



XIII  
INTERNATIONAL  
WINTER ROAD  
CONGRESS

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Québec 

# SUSTAINABLE WINTER SERVICE FOR ROAD USERS

*Ensuring Winter Road Traffic in Japan*

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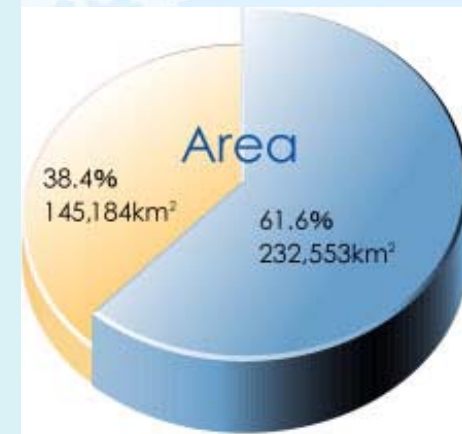
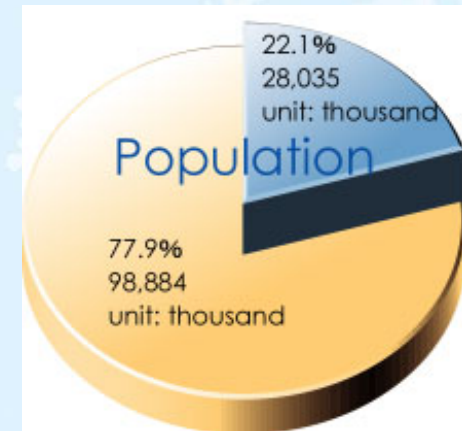
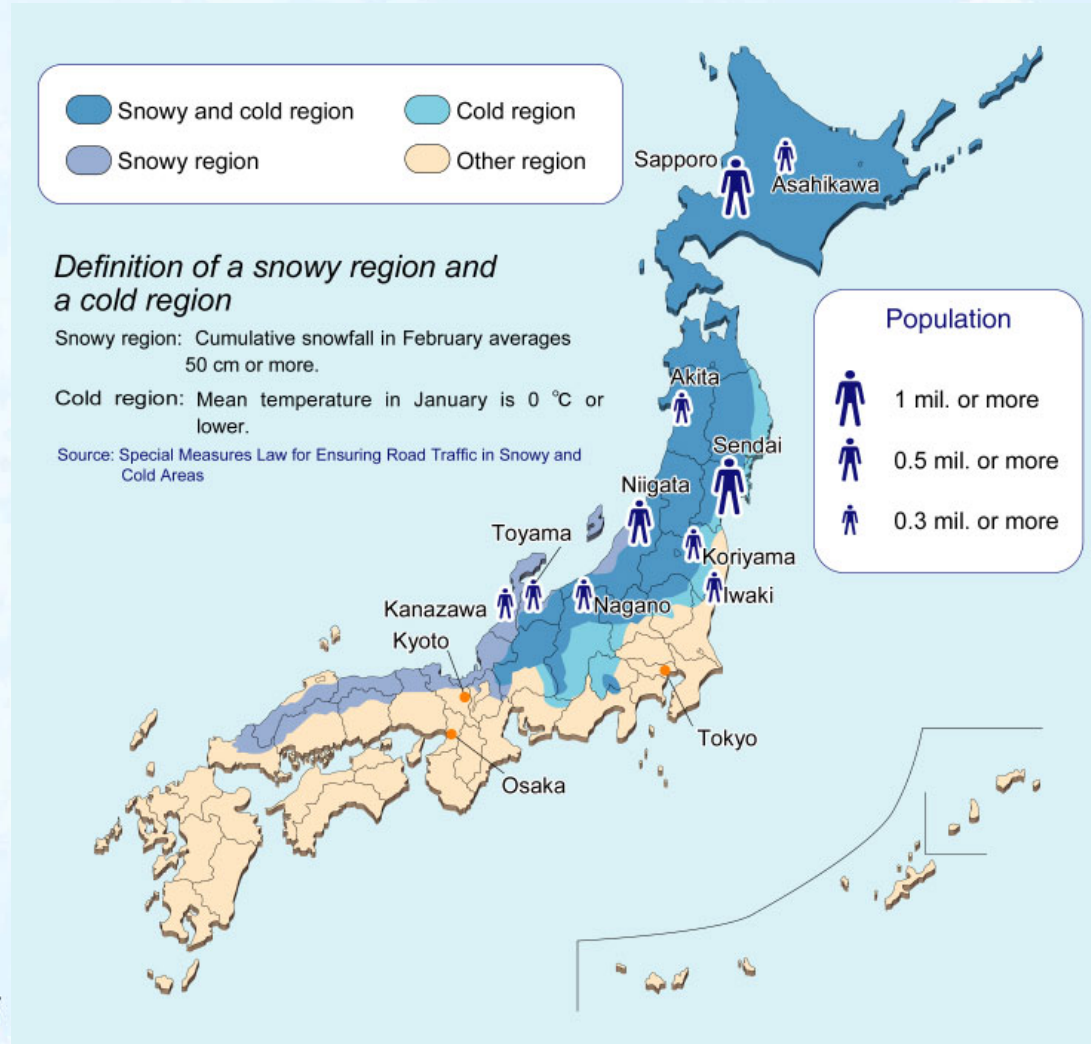
国土交通省

# CONTENTS

- Winter Climate of Japan
- Budget and Outsourcing Payment
- Inter-Administrative Cooperation
- Efficient Snow- and Ice-Control Measures
- Future Directions

# WINTER CLIMATE OF JAPAN

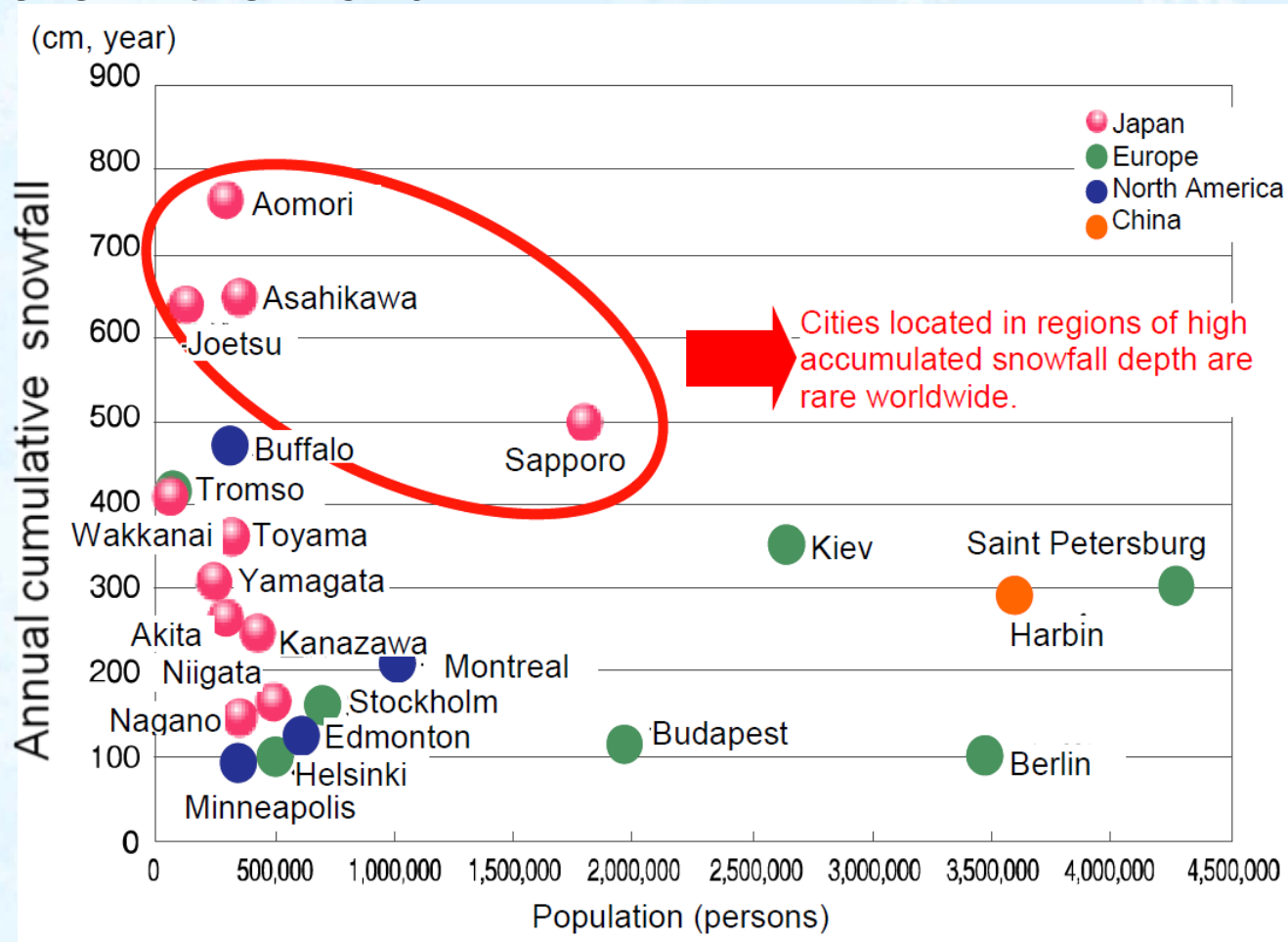
- 60% of Japan is cold/snowy. 28 million people (20% of Japan's population) live in such regions.





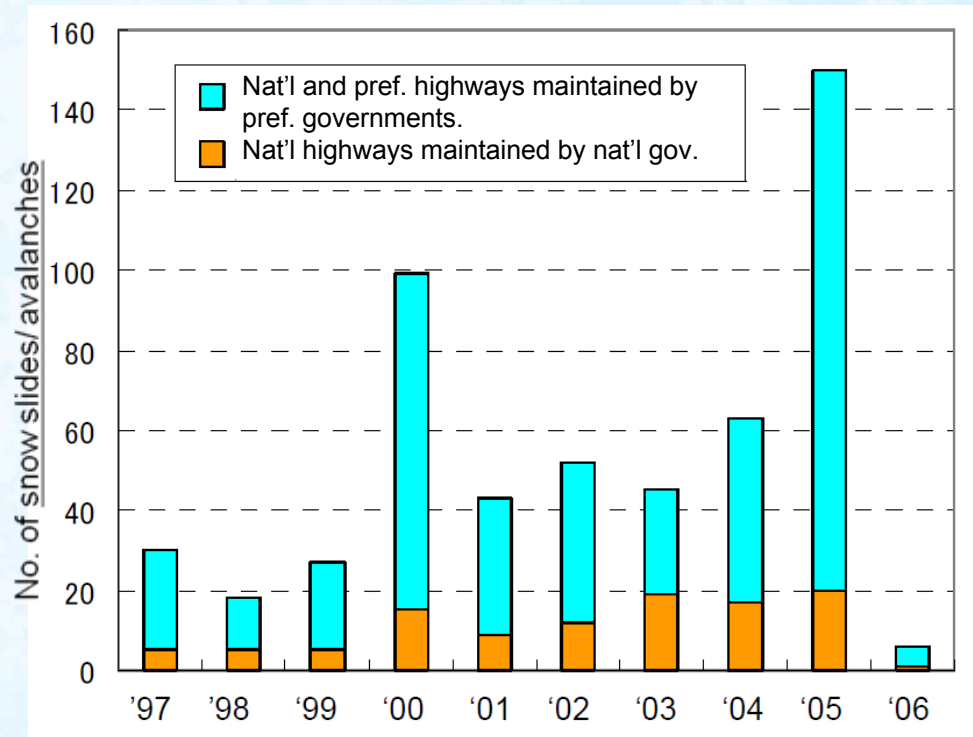
# WINTER CLIMATE OF JAPAN

- Many cities receive heavy snowfall every year.
- Populous urban areas lie in heavy-snowfall regions, which is very rare in the world



# RECENT SNOWFALL TRENDS

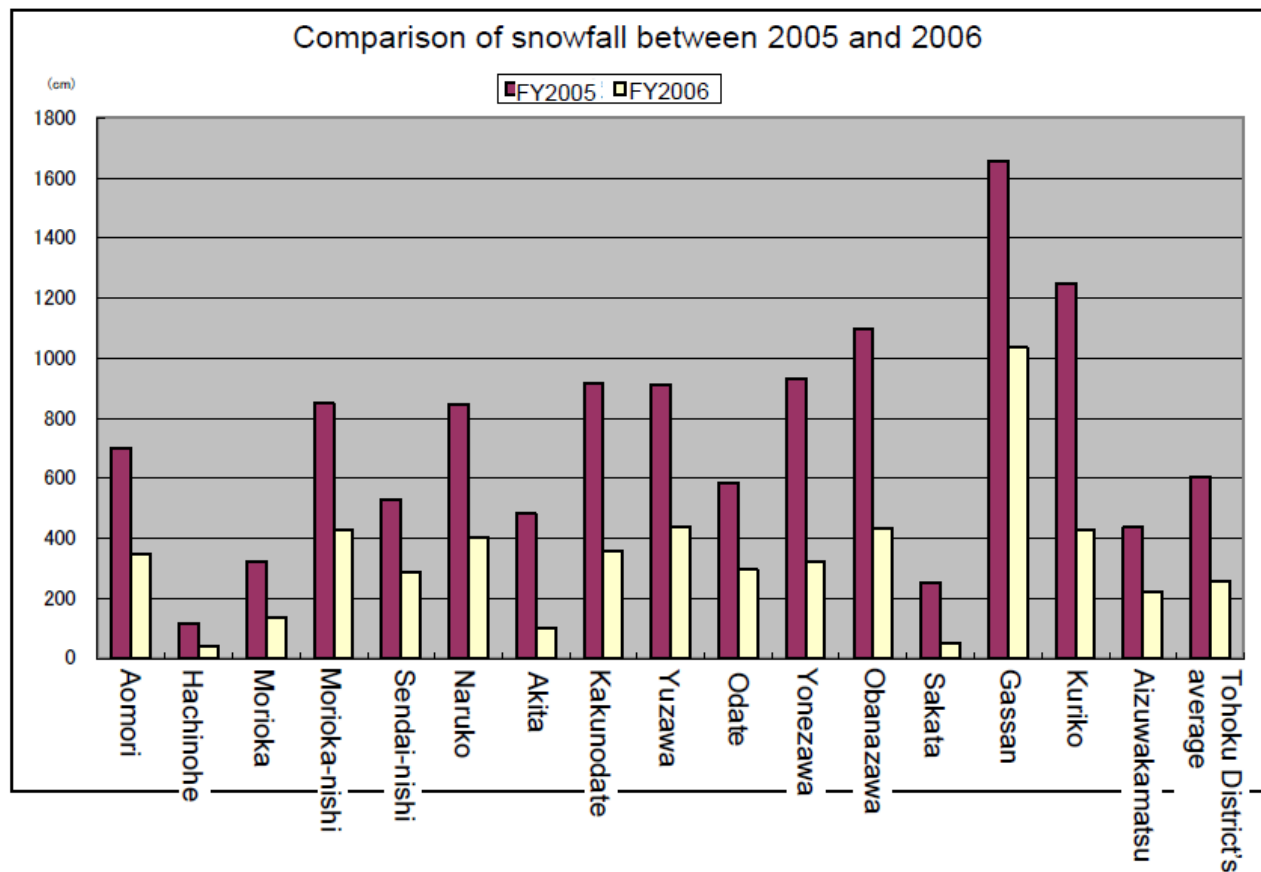
- Dec. 2005 – Feb. 2006: Extraordinary heavy snowfall events occurred around the nation. 1.5 times the annual snowfall was recorded.
- Casualties numbered 152, of whom 2/3 were elderly (65 or older).  
(mostly from sliding off from roofs while clearing off snow)



No. of snow slides/ avalanches on highways

# RECENT SNOWFALL TRENDS

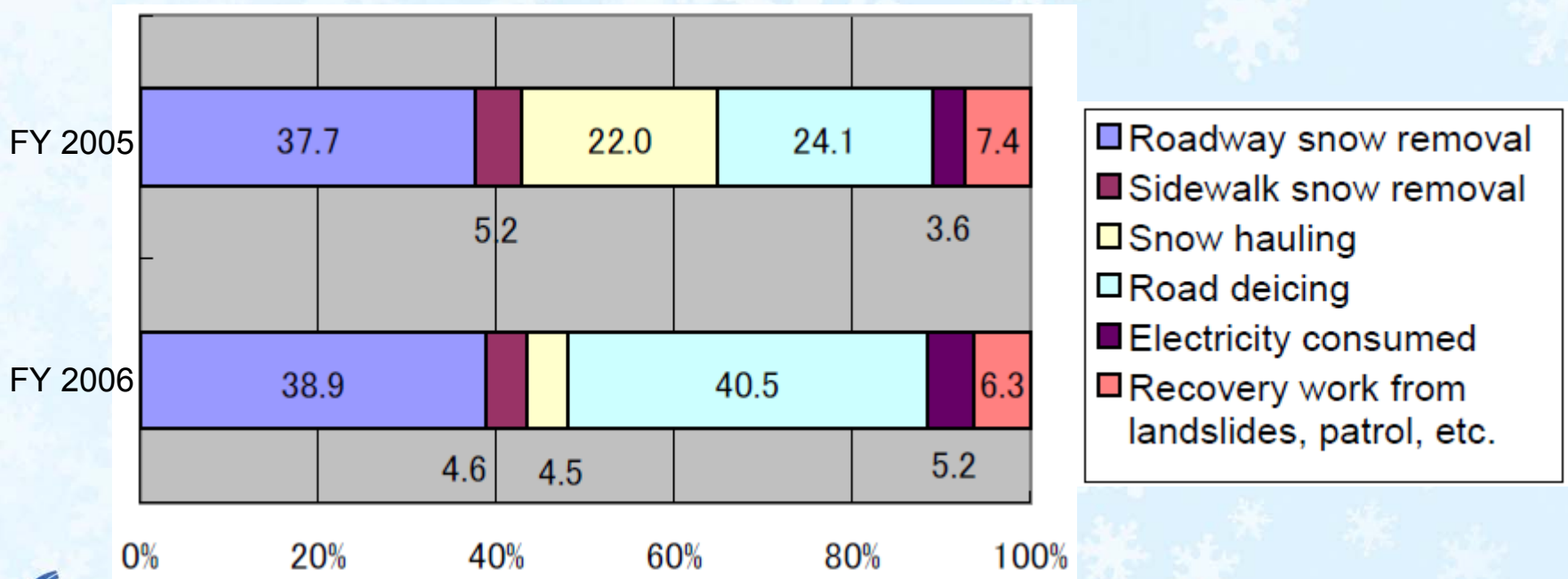
- Winter of 2006 – 2007 had little snow, less than 60% of the average annual snowfall for the previous 10 years. The possibility of low payment to snow removal contractors (below the break-even point) became apparent.



# COST BREAKDOWN OF SNOW- AND ICE-CONTROL PROGRAMS

- The snow removal workload varies with variations in snowfall, temp. and other weather factors. The cost breakdown also differs by winter.

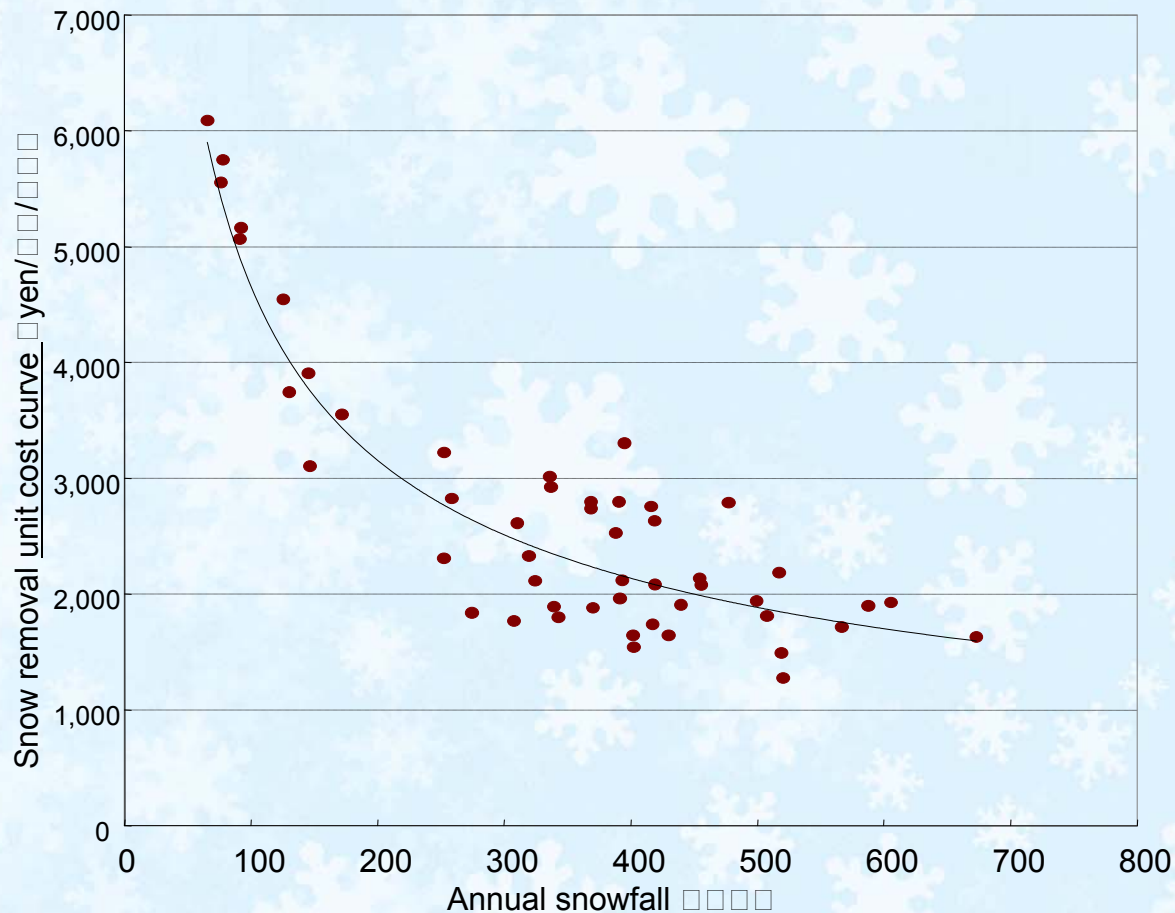
Cost breakdown of snow- and ice-control programs





# ALLOCATING SNOW- AND ICE-CONTROL BUDGET

- Nat'l government subsidies cover about 2/3 of prefectural/ municipal snow- and ice-control budgets.
- The snow removal unit cost curve, which estimates snow- and ice-control costs, is used toward fair budget allocation.



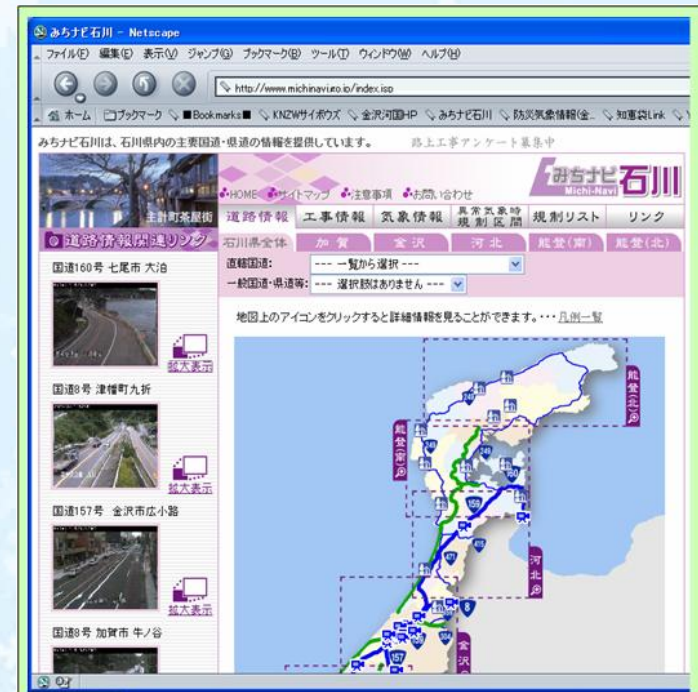


# REDUCING RISKS ASSOCIATED WITH WINTERS OF SCANT SNOWFALL: REVISING THE METHOD OF PAYING CONTRACTORS

- Years of scant snowfall:  
Snow removal costs decrease → Contractors suffer.
- Cost estimation for snow removal needs improvement.
- Estimates should include labor costs for:
  - on-call periods
  - keeping machinery in shape by running it 30 min. every 2 weeks

# INTER-ADMINISTRATIVE COOPERATION

- To mitigate traffic accidents and congestion resulting from heavy snowfall events, cooperation among road administrators is indispensable.
- To share information at times of heavy snowfall, a liaison office is organized among road administrators at all government levels, highway companies, and police.





# SNOW- AND ICE-CONTROL MEASURES

- Measures against avalanches and drifting snow, and for snow melting



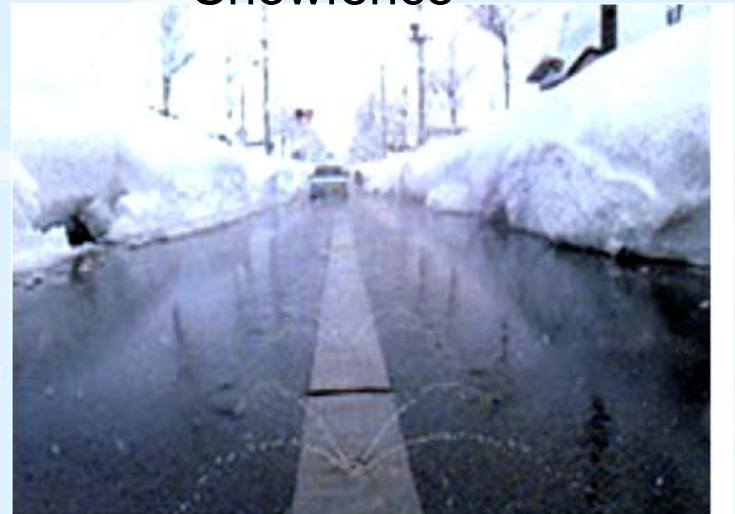
• Snowshed



Snowfence



Avalanche protection fence



Sprinkler snow melting



# SIDEWALK SNOW REMOVAL IN URBAN AREAS

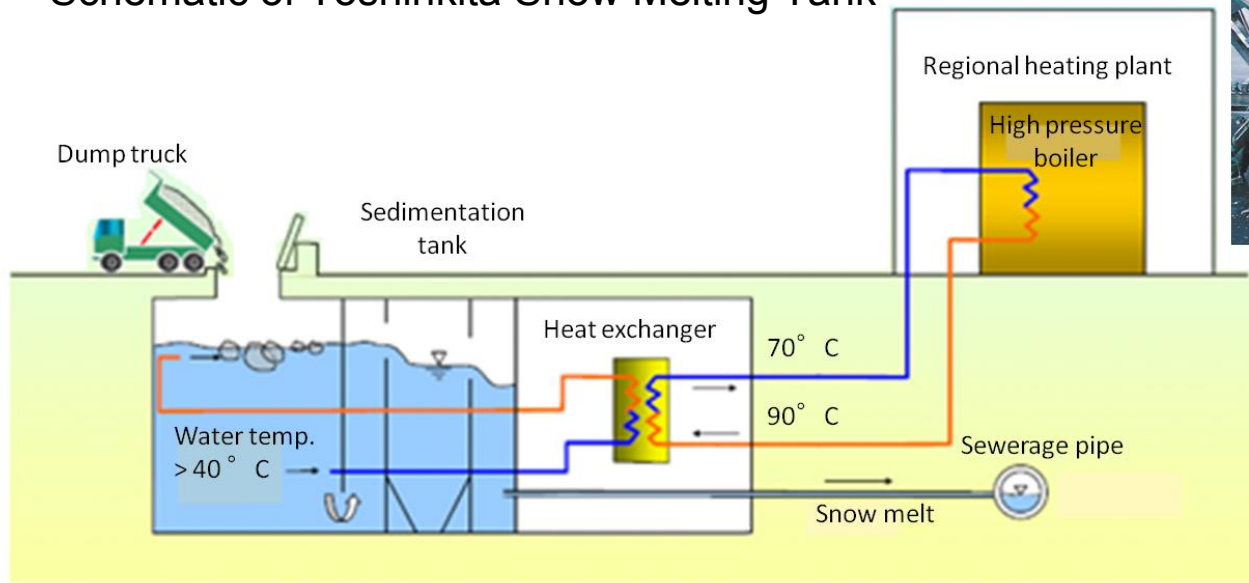
In city centers where there are many pedestrians, to secure space for pedestrians and to keep them from skidding and falling, snow is cleared from sidewalks.



# SNOW MELTING TANK

- In urban areas, residual heat from sewage, etc. is used to melt snow.
- In Sapporo, residual heat from a district heating plant is used for a snow melting tank that disposes of snow hauled from the central business district.

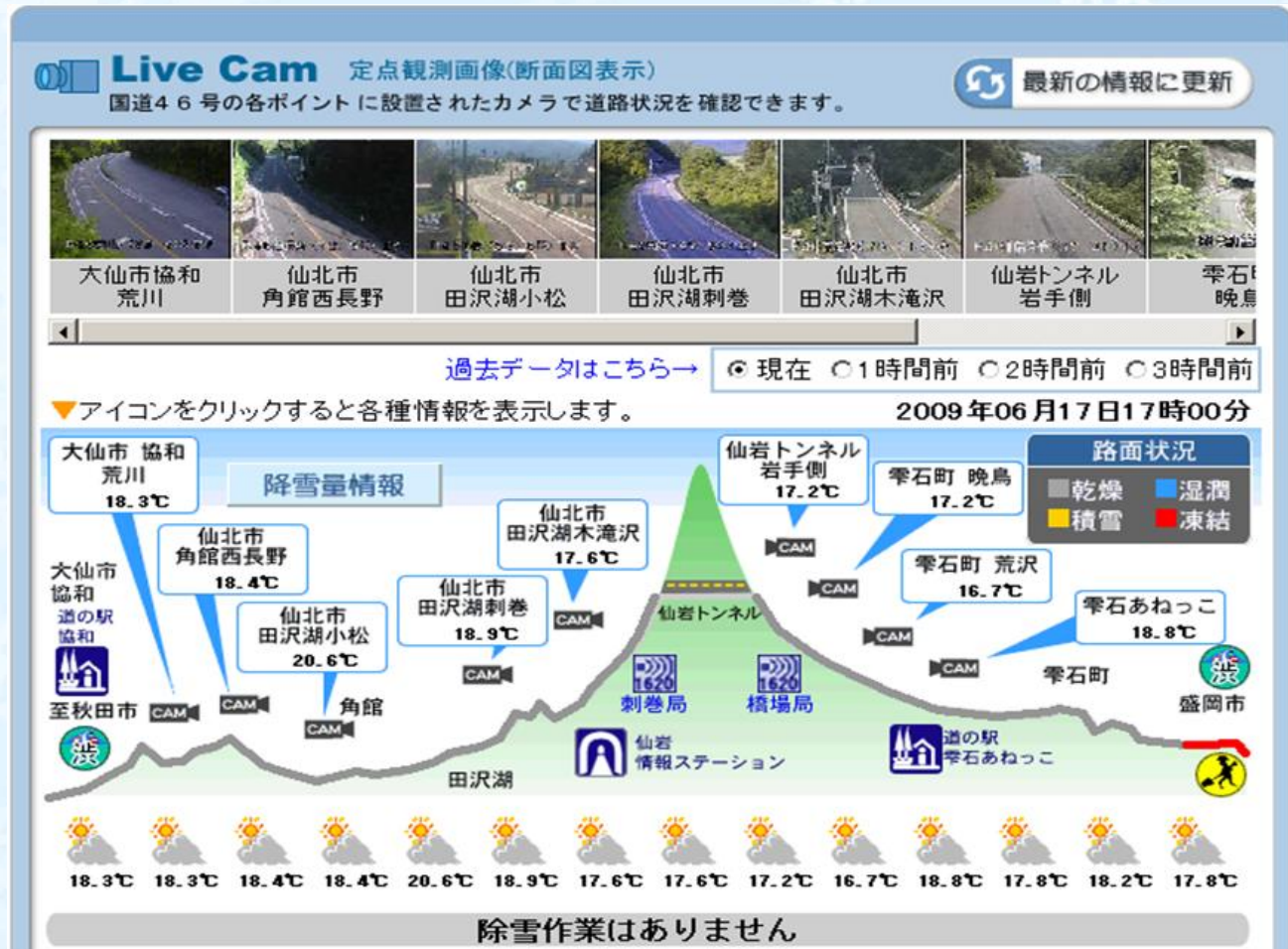
Schematic of Toshinkita Snow Melting Tank





# PROVISION OF CCTV CAMERA IMAGES

- Road users are provided with road surface images from CCTV cameras that were originally installed for road management





# USING GPS FOR EFFICIENT USE OF SNOW REMOVAL MACHINERY

- GPS indicates locations of snow removers. It enables the locations and types of work of snow removers to be known by the control center, thereby allowing timely operation.



Location of snow remover



Details of snow remover location

# FUTURE DIRECTIONS

- To meet the changing needs of cold, snowy regions that result from demographic aging and diversification of user needs, the government alone cannot do much. The understanding and cooperation of road users are necessary.
- Methods for contracting and paying snow removal contractors need to be modified to respond to the issue of winters with scant snowfall. The central government must coordinate with local authorities.
- The Ministry is constructing/promoting infrastructure and inter-governmental cooperation to secure safe, stable winter traffic.

***Merci!***