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**REPORT FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT AND
THE COUNCIL**

**on the Implementation of the Environmental Noise Directive in accordance with Article
11 of Directive 2002/49/EC**

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1. Introduction

At the EU level, Directive 2002/49/EC on the assessment and management of environmental noise (the Directive) ¹ is the key legislative instrument for protecting people's health and well-being from excessive noise pollution caused by road, rail and airport traffic, and large industrial installations. It does this by (1) setting a common approach in order to avoid, prevent and reduce the harmful effects of environmental noise and (2) providing a basis for developing measures to reduce noise emitted by the major sources. Overall, it is the EU's legal instrument for linking assessment and actions at the local and global levels.

Article 11 of the Directive requires the European Commission to submit a report every 5 years, and submit it to the European Parliament and the Council. This report must include a review of the acoustic environment as well as of the available measures for reducing environmental noise, the achievements of other EU legislation regulating noise sources and an assessment of the need for further EU action.

This third implementation report reviews the situation since the publication of the second report ². It assesses the implementation of the actions proposed in the second report from 2017 on the basis of the 2016 evaluation of the Directive ³.

The European Environment Agency (EEA) has indicated that noise is the second most important environmental disease factor in the EU (after air pollution). Prolonged exposure to high levels of noise pollution can have a serious health impact (including high blood pressure, cardiovascular disease and premature mortality) and significantly affect physical health, mental health and well-being (including chronic disturbance, such as a high level of sleep disturbance, stress and/or annoyance). 20% of the EU's population - one in five people of all age groups - live in areas where noise levels harm health ⁴.

¹ Directive 2002/49/EC of the European Parliament and of the Council of 25 June 2002 relating to the assessment and management of environmental noise ([OJ L 189, 18.7.2002, p. 12](#)).

² Report from the Commission to the European Parliament and the Council on the implementation of the Environmental Noise Directive in accordance with Article 11 of Directive 2002/49/EC, [COM\(2017\) 151 final](#).

³ Commission staff working document, refit evaluation of the Directive 2002/49/EC relating to the assessment and management of environmental noise, [SWD\(2016\) 454 final](#).

⁴ EEA, *Healthy environment, healthy lives: how the environment influences health and well-being in Europe*, [EEA Report No 21/2019](#).

Under the European Green Deal, the EU has committed itself to achieving a zero pollution ambition for a toxic-free environment. The 2021 zero pollution action plan⁵ sets a specific target of reducing by 30% by 2030 the number of people chronically disturbed by transport noise in respect to 2017.

The Commission committed itself in the zero pollution action plan to:

- better focusing on tackling noise at source – in line with the findings of the 2016 evaluation³ of the Environmental Noise Directive and the 2020 evaluation of the Outdoor Noise Directive⁶, notably by securing proper implementation and, where appropriate, by improving the EU’s noise-related regulatory framework on road vehicles and their tyres, railways, aircraft – accompanied by parallel action at the global level;
- following up the 2020 evaluation of the Outdoor Noise Directive by addressing outdoor equipment and reviewing progress in 2022; and
- assessing the need to set noise reduction targets at the EU level in the Environmental Noise Directive.

The zero pollution action plan also pointed to the need to better integrate the Member States’ noise action plans into the sustainable urban mobility plans by in parallel expanding the clean public transport network and promoting more active means of transport.

Both the sustainable and smart mobility strategy⁷ and the eighth environment action programme further confirm the need to reduce noise⁸, which mainly comes from transport. In that sense, the strategy already contains a list of points of action to be taken on tyres⁹, airport charges¹⁰ and promoting rail¹¹.

⁵ Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions: Pathway to a Healthy Planet for All, EU Action Plan: ‘Towards Zero Pollution for Air, Water and Soil’, [COM\(2021\) 400 final](#).

⁶ Commission staff working document, evaluation of the Outdoor Noise Directive 2000/14/EC accompanying the document Report from the Commission to the European Parliament and the Council on the implementation and administration of Directive 2000/14/EC of the European Parliament and of the Council of 8 May 2000 on the approximation of the laws of the Member States relating to the noise emission in the environment by equipment for use outdoors [SWD\(2020\) 266 final](#).

⁷ Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions: Sustainable and Smart Mobility Strategy – putting European transport on track for the future, [COM\(2020\) 789 final](#).

⁸ Decision (EU) 2022/591 of the European Parliament and of the Council of 6 April 2022 on a General Union Environment Action Programme to 2030 ([OJ L 114, 12.4.2022, p. 22](#)).

⁹ Flagship 1, action 8: develop coherent rules for environmental, energy and safety performance of tyres in 2023.

¹⁰ Flagship 2, action 16: revision of the Airport Slots Regulation and the Airport Charges Directive in 2021 and 2022.

¹¹ Four separate actions:

- Flagship 3, action 18: EU 2021 Rail Corridor Initiative - Action Plan to boost passenger rail transport in 2021;
- Flagship 3, action 19: put in place measures to better manage and coordinate international rail traffic, including, if necessary, through revised rules for capacity allocation and infrastructure charging in rail in 2022;

2. Acoustic environment quality in the EU and its impact on public health

The WHO conducted a systematic review of the scientific evidence underpinning the quantification of health effects of noise in 2014-2018. The research on three of the eight health effects linked to noise (cardiovascular diseases, sleep disturbance and annoyance) provided a sufficient basis for strong WHO recommendations to reduce noise below specific levels depending on the source (Table 1).

Table 1: WHO recommended maximum noise levels (WHO 2018 ¹²)

	Noise during day, evening and night (L_{den}) ¹³	Noise during the night (L_{night}) ¹³
Road	53	45
Railway	54	44
Aircraft	45	40

The Directive requires the Member States to report data to the Commission only from 55 L_{den} and from 50 L_{night} . These levels are above the WHO's recommended maximum noise levels (Table 1). This means that the Commission's analysis, which is based on the data provided by the Member States under the Directive, covers a smaller proportion of the EU's population than would be the case if the Member States were required to submit data in line with the WHO's recommendations.

The EEA has used this reported data to assess exposure to noise in the EU Member States, covering 443 agglomerations (where roads, railways, airports and industrial installations are considered), as well as 61 major airports, 422 000 km of major roads and 39 000 km of major railways outside agglomerations. A specific methodology ¹⁴ was used to complete gaps in data reporting by the Member States. The results of this assessment are presented in Figure 1.

A study commissioned by the Commission ¹⁵ assessed how many of the EU's 447 million people are potentially exposed to harmful noise levels above the maximum recommended by the WHO. It found this to be the case for 167 million citizens in relation to road noise; 36 million in relation to railway noise; and 15 million in relation to aircraft noise. The number of people officially reported to the EEA as being exposed above the Directive's thresholds is presented in Figure 1 below.

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- Flagship 3, action 20: revision of the Urban Mobility Package of 2013 in 2021;
 - Flagship 4, action 24: EU 2021 Rail Corridor Initiative - Revise the Rail Freight Corridor Regulation in 2021.

¹² [Environmental noise guidelines for the European Region](#), World Health Organisation, 2018.

¹³ <https://www.eea.europa.eu/help/glossary/eea-glossary/lden>

¹⁴ [Noise indicators under the Environmental Noise Directive 2021](#). Methodology for estimating missing data, Eionet Report - ETC/ATNI 2021/6, 2021.

¹⁵ European Commission, Directorate-General for Environment, Kantor, E., Klebba, M., Richer, C. et al., *Assessment of potential health benefits of noise abatement measures in the EU: Phenomena project*, Publications Office, 2021. <https://data.europa.eu/doi/10.2779/24566>.

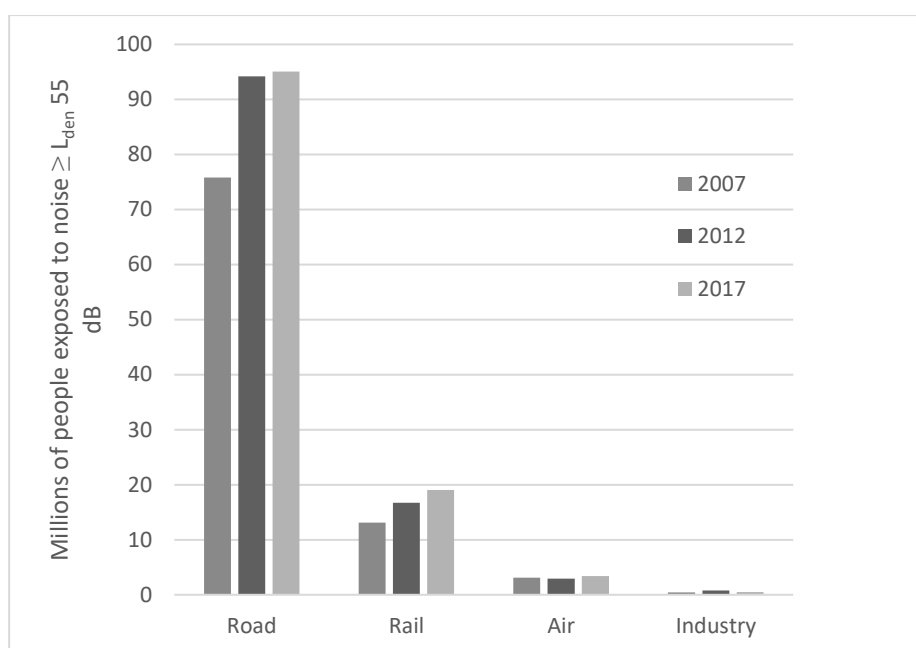


Figure 1: Number of people exposed to environmental noise greater than 55 dB L_{den} in the 27 EU Member States in 2007, 2012 and 2017. The figure presents a subset for railways, roads, airports and industry, as required by the Directive for the three mentioned years, by combining data for locations inside and outside agglomerations, and based on data submitted to the Commission by 1 January 2021¹⁶.

Table 2 below presents the number of people highly annoyed, highly sleep disturbed and subject to ischaemic heart diseases as well as the number of premature deaths due to noise.

Table 2: Health effects for the subset of entities required by the Directive calculated according to the methods developed by the WHO and using the 2017 data¹⁷).

	Highly annoyed	Highly sleep disturbed	Cases of ischaemic heart disease	Premature deaths
Road traffic	14 400 000	3 700 000	33 600	8 900
Rail traffic	3 100 000	1 600 000	5 600	1 500
Air traffic	900 000	200 000	2 000	200

The Member States have drawn up noise maps for nearly all required locations over the last 20 years. These maps have been updated four times (once every 5 years). In line with Article 11(3) of the Directive, there noise data can be consulted on the EEA website¹⁸. This

¹⁶ Source: the European Environment Agency's internal calculations for the noise indicator, 'Health impacts of exposure to noise from transport', European Environment Agency, 2022.

¹⁷ Source: European Environment Agency, 'Health impacts of exposure to noise from transport', European Environment Agency. <https://www.eea.europa.eu/ims/health-impacts-of-exposure-to-1> (accessed November 2022).

¹⁸ <https://noise.eea.europa.eu/>

also provides a ‘NOISE Observation and Information Service for Europe’ using a geospatial representation, which is now being made consistent and extended at EU level following the 2021 Commission Decision implementing a mandatory reporting mechanism¹⁹. The new provisions on reporting, which entered into force on 1 January 2022, will soon make it possible to determine the exposure and health effects for every dwelling in the EU (provided that a noise map is available). It will also be possible to consult the measures contained in any action plans that have been adopted.

The outlook for noise exposure is presented in Figure 2 below.

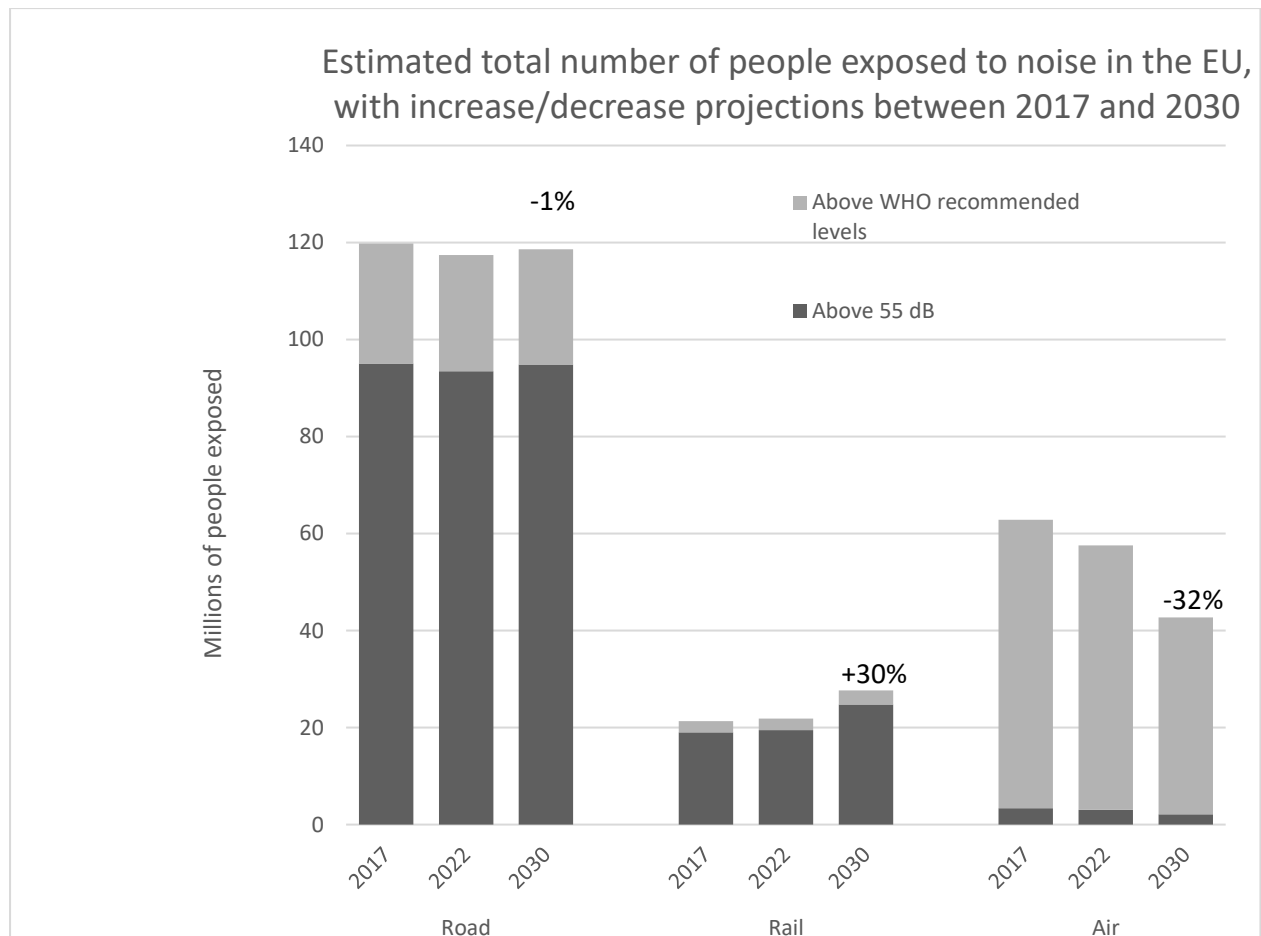


Figure 2: Number of people in the EU27 exposed to more than the Directive’s 55 dB L_{den} of environmental noise (combined data for locations inside and outside agglomerations) and above WHO levels²⁰. The 2030 estimates are based on the implementation of existing EU-level and local-level measures and take traffic and population increase forecasts into account.

¹⁹ Commission Implementing Decision (EU) 2021/1967 of 11 November 2021 setting up a mandatory data repository and a mandatory digital information exchange mechanism in accordance with Directive 2002/49/EC of the European Parliament and of the Council ([OJ L 400, 12.11.2021, p. 160](#)).

²⁰ European Topic Centre on Human health and the environment, *Projected health impacts from transportation noise – Exploring two scenarios for 2030* European Topic Centre on Human health and the environment, [ETC-HE Report 2022/5](#).

Noise exposure has remained rather stable and has not decreased despite 20 years of implementing the Directive and other national noise policies and national noise limits. The first integrated Zero Pollution Outlook Report has recently estimated that the number of people chronically disturbed by road transport noise is unlikely to decline by more than 19% by 2030 (i.e. well below the 30% reduction target set in the zero pollution action plan) unless a substantial set of additional measures is taken at national, regional and local level and unless reinforced EU action across relevant sectors delivers significant further reduction in noise pollution²¹.

3. Implementation of the Directive to date

According to Article 7 and Article 8 of the Directive, the Member States had to prepare maps and action plans for the agglomerations, roads, railways and airports in the scope of the Directive. With the exception of two Member States for which some issues remain, 25 Member States have so far developed nearly all the necessary maps and have adopted at least one five-years plan (thus covering approximately 98% of the EU's population).

There were nevertheless substantial delays during the first and the second rounds of maps and plans. The Commission has therefore launched infringement procedures against 15 Member States²² for inadequate implementation. These have mainly focused on lack of noise maps, action plans and public consultations. Improved compliance with the Directive's requirements has allowed 7 infringement procedures to be closed²³ and significant progress has been made on the other 8. This enforcement effort has therefore significantly helped to achieve implementation.

There have also been 43 non-communication infringement cases, which have usually been linked to delays in transposing the technical amendments introducing the state-of-the-art noise and health calculation methodologies into the Member States' national legislation.

The Court of Justice of the European Union issued judgments on two cases of bad implementation of the Directive in 2022²⁴. The Court notably ruled that at whatever noise levels people are exposed and regardless of the national noise limits, the Member States must always prepare maps, assess health effects and adopt action plans where noise is or can potentially become harmful for human health. The Court has further ruled that action plans are meant to manage noise rather than merely reduce it. The Court has thus confirmed the Directive's aim of protecting health and has explained that national limits simply serve as possible criteria when prioritising interventions.

²¹ Report from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions: First 'zero pollution' monitoring and outlook – 'Pathways towards cleaner air, water and soil for Europe', [COM\(2022\) 674 final](#).

²² BE, CZ, DE, EL, ES, FR, HR, IT, CY, HU, PL, PT, RO, SI and SK.

²³ BE, CZ, HR, HU, RO, SI and SK.

²⁴ Judgment of 13 January 2022, *European Commission v Slovak Republic*, C-683/20, [EU:C:2022:22](#) and judgment of 31 March 2022, *European Commission v Portuguese Republic*, C-687/20, [EU:C:2022:244](#).

The Directive does not set any source-specific limit values at the EU level, thus leaving it to Member States to establish binding national limit values if they so wish. Such values have been set in 21 Member States and non-binding targets have been set in a further 4 Member States. However, there has been limited evidence until now that they are being enforced effectively, possibly because compliance with these limits may require end-of-pipe unilateral measures at local level (e.g. such as noise barriers) which tend to be costly and not cost-effective.¹⁵

The difficulty in enforcing national and local limits, as part of the action plans, also depends on how the Directive is implemented on the ground. The competent authorities in charge of implementing the Directive, as identified during compliance checks, are typically municipalities for agglomerations, railway infrastructure operators for railways and national authorities for airports²⁵. The competent authorities vary for roads, ranging from national networks managers to small and very small municipalities. As already noted in the last Commission report in 2017, two recent Commission studies^{15, 25} have confirmed that the choice of measures is limited because the competent authorities are not always allowed to take all possible measures. More specifically, for noise mapping, challenges include a lack of centralised and consistent data input, lack of effective coordination between the different competent authorities and a lack of comparability of the resulting noise maps across jurisdictions. Overall, the evidence shows that Member States with a highly decentralised approach to implementation have particularly struggled to ensure the timely enforcement of the measures intended to implement the Directive.

All 27 Member States have correctly transposed the recent amendments of the Directive's noise and health assessment methods into their national legislation, either through the adoption of new implementing regulations or through adjustments to existing legislation. National indicators are still in use in addition to those of the EU (L_{den} and L_{night}), but the harmonisation of the assessment methods in 2018²⁶ and the harmonisation of health assessment methods in 2022²⁷ have brought about a better alignment of the assessment across the EU by standardising the approaches.

Data from 2022 will use harmonised methods and will therefore not be directly comparable with data for previous years when national methods were used. Trends using 2007, 2012 and 2017 data can nevertheless be identified after a correction for the new method, thus allowing the analysis presented in the two figures above. These corrected data will also be used to

²⁵ European Commission, Directorate-General for Environment, [Study on airport noise reduction](#), June 2022, ISBN 978-92-76-55622-0.

²⁶ Commission Delegated Directive (EU) 2021/1226 of 21 December 2020 amending, for the purposes of adapting to scientific and technical progress, Annex II to Directive 2002/49/EC of the European Parliament and of the Council as regards common noise assessment methods ([OJ L 269, 28.7.2021, p. 65](#)). Commission Directive (EU) 2015/996 of 19 May 2015 establishing common noise assessment methods according to Directive 2002/49/EC of the European Parliament and of the Council ([OJ L 168, 1.7.2015, p. 1](#)).

²⁷ Commission Directive (EU) 2020/367 of 4 March 2020 amending Annex III to Directive 2002/49/EC of the European Parliament and of the Council as regards the establishment of assessment methods for harmful effects of environmental noise ([OJ L 67, 5.3.2020, p. 132](#)).

assess the progress made in achieving the 2030 noise target set by the zero pollution action plan.

Several measures to improve the situation were planned within the last Commission implementation report. Amongst those planned, the Commission enforced the Member States' obligation to assess noise and adopt action plans via the abovementioned infringement procedures. To improve implementation, some Member States reconsidered the distribution of responsibilities that the Commission had suggested. The Commission has promoted urban policy through the guidelines for sustainable urban mobility plans. It has also made it easier to implement railway noise solutions through funding²⁸ and prepared the ground for measures to encourage the quieter road and aircraft vehicles to enter the market by proposing taxonomy criteria²⁹.

Article 1 of the Directive requires a combined approach consisting of the local measures implemented through action plans and EU legislation on source emissions. The Commission has therefore studied which measures can best be implemented at the EU and local levels to reduce noise in a cost-effective manner, and at what level legislation should be adopted.

Three of the actions identified in the previous two reports remain to be taken: the re-scoping of the Directive, adaptation of source legislation and linking interventions to health targets. It is now possible to proceed with these actions due to the improved knowledge of the health effects and of the costs of actions.

The Directive also requires that the competent authorities protect from noise the quiet areas in urban and countryside environments. The designation and protection of quiet areas has mainly taken place in cities and more progress is needed in designating and protecting quiet areas in rural areas. This may be because the Directive does not provide a consistent definition of such quiet areas.

There is a more general lack of clarity in the Directive as regards the lack of coherence between the broad scope in Article 2³⁰ – which seems to include all environmental noise to which humans are exposed – and the reality that citizens' petitions complain of adverse health effects not only from transport sources, but also from noise due to wind turbines and commercial activities. These two sources are not explicitly mentioned in the definition of

²⁸ Regulation (EU) 2021/1153 of the European Parliament and of the Council of 7 July 2021 establishing the Connecting Europe Facility and repealing Regulations (EU) No 1316/2013 and (EU) No 283/2014 ([OJ L 249, 14.7.2021, p. 38](#)).

²⁹ Regulation (EU) 2020/852 of the European Parliament and of the Council of 18 June 2020 on the establishment of a framework to facilitate sustainable investment and amending Regulation (EU) 2019/2088 ([OJ L 198, 22.6.2020, p. 13](#)).

³⁰ '1. This Directive shall apply to environmental noise to which humans are exposed in particular in built-up areas, in public parks or other quiet areas in an agglomeration, in quiet areas in open country, near schools, hospitals and other noise-sensitive buildings and areas.' ' 2. This Directive shall not apply to noise that is caused by the exposed person himself, noise from domestic activities, noise created by neighbours, noise at workplaces or noise inside means of transport or due to military activities in military areas.'

environmental noise in Article 3(a)³¹ and are therefore not covered by the Directive. Article 4 (competent authorities) does not raise particular issues because the authorities has been clearly identified by the Member States. The indicators defined in Article 5, particularly L_{den} and L_{night} , have been used consistently. Assessment methods were updated in 2021 and all Member States have transposed them into their national laws. Some specific issues remain in relation to maps in Article 7 and action plans in Article 8. In particular, about 2% of the EU population that should have been covered by maps and plans is still not covered. As required by Article 9, there was a public consultation for all action plans that were adopted. This typically took the form of a publication on the online sites of the competent authority. Finally, significant delays in reporting the maps and action plans as required by Article 10 ultimately led to many maps and plans not being reported until 2021.

4. Achievements of the Directive to date

To appreciate the achievement of the Directive in reducing health problems to date, it is first necessary to assess how technically feasible it is to reduce noise exposure with the solutions currently available, and without severely limiting transport. The aforementioned 2021 study commissioned by the Commission¹⁵ analysed data from the Member States, other relevant EU and national documents, and the latest scientific literature. It also carried out a comprehensive consultation with competent authorities and stakeholders from all Member States through in-depth interviews, two workshops and an online public consultation. Overall, it confirmed most of the findings of the 2016 evaluation study, notably that the Directive is consistent with other legislation and is still relevant to the noise problem, and that implementing the measures through action plans is cost-efficient.

The 2021 study¹⁵ also found that the maximum technically feasible noise reduction between 2017 (the date of the last analysis) and the relatively close date of 2030 is approximately 45%. The Directive is making a significant contribution to that potential reduction because it acts as framework legislation to link EU and national legislation and could coordinate the implementation of measures – thus enhancing their results and ultimately making the investments in these measures effective. The Directive does not prescribe which priority measures should be considered, so the implemented measures might in some instances remain ineffective (for example, smooth wheels of new freight wagons over non-smooth rails do not reduce noise as much as they could on well-maintained rails). The direct administrative costs linked to the implementation of the Directive are very low (EUR 0.04 per inhabitant concerned per year). The Directive remains the main enabler of knowledge-based, digitalised assessment of noise health impacts and, based on its output, decisions can be effectively taken at local, regional, national and EU level.

³¹ ‘environmental noise’ shall mean unwanted or harmful outdoor sound created by human activities, including noise emitted by means of transport, road traffic, rail traffic, air traffic, and from sites of industrial activity such as those defined in Annex I to Council Directive 96/61/EC of 24 September 1996 concerning integrated pollution prevention and control’.

The Directive does not indicate which measures should be applied, so its direct effects are limited to harmonising the approach to the assessment of effects. The Directive does not set a specific target or prioritise actions to be taken at local, national or cross-border level. While the local action plans are at the core of noise reduction, it is for each of them to specify the local level of ambition and measures to be taken after having assessed what health benefits these measures will bring and having potentially corrected them on the basis of feedback from the general public.

The 2021 study ¹⁵ found that competent authorities now have a much clearer understanding of the extent of the noise problem and of the solutions available to them – but that the general public is not always aware of the noise situation and the scale of its health impact.

The 2016 evaluation ³ had found that the Directive is relevant (because noise is still a major problem for people) and that it is consistent with other EU laws even if it is not effectively used to steer other legislative developments and implement local measures. The Directive pursues its objective of harmonising the noise management process in a cost-efficient manner. Implementing the noise measures proposed in some local and national action plans would be highly cost-efficient: the 2021 study ¹⁵ confirmed this by showing that there is a return of EUR 10 in societal benefits for every euro spent on specific measures. This means that the adoption of specific noise measures by the Member States' authorities not only helps to solve a health issue, but also produces long-term societal benefits. The value added by the EU so far includes improved harmonisation and digitalisation of noise management processes across the EU, although these processes have not yet produced the health benefits aimed for by Article 1(c) of the Directive. The 2021 study underlines the point that a substantial reduction in negative health effects in line with Article 1 would have occurred if existing technical measures had been implemented (e.g. by adapting existing products or differently operating relevant transport vehicles) at the cost of just a few tens of euros per EU citizen per year ³².

The 2021 study ¹⁵ tested the most cost-efficient measures by reference to a baseline scenario in order to quantify health benefits. For roads, considering that the electric vehicles are not quieter than combustion engine vehicles at speeds above 30 km/h, the best option is to use better tyres and enhance roads surfaces on specific locations; for railways it is to improve tracks and maintain low-noise vehicles; and for airports it is to take measures for operating aircraft in the least noisy manner, renewing the fleet and reducing the traffic at night. Concerning industrial noise, the recent Commission proposal ³³ to revise Directive

³² For instance, the total first-year EU-level costs of implementing all the measures for roads, railways and airports that were considered in the 2021 study were around EUR 13 billion. One can add to this the EUR 20 billion costs of noise barriers. There are no costs relating to aircraft noise, except for a ban on night-time flights.

³³ Proposal for a Directive of the European Parliament and of the Council amending Directive 2010/75/EU of the European Parliament and of the Council of 24 November 2010 on industrial emissions (integrated pollution prevention and control) and Council Directive 1999/31/EC of 26 April 1999 on the landfill of waste, [COM\(2022\) 156 final](#).

2010/75/EU on industrial emissions (IED)³⁴ aims to further protect human health and the environment from the adverse effects of pollution from large agro-industrial installations. This is also expected to generate positive co-benefits through further noise reduction.

5. Achievements to date of other EU legislation regulating noise sources

The EU has the following relevant regulations addressing noise from roads, railways, aircrafts, outdoor equipment and industrial sources.

The relevant instruments for **road noise** are: Regulation (EU) 540/2014 for cars, vans, buses and trucks³⁵; Regulation (EU) 168/2013 for mopeds and motorbikes³⁶; Regulation (EU) 2019/2144 on type approval of road vehicles including tyre requirements³⁷; and Regulation (EU) 2020/740 on tyre labelling³⁸. Two recent studies³⁹, reviewing the potential of the first two of these regulations concluded that they did not deliver the full benefits, and in particular demonstrated that the most cost-effective measure would have been to require the use of low-noise tyres. Regulation (EU) 540/2014 and Regulation (EU) 2020/740 could both have potentially resulted in the use of low-noise tyres on newly produced vehicles. Particularly Regulation (EU) 2020/740 could have helped indirectly if it had been more effective in convincing consumers to prefer low-noise tyres⁴⁰.

³⁴ Directive 2010/75/EU of the European Parliament and of the Council of 24 November 2010 on industrial emissions (integrated pollution prevention and control) ([OJ L 334, 17.12.2010, p. 17](#)).

³⁵ Regulation (EU) No 540/2014 of the European Parliament and of the Council of 16 April 2014 on the sound level of motor vehicles and of replacement silencing systems and amending Directive 2007/46/EC and repealing Directive 70/157/EEC ([OJ L 158, 27.5.2014, p. 131](#)).

³⁶ Regulation (EU) No 168/2013 of the European Parliament and of the Council of 15 January 2013 on the approval and market surveillance of two- or three-wheel vehicles and quadricycles ([OJ L 60, 2.3.2013, p. 52](#)).

³⁷ Regulation (EU) 2019/2144 of the European Parliament and of the Council of 27 November 2019 on type-approval requirements for motor vehicles and their trailers, and systems, components and separate technical units intended for such vehicles, as regards their general safety and the protection of vehicle occupants and vulnerable road users, amending Regulation (EU) 2018/858 of the European Parliament and of the Council and repealing Regulations (EC) No 78/2009, (EC) No 79/2009 and (EC) No 661/2009 of the European Parliament and of the Council and Commission Regulations (EC) No 631/2009, (EU) No 406/2010, (EU) No 672/2010, (EU) No 1003/2010, (EU) No 1005/2010, (EU) No 1008/2010, (EU) No 1009/2010, (EU) No 19/2011, (EU) No 109/2011, (EU) No 458/2011, (EU) No 65/2012, (EU) No 130/2012, (EU) No 347/2012, (EU) No 351/2012, (EU) No 1230/2012 and (EU) 2015/166 ([OJ L 325, 16.12.2019, p. 1](#)).

³⁸ Regulation (EU) 2020/740 of the European Parliament and of the Council of 25 May 2020 on the labelling of tyres with respect to fuel efficiency and other parameters, amending Regulation (EU) 2017/1369 and repealing Regulation (EC) No 1222/2009 ([OJ L 177, 5.6.2020, p. 1](#)).

³⁹ European Commission, Directorate-General for Internal Market, Industry, Entrepreneurship and SMEs, [Study on sound level limits of M- and N-category vehicles: final report](#), EU Publications Office, 2022. European Commission, Directorate-General for Internal Market, Industry, Entrepreneurship and SMEs, [Technical support for the impact assessment on Euro 5 step of L-category sound emissions level limits: final report](#), EU Publications Office, 2022.

⁴⁰ Assessment of the need to review Regulation (EC) No 1222/2009 of the European Parliament and the Council on the labelling of tyres with respect to fuel efficiency and other essential parameters, [COM\(2017\) 658 final](#).

The main instruments for **railway noise** are Regulation (EU) 1304/2014 on noise from rolling stock⁴¹ and Regulation (EU) 2015/429 on the modalities to be followed for the application of the charging for the cost of noise effects⁴². Regulation (EU) 1304/2014 has recently been revised and from December 2024 onward imposes ‘quieter routes’ on the most intensely used freight routes in the EU, where almost only low-noise freight vehicles will be admitted. This will also generate significant spill-over effects for the rest of the network. Instead, the 2021 evaluation of Regulation (EU) 2015/429 on charging for the cost of noise effects concluded that the Regulation had a positive but rather limited effect on shifting to low-noise freight vehicles⁴³, thus it is being repealed.

The relevant instrument for **aircraft noise** is Regulation (EU) No 598/2014 on the rules and procedures for noise-related measures on airports⁴⁴. The 2022 study on airport noise reduction²⁵ found a number of shortcomings related to its implementation. The study also stressed the point that the concept of noise abatement objective set out in Regulation 598/2014 is not clearly mirrored in the Environmental Noise Directive. Stakeholders have often asked for an amendment to this effect, and also on how to assess the cost-effectiveness of different measures.

EU legislation on **noise from outdoor equipment**, which is mainly addressed by the Outdoor Noise Directive⁴⁵, is also relevant. The 2020 evaluation of this directive⁴⁶ concluded that it had significantly contributed to reducing noise emission by outdoor equipment and to ensuring that manufacturers invest in the research and development of relevant designs, mechanisms and strategies; and also that it was still the primary force driving noise reduction for this type of equipment. However, the evaluation also identified a few critical points for improvement, in particular the need to adapt a number of points in order to reflect technical progress (e.g. scope, noise limits, noise measurement methods, conformity assessment procedures, collection of noise data and alignment with the ‘new legislative framework’⁴⁷).

⁴¹ Commission Regulation (EU) No 1304/2014 of 26 November 2014 on the technical specification for interoperability relating to the subsystem ‘rolling stock – noise’ amending Decision 2008/232/EC and repealing Decision 2011/229/EU ([OJ L 356, 12.12.2014, p. 421](#)).

⁴² Commission Implementing Regulation (EU) 2015/429 of 13 March 2015 setting out the modalities to be followed for the application of the charging for the cost of noise effects ([OJ L 70, 14.3.2015, p. 36](#)).

⁴³ Commission staff working document executive summary of the evaluation of Commission Implementing Regulation (EU) 2015/429 and the rules for noise differentiated track access charges, [SWD\(2021\) 72 final](#).

⁴⁴ Regulation (EU) No 598/2014 on the establishment of rules and procedures with regard to the introduction of noise-related operating restrictions at Union airports within a Balanced Approach ([OJ L 173, 12.6.2014, p. 65](#)).

⁴⁵ Directive 2000/14/EC of the European Parliament and of the Council of 8 May 2000 on the approximation of the laws of the Member States relating to the noise emission in the environment by equipment for use outdoors ([OJ L 162 3.7.2000, p. 1](#)).

⁴⁶ Commission staff working document, Evaluation of the Outdoor Noise Directive 2000/14/EC, [SWD \(2020\) 266 final](#).

⁴⁷ Decision No 768/2008/EC of the European Parliament and of the Council of 9 July 2008 on a common framework for the marketing of products and repealing Council Decision 93/465/EEC ([OJ L 218, 13.8.2008, p. 82](#)).

6. Recommendations and next steps

Data from noise maps show that the large number of people suffering serious health effects due to noise has remained rather stable over the past 15 years.

In December 2022, the European Commission published the first integrated zero pollution monitoring and outlook report, which includes an outlook on noise⁴⁸. The report points out that the target established in the zero pollution action plan to reduce by 2030 the number of people chronically disturbed by transport noise by 30%, compared to 2017, will not be achieved unless additional measures are taken. The report further predicts that, even with the planned measures in place, the overall number of people chronically disturbed by transport noise will increase by 3% by 2030 – but it also explains that a substantial set of additional measures taken at local level could reduce the number of people chronically disturbed by transport noise by 19% by 2030. The report concluded that much more effort is needed to address noise from road transport, which is still the biggest noise pollutant. Reaching the zero pollution action plan target will require measures to target not only areas with acute noise problems, but also areas with moderate noise levels. This will require a combination of measures, including stricter noise regulations for road transport; better urban and transport planning; and significant reductions in road traffic and road traffic speed in cities.

Reducing the number of people chronically disturbed by transport noise in the EU requires action at all levels (EU, national, regional and local).

Cost-effective solutions are already available and should therefore be applied more quickly. The 2021 study¹⁵ on the Environmental Noise Directive sought to enhance the implementation of the most cost-effective measures by identifying a set of local, national, EU and international laws that drive action in this area. Further studies conducted in 2021³⁹ and 2022²⁵ on road vehicles legislation and the management of airport noise confirmed that these are priority actions.

The abovementioned studies also showed that there is no single law or measure that would by itself streamline the implementation of the right measures to deliver significant reductions. Instead, a limited set of harmonised improvements to a very small number of instruments would make it possible to reduce noise exposure. The current legislation was found to be coherent (in the sense that there are no overlaps or contradictions), but progress was hampered by the lack of a common noise policy objective. However, the noise target and commitments set out in the zero pollution action plan have reinforced the political momentum to accelerate and intensify policies and legislative action to reduce noise pollution.

⁴⁸ Report from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions: First ‘zero pollution’ monitoring and outlook – ‘Pathways towards cleaner air, water and soil for Europe’, [COM\(2022\) 674 final](#).

This report builds on the European Environment Agency’s September 2022 report ‘[Outlook to 2030 - can the number of people affected by transport noise be cut by 30%?](#)’.

The main need is to address noise from road transport by additional measures and practical interventions. For roads, the use of quiet tyres, low-noise road surfaces and reduced road speed limits needs to be considered, as electrification of vehicles will bring no benefits. In particular, legislation on tyres needs strengthening in order to achieve the maximum benefit because this is the most cost-effective noise reduction measure^{15, 39}. Measures for other transport modes should include quiet and smooth rails together with quiet wagons for the railways, and improved flight procedures together with night time measures for aircraft operations. Innovative transport mode and transport infrastructure operators should also be incentivised to further engage in ‘noiseless by design’ technologies and products.

Effective action requires a comprehensive approach across all relevant sectors that brings all the different relevant actors together.

At the EU level, the Commission will, where needed, prioritise action to:

- revise limits on tyres, working on the basis of UNECE Regulation No 117⁴⁹;
- speed up the introduction of exclusively quiet freight wagons by improving the implementation of ‘quieter routes’ in accordance with Regulation (EU) 1304/2014⁴¹;
- promote enhanced procedures to reduce noise from the landing and take-off of aircraft;
- introduce environmental charges to increase the use of quiet aircrafts when revising the Airport Charges Directive⁵⁰.

The Commission will also support Member States with relevant tools and actions under the zero pollution action plan.

At national level, implementation of the Environmental Noise Directive and of relevant source legislation continues to be paramount. Member States need to accelerate their compliance efforts and ensure that their noise action plans systematically include:

- the introduction of quiet surfaces whenever a busy road is repaved, making use of the Green Public Procurement guidelines⁵¹;
- lower road speed limits, where other co-benefits such as safety are present;
- maintenance of railway tracks so that rails are kept smooth and installation of low emission tracks near households;
- setting appropriate noise abatement objectives in line with Regulation 598/2014 on airport noise, together with effective measures to achieve them.

⁴⁹ Regulation No 117 of the Economic Commission for Europe of the United Nations (UNECE) – Uniform provisions concerning the approval of tyres with regard to rolling sound emissions and/or to adhesion on wet surfaces and/or to rolling resistance [2016/1350] ([OJ L 218 12.08.2016, p. 1](#)).

⁵⁰ Directive 2009/12/EC of the European Parliament and of the Council of 11 March 2009 on airport charges ([OJ L 70, 14.3.2009, p. 11](#)).

⁵¹ Commission staff working document: EU Green Public Procurement Criteria for Road Design, Construction and Maintenance, [SWD\(2016\) 203 final](#).

Optimal cooperation between national, regional, and local authorities is required. It is also require to further empowering local actors and encouraging them to replicate lead initiatives from cities across the EU to address the exposure of environmental noise pollution in urban areas and promote good health and good quality of life. Civil society representatives should also be further encouraged to ensure that noise management action plans are properly implemented and deliver noise reduction improvements at local level.

The Commission will therefore make full use of the potential of the Green City Accord to speed up the reduction of noise pollution at city level. The pioneering efforts of the 100 cities that have already signed the Green City Accord⁵² should inspire other cities in the EU. The commitment of the Green City Accord signatories -which includes implementing the Directive's action plans- to achieve a significant reduction in noise pollution by 2030 and move closer to the levels recommended by the World Health Organization is exemplary. They will not only develop ambitious plans, but also commit themselves to ensuring that they are implemented. Properly drafting cost-efficient and cost-effective noise action plans requires qualified expertise and all local-level authorities could use this network of cities as a great knowledge resource.

The Commission will build on the commitments of Green City Accord signatories by promoting the exchange of guidance on drafting the noise action plans. It will also encourage the targeted use of support schemes such as the TAIEX-EIR PEER 2 PEER tool for Green City Accord signatories and competent authorities, in particular, to spread good practices on urban noise management across the EU. In addition, the use of the Technical Support Instrument (TSI)⁵³, which provides Member States (upon their request) with targeted technical expertise to design and implement reforms across a wide range of policy areas (including the implementation of environmental requirements stemming from the EU's environmental legislation such as the Environmental Noise Directive) will be considered as a way to enhance action at city level.

The Commission will not only strengthen the ongoing short-term actions on source legislation, but will also seek to improve the implementation of the Environmental Noise Directive. The Commission will also assess possible improvements to the Directive, including noise reduction targets at the EU level (as underlined in the zero pollution action plan).

Finally, the Commission will, in line with the European Green Deal's holistic approach, consider potential synergies in combating noise pollution outside the scope of the Environmental Noise Directive, which primarily addresses human health effects. Upcoming

⁵² The [Green City Accord](#) is a movement of EU mayors committed to making cities cleaner and healthier. It aims to improve the quality of life of all EU citizens and accelerate the implementation of relevant EU environmental laws. By signing the Accord, cities commit to addressing five areas of environmental management: air, water, nature and biodiversity, the circular economy and waste, and noise.

⁵³ Regulation (EU) 2021/240 of the European Parliament and of the Council of 10 February 2021 establishing a Technical Support Instrument ([OJ L 57, 18.2.2021, p. 1](#)).

research⁵⁴ and increasing access to data, including through the European Marine Observation and Data Network (EMODnet)⁵⁵ will provide a better insight into a more integrated perspective that would include noise impacts on the environment and biodiversity (e.g. those addressed in relation to underwater noise in the context of the Marine Strategy Framework Directive).

⁵⁴ Commission implementing decision of 6.12.2022 on the adoption of the work programme for 2023-2024 within the framework of the Specific Programme implementing Horizon Europe – the Framework Programme for Research and Innovation and on its financing, [C\(2022\) 7550 final](#).

⁵⁵ <https://emodnet.ec.europa.eu/en/map-week-%E2%80%93-underwater-noise-indicator>