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THE EU POLICY ON ENVIRONMENTAL NOISE

T. Ten Wolde

European Commission, Environment Directorate-General, Wetstraat 200, B-1160, Brussels, Belgium

Tel.: +32 2 2968765 / Fax: +32 2 2969554 / Email: tjeert.tenwolde@cec.eu.int

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ABSTRACT
A brief overview of the philosophy and the contents of the new EU noise policy is presented. Some specific technical elements are discussed in more detail. The progress since 1999 is reported.

1 - INTRODUCTION
The outlines of a new policy on environmental noise of the European Union were presented at the two preceding Inter-noise congresses [1,2]. In this paper these outlines will be briefly summarised, emphasising the underlying philosophy. Furthermore the progress with the development of the policy will be reported and details will be presented about a number of specific aspects.

2 - PHILOSOPHY
One of the underlying principles of the EU Noise Policy is the principle of shared responsibility. It can easily be observed that different authorities have different possibilities to contribute to the control of environmental noise. At the level of the EU those possibilities are the following:

- the control of the noise emission from sources
- the harmonisation of noise indicators and assessment methods,
- the monitoring of the noise situation in the EU.

Member States and local authorities may use the results and the tools provided by the EU and add other elements like land use planning and traffic control.
Another underlying principle is the improvement of the information for the public. For a balanced approach of environmental problems it is necessary that the public and the authorities are properly informed about the problem. So far, for noise, this is a very weak element, not in the least due to the use of a wide variety of noise indices, most expressed in decibels. The public and many authorities have great difficulties to understand the difference between a quantity and a unit and to understand that one can only compare values in decibels when they concern the same quantity. Furthermore the concept of a logarithmic quantity is already a major difficulty.
Further elements of the philosophy are given in [1] and [2].

3 - STATUS AND CONTENTS OF A PROPOSAL FOR AN EU FRAMEWORK DIRECTIVE ON ENVIRONMENTAL NOISE
At the moment of the completion of this text a draft for a European Directive on Environmental Noise is circulating within the European Commission for comments and approval. Supposing that this process will lead to an adoption by the Commission in June or July 2000, the European Parliament and Council may start their discussions on the proposal in autumn 2000.
The contents of the proposal are essentially the same as announced in earlier papers [1,2]:

- harmonisation of noise indicators,
- harmonisation of assessment methods,

- limit setting by the Member States in terms of the harmonised indicators by (thus no limit setting at EU level),
- local noise mapping and action plans,
- information of the public, locally and at the EU level,
- European data bank of noise pollution and its effects,
- EU goals, strategy and action plan for the improvement of the EU health situation, with emphasis on the improvement of the noise emission related policy.

The most important change that was made since 1999 [2] concerns the addition of noise mapping and action plans for the areas near major roads, major railways and major airports.

4 - SOME SPECIFIC ASPECTS OF THE PROPOSAL

4.1 - Noise indicators

Two noise indicators are defined, following the advice of a working group [3]. These indicators are the day-evening-night level L_{den} as the indicator for annoyance and the night-time noise indicator L_{night} as the primary indicator for sleep disturbance. Both quantities are A-weighted and both are long-term averages. The default division of the 24 h day is $07.00 - 19.00$ h for the day period, $19.00 - 23.00$ h for the evening period and $23.00 - 07.00$ h for the night period. Member States have a limited possibility to make their own choice regarding the beginning of the day period etc., but the day, evening and night period shall be 12, 4 and 8 hours, respectively. Furthermore the choice shall be similar for noise from all sources. There is also a possibility to incorporate a resting period (siesta) during the day period. The preferred observation height is 4 m and the quantities concern the impinging sound (thus without the contribution of the reflection from the nearby façade of the building under consideration). The noise indicators are not 'adjusted' for tones, impulses or for other differences in dose-effect relations.
In principle the value of the noise indicators may either be measured or computed. In general however, computation will be preferred because it is quicker and cheaper.
The noise indicators shall be applied for strategic noise mapping, acoustical planning and for noise zoning related to transport noises and industrial noises. For special cases additional indicators may be applied. Examples are situations with strong tones or impulses, low frequency noise, a low number of events and special protection of the weekend. For other purposes than mapping, planning and zoning the Member States remain free to use other noise indicators.

4.2 - Dose-effect relations

It is the intention of the proposal to inform the public and the authorities more in terms of effects (the number of annoyed people in a certain area, etc) and less in terms of the value of noise indicators (decibels). That can be achieved with the aid of dose-effect relations. Research has been started to improve the knowledge in this area. One of the projects concerns a field survey in 10 EU Member States on annoyance and self-reported sleep disturbance. The results will be included in a future revision of the directive. In the intermediate period the dose-effect relations as presented in an interim position paper of an EU working group may be applied [4]. That position paper may also help the Member States to define their national limits for the new indicators.
It is the aim that dose-effect relations for annoyance and self-reported sleep disturbance are developed for the different modes of transport and for industrial noise. It is also intended that separate dose-effect relations become available for houses with a relatively quiet façade and for dwellings with special noise insulation. On the longer term further dose-effect relations may be added.

4.3 - Computation methods

The development of modern prediction methods takes several years. The EU working group "Computation and Measurement" is responsible for that process. Once finished, the description of the methods shall be connected to the directive (through a revision of an annex).
In the interim period Member States may continue to use their existing national computation methods, provided that they are adapted to the definition of the new noise indicators. Member States may also choose for the recommended interim methods, which are based on presently existing methods. These methods will be selected by the above working group. The choices for industrial noise and for aircraft noise have already been made: ISO 9613-2 for industrial noise and the ECAC.CEAC Doc. 29 method for aircraft noise [5]. The choices for rail traffic noise and road traffic noise will be made in May 2000.

Software for the interim methods and for the definite common methods shall be provided commercially. Quality control of commercial software will be organised for the definite methods.
Data on noise emission from road, rail and air traffic will be provided by the Commission. An organisation will be set up to maintain the related data bases for the definite common methods.

4.4 - Noise mapping

It is proposed that the noise mapping in the interim period will concern values of L_{den} from 55 dB and higher, and values of L_{night} of 50 dB and higher. Due to the differences in the interim computation methods and due to the large inaccuracy of these methods for positions at larger distances from the source and for positions that are subject to noise screening, it makes no sense to compare data at lower levels. When the more common methods become available lower levels will be included.
The noise mapping shall be done every five years and show the actual situation of the preceding year. A summary of the results will be sent to the European Commission, who will publish EU overviews.

4.5 - Local action plans

Noise maps may be compared with national limit values and an action plan shall be developed according to national rules and regulations. A summary of the action plans shall be sent to Commission. Overviews of action plans will be included in periodical Commission publications.

4.6 - EU goals, strategy and measures

Based on the information from noise mapping the Commission will be able to make an estimate of the numbers of noise affected people in the EU and consider goals for the reduction of these numbers. Such a reduction will only be possible by a mid-term or long-term strategy, which is dependent on the actual technical and financial possibilities. The development of such a strategy will be supported by cost-effectiveness and cost-benefit studies. A major element of the strategies will be the improvement of the noise emission related EU policy. The introduction of EU type testing of railway vehicles is for example one of the measures that should be considered.

5 - CONCLUSION

The development of the EU policy for environmental noise is well underway. A proposal for a framework directive will soon be presented to the European Parliament and the Council. There is still very much to be done in relation to the development of modern computation methods and dose-effect relations for different effects, different noises and different situations.
Final remark: The views expressed in this paper are those of the author and do not necessarily represent the views of the European Commission.

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