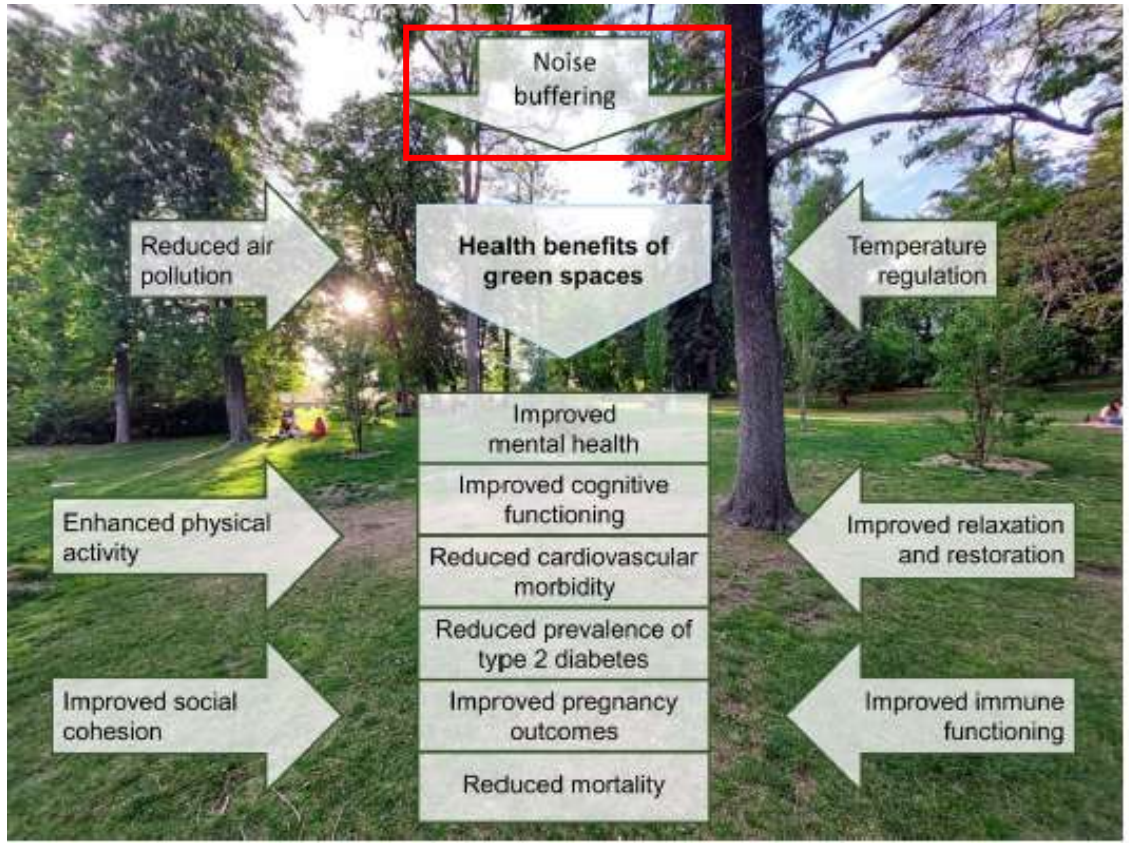
Impact of Noise on Health and Well-being

Health and Quality of life benefits of green space *(Guillermo et al. 2013)*



Environmental Noise in Europe – 2020 (EEA 2019)

- Chronic exposure to environmental noise has significant impacts on physical and mental health and well-being.
- Long-term exposure to environmental noise is estimated to cause 12 000 premature deaths and contribute to 48 000 new cases of ischaemic heart disease per year in the European territory.
- Socially deprived groups, as well as groups with increased susceptibility to noise, may suffer more pronounced health-related impacts of noise.
- At least 20 % of the EU population live in areas where traffic noise levels are harmful to health.
- More specifically, an estimated 113 million people are affected by long-term day-evening-night traffic noise levels of at least 55 dB(A).

Sound levels from various sources in dB(A)

Source, situation, location	dB(A)
• Gunshot, close to gun barrel	160
• Jet aircraft taking off	140
• Pain threshold	130
• Aircraft (> 100 t) taking off at a distance of 100 m	110
• Discotheque (indoor)	95
• Passing goods train (grey cast iron brakes, 100 km/h, distance 7.5 m)	95 - 100
• Heavy goods vehicle (50 km/h, distance: 7.5 m)	85 - 95
• Horn	85
• Passenger car (50 km/h, distance: 7.5 m)	60 - 80
• Lively conversation	65
• Conversation	60

(OFEV 2018, p,8)

Exposure limit values laid down in the Noise Protection Ordinance (OPB)

Degree of sensitivity (DS)		Planning value (VP) in dB(A)		Immission limit value (ILV) in dB(A)		Alarm value (VA) in dB(A)	
		Day	*Night*	*Day*	*Night*	*Day*	*Night*
I	Leisure area	50	40	55	45	65	60
II	Residential	55	45	60	50	70	65
III	Residential/craft	60	50	65	55	70	65
IV	Industry	65	55	70	60	75	70

(OFEV 2018, p.11)

- **Planning values** apply to the construction of new noisy installations and to the demarcation and development of building zones for noise-sensitive buildings (housing).
- **Immission limit values** define the thresholds above which noise considerably disturbs the well-being of the population. They apply to existing noisy installations and to planning permission for noise-sensitive buildings (housing).
- **Alarm values** are a criterion used to define the urgency of renovations and the installation of noise-abatement windows.

Acoustic Benefits of Green Infrastructure in Urban Areas

- Wildflower meadows absorb more road traffic noise than mowed grassland.
- Forestry can provide 6 dBA noise reduction if sufficient depths and densities are designed.
- Shallow hedges and vegetation-only barriers can provide 1-4 dBA noise reduction that can help improve speech conditions and make streets more comfortable for walking.
- Vertical Greenery Systems can absorb between 40-100% of sound, which means they outperform most traditional building facade systems that are hard and reflective.
- Green Roofs can reduce sound propagation over buildings by up to 6 dBA and help create quieter facades and streets.
- Views of Greenery reduce the perceived level of road traffic noise by up to 10 dBA.
- People with more green spaces nearby were found to be less sensitive to noise.
- Views of green and blue spaces from homes can mediate the negative perceptions of noise that lead to annoyance.
- Green Infrastructure can increase the dominance of natural sounds in our urban environments, which has been found to help promote mental restoration.

Source: Anderson Acoustics, retrieved online as of 18,04,2024: https://andersonacoustics.co.uk/news/acoustic-benefits-of-green-infrastructure-in-urban-areas/