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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

Article 11 of the Environmental Noise Directive (hereinafter "the Directive")[1] provides for an implementation report to be prepared by the European Commission every 5 years. In addition to addressing the implementation, the Directive requires that this report should also include a review of the acoustic environment, goals and measures for the reduction of environmental noise (legislation at source), and assess the need for further Community actions. This second implementation report reviews the situation since the publication of the first report[2], and also represents the action plan following the evaluation of the Directive, which took place in 2016 under the Commission's Regulatory Fitness and Performance (REFIT) programme. It should therefore be read in conjunction with the respective supporting study and Staff Working Document[3].

Noise pollution continues to constitute a major environmental health problem in Europe. Scientific evidence shows that prolonged exposure to high levels of noise pollution can lead to serious health effects in areas controlled by the human endocrine system and by the brain, such as cardiovascular diseases, sleep disturbance and annoyance (a feeling of discomfort affecting general well-being). According to the World Health Organisation (WHO), noise pollution leads to a disease burden that is second only to air pollution among the environment-related causes in Europe.

Environment-related pressures and risks to health and well-being are also at the heart of citizens' preoccupations[4], and the Union has a role to play in safeguarding its citizens from such pressures and risks, also making the Union's cities more sustainable. A goal to reduce the number of people harmfully affected by environmental noise – to be reported according to Article 11 (2) of the Directive - has been set in the 7th Environment Action Programme[5]. For this, innovative solutions are needed and will contribute to the achievement of the Commission's general priority No. 1: A New Boost for Jobs, Growth and Investment.

At EU level, Directive 2002/49/EC relating to the assessment and management of environmental noise is the key legislative instrument for protecting citizens from excessive noise pollution caused by road, rail and airport traffic, as well as by large industrial installations. Its purpose is twofold: (1) to define a common approach intended to avoid,

[1] OJ L 189, 18.7.2002
[2] COM(2011) 321 final
[3] All reports are available at http://ec.europa.eu/environment/noise/evaluation_en.htm
[4] Eurostat "Urban Europe: Statistics on Cities, Towns and Suburbs", 2016, p.135; available at: http://ec.europa.eu/eurostat/statistics-explained/index.php/File:Proportion_of_people_who_are_satisfied with the level_of_noise_in_their_city,_2015_(%C2%B9)_(%25)_Cities16.png
[5] calling for a significant decrease in noise pollution and for ensuring that by 2020 noise pollution in the EU has significantly decreased, moving closer to levels recommended by the WHO

prevent or reduce the harmful effects of environmental noise and (2) to provide a basis for developing measures to reduce noise emitted by the major sources.

2. The acoustic environment quality in the EU and the impact on public health

An assessment of the exposure of European citizens to noise was carried out by the EEA for the European Union Member States, covering 467 agglomerations (where roads, railways, airports and industrial installations are considered), 86 major airports as well as 186 600 km of major roads and 44 320 km of major railways outside agglomerations. As reporting by Member States is still incomplete, missing data have been filled using a special gap-filling methodology[6]. Figure 1 shows the results, separately for inside and outside agglomerations.[7]

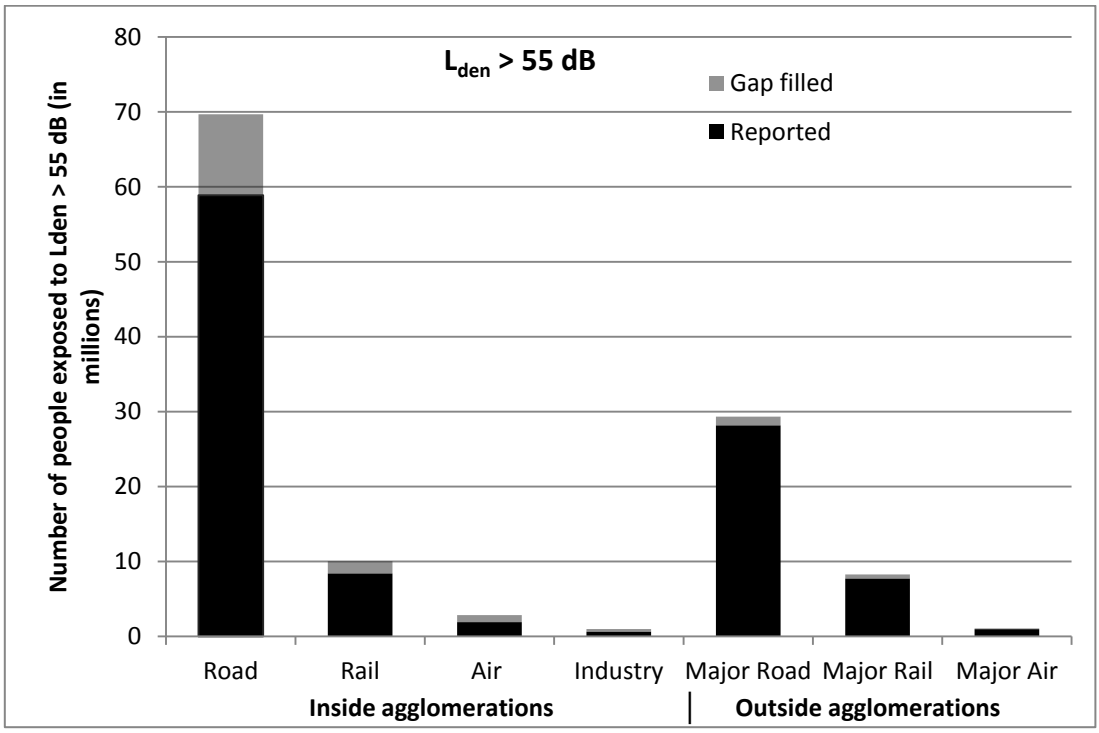

Figure 1: Number of people exposed to environmental noise in Europe > 55 dB L_{den} in the 28 EU Member States, 2012, inside and outside agglomerations.

Road traffic noise, both inside and outside agglomerations, remains the most dominant source affecting human exposure above the reporting levels defined by the Directive, with an estimated total (inside and outside agglomerations) of around 100 million people (nearly 70 million inside and 30 million outside agglomerations) being exposed to road traffic noise above 55 dB L_{den}. Railways are the second most important noise source with a total of more than 18 million people (around 10 million inside and 8 million outside agglomerations) exposed above 55 dB L_{den}, followed by aircraft noise with a total of nearly 4 million people (nearly 3 million inside and 1 million outside agglomerations) exposed above 55 dB L_{den}.

[6] Gap filing has been carried out based on the methodology published in "Noise in Europe 2014", available at http://www.eea.europa.eu/publications/noise-in-europe-2014

[7] The Directives requires separated noise mapping inside and outside agglomerations

Industrial noise within urban areas exposes around 1 million people to noise levels above 55 dB L_{den}.

This exposure data implies[8] that 14,1 million adults are severely annoyed by environmental noise, 5,9 million adults are highly sleep disturbed, 69 000 hospital admissions and 15 900 cases of premature mortality occur annually, due to environmental noise .

This data is limited to agglomerations, roads, railways and airports falling under the scope of the Directive. The total exposure and health impacts are therefore even higher.

3. The implementation of the Directive

Implementation of the Directive by Member States is progressing but varies significantly, depending on Member States' choice of ambition level, the resources allocated to implementation, and whether implementation is tasked to more centralised or more local, decentralised authorities. In summary:

Transposition into national legislation has been done correctly in all 28 Member States, either through the adoption of new implementing regulations or through adjustments to existing legislation.

No significant problems were identified in the **designation of major roads, major railways, major airports and agglomerations** that fall within the scope of the Directive. However, in some Member States, practical challenges in producing noise maps persist between national bodies and local authorities.

The Directive does not set any source-specific **limit values** at an EU level, but leaves Member States free to establish national limit values if they wish to do so. Such values have been set in 21 Member States, and non-binding targets in a further four Member States. However, so far there has been limited evidence of their effective enforcement.

For the preparation of strategic noise maps, Member States have used the **indicators** required by the Directive. Member States have however also used other national noise indicators for special cases, as provided for by Article 5(2) of the Directive.

Data has not been comparable between reporting rounds and countries, as Member States may still use adapted national methods to assess noise. This will be considerably improved by the newly developed **common methods**[9] which will lead to comparable data once their use is compulsory from 2018 onwards.

More than 20% of the required noise maps, and around 50% of the action plans for the current five-year reporting cycle, have not yet been reported. Implementation of the Directive is

[8] Calculated with the same methodology /exposure-response relationships as used for the report: Noise in Europe 2014, available at: http://www.eea.europa.eu/publications/noise-in-europe-2014

[9] 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

therefore significantly delayed, as Member States were required to supply these by 2012 and 2013, respectively. An overview of data completeness is provided in Table 1 below.

Table 1: Completeness of reporting for current round of noise mapping and action planning

Entity	In agglomerations				Outside agglomerations		
	Road noise	**Railway noise**	**Aircraft noise**	**Industry noise**	**Major roads**	**Major railways**	**Major airports**
Noise maps completed[10]	78%	75%	52%	69%	79%[11]	73%[12]	75%
Action plans completed[13]	49%				47% (average)	41% (average)	43%

Source: Report of a service contract available at http://ec.europa.eu/environment/noise/evaluation_en.htm

As Member States have drawn up nearly 80 % of the required **noise maps** – and made them available through different website information portals – a direct output of the Directive's implementation remains that we now have a much clearer understanding of the extent of the noise problem in the EU. Despite availability of this information, citizens are not always aware of the noise situation and their related health effects.

Approaches to action planning diverge between Member States. This is reflected in the types of noise reduction measures identified, the balance between expenditure / non-expenditure measures and the extent to which the plans are only strategic or also have an operational focus. In addition, the delay in drawing up **action plans** indicates that many Member States have not taken steps to address noise pollution. The reasons for this vary: for instance in agglomerations, competent authorities responsible for developing the action plans may not have strategic or budgetary decision-making powers to determine whether measures included in the action plan are realistic, feasible and can be funded.

The quality and quantity of the **consultation** processes of draft action plans that have been undertaken by Member States also vary. NGOs that have participated in consultations stated that although action plans often include a summary of the consultation responses, it is often unclear how these responses have been taken into account in the plans.

The overriding reasons for these significant **implementation delays** include the lack of priority given to the issue at the national/local level when deciding on the allocation of limited human and financial resources. More specifically for noise mapping, challenges have included a lack of centralised and consistent input data, lack of effective coordination among the different competent authorities responsible for implementing the Directive and a lack of comparability of the resulting noise maps across jurisdictions. With regard to action-planning,

[10] By June 2015
[11] 22 out of 28 countries
[12] 19 out of 26 countries – 2 countries did not have any major railways in 2010
[13] By November 2015

delays were caused by knock-on effects from the delays in noise-mapping (as action plans need to be based on noise maps) and the short period given between the deadline for the preparation of noise maps and that for action plans (12 months). Overall, evidence shows that Member States with a highly decentralised approach to implementation have particularly struggled to enforce the timely implementation of the Directive's measures on their authorities.

While many Member States have made progress in developing definitions of **quiet areas** (in agglomerations and open country) and in defining selection criteria to designate them, only 13 Member States have to date designated any quiet areas. A possible reason for this is the perceived uncertainty whether the process could be reversed in future and also whether a designated quiet area could be subject to legal restrictions. In those Member States, however, where quiet areas have been designated, their number has increased considerably between the first and the second reporting round (2007 – 2012). To facilitate the designation of quiet areas, Member States have asked the Commission to further develop practical guidance.

An important **implementation challenge** was the broadened scope of the Directive (see Table 2) and the considerably increased number of entities for which noise maps and action plans had to be produced (e.g. the number of agglomerations covered increased from 176 to 467). The change of scope also makes it difficult to compare data completeness between rounds.

Table 2: Number of entities covered by the Environmental Noise Directive in reporting rounds 1 and 2

Type of entity	Reporting round 1 (2005-2009)	Reporting round 2 (2010-2014) and subsequent rounds
Agglomerations	176 (> 250,000 inhabitants)	467 (> 100,000 inhabitants)
Major airports	73 (> 50,000 movements[14] per year)	92 (due to increased air traffic) (> 50,000 movements per year)
Major roads (km)	67,488 (> 6 million vehicle passages per year)	154,738 (> 3 million vehicle passages per year)
Major railways (km)	31,576 (> 60,000 train passages per year)	72,341 (> 30,000 train passages per year)

4. The evaluation of the Directive

In 2013 the Commission proposed the Directive for evaluation[15] in the context of its Regulatory Fitness and Performance (REFIT) programme, a part of its Better Regulation agenda[16]. In accordance with the general guidance on Better Regulation[17], this evaluation explores whether the Directive was, and continues to be, relevant to tackling the issue it addresses, while providing EU added value in comparison to Member State action alone. In

[14] A movement is defined in Article 3(p) of the Directive as a take-off or landing
[15] COM(2013) 685 final
[16] http://ec.europa.eu/priorities/democratic-change/better-regulation_en
[17] http://ec.europa.eu/info/strategy/better-regulation-why-and-how_en

addition, this evaluation assesses whether the Directive achieved this in an effective and efficient manner, and whether its provisions were coherent with other EU legislation. The evaluation also considers the impact of the Directive on SMEs, and the potential for simplification and reduction of administrative burdens.

The evaluation covers the period from the adoption of the Environmental Noise Directive (2002) to the present day. Its scope is limited to the Environmental Noise Directive, but takes into account the interaction of the Directive with EU legislation which tackles noise emissions at their source (e.g. by regulating the noise emissions of motor vehicles), whilst not addressing this legislation in a detailed manner.

The evaluation methodology included desk research which considered reporting data from the Member States and other relevant EU and national documents, as well as the latest scientific literature. Administrative costs of the Directive's implementation were reviewed and a cost-benefit analysis performed. The evaluation also involved an extensive and comprehensive consultation with competent authorities and stakeholders from all Member States through online surveys, in-depth interviews, a workshop, and an online public consultation.

The Directive itself and its two objectives remain highly relevant to identified EU policy-making needs[18]. Noise pollution continues to constitute a major environmental health problem in Europe. In order to tackle this, stakeholder feedback indicates that there is a continuing need for a common approach to the management of noise. Moreover, collecting harmonised data on EU level is important to provide a high-quality evidence base for the further development of EU noise-at-source legislation, which is necessary since local noise management measures could be ineffective without additional controls over noise emitted by the major sources of noise.

With regard to coherence, the Directive is found to be largely internally coherent, although there are some perceived ambiguities among stakeholders. Moreover, the Directive has demonstrated external coherence with other relevant EU legislation (environmental and noise-at-source legislation), and is considered to be complementary to it. Although there were practical challenges in the early stages of the Directive's transposition, national noise control legislation was found to be almost universally coherent with the Directive.

Some progress has been made towards the achievement of the first objective of the Directive, but effects have not yet materialised due to the long delays in the legislative adoption of common methodologies and the long delays in implementation in Member States. With regard to progress made towards the second objective, the Directive is increasingly drawing attention at EU level to the significance of the harmful effects of noise on health. However, noise population exposure data resulting from the Directive has not yet been used by the EU for the design of legislation on noise at source. With regard to the overall impact of the Directive on noise pollution, it must be noted that the benefits of most measures to address noise can only be seen in the longer term as noise reduction measures take long to be implemented (e.g. over

[18] As expressed in the Consolidated Version of the Treaty on European Union (OJ C 326, 26.10.2012), the European Commission Green Paper 'Future Noise Policy' (COM(96)540 final) and the General Union Environment Action Programme to 2020 (OJ L 354, 28.12.2013)

a 20-year period), therefore the impact of the Directive on noise pollution cannot be fully evaluated at the moment.

The five-year cycles for noise mapping and action planning appear to be appropriate, but the one-year timeframe between the finalisation of maps and adoption of associated action plans was found to be too short. The Reporting Mechanism is effective in enabling the prompt submission of reporting data by Member States, but its design could be further improved.

In cases where action plans including measures for noise management have been adopted, the Directive has resulted in a favourable cost-benefit ratio of 1:29 identified under the most likely scenario in the cost-benefit analysis. The administrative costs of implementation are low, amounting to €0.15 for noise maps and €0.03 for action plans per inhabitant out of the total population (median values) per reporting round (i.e. every 5 years). Taking into account the total EU population of 508 million, the administrative costs of full implementation by all Member States are very low and amount to around €91 million every 5 years, or approximately €18 million per year. There is little scope to further reduce administrative costs of implementing the Directive. The Directive also has no implications for SMEs.

The Directive has the potential to generate EU added value, by creating a level playing field across the EU in which transport infrastructure operators can compete, and by contributing to a better understanding of the presence of noise pollution and better-informed EU policy-making through the provision of comparable data on noise exposure at EU level. Despite this considerable potential, as a result of delays in implementation, the Directive has thus far fallen short of delivering the EU added value that it could provide.

Regarding the potential for simplification, the evaluation found that the requirements of the Directive are rather simple, and that complications arise mostly from the manner in which the Member States have implemented the Directive under subsidiarity (e.g. delegating responsibility for implementation to several different levels of governance, resulting in complex competency arrangements within the Member State). Therefore the potential for simplification is at the level of Member State implementation, rather than at the level of the legal text of the Directive. Recent revisions of national legislation transposing the Directive in some Member States have indicated that they recognise the issue.

5. Legislation regulating noise sources

Since the first Implementation Report from 2011[19], the EU has adopted four regulations, notably Regulation (EU) No 540/2014 on the sound level of motor vehicles[20], Regulation (EU) No 168/2013 on the approval and market surveillance of two- or three-wheel vehicles and quadricycles[21], Commission Regulation (EU) No 1304/2014 on the technical specification for interoperability relating to the subsystem 'rolling stock - noise'[22] and Regulation (EU) No 598/2014 on the establishment of rules and procedures with regard to the introduction of

[19] COM(2011) 321 final
[20] OJ L 158/131, 27.5.2014, p. 131
[21] OJ L 60/52, 2.3.2013, p. 52
[22] OJ L 356/421, 12.12.2014, p. 421

noise-related operating restrictions at Union airports within a Balanced Approach[23]. Regarding noise from railways, the Commission has also published a Staff Working Document on "Rail freight noise reduction"[24] requiring Member States to draw upon available instruments and financial means as extensively as possible. The Commission also explored the case for a merger between the Directive 2000/14/EC on Noise from Outdoor Equipment[25] with the Machinery Directive 2006/42/EC[26], but concluded that they should remain separate.

6. Recommendations and next steps

The evaluation and implementation assessment of the Directive have demonstrated several areas where activities are needed to reduce noise impacting citizens' health in the Union, to better achieve the objectives of the Directive and thereby moving closer to WHO recommended values.

(1) The delay in the implementation of the Directive has been highlighted in the EU Environmental Implementation Review[27]. This review also stressed that Member States are responsible for closing the implementation gaps. To support this, the Commission will not only continue to improving implementation by targeted enforcement actions, but also provide scientifically sound guidance to Member States, in particular regarding the assessment of harmful effects with the help of dose effect relationships. The Commission will also work with Member States to improve the reporting mechanism in the context of the Fitness Check of monitoring and reporting obligations in environment policy.

(2) As complications in the implementation of the Directive arise mostly from the manner in which Member States have implemented the Directive under subsidiarity, the Commission invites Member States to reconsider their implementation arrangements, including the designation of quiet areas.

(3) EU noise-at-source legislation remains the most cost effective mean to address noise[28]. With the improved implementation of the Directive, resulting in a complete database on noise exposure in the Union, it will be possible to better inform policy options for noise reduction measures in the area of transport. The Commission is committed to make full use of this in the future when deciding about revising the legal instruments mentioned above.

(4) The evaluation has identified only a limited number of issues in the Directive itself, such as the limited scope of the Directive (to have a common approach to avoid, prevent or reduce harmful effects of noise rather than reduce adverse health effects of environmental noise), some minor clarifications in some definitions, as well as the need to adjust the Directive to recent regulatory developments that have taken place at EU level since the Directive was

[23] OJ L 173/65, 12.6.2014, p. 65
[24] SWD(2015) 300 final
[25] OJ L 162/1, 3.7.2000, p.1
[26] OJ L 157/24, 9.6.2006, p. 24
[27] COM(2017) 63 final
[28] Traffic Noise Reduction in Europe (2007), available at: http://www.cedelft.eu/publicatie/traffic_noise_reduction_in_europe/821

adopted (e.g. Lisbon Treaty). In addition, new scientific evidence suggests that harmful health effects can occur at lower levels than those so far addressed by the Directive, which the Commission has to consider according to Article 11(4) of the Directive. The Commission will therefore engage in a dialogue with stakeholders to assess how these issues can best be addressed without unnecessarily reducing the flexibility of Member States to define their own levels of ambition or choice of approaches.

(5) Exposure to excessive noise can also be addressed via urban planning policy, as suggested in the 7th Environmental Action Programme. While competence in this area lies with the Member States, the Commission will stimulate and encourage activities to mitigate excessive noise in urban areas, for example by facilitating the exchange of good practices, as well as supporting research and innovation in this field.

(6) The evaluation shows that measures to directly addressing noise have high initial cost and long periods to recover the financial investment. However, they are highly efficient when comparing their costs to the societal benefit. Member States are therefore encouraged to implement noise mitigation measures in the context of their action plans under the Directive, leveraging also private investments where possible.

(7) In certain cases, Member States could use targeted EU co-financing such as from the Cohesion Fund and the European Regional Development Fund to support the implementation of noise-mitigating measures where they are part of an overarching effort to improve the urban environment or to develop and improve environmentally-friendly (including low-noise) transport systems. Support is also available from the Connecting Europe Facility.

(8) The long-term health implications of excessive transport noise on human health are insufficiently understood, leading to noise reduction measures not being given priority and, when necessary, budget. Therefore, Member States should raise the awareness of citizens and local and regional policy makers on such negative impacts.