



Ministerie van Volkshuisvesting,
Ruimtelijke Ordening en Milieubeheer

Directorate of Noise and Traffic
Department Disturbance and Noise policy

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Uw kenmerk

Uw brief

Kenmerk

Datum

Onderwerp

Comment on the INRETS-paper

Dear mr Perera,

On the stimulating meeting of the Ad hoc group on Noise Policy, it was decided that any comment on the INRETS-report could be forwarded until october, 15.

I herewith include the comments of the Dutch delegation, together with a somewhat abridged version of the viewpoint paper handed out at the meeting.

I inform you that we have no further comments on the minutes of the 15 may-meeting (where unfortunately we couldn't be present).

Yours sincerely,

Martin van den Berg

SOME COMMENTS ON:

'STUDY RELATED TO THE PREPARATION OF A COMMUNICATION ON A FUTURE EC NOISE POLICY; DRAFT JULY 1994'

We think that the study contains a lot of information that will be valuable to the members of the EU when they participate in the formulation of a communication on future noise policy. The scope covered is very broad.

However, on some points we think that either a revision is desirable, or qualifications should be kept in mind when the report is used for the formulation of a communication. The most important points are mentioned below. Several of those point have already been brought forward in the meeting of the Adhoc Group on Noise Policy Issues, 15th september 1994 in Brussels.

p. 2ter:

The two graphs on this page are misleading. They suggest that in the "city street" case the individual noises will not be heard anymore. Almost certainly this will not be the case: Eg, due to directional aspects and differences frequency, the aircraft overflight will be very well distinguishable between other noises.

p. 4

2.2, a: "stable noise levels": to avoid confusion this should be phrased as: constant (but not tonal!) noise levels

p. 5

2.2.b

Attention should be given to the fact that most researchers find that SEL is a better predictor than L_{max} . There is a good explanation for such a result: a long freight train has more chance to wake you up than a single motorcar, even if they have the same L_{max} !

The conclusion that 35 or 30 dB(A) is a level to be recommended is not justified: this depends very much on the source. Impulsive sounds like expanding heating pipes or sounds of water closets can be very disturbing at low levels. Dutch standards are around 25 dB(A) for external sounds.

I recommend that the phrase "In conclusion, it can be said...." be eliminated. The WHO in fact proposes 30 dB(A) in a draft paper for continuous sounds. It may be demonstrated that in most cases the LAeq-concept limits sufficiently the number of events.

p. 6

Hearth-rate changes may be observed at levels around 45 dB(A), L_{Amax}

p. 9

The figure is incomplete and therefore misleading. The exact curve depends very much on type of source. Furthermore night and evening levels may have an important impact on annoyance. In a recent advise to the Dutch Government, the Health Council of the Netherlands referred to

curves based on 13.000 surveys from different European countries. A detailed report is available (in English).

p. 23, Table 1:

At the present stage of the process of working towards a communication the overview preceding the table is sufficient. A detailed proposal for a single metric as given in the table is premature.

Because we think that the definition of such a single metric should be delegated to some working group, and that actions by the EU on this matter should be coordinated with ongoing work of, eg, the ISO and ICAO, we think this is not the proper place for a more detailed discussion of the proposal in the table.

Part 1, Annex 1:

In the Annex an overview is given of definitions of noise metrics. In a report that discusses harmonization it is important to give also attention to the measurement and calculation procedures used to establish the values of metrics. Even though the definitions of metrics may appear to be the same, large differences may exist in actual practice due to differences in measurement and calculation procedures. For example: reflections of the facade may, or may not be included in the measurement; a measure may be determined within limited meteorological conditions, or it may be an 'average' for all meteorological conditions during a year; all events may be taken into account, or there may be a threshold below which events are neglected even though they would affect the value of the measure, and so on. It is important to give attention to such points when harmonization is discussed. More specifically it is important, eg.g., when comparisons of regulations in different countries are made (Part 2) and when the number of affected persons in the EU is estimated (Part 3).

It is therefore strongly recommended to warn the reader in the introduction to part 2 for these differences. More specifically it could be mentioned that the same values may in fact be 3 to 10 dB(A) apart in the real situation. Notice also that rule-of-thumb transformations may not apply in specific cases. The mean difference between L_{dn} and L_{24} is often around 2 dB(A), but not where L_{night} approaches L_{day} , like for railway noise.

p. 45, 1.7.2:

A detail with respect to the regulations in our country. The immission limits for road traffic noise do not depend on the type of area (urban or non-urban), but on the type of road (speed limit 50 km/h, or a higher speed limit), irrespective of the kind of area around the road. The ratio is that motorways at the same level are more annoying than urban roads.

p. 46, 1.7.2:

Actually, the correction is 5 dB(A) for urban road traffic and 3 dB(A) for motorways.

p. 47, 1.7.5

The L24 hrs is not used in Dutch legislation, but the same Lden-like metric is used as for railtraffic described on p. 46.

Part 3:

The information in Part 3 is sufficient to illustrate that environmental noise is a serious problem in the EU. The authors stress at various places that it is only a global estimate. Some further indication concerning the reliability of the figures, eg by providing in section 1.10.4 also a high and a low estimation in addition to the best estimation, would be helpful to see that the lack of reliability does not affect the conclusion that environmental noise indeed is a serious problem in the EU.

Part 5:

The formulation of goals for environmental noise in the EU has to start with some thoughts about the health effects (including annoyance) that can be tolerated. Like concentrations of chemical pollutants, sound levels themselves are not very informative. Someone will consider levels acceptable or not acceptable on the basis of, amongst others, implicit ideas about the corresponding effects. However, a systematic and clear basis for noise policy requires an explicit reference to relations with health effects and a clear separation of health-based limits from limits set after a trade-off between health effects and other (technical feasibility, economic) aspects. In Part 5 goals are proposed without explicit reference to effects. The reason for the differentiation between the limits for different sources is probably that noise from different sources cause different effects at the same level, but the differential treatment should be based on an explicit link with these effects. Moreover, based on our knowledge of the effects that can be expected at the target levels mentioned, we consider their verbal description to be inappropriate (eg.g., high quality if daytime LAeq < 65 dB(A)). We suggest that the proposal for whatever goal be postponed until the formulation of a communication. Part 5 can be reworked a little so that it is just a description of alternative scenarios that are subsequently subjected to cost-benefit analyses. In that case part 5 and part 6 can be joined in a single part.

Part 6:

In Part 6 a distinction is made between cost-benefit analyses and effectiveness analyses.

The actual difference is clear, we think that these terms are not proper indicators for the differences: in both cases there are benefits (monetary in the first, reduced effects in the second), and in both cases effectiveness is

discussed (monetary benefits per investment in the first case, reduced effect per investment in the second cases).

We agree with the authors (p. 115) that it is more realistic to use non-monetary indicators of the profit of investments in noise reduction, namely, effect indicators. In their terms: effectiveness analyses is to be preferred over cost benefit analysis. Measures of monetary benefits are such indirect measures of the true benefits, namely, less adverse noise-induced health effects, that they are useless. In addition it has so far been impossible to establish the required, sufficiently reliable relation between exposures and monetary measures. As a consequence of both points, we consider it to be of little value to use monetary benefit indicators in analyses of the yields per investment.

Consequently, Part 6 can be condensed and made more clear by removing or greatly reducing the passages concerning monetary analyses. This last part is the least balanced part of the report which needs to be systematized and condensed anyhow. An example of a point that certainly needs clarification is the remark (p. 133, second paragraph of section 3.1) that cost-benefit analysis showed how a general health-based goal translates into noise exposure targets we cannot understand: cost- benefit analyses (nor effectiveness analyses) are meant to do this or can do this.

A PROPOSAL FOR FUTURE EU NOISE POLICY

Introduction

Recent surveys (INRETS, M&P) of data concerning the acoustical climate in the EU show that:

- a large number of people is exposed to high or extremely high levels of noise;
- due to these levels a substantial number of people is (seriously) affected.

However, due to differences in the way noise levels are determined as well as the way effects are measured, the present figures are only rough and incomplete estimates.

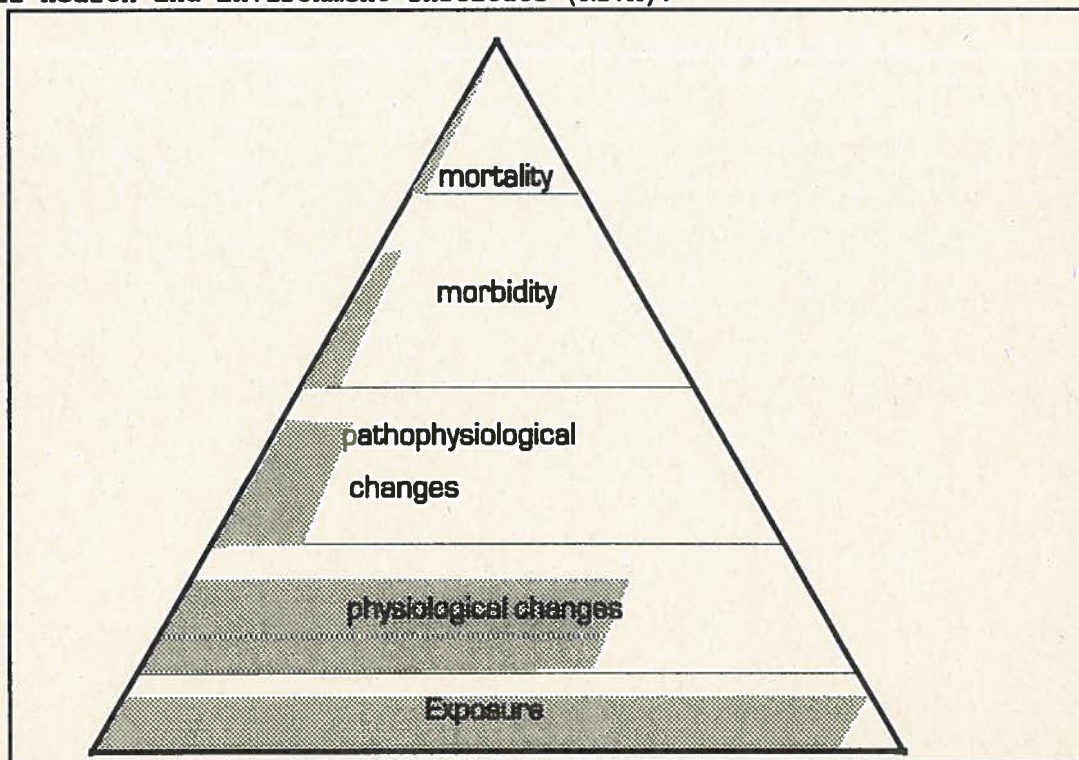
Since considerable effort and much money is put in reducing noise emission and mitigating noise effects, it is of utmost importance that the base for these efforts is as solid as possible.

Furthermore, in order to motivate political commitment with respect to noise abatement measures reliable estimates of present and future exposure levels and effects are required. Estimates of alternative future exposure levels and effects must illustrate how effective various counter measures will be.

To fill in shortages of knowledge concerning present and future exposure levels and effects, and to arrive at a consistent base for a noise abatement strategy throughout the EU, I like to put forward possible aims for a common policy and I will describe the activities necessary to realize these aims.

Long term health effect goals.

Environmental pollution is mainly evaluated on the basis of effects on human health and ecosystems. For environmental noise adverse effects on human health, including annoyance, are the most important negative consequences. However, these effects may also be seen as an early warning for more severe health effects that escape detection. Figure 1 shows a hierarchy of health effects. The figure is based on a figure from the National Health and Environment Institute (RIVM):



In this model a large number of people are actually exposed to the environmental factor. A considerable part will experience all kinds of low

level effects: from perceiving to an innocuous rise in heart rate. A number will experience also higher order effects: annoyance, rise in blood pressure. In a smaller number of people these effects may under unfavorable conditions (other stressors, personal characteristics) develop in clinical effects. At the end, it seems very likely that even a slight rise mortality may result.

A first step in EU policy concerning environmental noise may be the formulation of goals with respect to the prevalence of most important health effects of environmental noise (annoyance, sleep disturbance, increased blood pressure, and cardiovascular diseases). Such goals provide a reference with which the present and future states in the EU can be compared, and different noise abatement strategies can be evaluated on the basis of their efficiency in attaining these goals.

Some noise abatement strategies (like emission limits for cars) will be strictly within the competence of the EU, others, such as immission standards and insulation strategies, will be a subject of national or even local policy.

In this view, immission standards need not necessarily be the only or even the most effective instrument in noise abatement. Much depends on how these standards are used. For example, low limits but no instruments to enforce them may very well be less effective than higher limits together with a very competent executive apparatus that implements them in practice. Each member state of the EU may want to put together its own mix of instruments.

Knowing to what extent it can count upon a decrease of emissions due to EU policy, national and local governments can formulate a policy to fill the gap with the EU goals. The extent in which they are able to do so will depend on political commitment, their economic strength, and so on. Thus individual circumstances in countries may justify a different effort to attaining the EU goals.

Instead of a coercive EU policy, for the near future the presentation to the member states of feedback on the gap between the EU goals, and the present and possible future states in these countries is a better instrument for the EU for improving the acoustical quality, and it is a useful supplement to the EU directives concerning noise emissions. An obligation to cooperate and provide the information required by the EU to give this feedback in a comparable manner to all member states may be necessary.

Items for future eu policy concerning environmental noise

The most attractive and promising future EU policy for stimulating noise abatement seems acquiring and publishing feedback with respect to discrepancies between EU goals concerning noise-induced health effects and the situation in the member states. The following items are proposed as parts of such a policy:

- 1- determine the consequences of national noise abatement policies for the prevalence of noise-induced health effects (including annoyance) and compare these consequences with the EU goals with respect to such effects;
- 2- monitor the actual situation in the EU with respect to the relevant health effects and noise levels, and compare this actual situation with the EU goals;
- 3- forecast on the basis of alternative scenarios future trends for the relevant health effects and noise levels, and compare these with the EU goals.

Figure 2 shows the results of the Dutch Noise Annoyance Prediction Scheme (NOPS) for road traffic noise.

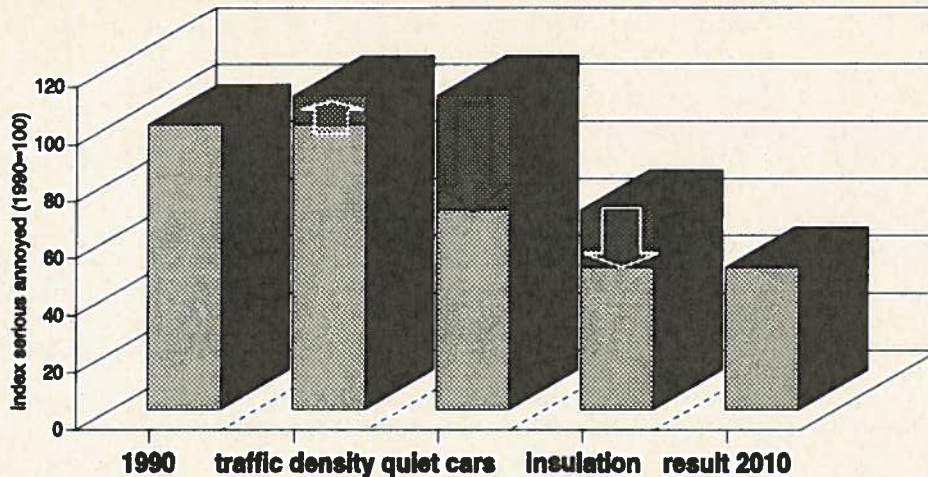
The above feedback may be used by authorized (national) bodies to steer developments. In due time a more coercive policy may be developed which aims at incorporating the consequences for future trends of noise effects in EU policy and decision making, eg.g., on issues concerning transportation. Figure 3 shows the feedback and monitoring process:

Urgent activities related to above eu policy items

Work on the above item requires the following preliminary activities:



Reduction in serious annoyance from 1990 to 2010 for Road traffic



Source: Ministry of Environment in the Netherlands

- A- Harmonization of the exact description and the protocols for measuring the relevant noise-induced health effects and definition of a common noise metric. In addition to the definition of a common noise metric, the measurement and calculation procedures, which may have a great influence on the values obtained, need to be standardized. This activity may be delegated to the CEN or ISO. Activities concerning similar issues, but restricted to aircraft noise, are already going on for several years within the EU, NATO ECAC and ICAO. Coordination with this work is desirable.
- B- Establishing the relationships between the common noise metric and the noise-induced health effects for which the EU formulates goals. A lot of work has been done in this area, and recently reports of WHO and of the Netherlands Health Council have integrated a number of findings and formulated conclusions. Establishing the relationships to be used for comparisons with the EU goals may be delegated to the CEN, ISO or WHO.
- C- Establishing approximate relationships between national metrics and the common metric. It may be necessary to distinguish different relations for different types of situations, because, in general, there is no one-to-one relation between different noise metrics. It is very important to take the measurement and calculation procedures into account when relationships between metrics are established. This work may be delegated to the CEN or ISO.
- D- In order to obtain information on national standards, the actual situation, and future trends a network has to be created between national bodies which can provide the information required. The European Environmental Agency may be the proper central point where this information is integrated into overviews for the EU and which has to create the network. Specifications need to be developed concerning exactly what information national bodies must provide. The Agency will need the assistance of an ad hoc committee of experts on this issue.

In conclusion, our proposal is:

- formulate EU goals with respect to noise-induced health effects;
- acquire and publish feedback with respect to discrepancies between,

- on the one hand, these EU goals, and, on the other hand, national standards, the present state and possible future states;
- carry out the required preliminary activities before the acquisition and publication of feedback information can be started.

The initiative for these actions lies mainly with the Commission; hopefully there is now enough momentum to continue the development of a european noise abatement program.

Martin van den Berg

Henk Miedema

14 september 1994

