



COMMISSION OF THE EUROPEAN COMMUNITIES

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

**Review of Council Directive 1999/30/EC relating to limit values for sulphur dioxide,
nitrogen dioxide and oxides of nitrogen, particulate matter and lead in ambient air,
with consideration of Council Directive 96/62/EC on ambient air quality assessment
and management**

SEC(2004) 1713

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1. INTRODUCTION

This report is required under the first air quality daughter Directive, which aims to limit sulphur dioxide, nitrogen oxides, particulate matter and lead in ambient air.

Council Directive 1999/30/EC relating to limit values for sulphur dioxide (SO₂), nitrogen dioxide (NO₂) and oxides of nitrogen (NO_x), particulate matter (PM₁₀) and lead in ambient air¹ (first air quality "daughter" Directive). It follows the approach laid down in Council Directive 96/62/EC on ambient air quality assessment and management² (Air Quality Framework Directive). Article 10 of the Directive requires the Commission to review the Directive and report on its implementation. While this report summarizes the essential information, more details are provided through a Commission staff paper³.

This review is based on the most recent scientific understanding...

The review in general takes into account the results of the most recent scientific research concerning the effects on human health and ecosystems of exposure to air pollutants regulated under the first daughter Directive. However, as required by the 6th Environmental Action Programme⁴, the Commission will adopt a Thematic Strategy on Air Pollution by mid 2005 as an outcome of the Clean Air for Europe (CAFE) programme. This part of the review as well as any considerations concerning proposals for a possible revision of the Directive, including the limit values thereof, will be covered by the Thematic Strategy on Air Pollution.

...but focuses on experience to date and suggests planned amendments via Comitology procedure.

Given that the Thematic Strategy on Air Pollution will be published soon, this review report focuses on the experience in Member States in the application of the Directive. Since there are strong links between the first daughter Directive and the framework Directive on air quality, these are taken into account as appropriate

¹ OJ L 163, 29.06.1999, p. 41.

² OJ L 296, 21.11.1996, p. 55.

³ Report in support of the review of Council Directive 1999/30/EC relating to limit values for sulphur dioxide, nitrogen dioxide and oxides of nitrogen, particulate matter and lead in ambient air; SEC(2004) 1713: <http://www.europa.eu.int/comm/environment/air/ambient.htm>.

⁴ OJ L 242, 10.9.2002, p. 1.

2. BASIC ASPECTS OF COMPLIANCE WITH THE DIRECTIVE

While the Directive has been in force for only three years...

The Directive entered into force on 19 July 1999 and had to be transposed into national law within two years. The data reported by EU Member States to the Commission covers only 2001 and 2002 and the overall experience acquired in the application of the Directive is short. However, compliance with the air quality legislation still should be improved (see table 1 in SEC(2004) 1713)

...the first still rather limited experience from its application is positive.

Despite the limited experience with the first daughter Directive, it is already clear that the concept of air quality legislation has been successful in terms of raising public and political awareness of remaining air quality problems and promoting effective action to reduce air pollution throughout the EU. There are three main reasons for this success:

- Firstly, the requirement that up-to-date information on the ambient air quality must be made publicly available. This gives rise to increased awareness as evidenced by the complaints sent to the Commission and petitions sent to the European Parliament. In several cases, the complaints filed by European citizens or NGOs have led to the opening of infringement procedures.
- Secondly, the challenging nature of the air quality limit values themselves. This has resulted in local and national authorities taking effective action to reduce air pollution.
- Thirdly, the fact that the limit values established in the daughter Directive also apply to the new Member States. While the citizens of new Member States reap the direct benefits of the Directive, Europe as a whole will also benefit indirectly because of the transboundary character of air pollutants.

However, only three Member States have submitted plans or programmes to improve air quality.

Based on 2001 data it was clear that eleven Member States should have submitted plans or programmes to the Commission by end of 2003 on how to improve air quality of PM₁₀ and NO₂ for their citizens. However, by July 2004, only Belgium and the UK had submitted their plans. In addition, Sweden had submitted a plan even though this was not legally required on the basis of their 2001 data. The Commission was concerned about this non-compliance with the first daughter Directive. Therefore, in 2004 it started infringement procedures against ten Member States for not submitting plans or programmes on time, or because the plans submitted were incomplete.

The Directive aims to achieve a high level of protection for human health and ecosystems...

The first daughter Directive aims at attaining a high level of protection with regard to human health and the environment – thereby contributing to the protection of two fundamental rights recognised by the EU Charter of rights that has been embedded in the draft EU Constitution.

... by setting air quality limit values,...

Whereas the Framework Directive lays down general provisions for the assessment and management of air quality, detailed arrangements for specific air pollutants are defined in the daughter Directives, including limit or target values. The first daughter Directive defines limit values to protect human health and the environment, which Member States must meet by a specified attainment date (see table 2 in SEC(2004) 1713).

The attainment dates are 2005 for SO₂, lead and PM₁₀, and 2010 for NO₂. The Directive also defines limit values for SO₂ and NO_x to protect ecosystems and vegetation which have already been in force since 19 July 2001.

... by defining a decreasing “margin of tolerance” (MoT), by obliging Member States to draw up plans or programmes and by requiring them to provide information.

If the concentration of air pollutants in a certain zone is above the limit value plus a defined ‘MoT’, Member States have to draw up plans or programmes to demonstrate by which measures they are going to achieve the limit values by the attainment date. The MoT decreases annually and becomes zero by the attainment date.

The air quality framework and daughter Directives require Member States to assess air quality throughout their territory, including specifications regarding the monitoring network, the use of models and the quality assurance and quality control of air quality data. The Directives give detailed requirements for reporting information to the public and to the Commission.

3. EXPERIENCE ACQUIRED IN THE APPLICATION OF THE DIRECTIVE

The approach of using a framework and daughter Directives has advantages and disadvantages.

The framework and first daughter Directives strike a balance between (i) the harmonisation of the assessment and management of air quality across the EU Member States and (ii) the subsidiarity principle allowing local and national flexibility in implementation. Legislation in the form of a framework and related daughter Directives has certain advantages: pollutant-independent provisions are laid down only once, ensuring consistency. But this approach has also certain drawbacks: when the framework Directive was prepared all of its practical implications could not be foreseen.

Air quality assessment zones have been established and are unlikely to change.

The framework Directive requires air quality to be characterised in certain zones and agglomerations. It leaves a high degree of flexibility in defining these zones, leading to rather large differences between Member States. These zones correspond mainly with administrative borders rather than to patterns of ambient air quality. The ‘zone concept’ is not felt to offer any major new advantages for air quality management in Member States. However, the Member States, including the new ones, have now designated their zones and arranged their assessment strategies accordingly. Since they have not indicated major problems with their network design, the Commission is not considering changing of the zone concept.

While tighter air quality limit values are recognised as important and useful...

The new limit values introduced by the first daughter Directive are considerably tighter than those in earlier years. These new values are generally recognised as important and useful instruments for improving air quality where it is poor. The limit values, combined with the need to inform the public, have led to an increased public and political awareness of air quality problems.

...further clarification and guidance on the application of limit values will be part of the Thematic Strategy on Air Pollution.

Stakeholders have indicated that it would be useful to receive further clarification on the application of the limit values, with respect to population exposure. Similarly they have asked about the applicability of limit values to protect vegetation and ecosystems. The Commission has launched a contract to gather information on “health relevant ambient air quality measurement”. Depending on the results of this contract, the monitoring requirements in the first daughter Directive might be modified.

The ‘MoT’ and special provisions are considered useful and will not be changed.

Member States have generally appreciated the concept of the MoT⁵ as a useful provision to focus measures to improve air quality in the most polluted areas. Thus, working towards the attainment date, provided the air quality in a Member State is below the limit value plus the MoT, it does not have to overreact and prepare air quality plans or programmes.

The first daughter Directive has a provision to account for the contribution of natural sources for concentrations of SO₂. It also has a provision for PM₁₀ to account for the contribution of natural events, and re-suspension of particulates because of the winter sanding of roads. Member States have found these provisions are useful in these specific cases. However, extending the provisions to other circumstances would create a possible regulatory loophole. Therefore, the Commission is not considering changing or extending the existing special provisions.

While continuous action to improve air quality needs to focus on PM₁₀ and NO₂...

The Member States have reported that they comply well with the limit values for SO₂ and lead in ambient air, with some exceptions. However, the situation is different for PM₁₀ and NO₂ since concentrations of these pollutants at many monitoring stations exceed the limit value plus margin of tolerance.

...the Commission is also evaluating the effectiveness of short term measures.

Article 7(3) of the Framework Directive requires measures to be taken in the short term if there is a risk of limit values and alert thresholds being exceeded. For limit values the obligation for short term measures applies only after they are in force. Some Member States have expressed doubts about the environmental effectiveness of these short-term measures.

⁵ The margin of tolerance is a defined percentage of the limit value by which this value may be exceeded prior to the attainment date.

The Commission is currently evaluating experiences with such measures. The conclusions will be taken into account in the preparation of the Thematic Strategy on Air Pollution.

Member States have adapted their air quality measurement networks fairly well...

It is difficult to prescribe in detail how measurement networks should be designed, because distributions of sources and air pollution levels vary widely throughout Europe. All Member States have, to varying degrees, adapted their measurement networks to the requirements of the first daughter Directive. This has helped the harmonisation process.

...but further technical improvements are called for, and will be adopted by the Commission through Comitology procedure.

Certain parts of the first daughter Directive need to be adapted to reflect scientific and technical progress. The Commission aims to adapt the directive via a regulatory committee according to Article 12 of the Framework Directive.

The Commission intends to adopt adaptations to:

- ensure a sufficient number of rural background stations,
- ensure a substantial proportion of different station types, such as traffic-related stations and urban background stations,
- limit the distance from the road where PM₁₀ monitoring is undertaken at traffic related monitoring stations,
- improve the conditions for applying random sampling,
- ensure the uniform use of statistical terms (accuracy/uncertainty) and
- update Annex IX – which describes the reference measurement methods – taking into account the technical development and including the provisions on how to demonstrate equivalence of non-reference methods.

Even if the Commission has provided guidance on measuring particulate matter, further harmonisation and research are needed.

Working groups have assisted the Commission in preparing two guidance documents about measurement methods for particulate matter in 2002⁶ and 2004⁷. These documents addressed the issue of equivalence of commonly used automatic measurement methods with the manual reference measurement method. Despite the substantial efforts which have been made in many Member States, there is still a large demand to demonstrate equivalence of non-reference methods for PM measurements and to harmonise these measurements throughout the European Union. The Commission hosts the network of European Air Quality Reference

⁶ Guidance to Member States on PM₁₀ monitoring and inter-comparisons with the reference method; <http://www.europa.eu.int/comm/environment/air/pdf/finalwgreporten.pdf>

⁷ Demonstration of equivalence of ambient air monitoring methods, (final draft); http://www.europa.eu.int/comm/environment/air/cafe/pdf/equivalence_report_final.pdf

Laboratories (AQUILA) and intends to use this network to work closely with the Member States to further strengthen harmonisation in this particular field.

The CAFE Working Group on Particulate Matter has proposed to develop a limit value for PM_{2.5}⁸. However, larger particles, characterised by PM₁₀, are also harmful. Thus, while the major attention is paid to the small size fraction of particulate matter, PM₁₀ monitoring should be continued to a certain extent. The Commission will, when considering a revision of the framework and daughter Directives, propose an appropriate share of monitoring sites for both PM fractions. The Commission recommends that additional investigations concerning other PM characteristics such as PM_{1.0}, particulate number concentration and the chemical speciation of particulate matter should be undertaken in Member States.

Extensive research efforts have been made through the European Union 5th Framework Programme for Research to study the pathways of atmospheric particles and their impacts both on human health and on the environment⁹. Funding in these items is continued through the 6th Framework Programme for Research

While no change in the provisions on air quality modelling is suggested for now...

The air quality Directives allow for the use of models for the assessment of air quality. Models may be used to complement or even replace measurements if the concentration level is sufficiently below the limit value. There are no further explicit provisions on the use of models for analysing the causes of air pollution or for calculating prognoses, but in current practice models have a prominent role in this kind of analysis.

The Commission has surveyed and analysed the current practice of computer modelling in Member States in the context of the first daughter Directive.

...the Commission will follow up this issue.

While the survey mentioned above provided some insight into the current use of models in Member States and acceding countries, it did not provide sufficient evidence to allow a more detailed definition of data quality requirements for modelling compared to the existing provisions in the Directive. Consequently the Commission is not proposing to amend the data quality objectives for the use of models at this stage. However, the Commission expects this issue to become increasingly important and will keep it under review, taking into account recent activities in individual Member States.

Reporting through electronic means has become more and more routine...

The Commission has developed a common format for reporting the results of annual air quality assessment, and adopted this questionnaire as a Commission Decision in 2001, which was updated in 2004 (2004/461/EC)¹⁰. Member States now fill in this questionnaire annually and send the data in an electronic file provided by the Commission. Data already required under the Council Decision establishing a reciprocal exchange of information and data from

⁸ Second Position Paper on Particulate Matter;

http://www.europa.eu.int/comm/environment/air/cafe/working_groups/wg_particulate_matter.htm

⁹ CLEAR Project (Cluster of European Air Quality Research), for latest results: <http://www.nilu.no/clear>

¹⁰ OJ L 156, 30.4.2004, p. 78.

networks and individual stations measuring ambient air pollution in Member States (EoI, 97/101/EC)¹¹ are not included in the annual questionnaire.

...but there are considerable delays, and a need for further harmonisation and streamlining.

Member States in general comply with their reporting requirements fairly well. However, there are often delays up to several months after the deadline. For instance, in 2003 only 9 out of 15 Member States reported on time.

The annual data reporting on compliance with the first daughter Directive is considered to be very useful for developing an overview of the air quality in the Union. This view is shared by the Commission, the Member States themselves as well as stakeholders and the general public.

One problem relating to reporting is that the Member States do not have a legal obligation to report some of the data necessary for a more comprehensive evaluation. As it would be in the general interest to report such data, the Commission intends to suggest that reporting of such data be made a formal requirement.

¹¹ OJ L 35, 5.2.1997, p. 14.