasures for winter traffic accidents using risk management

- ➡ Using the traffic big data, establishment of risk management method for winter traffic accident analysis, systematizing accident factor analysis methods, accident risk assessment methods, and accident responding menu.



Risk Management*

*Evaluate winter traffic accident risk and quantify the risk response measures from the countermeasure method (loss and the calculation of the cost-benefit) and maximize the effect of the measures

Risk management approach of winter traffic accident

Improvement of safety and reliability for winter road traffic service

Japan is facing the nationwide problems such as population decline, aging population, large-scale disasters, and financial shortage. In the snowy and cold regions, it has been more difficult for the government to continue to provide the same winter road services due to the financial deterioration. Therefore, the Ministry of Land, Infrastructure and Transport, has launched a compact + network of the national land structure (National Spatial Planning approved by the Cabinet, August 2015). We must have the inter-regional cooperation and sharing functions by strengthening of the transportation network in order to realize this national land structure in the cold and snowy region. We also need to ensure the safe and reliable winter road traffic service.

In this research program, we have 3 achievement goals and

set the "development of management technology techniques contributing to the safety and reliability of the winter road traffic services" as a program goal.

- (1) Development and establishment for the reasonable level of the winter road management based on the cost-benefit performance evaluation
- (2) Development of labor-saving operation using ICT and efficient maintenance technology for winter road management
- (3) Development of countermeasure technology for effective and efficient winter traffic accident by risk management

By giving these research result back to society we will support safe and reliable winter road traffic services in the snowy and cold regions.