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XIII INTERNATIONAL WINTER ROAD CONGRESS

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SUSTAINABLE WINTER SERVICE FOR ROAD USERS

Winter Service Planning and Management in Slovakia

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Chairman

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WORLD ROAD ASSOCIATION MONDIALE DE LA ROUTE
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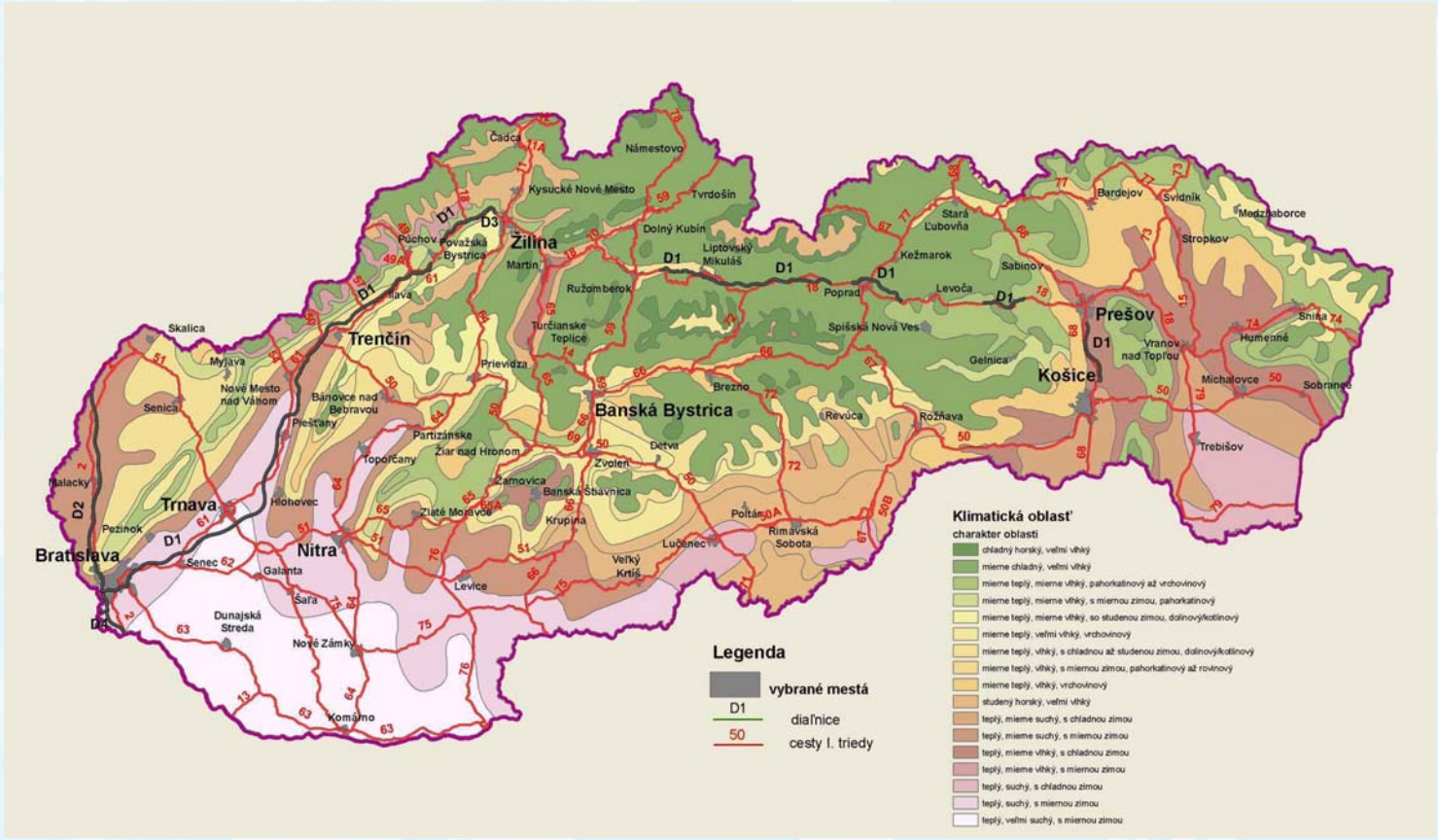
Slovenská cestná spoločnosť

Introduction

- Slovakia
  - area 49 000 km^2, population 5.4 mil.
  - strategic position in Europe
  - winter service is priority – significant part of budget
- Slovak Road Netvork
  - length 43,858 km (urban roads 25,942)
  - density 894.4 km/1,000 km^2, 8.1 km/1,000 inhabitants
- Road Administration
  - decentralisation of road ownership and administration from the state to regions
  - structural changes in road management – necessity to solve winter service in new conditions

Climate Conditions

- North Temperature Zone, rotation of four seasons
- average temperature: winter -2°C, summer +21°C
- wide scale of climate areas from a warm, very dry with mild winter (white color) to cold, very moist mountainous (dark green)



Road Management Transformation

- before transformation
  - motorways, expressways, 1st, 2nd and 3rd class roads were in state ownership; administration and maintenance performed by Slovak Road Administration – state budget organisation; urban roads under cities
- after transformation
  - 1. step (since 2004) – 2nd and 3rd class roads (14,089 km) are owned and operated by self-governing regions
  - 2. step (since 2005) – motorways and expressways (552 km) are under National Motorway Company (NMC) – joint stock company with 100% state participation
  - 1st class roads (3,275 km) – owned by state – responsible Slovak Road Administration (maintenance and repair performed by regions or NMC - contracts).
  - urban roads (25,942 km) – under cities

Winter Service Cost

- increase of costs for all maintenance (5,3%) and also for winter maintenance (20,4%) in 2008 (comparisom with 2007)
- winter maintenance: 23,8% of all maintenance costs (2007)
  27,2% (2008)

(mil.EUR)

Year	2007		2008	
Administrator	**All mainten.**	**Winter maintenance**	**All mainten.**	**Winter maintenance**
Slovak Road Administration	**34.521**	**7.443**	**34.517**	**10.954**
National Motorway Company	**18.366**	**5.261**	**20.498**	**5.176**
Self-governing regions	**76.635**	**18.119**	**81.389**	**20.975**
In total	**129.522**	**30.823**	**136.423**	**37.105**

- winter maintenance - expenditures:
  - motorways and expressways 9,375 EUR/km
  - 1st class roads 2,972 EUR/km
  - 2nd and 3rd class roads 1,489 EUR/km

Winter Service after Transformation

- decision to preserve Central Winter Service Management System (according to positive previous experience)
- changes in the Road Law:
  - Winter Service Operational Plans must be submitted by the individual road administrators to the Ministry of Transport for approval
  - road administrators are responsible for provision some operational data for Central Information System free of charge

Winter Service Operational Plan (WSOP)

- managing document for winter service
- drawn up on annual basis before season
- prepared by individual administrator within the scope of its competency and specific conditions
- based on analysis of the previous winter seasons
- has aim to ensure organisational and technical uniformity of winter service
- defined content and structure:
  - determination appropriate technology for differ.conditions
  - set-up of the standards for winter maintenance
  - determination of regime for data delivery to system
  - designation of winter service staff
  - solving of emergency situation etc.

Integrated Information System

- other element to ensure uniformity of winter service
- works at two levels:
  - Central Dispatching and Reporting Service (CDRS)
  - Dispatching and Reporting Service of road administrator
- system works in non-stop regime
- data collected from 156 service units (road administrators)
- CDRS operated by Slovak Road Administration under the authority of Ministry of Transport
- information flow from service units is performed on-line via Internet
- content of reports to CDRS:
  - current weather
  - information on road surface conditions
  - information on non-passable sections (reasons)

Integrated Information System

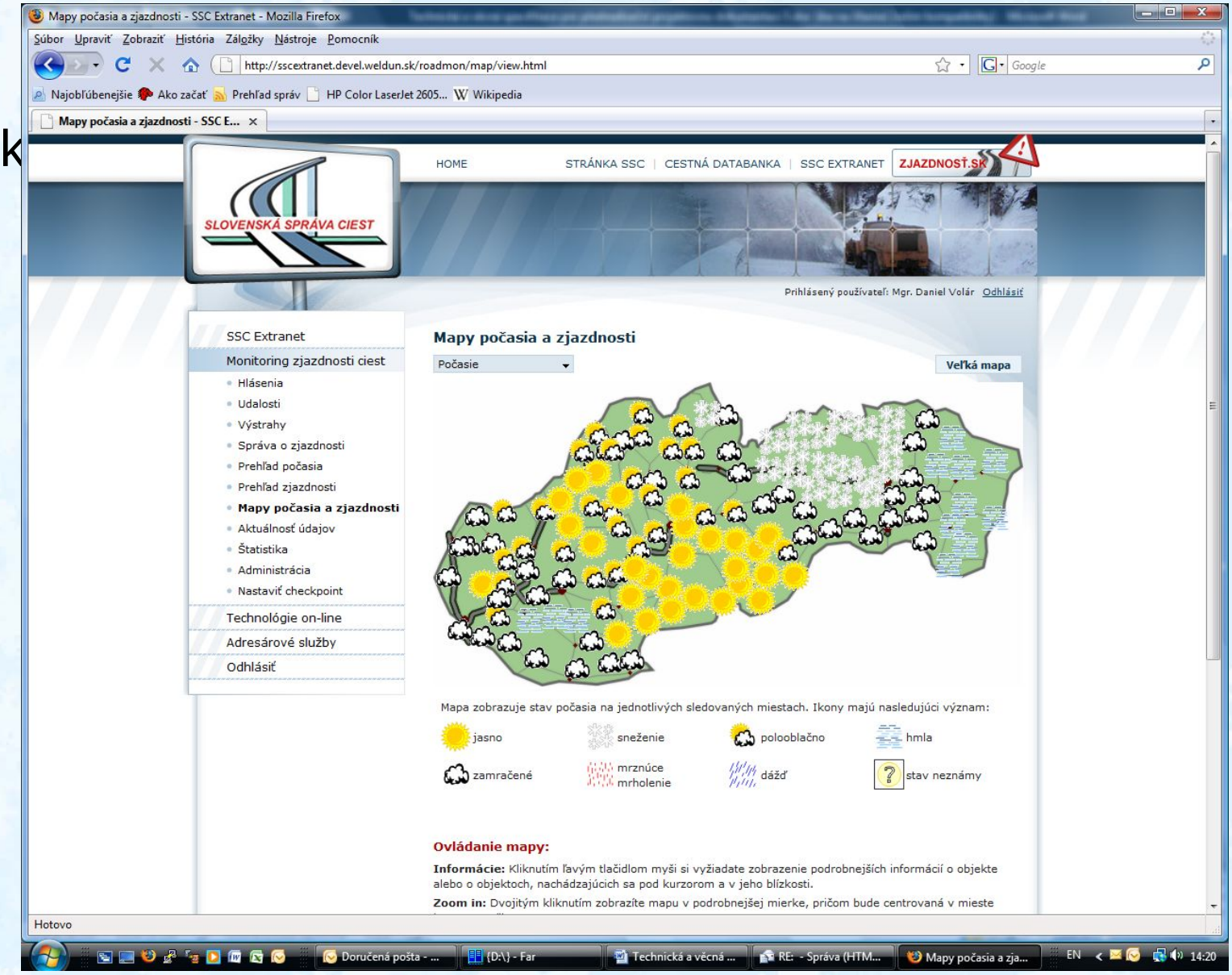
- Importance:
  - monitoring and supervising of passability of roads
  - using of crucial information for solution calamities
  - on-line presentation situation for public use
  - immediate feedback for service units about weather situation for whole territory – possibility to prepare machinery and people in advance for intervention
- Outputs:
  - tabs
  - maps - generated automatically (passability, current weather etc.)
  - brief notes on situation concerning the roads, mountain passes, tunnels etc. – important when emmergency situation occur

Graphic Display of Road Passability - example

- Click

Graphic Display of Weather Conditions - example

- Click



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Winter Service in Future

- Main focus - legislation and new information system
- Legislation – new text of Road Act is preparing:
  - importance of winter maintenance will be strenthened
  - winter service will be organised by the regional staff
  - regional activitities will be co-ordinated by Winter Service Central Staff
- Information system:
  - implementation of National Traffic Information System for Slovakia (NTIS) – one objective is optimisation of winter maintenance procedures and plans, while minimising negative impacts which restrict passability of roads
  - important part - Road Meteorological System – integration data from Slovak Hydrometeorological Institute and data supplied by all automatic road weather stations

Meteorological System

- Two outputs levels - for public and for winter maintenance administrators and service organisations
- Level for administrators will have two modules:
  - Decision-making Module of the Dispatcher (schematic visualisation of road surface changes forecast); extension of existing weather stations network etc.)
  - Winter Maintenance Index (effective feedback of the financial control, constant performance analysis, meteorological conditions evaluation – all for determination demands for planning purposes)
- For fully operational system is necessary - create web aplication, create unit system of weather stations, equip data storage and processing centre by technology, prepare documentation and manuals, organize trainings for system operators etc.

Thank you for your attention

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