



COMMISSION OF THE EUROPEAN COMMUNITIES

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COM(2000) 468 final

2000/0194(COD)

Proposal for a

DIRECTIVE OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL

relating to the Assessment and Management of Environmental Noise

(presented by the Commission)

EXPLANATORY MEMORANDUM

1. OBJECTIVES AND CONTENTS OF THE PROPOSED DIRECTIVE

The objective of this proposal is to establish a common EU framework for the assessment and management of exposure to environmental noise. Public concern about exposure to noise pollution remains high in spite of EU legislation on noise sources and legislation in some Member States and remedial actions at the local level. So far, legislation on environmental noise is divided into two major categories namely, EU legislation on noise emission by products (cars, trucks, aircraft and industrial equipment) – essentially market access laws for type testing of conformity – and Member State legislation on allowable noise levels in the domestic environment. The Green Paper on Future Noise Policy¹ and underlying studies analysed the characteristics and impact of the EU and Member State approaches. It concluded that the total effect is unsatisfactory. In order to improve the situation, it was suggested to start with: “a proposal for a Directive providing for the harmonisation of methods of assessment of noise exposure and the mutual exchange of information. The proposal could include recommendations for noise mapping and provision of information on noise exposure to the public. In a second stage consideration could be given to the establishment of target values and obligations to take action to reach the targets”.

In view of these conclusions this proposed Directive supplies the essential elements for a more coherent and effective approach.

First, it seeks to harmonise noise indicators and assessment methods for environmental noise. Noise from different sources has different dose-effect relations and can thus be defined as different pollutants. Second, using these common indicators and assessment methods, it seeks to gather noise exposure information in the form of ‘noise maps’. Third, it aims to make this information available for the public. This exposure information will form the basis for action plans at the local level. Equally, it will form the basis for goal setting for improvement at the EU level and for the development of an EU strategy including measures. The Directive requires the Member States to indicate the limit values currently in force or under preparation in terms of the harmonised indicators. It does not seek to set common European-wide noise limits. However, once Member States have published national limits for each pollutant and noise maps and action plans are published, both the public and authorities will be able to compare noise situations, approaches and progress. The Commission believes that this will be a strong mechanism to drive future improvement.

¹ Green Paper on Future Noise Policy (COM(96) 540 final).

2. SCOPE

Sound can be generated by many different sources and can be perceived as noise by humans in many different circumstances. Environmental noise, as defined in this proposal, is the sound generated by human activity (road traffic, railways, air transport, industry, recreation and construction) and perceived in the domestic environment (e.g. in and near the home, in public parks, in schools).

In principle this proposal covers all noise but it concentrates explicitly on road transport noise, railway noise, aircraft noise around airports and industrial noise. It does not cover noise produced by animals, by nature, by neighbours and by the exposed person himself, and it also excludes perception of noise at work places and in means of transport.

3. JUSTIFICATION FOR THE PROPOSAL

3.1 Health impact

Environmental noise has several effects on humans². Since whether or not a person experiences such effects is strongly dependent on individual sensitivity to noise, policy on environmental noise should be based on scientific results in which the variations due to different sensitivity are taken into account.

The most important effect in terms of the number of affected people is so-called annoyance, which can be determined from structured field surveys³. Annoyance is strongly connected with specific effects such as the necessity to close windows in order to avoid sleep disturbance or interference with communication, listening to the TV, the radio or music. Additionally, there is a number of serious medical effects as high blood pressure, mental stress, heart attacks and hearing damage that concern a smaller part of the population. Furthermore there are negative effects on the learning capabilities of children⁴. It is evident that people reporting noise-induced annoyance experience a reduced quality of life and this is a reality for at least 25% of the EU population. Between 5 and 15% of the EU population suffers serious noise-induced sleep disturbance⁵.

² “Guidelines for Community Noise”, WHO, 2000.

³ “Exposure-response relations for transportation noise”, H.M.E. Miedema and H. Vos, J. Acoust. Soc. Am. 104 (6), December 1998, p. 3432 -3444.

⁴ “Noise Exposure and Public Health”, W. Passchier-Vermeer and W.F. Vermeer, Environmental Health Perspectives Volume 108, Supplement 1, March 2000.

⁵ “Study related to the preparation of a communication on a future EC Noise Policy, Final Report”, J. Lambert and M. Vallet, LEN Report No 9420, December 1994.

3.2 Economic impact

Present economic estimates of the annual damage in the EU due to environmental noise range from EUR 13 billion to 38 billion⁶. Elements that contribute are a reduction of housing prices, medical costs, reduced possibilities of land use and cost of lost labour days. In spite of some uncertainties it seems certain that the damage concerns tens of billions of euro per year.

3.3 Consequences of inaction

Inaction would mean that the coherence and effectiveness of noise control in the Community would not improve and that the problem of noise would further increase. Furthermore, because of population increase and increase of traffic, including trans-boundary traffic, future mitigation measures would become more expensive. It would also mean that the reduced health quality of about 100 million people in the EU would not be improved.

3.4 Relation to other environmental programmes, strategies and policies

In 1999 the Council adopted a Strategy on the integration of Environment in the Transport Policy in which the problem of noise from road, rail and air transport is identified as one of the most urgent areas for action. The Communication on Air Transport and Environment⁷ contains recommendations for the harmonisation of noise indicators and assessment methods for aircraft noise and refers to the forthcoming framework Directive on environmental noise. The Transport and Environment Reporting Mechanism (TERM)⁸ has identified the indicator “exposure of population to traffic noise” in the group “environmental consequences of transport” and shown that no harmonised methodologies or data are available.

Important elements of this proposed Directive are similar to the contents of the Directive on ambient air quality assessment and management⁹: viz. data collection in agglomerations; action plans; adequate information for the public; improvement of computation and measuring methods; collection of data and reporting by the Commission. The proposal therefore supplements the air quality Directive, covering another important environmental aspect, particularly for the urban environment. Additionally, the proposal covers several other aspects as noise control in the rural environment and the protection of relatively quiet areas.

As regards industrial noise, Directive 96/61/EC concerning integrated pollution prevention and control sets out the general obligation of all installations covered by its Annex I to take all appropriate preventive measures against pollution – including noise – in particular through the application of best available techniques. This requirement needs to be implemented, at the latest in 2007, through a system of site-specific permits laying down emission limit values and/or equivalent technical measures. Furthermore, permits should contain suitable release monitoring

⁶ “Green Paper on Future Noise Policy” and a DG Environment “Priority Study” based on data from the literature.

⁷ COM(1999) 640/3.

⁸ Decision No 2179/98/EC of 24 September 1998.

⁹ Directive 96/62/EC on ambient air quality assessment and management; OJ L 296, 21.11.1996, p. 55.

requirements and an obligation to supply the competent authority with data required for checking compliance with the permit.

4. EU ACTION AND SUBSIDIARITY

The proposal aims to protect the health and well-being of members of the public against harmful effects of environmental pollution and as such it contributes to the objectives of the Treaty - Article 175. It is a shared responsibility between the Community and the Member States. Some aspects can best be covered at the EU level, others at national and local level.

The EU dimension of Environmental noise control involves the introduction of common indicators, computation methods and measurement methods for noise exposure, monitoring of noise pollution in the EU and the development of an EU strategy to improve the situation, exchange of information, and legislation on noise emission.

On the other hand, for limit setting, noise maps, action plans, information for the public and use of additional indicators, this proposal gives only minimum requirements, outlines or general objectives and the Member States must apply or develop their own methods and approaches. For some of these aspects the Commission may support the Member States by the publication of guidelines or by the development of European Standards.

Present EU legislation on environmental noise is limited to noise emission at source and covers road vehicles, aircraft, tractors and various types of equipment¹⁰. Several proposals for further legislation are presently under discussion in Council and the European Parliament. Where product standards will be necessary to limit environmental noise, common measurement and assessment methods are essential for efficient design of such measures.

5. RESULTS OF CONSULTATION OF PARTNERS

In 1999 several working drafts have been discussed in the Commission's Steering Committee on Environmental Noise Policy where all Member States, NGO umbrella groups, Industry (Road, Rail and Air Transport, Machinery), Local Authority networks, and the Commission services are represented. The Steering Committee supported the principles of the proposal. It asked to include the protection of quieter areas and of rural areas (the emphasis of the first drafts was on the noisy urban areas). Opinions were somewhat divided on the action plans and on the issue of EU goals and strategies. Particular emphasis was given to relatively quiet areas and the inclusion of noise mapping and action plans for major roads, railways and airports.

¹⁰ Motor vehicles and their exhaust systems (70/157/EEC, 73/350/EEC, 77/212/EEC, 81/334/EEC, 84/372/EEC, 84/424/EEC, 89/491/EEC, 92/97/EEC, 96/20/EC, 1999/101/EC); Two and three wheel vehicles and their exhaust systems (70/157/EEC, 96/20/EC); Agricultural tractors (74/151/EEC, 82/890/EEC, 88/410/EEC, 97/54/EC, 98/38/EC); Aircraft (80/51/EC, 89/629/EEC, 92/14/EEC); Construction plant and equipment (79/113/EEC); Compressors (84/533/EEC); Tower cranes (84/534/EEC); Welding generators (84/535/EEC); Generators (84/536/EEC); Hand-held concrete-breakers and picks (84/537/EEC); Lawnmowers (84/538/EEC); Hydraulic excavators, rope-operated excavators, dozers, loaders and excavator-loaders (86/662/EEC).

6. COSTS OF IMPLEMENTATION

At this stage it is not possible to make accurate estimates of the costs and the benefits that are related to the implementation of this Directive: it depends entirely on the targets set by Member States and the action plans and strategies that will be developed at the local and national level.

An element of the costs that has been studied explicitly is the price of noise mapping and action plans in agglomerations¹¹. It was found that the price of noise mapping varies between EUR 0.15 to EUR 2 per resident, depending on various circumstances. The total costs of the initial noise mapping for agglomerations was estimated to be EUR 50 to 75 million, i.e. EUR 10 to 15 million on an annual basis. No explicit data could be presented on the action planning, but it is reasonable to assume that these will be of the same order of magnitude. The use of common indicators and common measurement and assessment methods allow for some cost savings in the measurement and in the use of information. Several Member States and cities already make noise maps and action plans, and the costs of remaking such noise maps and action plans will be lower than the initial costs, so the additional costs due to the proposed Directive could be EUR 10 to 20 million.

As compared with agglomerations, the making of noise maps and action plans for major roads and railways is somewhat simpler and will cover a smaller number of dwellings and citizens. Furthermore, in about half of the Member States noise mapping, zoning and action plans are already common practice. Consequently the increase of costs is estimated to be similar to that for the agglomerations.

The costs of mapping and the making of action plans for airports will depend on their size and may range from EUR 50 000 to EUR 2 million. For a total of 150 airports this is estimated to add up to EUR 15 million annually. Taking into account that many airports are already subject to some kind of noise mapping or action planning, the total increase of costs will not be larger than EUR 10 million annually.

Overall it is estimated that the annual increase of costs for mapping and action planning as introduced by the proposed Directive is EUR 30 to 40 million, i.e. only a small fraction of the annual damage due to environmental noise.

On the longer term, the proposed Directive should lead to a situation where more cost-effective approaches are applied, where the polluter pays and where less public money is spent.

7. SCIENTIFIC AND TECHNICAL BASIS

7.1 Working Groups

A Steering Committee and a number of working groups with representatives of the Member States, local authorities, NGOs, industry, WHO and standardisation bodies have supported the Commission with the development of the Directive and it is expected that they will continue to do so.

¹¹ “Cost study on noise mapping and action planning”, COWI report P-44581-W, 1999.

7.2 Indicators and effects

Two noise indicators, L_{den} and L_{night} , are defined in the proposal. These are based on the recommendations of the Working Group “Indicators”¹² which were approved by the Steering Committee.

The primary noise indicator is the day-evening-night level L_{den} in decibel, which is an indicator for “annoyance”. The indicator L_{den} is already in use for aircraft noise in some Member States. The quantity is closely related to the day-night level L_{dn} , which is widely used in the USA and is also applied in some Member States to characterise aircraft noise.

In order to refine the approach for the protection of the dominant sleeping period, i.e. the night, the Commission proposes the “overall night-time noise indicator L_{night} ”, following the Steering Committee recommendation. A reduction of the value of this indicator will reduce sleep disturbance and some other specific effects.

Combined with the associated dose-effect relations, L_{den} and L_{night} are indicators able to predict the average response of a population subject to long-term noise exposure in terms of annoyance and ‘self-reported sleep disturbance’. These indicators are suitable for planning purposes and for an integrated approach for residential areas, cities and larger areas. In that context they can also be applied to individual dwellings. They are not appropriate for short-term situations that are often related to complaints.

Annoyance (and ‘self-reported sleep disturbance’) can be determined by special field surveys. A considerable number of such surveys have already been carried out and an ISO working group¹³ is preparing an international standard for field surveys on noise annoyance, which will further improve the quality of future data.

7.3 Computation and measurement methods

The value of noise indicators can be determined either by measurement or by computation. Usually, long-term indicators like L_{den} and L_{night} can be more easily and more cheaply computed than measured. For prediction purposes, computation methods are the only option.

None of the computation methods presently used in the Member States satisfies the requirements for modern harmonised methods¹⁴.

¹² Position paper on EU Noise Indicators, 27 August 1999.

¹³ ISO/TC43/SC1/WG49.

¹⁴ According to the 1999 progress report of Working Group “Computation and Measurement” One of those requirements is that a change in the character of the sources (other type of cars, other type of aircraft) does not interfere with the quality of the transmission model. Another requirement is higher accuracy for the prediction of screening (as introduced by noise barriers), for meteorological influences, for hilly surroundings and various other situations. The working group has started the process that should lead to the development of such methods. That development will take a considerable time (at least four years). For these recommended existing methods the Commission is following the advice of Working Group 3, as given in its position paper on interim computation methods (to be published July/Aug 2000). The Commission should make these methods available in an appropriate form.

For the interim period the Commission proposes an approach in which Member States either use their existing national computation methods (adapted to the definitions of the EU noise indicators) or use a recommended existing method (also adapted to the definitions of the EU noise indicators). In principle, the measurement of L_{den} and L_{night} is determined by their definitions. Guidance for actual measurements is given in two ISO standards¹⁵.

8. PROVISIONS OF THE PROPOSAL

Article 175 of the Treaty is the legal basis for the proposal because the objectives pursued relate to conservation, protection, improvement of the quality of the environment and the protection of health and welfare.

The detailed explanation of the individual provisions of the proposal are given in Annex I. An overview of the deadlines in the proposal is presented in Annex II.

¹⁵ ISO 1996-2:1987 and ISO 1996-1: 198/2.

ANNEX I

Provisions of the Proposal

1. Objectives (Article 1)

The aim of the proposal is a common approach on management of environmental noise. This common approach has three major elements: assessment by common methods; information; and appropriate actions.

2. Scope (Article 2)

The purpose of the Directive is to protect EU public against unwanted noise in the domestic environment, as caused by traffic and other mechanical sources.

It is to be noted that in urban zones, the Directive will apply to most areas, except areas that are reserved for purely industrial uses. It is therefore expected that the benefits of any measures to reduce environmental noise in some instances will extend into workplaces such as offices.

3. Definitions (Article 3)

The definition for an 'agglomeration' is similar to the definition in the Air Quality Directive (96/62/EC), except the number of inhabitants; in this proposal it is 100 000.

The definitions of the major roads, railways and airports are such that an important part of the noise pollution by the international, national and regional transport systems is covered. The definition for major roads covers all busy regional, national and international roads.

4. Implementation and responsibilities (Article 4)

Member States shall designate bodies to implement elements of the proposal, and to inform the public and the Commission. Member States shall also ensure the accuracy of the assessment results.

5. Noise indicators and their application (Article 5, in connection with Annex I)

L_{den} and L_{night} are the two noise indicators to be used in the EU noise policy, in new legislation on noise mapping, acoustical planning or noise zoning and in revising existing legislation on noise mapping, acoustical planning or noise zoning. The proposal requires the assessment of both noise indicators for all the above cases.

No deadline has been set for the introduction of the noise indicators in existing legislation. So Member States may determine an appropriate date.

Within 18 months after the date of entry into force of the Directive the Member States shall inform the Commission on the aspirations or expected limit values for the two noise indicators. The Commission services expect to publish an overview.

6. Assessment methods (Article 6, in connection with Article 12, Annex II and Annex VI)

Computation methods to determine the value of the noise indicators are a very important element of the assessment methods. The proposal sets out two stages:

1. An interim stage in which either the (adapted) existing national methods or recommended methods are used.
2. A second stage, where the common modern methods are used and Annex II is revised.

In the first stage, effects can be assessed by temporary dose-effect relations as published in interim position papers of the working group Dose/Effects or defined by the Member State. In the second stage, the dose-effect relations of Annex II shall be applied and the comparability and accuracy of the assessment of health effects will improve.

7. Noise maps (Article 7)

The proposal requires noise maps for large agglomerations (above 250 000 inhabitants), major roads, major railways and major airports, within three years of the date of entry into force of the Directive. It is intended that actions shall be repeated five years later when smaller agglomerations of more than 100 000 join the operation. About 20% of the EU population live in large agglomerations. It has been estimated that the noise-mapped areas near roads, railways and airports will cover another 10 to 20%. In the second phase the smaller agglomerations and the areas with lower noise levels near roads, railways and airports increase the members of the public that is subject to the EU noise-mapping to about 50%.

8. Action plans (Article 8)

Action plans shall be made within one year of the deadline for the noise maps. Minimum requirements for these action plans are given in Annex V.

Whether or not violations of national limit values will give rise to actions depends on national legislation, the priorities and financial possibilities of the responsible authorities and on public influence. The latter aspect is supported by Article 9.

9. Information for the public (Article 9)

Information for the public is a central element of the proposal and the responsible authorities are obliged to inform the public at various stages. The noise maps and action plans shall be published within two months after their approval. Emphasis is given to publication on the Internet or a similar on-line facility.

10. Data Collection at Member State and EU level (Article 10)

The Commission proposes that the first step of the collection of noise maps and action plans will occur at Member State level for transmission to the Commission, who will set up a data bank and will publish summary reports.

11. Review and reporting (Article 11)

Article 11 links periodical reporting and the further monitoring and the development of strategies and measures to improve the situation. Goals could be set in terms of the reduction of the number of people that is affected by the environmental noise of specific sources. These goals shall be realistic in the sense that cost-effectiveness and political aspects shall be taken into account. When assessing the benefits of any community noise objectives and implementing strategies, benefits in areas falling outside the scope of this Directive, such as offices, will be taken into account.

12. Adaptation (Article 12)

The proposal provides that the Commission will adapt the Annexes to technical and scientific progress, in accordance with Council Decision 1999/468/EC.

13. Committee (Article 13)

The proposal provides for a Regulatory Committee within the meaning of Decision 1999/468/EC.

Working group position papers could be the basis for the Commission's proposals for guidelines and for the improvement of Annexes.

14. Evaluation (Article 14)

It is proposed to have a first evaluation of the Directive seven years after the date of entry into force.

15. Transposition (Article 15)

The proposal offers an 18-month transposition period because of the foreseen relation with existing legislation in some Member States.

16. Entry into force (Article 16)

This is a standard Article.

17. Addressees (Article 17)

Standard text.

18. Annex I (Noise indicators)

This Annex provides the details of the two primary noise indicators (L_{den} and L_{night}) and defines their field of application. There are special cases for which additional indicators may be attractive which the Member States are free to apply¹⁶.

¹⁶ Member States and other stakeholders have clearly indicated that there is a need for further standardisation in this area. That could for example be provided in the form of European Standards that are applied on a voluntary basis. The Commission has asked a working group to prepare a position paper on this issue.

19. Annex II (Assessment methods)

This Annex covers the three elements of the assessment methods. The first two cover the methods for the measurement and computation of the value of the noise indicators at a specific position. The third covers the dose-effect relations. The text of the proposal offers interim computation and measurement methods and does not yet offer dose-effect relations. The choice of the interim computation and measurement methods is based on a position paper from a working group¹⁷.

In general, measurement of L_{den} and L_{night} is more difficult, more time-consuming and much more expensive than computation. Thus, in practice computation plays a dominant role.

20. Annex III (Mapping software)

Annex III contains preliminary minimum requirements for mapping software. In the future, this Annex will be revised and will provide more details on the requirements and on the quality control of mapping software.

21. Annex IV (Requirements for noise maps)

Minimum requirements for noise maps are given. The Commission does not intend to harmonise in detail the presentation of national and local noise maps .

22. Annex V (Action plans)

Annex V contains minimum requirements for action plans. It is the intention that the Commission will support the local, regional and national authorities with guidelines.

23. Annex VI (Data to be sent to the Commission)

Annex VI describes the condensed information from noise maps required for an EU overview of the noise situation and its impact on health, since no useful purpose is served if the Commission receives all detailed results of the noise mapping and the action plans. During the interim period the computation and measurement methods are not sufficiently accurate to provide reliable data for low levels of the noise indicators, and the range of noise levels is therefore limited. Once the modern common methods are available the range can be extended.

The required data include information on the number of dwellings with special insulation against noise and on dwellings with a relatively quiet façade. By application of the special dose-effect relations that will be defined for those cases, a proper assessment of the health effects can then be made. If this element is left out major errors will be made in the assessment of the effects.

¹⁷ Position Paper on the interim computation and measurement methods, to be published in July/August 2000.

ANNEX II

Planning and Deadlines

Given the many dates in the proposal when actions have to be completed, a summary table is given below.

Transposition

Date	Subject	Article or Annex
1.7.2003	– List of competent authorities and bodies sent to the Commission and made public	Article 4
	– Information on limit values sent to the Commission	Article 5(3)
	– List of large agglomerations, major roads, major railways and major airports sent to the Commission	Article 7(1)
	– Directive transposed	Article 13(1)
1.1.2009	– List of small agglomerations sent to the Commission	Article 7(2)

Noise maps

Date	Subject	Article or Annex
1.1.2005	– Approved maps for all large agglomerations, major roads, major railways and major airports	Article 7(1)
1.3.2005	– Local publication of mapping results	Article 9(1)
1.4.2005	– Summary of noise maps sent to the Commission	Article 10(2)
1.1.2010	– First noise maps for agglomerations with 100,000 to 250,000 inhabitants	Article 7(2)
	– Second noise maps for large agglomerations, major roads, railways and airports	Article 7(5)
1.3.2010	– Local publication of mapping results	Article 9(1)
1.4.2010	– Summary of noise maps sent to the Commission	Article 10(2)

Action plans

Date	Subject	Article or Annex
1.1.2006	– Approved action plans for large agglomerations, major roads, railways and airports	Article 8(1)
1.3.2006	– Local publication of action plans	Article 9(2)
1.4.2006	– Summary of action plans sent to the Commission	Article 10(3)
1.1.2011	– First action plans for agglomerations with 100,000 – 250,000 inhabitants – Second action plans for large agglomerations, major roads, railways and airports	Article 8(2) Article 8(4)
1.3.2011	– Local publication of action plans	Article 9(2)
1.4.2011	– Summary of action plans sent to the Commission	Article 10(3)

Commission

Date	Subject	Article or Annex
1.7.2003	– Guidelines on interim computation and measurement methods	Annex II
	–	
1.4.2007	– First EU summary report on noise maps and action plans	Article 10(3)
1.1.2008	– Report to Council and the European Parliament	Article 11
1.1.2009	– First evaluation report on the implementation of the Directive	Article 14

Proposal for a

DIRECTIVE OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL

relating to the Assessment and Management of Environmental Noise

(Text with EEA relevance)

THE EUROPEAN PARLIAMENT AND THE COUNCIL OF THE EUROPEAN UNION,

Having regard to the Treaty establishing the European Community, and in particular Article 175(1) thereof,

Having regard to the proposal from the Commission¹,

Having regard to the opinion of the Economic and Social Committee²,

Having regard to the opinion of the Committee of the Regions³,

Acting in accordance with the procedure laid down in Article 251 of the Treaty⁴,

Whereas:

- (1) It is part of Community policy to achieve a high level of health and environmental protection, and one of the objectives to be pursued is protection against noise. In the Green Paper on Future Noise Policy⁵, the Commission addressed noise in the environment as one of the main local environmental problems in Europe.
- (2) In its Resolution of 10 June 1997⁶ on the Commission Green Paper, the European Parliament expressed its support, urged that specific measures and initiatives should be laid down in a framework Directive on the reduction of environmental noise, and noted the lack of reliable, comparable data regarding the situation of the various noise sources.
- (3) The specific proposal for a common noise indicator and a common methodology for noise calculation and measurement around airports provided for in the Communication of 1 December 1999⁷ on Air Transport and the Environment should be fully taken into account in the provisions of this Directive.

¹ OJ C

² OJ C

³ OJ C

⁴ OJ C

⁵ COM(96) 540 final, 4.11.1996.

⁶ OJ C 200, 30.6.1997, p. 28.

⁷ COM(1999) 640.

- (4) Noise emission from products is already covered by Council Directive 86/188/EEC of 12 May 1986 on the protection of workers from risk related to exposure to noise at work⁸, as amended by Directive 98/24/EC⁹, and noise insulation between dwellings by Council Directive 89/106/EEC of 21 December 1988 on the approximation of regulations and administrative provisions of the Member States relating to construction products¹⁰, as amended by Directive 93/68/EEC¹¹; noise created inside means of transport and noise from domestic activities are not subject to this Directive.
- (5) In accordance with the principles of subsidiarity and proportionality as set out in Article 5 of the Treaty, the objectives of achieving a high level of environmental protection cannot be sufficiently achieved by the Member States because environmental noise levels are not collected, collated or reported according to comparable criteria and can therefore, by way of harmonising indicators and evaluation methods and by aligning noise-mapping criteria, be better achieved by the Community. This Directive confines itself to the minimum required in order to achieve those objectives and does not go beyond what is necessary for that purpose.
- (6) At present, Member States do not have any common definitions of national limit values for road-traffic noise, rail-traffic noise, aircraft noise around airports, and industrial noise. Those limits should be defined in terms of harmonised indicators for the determination of noise levels.
- (7) The indicator should be determined by consistent methods.
- (8) Noise mapping can capture the data needed to provide a representation of the noise levels perceived within the area of interest. Action plans are required, taking into account the principles of prevention, polluter pays, proximity and proportionality; in the light of the Community's commitment to the information society, the most appropriate information channel should be selected.
- (9) Data collection and the consolidation of suitable Community-wide reports are required as a basis for future Community policy and for further information of the citizens.
- (10) Medium and long-term goals for the reduction of the number of citizens affected by the noise from specific sources should be established now; some further research may provide even more compelling results; a time limit should be set; such results need to fit into an affordable cost envelope consistent with other environmental and life quality aspirations.
- (11) The technical provisions governing the assessment methods should be supplemented and adapted as necessary to technical and scientific progress and to progress in European standardisation.

⁸ OJ L 137, 24.5.1986, p. 28.

⁹ OJ L 131, 5.5.1998, p. 11.

¹⁰ OJ L 40, 11.2.1989, p. 12.

¹¹ OJ L 220, 30.8.1993, p. 1.

- (12) Since the measures necessary for the implementation of this Directive are measures of general scope within the meaning of Article 2 of Council Decision 1999/468/EC of 28 June 1999 laying down the procedures for the exercise of implementing powers conferred on the Commission¹², they should be adopted by use of the regulatory procedure provided for in Article 5 of that Decision.
- (13) An evaluation of the implementation of this Directive should be carried out regularly by the Commission,

HAVE ADOPTED THIS DIRECTIVE:

Article 1
Objectives

1. The aim of this Directive is to define a common approach to avoid, prevent or reduce harmful effects on human health due to exposure to environmental noise, by:
 - (a) assessment of environmental noise in Member States, based on common methods;
 - (b) ensuring that information on environmental noise and its effects is made available to the public.
2. Action shall be taken to reduce noise where necessary, and to maintain environmental noise quality where it is good.

Article 2
Scope

1. This Directive applies to environmental noise perceived by humans in and near their home, in public parks or other relatively quiet areas in an agglomeration, in relatively quiet areas in the open country, in and near schools in the case of pupils, in and near a hospital in the case of patients and in 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 work places and noise inside means of transport.

Article 3
Definitions

For the purpose of this Directive:

- (a) “environmental noise” means unwanted or harmful sound created by human activity outdoors, including noise emitted by means of transport and from industrial sites or industrial buildings;

¹² OJ L 184, 17.7.1999, p. 23.

- (b) “human health” means ‘a state of complete physical, mental and social well-being’ as defined by the constitution of the World Health Organization (WHO);
- (c) “harmful effects” means negative effects on human health; examples are noise-induced annoyance, sleep disturbance, interference with communication, negative effects on learning, hearing loss, stress and hypertension;
- (d) “annoyance” means the degree of community noise annoyance as determined by means of field surveys;
- (e) “noise indicator” means a physical scale for the description of environmental noise, which has a demonstrable relationship with a harmful effect;
- (f) “assessment” means any method used to measure, calculate, predict or estimate the value of a noise indicator or the related harmful effect(s);
- (g) “day-evening-night level L_{den} (or LDEN)” means the noise indicator for annoyance, as further defined in Annex I;
- (h) “night-time noise indicator, L_{night} (or LNIGHT)” means the noise indicator for self-reported sleep disturbance, as further defined in Annex I;
- (i) “dose-effect relation” means the relationship between the value of a noise indicator and a harmful effect;
- (j) “agglomeration” means part of a territory, delimited by the Member State, having a population in excess of 100 000 persons and a population density such that the Member State considers it to be an urbanised area;
- (k) “relatively quiet area in an agglomeration”, means an area, delimited by the competent local authority, which is not exposed to a value of L_{den} greater than a certain value, to be declared by the Member State, from any noise source;
- (l) “relatively quiet area in the open country”, means an area, delimited by the national or regional competent authority, that is undisturbed by noise from traffic, industry or recreational activities, and where natural quiet can be experienced;
- (m) “noise zone” means the Member State’s established legal definition for a zone along, or around, noise sources where legal rules apply to control the noise; ‘noise zoning’ means all the actions related to the implementation of a noise zone and the application of the related rules;
- (n) “major road” means a regional, national or international road, designated by the Member State, which has more than three million vehicle passages per year;
- (o) “major railway” means a railway, designated by the Member State, which has more than 30 000 train passages per year;
- (p) “major airport” means a civil airport, denominated by the Member State, with more than 50 000 take-offs and landings per year;

- (q) “noise map” means the presentation of data on an existing or predicted noise situation in terms of a noise indicator, breaches of a limit value, the number of people affected in a certain area, the number of dwellings exposed to certain values of a noise indicator in a certain area, or on cost-benefit ratios or other economic data on mitigation methods or scenarios;
- (r) “strategic noise map” means a noise map designed for the global assessment of the situation in a given area or for overall predictions for such an area;
- (s) “limit value” means a value of L_{den} or L_{night} as declared by the Member State, the exceeding of which causes competent authorities to consider or enforce mitigation measures; limit values may be different for different type of noise (road, rail, air traffic noise, industrial noise, etc.), different surroundings, different groups of the population and they may also be different for existing situations and for new situations (where there is a change in the situation regarding the noise source or the use of the surrounding);
- (t) “action plan for an agglomeration” means the plan designed to reduce the noise in the agglomeration at places where the limit value for L_{den} or L_{night} is exceeded and to protect relatively quiet areas in the agglomeration against an increase in noise;
- (u) “action plan for a major road, railway or airport” means an activity designed to reduce the noise at places near the major road, railway or airports where the limit value for L_{den} or L_{night} is exceeded;
- (v) “acoustical planning” means controlling future noise by planned measures; it includes land use planning, systems engineering for traffic, traffic planning, abatement by sound insulation measures and noise control of sources;
- (w) “special insulation against noise” means special insulation of a building against one or more types of environmental noise, combined with such ventilation or air conditioning facilities that high values of insulation against environmental noise can be maintained;
- (x) “a relatively quiet façade” means a façade of a dwelling at which the value of L_{den} at 4 m above the ground and 2 m in front of the façade, for the noise emitted from a specific source, is more than 20 dB lower than at the façade having the highest value of L_{den} .

Article 4
Implementation and responsibilities

1. The Member States shall designate at the appropriate levels the competent authorities and bodies responsible for implementation of this Directive, including the authorities responsible for:
 - (a) the making and approval of noise maps and action plans for agglomerations, major roads, major railways and major airports;
 - (b) the collection of noise maps and action plans.

2. The Member States shall ensure the accuracy of assessment methods, in co-ordination with Community-wide quality assurance programmes.
3. The Member State shall make the information referred to in paragraph 1 available to the Commission and to the public not later than 30 June 2003.

Article 5
Noise indicators and their application

1. The noise indicators to be used for strategic noise mapping, acoustical planning and noise zoning shall be L_{den} and L_{night} . Member States shall apply these indicators:
 - (a) for noise maps according to Article 7;
 - (b) in new legislation on strategic noise mapping, acoustical planning or noise zoning;
 - (c) in any revision of existing legislation on strategic noise mapping, acoustical planning or noise zoning.
2. Member States may use additional noise indicators for special cases as listed in Annex I(3).
3. Not later than 30 June 2003, Member States shall inform the Commission of the limit values currently in force or under preparation, in terms of L_{den} and L_{night} for road traffic noise, rail traffic noise, aircraft noise around airports and industrial noise. This shall be accompanied by a declaration on the consequences of a breach of the limit values.

Article 6
Assessment methods

1. The values of L_{den} and L_{night} shall be assessed with the computation or measurement methods as defined in Annex II.
2. Health effects shall be assessed with the dose-effect relations as defined in Annex II.

Article 7
Noise maps

1. Member States shall ensure that no later than 31 December 2004 noise maps showing the situation in the preceding calendar year have been made and approved by the competent authorities, for all agglomerations with more than 250 000 inhabitants and for all major roads, major railways and major airports within their territory.

Not later than 30 June 2003, Member States shall inform the Commission about the major roads, major railways, major airports and the agglomerations with more than 250 000 inhabitants within their territory that are covered by the definitions under Article 3.

2. Member States shall ensure that no later than 31 December 2009 noise maps showing the situation in the preceding calendar year have been made and approved by the competent authorities for all agglomerations with more than 100 000 inhabitants within their territory.

Not later than 31 December 2008 Member States shall inform the Commission about all the agglomerations within their territory that are covered by the definitions under Article 3.

3. The noise maps shall satisfy the minimum requirements of Annex IV.
4. Neighbouring Member States shall cooperate on the noise-mapping near borders.
5. The noise maps shall be remade every five years after the date of their preparation.

Article 8 *Action plans*

1. Member States shall ensure that not later than 31 December 2005 action plans for the major roads, major railways, major airports and agglomerations with more than 250 000 inhabitants within their territory are completed and approved by the competent authorities.
2. Member States shall ensure that not later than 31 December 2010 action plans for the agglomerations with more than 100 000 inhabitants within their territory are completed and approved by the competent authorities.
3. The action plans shall satisfy the minimum requirements of Annex V.
4. The action plans shall be remade every five years after the date of their preparation.

Article 9 *Information for the citizen*

1. Member States shall ensure that the noise maps are published on the Internet or any other on-line facility, or are published in some other suitable way, within two months after their approval by the competent authority.
2. Member States shall ensure that, before the action plans are approved, the responsible authority organises a public consultation and takes the results into account.
3. The action plans shall be published on the Internet or any other on-line facility within two months after their approval by the competent authority.

Article 10
Collection and publication of data by Member States and the Commission

1. Member States shall collect the noise maps and action plans.
2. Member States shall ensure that the information from noise maps and summaries of the action plans as referred to in Annex VI to this Directive are sent to the Commission not later than three months after the dates as referred to in Articles 7 and 8 respectively.
3. The Commission shall set up a data bank of information on noise maps.
4. Every five years, the Commission shall publish a summary report of data from noise maps and action plans. The first report shall be presented within one year after the respective dates as referred to in paragraph 2.

Article 11
Review and reporting

1. Not later than 31 December 2007, the Commission shall submit to the European Parliament and the Council a report based on experience of the application of this Directive.
2. The report shall include a review of the need for Community quality objectives related to environmental noise and, if appropriate, propose such objectives and propose implementing strategies to ensure achievement of the objectives. The strategy shall consider:
 - (a) long-term and medium-term goals for the reduction of the number of persons that is affected by the noise from specific sources; these specific sources shall include road traffic, rail traffic, civil air traffic and industry;
 - (b) any measures that are necessary to reach the goals; these measures could include the Community policy on noise sources and all other relevant measures;
 - (c) relatively quiet areas in the open country.
3. The report shall be based on the data as referred to in Article 10, on scientific and technical progress and on other relevant information. The reduction of harmful effects on human health and cost-effectiveness criteria shall be the main criteria for the selection of proposed strategies and measures.
4. The report shall be reviewed every five years or as appropriate.
5. The report shall be accompanied as appropriate by proposals to amend this Directive.

Article 12
Adaptation

The Commission shall, in accordance with the procedure referred to in Article 13(2), adapt the Annexes to technical and scientific progress.

Article 13
Committee

1. The Commission shall be assisted by the Committee instituted by Article 18 of Directive 2000/14/EC of the European Parliament and of the Council¹³.
2. Where reference is made to this paragraph, the regulatory procedure laid down in Article 5 of Decision 1999/468/EC shall apply, in compliance with Article 7 and Article 8 thereof.
3. The period provided for in Article 5(6) of Decision 1999/468/EC shall be set at three months.
4. The Committee shall:
 - (a) exchange information and experiences concerning the implementation and practical application of this Directive;
 - (b) assist the Commission with the development of guidelines that support the application of the Directive.

Article 14
Evaluation

Every five years, starting not later than 1 January 2009, the Commission shall present an evaluation report on the implementation of this Directive to the European Parliament and the Council.

Article 15
Transposition

1. Member States shall bring into force the laws, regulations and administrative provisions necessary to comply with this Directive not later than 30 June 2003. They shall inform the Commission thereof.

When Member States adopt those provisions, they shall contain a reference to this Directive or shall be accompanied by such a reference on the occasion of their official publication. Member States shall determine how such reference is to be made.

2. Member States shall communicate to the Commission the text of the provisions of national law that they adopt in the field covered by this Directive.

¹³ OJ L 162, 3.7.2000, p. 1.

Article 16
Entry into force

This Directive shall enter into force on the twentieth day following that of its publication in the *Official Journal of the European Communities*.

Article 17
Addressees

This Directive is addressed to the Member States.

Done at Brussels,

For the European Parliament
The President

For the Council
The President

ANNEX I

NOISE INDICATORS

1. Day-evening-night level

1.1 Definition

The day-evening-night level L_{den} (or LDEN) in decibels (dB), is defined by the following formula:

$$L_{den} = 10 \lg \frac{1}{24} \left(12 * 10^{\frac{L_{day}}{10}} + 4 * 10^{\frac{L_{evening} + 5}{10}} + 8 * 10^{\frac{L_{night} + 10}{10}} \right)$$

in which

- L_{day} is the A-weighted long-term average sound level as defined in ISO 1996-2: 1987, determined over all the day periods of a year;
- $L_{evening}$ is the A-weighted long-term average sound level as defined in ISO 1996-2: 1987, determined over all the evening periods of a year;
- L_{night} is the A-weighted long-term average sound level as defined in ISO 1996-2: 1987, determined over all night periods of a year;

in which

- the day is 12 hour, the evening 4 hour and the night 8 hour; Member States may consider a general resting period in the afternoon as a part of the ‘evening’ and shorten the real evening period accordingly (such a choice shall be identical for noise from all types of sources);
- the start of the day (and consequently the start of the evening and the night) shall be chosen by the Member State (this choice shall be identical for noise from sources); the default values are 07.00 – 19.00 hours, 19.00 – 23.00 hours and 23.00 – 07.00 hours local time;
- a year is the relevant year regarding the emission of sound and an average year regarding the meteorological circumstances an average meteorological year be defined as a year having the average meteorological conditions over 10 or more recent years;

and in which

- the incident sound is considered, which means that the sound that is reflected at the façade of a dwelling or another building under consideration is neglected.

The height of the assessment point of L_{den} is dependent on the application:

- for the purpose of strategic noise mapping in relation to noise exposure in and near buildings, the assessment points are at a height $4,0 \pm 0,2$ m (3,8 – 4,2 m) above the ground, at $2,0 \pm 0,2$ m in front of the most exposed façade; for the purpose of noise mapping as defined in Article 7 of this Directive, the most exposed façade will be the external wall facing onto and nearest to the specific noise source; for other purposes other choices may be made;
- for the purpose of strategic noise mapping of public parks and relatively quiet areas in the open country the assessment points are at $4,0 \pm 0,2$ m above the ground;
- it is recommended to base zone contours on the value of L_{den} at 4 m height, if appropriate;
- for other purposes other heights may be chosen, but they shall never be below 1,5 m above the ground; examples are the following:
 - the design of local measures meant to reduce the noise impact of specific dwellings;
 - detailed noise map of a limited area, showing the noise exposure of individual dwellings.

1.2 Application of LDEN for the assessment and reduction of adverse noise effects

For long-term noise exposure, LDEN has a proven relation with the degree of community noise annoyance and particularly with the percentage of highly annoyed respondents (%HA).

LDEN, in combination with special dose-effect relations, is also applicable in the following cases:

- annoyance due to noise with strong tonal components;
- annoyance due to noise with an impulsive character;
- adverse effects on learning by children.

Reduction of the value of LDEN will also reduce the number of people that suffer from specific health effects as sleep disturbance, stress, hypertension or interference with communication. For an optimum assessment and reduction of such specific effects the use of an additional noise indicator may be necessary, however.

2. Night-time noise indicator

2.1 Definition

The night-time noise indicator L_{night} (or LNIGHT) is the A-weighted long-term average sound level as defined in ISO 1996-2:1987, determined over all the day periods of a year;

in which

- the night is 8 hour as defined in paragraph 1.1 of this Annex;
- a year is a relevant year regarding the emission of sound and an average year regarding the meteorological circumstances, as defined in paragraph 1.1 of this Annex;

- the incident sound is considered, as described in paragraph 1.1 of this Annex;
- the assessment point is the same as for LDEN.

Note that the definition of L_{night} does not include an addition of 10 dB.

2.2 Application of LNIGHT

For long-term noise exposure LNIGHT has a proven relation with self-reported sleep disturbance, for example expressed in terms of the percentage of people that reports to be highly sleep disturbed (%HS).

LNIGHT may be also a suitable indicator for specific medical or social effects related to noise exposure during the night (quality of the sleep, awakenings, problems to fall asleep, etc.). Thus, reduction of the value of LNIGHT will certainly reduce all adverse health effects of night-time noise exposure. For some specific effects and some specific noises, the application of additional indicators may improve the effectiveness of measures, however.

3. Additional noise indicators for special cases

Additional to LDEN and LNIGHT it may be advantageous to use special noise indicators and related limit values. Examples are the following.

- the noise source under consideration only operates a small part of the time (for example less than 20% of the time of the total of the day periods over a year, the total of the evening periods over a year, or the total of the night periods over a year);
- there is, in one or more of the periods, as an average, a very low number of events (for example less than one noise event per hour, a noise event being defined as a noise that lasts less than five minutes; examples are the noise from a passing train or a passing aircraft);
- the low-frequency content of the noise is strong;
- extra protection of the weekend or a specific part of the year;
- extra protection of the evening period;
- combination of noise from different sources;
- relatively quiet areas in the open country.

The following special cases may either be treated with LDEN combined with special dose-effect relations, or with a special noise indicator consisting of LDEN which is “adjusted” for the difference in the dose-effect relations as compared with normal cases:

- the noise contains strong tonal components;
- the noise has an impulsive character.

When the latter choice is made, the adjusted indicator shall have a completely other symbol than ‘LDEN’ or ‘ L_{den} ’.

ANNEX II

ASSESSMENT METHODS

1. Introduction

The values of L_{den} and L_{night} can be determined either by measurement (at the assessment position) or by computation. For predictions only computation is applicable.

Interim computation and measurement methods are presented in the paragraphs 2 and 3 of this Annex.

Paragraph 4 of this Annex describes the interim situation for dose-effect relations.

2. Temporary measurement methods for L_{den} and L_{night}

If the Member State has an existing legally founded measurement method, that method shall be adapted according to the definition of the indicators as presented in Annex I and according to the principles for long-term average measurements as presented in ISO 1996-2: 1987 and ISO 1996-1: 1982.

If the Member State has no existing measurement method, or prefers to shift to another method, a method can be defined on the basis of the definition of the indicator and the principles presented in ISO 1996-2: 1987 and ISO 1996-1: 1982.

3. Interim computation methods for L_{den} and L_{night}

3.1 Adaptation of existing national methods

If the Member State has existing national methods for the determination of long-term indicators these methods may be applied, provided that they are adapted to the definition of the indicators as presented in Annex I. For most national methods this implies the introduction of the evening as a separate period to be considered and the introduction of the average over a year. Some existing methods should also be adapted concerning the exclusion of the façade reflection, the incorporation of the night and/or the assessment position. This adaptation should not affect the continuation of existing legally founded noise abatement programmes as well as the financial compensation and mitigation schemes that are integral parts of such programmes.

The averaging over a year requires special attention. Contributions to the fluctuations over a year are introduced by fluctuations of the emission and by fluctuations of the transmission.

3.2 Temporary computation methods

For Member States that have no existing national methods or Member States that wish to shift to another method, the following methods are recommended.

For INDUSTRIAL NOISE: ISO 9613-2: "Acoustics – Attenuation of sound propagation outdoors, Part 2; General method of calculation".

Suitable noise emission data (input data) for this method can be obtained from measurements according to one of the following methods:

- ISO 8297:1994 “Acoustics – Determination of sound power levels of multisource industrial plants for evaluation of sound pressure levels in the environment – Engineering method”;
- EN ISO 3744: 1995 “Acoustics – Determination of sound power levels of noise using sound pressure – Engineering method in an essentially free field over a reflecting plane”;
- EN ISO 3746: 1995 “Acoustics – Determination of sound power levels of noise sources using an enveloping measurement surface over a reflecting plane”.

For AIRCRAFT NOISE AROUND AIRPORTS: ECAC.CEAC Doc. 29 “Report on Standard Method of Computing Noise Contours around Civil Airports”, 1997. From the different approaches for the modelling of flight tracks, the segmentation technique as mentioned in section 7.5 of ECAC.CEAC Doc. 29 shall be used.

For ROAD TRAFFIC NOISE: The French national computation method “NMPB”, as published in “Arrêté du 5 mai 1995 relatif au bruit des infrastructures routières, Journal officiel du 10 mai 1995, Article 6” and in the French standard “XPS 31-133”. For input data concerning the emission, these documents refer to the “Guide du bruit des transports terrestres, fascicule prévision des niveaux sonores, CETUR 1980”.

For RAILWAY NOISE: The national computation method “Standaard-Rekenmethode II” of the Netherlands, as published in “Reken- en Meetvoorschrift Railverkeerslawaaai '96, Ministerie Volkshuisvesting, Ruimtelijke Ordening en Milieubeheer, 20 November 1996”.

All the above methods shall be adapted to the definition of LDEN and LNIGHT. X Not later than 1 July 2003 the Commission will publish guidelines on the revised methods and provide emission data for aircraft noise, road traffic noise and railway noise on the basis of existing data.

If Member States want to use another method than described in paragraph 3.1 or 3.2 of this Annex, they shall demonstrate that the method proposed gives equivalent results to those set out above.

4. Dose-effect relations for the interim period

In order to assess the effect of noise on populations dose-effect relations are required. These will be introduced in future revisions of this Annex. For the interim period relations from position papers of Commission Working Group 2 “Dose/Effect” on the present knowledge on dose-effect relations, relations from literature, or relations as defined by the Member State could be used.

ANNEX III

MINIMUM REQUIREMENTS FOR MAPPING SOFTWARE

Noise mapping software used to implement Article 7 of this Directive shall satisfy the following minimum requirements:

- Be based on the computation methods as defined in Article 6 and Annex II;
- Contain a site modelling facility;
- Contain source emission models; geometrical information on the noise sources would be obtained from the site modelling facility;
- Contain noise propagation calculation facilities;
- Contain facilities for the presentation of mapping information relating to outdoor noise levels;
- Data export interface to EC databases: export of data according to Annex VI in a unified data format, to be defined in a Commission guideline.

ANNEX IV

MINIMUM REQUIREMENTS FOR NOISE MAPS

1. A noise map is the presentation of data on one of the following aspects:
 - An existing, a previous or a predicted noise situation in terms of a noise indicator;
 - the exceeding of a limit value ('conflict map');
 - the number of dwellings in a certain area that is exposed to specific values of a noise indicator;
 - the number of people that is affected (annoyed, sleep disturbed or otherwise) in a certain area;
 - cost-benefit ratios or other economic data on mitigation measures or scenarios.
2. Noise maps may be presented as:
 - graphical plots;
 - numerical data in tables;
 - numerical data in electronic form.
3. The noise maps shall serve the following goals:
 - Provide a basis for the data to be sent to the Commission according to Article 10(2) and Annex VI of this Directive;
 - Provide a source of information for the citizen according to Article 9 of this Directive;
 - Provide a basis for action plans according to Article 8 of this Directive.

Each of these goals requires different types of noise maps.
4. Minimum requirements for the noise maps related to the data to be sent to the Commission are given in the paragraphs 1.5, 1.6, 1.7, 2.5, 2.6 and 2.7 of Annex VI of this Directive.
5. For the information of the citizen according to Article 9 of this Directive and for the development of action plans according to Article 8 of this Directive, additional and more detailed information is required such as:
 - Graphical presentation;
 - Conflict maps, in which the exceeding of a limit value is presented;

- Difference maps, in which the existing situation is compared with options for future situations;
- Maps in which the value of a noise indicator in front of individual dwellings (at different heights) is presented.

Member States may provide rules on the type and format of these noise maps.

6. Strategic noise maps for local or national application shall be made for an assessment height of 4 m and the 5 dB ranges of LDEN and LNIGHT as defined in Annex VI of this Directive.
7. For agglomerations separate strategic noise maps shall be made for road traffic noise, rail traffic noise, aircraft noise and industrial noise. Maps for other sources may be added.
8. The Commission may develop guidelines providing further guidance on noise maps and noise mapping.

ANNEX V

MINIMUM REQUIREMENTS FOR ACTION PLANS

1. The action plans shall at least contain the following elements:
 - A description of the agglomeration (size, location, number of inhabitants, land use, main noise sources, type” of buildings and their use), the major road, the major railway or the major airport (location, size, data on the traffic, surroundings);
 - Responsible authority;
 - The legal context;
 - Limit values according to Article 5;
 - A summary of the results of the noise mapping;
 - An analysis of the health situation, based on the noise maps and the dose-effect relations;
 - Identification of problems;
 - Any noise measures already in place and actions that are underway;
 - Situations to be improved;
 - Actions which the competent authorities intend to take for the next five years, including actions to maintain relatively quiet areas;
 - Budgets for the actions;
 - Long term strategy;
 - A record of the public consultations according to Article 9(2);
 - Any cost/effectiveness or cost/benefit assessment.

The actions, which the authorities intend to take within their competence, may include:

- Traffic planning, including the redirection of traffic, the introduction and enforcing of speed limits, the promotion of public transport and modal shift (as a change from road to rail transport), etc.;
- Land use planning;
- Technical measures at sources, including road surfaces and railway tracks.
- Selection of quieter sources;
- Reduction of sound transmission (noise barriers, tunnels, insulation of dwellings, etc.);

- Licences;
- Public campaigns;
- Noise monitoring (measurement of noise at one or more positions in order to check whether or not received or emitted noise satisfies a pre-set requirement);
- Financial measures such as charges and penalties.

The actions shall have a suitable budget that is approved by the competent authorities.

Intended actions for which a budget has not been approved yet, shall be mentioned separately, with an indication of the time frame in which financing is expected.

The action plans shall indicate the expected effects in terms of the reduction of the number of affected people (annoyed, sleep disturbed, or other).

2. The Commission may develop guidelines providing further guidance on the action plans.

ANNEX VI

DATA TO BE SENT TO THE COMMISSION

The data to be sent to the Commission is the following.

1. FOR AGGLOMERATIONS

- 1.1 A concise description of the agglomeration: location, size, number of inhabitants.
- 1.2 The responsible authority.
- 1.3 Noise control programmes that have been carried out in the past and noise measures in place.
- 1.4 The computation or measurement methods that have been applied.
- 1.5 When the interim computation methods according to Annex II are applied: the total number of people that is living in dwellings that are exposed to each of the following ranges of values of LDEN in dB at 4 m height at the most exposed façade: < 55, 55-59, 60-64, 65-69, 70-74, 75-79, >79, separately for noise from road, rail and air traffic, and from industrial sources. The figures shall be given to the nearest hundreds of people (example: 5200 = between 5150 and 5249; 100 = between 50 and 149; 0 = less than 50).

Additionally it shall be stated how many persons in the above categories are living in dwellings that have:

- Special insulation against the particular noise;
- A relatively quiet façade.

Additionally it shall be stated how many schools and hospitals are exposed to each of the above ranges of LDEN and how many pupils and patients are related to these figures.

Additionally the total area of parks (in km²) within each of the above ranges of LDEN.

It shall also be indicated how major roads, major railways and major airports, as defined in Article 3 of this Directive, contribute to the above.

When the common methods according to Article 6(2) and Annex II are applied, the above range is extended with < 50, 50-54, deleting <55 dB.

- 1.6 When the interim methods according to Annex II are applied: the total number of people (in hundreds) living in dwellings that are exposed to each of the following ranges of values of LNIGHT in dB at 4 m height at the most exposed façade: <45, 45 – 49, 50 – 54, 55 – 59, 60 – 64, 65 – 69, 70 – 74, >74, separately for road, rail and air traffic and for industrial sources.

Additionally it shall be stated how many persons in the above categories are living in dwellings that have:

- Special insulation against the particular noise;
- A relatively quiet façade.

It shall also be indicated how major roads, major railways and major airports contribute to the above.

When the common methods according to Article 6(2) and Annex II are applied the above range shall be extended with < 40, 40-44, deleting <45dB.

1.7 The size (in km²) and relative size (in% of the total area of the agglomeration) of public parks and other public relaxation areas with values of LDEN below 55 dB, as caused by any noise source.

1.8 A summary of the action plan, covering the relevant aspects as referred to in Annex V, not exceeding 10 pages.

2. FOR MAJOR ROADS, MAJOR RAILWAYS AND MAJOR AIRPORTS

2.1 A general description of the road, railway or airport: location, size, and data on the traffic.

2.2 A characterisation of its surroundings: agglomerations, villages, countryside or otherwise, information on land use, type of buildings and their use, other noise sources.

2.3 Noise control programmes that have been carried out in the past and noise measures in place.

2.4 The computation or measurement method that has been applied.

2.5 When the interim methods according to Annex II are applied: the total number of people (in hundreds) outside agglomerations that is living in dwellings exposed to each of the following ranges of values of LDEN in dB at 4 m above the ground and at 2,0 ± 0,2 m in front of the most exposed façade: 55-59, 60-64, 65-69, 70-74, 75-79, >79.

Additionally it shall be stated how many persons in the above categories are living in dwellings that have:

- Special insulation against the particular noise;
- A relatively quiet façade.

Additionally it shall be stated how many schools and hospitals are exposed to each of the above ranges of LDEN and how many pupils and patients are related to these figures.

When the common methods according to Article 6(2) and Annex II are applied, the above range is extended with 50-54 dB.

- 2.6 When the interim methods according to Annex II are applied: the total number of people (in hundreds) outside agglomerations that is living in dwellings exposed to each of the following ranges of values of LNIGHT in dB at the most exposed façade: 45-49, 50-54, 55-59, 60-64, 65-69, 70-74, >74.

Additionally it shall be stated how many of the above persons are living in dwellings that have:

- Special insulation against the particular noise;
- A relatively quiet façade.

When the common methods according to Article 6(2) and Annex II are applied the above range shall be extended with 40-44 dB.

- 2.7 The total area (in km²) exposed to values of LDEN higher than 55, 65 and 75 dB, respectively. Additionally the total number of dwellings (in hundreds) and the total number of people (in hundreds) living in each of these areas shall be given. These figures shall include agglomerations.

The 55 and 65 dB contours shall also be shown on one or more maps, which shall include information on the location of villages, towns and agglomerations within the contours.

- 2.8 A summary of the action plan, covering the relevant aspects as referred to in Annex V, not exceeding 10 pages.

3. GUIDANCE

The Commission will develop guidelines providing further guidance on the delivery of the above data.

FINANCIAL STATEMENT

1. TITLE OF OPERATION

Proposal for a European Parliament and Council Directive relating to the Assessment and Management of Environmental Noise.

2. BUDGET HEADING(S) INVOLVED

B4-3040

3. LEGAL BASIS

Article 175 of the EC-Treaty

4. DESCRIPTION OF OPERATION

4.1 General objective

Following the suggestions of the Green Paper on Future Noise Policy (COM(96) 540 final), the positive response of the European Parliament on the Green Paper (OJ C 200, 30.6.1997, p. 28) and the positive response of more than 200 other parties (including Member States), the Commission has prepared a proposal that is intended to become the basis for a more effective and more coherent approach of environmental noise in the Community. The proposed Directive has the following elements:

- Harmonisation of noise indicators and assessment methods;
- Noise mapping in agglomerations and near major roads, railways and airports;
- Action plans for the reduction of noise in agglomerations and near major roads, railways and airports;
- Information of the public;
- EU data bank of noise mapping results and action plans; periodic publication of EU overviews;
- Development of EU goals, strategies and actions for the reduction of the number of citizen that is affected by environmental noise;

Improvement of the noise emission related EU policy.

The proposed Directive requires the Commission to:

- Publish the information on responsible authorities, the selected agglomerations, roads, railways and airports;

- Collect and assess the summaries of data on noise maps and action plans and publish the results, every 5 year, the first report to be published within 4 years and 3 months after the date of entry into force;
- Provide input data (noise emission by aircraft, motor vehicles, railway vehicles, different road types, different railway track types, etc.) for the “interim, recommended computation methods” for transport noises and for the definite common methods; maintain the related data banks;
- Develop, maintain, improve and extend the assessment methods and propose adaptations of the Annexes accordingly;
- Set up quality assurance programmes for the assessment methods;
- Make a proposal to the European Parliament and the Council 1) on long term and medium term goals on the reduction of the number of people that is suffering from noise, 2) the strategies and measures that are necessary to reach the goals, 3) a strategy for the protection of relatively quiet areas in the open country; the first proposal should be made within 5 years after the date of entry into force; there should be a review every 5 years;
- Convene the meetings of the Regulatory Committee;

Present an evaluation report to the European Parliament and the Council, every 5 years, starting 10 years after the date of entry into force.

4.2 Period covered and arrangements for renewal

- Within 6 years after the date of entry into force the Commission shall present a report to the European Parliament and the Council on the strategies and measures, which may be accompanied by proposals to amend the Directive.
- An evaluation report is planned in the seventh year after the date of entry into force.

5. CLASSIFICATION OF EXPENDITURE OR REVENUE

5.1 Non-compulsory expenditure

5.2 Differentiated appropriations

6. TYPE OF EXPENDITURE OR REVENUE

Most of the expenditure concerns 100% funding.

7. FINANCIAL IMPACT

7.1 Method of calculating total cost of operation (relation between individual and total costs)

Expenditures for the Commission are the following:

- Meetings of the Steering Committee and the working groups;
- Publication of position papers from the working groups;
- Studies to support the progress in the working groups;
- Guidelines on the “temporary recommended methods” and the collection and publication of source emission data for these methods;
- Guidelines for the “common computation methods” and the collection of data, publication and maintenance of the related data banks;
- The collection and assessment of data from noise maps and action plans and the publication of the results;
- Set up a quality assurance programme;
- Preparation of a report to the European Parliament and the Council on goals, strategies and measures;
- Meetings of the Regulatory Committee;
- Evaluation of the Directive.

Non compulsory expenditures are the following:

- Development and publication of guidelines;
- Mandates to CEN for the development of European Standards on specific subjects.

The costs for these actions are calculated as follows:

- (1) Steering Committee: in 2000 one meeting at EUR 7000; in following years 2 meetings at EUR 14000; Working groups: the costs of 4 already existing working groups are carried by other DG; the 2000 budget for the remaining 6 existing working groups is EUR 13000, which allows less than one meeting per working group. This is not sufficient for proper progress, for which an average of 2 meetings seems more appropriate; 6 working groups, 12 meetings at EUR 4000 makes EUR 48000; total for Steering Committee and working groups in the years n+1 and following EUR 62,000;
- (2) Publication of Position Papers: the main publication is through the Internet, without external costs. Additionally a limited number of hard copies is printed and distributed, for which EUR 10,000 is sufficient in most years;

- (3) Studies to support the working groups: most of the research that is necessary to develop the assessment methods and to study health effects comes from programmes as the Fifth RTD Programme. Additionally overviews of existing knowledge experience have to be made and the position papers must be drafted. The DG ENV 2000 budget for this purpose is EUR 175,000 (which include a study on lawnmowers for WG 7). Considering the needs of the working groups (for example relating to studies on costs and benefits, mapping and the relation between emission and perception), such a budget is not sufficient for the needs of the following years and should increase to EUR 300,000 in the next years;
- (4) The drafting and publication of the interim computation methods and the collection and publication of input data for these methods shall start in 2001 and be completed 1 year after the adoption of the Directive (2002 + 1 = 2003); it requires about EUR 100,000 per year;
- (5) The work on the guidelines and data banks for the definite common methods can start when it becomes clear how these methods will be. It should be expected that that will be the case in 2004. During about three years a budget of EUR 500,000 to EUR 1,000,000 is then required for the drafting of the guidelines and for the measurement and publication of source emission input data. After the initial publication of the methods and of the emission data banks, the budget can be reduced to EUR 500,000;
- (6) The collection and assessment of data from noise maps and action plans starts 3 years after the adoption of the Directive, thus probably in 2005. It requires about EUR 100,000 per year;
- (7) A quality assurance programme has to be set up for the definite common methods; action should start in parallel with (5); EUR 100,000 during 2 years seems sufficient;
- (8) Preparation of a proposal on goals, strategies and measures; requires man power in the Commission and the results of position papers as covered by (2) and (3);
- (9) Meetings of the Regulatory Committee; should start quickly after the adoption of the Directive: p.m.;
- (10) Evaluation of the Directive: not before 2009; costs p.m.

7.2 Itemised breakdown of cost

Commitment appropriations EUR million (at current prices)

Breakdown	year n	n+1	n+2	n+3	n+4	n+5	N+6 and subs. yrs
1. Meeting of Steering Committee and Working Groups	0.020	0.060	0.060	0.060	0.060	0.060	0.040
2. Publication of Position Papers	0.005	0.010	0.020	0.020	0.010	0.010	0.010
3. Studies for working groups	0.175	0.250	0.300	0.300	0.300	0.250	0.200
4. Interim computation methods: drafting, collection of emission data and publication	0	0.100	0.100	0.100	0	0	0
5. Definite common methods: measurements, drafting, publication, maintenance	0	0	0	1.000	1.000	1.000	0.500
6. Collection, assessment and publication of mapping results and action plans	0	0	0	0	0.100	0.100	0.100
7. Set up of a quality assurance programme	0	0	0	0	0.100	0.100	0
Total	0.200	0.420	0.480	1.480	1.570	1.520	0.850

7.3 Operational expenditure for studies, experts etc. included in Part B of the budget

Commitment appropriations EUR million (at current prices)

	year n	n+1	n+2	n+3	n+4	n+5 and subs. yrs	Total
– Studies	0.175	0.330	0.380	1.280	1.400	1.550	5.115
– Meetings of experts ¹	0.020	0.060	0.060	0.060	0.060	0.100	0.360
– Information and publications	0.005	0.030	0.040	0.140	0.110	0.220	0.545
Total	0.200	0.420	0.480	1.480	1.570	1.870	6.020

7.4 Schedule of commitment and payment appropriations

EUR million

	year n	n+1	n+2	n+3	n+4	n+5 and subs. yrs	Total
Commitment appropriations	0.200	0.420	0.460	1.480	1.570	1.870	6.020
Payment appropriations							
year n	0.200						0.200
n+1		0.168					0.168
n+2		0.252	0.228				0.480
n+3			0.252	0.628			0.880
n+4				0.852	0.664		1.516
n+5 and subs. yrs					0.906	0.508	1.414
						1.362	1.362
Total	0.200	0.420	0.480	1.480	1.570	1.870	6.020

8. FRAUD PREVENTION MEASURES

Standard Commission procedures for study contracts.

¹ Costs satisfying the criteria in the Commission communication of 22.4.1992 (SEC(92) 769).

9. ELEMENTS OF COST-EFFECTIVENESS ANALYSIS

9.1 Specific and quantified objectives; target population

Experiences of Member States indicate that a considerable reduction of the number of noise affected people and of the above damage can probably be obtained by actions that costs less than 10% of the above damage. Such costs and benefits can not directly be connected with the present Directive because those are dependent on national limit setting and national legislation, and on the outcome of future studies and debates on the EU goals, strategy and action plan. A major element of the EU approach will be the improvement of the source related policy. In general such a policy is considerably more cost-effective than transmission related policy (installation of noise barriers, façade insulation, land use).

The EU population that is disturbed by environmental noise is about 100 million. At least 20 million of these are seriously disturbed in their sleep and may suffer from various noise induced illnesses. The proposed Directive creates the basis for a more effective and cost-effective approach by local authorities, Member States and the Community. The actual reduction of the number of noise affected people depends on national legislation and on the democratic processes that are generated by the Directive.

9.2 Grounds for the operation

The setting of limits for environmental noise remains the responsibility of the Member States. The costs for the Community are limited to the development and maintenance of common methodology, the collection and publication of data and noise emission related policy. The latter is already the responsibility of the Community; the Member States need the assistance of the Community for the first two items.

The approach is similar to that for air pollution: Directive 96/62/EC defines an approach for the management of air quality based on harmonised methods, action plans and information of the public². The operation is also very similar to existing national approaches of environmental noise by Denmark, Finland, France, Germany, Italy, The Netherlands and Sweden.

The actual results of the Directive are very much dependent on the limit setting and other elements of the legislation in the Member States. Most Member States have already limits, which are such that they really impose actions for improvement. It should be expected that they would transpose those limits to the new noise indicators. The other Member States will probably choose for similar limits.

9.3 Monitoring and evaluation of the operation

Every five years the Commission shall publish an overview of the noise impact on the EU citizen.

² Directive 96/62/EC OJ No L296, 21.11.96, p. 55.

Within 6 years after date of entry into force the Commission shall present a proposal to the European Parliament and the Council regarding the reduction of the number of noise affected people. The actual figures will be monitored through noise mapping, the collection of noise mapping data by the Commission and by the application of dose-effect relationships.

The Articles 10, 11 and 14 of the proposal describe different types of evaluations. They all have a frequency of 5 years

10. ADMINISTRATIVE EXPENDITURE (SECTION III, PART A OF THE BUDGET)

The administrative resources actually mobilised will be determined in the Commission's annual decision on the allocation of resources, taking into account the additional staff and appropriations granted by the budgetary authority. In the short term there will be no need for additional human resources.

10.1 Effect on the number of posts

Type of post		Staff to be assigned to managing the operation		Source		Duration
		Permanent posts	Temporary posts	Existing resources in the DG or department concerned	Additional resources	
Officials or temporary staff	A	0,5	1	1,5	0	2001-2006
	B					
	C	0,5		0,5	0	2001-2006
Other resources						
Total		1	1	2	0	

10.2 Overall financial impact of additional human resources

EUR

	Amounts	Method of calculation
Officials	0	
Temporary staff	0	
Total	0	

10.3 Increase in other administrative expenditure as a result of the operation

EUR

Budget heading	Amounts	Method of calculation
A-7030	30.000	Covered by another Committee
A-7031	p.m.	
Total	30.000	

IMPACT ASSESSMENT FORM

THE IMPACT OF THE PROPOSAL ON BUSINESS WITH SPECIAL REFERENCE TO SMALL AND MEDIUM-SIZED ENTERPRISES(SMEs)

TITLE OF PROPOSAL

Proposal for a European Parliament and Council Directive relating to the Assessment and Management of Environmental Noise.

DOCUMENT REFERENCE NUMBER

p.m.

THE PROPOSAL

1. Taking account of the principle of subsidiarity, why is Community legislation necessary in this area and what are its main aims?

The proposed Directive concerns the following EU dimensions of environmental noise control: common noise indicators, common assessment methods for noise exposure, monitoring of noise pollution in the EU, the development of an EU strategy to improve the situation, exchange of information in the EU, and legislation on noise emission. A Directive is the way to ensure the introduction of these elements. The Member States remain responsible setting limits.

Inaction would mean that there will be no basis for a reduction of the number of health affected EU citizen (in the order of 100 million) and for a reduction of the economic damage due to environmental noise (between EUR 10 and 40 billion annually).

THE IMPACT ON BUSINESS

2. **Who will be affected by the proposal?**

– **Which sectors of business**

This Directive will mainly affect the business of acoustical consultants and the suppliers of mapping software and measurement equipment. Their business could increase by some EUR 20 million per annum. Most of the related costs will be for public authorities, but airport and railway companies will also carry a part.

Indirectly, through the action plans for agglomerations, major roads, major railways and major airports more sectors will also be affected. The suppliers of noise barriers, acoustic road surfaces and acoustic façade insulation should look forward to increased demand.

In a later phase, the development of EU goals, strategies and measures as described in Article 11, may result in additional legislation that affects more business. These influences should not be connected with the present proposal, however.

- **Which sizes of business (what is the concentration of small and medium-sized firms)**

There is no discrimination concerning the size of business affected by this proposal.

- **Are there particular geographical areas of the Community where these businesses are found**

Companies involved will be found through the Community.

3. What will business have to do to comply with the proposal?

The direct consequences for business are limited to privatised airports, railways and motorways, which shall provide noise maps and action plans.

4. What economic effects is the proposal likely to have?

- **On employment**

The noise mapping and the obligation to make action plans will generate a small number of jobs in the civil administrations, consultancy firms, the software industry and the measurement equipment industry. It will have no significant effect on other business.

- **On investment and the creation of new businesses**

New businesses could be created in the Member States that are not very active in noise control at present.

- **On the competitiveness of businesses**

The direct impact of the proposal on the competitiveness of EU businesses is negligible.

It is also likely that the long-term indirect effects related to the various action plans, strategies and measures, will change the overall competitiveness of the EU businesses in a positive way. This is related to the fact that the environmental quality of many products will increase and new products for noise control will be developed. Firms that can not follow these developments may see a decrease of business, however.

5. Does the proposal contain measures to take account of the specific situation of small and medium-sized firms (reduced or different requirements etc)?

CONSULTATION

6. List the organisations which have been consulted about the proposal and outline their main views.

The proposal has been developed in a very open process in which many organisations, including industries, had a chance to comment. The main consultation occurred through the Steering Committee for the Environmental Noise Policy, in which the following industrial organisations are represented:

- ACI Europe (Airports Council International – Europe)
- AECMA (European Association of Aerospace Industries)
- IRU (International Road Union)
- ACEA (European Automobile Manufacturers Association)
- ORGALIME (Liaison Group of the European Mechanical, Electrical, Electronic and Metalworking Industries)
- EUROMOT (European Association of Internal Combustion Engine Manufacturers)
- CER (Community of European Railways)
- UIP (International Union of Private Wagons)

Through experts in working groups various other industries, like the software manufacturers and the acoustical consultants, contributed as well.

All these organisations expressed a positive point of view.