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# Road noise mitigation

## Presentation of the Working Group D2.3 activities


**Filippo G. Praticò**
*University Mediterranea at Reggio Calabria, Italy*

**presented by**
**Fabienne Anfosso Lédée,** *IFSTTAR, France*

# Key-factors and main tasks

- a) Compile critical information and existing experience related to the **performance and the durability of various quiet pavements technologies** ;
- b) Collect information about various **frameworks for managing noise**. This may include legislative requirements or policies ;
- c) **State of the practice** report, with Recommendations on the criteria for the choice of the pavement to reduce sound

# Description of work

- Information was collected through a PIARC *noise questionnaire* and through a literature survey
- A *report* was drafted.

# Questionnaire

**Answers provided by 13 countries**

Canada ; Canada ; Mexico ; Japan
Austria ; Denmark ; France ; Germany ; Italy ; Norway ;
Slovenia ; Spain ; United Kingdom;

- ✓ On their concerns about road noise
- ✓ About the various frameworks for managing noise (legal requirements, policies,…)
- ✓ About specific studies
- ✓ Views on the further works to be performed

# Report

**COMMITTEE MEMBERS WHO CONTRIBUTED TO THE REPORT**

Filippo G. Praticò, Italy (working group coordinator);

Mark Swanlund, U.S.A.;

Luc-Amaury George and Fabienne Anfosso, France;

Guy  Tremblay, Canada;

Rodolfo Tellez, Mexico;

Keizo Kamiya, Japan;

Josè Del Cerro, Spain;

Jan Van Der Zwan, Netherlands;

Georges Dimitri, International;

# Report

The report is organized in 4 parts:

1. the conceptual framework for **managing road noise**,
2. **tire-pavement noise fundamentals** (mechanisms, main systems which act as source, mechanisms complexity and practical needs),
3. **practical solutions** : low noise road surfaces with asphalt (porous, thin layers, inclusion of rubber) and with cement concrete
4. National and multi-national **quiet pavement initiatives** (in EU and U.S.)

# Low noise road surfaces

Noise performances and their evolution over time are difficult to compare due to:

- different **references**
- different **characterization methods**, speeds, indicators,…

# Conclusions (1/2)

- **Many national/international research programs**, **projects and policies** aimed at reducing the physical impacts of environmental noise over the past decades
- strong focus on **source-related mitigation** measures and an increasing emphasis on cost-effectiveness.
- Many solutions for **noise reducing road surfaces** have been developed.

**However…**

- **knowledge and experiences must be shared** for a wider spread of innovation
- ⇨ …

# Conclusions (2/2)

- Need for **standardisation of acoustic performances and assessment methods of road surfaces** to better compare and select the products.
- More knowledge is needed on **lifetime performances and durability** of noise reducing road surfaces.
- Due to evolution in traffic spectrum, it is more and more relevant to include **truck tyre noise** in mitigation research.
- Infrastructure **sustainability** is growing in interest: opportunity of considering, in future projects, the **combination of noise, air pollution and other environmental issues** (*e.g., silent road surfaces with low rolling resistance*)

# *session on noise: 3 papers selected*

1. Mr. K. Kamiya, *Public Works Research Institute, Japan*

   **Long lasting durable mix as alternative of porous asphalt**

1. Mr. Y. Miao, *Beijing University of Technology, China*

   **3-D characterization of asphalt pavement macrotexture for skid resistance evaluation**

2. Mr. L. Goubert, *Belgian Road Research Centre, Belgium*

   **The poro-elastic road surface (PERS): a powerful tool for traffic noise reduction**