

# EU Legislation and Policies on Environmental Noise

Zagreb , **17 – 18 October 2011**

Green Action/Friends of the Earth

Project „Impact of  
Croatian Membership in EU on health and environment"

# Professional background in noise abatement

- 1982 -2009 German Federal Environment Agency (Umweltbundesamt UBA)  
[www.umweltbundesamt.de](http://www.umweltbundesamt.de)  
Unit „Traffic 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](http://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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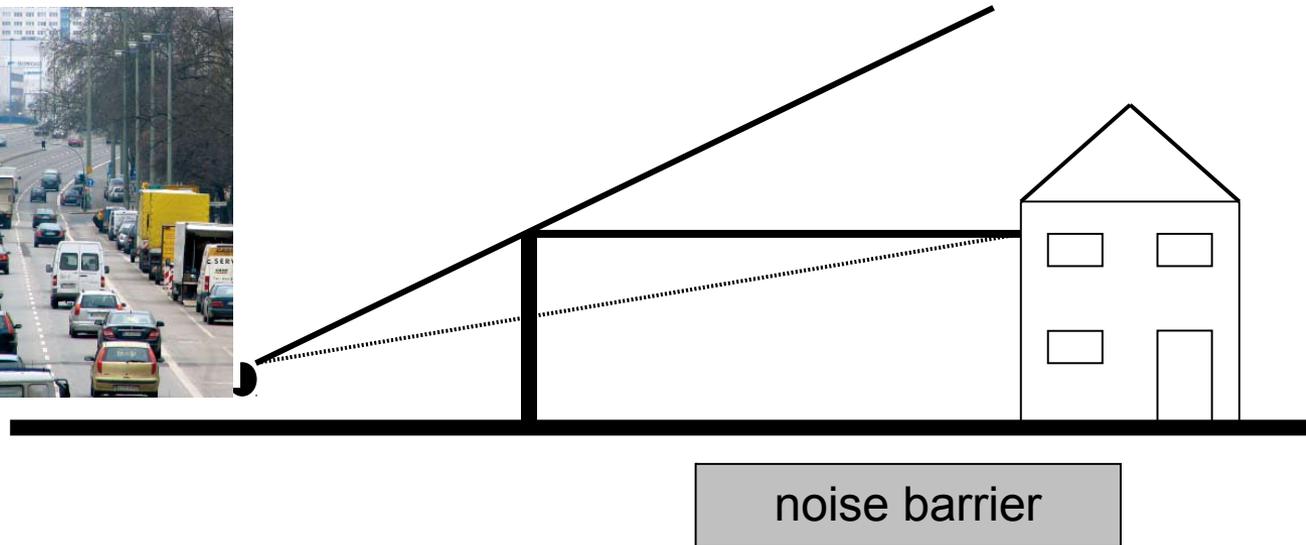
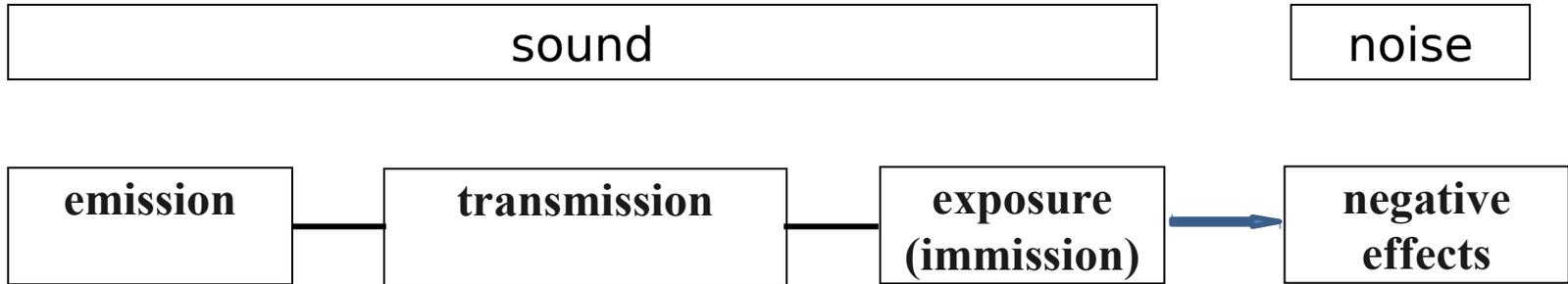
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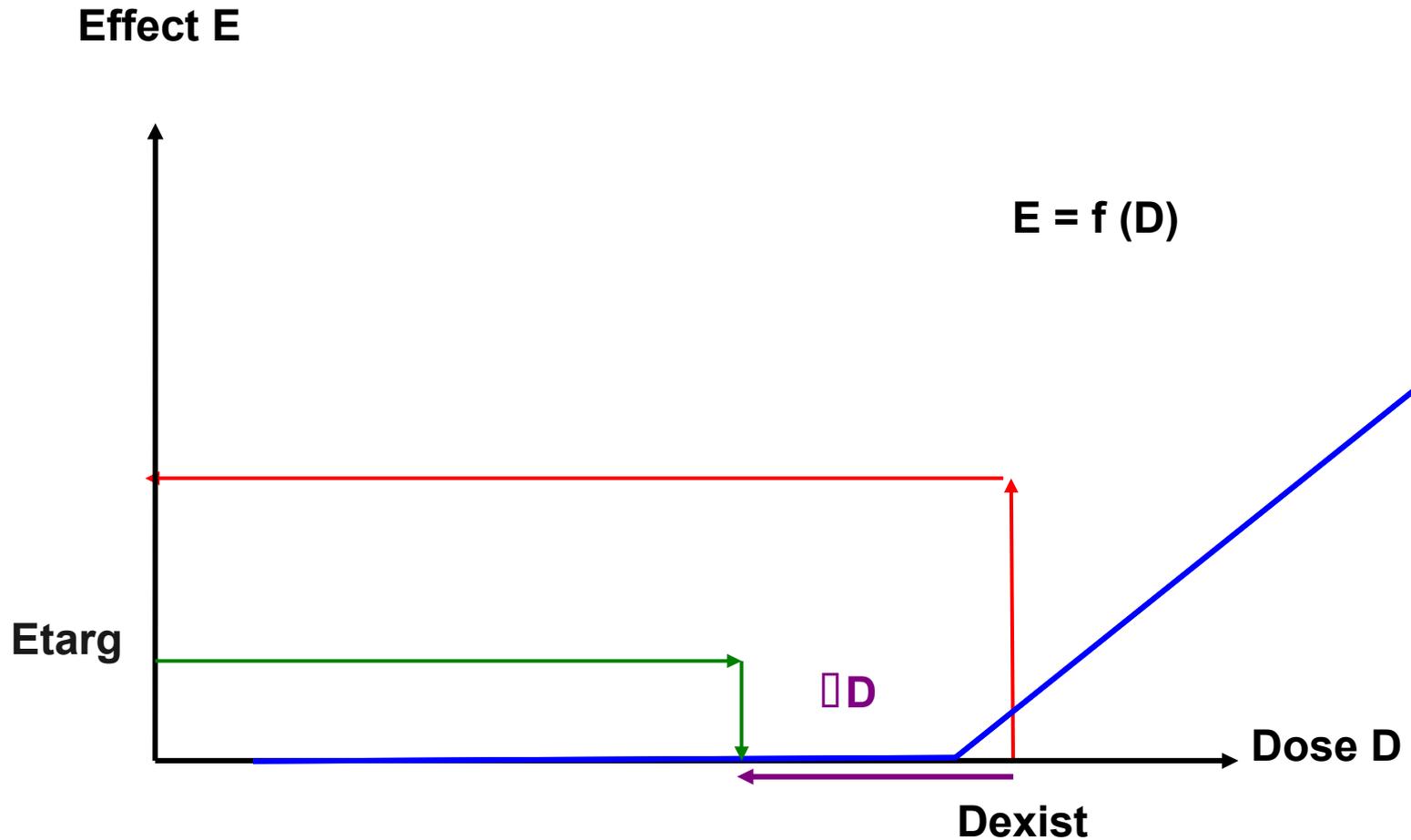
# Basic information: definitions 1



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



# Basic information: dose indicators

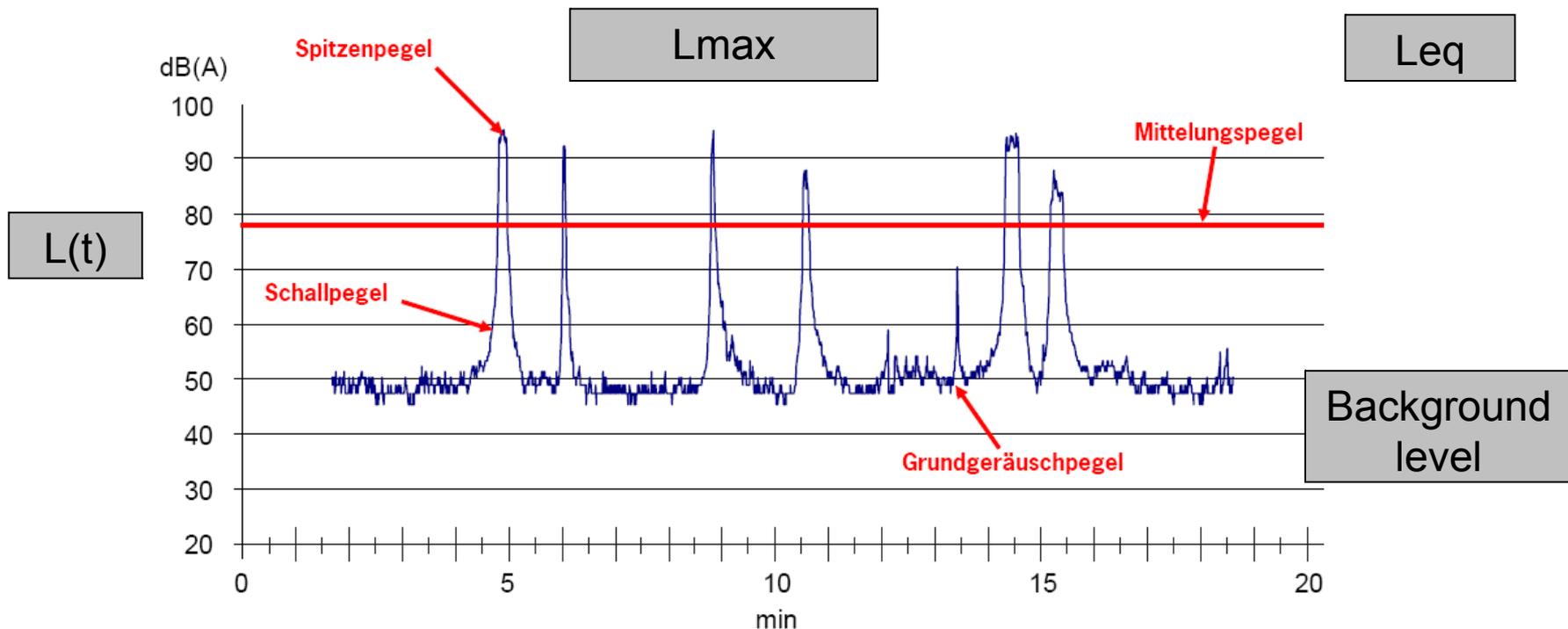
Traditionally for long-term effects:

Average level  $L_{eq}$

(equivalent continuous sound pressure level in dB(A))

Example railway noise (similar: aircraft noise)

For sleep disturbance  $L_{max, indoors}$  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>

# European noise policy: overview

## noise emission regulations 1

EU noise policy **started in 1970:**

*Council Directive 70/157/EEC of 6 February 1970 on the approximation of the laws of the Member States relating to the permissible sound level and the exhaust system of **motor vehicles***

*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 **transposed** 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))

# Noise emission regulations

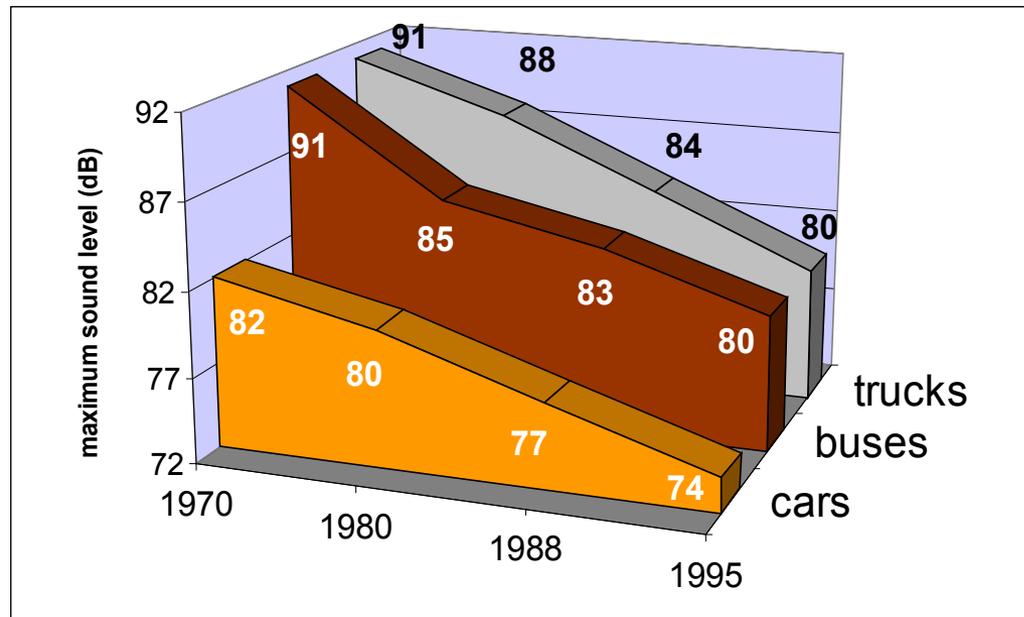
## Road vehicles 1

Last **tightening** of the limits in **1992** (enforcement 1995):

Council Directive 92/97/EEC of 10 November 1992 amending „Directive 70/157/EEC on the approximation of the laws of the Member States relating to the permissible sound level and the exhaust system of motor vehicles“

<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:1992:371:0001:0031:EN>

**Development of limits** (Source: EU-Com, DG ENTR):



# Noise emission regulations

## Road vehicles 2

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**

REGULATION (EC) No 661/**2009**,

<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2009:200:0001:0024:EN:PD>

**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**

Council Directive 92/14/EEC of March **1992** on the limitation of the operation of aeroplanes (Chapter 2)

<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:1992:076:0021:00>

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

<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2002:085:0040:>

**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

# European noise policy: overview

## noise exposure regulations 1

With the Green Paper „**Future Noise Policy**“ of **1996** the European Commission recognized that source-related noise policy is not sufficient

([http://ec.europa.eu/environment/noise/pdf/com\\_96\\_540.pdf](http://ec.europa.eu/environment/noise/pdf/com_96_540.pdf)):

► „... *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.*”

# European noise policy: overview noise exposure regulations 2

In **2002** Council and Parliament passed the **Environmental Noise Directive (END) 2002/49/EC**

(  
<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2002>  
)

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**.“*

# European noise policy: overview

## noise exposure regulations 3

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 1

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

DIRECTIVE OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL amending Directive 1999/62/EC on the charging of **heavy goods vehicles** for the use of certain infrastructures

<http://register.consilium.europa.eu/pdf/en/11/pe00/pe00024.en11.pdf>

**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 3

**Two methods** to determine the specific external noise costs (€/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

cent/vehicle-kilometre	Day	Night
Suburban roads (including motorways)	1,1	2,0
Interurban roads (including motorways)	02	0,3

„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 3

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

<http://register.consilium.europa.eu/pdf/en/11/st11/st11784.en11.p>

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.“*

# END: Noise mapping 1

## Noise mapping:

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

- $L_{day}$ ,  $L_{evening}$ ,  $L_{night}$  : average levels  $L_{eq}$  for the day-time (12 hours) , night-time (8 hours) and evening (4 hours)
- $L_{den}$ : daily overall level averaging  $L_{day}$ ,  $L_{evening} +5$  dB(A),  $L_{night} +10$  dB(A) taking into account the higher sensibility versus noise during the evening and the night
- noise mapping for  $L_{den}$  and  $L_{night}$

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 **NO**ise **aSS**essment meth**OdS** in **EU**rope)

# END: Noise mapping 2

## 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)

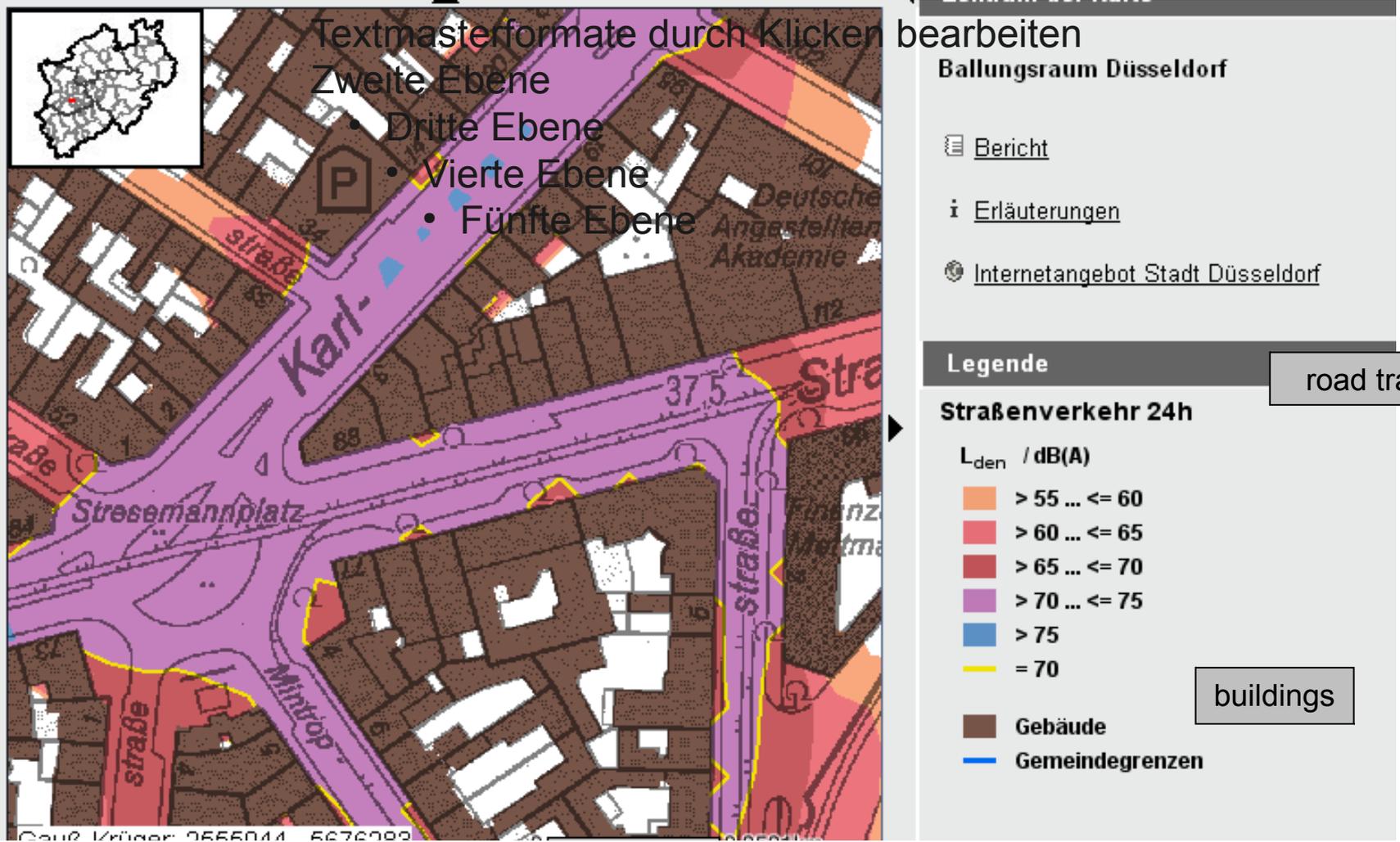
### agglomerations (roads, railways, airports, industry)

- > 250.000 inhabitants
- > 100.000 inhabitants

# END: Noise mapping 3

## Example Düsseldorf

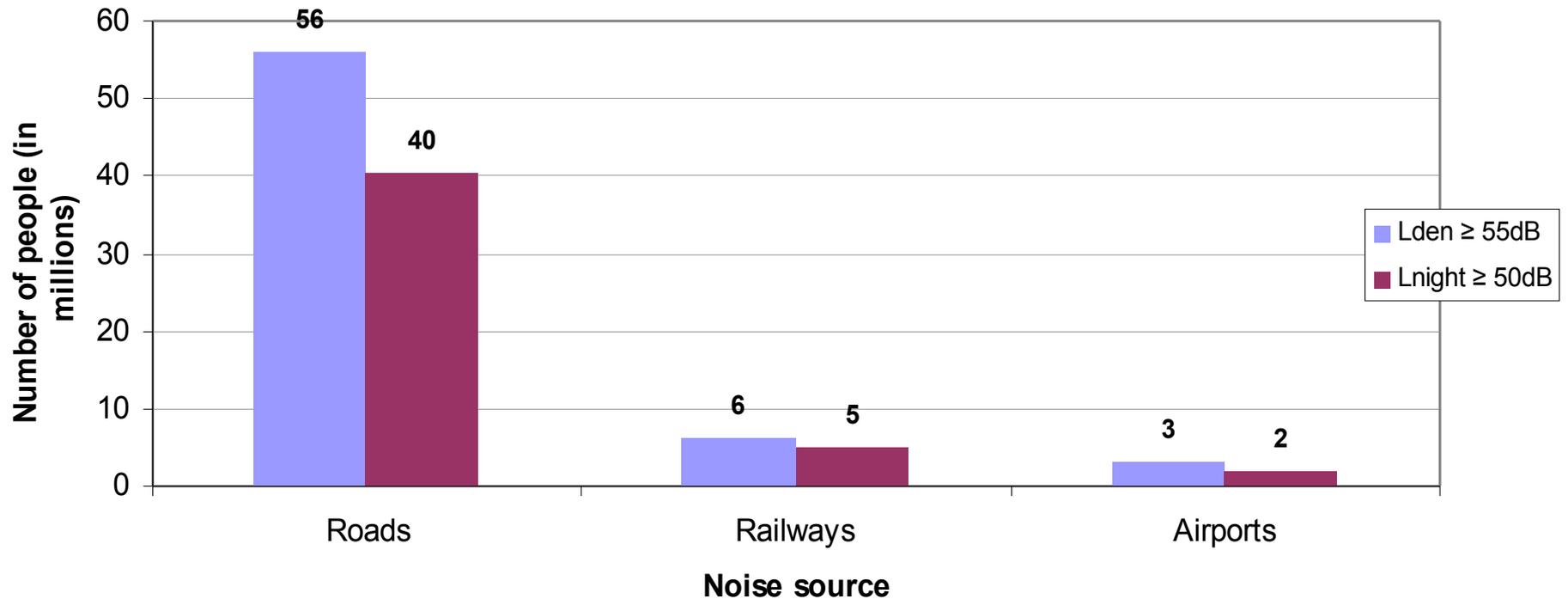
agglomeration



# END: Noise Mapping 4

## Results in Europe: Agglomerations

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



Source EEA: <http://noise.eionet.europa.eu/>

# END: Action plans 1

**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

## END: Information to the public

**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))

# END: Evaluation

## 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:

- WHO/Europe (2009): **Night Noise** Guidelines for Europe. Copenhagen. [http://www.euro.who.int/InformationSources/Publications/Catalogue/20090904\\_12](http://www.euro.who.int/InformationSources/Publications/Catalogue/20090904_12) )
- WHO (2000): Executive Summary of the Guidelines for **Community Noise**. Genf. <http://whqlibdoc.who.int/hq/1999/a68672.pdf>
- WHO/Europe, JRC (2011): **Burden of disease** from environmental noise. [http://www.euro.who.int/\\_\\_data/assets/pdf\\_file/0008/136466/e94888.pdf](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\\_UL](http://www.umweltbundesamt.de/laermprobleme/publikationen/UBA_Kriterien_UL) (in German)

# Recommendations for the Croatian noise policy within the EU framework: targets 2

WHO:

The screenshot shows a Windows XP desktop with Microsoft Office Picture Manager open. The main window displays a slide titled "WHO Qualitätsziele" (WHO Quality Targets) from the Umwelt Bundes Amt. The slide lists noise targets for day and night periods, categorized by health and annoyance levels. A tooltip is visible over the file name at the bottom of the slide.

**Umwelt Bundes Amt**  
Für Mensch und Umwelt

### WHO Qualitätsziele

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:	$L_{\text{night,indoors}} \leq 30 \text{ dB(A)}$

Quellen: WHO (1999, 2009)

DEGA: Berlin, 27.11.2009 – Vortrag Babisch

2009-11-27 Zielpegel-WHO.png  
Zoom: 100%  
Typ: PNG-Datei  
Dateigröße: 144 KB  
Abmessungen: 1200 x 900 Pixel

source: Babisch, UBA based on WHO

# Recommendations for the Croatian noise policy within the EU framework: targets 2

## UBA:

Target	Time frame	Lden,outdo or in dB(A)	Lnight, outdoor in dB(A)
Avoiding health risks	Short-term	65	55
Reducing high annoyance	Medium-term	60	50
Avoiding high annoyance	Long-term	55	45

# 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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