EU Noise Policy WG4 on Noise Mapping

- <u>What is Noise Mapping and why do we need it ?</u>
 (<u>examples</u> and <u>uses</u> of noise mapping)

- <u>Terms of Reference of WG4</u>
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- <u>Members of WG4</u>

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What is Noise Mapping and why do we need it ?

Noise mapping covers the whole mapping process from the collection of raw data, the storage and retrieval this data for computation/modelling, to the presentation of information related to outdoor sound levels, sound exposure, noise effects or numbers of affected persons (see <u>examples of noise mapping</u>). This presentation can be in either a graphical or numerical form.

The precise techniques used through the mapping process will depend on the levels of accuracy and definition required for the intended use of the results (see <u>uses of noise mapping</u>) and the user type (target group).

The challenges for the immediate future will be to identify:

- The target groups (decision-makers, technicians, and public) for noise mapping information.
- The noise sources that should be mapped and the source data required to carry out mapping of these sources.
- The types of noise maps required.
- How the results of noise mapping can be communicated to the target groups through effective presentation.
- How to use noise mapping information to control noise from new developments (planning actions).
- How to use noise-mapping information to achieve real noise reduction from existing environmental noise sources.

Examples of noise mapping

- Simple maps of measured noise levels at spot locations;

- Colour coded lines, produced from measurements or calculations, representing kerbside road traffic sound levels and/or track side railway sound levels;

- Contour lines of sound immission levels from selected noise sources. The areas between the contour lines are normally coloured in and colour coded for effective visual presentation;

- Contour lines of noise exceedance or noise conflict levels showing where noise limits are being exceeded;

- Contour lines showing the effects of noise on the inhabitants of an area. For example, maps showing areas of 'high annoyance' to noise or possible sleep disturbance;

- Colour coded lines representing number of inhabitants, e.g. with health risks or sleep disturbance, per transportation route;

- Maps of buildings colour coded to identify the sound immission level on the façades;

- A database of sound immission levels, noise exceedance/conflict levels, or noise effects at noise sensitive properties.

In addition, mapping in its various forms can be derived for different periods of the day or night and by using different noise indicators, noise dose-effect relationships, calculation heights, calculation techniques and so on. As a result of all these possible variations, virtually every noise mapping exercise carried out in Europe to date has been unique. However, evidence suggests that when managed effectively the production of noise mapping information can generate the political commitment to resource and achieve environmental noise reduction. Furthermore, when mapping is carried out using modern interactive computer-based technology, these techniques can be used to model noise reduction initiatives and establish the likely costs and benefits. This permits the development of action plans for noise reduction.

Use of noise mapping

The main uses of noise maps are to:

- Identify and quantify the scale of noise problems at local, regional, national and European level;

- Provide information to the public and politicians on these problems;

- Provide an objective basis for town planning and traffic plans;

- Monitor trends in environmental noise;

- Set objectives for noise reduction;

- Make more effective use of local, regional and national planning procedures to control and reduce noise;

- Provide a basis for the assessment of specific developments with respect to noise;

- Develop action plans to reduce noise from existing sources and compare different scenario's;

- Monitor the effectiveness of planning procedures and action plans and communicate on the results;

- Provide a platform for further research into noise and annoyance, noise and sleep disturbance, noise and health issues (basis for epidemiological studies) and into noise and town planning;

- Derive data on noise exposure for the entire population of a country;

- Influence decision makers and as a result obtain funding to carry out noise reduction actions

<u>Terms of reference</u>

These terms of reference are the guidelines given by the European Commission (DG Environment) to the WG4 considering issues such as the <u>objectives</u>, the <u>timetable</u> and the <u>deliverables</u>.

Objectives

WG4 shall:

- make an inventory of existing noise mapping systems and consider their applications, their objectives and target groups, their accuracy and their cost (in co-operation with the WG6 Costs and Benefits)

- issue an evaluation report to the Commission on the applicability of noise maps

- advice the Commission about the quality control of mapping software

Guidelines shall be prepared for:

- the fields of application of noise maps in relation with the different purposes

- the source data required and system description needed (geometry, meteorological information, acoustical characteristics of various sources and surfaces, etc.)

- the population data required

- the presentation of the final data

- WG4 shall consider the level of accuracy of data needed for noise mapping (in collaboration with WG3 in order to integrate within the calculation methods, and in collaboration with WG5 in order to anticipate on the needs of action plans).

- WG4 shall consider the possibility of making noise prediction maps (in collaboration with WG3 and WG5).

- WG4 shall address the question of population data and noise exposure. The WG shall consider the possibility to make maps of effects on the population (annoyance, sleep disturbance or other) instead of maps based only on a noise indicator.

- WG4 should assist the EEA in setting up the premises for a European data bank on the value of noise indicators and on the effects of noise.

- WG4 shall advise the Commission on the methods to be used in the interim period (till 31 December 2002).

Time table

- Start of work: September 1998

- Yearly progress report: 1999, 2000, 2001

- Advice on the quality control of mapping software: 2001

- Position paper, with proposals for guidelines: June 2002

- Publication of final position paper: August 2002

Deliverables

- Report on common objectives, (finished in May 1999)

- Report on common frame on communication and template for assessment of noise mapping methodologies, Annual report year 1, (November 1999)

- Report on headlines : 1 information to whom, 2 kind of data and sources, 3 needs for computational methods, 4 communication of mapping, (May 2000)

- Inventory of noise mapping methodologies used in European Member States, Note on the building of frame for guidelines, Annual report year 2, (November 2000)

- Workprogramme for years 3 and 4 (date not defined yet)

Members of the WG4

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- John Hinton (Local. Authority: Birmingham, UK)   co-chair
- Aad Bezemer (NL)
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- Judith Lang (A)
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Contact for more information

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