

**EUROPEAN COMMISSION
DG RESEARCH**

**SIXTH FRAMEWORK PROGRAMME
PRIORITY 6
SUSTAINABLE DEVELOPMENT, GLOBAL CHANGE & ECOSYSTEMS
INTEGRATED PROJECT – CONTRACT N. 516288**



**STATE OF THE ART ON BARRIERS AND SOLUTIONS
TO IMPLEMENTING NOISE SCENARIOS**

Deliverable I.D7

Deliverable no.	I.D7
Dissemination level	Public
Work Package	WP I.3 Design of Urban Action Plans
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Status (F: final, D: draft)	F_30.01.2006
File Name	SILENCE_I.D7_300106_POLIS.doc
Project Start Date and Duration	01 February 2005, 36 months

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1 Introduction

SILENCE, a research project co-funded by the European Commission, aims to develop an integrated methodology for the improved control of surface transport noise in urban areas. SILENCE will provide relevant and world-leading technologies for the efficient control of surface transport noise, innovative strategies for action plans on urban transport noise abatement, and practical tools for their implementation.

This report has been written within the context of Work Package I.3 'Design of urban action plans'. This work package is part of Sub Project I on City Planning. WP I.3 builds on the outcomes of WP I.1 (See Deliverable I.1-2-3), which looked at what currently exists in terms of noise abatement strategies and plans in a selection of cities across Europe (I.D1). This exercise in turn allowed to identify the noise abatement priorities in cities (I.D2), as well as the necessary technologies to be developed (I.D3) in order to tackle the main sources of noise in European cities.

Work Package I.3 will prepare the final framework for delivering action plans on the urban level, integrating the findings of the different sub-projects. A methodology for setting up action plans will be designed.

The first task of this Work Package, I.3.1 *Definition of Methodology*, will draft a methodology for developing urban action plans. Starting point is that both the requirements of the noise directive and the needs and requirements of European cities should be addressed in the most efficient way within such a framework. Therefore, as a first step, I.D7 looks at which barriers might exist for cities to develop noise strategies and action plans and which solutions they consider to be crucial for the development and implementation of effective local noise policies.

2 Approach

In order to obtain an overview of which barriers might exist for cities to develop noise strategies and action plans on the one hand, and which solutions they consider as important for an effective noise policy, a two-step approach was followed. First, during the SP I validation meeting, which took place on 5 July 2005 and mainly aimed at validating the output of WP I.1 and establishing links between the city and industry partners in the project, cities were asked to reflect for the first time on what they perceive to be barriers for developing and implementing a local noise policy. Second, a questionnaire was drafted to obtain more detailed and structure information on the following aspects:

- Noise abatement planning
 - Phase the city's noise abatement strategy is in (measuring, mapping, action plan development, action plan implementation)
- Cooperation on noise between different local policy areas/departments
 - Degree of cooperation on noise with sectors/departments/policies related to environment, air quality, transport, road safety, traffic management, land use planning, economy, social welfare, health, communication, police, other
 - Importance of this cooperation for successful noise policy
- Cooperation with/involvement of stakeholders and public
 - Consultation procedures with stakeholders
 - Which stakeholders: transport operators, citizens' associations, health associations, industry, local companies, fleet owners, school, other
 - Involvement of the public and how
- Cooperation with other levels of governance

- National or regional framework for noise
- Planned implementation of the European Noise Directive and competence of local authorities in this respect
- How does/will END steer local noise policy
- Noise abatement measures
 - To what extent do the following measures reduce urban transport noise: low noise road surfaces, road traffic management, traffic calming, low-noise tyres, low-noise vehicles, driver behaviour, land use planning, economic measures or incentives, noise screens, buildings as noise barriers, tunnels, vegetation as noise shield, sound insulation, building design, awareness raising
 - Which of these measure lie within city's sphere of competence
 - Which measures are actually deployed
- Measurement and forecasting tools
 - Tools used to measure noise problems
 - Tools used to predict and evaluate the effect of noise abatement measures
 - Need for additional instruments
- Noise action plans
 - Opinion on Directive's approach
 - Essential elements for a noise action plan missing?
 - Necessary tools available to meet requirements?
 - Which additional tools required
- Barriers to noise abatement policies
 - Which barriers: legal, institutional, financial, technological, social, political, conflicting policy priorities, other

The questionnaire was completed by the four SILENCE partner cities, i.e. Barcelona (represented by DSD), Bristol, Brussels, and Genoa. In addition, the questionnaire was returned by London, Prague, Tallinn, Toulouse and Stockholm. Together, this provides information about the following countries: Belgium, Czech Republic, Estonia, France, Italy, Spain, Sweden and UK. The full questionnaire is included in Annex 1.

3 Barriers to Noise Abatement Policies

When designing and implementing a local noise abatement policy, cities are confronted with a number of barriers of a different nature. They can be legal (e.g. competence), institutional (e.g. lack of cooperation between different levels of government and/or between different departments), financial (e.g. the cost of measures), technological (e.g. appropriate technical tools missing, lack of technical solutions), social (e.g. lack of public support, lack of awareness of problems), political (e.g. lack of interest from politicians), related to conflicting policy priorities (e.g. noise versus air quality, road safety...).

3.1 Legal Barriers

In one case, legislation does not sufficiently define what the relations between different bodies should be. Some organisations have to prepare a noise map as well, but are not obliged to present the results to the local government. Also, it is felt that the local government does not have enough possibilities to enforce the private sector to introduce the necessary measures.

In the UK, the government proposes to implement the directive by not including local authorities in the process, and some cities feel this will provide a major barrier to the implementation of local noise abatement policies.

Traffic departments and municipalities also do not have all instruments at hand that could help in abating noise, for example taxes and charges.

3.2 Institutional Barriers

Institutional barriers that are mentioned, for example relate to the lack of cooperation between different entities. In one case it is highlighted that the effort to provide a local response at the District level, requires a centralisation at municipal level of ten districts. The necessary cooperation between departments also tends to be difficult sometimes, as noise is not a priority to the same extent for different departments.

3.3 Financial Barriers

It is clear that the cost of measures very often poses a problem for all cities, when trying to abate noise. Cities also feel appropriate cost benefit analyses of measures are lacking.

Another financial barrier relates to the budget being allocated to certain measures. Some cities experience that a top-down approach can result, for instance, in most of the budget being devoted to a small number of kilometres of tunnels that produce big noise reductions for a small number of people. Similarly, some cities feel there is an overall lack of funding from the national to the local level, which in turn causes the lack of specialised local staff, appropriate technical tools and the possibility to ask for external support. It also compromises a good cooperation between different levels of local government and different departments.

UK's proposed regulations for England do not give direct responsibilities to local authorities, there will therefore be no statutory need for specific work to be carried out by local authorities. In light of the current financial climate that local authorities face, it is very unlikely that adequate financial and human resources will be made available to pursue any non-statutory functions.

3.4 Technological Barriers

A technological barrier mentioned is, that though the technologies themselves might not be missing, there is generally insufficient communication towards cities on what is being achieved with new technologies and solutions, e.g. what types of low-noise waste collection vehicles exist.

3.5 Social Barriers

Social barriers can relate to the very nature of a city. Barcelona, for example, is a very dense city with a Mediterranean climate. As a result, it is noisy and it is a challenge to achieve a culture that respects quietness.

Another social barrier is linked to the way citizens perceive the noise problem. A survey in Brussels showed that the first reason for people to leave Brussels is noise. But when asking them which measures they feel should be urgently taken in their city, they mainly refer to air quality. The negative effects of noise are more difficult to quantify and are perceived differently, whereas the negative effects of bad air quality are more obvious and commonly known. People feel that, contrary to air pollution, noise pollution does not kill you and adopt an attitude of 'fatality' when it comes to reducing noise.

3.6 Political Barriers

Some cities experience that the different interests of political parties in the local coalition cause difficulties for institutional cooperation. As citizens often do not realise the importance and/or possibilities of noise abatement, politicians also tend not to pay enough attention to the noise problem and invest more money in improving air quality. Air quality and road safety

are always a higher priority, noise is still an unknown problem compared to those. And as expressed by one of the cities, 'politicians do not live in noisy areas'.

3.7 Other Barriers

Other barriers mentioned include the lack of proper data and of local expertise.

4 Noise Abatement Solutions

4.1 Technical Solutions

When looking at what local authorities consider to be good solutions for noise abatement, one needs to distinguish between the extent to which certain measures can reduce urban transport noise according to these local authorities, which of these measures lie within their sphere of competence and which of these and other measures they actually use in their local noise abatement policies.

4.1.1 Effectiveness of Noise Abatement Measures

Cities were asked to allocate scores from 1 to 5 to a number of noise abatement measures, with 1 meaning 'not effective at all' and 5 being 'very effective'. The table below presents the results, with the measure considered the most effective on top.

Measure	Total score	Average score
low noise vehicles	42	4,7
low noise road surface	36	4,0
land use planning	36	4,0
traffic calming	34	3,8
tunnels	34	3,8
road traffic management	32	3,6
noise screens	32	3,6
buildings	32	3,6
low noise tyres	31	3,4
sound insulation	31	3,4
driver behaviour	29	3,2
awareness raising	28	3,1
building design	27	3,0
economic measures	26	2,9
vegetation	21	2,3

Low noise vehicles are clearly considered to be the most effective in abating noise. Low noise road surfaces and land use planning score second best, while traffic calming and the use of tunnels follow shortly after. The remaining measures which have a lower score, receive very different evaluations ranging from 2 to 5, with vegetation being the measure which seems the most controversial: while three respondents consider it very to rather effective (3, 4, 5), others see no impact whatsoever (1-2).

4.1.2 Local Competences for Noise Abatement Measures

While the previous question merely asked which measures the cities generally consider to be effective in reducing noise, this question aimed to obtain an overview of which of these measures actually fall within the sphere of competence of the local authorities.

Measure	N° of Cities with Competence (9 = max.)
low noise road surface	7
noise screens	7
awareness raising	7
road traffic management	6
buildings	6
sound insulation	6
land use planning	5
low noise vehicles	4
traffic calming	4
building design	4
vegetation	4
tunnels	3
driver behaviour	3
economic measures	3
low noise tyres	2

The results show that there is not one single measure which is the competence of all cities. Local governance structures can therefore significantly influence noise abatement policies. The majority of cities however (7/9), has the power to implement low noise road surfaces and noise screens, and to organise awareness raising on noise. Two third also has the authority to take decisions in the field of road traffic management, buildings as noise barriers and sound insulation schemes. Around half of the cities can decide on land use planning, low-noise vehicles (e.g. their own fleet), traffic calming, building design, and vegetation.

4.1.3 Currently Used Noise Abatement Measures

Finally, cities were asked which of the noise abatement measures listed are currently being used by them.

Measures	N° of Cities Using this Measure (9 = max.)
land use planning	8
traffic calming	8
road traffic management	7
sound insulation	7
low noise road surface	6
noise screens	6
tunnels	5
buildings	5
awareness raising	5
low noise vehicles	4
vegetation	4
building design	3
low noise tyres	2
driver behaviour	2
economic measures	2

Almost all (8/9) cities make use of land use planning and traffic calming measures, and also road traffic management and sound insulation score very high. Two third takes action with low noise road surfaces and noise screens. Around half of the cities use tunnels and

buildings to reduce noise, organise awareness raising initiatives and have low-noise vehicles and vegetations to reduce noise.

Comparing the replies to the three questions related to noise abatement measures, you see that the measures that are mostly used to abate noise (land use management, traffic calming, traffic management) also score high as measures that are considered to be effective in abating noise. On the other hand, measures with the highest score for effectiveness (low-noise vehicles) do not always score very high among the actually implemented measures. This is related to the fact that local authorities' competences in this matter are limited. At best, they can make sure that their own public fleet is silent. As economic measures favouring low noise vehicles are usually not within their own sphere of competence, there is not much more they can do in this area. That is also why noise screens score quite high in the list of actually implemented measures (2/3 of the cities), while this measure is less popular in terms of the evaluation of its effectiveness. Cities do realise that reduction at the source is the most effective, but are not always in the situation to be able to do something on this source, which obliges them to still also make use of measures reducing the propagation of noise such as noise screens.

Overall, these questions illustrate that the topics which are being studied within the SILENCE project are highly relevant for cities. They have high expectations in relation to the reduction of noise at the source (vehicle noise), they consider traffic management an important tool in noise abatement, and they also put low-noise road surfaces high on the agenda.

4.2 Framework Conditions

4.2.1 Cooperation between Different Local Policy Areas

Cities consider cooperation with different public local sectors, departments and policies a crucial prerequisite for an effective noise policy. Urban transport noise is either the responsibility of the environment department (majority) or the transport department. In terms of links and cooperation with other sectors, departments and policies, traffic management, health, land use management, air quality and communication score quite high, while cooperation with road safety, social welfare and economy departments is rather low. The police are recognised as an important actor for enforcement and regulation, but still cooperation with them is overall rather limited.

All cities agree that cooperation between these different sectors is crucial for a successful noise policy and this for a number of reasons. Noise originates from different sources and can be treated in different ways. Therefore, once the mapping is completed, it is essential to cooperate to find the most effective solutions. Also, some measures (for example traffic restrictions, vehicle emission control) could originate from or be planned by the different sectors, and cooperation then allows taking advantage of the same tools, equipment and resources to serve different goals, e.g. monitoring of air quality and noise levels at the same time, making use of the same geographical and traffic data. Although this is recognised as a clear benefit, cities also admit that this does not always happen yet in reality. At the same time, effective cooperation and liaison is seen as essential in order to ensure that actions taken in one sector are not detrimental to other areas. Another important reason for cooperation is that competences related to noise abatement are sometimes shared between different levels of government, which is related again to the fact that noise can have many different sources and various effects. In Brussels, for example, noise coming from sirens is the competence of the communes, while noise generated by the local public transport system fall under the authority of the region, and noise from motorcycles is a federal matter. The Greater London Authority, initiator of the London Noise Action Plan, even has no powers and money for noise work, but strives to optimise use of existing resources on a basis of multi-criteria assessment in its cooperation with the relevant public stakeholders.

4.2.2 Cooperation with and Involvement of Stakeholders and Public

Almost all cities consult and cooperate with local stakeholders that somehow influence the noise environment. A majority cooperates with citizens' associations (7 out of 9), health associations (7/9), local transport operators (6/9) and schools (5/9). Other stakeholders are consulted to a lesser extent: fleet owners (4/9), industry (4/9) and local companies (3/9).

As for involving and informing the public on noise issues, this is done by almost all cities. It includes actions such as:

- awareness raising campaigns on specific themes and/or for specific target groups (e.g. on powered two wheelers, for schools),
- forums involving citizens' associations in noise policy,
- consultations of citizens and public surveys on specific measures,
- information meetings to present new plans and current regulations,
- public surveys to map noise perception,
- information leaflets with noise maps,
- press releases and communication through the media,
- website information.

4.2.3 Cooperation with Other Levels of Governance

It is clear that the role that local authorities are playing or will play in implementing the END differs from country to country, and depends on the competence that the national level is designating to them. In some cases, such as the UK, this distribution of roles and competences is the subject of consultations.

Except for Brussels, which as a regional authority in the federal structure of Belgium, has its own competence on noise, the other cities' noise policies are governed by a national or regional framework. Brussels' activities on noise are already steered by the European Directive.

In Spain, the regional level is responsible for the technical coordination of strategic noise maps. To date, it is not yet clear how the European Directive will steer local actions on noise.

In Italy, a National Decree was passed in August 2005 to implement the European Noise Directive. Within the time thresholds of the EC Directive, the Italian regions or the autonomous provinces will have to collect and check the noise maps, strategic noise maps and action plans. The strategic noise mapping and action plans for all agglomerations with more than 250.000 inhabitants have to be carried out by the authorities that are identified by the regions or autonomous provinces. The noise maps of transport infrastructures and their action plans have to be developed by the relevant private/public companies in charge of managing the transport services. As this National Decree passed only recently, the European Directive currently does not yet steer local noise policies. To date, all noise maps and action plans are carried out following the national acoustic legislation of 1995. The new national decree stipulates that the criteria defined within this existing legislation will be reviewed on the basis of the EC Directive.

In the UK, the national government will be the competent authority under the Directive, and will consult and use other bodies, including local authorities. In London, already today, the European Directive has a strong influence on local activities in terms of objectives (e.g. including quiet areas), and methods (focus on noise mapping and action planning). Under the current proposals from the national government, contained within the draft regulations to implement the directive, there are no direct responsibilities placed on local authorities. Some cities, such as Bristol, feel this is a significant lost opportunity. The competent authority under the draft regulations is generally the Secretary of State of central government; however the regulations do not make clear whether this is the Secretary of State with environmental responsibility or the Secretary of State with transport responsibility. Bristol feels that local

authorities should be given a much greater role in the implementation of the END and should be designated competent authorities for roads and agglomerations. They had also expected to be given a greater role in the action planning process, as because of their local knowledge, they are aware of the actions to manage noise that are likely to be appropriate and feasible in this area.

Prague's noise policy is already governed by a national Czech law incorporating the European Directive's requirements.

In Estonia, noise issues are mainly dealt with on the national level. Supervision is also carried out nationally. On the local level, a requirement has been included in the Air Pollution law, saying that bigger cities must prepare a noise map by 2007 and draw up a noise abatement plan by 2008. These are in line with the European Noise Directive.

In Sweden, a national working group with municipalities, the national board of building and planning, the environmental protection agency and traffic departments has been established to discuss how the European Noise Directive should be implemented and which competence local authorities will have in this respect. Already it has become clear that the municipalities will play an important role and great responsibility. In Stockholm, noise mapping has been based on the END since 2002. The city will start working on an action plan based on the END in 2007, when the mapping is finished.

In France, the national level is integrating the Noise Directive in the national legislation, after which the local authorities will be asked to apply the law. Public transport authorities are requested to map their network and to take appropriate measures in case limits are exceeded.

5 Noise Abatement Planning

In order to develop an appropriate framework for noise action plans in cities, it is useful to have an idea of which stage of noise abatement planning cities are in. The State of the Art Study of WP 1.1 had already shown that very few cities have reached the phase of actual action plan implementation. This is confirmed by the outcome of the questionnaire:

- Bristol is currently measuring noise pollution as requested in view of a future overarching noise strategy;
- Toulouse and Tallinn are measuring the noise pollution;
- Stockholm is developing noise maps;
- Genoa and London have developed an action plan on the basis of noise maps;
- Brussels and Prague are implementing a noise action plan (which was preceded by a noise mapping phase) through concrete noise abatement measures.

5.1 Measurement and Forecasting Tools

To measure noise problems on the local level, cities make use of a number of tools including traffic data and sonometers for objective noise measurements and public surveys and citizens' complaints for subjective noise perception. Noise maps are commonly used to present the results of these objective and subjective measurements.

Tools to predict and evaluate the effect of noise abatement measures, are lacking in some cities and sometimes outsourced to external agencies. The most commonly used methods include before and after measurements and noise mapping and modelling.

When asked, which additional instruments they would need for measurement and forecasting, the following are mentioned:

- frequency analysis;
- more modelling and measurement instruments;
- training on existing tools to improve local expertise;

- noise models incorporating parameters for more of the measures which are effective in an urban context;
- case studies of cost-effectiveness of different measures and combinations of measures in different urban contexts;
- economic tools for cost-benefit analyses;
- tools to evaluate and interpret the subjective perception of noise;
- automated noise monitoring: the improvement of automated monitoring of noise levels requires the development of an integrated platform that can process inputs from the “congestion map” application, and can calibrate the actual noise levels with estimates derived from the traffic parameters;
- improved noise models: the required noise parameters are not included in traffic modelling suites, and this needs to be addressed with regard to the Noise Directive requirements (i.e. models of noise at night);
- the main contributors to noise are types of vehicles that are only recently being treated as individual problem sources (e.g. motorcycle noise in the Rotranamo project). The specialised skills required to build, maintain and utilise sophisticated traffic models means that only for main problems, where traffic management is the likely solution, specialist services can be sub-contracted;
- improved integration of noise modelling with measurement techniques: modelled noise estimates need verification, and the need to collect more data about noise problems is a critical issue;
- the variety of noise sources means that modelling is often not a good approach and more before/after studies of pilot measures are needed. For example, goods’ unloading involves the noise sources of hydraulic lifts, of refrigeration units, of noise from the roll-container or micro-carrier; and a model of the engine noise is not an appropriate means of measuring the effectiveness of delivery innovations.

One city feels it has all the required technical tools but lacks the necessary human resources to actually carry out the work.

5.2 Noise Action Plans

To define which additional framework and tools cities would need in order to be able to develop local noise action plans complying both with the END, as well as meeting their own needs, the cities were asked whether the Directive’s approach to noise action plans is a good one according to them, whether any essential elements are missing, whether they have the necessary tools to meet these requirements and if not, which additional support tools they would need.

The majority of the cities (7 out of 9) consider the approach for action plans of the European Directive to be a good one. At the same time however, it is felt that some essential elements or framework conditions are indeed missing. The following lacks and needs are mentioned:

- The directive provides a good theoretical framework and it is appropriate to try to quantify the number of people affected. However, it is also essential to carry on with other approaches such as citizens’ complaints, automated monitoring systems, and to use these to help develop the action plans;
- better possibilities to reduce noise at source are required, for example in relation to tyre noise and railway noise;
- definite noise limits or the requirement to develop definitive noise limits, as targets for action are needed;
- financial resources for local authorities are not sufficiently considered;

- education and awareness-raising should be part of the strategy as well, although it is acknowledged that it includes consultation;
- insufficient level of detail in view of the evaluation of results: how to interpret results of noise mapping and how to identify appropriate actions;
- opportunities for improving noise are not known; demonstration projects could be helpful in developing efficient plans for action.

To the question whether cities feel they have the necessary tools to meet the requirements of the END, 6 out of 9 respond in a negative way, 2 in a positive way. The need for additional instruments becomes very clear and the following are mentioned in that respect:

- more resources from the central government, ring-fenced for the specific use;
- increased initiative from the European Commission to reduce noise at the source;
- overall lack of experience in noise abatement;
- new measurement and simulation tools;
- more cooperation between different local departments;
- more and better information about new solutions.

All in all, the overall feeling seems to be that the framework provided by the Directive is appropriate, but that clearly the necessary financial resources are missing and that additional support tools are required.

6 Conclusion

This report aims to serve as a basis for drafting an appropriate framework for the development of local actions plans, which takes into account both the requirements of the END and the needs and priorities of local authorities. The input from the cities for this report clearly illustrates that they indeed need additional support tools in order to be able to meet the END's requirements as well as formulate an appropriate response to the noise problems they are facing.

It is clear that cities expect a lot from the European level and industry in relation to reducing the source of noise (e.g. low-noise vehicles), but are also very aware of their own responsibility in abating noise, through measures such as traffic management and the implementation of low-noise road surfaces.

At the same time, they feel they do not have all necessary means at their disposal to meet the END's requirements and to tackle local noise problems in an appropriate way, for example with respect to evaluation and forecasting instruments.

SILENCE can therefore play an important role in increasing the possibilities for local noise abatement, through its activities in the field of:

- Annoyance and noise perception: subjective perception of noise and its interpretation
- Modelling: support in simulation and evaluation of measures
- Promote existing technologies and improve technologies for less noisy vehicles
- Point out traffic management measures favouring noise reduction
- Provide optimised and high quality low-noise road surfaces

The aim of the City Planning Sub-Project (SP I) within SILENCE is precisely to integrate these findings into an overall support tool that cities can use for the development and implementation of their local noise action plan. The mentioned lack of local expertise and experience, as well the need for a better communication and promotion in relation to the benefits of existing and new technologies will be the subject of the dissemination and training

activities that are being developed within the Sub-Project on Dissemination and Training (SP J).

7 Annex 1: Questionnaire

SILENCE WP I.3

Barriers and Solutions to Implementing Noise Scenarios

I. Noise Abatement Planning

1.1 In which phase would you say your noise abatement strategy is today?

- measuring of noise pollution
- noise mapping
- action plan development on the basis of noise maps
- action plan implementation through concrete noise abatement measures

II. Cooperation on noise between different local policy areas/departments

2.1 Which public local sectors/departments/policies are taken into account for/involved in your local noise policy? Please quote from 1 to 5: 1 = not at all – 5 = very much

- | | |
|---|---|
| <input type="checkbox"/> environment | <input type="checkbox"/> economy |
| <input type="checkbox"/> air quality | <input type="checkbox"/> social welfare |
| <input type="checkbox"/> transport | <input type="checkbox"/> health |
| <input type="checkbox"/> road safety | <input type="checkbox"/> communication |
| <input type="checkbox"/> traffic management | <input type="checkbox"/> police |
| <input type="checkbox"/> land use planning | |
| <input type="checkbox"/> other, which? | |
-

2.2 Do you consider cooperation between these different sectors to be crucial for your noise policy?

- Yes
- No

Why?

III. Cooperation with/involvement of stakeholders and public

3.1 Do you consult and cooperate with local stakeholders influencing the noise environment?

Yes

No

3.2 If yes, which ones?

transport operators local companies

citizens' associations fleet owners

health associations schools

industry

other, which?

3.3 Do you involve / inform the public in / on noise issues?

Yes

No

How?

IV. Cooperation with other levels of governance

4.1 Are your local noise policies governed by a national framework / regulation for noise?

Yes

No

4.2 How does the National level plan to implement the Noise Directive and which competence/responsibility will local authorities have in this respect?

4.3 Does the European Directive already steer your current actions related to noise?

Yes

No

If yes, please shortly explain how

If no, will it in the near future and how?

V. Noise Abatement Measures

5.1 To what extent can the following measures reduce urban transport noise according to you?

Please quote from 1 to 5: 1 = not at all – 5 = very much

- | | |
|--|--|
| <input type="checkbox"/> low noise road surfaces | <input type="checkbox"/> noise screens |
| <input type="checkbox"/> road traffic management | <input type="checkbox"/> buildings as noise barriers |
| <input type="checkbox"/> traffic calming | <input type="checkbox"/> tunnels |
| <input type="checkbox"/> low-noise tyres | <input type="checkbox"/> vegetation as noise shield |
| <input type="checkbox"/> low-noise vehicles | <input type="checkbox"/> sound insulation |
| <input type="checkbox"/> driver behaviour | <input type="checkbox"/> building design |
| <input type="checkbox"/> land use planning | <input type="checkbox"/> awareness raising |
| <input type="checkbox"/> economic measures or incentives | |

5.2 Which of these measures lie within your sphere of competence?

- | | |
|--|--|
| <input type="checkbox"/> low noise road surfaces | <input type="checkbox"/> noise screens |
| <input type="checkbox"/> road traffic management | <input type="checkbox"/> buildings as noise barriers |
| <input type="checkbox"/> traffic calming | <input type="checkbox"/> tunnels |
| <input type="checkbox"/> low-noise tyres | <input type="checkbox"/> vegetation as noise shield |
| <input type="checkbox"/> low-noise vehicles | <input type="checkbox"/> sound insulation |
| <input type="checkbox"/> driver behaviour | <input type="checkbox"/> building design |
| <input type="checkbox"/> land use planning | <input type="checkbox"/> awareness raising |
| <input type="checkbox"/> economic measures or incentives | |

5.3 Which of these and other measures do you actually use in your noise abatement policy?

- | | |
|--|--|
| <input type="checkbox"/> low noise road surfaces | <input type="checkbox"/> noise screens |
| <input type="checkbox"/> road traffic management | <input type="checkbox"/> buildings as noise barriers |
| <input type="checkbox"/> traffic calming | <input type="checkbox"/> tunnels |
| <input type="checkbox"/> low-noise tyres | <input type="checkbox"/> vegetation as noise shield |
| <input type="checkbox"/> low-noise vehicles | <input type="checkbox"/> sound insulation |
| <input type="checkbox"/> driver behaviour | <input type="checkbox"/> building design |
| <input type="checkbox"/> land use planning | <input type="checkbox"/> awareness raising |
| <input type="checkbox"/> economic measures or incentives | |
| <input type="checkbox"/> other, which ones: | |
-

VI. Measurement and Forecasting Tools

6.1 Which tools do you use to measure noise problems in your city?

6.2 Which tools do you use to predict and evaluate the effect of noise abatement measures?

6.3 Do these tools meet your expectations? Would you need additional instruments, and if so which kind?

VII. Noise Action Plans

7.1 Do you consider the Directive's approach to noise action plans to be a good one (see Annex 1 to this questionnaire)?

Yes

No

7.2 Which essential elements for a Noise Action Plan might be missing according to you?

7.3 Do you feel you have the necessary tools to meet these requirements?

- Yes
- No

If not, which additional support tools would you need?

VIII. Barriers to Noise Abatement Policies

8.1 Which barriers are you confronted with in designing and implementing a noise abatement policy?

- Legal (e.g. competence)
- Institutional (e.g. lack of cooperation between levels of government, departments)
- Financial (e.g. cost of measures)
- Technological (e.g. appropriate technical tools missing, lack of technical solutions)
- Social (e.g. lack of public support, lack of awareness of problems)
- Political (e.g. lack of interest from politicians)
- Conflicting policy priorities and results (e.g. noise versus air quality, safety, ...)
- Other:

8.2 Please explain the barriers you ticked more in detail

[Empty text box for providing detailed explanations of barriers]

ANNEX 1: EXTRACT FROM ENVIRONMENTAL NOISE DIRECTIVE (related to Question VII)

MINIMUM REQUIREMENTS FOR ACTION PLANS

referred to in Article 8

1. An action plan must at least include the following elements:

- a description of the agglomeration, the major roads, the major railways or major airports and other noise sources taken into account,
- the authority responsible,
- the legal context,
- any limit values in place in accordance with Article 5,
- a summary of the results of the noise mapping,
- an evaluation of the estimated number of people exposed to noise, identification of problems and situations that need to be improved,
- a record of the public consultations organised in accordance with Article 8(7),
- any noise-reduction measures already in force and any projects in preparation,
- actions which the competent authorities intend to take in the next five years, including any measures to preserve quiet areas,
- long-term strategy,
- financial information (if available): budgets, cost-effectiveness assessment, cost-benefit assessment,
- provisions envisaged for evaluating the implementation and the results of the action plan.

2. The actions which the competent authorities intend to take in the fields within their competence may for example include:

- traffic planning,
- land-use planning,
- technical measures at noise sources,
- selection of quieter sources,
- reduction of sound transmission,
- regulatory or economic measures or incentives.

3. Each action plan should contain estimates in terms of the reduction of the number of people affected (annoyed, sleep disturbed, or other).

4. The Commission may develop guidelines providing further guidance on the action plans in accordance with Article 13(2).