Location
Estonia is a small northern member-state of the European Union. It is located on the coasts of the Baltic Sea. Latvia and Russia are our mainland neighbours and Finland and Sweden in overseas. Its area is about 45 000 km² with the population of 1.4 million people. Administratively Estonia is divided into 15 counties.

Climate
Snow and slippery usually begin in November and winter conditions last for 5 months until April. But we have had snow even in the end of May. The climate varies from the wet maritime on the coasts to the dry continental in the eastern and southern areas. We must be ready to meet quite low temperature like –30 degrees Celsius. Road surface temperature often alters from minus to plus degrees and therefore skid control is utmost important.

Management in development.
During the last 3-4 years the Estonian road organisation has changed a lot and simultaneously the privatisation of maintenance works including winter maintenance, is going on.

Until the year 2000 state-owned road offices carried out the winter maintenance in-house. We used to have a road office in each of 15 counties. In 2000 privatisation of maintenance started and firstly maintenance of the public network of Põlva county was tendered out to a private company. By now in 10 counties all maintenance works including winter maintenance, are performed by a contractor on the basis of 5-year lump sum contracts. The smallest contract is 359 km, the largest 1244 km. In 1 county the first contracting period is already over and the next turn started. In 5 counties, where centres of regional offices are located, state agencies continue to maintain national roads. The continuation of privatisation of maintenance operations will be decided after interim analysis.

Supervision of maintenance works has been introduced and in 1 county it even contracted out to a private company.

Simultaneously the road management was reorganized. Instead of former 15 county offices now we have 6 regional offices.

The role of a road administration as a wise regulator is very important in contracting out of winter maintenance. So, big changes were supported by numerous legal and normative acts. For winter maintenance the most important act is “Requirements for the State of Road”.
In one region close to the capital of Estonia now 100% of road works have been privatised and the regional road office has been reformed into the regional road administration as an institution of civil service.

**Winter maintenance cost**
Last year the percentage of winter maintenance cost was 35% of total maintenance works.
The average winter maintenance cost per 1 km was 472 euros.

**Winter maintenance information system**
Winter maintenance information system bases to the cooperation of Road Information Centre (which is a private entity) and road information units of winter maintenance performers. Data from more than 50 road weather stations are supported by road patrols and the information about road and traffic conditions is disseminated to road users by mass media and Internet.

*Supported by slide program (enclosed)*
Winter Maintenance Management in Estonia

Kuno Männik
Director
of Tartu Road Office of the Estonian Road Administration
### Climate

#### Monthly average Temperature (30-years average)

<table>
<thead>
<tr>
<th>Town</th>
<th>Nov</th>
<th>Dec</th>
<th>Jan</th>
<th>Feb</th>
<th>Mar</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tallinn</td>
<td>1.0</td>
<td>-2.2</td>
<td>-4.1</td>
<td>-4.9</td>
<td>-14</td>
</tr>
<tr>
<td>Tartu</td>
<td>0.0</td>
<td>-3.6</td>
<td>-5.3</td>
<td>-5.8</td>
<td>-14</td>
</tr>
<tr>
<td>Narva</td>
<td>-0.2</td>
<td>-3.9</td>
<td>-6.1</td>
<td>-6.5</td>
<td>-20</td>
</tr>
</tbody>
</table>

The average number of days from September to May in 1992-2000 with daily minimum temperature below 0°C and maximum temperature 0°C or above is 127.

### Climate

#### Snowfall (8-years average) (cm)

<table>
<thead>
<tr>
<th></th>
<th>Daily maximum snowfall</th>
<th>Maximum snow depth</th>
<th>Cumulative depth of snowfall</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tallinn</td>
<td>22</td>
<td>53</td>
<td>280</td>
</tr>
<tr>
<td>Tartu</td>
<td>20</td>
<td>49</td>
<td>290</td>
</tr>
<tr>
<td>Narva</td>
<td>15</td>
<td>51</td>
<td>290</td>
</tr>
</tbody>
</table>
Average Snow Cover Depth (cm) on Fields, in February:

Road Network By Winter Service Levels

<table>
<thead>
<tr>
<th></th>
<th>Total</th>
<th>By levels of the state of a road</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Level 4</td>
</tr>
<tr>
<td>Winter service km</td>
<td>16 460</td>
<td>0</td>
</tr>
<tr>
<td>%</td>
<td>100</td>
<td>0</td>
</tr>
</tbody>
</table>

Notes:
The level 4 is defined as the highest and 1 as the lowest level of the state of roads.
Seisunditase 1
Level 1

LUMETŐRJE 36 TUNNI JOOKSUL
LIBEDUSTŐRJE 24 TUNNI JOOKSUL (ohitikes kohtades)

Seisunditase 2
Level 2

LUMETŐRJE 12 TUNNI JOOKSUL
LIBEDUSTŐRJE 8 TUNNI JOOKSUL
### Maximum Service Cycle Time (h)

<table>
<thead>
<tr>
<th>Required level of service</th>
<th>Snow and slush removal</th>
<th>De-icing, anti-skid treatment</th>
<th>Salt-snow mix removal</th>
<th>Sidewalks cleaning and skid control</th>
<th>Treatment of other road facilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Motorway</td>
<td>2</td>
<td>2</td>
<td>4</td>
<td>6</td>
<td>8</td>
</tr>
<tr>
<td>4</td>
<td>5</td>
<td>4</td>
<td>8</td>
<td>8</td>
<td>12</td>
</tr>
<tr>
<td>3</td>
<td>12</td>
<td>8</td>
<td>-</td>
<td>12</td>
<td>24</td>
</tr>
<tr>
<td>2</td>
<td>36</td>
<td>24 (spots)</td>
<td>-</td>
<td>12</td>
<td>36</td>
</tr>
</tbody>
</table>

**Seisunditase 3**

**Level 3**

**LUMETÖRJE 5 TUNNI JOOKSUL**

**LIBEDUSTÖRJE 4 TUNNI JOOKSUL**
<table>
<thead>
<tr>
<th>Required service level</th>
<th>Hours when requirements are applied</th>
</tr>
</thead>
<tbody>
<tr>
<td>Motorway 4</td>
<td>Round the clock</td>
</tr>
<tr>
<td>3</td>
<td>6.00-22.00 On other time service level 2 is allowed</td>
</tr>
<tr>
<td>2</td>
<td>7.00-21.00 On other time service level 1 is allowed</td>
</tr>
<tr>
<td>1</td>
<td>Determined by the owner of the road</td>
</tr>
</tbody>
</table>

Development Phases of the Estonian Road Organisation

Source: Proposals for the Reorganisation of the Estonian Road Administration, Tallinn 2001

Phases of development of the road organisation

<table>
<thead>
<tr>
<th>Phases of development of the road organisation</th>
<th>Extent of contracting out of road maintenance</th>
<th>Territorial administrative reform of Estonia</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maintenance done in-house by regional road offices and contracted out in 6 counties</td>
<td>Maintenance contracted out in all 15 counties</td>
<td>15 district road offices as state road agencies, administrated by the government body – the Estonian Road Administration (ERA)</td>
</tr>
<tr>
<td>Maintenance done in-house by regional road offices and contracted out in 9 counties</td>
<td>Maintenance contracted out in all 15 counties</td>
<td>6 regional road offices + 9 county branch offices as state road agencies, administrated by the ERA</td>
</tr>
<tr>
<td>Maintenance contracted out in 15 counties</td>
<td>Maintenance contracted out in all 15 counties</td>
<td>Possible establishment of 6 local civil service agencies instead of administrated agencies of the ERA as a government body, delegation of certain functions of the ERA to local agencies</td>
</tr>
<tr>
<td>Maintenance contracted out in all 15 counties</td>
<td>Maintenance contracted out in all 15 counties</td>
<td>Restructuring of the ERA depending on the territorial administrative reform of Estonia</td>
</tr>
</tbody>
</table>
ADMINISTRATIVE REFORM AND CONTRACTING OUT OF ROAD MAINTENANCE IN ESTONIA

YEAR 2000

15 COUNTY ROAD OFFICES

WINTER ROAD MAINTENANCE

CONTRACTED OUT IN 1 ROAD MASTER AREA (TEST)

SUPERVISION OF WINTER MAINTENANCE

NO INDEPENDENT SUPERVISION

YEAR 2005

6 REGIONAL ROAD OFFICES

WINTER ROAD MAINTENANCE

CONTRACTED OUT IN 10 COUNTIES

SUPERVISION OF WINTER MAINTENANCE

CARRIED OUT BY STATE AGENCY IN 5 COUNTIES
MAINTENANCE CONTRACTS IN 2005

ESTONIAN ROAD ADMINISTRATION

Road Administration of Northern Region of Estonia
- In-house 1424 km

Pärnu Regional Road Office
- In-house 1424 km
- Contract 1244 km Viljandi
- Contract 765 km Lääne

Kagju Regional Road Office
- In-house 1245 km
- Contract 1153 km Pärva
- Contract 1117 km Valga

Tartu Regional Road Office
- In-house 1260 km
- Contract 1100 km Jõgeva

Viru Regional Road Office
- In-house 1141 km
- Contract 926 km Ida-Viru

Saarte Regional Road Office
- In-house 1087 km
- Contract 473 km Hiiu

In-house 1245 km
- Contract 465 km Harju
- Contract 599 km Harju
- Contract 688 km Harju
- Contract 1012 km Rapla
- Contract 971 km Järva

………Contract 1012 km Rapla
………Contract 971 km Järva
………Contract 465 km Harju
………Contract 599 km Harju
………Contract 688 km Harju

………Contract 1244 km Viljandi
………Contract 765 km Lääne

………Contract 1153 km Pärva
………Contract 1117 km Valga

………Contract 1100 km Jõgeva

………Contract 926 km Ida-Viru

………Contract 473 km Hiiu

Regional Performers of Road Maintenance by Counties

- Saarte Regional Road Office
- Kagu Regional Road Office
- Tartu Regional Road Office
- Viru Regional Road Office
- Road Administration of Northern Region of Estonia
Level of Winter Maintenance
Privatisation 2005

State Contractor 7%
Private Contractor 56%
State Agency 37%

WINTER MAINTENANCE COST 2004

WINTER MAINTENANCE 35%
SUMMER MAINTENANCE 65%

AVERAGE WINTER MAINTENANCE COST PER 1 KM 7387 EEK ≈ 472 EUR
WINTER ROAD INFORMATION

ENSTONIAN ROAD ADMINISTRATION

CONTRACT

ROAD INFORMATION CENTER

PRIVATE COMPANY

50 ROAD WEATHER STATIONS

INFORMATION UNITS OF WINTER MAINTENANCE PERFORMERS

11 PRIVATE COMPANIES

5 STATE ROAD OFFICES

ROAD USERS

TELEPHONE

RADIO

TELEVISION

INTERNET

NEWSPAPERS

Sign with the Name and Telephone Number of the Winter Maintenance Performer

Road Information Center Tel 1500
THANK YOU!

Kuno Männik
Estonian Road Administration
www.mnt.ee