EU Legislation and Policies on Environmental Noise

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Green Action/Friends of the Earth

Project „Impact of Croatian Membership in EU on health and environment“
Professional background in noise abatement


Since 2009 Consultant to the German Ministry of Environment (railway noise) and the UBA

Since 2009 Chairman of the ALD: Arbeitsring Lärm der DEGA (Noise Abatement Group of the German Acoustic Society) www.ald-laerm.de

Since 2011 Representative of Transport & Environment (T&E) in 2 European Working Groups on Railway Noise Abatement http://www.transportenvironment.org/Pages/transport-noise/
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Basic information on noise abatement
Overview on European noise policy
Noise exposure regulations
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Recommendations for the NGO
exposure: outdoor level $L_{out}$ in order to protect outdoor living areas as well
indoor levels $L_{in}$ on the basis of slightly opened windows
Basic information: definitions

Dose(Exposure)-Effect-Relationship

E = f (D)

Etarg

Dexist

Dose D
Basic information: dose indicators

Traditionally for long-term effects:
Average level Leq
(equivalent continuous sound pressure level in dB(A))

Example railway noise (similar: aircraft noise)

For sleep disturbance Lmax, indoors relevant
EU noise policy: overview

EU applies the following **instruments** to mitigate noise:

**noise emission** regulations (since **1970**)

**operating restrictions** (since **1992**: aircrafts)

**noise exposure** regulations (since **2002**: END)

Regulations on the **internalisation of external noise costs** (since **2011**)

Besides the regulations the EU finances research activities in the field of noise abatement

See [http://ec.europa.eu/environment/noise/home.htm](http://ec.europa.eu/environment/noise/home.htm)
EU noise policy started in 1970:
OJ L 42, 23.2.1970, p. 16–20 (DE, FR, IT, NL)

permissible sound levels: emission limits

application to new vehicles

definition of limits and the measurement procedure

Directive: legislative act which has to be tranposed to national law

Council: of the Member State (MS) ministers

aim: harmonising
noise emission regulations in the EEC (European Economic Community) to promote the internal market
European noise policy: overview
noise emission regulations 2

Further noise emission regulations since 1970, i. e.

1978: outdoor machinery (such as lawn-mowers)

2002: railbound vehicles

1995: recreational craft (motor boats)

All these regulations are subject to repeated revisions (scope, limits, measurement procedures) ►see below

Noise emission limits have to be applied in the MS

No European noise emission regulations for aircrafts (regulated within the International Civil Aviation Organization (ICAO))
Last **tightening** of the limits in **1992** (enforcement 1995):

**Development** of limits (Source: EU-Com, DG ENTR):
Though considerable limit reductions only small reductions of noise exposure

Main reasons:

measurement procedure based on extreme driving situation not representative for real driving conditions

limits only influenced engine noise - nowadays road/tyre noise more important

Therefore:

new test procedure (R51 of the UN-ECE) more representative of real driving conditions

additionally introduction of noise limits for tyres


Currently new limits based on the new test methods are developed (proposal of the Commission expected in November 2011)
European noise policy: overview operating restrictions 1

Application only to **aircrafts**

ICAO regulates **noise emissions** for newly certificated aeroplanes within Annex 16 to Chicago Convention (jet-powered)

Chapter 2: up to **1977**

Chapter 3: **1977 - 2005**

Chapter 4: since **2006**


Chapter 2-aircrafts were no longer allowed to operate in the EU after **April 2002**
European noise policy: overview operating restrictions 2

DIRECTIVE 2002/30/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 26 March 2002 on the establishment of rules and procedures with regard to the introduction of noise-related operating restrictions at Community airports


allows operating restrictions for „marginally compliant aircrafts“:

not more than cumulative 5 EPNdB (Effective Perceived Noise in decibels) below the chapter-3 limit (3 reference noise measurement points)

„City airports“ (in the centre of a large conurbation): chapter-3 aircrafts

“… proposal for a directive providing for the harmonization of methods of assessment of noise exposure and the mutual exchange of information. The proposal could include recommendations on noise mapping and the provision of information on noise exposure to the public. In a second stage consideration could be given to the establishment of target values and the obligation to take action to reach the targets.”

Article 1:
„The aim of this Directive shall be to define a common approach intended to avoid, prevent or reduce on a prioritised basis the harmful effects, including annoyance, due to exposure to environmental noise.“
The following **actions** shall be implemented:

“(a) the determination of exposure to environmental noise, through **noise mapping**, by methods of assessment **common** to the Member States;

(b) ensuring that **information** on environmental noise and its effects is made available to the **public**;

(c) adoption of **action plans** by the Member States, based upon noise-mapping results, with a view to preventing and reducing environmental noise where necessary and particularly where exposure levels can induce **harmful effects on human health** and to preserving environmental noise quality where it is good.“

MS had to transpose the END into national law till **18 July 2004**.

**Detailed** description of the END ►see below
European noise policy overview: Internalisation of external transport noise costs

Basic idea: to give an **economic incentive** to operate with quieter vehicles


**Agreement** Parliament and Council on **12 September 2011** (not yet published in the Official Journal)

„**Article 7c:**
1. The external-cost charge may be related to the cost of traffic-based air pollution. On road sections crossing areas with a population exposed to road traffic-based **noise** pollution, the external-cost charge may include the cost of traffic-based noise pollution.“
European noise policy overview: Internalisation of external transport noise costs

Two methods to determine the specific external noise costs (€c/km):

**bottom-up:** calculating for a certain road the external costs and dividing it by the traffic volume

**average values** – these are also the maximum allowable values

<table>
<thead>
<tr>
<th>cent/vehicle-kilometre</th>
<th>Day</th>
<th>Night</th>
</tr>
</thead>
<tbody>
<tr>
<td>Suburban roads (including motorways)</td>
<td>1,1</td>
<td>2,0</td>
</tr>
<tr>
<td>Interurban roads (including motorways)</td>
<td>02</td>
<td>0,3</td>
</tr>
</tbody>
</table>

„The values [in the table] may be multiplied by a factor of up to 2 in **mountain areas** to the extent that it is justified by the gradient of roads, temperature inversions and/or amphitheatre effect of valleys.“
European noise policy overview: Internalisation of external transport noise costs

Proposal for a Directive of the European Parliament and of the Council establishing a single European railway area (Recast)


Council position of 20 June 2011

Parliament first reading November 2011

Voluntary introduction of noise differentiated track access charges:
„The infrastructure …. may be modified to take account of the cost of environmental effects [noise etc.] caused by the operation of the train. Any such modification shall be differentiated according to the magnitude of the effect caused.“
Noise mapping:

common European **indicators** for the dose or exposure:

- \( L_{\text{day}}, L_{\text{evening}}, L_{\text{night}} \): average levels \( L_{\text{eq}} \) for the day-time (12 hours), night-time (8 hours) and evening (4 hours)

- \( L_{\text{den}} \): daily overall level averaging \( L_{\text{day}}, L_{\text{evening}} +5 \text{ dB(A)}, L_{\text{night}} +10 \text{ dB(A)} \) taking into account the higher sensibility versus noise during the evening and the night

- noise mapping for \( L_{\text{den}} \) and \( L_{\text{night}} \)

common **assessment** methods:

- in **2002** no common European assessment methods available
  - use of „interim methods“
    - either the defined **interim methods** (i.e. road traffic the French method NMPB-Rotes-96):
      - or adapted **national** assessment methods which will give „equivalent results“ (Art. 6)

- **Currently common assessment methods are prepared** („**CNOSSOS-EU**“: Common NOise aSSessment methOdS in EUrope)
Phases/deadlines deadlines for noise mapping

1st phase: 30 June 2007
2nd phase: 30 June 2012
further phases: + 5 years

Scope

major roads
- > 6 Mill. vehicles/a
- > 3 Mill. vehicles/a

major railways
- > 60.000 trains/a
- > 30.000 trains/a

major airports
- > 50.000 movements/a (take-off or landing)
- > 50.000 movements/a (take-off or landing)

agglomerations (roads, railways, airports, industry)
- > 250.000 inhabitants
- > 100.000 inhabitants
END: Noise mapping 3
Example Düsseldorf
Results in Europe: Agglomerations

Numbers of people affected by transport noise in agglomerations
> 250000 (EEA Member States)

Source EEA: http://noise.eionet.europa.eu/
Phases/Deadlines for the design of action plans

1st phase: 18 July 2008
2nd phase: 18 July 2013
Further phases: + 5 years after day of approval

Scope: see noise mapping

No deadlines for the implementation of the action plans!

Responsible: “competent authorities“, determined by the member states

Targets or exposure limits:

END does not set limits! (subsidiarity)

MS have to determine them
Information on strategic noise maps shall be made available to the public

Action plans: public consultation

The information on noise maps and actions plans „shall be clear, comprehensible and accessible“ (Art. 9 (2))
Progress:
noise awareness has been raised
binding deadlines for noise mapping and design of action plans
information and consultation of the public
harmonisation of approaches (indicators, scope, tools)

Deficits:
no common exposure limits or targets
no deadlines for the implementation of action plans
insufficient financial means for the implementation of action plans
Evaluation of European noise policy

Progress:

In principle a **consistent strategy** addressing emissions, exposures, economic instruments and operating restrictions:

- **END**
- **internalisation** of external noise costs
- **noise emission** regulations

Deficits:

**no consistent** approach for all sources (esp. transportation)
Example: no operating restrictions for railway transport

ambitious plans of the Commission often **weakened** by the Council (Member States!)
Example: Commission wants obligatory internalisation of external noise costs in the transport sector

sometimes very **slow** progress
Example: last tightening of noise emission limits for road vehicles in **1995**!

for noise effects **additional** indicators are needed (i. e. **Lmax**)
Recommendations for the Croatian noise policy within the EU framework: strategy

Accession to the EU offers the opportunity to **improve** national noise policy

**Development of a national integrated noise abatement strategy**

with the participation of all **stakeholders**, especially the affected population

**raising noise awareness** (i.e. on health risks) - as noise is among the underestimated environmental problems

making available **sufficient financial means** and **competent personnel** for noise abatement

**setting ambitious exposure limits or targets** for environmental noise within national legislation (► next slide)

on the European level: aim at **ambitious source regulations** (noise emission limits, operating restrictions, internalisation)

**For transport noise: Integration into strategies for sustainable mobility**
Recommendations for the Croatian noise policy within the EU framework: targets 1

Target proposals:

**WHO:**

  http://www.euro.who.int/InformationSources/Publications/Catalogue/20090904_12

- WHO (2000): Executive Summary of the Guidelines for **Community Noise**. 

  http://www.euro.who.int/__data/assets/pdf_file/0008/136466/e94888.pdf

**UBA:**

- Noise effects: 
  http://www.umweltbundesamt.de/laermprobleme-e/laermwirkungen/index.htm 
  (in English)

- Targets: 
  http://www.umweltbundesamt.de/laermprobleme/publikationen/UBA_Kriterien_ULR.pdf 
  (in German)
Recommendations for the Croatian noise policy within the EU framework: targets 2

WHO:

Cardiovascular: $L_{\text{day, outdoors}} \leq 65 \text{ dB(A)}$
Serious annoyance: $L_{\text{day, outdoors}} \leq 55 \text{ dB(A)}$
Moderate annoyance: $L_{\text{day, outdoors}} \leq 50 \text{ dB(A)}$
Cardiovascular: $L_{\text{night, outdoors}} \leq 55 \text{ dB(A)}$
Sleep disturbance: $L_{\text{night, outdoors}} \leq 45/40 \text{ dB(A)}$
Sleep disturbance: $L_{\text{night, indoors}} \leq 30 \text{ dB(A)}$

source: Babisch, UBA based on WHO
Recommendations for the Croatian noise policy within the EU framework: targets 2

**UBA:**

<table>
<thead>
<tr>
<th>Target</th>
<th>Time frame</th>
<th>$L_{den,\text{outdoor}}$ in dB(A)</th>
<th>$L_{night,\text{outdoor}}$ in dB(A)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Avoiding health risks</td>
<td>Short-term</td>
<td>65</td>
<td>55</td>
</tr>
<tr>
<td>Reducing high annoyance</td>
<td>Medium-term</td>
<td>60</td>
<td>50</td>
</tr>
<tr>
<td>Avoiding high annoyance</td>
<td>Long-term</td>
<td>55</td>
<td>45</td>
</tr>
</tbody>
</table>
Recommendation for NGO

**Participation** in the national process of developing a noise abatement strategy

Participation in the **END** implementation

On European level **networking**:

transportation noise: with T&E

bilateral coordination or information (i.e. ALD etc.)

exchange of knowledge on measures to mitigate noise (i.e. ALD-brochure on road traffic noise)
Thank you for your attention

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