



XIII
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SUSTAINABLE WINTER SERVICE FOR ROAD USERS

SUSTAINABLE WINTER SERVICE IN ROAD TUNNELS

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THE C4 TECHNICAL COMMITTEE AND SUSTAINABLE WINTER SERVICE IN ROAD TUNNELS

Created in 1957 with the name “Road tunnel Committee”, the actual C4 committee adopted the name of “Technical Committee for Road Tunnel Operations” to reflect that its focus had shifted away from the construction of the underground infrastructure and towards dealing with the actual use of roads and accompanying facilities, i.e.

- geometry,
- equipment and its maintenance,
- exploitation,
- safety and
- environmental impacts.

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- This committee, with its 70 members and 75 associate members coming from 38 countries, is very productive. It produced no less than 24 reports at the time of 3 preceding PIARC cycles and it envisages producing 11 new reports during the current cycle.
- It also took part in many international conferences and organized many seminars.
- It never took part as committee in one of the PIARC winter road congress.
- However road tunnels, as element of the general road network, are also subjected to the winter conditions and know specific problems.

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- For this first session dedicated to the tunnels winter viability, it was decided to present some cases representative of the various kinds of encountered problems.
- These problems occur primarily in the areas where the winter temperatures are very low, primarily
 - in Nordic areas and
 - mountainous areas.
- TC C4 hopes that these case studies should feed future design of tunnels and should trigger a new design philosophy for new tunnels or refurbishment projects, by considering operations problem in winter conditions.

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- The session will start with the presentation of the winter exploitation of the road tunnels on the plain of Quebec, by taking as case the tunnels
 - Louis-Hippolyte La Fontaine located one under the maritime way of the St-Laurent river
 - Ville-Marie Viger located in the heart of downtown Montreal
- This presentation, made by Alexandre DEBS (Canada-Quebec), will deal with problems related to the winter management of tunnels and their various systems.

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- The second presentation, presented by Per ANDERSSON (Sweden), will be devoted to the problems of winter viability of plain or mountain tunnels with not covered rock faces.
- These tunnels are often subjected to problems of water infiltration and ice formation during winter.
- We will see how to fight against the icicles formation and how to proceed for the tunnel cleaning operations by great cold.
- The problems of drainage and corrosion will be also tackled.
- This talk will also treat philosophy used in the Swedish standards for the new tunnels design and the old tunnels rehabilitation.

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- The last presentation, presented by Duane Hill (USA), will relate to the winter maintenance of tunnels in North-Eastern Minnesota.
- We will see in particular a real case of sustainable winter viability. During the winter season, the tiles get covered with ice reducing chemicals and grime. Due to the proximity to Lake Superior, all cleaning products and wash water must be recovered and disposed into a treatment facility.
- This talk will detail in particular the special procedures that have been developed for completing this work in an environmentally sensitive manner.

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- These presentations will be followed by a short questions – answers session and it will be requested from the audience to deliver its opinion on the continuation of this initiative,
 - either in the form of similar sessions to organize for the next congresses,
 - or in the form of the drafting by the committee of a technical report specific to these problems during the next PIARC cycle,
 - or in the form of a specific chapter in the future road tunnels electronic encyclopaedia under development.

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- ***... and now, , let us listen to our 3 speakers !***