Exposure to Road Traffic Noise in Europe

Colin Nugent | CEDR SYMPOSIUM Road Traffic Noise Management and Abatement | Copenhagen | 15 May 2017
The European Environment Agency is an EU body that operates at the interface of science and policy.

With a network of more than 400 institutions in 39 European countries, the EEA provides timely, reliable and relevant information to support sustainable development.

The EEA’s work is targeted at EU institutions, EEA member countries, civil society and the general public.
Managing exposure to noise in Europe

Noise pollution poses a high risk to human health. This briefing presents updated estimates of the numbers of people exposed to environmental noise pollution in Europe. It also provides a new summary of the measures being used in Member States to manage noise. Road traffic remains by far the most important source of environmental noise as at least 100 million people are exposed to levels of traffic noise that exceed the European Union’s (EU) indicator of noise annoyance.

Main messages:
- Noise pollution remains a major environmental health problem in Europe.
- Road traffic is the dominant cause of environmental noise, with an estimated 900 million people affected by harmful levels. Railways, airports and industry are also important sources of noise.
- A wide range of measures is included in the noise management action plans established by Member States. Not surprisingly, measures targeting road traffic management are most commonly listed in 2017. Such measures include replacing road surfaces, improving traffic flows and introducing lower speed limits.
- The EU’s Seventh Environment Action Programme (7th EAP) sets the objective that, by 2020, noise pollution in the EU will have significantly declined, helping to reduce levels of annoyance.

In 2014, the European Environment Agency (EEA) published a first pan-European assessment on the state of noise pollution in the environment – the ‘noise in Europe 2014’ report. This assessment was based upon data reported to the EEA by its member countries in accordance with the Environmental Noise Directive (END) (2002/49/EC). Since then, additional data for the year 2012 have been reported to the EEA by a number of countries, which now allows for a more fine-grained assessment to be made.

eea.europa.eu/themes/human/noise
Core Set Indicator: Exposure to noise in Europe

END 2012 data as reported to EEA up to 15 April 2016
Night-time road noise and the WHO Interim Target

By mid-2016, noise maps for a further 8 capital cities were received.

By mid-2013, only 13 Member States, NO, IS & CH had reported noise maps for their capitals under the 2012 END reporting round.
Impact of noise in Europe

Noise levels from road traffic that are greater than 55 dB $L_{den}$ affect more than 100 million people — one in five Europeans.

> 55 dB $L_{den}$

- **Annoyance**: 31,700,000
  - Almost 32 million Europeans are annoyed by environmental noise.
- **Sleep Disturbance**: 13,100,000
  - More than 13 million Europeans suffer sleep disturbance due to environmental noise.
- **Health Impacts**: 72,000
  - Noise pollution causes 72,000 hospital admissions in Europe per year.
- **Premature Deaths**: 16,600
  - Noise pollution causes hypertension and cardiovascular disease, leading to an estimated 16,600 premature deaths annually in Europe.

Road traffic account for 80 - 85% of the impact

70% of which occurs in cities
Cities have reported both increases and decreases in noise exposure between 2007 and 2012. Overall a net decrease is reported, but results are distorted.
Source orientated measures include:
- Quieter aircraft engines and railway braking systems
- Quieter vehicle technologies including low noise tyres

Traffic management measures include:
- Traffic calming initiatives, park and ride schemes
- Optimised flight routing, night time flight bans

Socio-economic measures include:
- Sound insulation grants
- Congestion charging schemes to reduce traffic

Land use and urban planning measures include:
- Improved urban design to reduce traffic volumes
- Restricting housing developments in high noise areas

Promotion and awareness measures include:
- Public information campaigns promoting public transport
- Promoting responsible driving behaviour

Propagation path measures include:
- Installing noise barriers or screens
- Installing low embankments, cuttings or tunnels

Measures at the receiver include:
- Improving sound insulation in buildings
- Improved building design and room allocations
The NOISE Observation & Information Service for Europe

NOISE pollution is a major environmental concern in Europe. Explore NOISE maps to see environmental noise levels from:
- Roads
- Railways
- Airports
- Industry
- And in cities where you live.

Scroll down to explore NOISE

Photograph by © Alessio Centamori/EEA
**Roads**

Road traffic is the main source of environmental NOISE in Europe.

NOISE levels from roads that exceed 55dB $L_{eq}$ affect an estimated one in four people in Europe. This map shows the numbers of people exposed to road traffic NOISE levels above this threshold, designed to indicate ‘annoyance’, during the average **DAY** period.

You may also view the map for exposure to road traffic NOISE exceeding the **NIGHT** ‘sleep disturbance’ threshold. Around one in six people are exposed to night time levels of road traffic NOISE that exceed 50dB $L_{eq}$.
Roads

Road traffic is the main source of environmental NOISE in Europe. NOISE levels from roads that exceed 55dB $L_{den}$ affect an estimated one in four people in Europe. This map shows the numbers of people exposed to road traffic NOISE levels above this threshold, designed to indicate ‘annoyance’, during the average DAY period.

You may also view the map for exposure to road traffic NOISE exceeding the NIGHT ‘sleep disturbance’ threshold. Around one in six people are exposed to night time levels of road traffic NOISE that exceed 50dB $L_{eq}$. Zoom in to view noise contour maps.
Explore further

The NOISE
Observation & Information Service

How noisy is YOUR city?

Are there people exposed to more than 55dB $L_{den}$ or 50dB $L_{night}$ in your city? If so, how many?

City:

Copenhagen

This map represents people exposed to NOISE levels during the DAY.
You can access the map at NIGHT as well.

Some images may show overlapping NOISE contours for separate sources. Where this occurs, it is important to note that the resulting image may not be a true representation of the combined sound levels.

NOISE.eea.europa.eu
NoiseWatch source tags 2012 - 2016

>320,000 ratings

59.96%
17.03%
12.27%
10.74%
Thank you

colin.nugent@eea.europa.eu

Noise Observation & Information Service for Europe
http://noise.eea.europa.eu

EEA Data Service for Noise

eea.europa.eu