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Unclear and missing provisions of the 'END'

Brian McManus (1) presenting
WGAEN, EC Working Group.

1. INTRODUCTION

In 2006 the Working Group – Assessment of Exposure to Noise (WG-AEN) produced the 'Good Practice Guide for Strategic Noise Mapping and the Production of Associated Data on Noise Exposure'. One of the aims of this guide is to provide guidance on a consistent approach in interpretation of specific issues raised by member states in relation to the development of Noise Maps and associated population exposure as set out in Directive 2002/49/EC relating to the assessment and management of environmental noise, commonly known as the Environmental Noise Directive and hereinafter is referred to as the 'END'. From their work on this Good Practice Guide it was evident to members of the Working Group that there were unclear and missing provisions associated with the Directive. Therefore, as part of its terms of reference for 2007, the WG-AEN was asked to draft a working paper on the 'Identification of the Provisions in Directive 2002/49/EC in relation to Strategic Noise Maps which are unclear or missing.

The working paper did not consider implications of Annex V (Minimum Requirements for Action Plans) and portions of Annex VI (Data to be sent to the Commission), as Action Plans did not fall within the remit of this Working Group. To a large extent the Environmental Noise Directive Reporting Mechanism (ENDRM) clarified what data is to be forwarded to the Commission.

The Working Paper contains comments and suggestions that have been developed by WG-AEN, which are intended to provide assistance to D.G Environment in the review of Directive 2002/49/EC as per Article 11.

It is hoped that the general review of Directive 2002/49/EC for ambiguous terms in relation to Noise Maps carried out by WGAEN will assist in providing a common approach to the development and production of Maps. In this paper it is not proposed to go into the detail of all the unclear or missing provisions of the END. However the more important ones identified by WGAEN are highlighted.

2. GENERAL OBSERVATIONS

A. Contents of Maps

The following are some issues that arise under the broad heading of Map Content requirements:-

Paragraph (8) of Annex IV of the END states that - *For agglomerations separate strategic noise maps **must be made** for road-traffic noise, rail-traffic noise, aircraft noise and industrial noise.* Also, Annex IV. para. (4), states under heading - Minimum Requirements for Strategic Noise Maps '*each of these applications requires a different type of strategic noise map.*' Maps are therefore required for (1) LDEN and (2) Lnight. In an Agglomeration the source assessments are for roads, major roads, rail, major rail, airports, major airports, industries and a strategic Maps for all sources. This gives a potential total count of 16 Maps. To produce and explain all these maps to the general public can only cause confusion.

WGAEN has recommended that consideration be given to amending requirements in Annex IV so that, as a minimum, only global assessments are required to be produced as a source of information to the public.

The question arises in relation to Major Roads\Railways and how to deal with that portion of road\ track that falls below the definition of Major Road\Railway. Within Agglomerations '*Major Road*'\'*Railway*' maps may present the wrong impression of the noise situation along a road that leaves out assessment of portions of the road below the defined threshold. The working group recommended that as the threshold for Major Road, Rail etc changes in 2010, requirements to develop specific major road\rail maps for Agglomerations should be omitted.

All Roads in Agglomerations, even *Low Flow Roads*, are required to be mapped, using a strict Interpretation. Mapping low flow roads does lead to inaccuracies by potentially overestimating exposure and also due to the unsuitability of some models for lower flow situations. In reality you are damned if you do and damned if you don't include low flow roads! Also, does '*Roads in Agglomeration*' need to be redefined in the END, with a special emphasis on road traffic above a certain volume? If we are to focus on the population most affected, then perhaps, but if we are to identify and protect quiet areas in the agglomeration then we may need to look at all roads etc. The working group raised this point for consideration during the review of the directive.

In relation to the noise mapping of airports (which includes aircraft movements plus other sources in an airport), clarification is required in relation to the terminology used. Do we just want 'air noise' (as we have now) or 'ground noise' as well including APUs, GPUs taxiing etc. The Directive uses different terminology throughout such as airport noise, air traffic noise and aircraft noise. The working group have recommended that that the noise mapping requirements for airports be clarified so that only *air traffic noise* should be assessed in the Noise Maps produced for Airports.

One could ask do we really need to include industries in the noise mapping project. The END works okay for transportation noise, but the industry element has made it very complicated, where one has to ascertain power outputs from various different forms of plant and machinery. Also the dynamic of the source is different compared with the others. WGAEN has recommended that consideration should be given to removing the requirement to noise map industrial sources. It could be argued that this issue is already being dealt with under the IPPC licensing or equivalent systems.

B. Calculation and Measurements

Most of the Good Practice Guide for Strategic Noise Mapping dealt with providing advice in relation to the development of data inputs for noise modelling. It is quite apparent from the accuracy studies carried out as part of the GPG that different results will be arrived at, depending on the type and accuracy of the data used. Inconsistencies in Noise Maps across member states will arise despite using the same interim method. They will also arise in the future even if a common harmonised method is used – due to the quality of the input data. The working group have therefore recommended that standards or guidelines need to be developed in relation to the quality of input data to be used in noise maps.

C. Development of Maps

If a common assessment is to be recommended/pursued then some body/organisation is needed to take charge of the proposed model and its continual upgrading with the relevant databases. It is considered that allowing software suppliers to do their own interpretation of the common noise model will lead to inconsistency. The working group raised this point for consideration during the review of the directive.

D. Maps and Action Plans

The adoption of Action Plans presents a challenge and the timescales for adoption follow very quickly on after the mapping to adhere to the process rigorously, as set out in the END. It will be more difficult with the next round of mapping when the agglomeration threshold drops to 100k.

The working group has recommended that consideration be given to allowing member states to '*develop an Action Plan within 2 years of production of the relevant noise maps*'. It should also be required that the Action Plan should also indicate the time frame within which actions will be implemented.

Where Member States have their own limits, changing from, for example, L_{Aeq24h} to L_{den} has the potential to alter their Noise Maps so that they are not synchronised with the bands prescribed in the directive. As such two sets of maps have to be developed - one for the Action Plan and one for ENDRM. This may be an issue. WGAEN has recommended that consideration should be given to allowing maps produced by Member States that are in synchronisation with their own limit values, to fulfil the requirements of the Directive.

E. Maps and Quiet Areas in countryside

What is a quiet area and how, at a fundamental level, can you noise map quietness if there are no noise sources to assess? It may not be possible to use modelling to calculate noise accurately in a quiet area in countryside. WGAEN have recommended that a common understanding of 'Quiet Area' requires defining. Different methods and guidelines for the assessment of quiet areas may also need to be developed and recommended for use by all member states.

Under Art. 11 an assessment of the need for the protection of Quiet Areas in open countryside is to be carried out before 18/6/09. The assessment of *quiet areas in countryside* presents a major challenge to Member States if these areas are required to be 'Noise Mapped' as well. If this is to be pursued, there is going to be a need for a lot more mapping. There is also the question of sources that are not currently covered by the END (e.g. mineral extraction) – if we are serious about quiet areas – should these be included? The recommendation is that an assessment for the need to protect quiet areas in open country should be carried out as soon as possible.

F. Maps and Exposure effects.

Another question arises as to whether LDEN correlates well with annoyance. Different sound sources cause different exposure effects. If common exposure limits are to be recommended then they may have to be unique to each sound source. Is there a need to apply an extra noise weighting to noise maps for individual types of noise sources due to their different impact on population exposure? WGAEN recommended that encouragement should be given to further research in this area.

3. GENERAL REVIEW OF AMBIGUOUS TERMS IN END DIRECTIVE

A. Article 1

Under 'Objectives' it states '*actions shall be implemented progressively: (b) ensuring that information on environmental noise and its effects is made available to the public*'.

Article 1, 1.b - i.e. ensuring that information is made available to the public - and its relationship to Annex IV.2 implies that public information could just be numerical, yet IV.6. indicates more detailed information must be given '*such as*'....'*a graphical presentation*'.

So some clarification on what should actually be presented to the public and consistency in Annex IV is needed. Another issue/complication – Annex VI, 2nd paragraph of 2.7 requires 55, 65 and 75dB contours, i.e. maps, to be sent to the Commission. Therefore, these have to be made available to the public! So information cannot just be numerical.

WGAEN has recommended that 'such as' should be replaced by 'for example' and Annex IV should be amended to include the actual requirements of the Directive as set out in Annex V1.

B. Article 2

Article 2 states that '*this Directive shall apply to environmental noise to which humans are exposed in particular in built-up areas, in public parks or other quiet areas in an agglomeration, in quiet areas in open country, near schools, hospitals and other noise sensitive buildings and areas*'.

It may not be feasible to model accurately in a quiet area as there maybe no or infrequent road or railway traffic on which to base the calculations. If this aim is to be pursued then an alternative assessment method should be recommended. WGAEN has recommended that **i)** Consideration should be given to drafting a definition for 'Quiet Areas' and, **ii)** that the review of the Directive should suggest the method to be used in modelling quiet areas in open country side.

C. Article 3

Under Article 3, 'Definitions' WGAEN has recommended that Port Activity should be included in the 'Environmental Noise' definition; Further guidance needs to be given in relation to '*recreational activity*' and clarification is required as to whether rail and aircraft is included in noise '*from traffic in quiet areas*' in open country' definition. It is also not clear as to the meaning of '*Regional and international roads*'. The procedure for designating '*Major Roads*', by Member States, requires clarification - it could be read as a two step process, - first designate a source and then assess traffic volumes as to whether it has to be Noise Mapped or vice versa.

Under definition (p) '*Light Aircraft*' is not defined. Also, it is not clear whether light aircraft numbers should be included in the modelling process of major airports as they are excluded when calculating whether an airport falls within the major Airport criteria.

Definition (q) refers to '*relevant limit values in force*'. It is unclear what is meant by 'limit values'. This can affect how Noise Maps showing exceedances are presented. - i.e. does '*Limit Value*' mean statutory limits where action is obligatory if the limit is exceeded? Does

it mean an international\national standard or a guide\good practice values, which are not mandatory? As such clarification is required.

Definition (r) refers to 'strategic noise maps' and 'global assessment'. Is there a difference between Strategic Noise Maps and Noise Mapping? - It would seem that Strategic Noise Mapping is a global assessment of Noise from all sources whilst noise mapping refers to mapping for individual sources of noise. However the terms seem to be interchangeable throughout the directive. This definition clearly means noise maps should show a combination or *overall prediction* but Annex VI steers Member States into developing Maps for individual sources, although the two aims are not mutually exclusive. Again, clarification is required on this issue

Other issues arise under the Definitions such as 'near' Major roads- what does near mean; data should not be more than 3 years old- does this mean base data or can extrapolated data be used.

D. Article 6

Article 6 deals with common assessment methods. The issue of 'demonstration of equivalence' arises. This may be difficult to achieve. Using different software packages but using the same calculation methods may not give equivalent results. Also, how do Member States demonstrate the equivalence? The WGAEN recommended that demonstration of equivalence should not be requested, as it is too dependent on the quality of data inputs to the model. At the very least clarification should be given as to how equivalence should be demonstrated. However this may not be an issue in the second round of mapping, if all Member States use a common assessment method.

E. Article 8

Article 8 covers action planning. There seems to be a common consensus that not enough time is provided after the noise mapping exercise for the preparation and production of Action Plans in accordance with the Directive. WGAEN has recommended that consideration be given to extending the time allowed to develop Action Plans to at least 2 years - or more.

F. Annex I

This annex deals with noise indicators referred to in Article 5. The phrase 'at' in relation to the location of assessment points is substituted else where in the Directive by 'on' or '2 metres in front of' the façade. This requires clarification. WGAEN has recommended that consideration be given to changing '*at the most exposed façade*' to some uniform distance in front of the façade likely to be exposed to highest noise level from the noise source in question'. See also footnote to 2.44 in the WG AEN Good Practice Guide for Strategic Noise Mapping. The Working Group also believes that further research on noise indicators and their appropriateness in representing annoyance would be helpful and recommends that consideration should be given to review\research into the Lden, Lday, Levening and Lnight parameters in order to ascertain as to whether they give a true representation of all the different characterisation of 'noise'.

4. MISCELLANEOUS OBSERVATIONS

A. Article 10

Clarification is required as to the meaning of 'special insulation'

Sound levels greater than 75dB should read greater than or equal to 75db(70dB)

B. Article 11

The phrase 'Measurements height of 1.5m' should be changed to change to assessment height. The suggestion that lower assessment bands maybe used in the future raises the question as to whether assessment methods are accurate at lower levels?

C. Annex IV

This annex refers to the number of dwellings, hospitals, schools exposed to specific noise indicators. But why are schools and hospitals mentioned when it is not in the reporting requirements?

D. AnnexV1

For Noise exposure in Agglomerations 'an indication should also be given on how major roads; major railways and major airports as defined in Article 3 contribute to the above'. This is difficult to assess\do and does not appear to have been required under the ENDRM For major roads, major railways and major airports the total area (in km2) exposed to values of Lden higher than 55, 65 and 75 dB respectively is to be reported. The estimated total number of dwellings (in hundreds) and the estimated total number of people (in hundreds) living in each of these areas must also be given. Those figures must include agglomerations.

If 'equal to or higher' is not inserted, then the bands used in Annex VI 1.5 and 1.6 are not usable here. Do these numbers mean just the 55, the 65 and 75 dB contours? ; or contours for values between 55 and 65, 65 and 75 and greater than 75 dB. It is recommended that clarification is required as to what these numbers represent. It is presumed they mean ≥ 55 ; ≥ 65 ; ≥ 75 ;

5. Summary

In summary, not all items identified by WGAEN in their working paper are mentioned in this paper. However the more important ones were highlighted, not for the purpose of criticism, but to enhance an already far reaching and important directive. It may seem a bit pedantic in highlighting these issues in the END. Nevertheless, it is felt that where there are missing or unclear provisions in the END, as much clarification as possible can only lead to a better understanding and more harmonised reporting of data to the Commission. It can also lead to greater accuracy in relation to population exposure calculations.

I would like to thank all the members of WGAEN who have assisted in preparing the working paper on which this paper has been based. The working group members are listed in the table below.

Membership of WG-AEN

Name	Organisation	Country
HINTON, John (Chair)	Birmingham City Council	UK
Bäckman, Anna	European Environment Agency	EU
Nugent, Colin	European Environment Agency	EU
BLOOMFIELD, Alan	Greater London Authority	UK
BOURBON, Christine	Institut Bruxellois pour la Gestion de l'Environnement	Belgium
COELHO, J Luis Bento	Universidade Técnica de Lisboa - CAPS	Portugal
McMANUS, Brian	Dublin City Council	Ireland
FÜRST, Nathalie	CERTU - Lyon	France
RASMUSSEN, Søren (co-chair)	COWI	Denmark
van den BERG, Martin	VROM – Den Haag	Netherlands
GERVASIO, Sandro	AISICO	Italy
HINTZSCHE, Matthias	Umweltbundesamt	Germany
INGOLD, Kirk	Federal Office for the Environment (FOEN)	Switzerland
Secretary:		
DHILLON, Parminder	DEFRA	UK
Qasim, Suimon	DEFRA	UK
Observers:		EU
DELCAMPE, David	European Commission DG Environment	EU
GERGELY, Balazs	European Commission DG Environment	EU
PAVIOTTI, Marco	European Commission DG JRC	EU
KEPHALOPOULOS. Stylianos	European Commission DG JRC	EU