



Environmental noise in Europe 2025

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Environmental Noise Expert

Our mandate



- **Support** countries on policy implementation (**Environmental Noise Directive 2002/49/EC**)



- **Collect** the data submitted under Environmental Noise Directive



- Produce **EU-wide assessments** on noise.



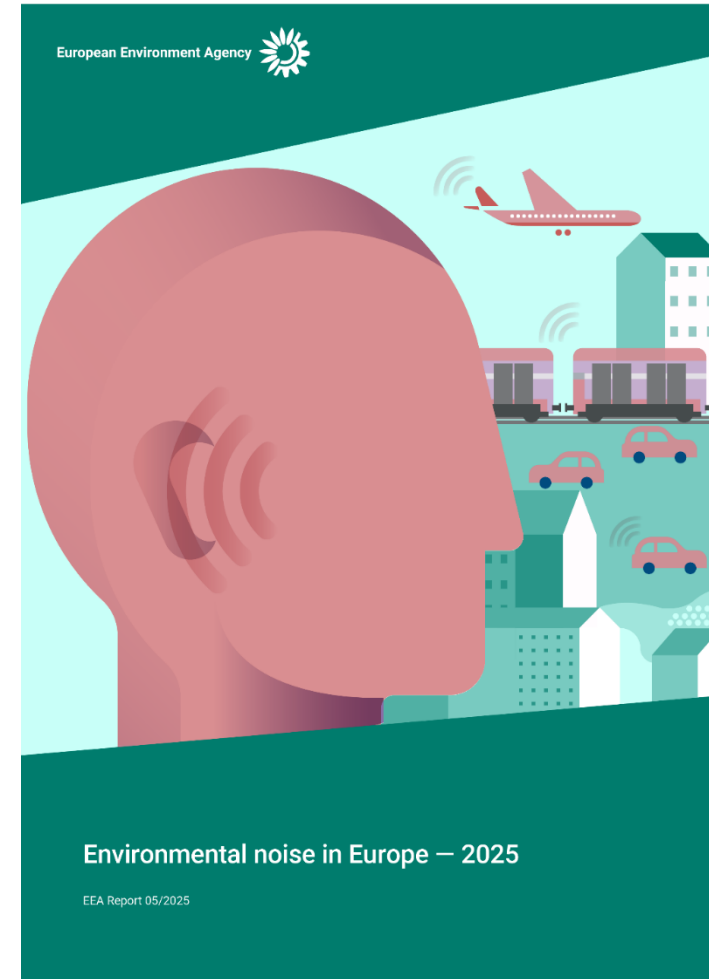
- **Collaborate** with EU institutions, EU countries and other bodies on policies related to noise pollution.



- Provide **objective information** for citizens and policy makers on noise.

Environmental noise in Europe — 2025

- Flagship report of the European Environment Agency
- Latest data on noise pollution in Europe.
- Based on reports under the Environmental Noise Directive.
- Focus on health and environmental impacts.
- Integrates new scientific evidence.
- Covers road, rail and air traffic.



Data overview – EU Environmental Noise Directive



Environmental Noise Directive 2002/49/EC

Objective

Protect human health

Obligations

- Map and assess environmental noise from major transport and industrial sources every 5 years.
- Develop and update noise action plans for affected areas

Standards

Defines reporting thresholds only /No legally binding limit values

Enforceability

Requires action plans, but does not impose enforceable noise limits



Data overview – EU Environmental Noise Directive

- Coverage Strategic Noise Maps

Inside urban area

Roads, railways, airports and industries inside urbanised areas – called **agglomerations** – with a population exceeding 100,000 inhabitants and a population density such that the Member State considers it to be an urbanised area.



Total number of agglomerations: 433



433

with road traffic



412

with rail traffic

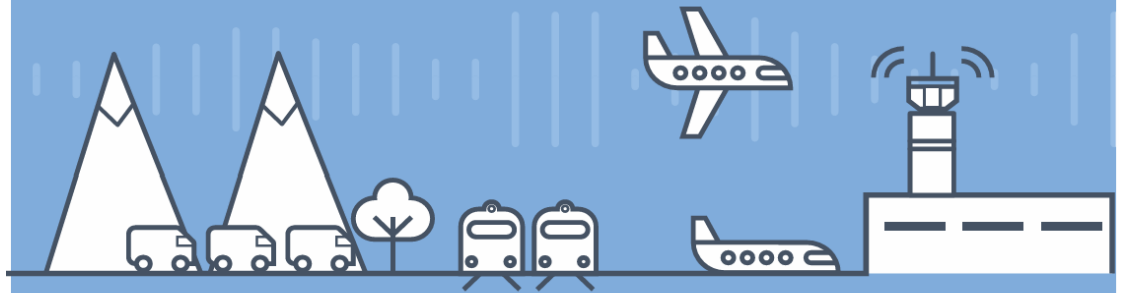


178

with air traffic

Outside urban area

Major roads > 3,000,000 passages/year
Major railways > 30,000 passages/year
Major airports > 50,000 movements/year



289,000km



44,000km



69 airports



Data overview – EU Environmental Noise Directive

- Reporting Thresholds

Environmental Noise Directive (END)

Countries need to report strategic noise maps for noise levels starting at 55 dB Lden and 50 dB Lnight



55 dB Lden
50 dB Lnight



55 dB Lden
50 dB Lnight



55 dB Lden
50 dB Lnight

≠

WHO Environmental Noise Guidelines 2018

Source specific recommended noise levels that are lower than the END thresholds



53 dB Lden
45 dB Lnight



54 dB Lden
44 dB Lnight



45 dB Lden
40 dB Lnight

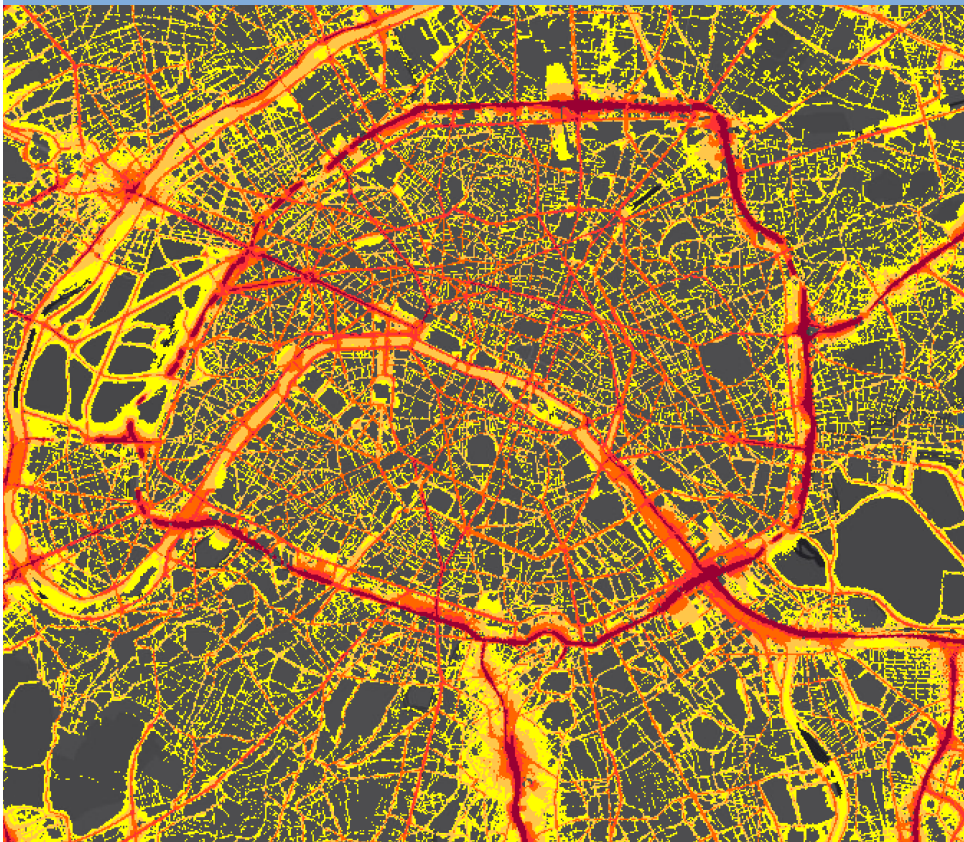
Lden: Day-evening-night average noise level

Lnight: Nighttime average noise level

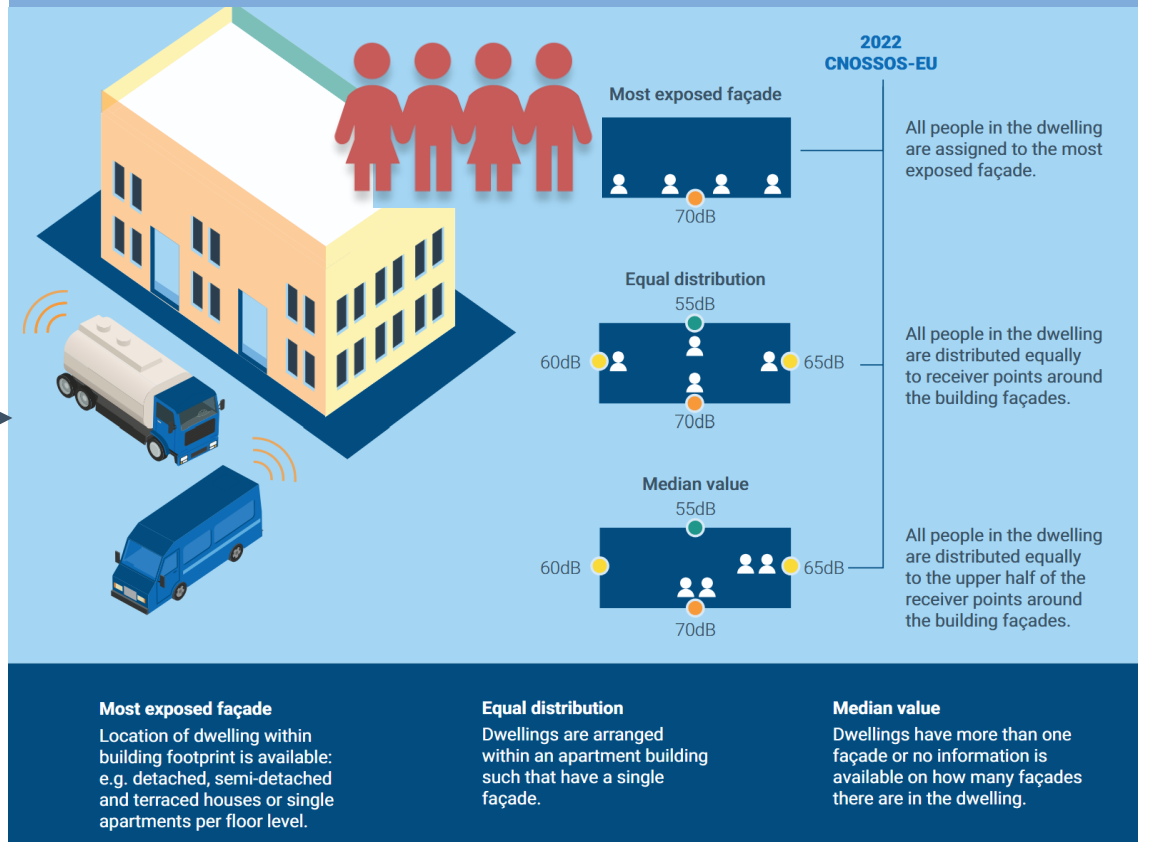
Data overview – EU Environmental Noise Directive

- Data analysis

Noise contour maps

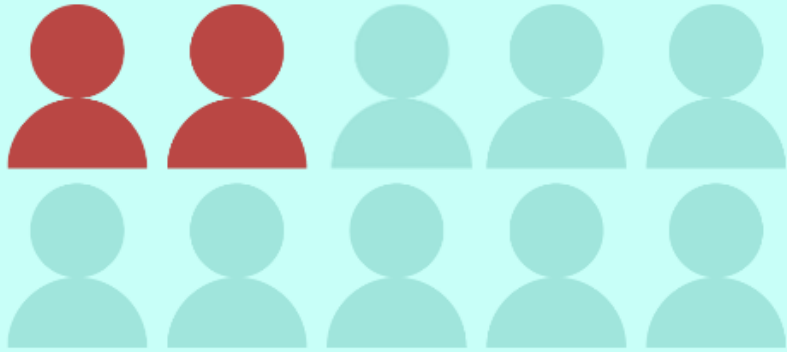


Number of people exposed to noise



Over 100 million affected in Europe

Extent of the problem

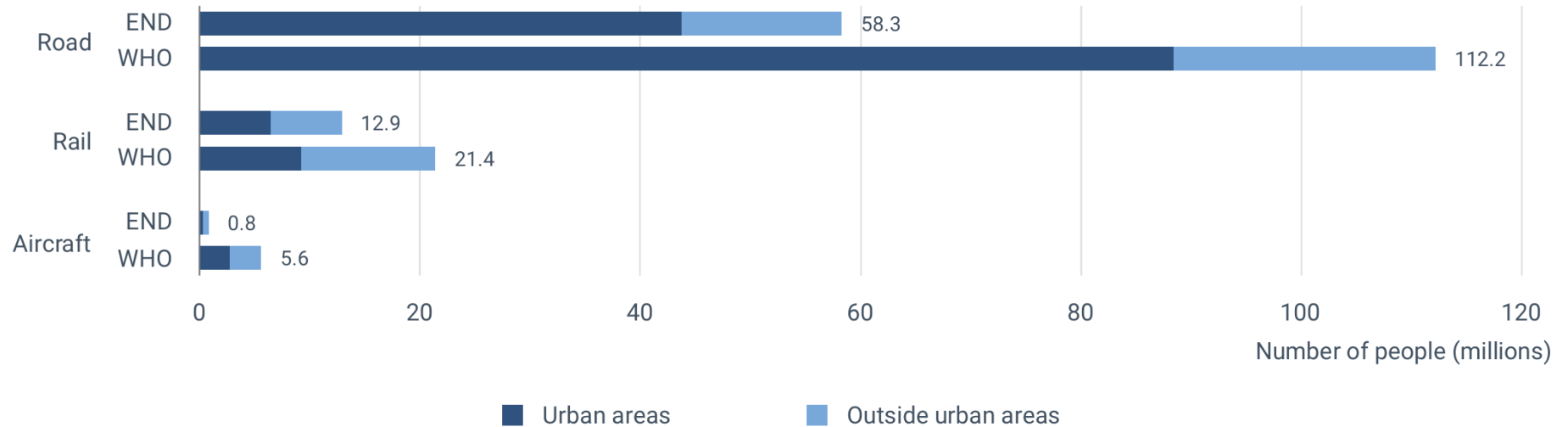
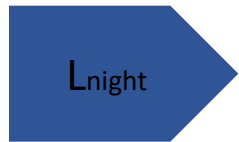
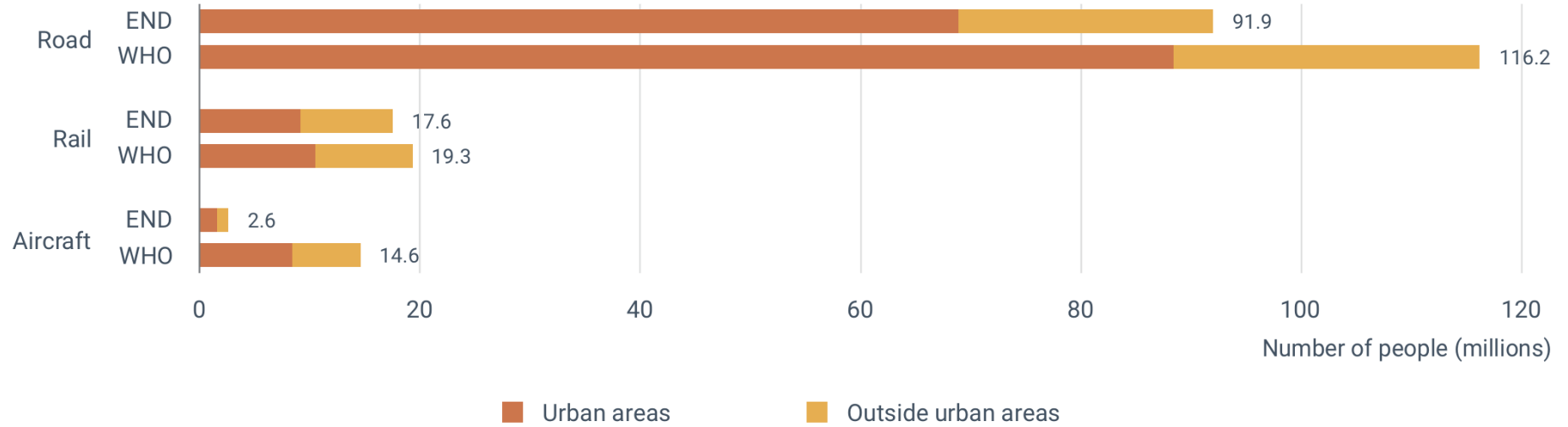
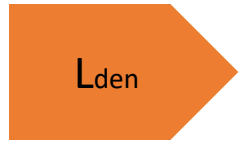


at least **20% population**
affected by unhealthy levels of noise
due to road, rail and air traffic

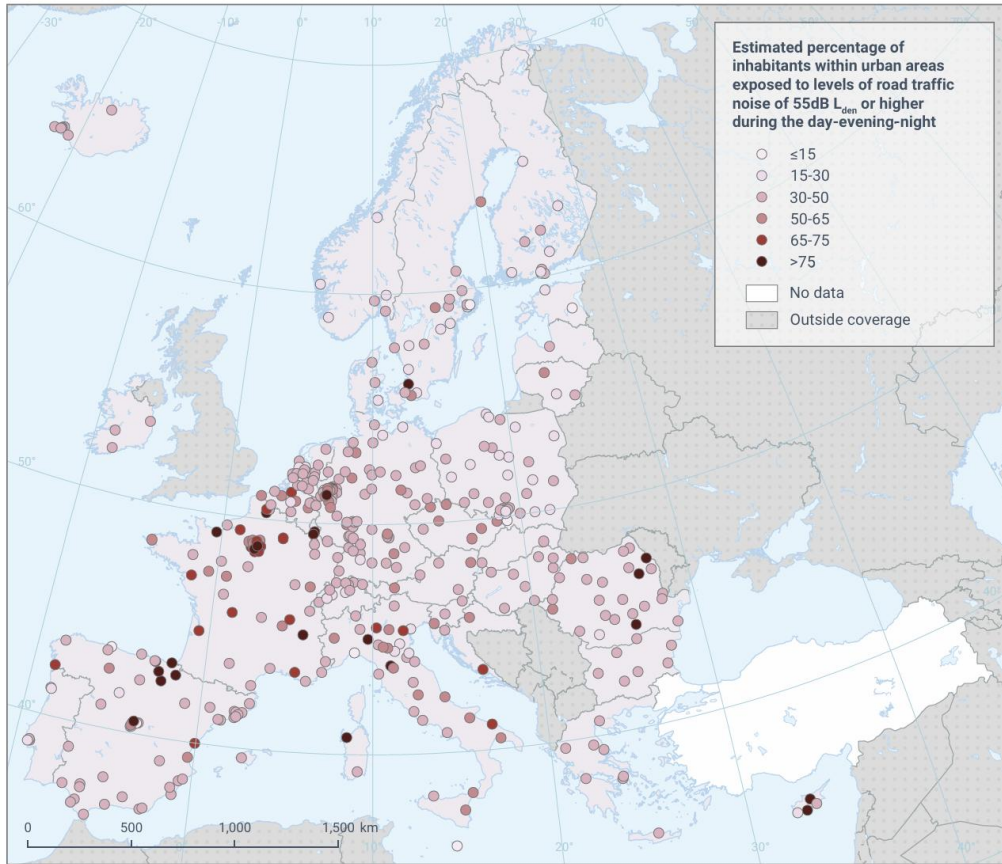


* Health impacts already occur at noise levels below reporting thresholds under the END.

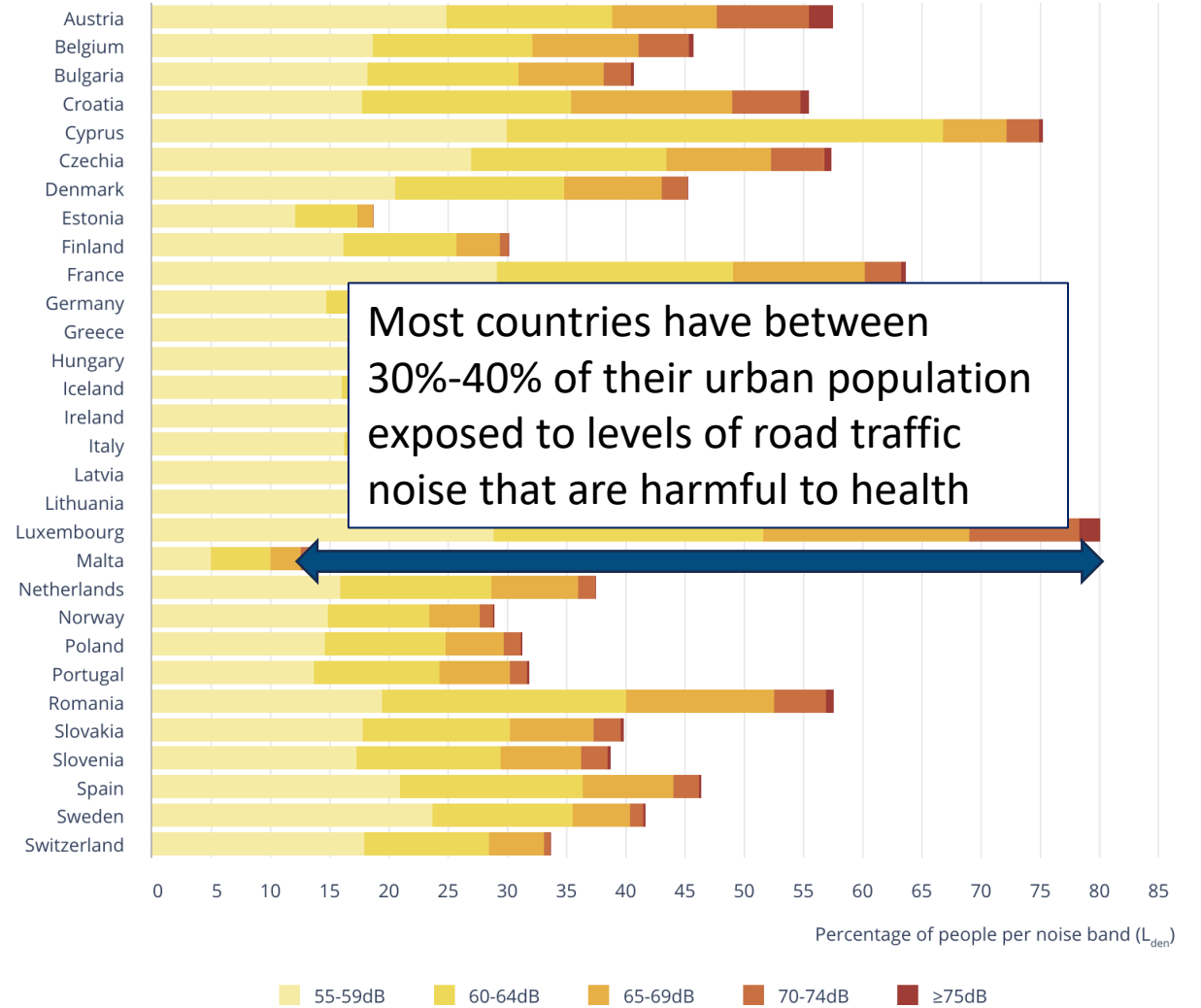
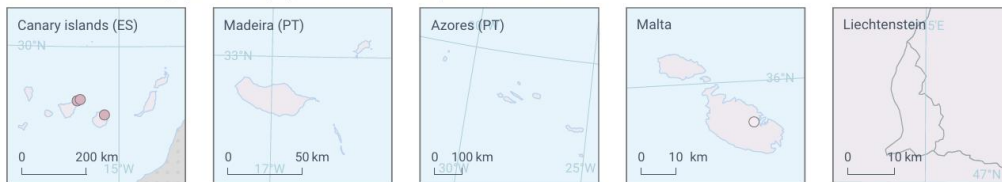
Number of people affected END vs WHO



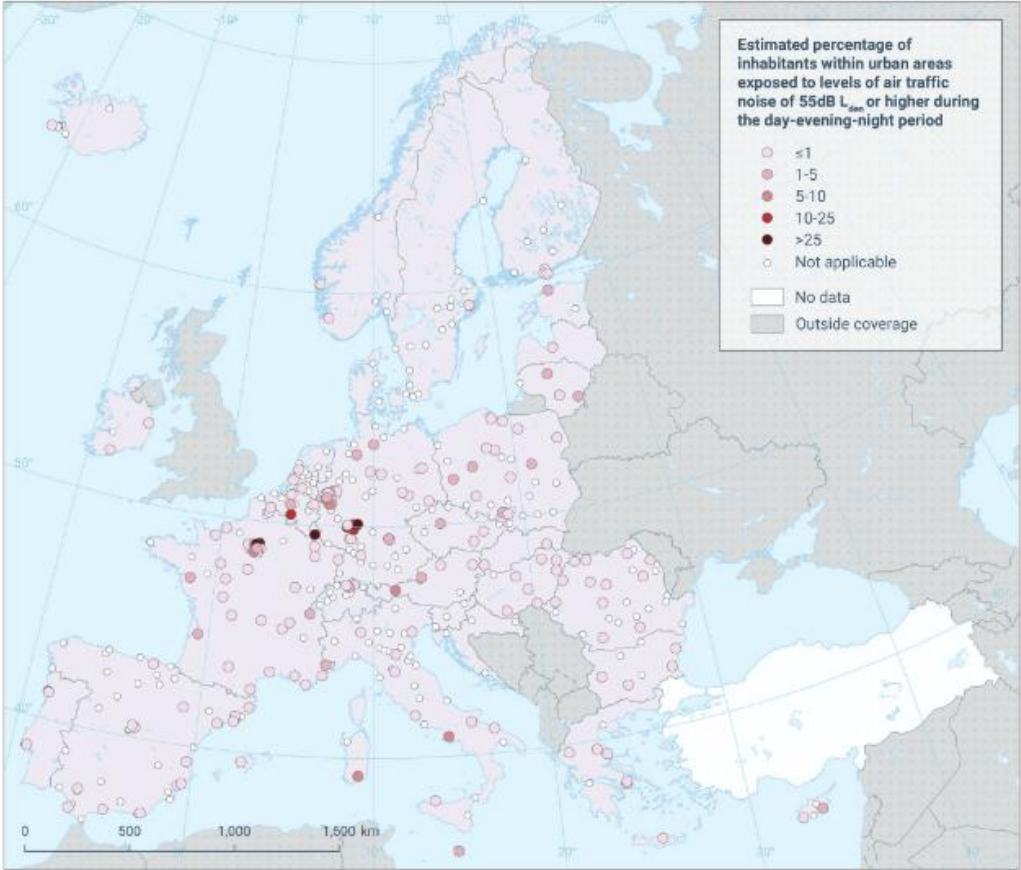
Road traffic noise the most prevalent source



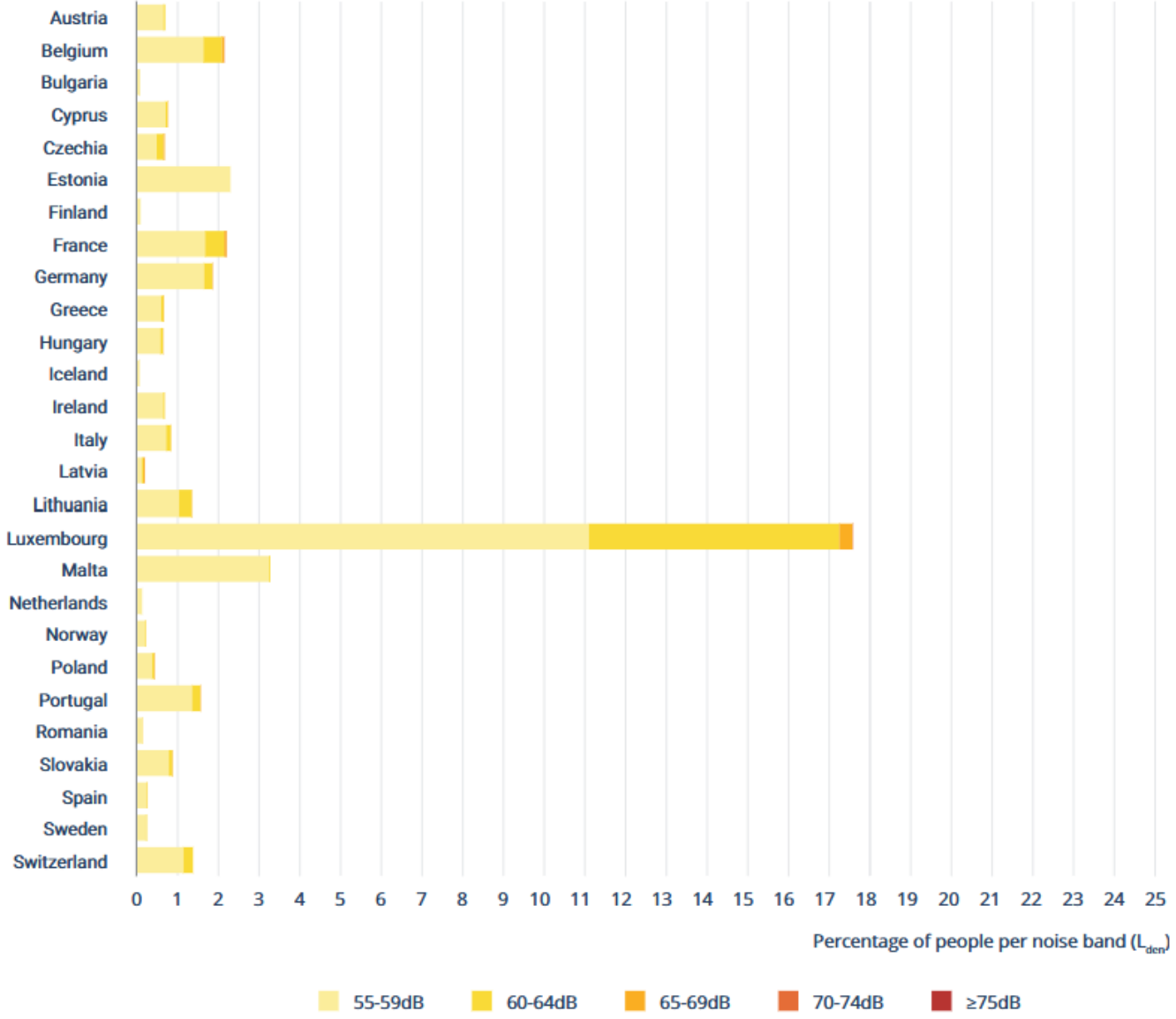
Reference data: © EuroGeographics, © FAO (UN), © TurkStat Source: European Commission – Eurostat/GISCO



Aircraft noise in agglomerations

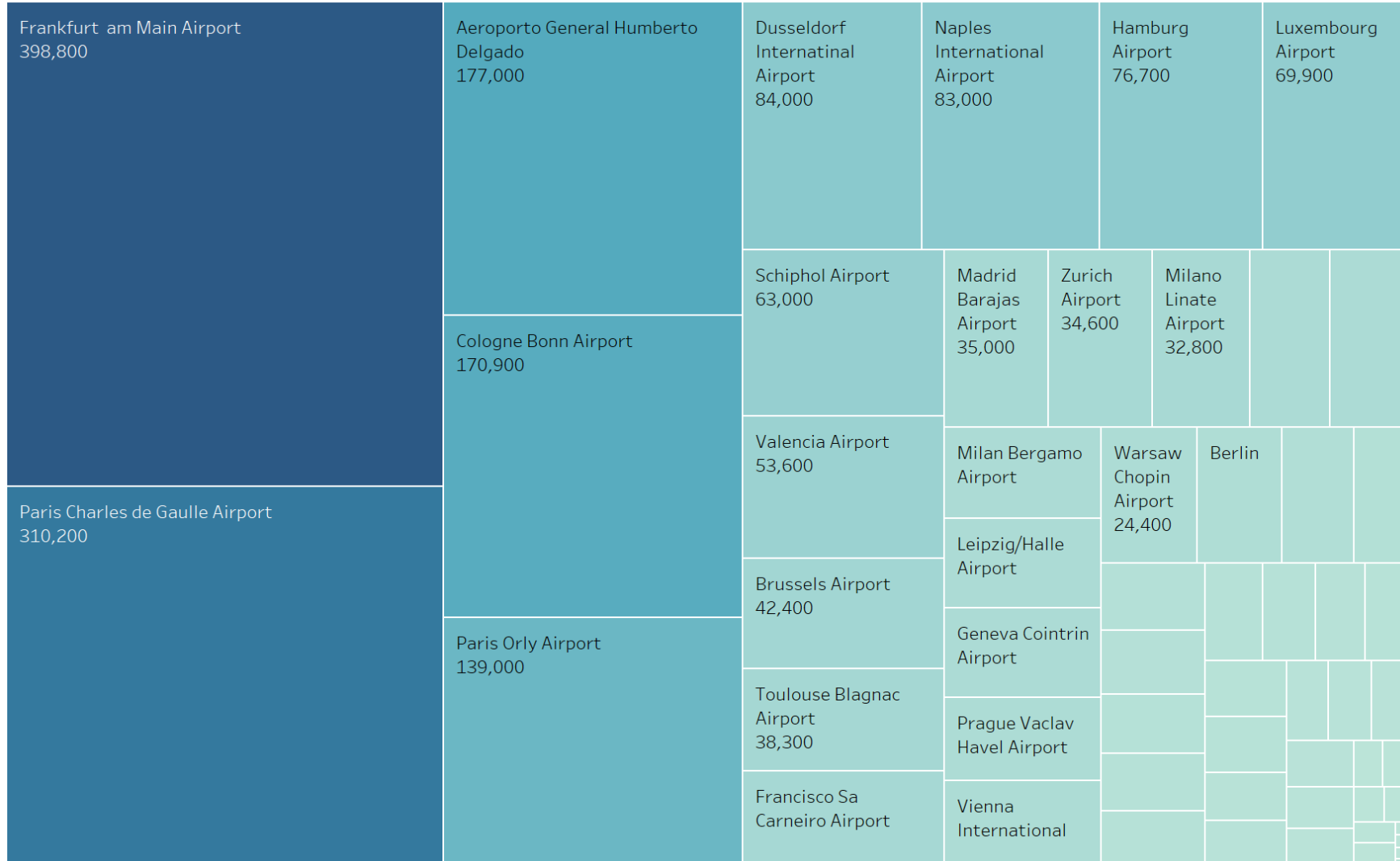


Reference data: © EuroGeographics, © FAO (UN), © TurkStat Source: European Commission – Eurostat/GISCO

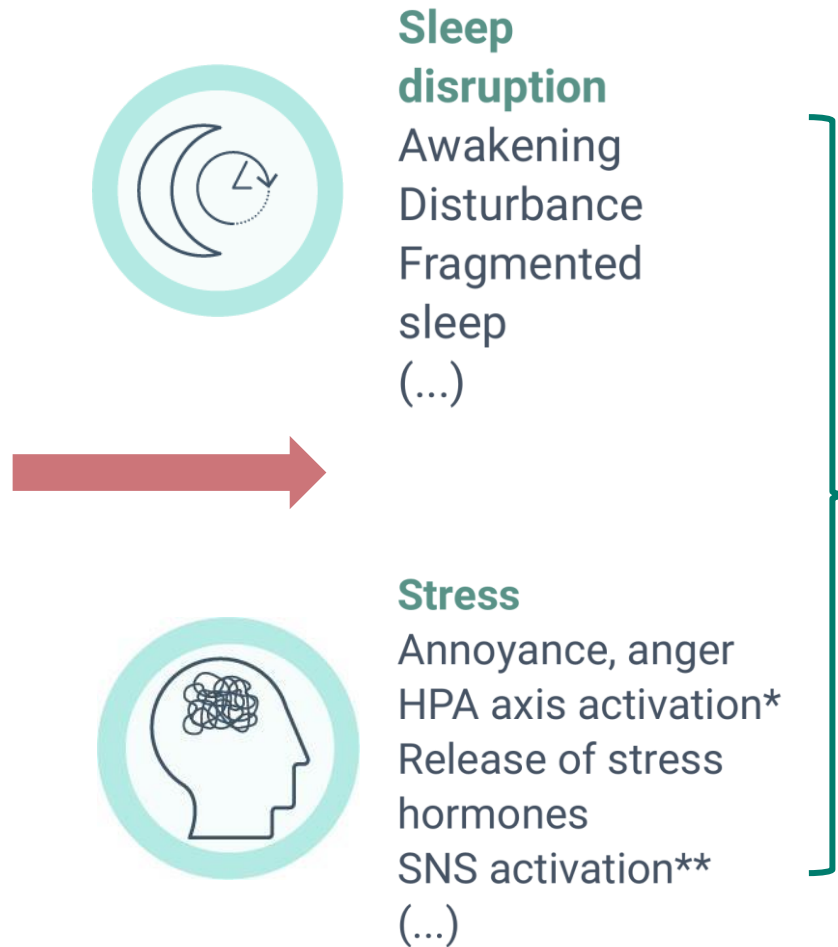
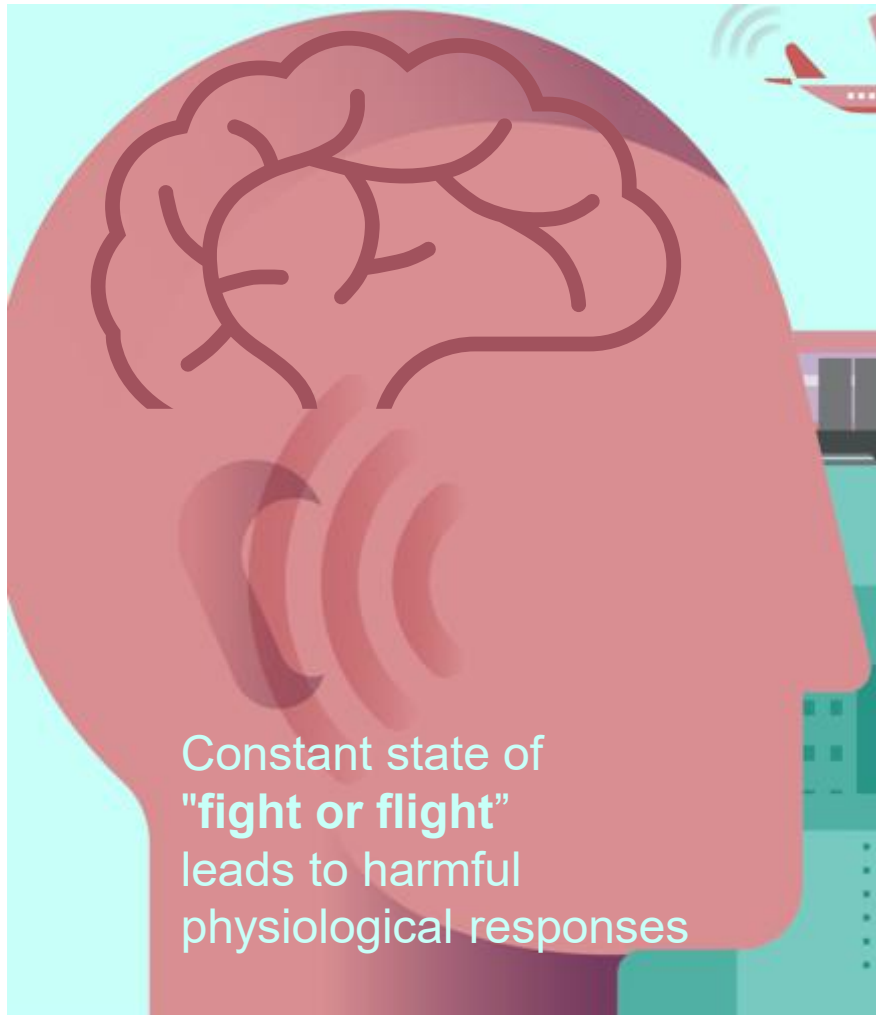


People exposed to noise from major airports

Population exposed to levels ≥ 55 dB Lden

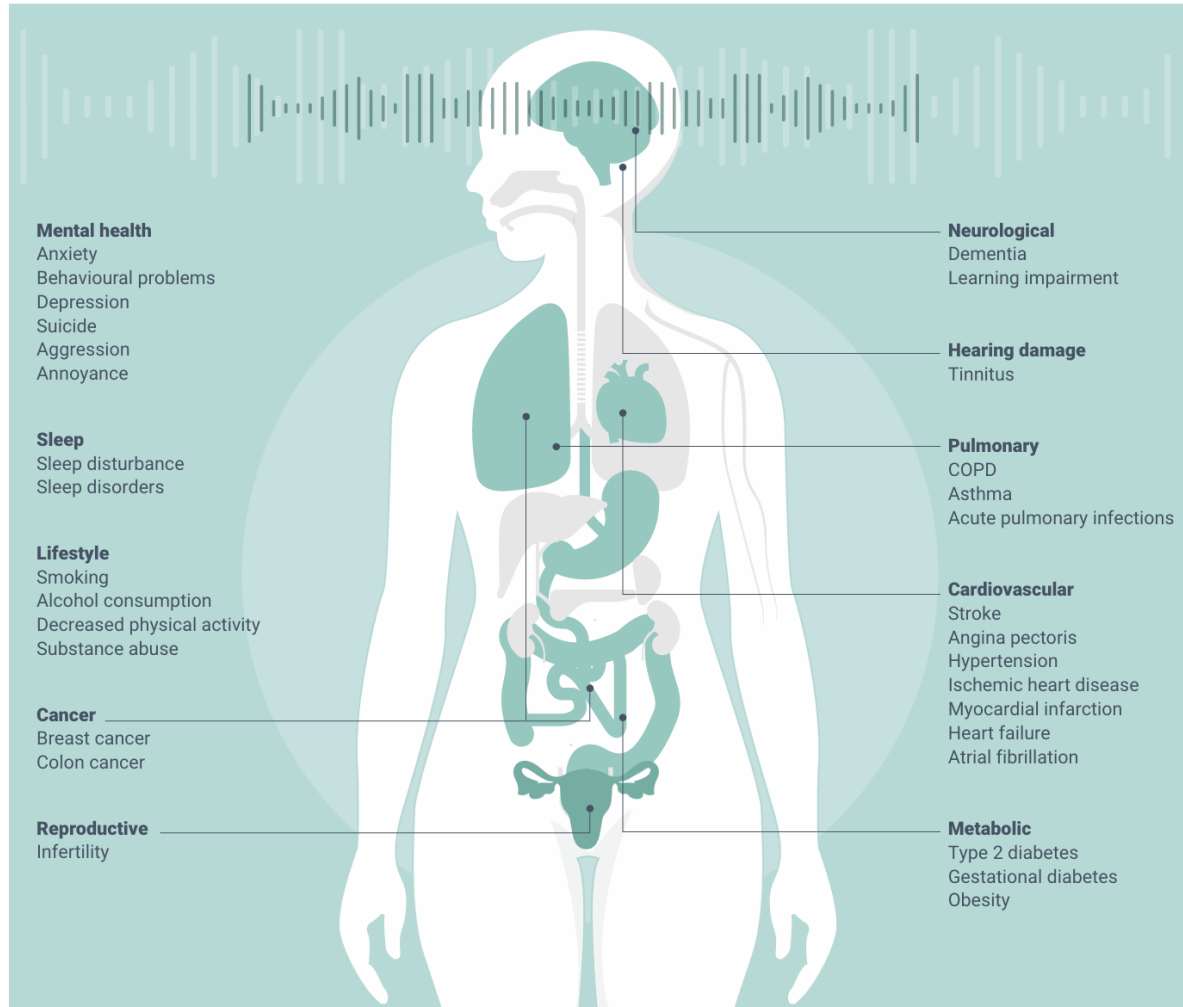


Noise causes serious and wide-ranging health impacts



Health impacts of exposure to noise – a growing evidence base

Figure 3.2 The broad health effects of transportation noise



Notes: List of potential and established impacts. Non-exhaustive list of diseases or system disfunctions.

Sources: Adapted from Hahad et al., 2024.

Health Impacts – number of people affected

Health impacts on adults



almost
17 million
Europeans
experience
long-term high
annoyance

approximately
4.6 million
suffer from severe
sleep disturbances
due to transport
noise

New cases in 2021



73,000
premature
deaths



49,000
cardiovascular
disease cases



23,000
type 2 diabetes
cases

Impacts on children's health

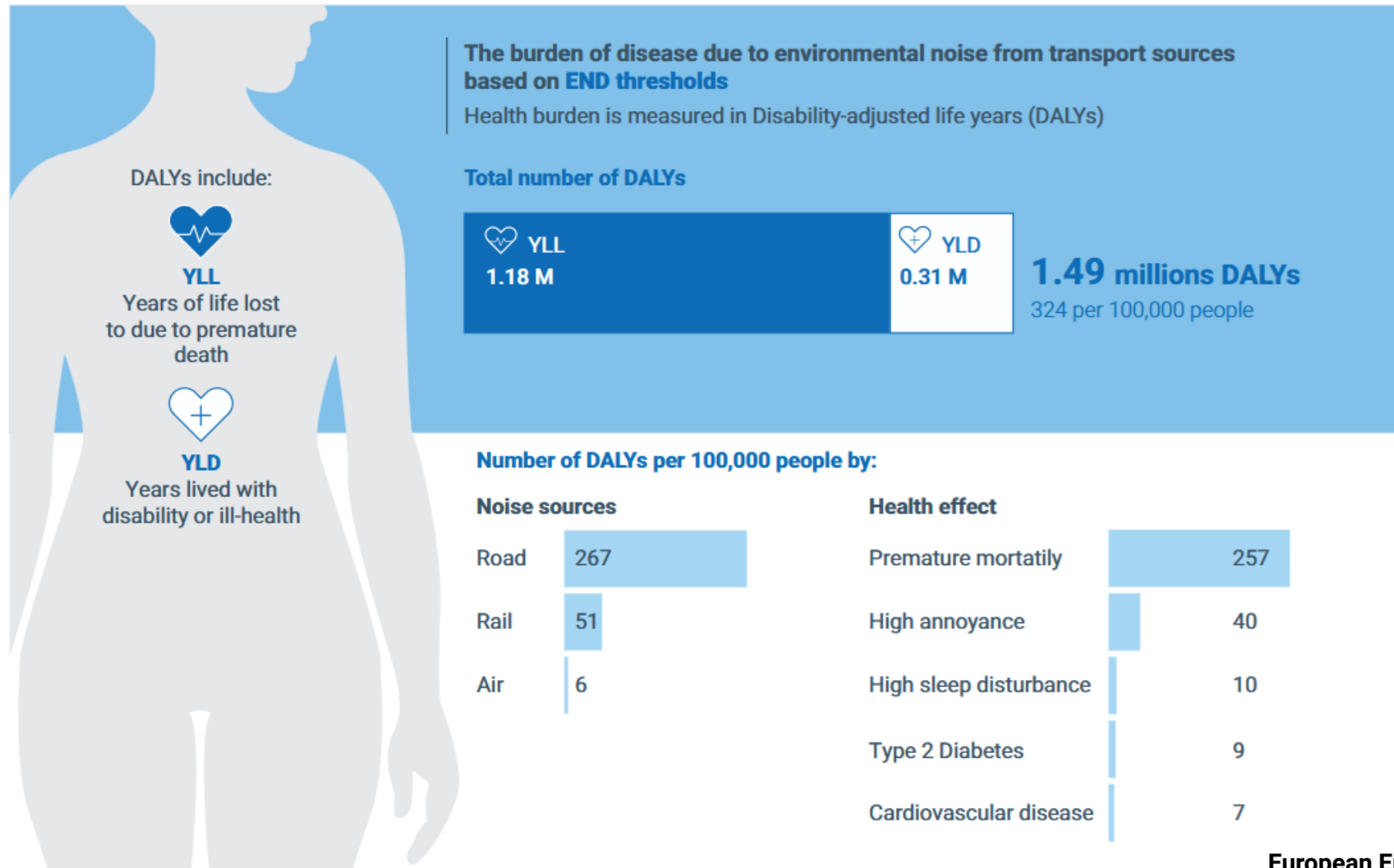


560,000
reading difficulties

116,000
behavioural issues

224,000
overweight

Burden of disease due to transport noise in DALYs

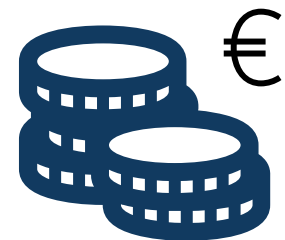


Economic burden of environmental noise

- DALYs valuation method → EUR 70,000 per DALY

END thresholds		Road	Rail	Aircraft	Total (a)
Costs in billion (EUR)	Morbidity	16.8	3.9	0.7	21.4
	Mortality	69.1	12.7	1.2	83.0
	Total	85.9	16.6	1.9	104.6
% of GDP	0.50%	0.10%	0.01%	0.61%	

*Outcomes included: premature mortality, high annoyance, high sleep disturbance, Type 2 Diabetes, CVD



Health impacts and burden of disease – comparison END vs WHO

- Report also presents HRA using the number of people exposed at levels starting at WHO recommended levels

Impacts based on WHO recommended levels

≈ 15 – 20 % higher

Number of people affected, DALYs, economic costs

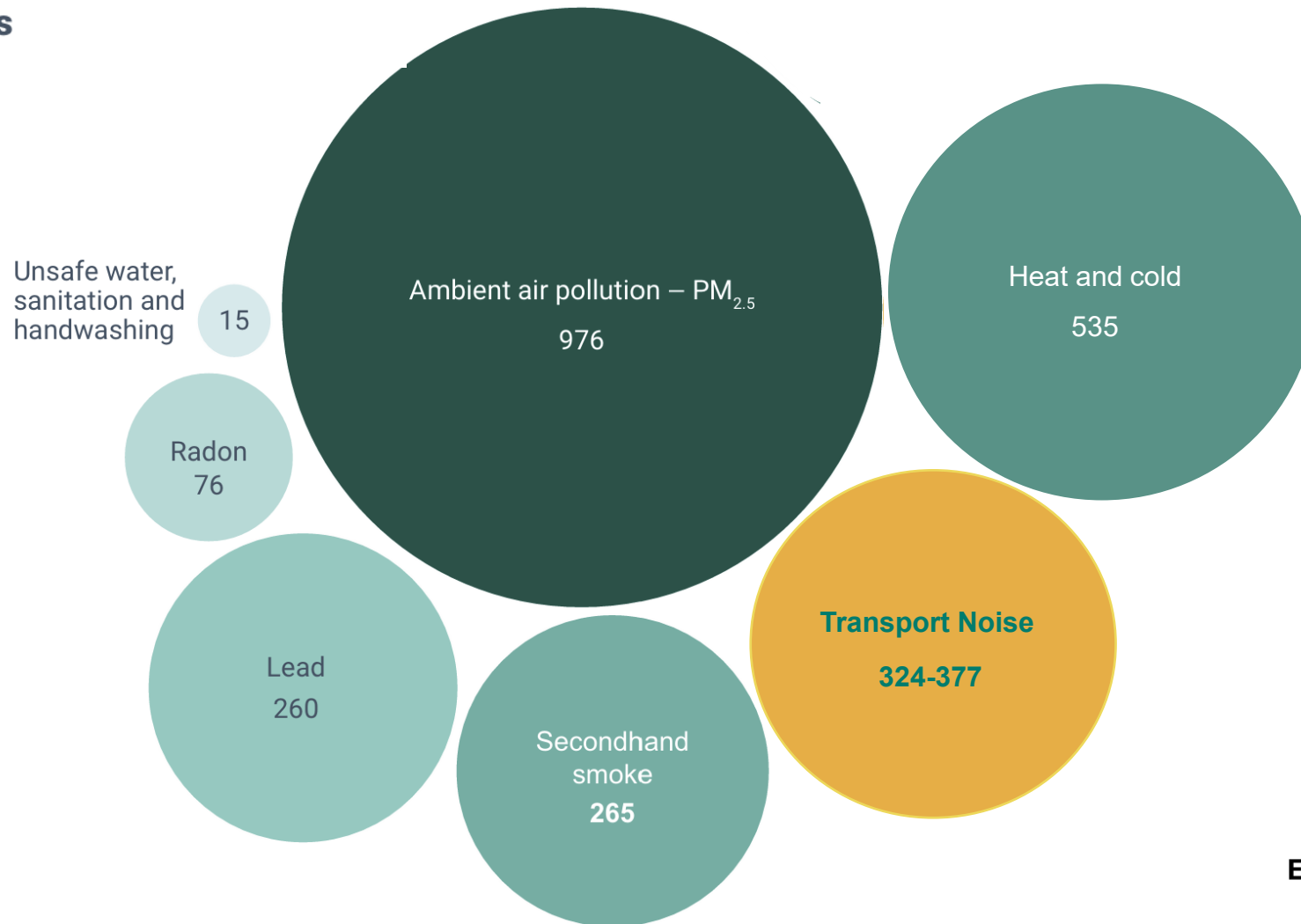
Noise pollution is a leading environmental health risk

DALYs per 100,000 people

Environmental and climate risk factors

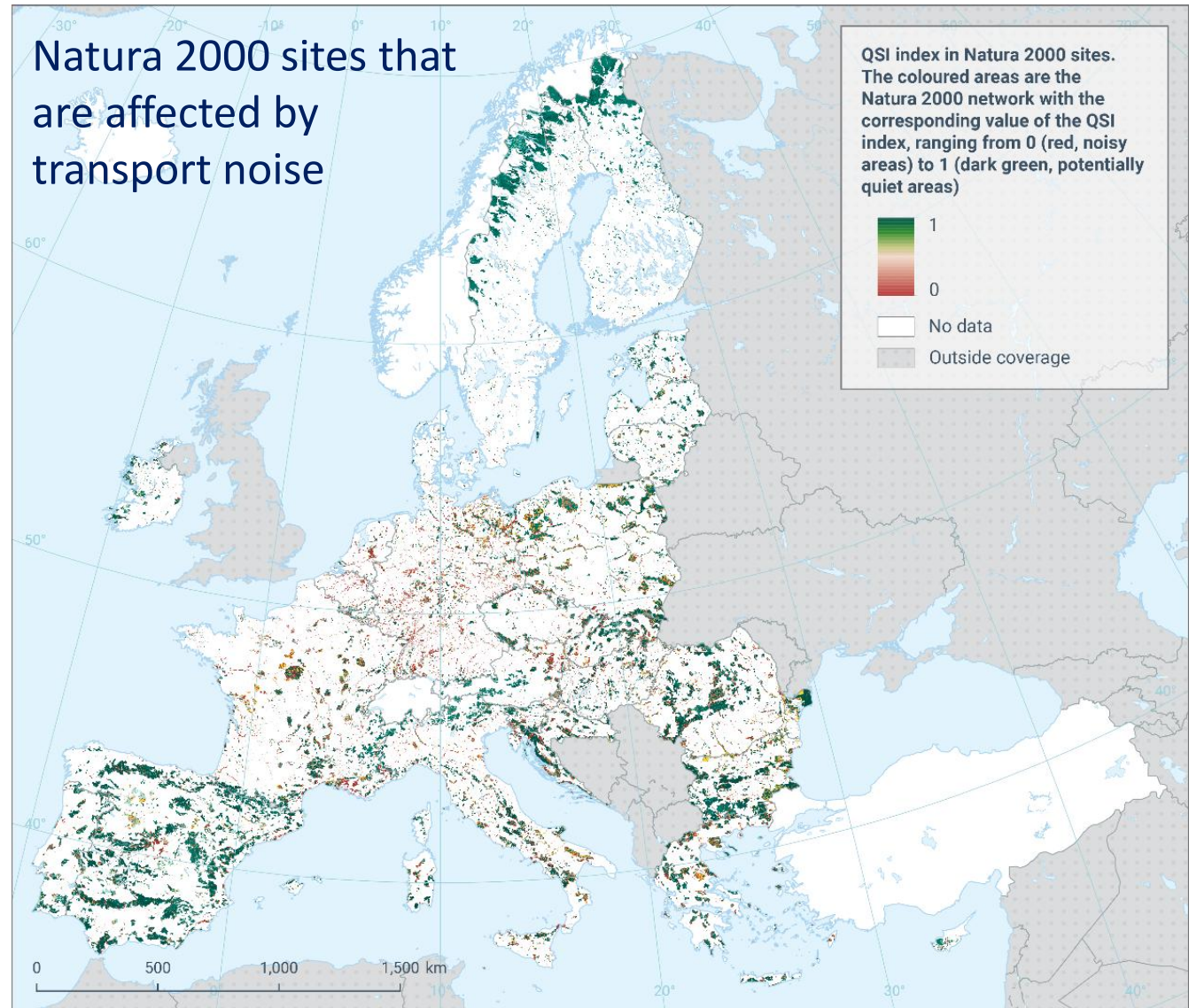


Environmental noise



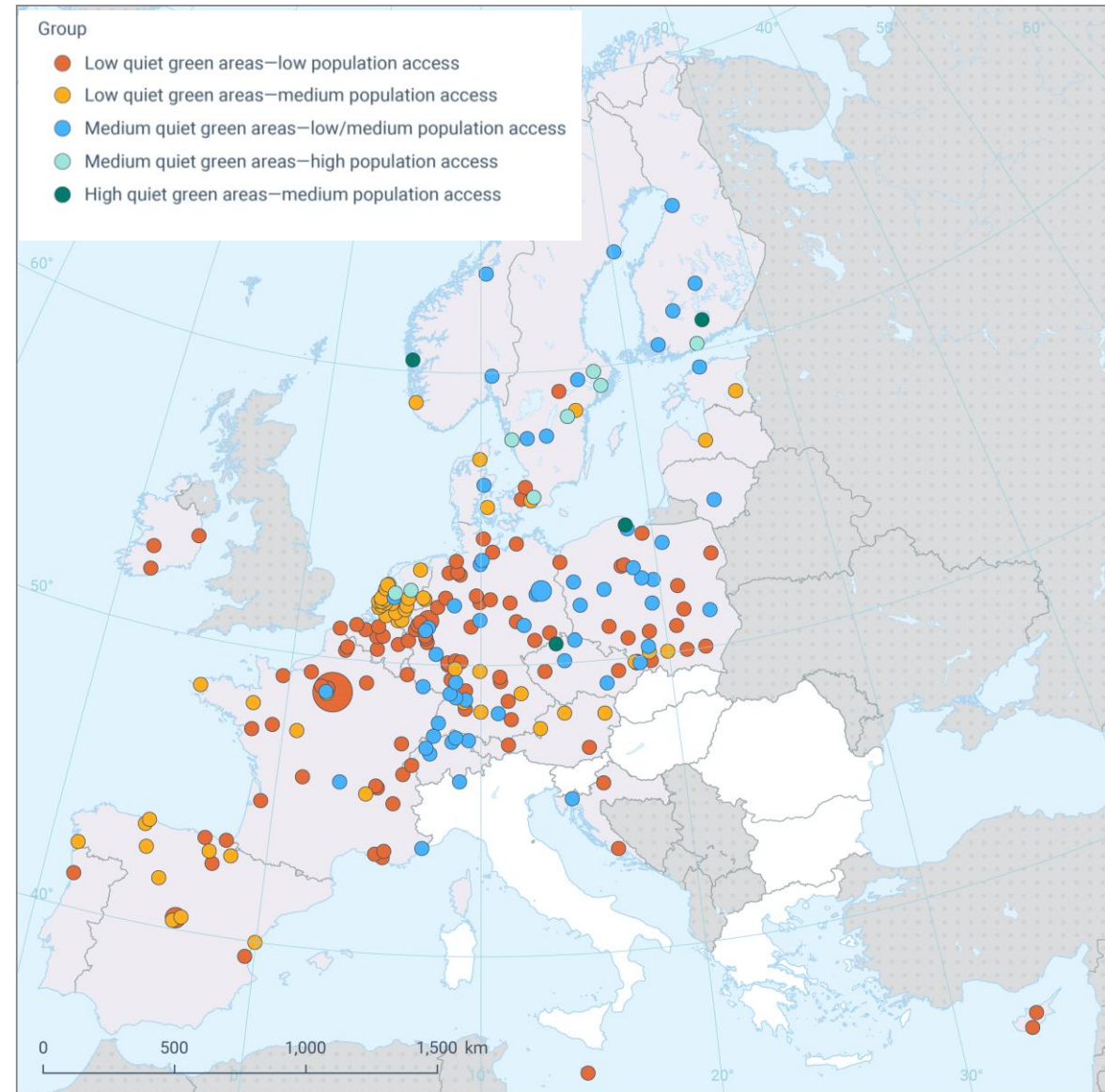
Transport noise pollution in natural areas

- 29% of the total area of Europe's Natura 2000 network is affected by transport noise levels potentially harmful to terrestrial wildlife



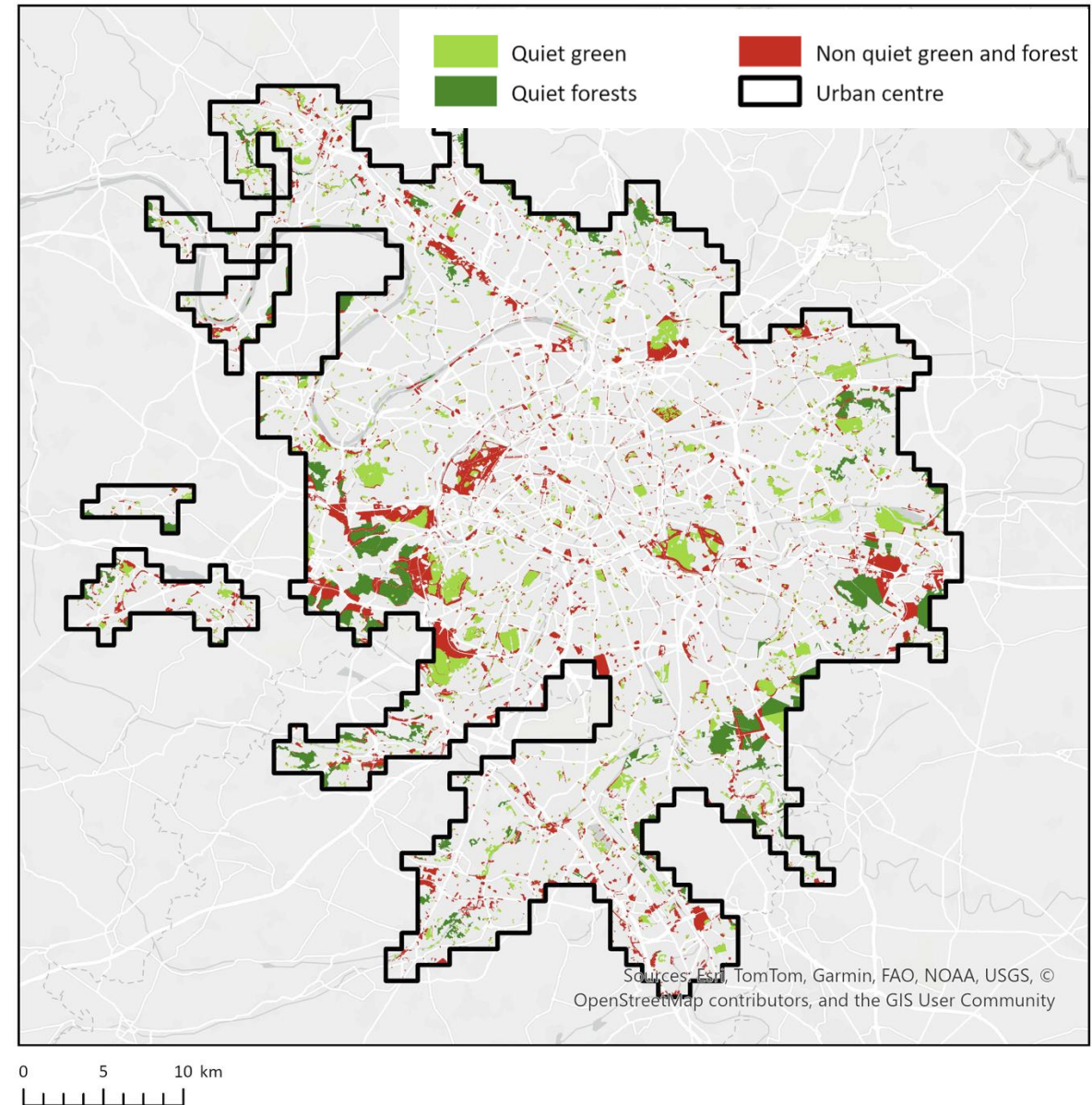
Accessibility to green and quiet areas in urban centres

- Analysis of 233 urban centres
- $\approx 50\%$ of the green areas in the analysed cities are exposed to noise levels of 55 dB or higher.
- Only 34% of the population in EU urban centres can access areas that are green and quiet within 400-m walking distance from their homes
- Northern European urban areas generally offer better access to green and quiet areas compared to other regions.



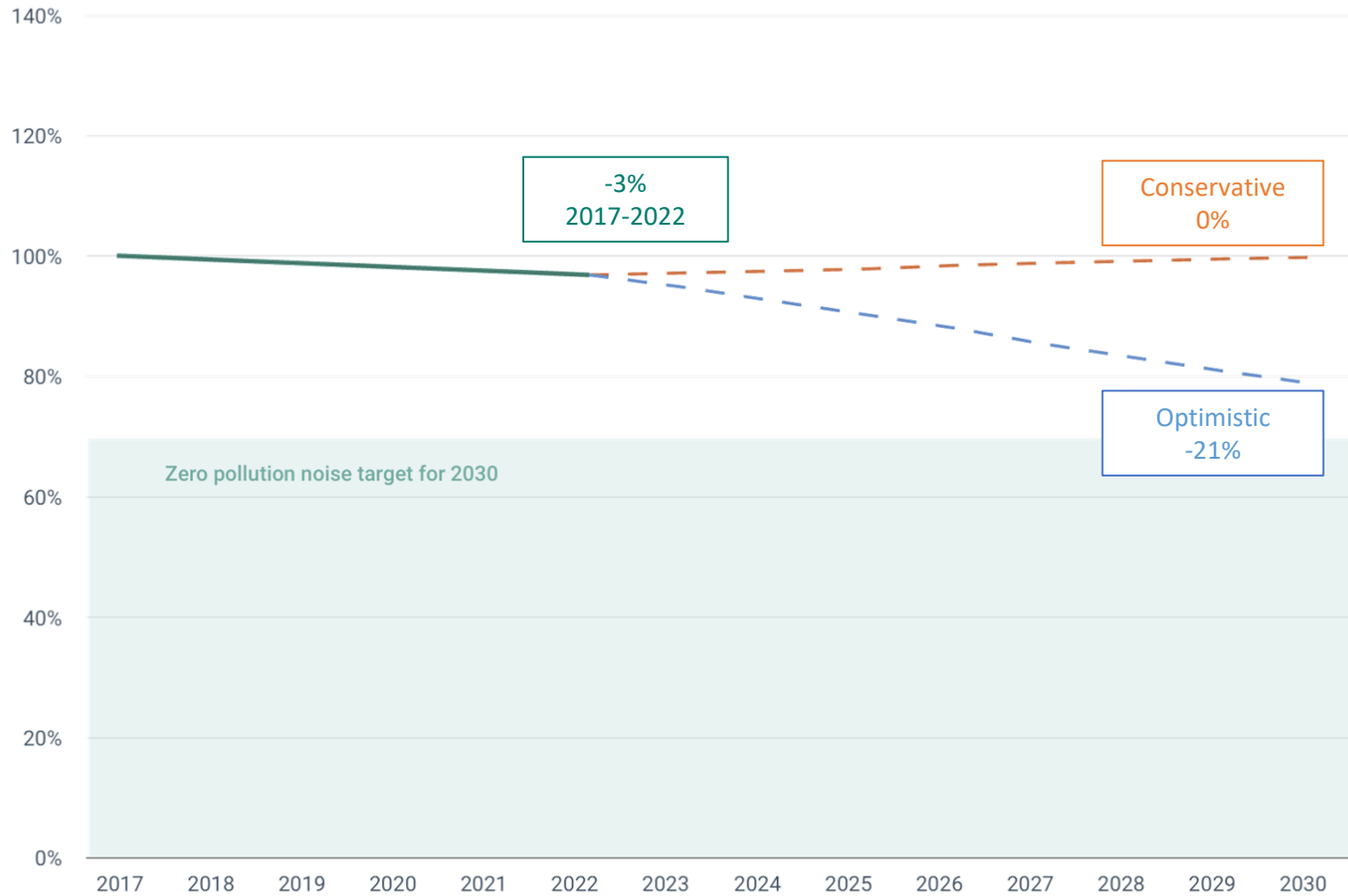
Accessibility to green and quiet areas in Paris

- Paris has a total of 21 019 hectares of green space.
- Of this, 11 788 hectares are green areas that are not affected by traffic noise.
- 24% of Paris urban population have access to green and quiet areas (unaffected by transport noise) within 400 meters of their homes.
- Paris accessibility to green-quiet areas is below EU average (34%).



Progress and scenarios 2030

Estimated percentage change in people highly annoyed by transport noise from 2017 baseline



- Current projections indicate that achieving a reduction of at least 30% in the number of people chronically disturbed by transport noise levels by 2030 is unlikely without additional measures, including regulatory or legislative changes.



Progress and scenarios 2030

Estimated percentage change in number of people highly annoyed by transport noise from 2017 baseline



- Large number of people exposed to road traffic noise drives the overall outlook
- High increase in rail activity is projected and therefore an increase of the number of people exposed to railway noise
- Aircraft activity increase is small, and measures considered are source measures that have high impact

Challenges to reduce transport noise pollution

High population density

Ongoing urban development and population growth contribute to increasing noise exposure.

Resistance to traffic measures

Restricting car use, low-emission zones, reduction of speeds face opposition. Regulatory complexity and conflicting interests.

Limited funding

Many countries struggle to secure investment for noise measures. Austerity policies have constrained resources for noise measures.



Challenges

Dependence on vehicles

Dependence on private car use. Higher prevalence of older noisier vehicles in some countries.

Lack of awareness

Lack of awareness regarding noise as a public health issue leads to low prioritisation, low political support and action.

Inadequate planning

Big infrastructures located in densely populated areas. Emerging noise sources.



Pathways to reduce noise pollution

- Measures with wide application i.e. legislative and regulatory measures that tackle noise at source
- Urban planning and long-term noise strategies
- Maximising synergies between noise and other policy areas
- Raising public and policy awareness

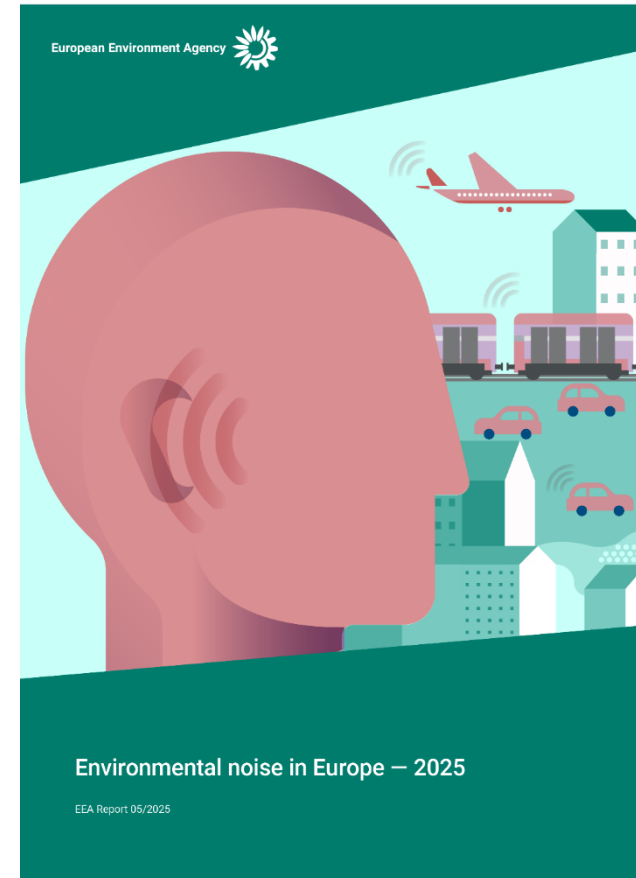


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Key takeaways

- Noise pollution affects millions of people in Europe causing significant impacts on health and the environment.
- Impacts presented are likely underestimated
- More action is needed to reduce environmental noise
- Full report available in EEA webpage:

['Environmental noise in Europe – 2025'](#)



European Environment Agency
European Topic Centre
Human health and the environment



Acknowledgments

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<https://www.eionet.europa.eu/etcs/etc-he/products>



Thank you

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