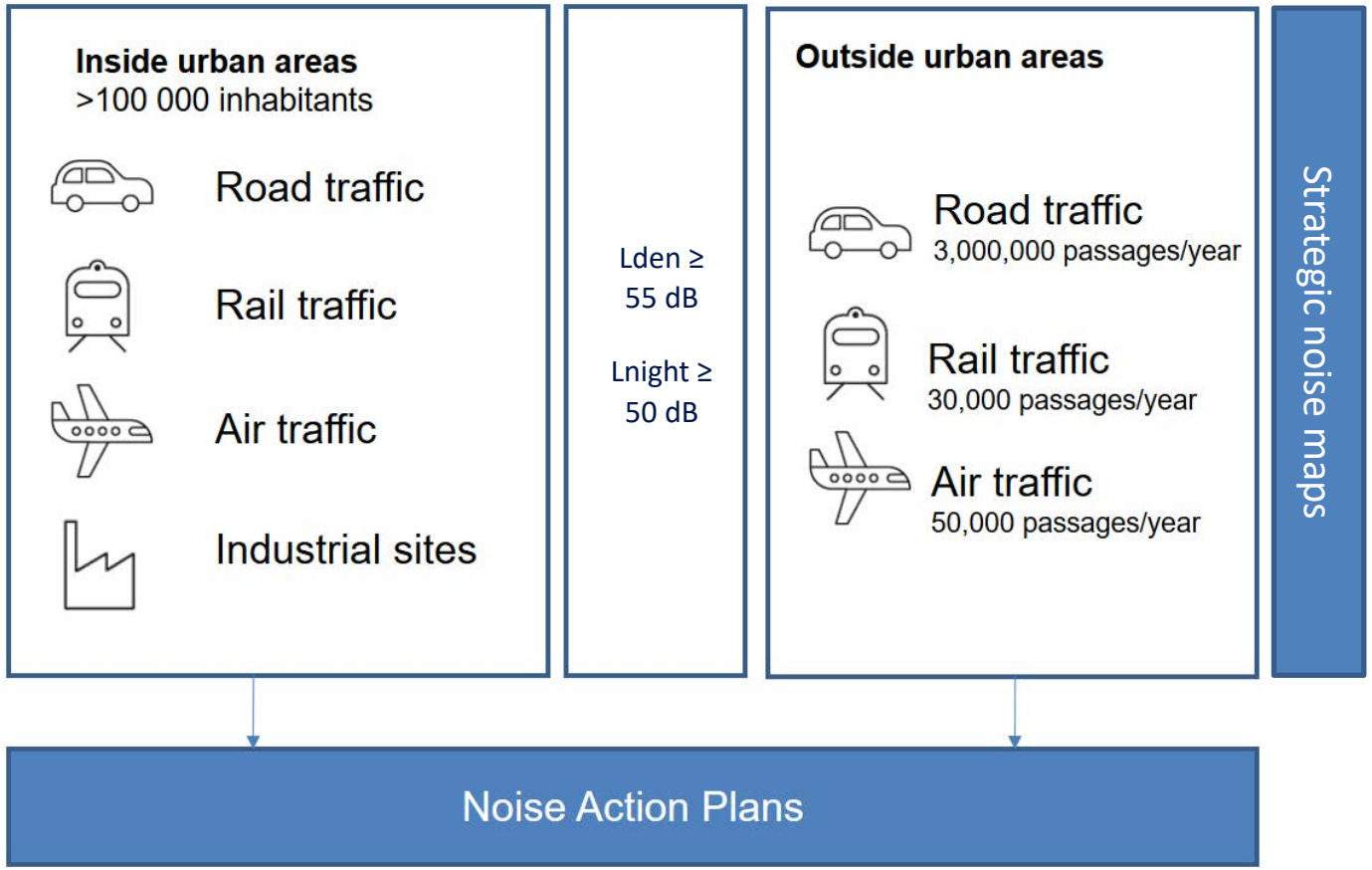
Environmental noise in Europe - 2020

Eulalia Peris
EEA Environmental Noise Expert
Eulalia.Peris@eea.europa.eu

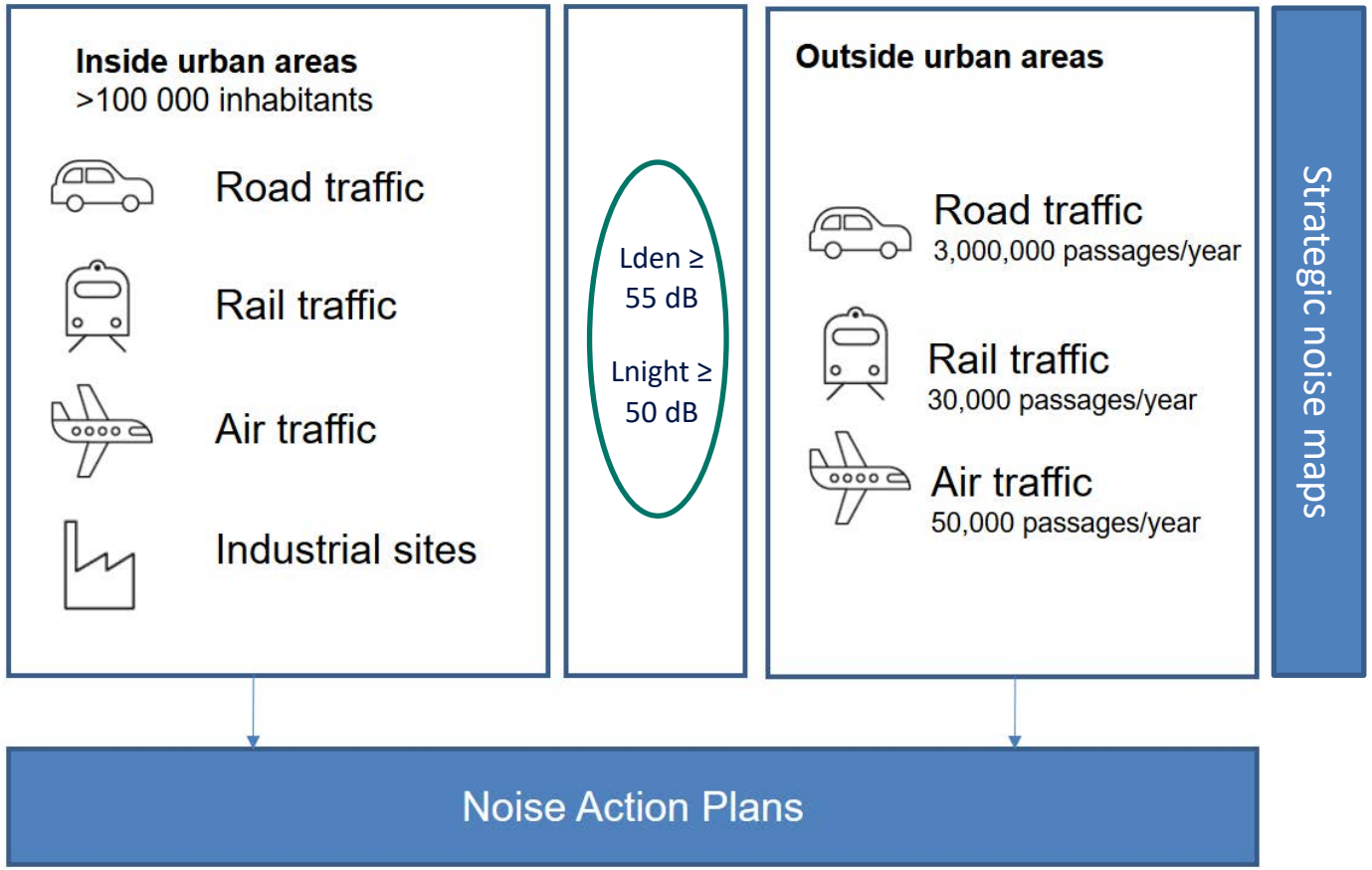
Context

- Environmental Noise Directive (END) → avoiding and preventing exposure to environmental noise through reporting of noise mapping and action planning.



Context

- Environmental Noise Directive (END) → avoiding and preventing exposure to environmental noise through reporting of noise mapping and action planning.



Reducing noise below these levels is recommended (WHO, 2018).

	Road	Rail	Aircraft
L_{den}	53 dB	54 dB	45 dB
L_{night}	45 dB	44 dB	40 dB

European Environment Agency

Context

- 7th Environmental Action Programme to 2020 → By 2020 noise pollution in the EU needs to be significantly decreased, moving closer to the WHO recommended levels.

- WHO Environmental noise guidelines 2018 “WHO recommends reducing noise levels to 53 dB L_{den} and 45 dB L_{night} for road traffic, 54 dB L_{den} and 44 dB L_{night} for rail traffic, and 45 dB L_{den} and 40 dB L_{night} for air traffic.”

- EU Zero pollution action plan 2030 targets → reducing the share of people chronically disturbed by transport noise by 30%

Key findings of the report

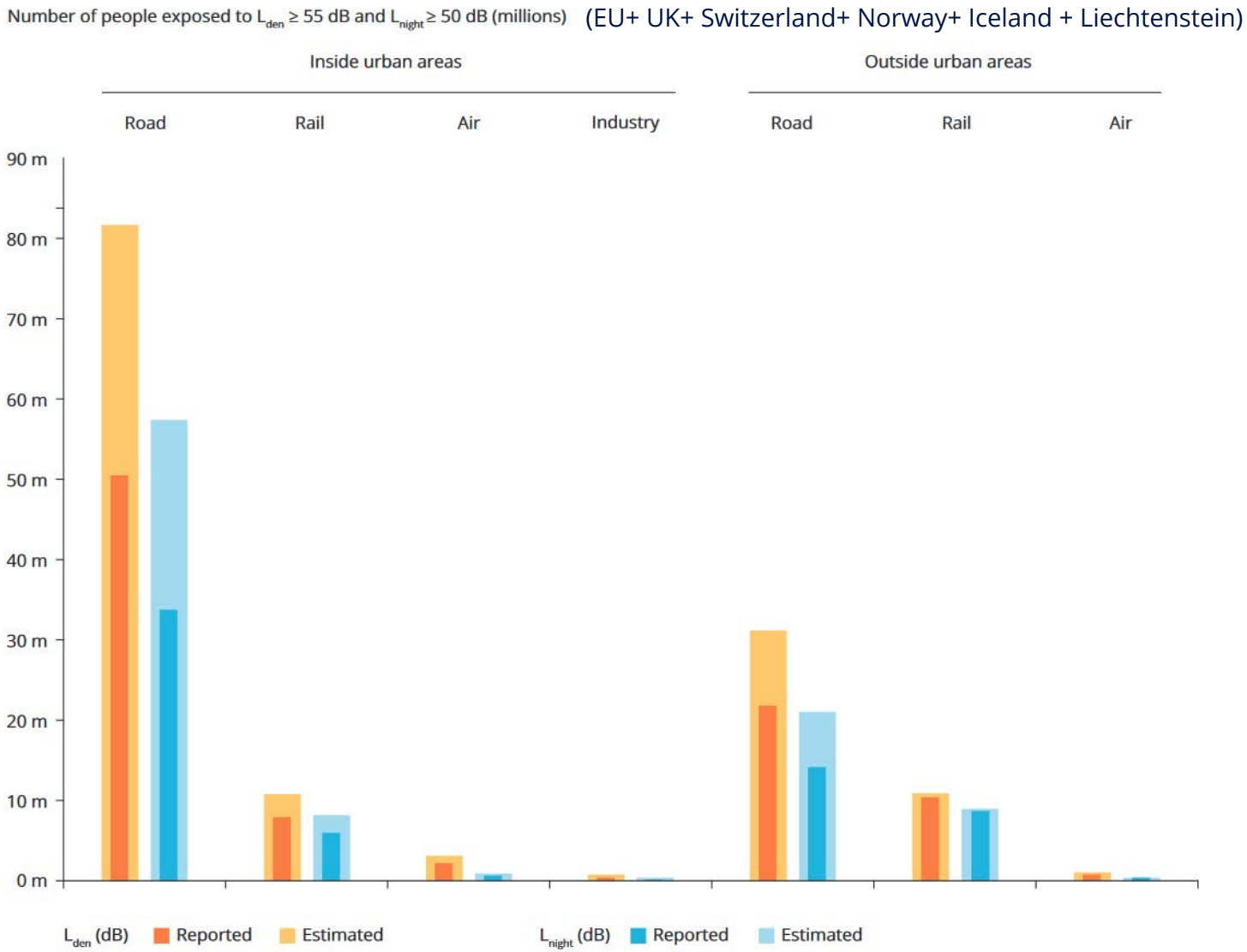
Population exposed to noise

- Environmental noise, and in particular road traffic noise, is a major environmental problem in Europe.

20% of the EU population — one in five people — live in areas where noise levels are considered harmful to health.

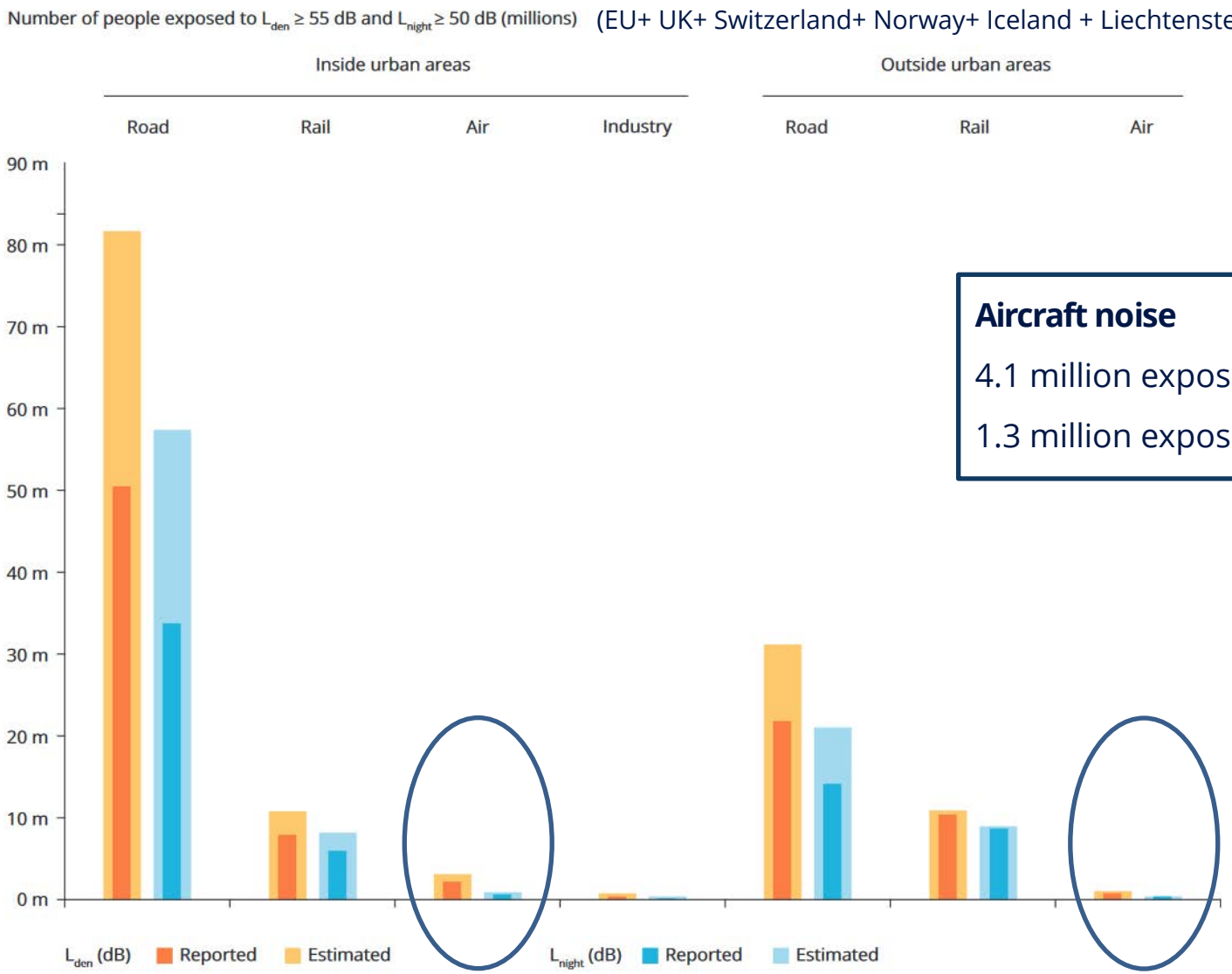
Urban areas, which have the highest number of people exposed to harmful levels of noise, are the most affected.

Population exposed to noise



European Environment Agency

Population exposed to air traffic noise



Aircraft noise

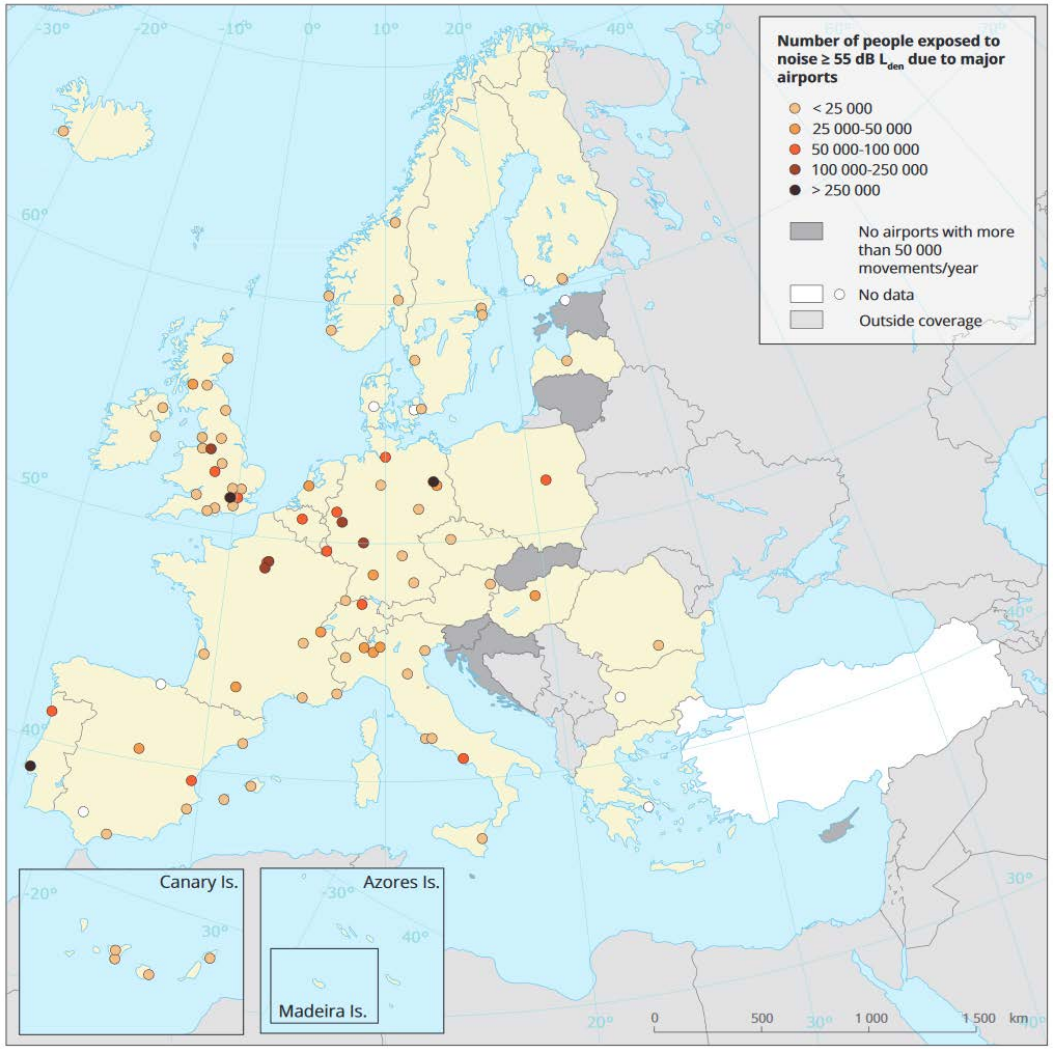
4.1 million exposed to levels ≥ 55 dB L_{den}

1.3 million exposed to levels ≥ 50 dB L_{night}

European Environment Agency

Population exposed to air traffic noise

Estimated number of people exposed to $L_{den} \geq 55$ dB due to major airports (inside +outside urban areas) in 2017



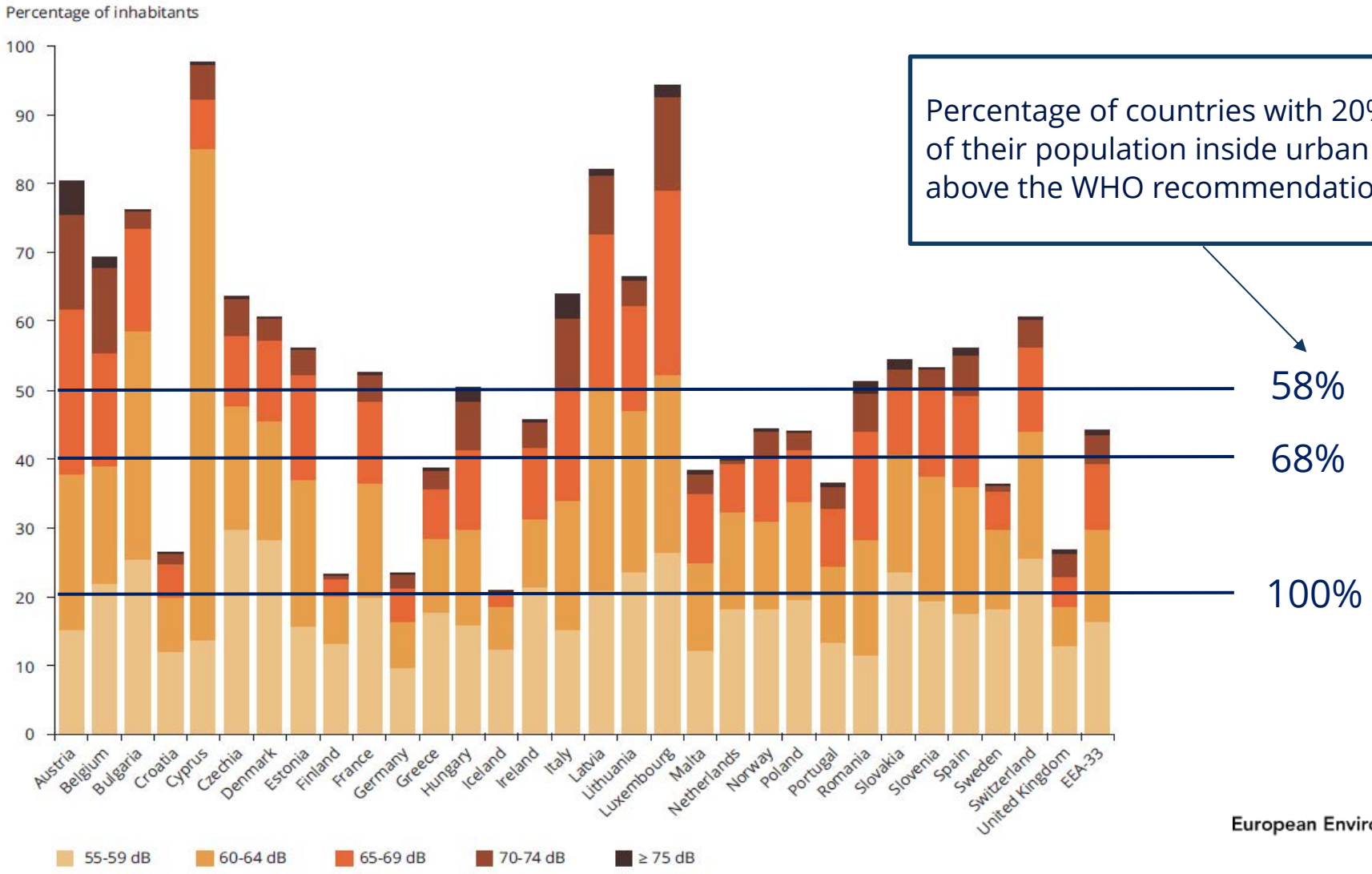
European Environment Agency

Road traffic noise inside urban areas

- In most European countries, a large number of inhabitants within urban areas are exposed to road noise levels of 55 dB or higher during the day-evening-night period.

Road traffic noise inside urban areas

Figure 2.8 Estimated percentage of inhabitants within urban areas exposed to road traffic noise bands in 2017, using the L_{den} indicator



Percentage of countries with 20%, 40% and 50 % of their population inside urban areas exposed above the WHO recommendations

58%

68%

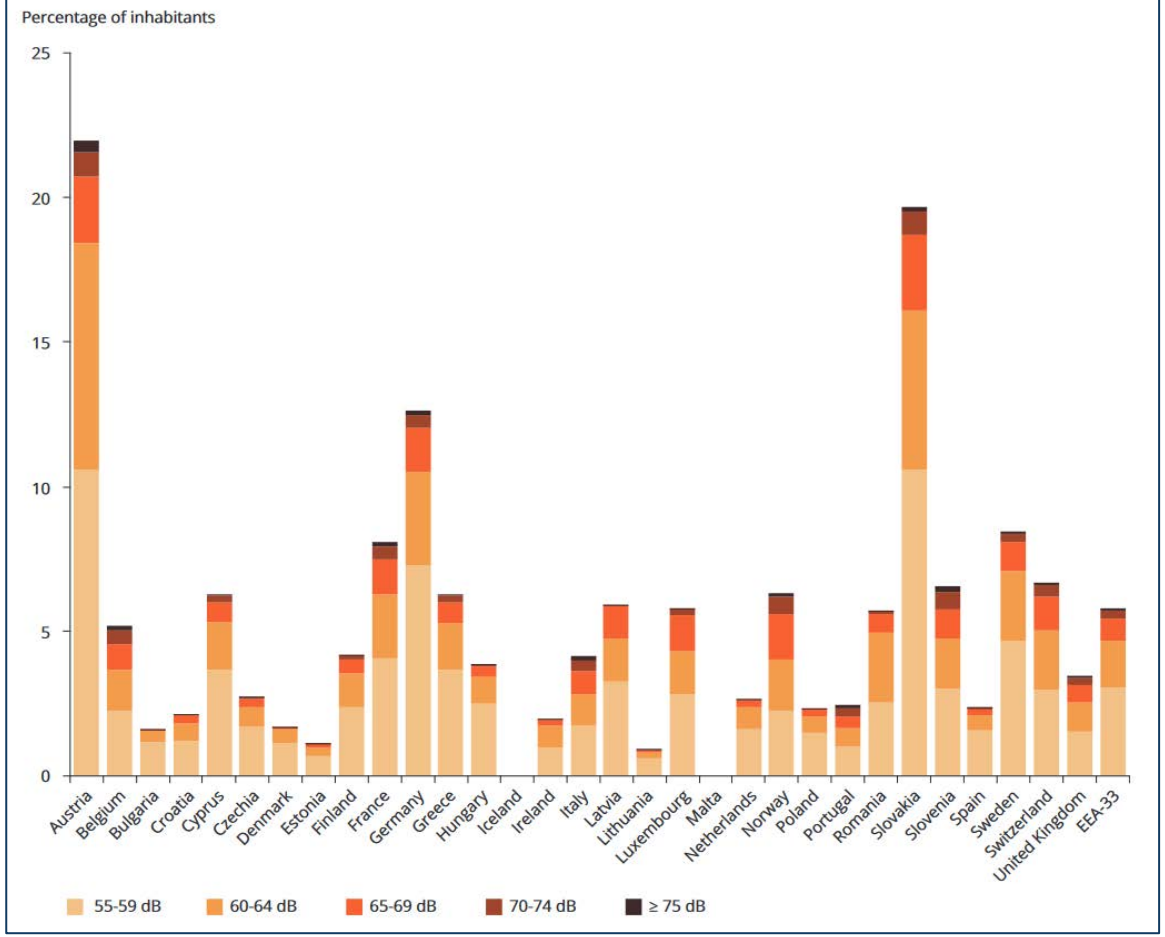
100%

European Environment Agency

Rail and air traffic noise inside urban areas

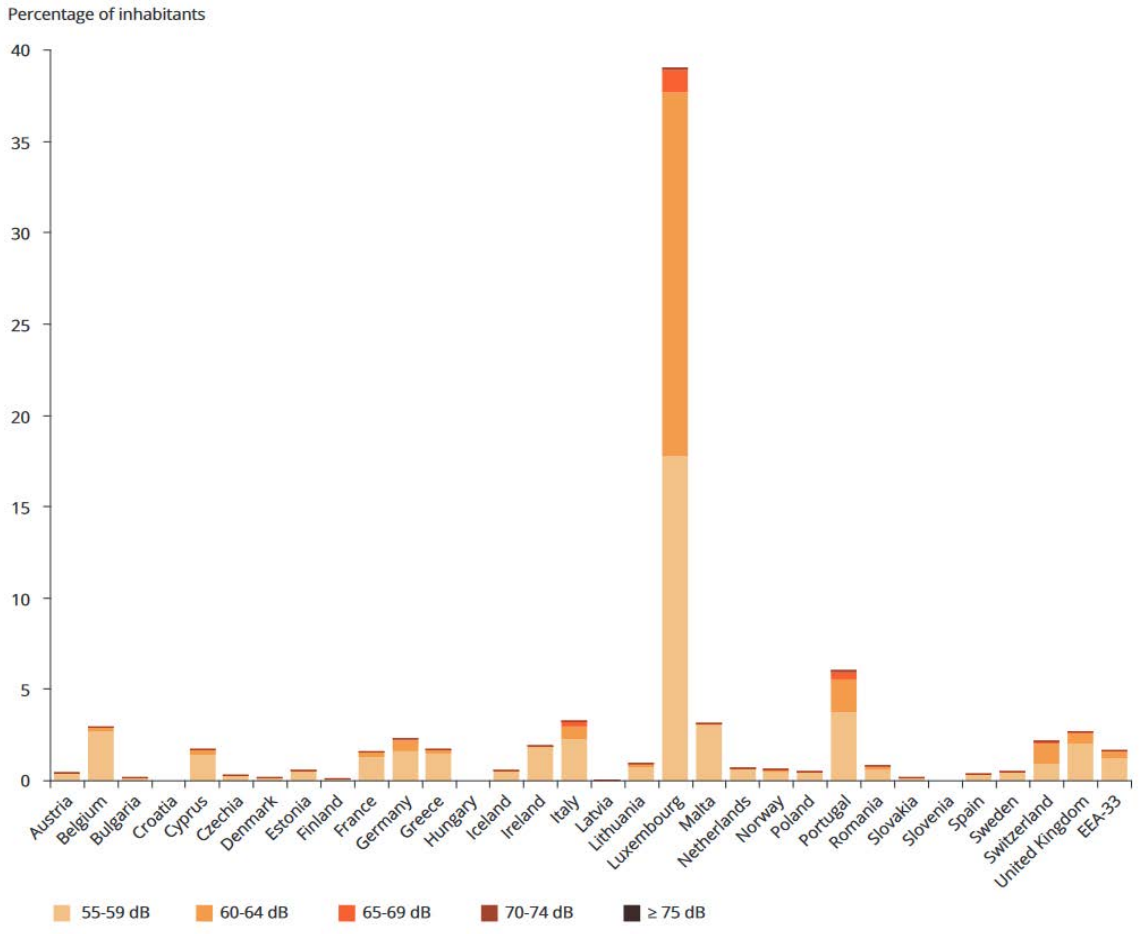
Rail traffic

Figure 2.10 Estimated percentage of inhabitants within urban areas exposed to rail traffic noise bands in 2017, using the L_{den} indicator



Air traffic

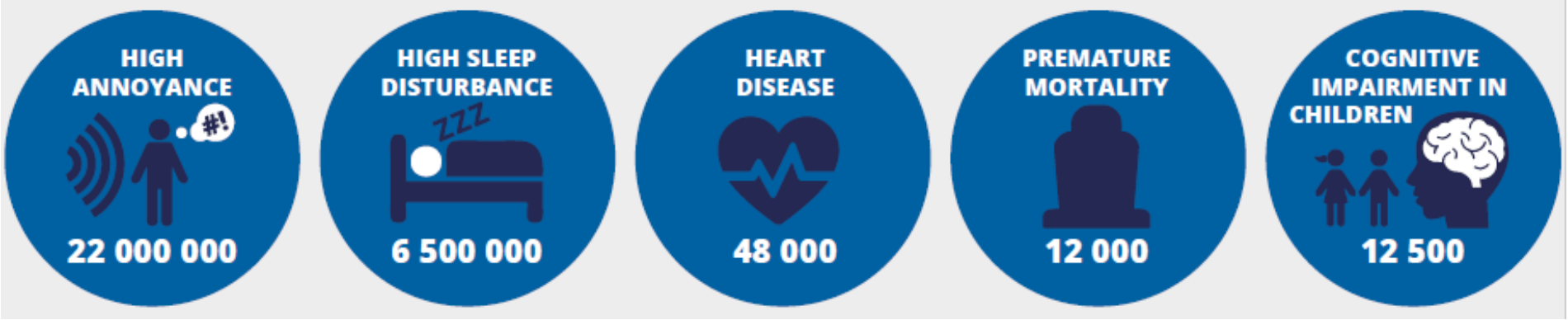
Figure 2.12 Estimated percentage of inhabitants within agglomerations exposed to air traffic noise bands in 2017, using the L_{den} indicator



European Environment Agency

Health impacts of noise

- Environmental noise affects millions of people causing significant public health impacts.

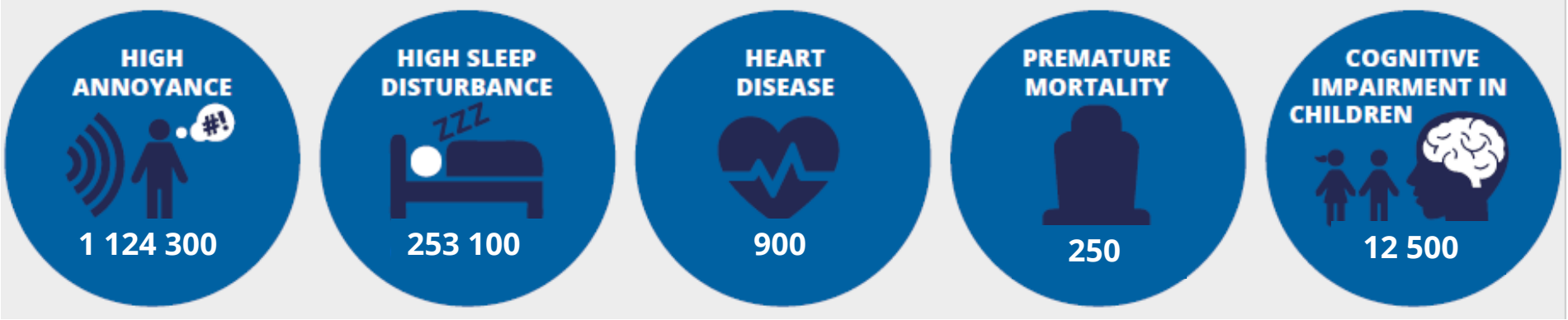


The major part of the burden of disease occurs inside urban areas with road traffic noise being the largest contributor.

*Assessed at levels starting at 55 dB L_{den} and 50 dB L_{night} for sources of noise reported under the END

Health impacts of air traffic noise

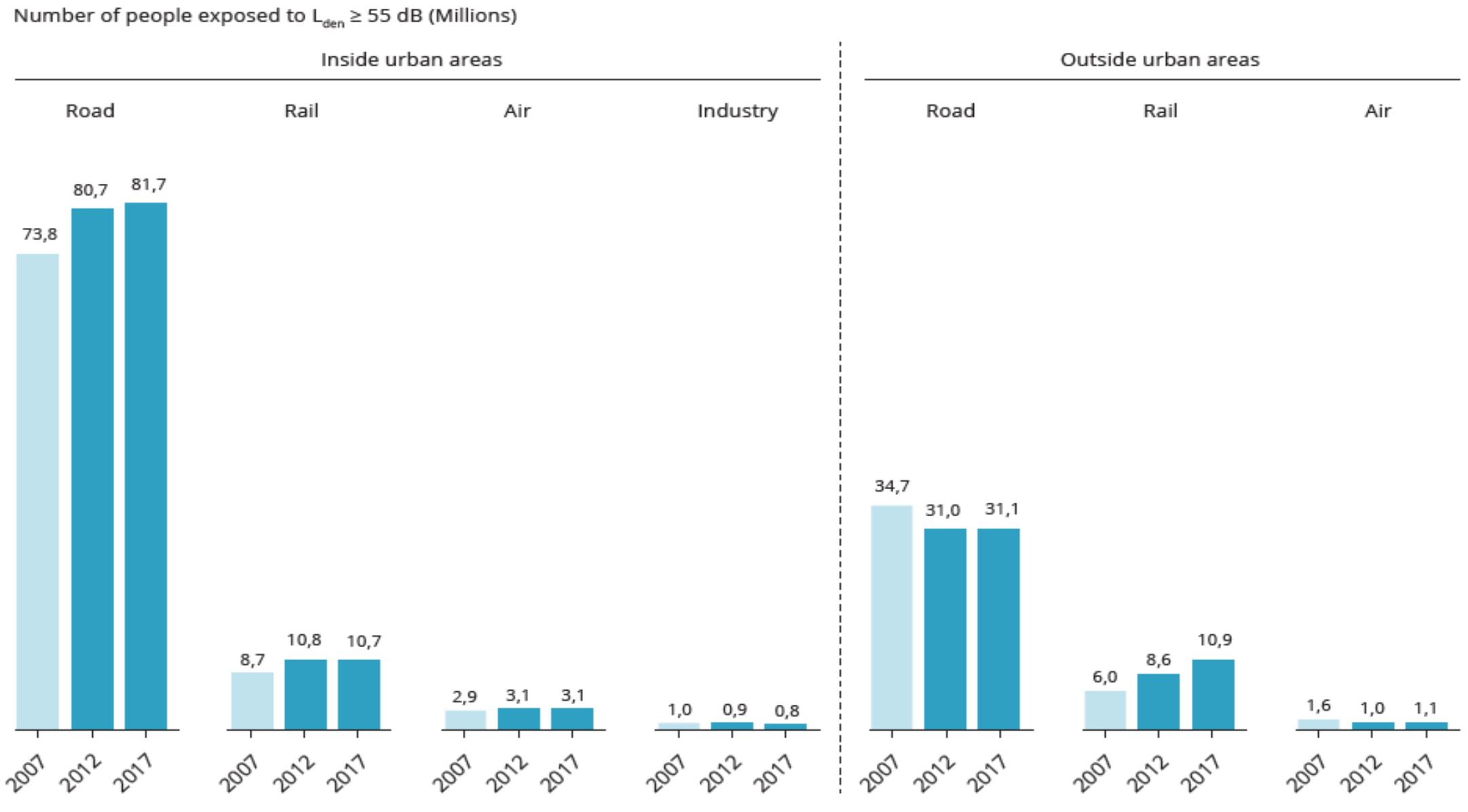
- Estimated health impacts for air traffic noise



The main health impacts are long-term high annoyance, sleep disturbance and reading impairment in children. Urban areas are the most affected.

*Assessed at levels starting at 55 dB L_{den} and 50 dB L_{night} for sources of noise reported under the END

Trends


Number of people exposed to L_{den} ≥ 55 dB (Millions)
Inside urban areas
Road
Rail
Air
Industry
Outside urban areas
Road
Rail
Air
73,8
80,7
81,7
8,7
10,8
10,7
2,9
3,1
3,1
1,0
0,9
0,8
34,7
31,0
31,1
6,0
8,6
10,9
1,6
1,0
1,1
2007
2012
2017

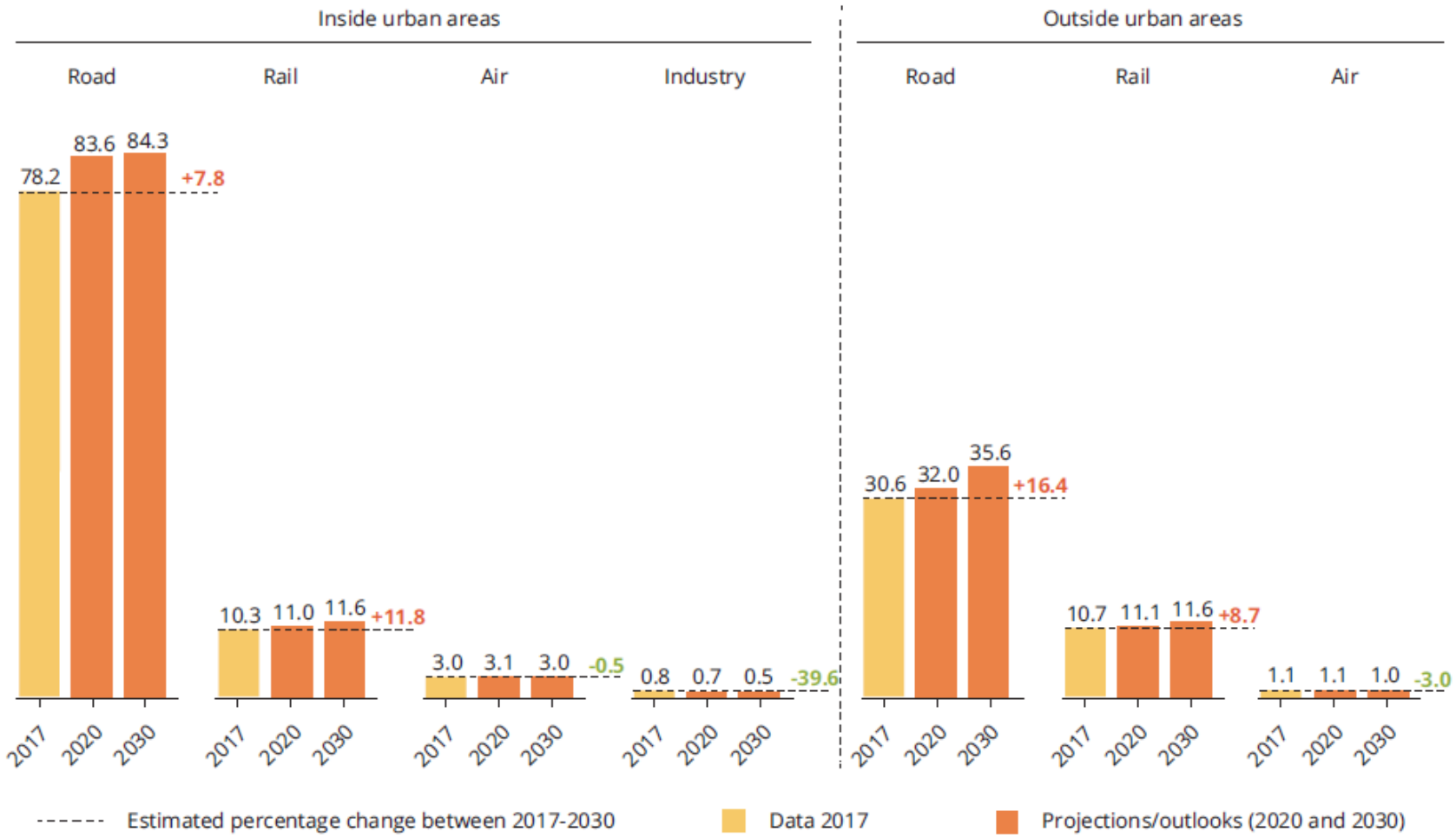
Projections

- The number of people exposed to high levels of noise remains high and is likely to increase.

Projections

Figure 2.18 Outlooks for 2020 and 2030 in areas covered by the END for the day-evening-night period, EU-28

Number of people exposed to $L_{den} \geq 55$ dB (millions) and estimated percentage change between 2017-2030

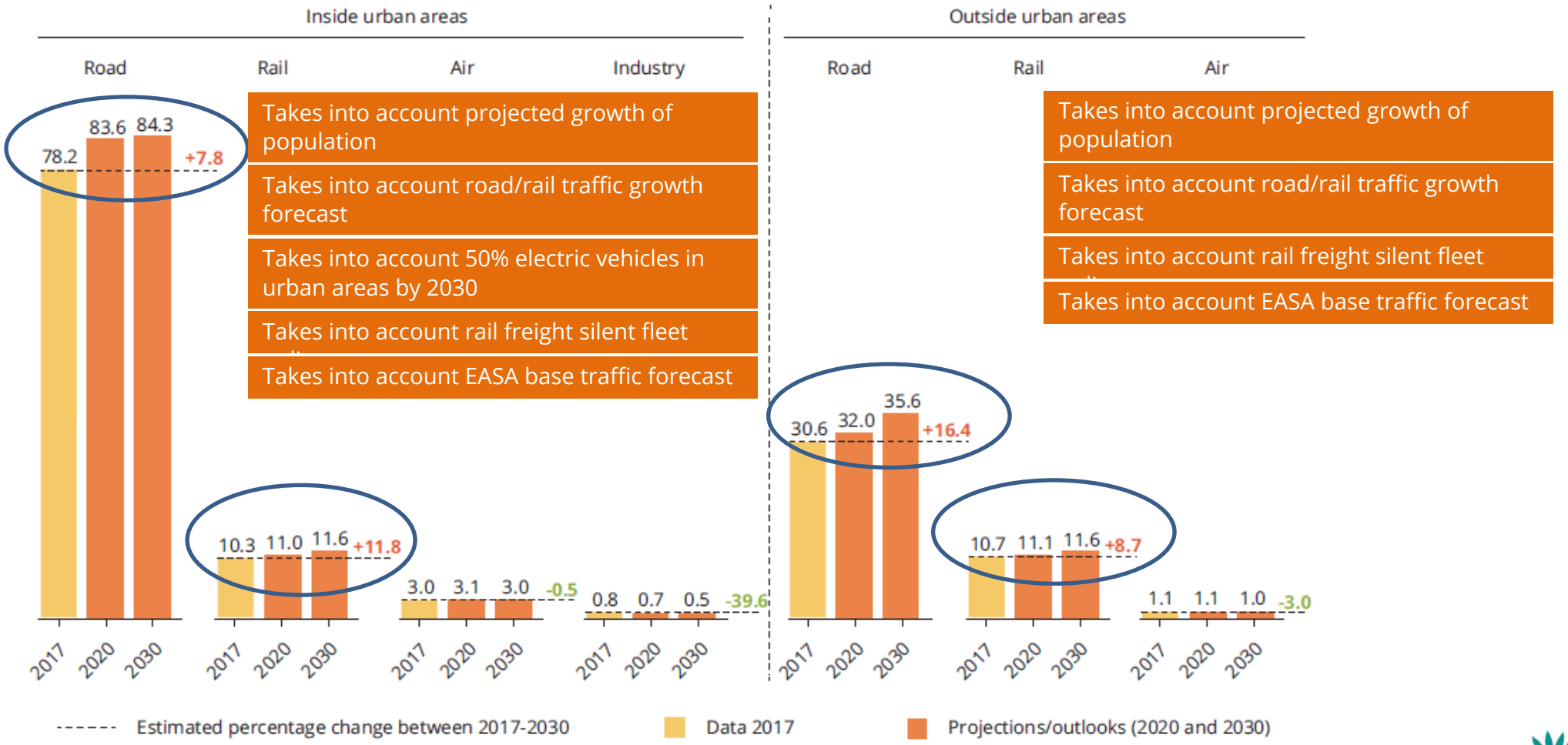


European Environment Agency

Projections

Figure 2.18 Outlooks for 2020 and 2030 in areas covered by the END for the day-evening-night period, EU-28

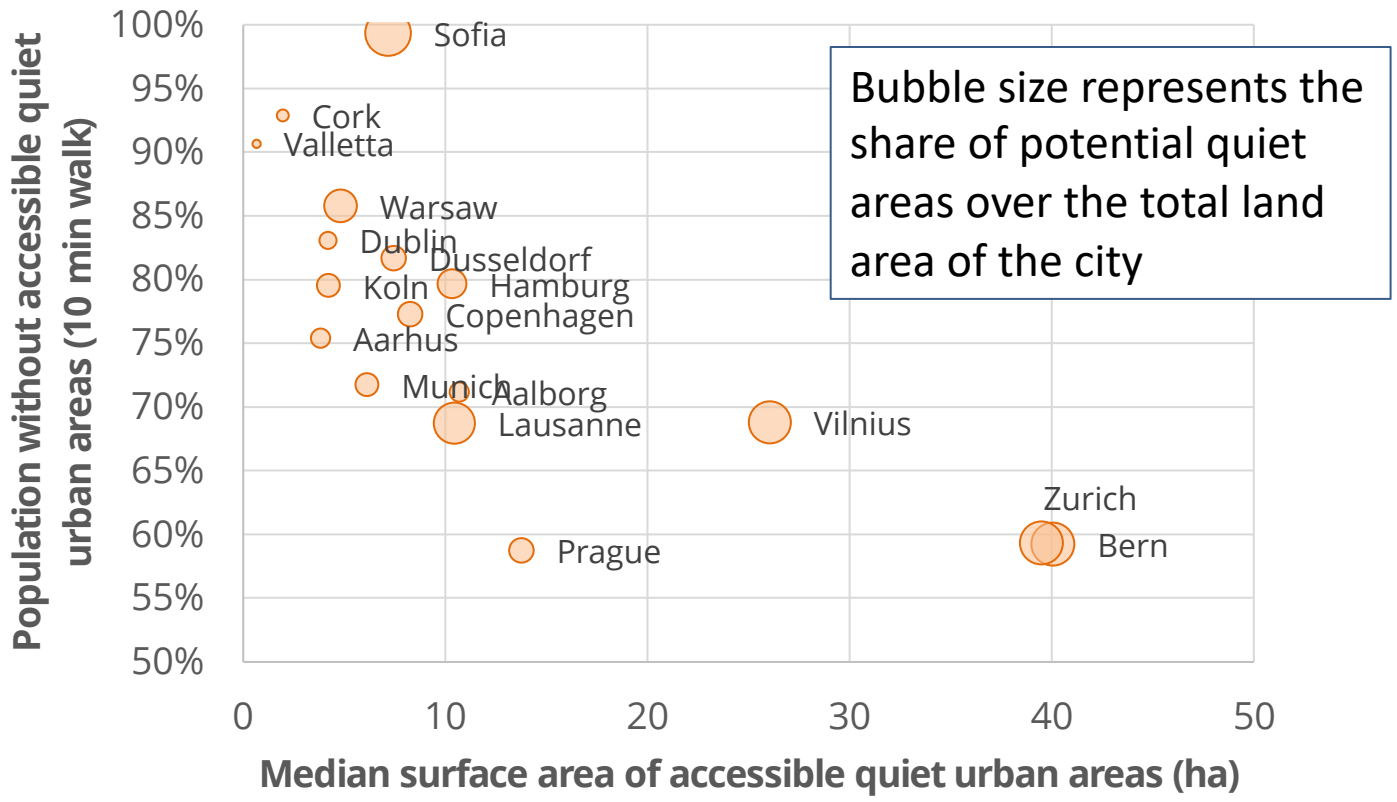
Number of people exposed to $L_{den} \geq 55$ dB (millions) and estimated percentage change between 2017-2030

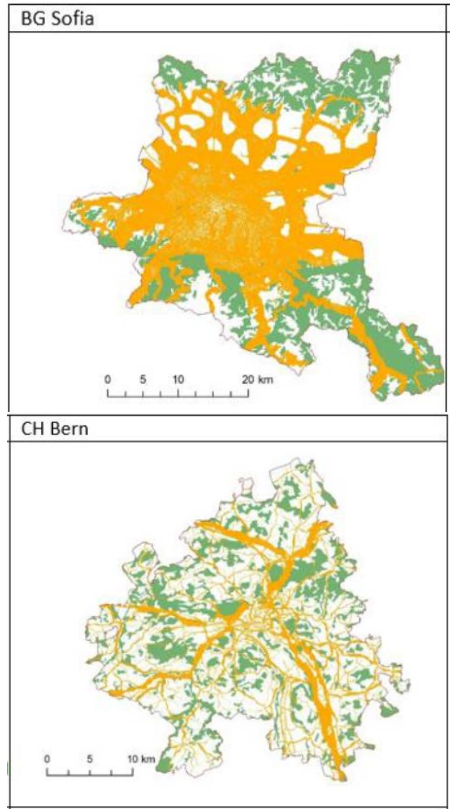


European Environment Agency

Quiet Areas

- More needs to be done to protect and improve accessibility to quiet areas in cities.





European Environment Agency

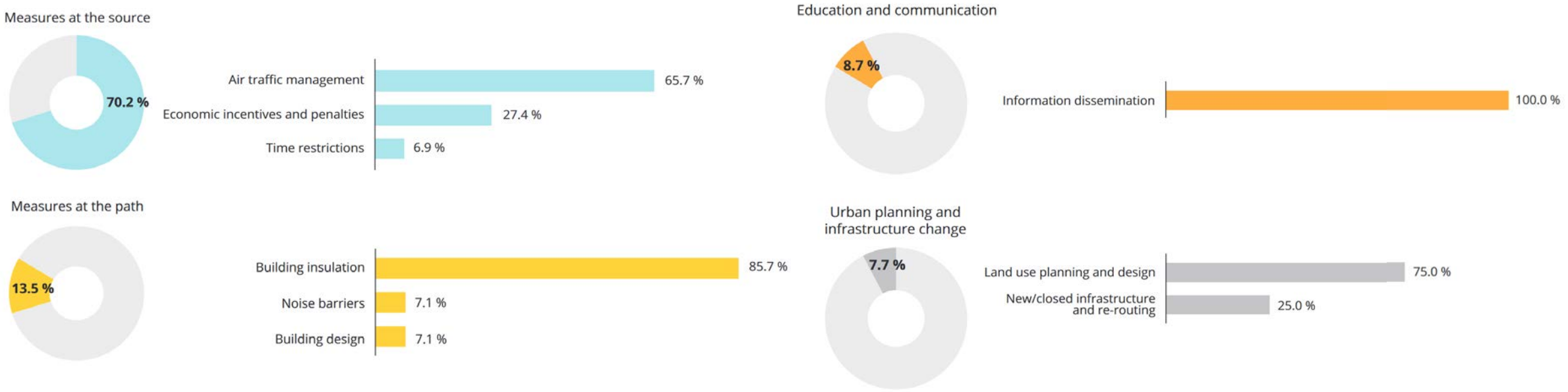
Reducing and managing noise exposure

- Competent authorities for roads, railways, airports and cities are undertaking a variety of actions to reduce and manage environmental noise. It is difficult to track implementation of the action plans and their benefits in terms of positive health outcomes.

	Major Roads	Major Railways	Major Airports	Agglomerations
Measures at the path	40,4%	27,7%	13,5%	16,5%
Measures at the source	38,5%	51,5%	70,2%	51,2%
Urban planning and infrastructure change	13,5%	18,2%	7,7%	9,9%
Education and communication	5,8%	0,0%	8,7%	15,1%
Other physical measures	1,9%	3,0%	0,0%	7,3%

Reducing and managing noise exposure – air traffic

- Measures at source are extensively used to reduce and manage air traffic noise at major airports. Other measures such as urban and land use planning represent a small percentage of the measures chosen to address noise.



Reducing and managing noise exposure

Recommendations	Results from END action plans
Quiet Areas	Needs improvement
Health outcomes	Needs improvement
Inform and involve communities	Needs improvement
Road noise – mitigation at source and on the noise path by making changes to the infrastructure	Partially on track
Aircraft noise – mitigation by infrastructure changes and flight path rearrangements	On track
Mitigation at source	On track
Mitigation by urban planning and city design	Needs improvement

WHO (2018)

7th EAP

Thank you!

More information:

- Environmental noise in Europe report:

https://www.eea.europa.eu/publications/environmental-noise-in-europe

- Noise viewer:

http://noise.eea.europa.eu/

- Noise country fact sheets:

https://www.eea.europa.eu/themes/human/noise/noise-fact-sheets

- Noise data:

https://www.eea.europa.eu/data-and-maps/data/data-on-noise-exposure-7