Introduction

“The reduction of traffic noise is a major challenge for National Road Authorities in Europe”
**Agenda**

- Introduction CEDR
- Objectives & Process
- Results & Recommendations
  - Subgroup reports
  - Executive summary
- Conclusion

**Introduction CEDR**

- What is CEDR?
  - "Conference of European Directors of Roads"

- Cooperation of National Road Authorities of EU
  - Projectgroup Road Noise 2

<table>
<thead>
<tr>
<th>Country</th>
<th>Name and Affiliation</th>
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<tbody>
<tr>
<td>England</td>
<td>Mr. Simon Styles and Mr. Christopher Harding</td>
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<tr>
<td>Belgium</td>
<td>Mr. Jean-Marie Verstraete</td>
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<tr>
<td>Cyprus</td>
<td>Mr. Evelyn Economou</td>
</tr>
<tr>
<td>Denmark</td>
<td>Mr. Hans-Joergen Pedersen</td>
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<tr>
<td>France</td>
<td>Mr. Jean-Louis Dupont and Mr. Jean-Pierre Debat</td>
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<tr>
<td>Germany</td>
<td>Mr. Karl-Heinz Döttling and Mr. Joachim A. Stahl</td>
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<td>Greece</td>
<td>Mr. Efthalian Ivanovski</td>
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<tr>
<td>Italy</td>
<td>Mr. Paola Bartolone</td>
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<tr>
<td>Lithuania</td>
<td>Mr. Zigmas Kalaicas</td>
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<tr>
<td>Norway</td>
<td>Mr. Arne-Bjarne Hov</td>
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<td>Poland</td>
<td>Mr. Jakub Bogdański</td>
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<tr>
<td>Spain</td>
<td>Mr. Jose Maria Oliva</td>
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<tr>
<td>Sweden</td>
<td>Mr. Per Strömstedt</td>
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Objectives CEDR SP2

Overall goal from CEDR Strategic Plan 2009-2013:

• Establish state of the art standards in line with objectives of NRA’s and facilitate the use of these new standards

• Monitor EU lawmaking and take action on EU Directives

• Develop and share knowledge on sustainable infrastructure

Objectives Projectgroup RN2

Table 1: CEDR RN2 objectives in accordance with the goals of the CEDR Strategic Plan

<table>
<thead>
<tr>
<th>CEDR Road Noise 2 objective</th>
<th>TD Construction goal</th>
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<tbody>
<tr>
<td>1 Review CEDR members approach to strategic noise mapping of major roads in 2007 with a view to identifying best practice for the second round in 2012</td>
<td>Develop and share knowledge on a sustainable infrastructure</td>
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<tr>
<td>3 Review and assess CEDR members approaches to action planning in 2008 with a view to providing best practice advice for the second round in 2013</td>
<td>Develop and share knowledge on a sustainable infrastructure</td>
</tr>
<tr>
<td>4 Undertake a survey of CEDR members ambitions regarding the (ongoing) procedure in the European Parliament (early 2009) on the new regulation on advanced safety features and tyres COM(2008) 316 (especially the tighter noise emission requirements 2006/43/EC)</td>
<td>Monitor European lawmaking</td>
</tr>
<tr>
<td>5 Assess CEDR members views and support for tyre noise limits for heavy duty vehicles in COM(2008) 316</td>
<td>Tyre &amp; Vehicle Noise</td>
</tr>
<tr>
<td>6 Assess and review CEDR members views regarding the Tyre Label Directive</td>
<td>Tyre &amp; Vehicle Noise</td>
</tr>
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</table>

Noise Mapping

EU action plans

Tyre & Vehicle Noise
**Objectives Projectgroup RN2**

<table>
<thead>
<tr>
<th>Subject</th>
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<tbody>
<tr>
<td>Assess and review engine/vehicle noise limits</td>
</tr>
<tr>
<td>Review CEDR members position regarding input data requirements of the European Noise Model</td>
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<tr>
<td>Review acoustical characteristics of silent pavements (durability, labelling and conformity checking)</td>
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<tr>
<td>Noise barrier standards and improvements (design, absorption, multi-functionality)</td>
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<tr>
<td>Monitor the European Position on Europe wide noise limit values</td>
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**EU CNOSSOS**

- Not addressed -> RN3

**Tyre & Vehicle Noise**

- Not addressed -> RN3

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**Process CEDR RN2**

4 initial subgroups (main topics):
- EU Noise Mapping
- EU Action plans
- Traffic Noise abatement "Value for Money"
- EU CNOSSOS

2 added subgroups:
- Road traffic research needs
- Factsheets (minor topics)
4 Subgroups at work

Results

• In total 6 reports and 13 recommendations for improvements
Results Noise Mapping

Inaccuracy of input data
Uncertainties for lower noise bands Lden < 55 Lnight < 45

No Standardisation in maps

Recommendation Noise Mapping

Standardise and simplify methods to minimise costs (EU CNOSSOS)

Recommendation 1
To minimise costs associated with undertaking the required EU strategic noise mapping in 2017, all NRAs should closely monitor or actively participate (through relevant channels in their country e.g., Noise Regulatory Committee representative) in the development of the proposed new calculation methodology (CNOSSOS-EU) to ensure that a simplified approach rather than a more advanced approach is adopted. They should also inform the relevant representative that the introduction of noise bands lower than 55 dB Lden and 45 dB Lnight beyond the validation distance of a noise calculation method will only add additional uncertainty and inaccuracy to the reported noise mapping data. This would also result in NRAs having to incur additional costs to augment current data collection methodologies.

Recommendation 2
Promote use of colour proposal in any future noise mapping programmes. The across member states.
Results Action planning

High variation in limit values AP irt measures

High variation in costs related to AP

80% AP’s without CBA!

Recommendation Action plans

Integrated action plans and close cooperation between EU NRA’s on action plans

Recommendation 4

NRAs should give consideration to integrating the content of noise action plans into their respective planning process or asset management programmes.

Prioritise the development of a harmonised cost benefit assessment tool for analyses of noise action plans

Recommendation 7

NRAs should contact their national noise regulatory committee representative to request the European Commission to prioritise the development a harmonised cost-benefit assessment tool for analyses of noise action plans. CEDR RN3 should provide input to the EC on costs and benefits as needed.
Results "Value for Money"

Noise reduction at source is most cost effective measure (best "value for money")

Table 6 Possible noise abatement measures, their potential for reduction in road traffic noise annoyance and the cost of reducing the number of annoyed people

<table>
<thead>
<tr>
<th>Noise abatement measure</th>
<th>Reduction annoyed people million</th>
<th>Cost reduction annoyed people EUR per person per year</th>
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</thead>
<tbody>
<tr>
<td>Vehicle noise reduction 1:3</td>
<td>19.5</td>
<td>16</td>
</tr>
<tr>
<td>Vehicle noise reduction 3:6</td>
<td>19.7</td>
<td>10</td>
</tr>
<tr>
<td>Thin layer asphalt</td>
<td>2.2</td>
<td>136</td>
</tr>
<tr>
<td>Single layer porous asphalt</td>
<td>1.1</td>
<td>290</td>
</tr>
<tr>
<td>Fasade insulation</td>
<td>0.5</td>
<td>570</td>
</tr>
<tr>
<td>Double layer porous asphalt</td>
<td>0.3</td>
<td>540</td>
</tr>
<tr>
<td>Noise barriers</td>
<td>0.07</td>
<td>4200</td>
</tr>
</tbody>
</table>

* Fasade insulation measure used a replacing two windows, assuming 60% effect on annoyance reduction.

Recommendations

Value for money

Close liaison with vehicle and tyre manufacturers

Recommendation 8
CEDR should liaise closely with interested parties such as the vehicle and tyre manufacturers to formulate a combination of measures that are appropriate for the treatment of road traffic noise. In addition, CEDR should also give consideration to preparing a position paper for the Commission on the level of noise abatement achieved from the various noise mitigating measures used on national road schemes.

Exploit low noise pavements where appropriate

Recommendation 9
With regard to mitigating noise at locations in close proximity to major roads, NRAs should exploit low noise pavements, where appropriate, as a first option as they have been shown to be the most cost-effective noise abatement measure. This can be used in combination with other measures such as traffic management.
**The results EU CNOSSOS**

- Participation in Expert groups (3 members CEDR)
- During process CNOSSOS recommendation on methods and input data
- Monitoring will go on during implementation phase (RN3)

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**The recommendations EU CNOSSOS**

On the topic of CNOSSOS-EU the following recommendations were given in the first drafting phase of CNOSSOS-EU:

- input data for traffic flows should ideally be available from regular national traffic counting that is already undertaken by the NRAs.
- the effect of low noise road surface should be derived from national datasets to account for national differences.
- geometry of traffic lanes and noise screens should be available from existing databases that were generated during the first two rounds of strategic noise mapping.
- for the propagation model, the type of ground (G value), especially in close proximity to roads should be given by default values.
Main recommendations

- Close liaison with vehicle and tyre manufacturers to find the most cost effective traffic noise measures.
- Standardise and simplify methods to minimise costs (EU CNOSSOS).
- Define status and integrate action plans in road planning and maintenance to achieve quick wins in mitigation.

Conclusions 4 years work

- Objectives were met:
  - contribution to standardisation EU CNOSSOS & Noise mapping
  - exchange/sharing of knowledge (Noise mapping/action plans & vehicle noise)
  - monitor EU lawmaking (results "Value for money report" & END evaluation)
- New research needs for RN3 -> 2013 -2017
- Recommendations supported by CEDR EB and GB
- Implementation of recommendations within NRA’s -> lower costs and "state of the art" noise abatement
Meeting Field trips

Thanks!!!

Special thanks: Jesús Alférez, Jakob Fryd, Vincent O’Malley

Ingunn Milford (co-authors)
Thank you for your attention!