



## Quiet areas definition and management in action plans: general overview

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### 1 INTRODUCTION TO THE METHODOLOGICAL PROBLEM

A number of studies<sup>1-2</sup> about psycho-acoustics have demonstrated that noise influences also our social sense, so it appears to be particularly appealing to re-discover the urban space, with its characteristics of “pleasant place”.

From this point of view, the main methodological problem targeted in this paper is the need of re-definition of Quiet Urban Areas (QUAs) cited by the EU Directive 49/2002/EC<sup>3</sup> on Environmental Noise (commonly abbreviated END). The END defines “Quiet Area” as an area, delimited by the competent authority, which is not exposed, for instance, to a value of Lden (Level day-evening-night) or of another appropriate noise indicator greater of a certain threshold (set by the Member State) from any noise source. In fact, this definition is not clear enough to allow an appropriate assessment and management (action planning) of QUAs in urban environment.

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Many different approaches (qualitative and quantitative) have been used till now to analyze and evaluate those areas. The evaluation of the implementation of END requirements, in the first round, illustrated the limited attention paid on QUAs in general<sup>4-6</sup>. The general experience of the authors working at authority level is that this implementation gap is mainly due to lack of knowledge, methods and priorities.

The above mentioned END definition of quiet areas in urban agglomerations leaves Member States free in delimitating, assessing and planning the areas. Article 8 of END requires that action plans for agglomerations aim to protect QUAs, but no specific requirements are established. National and local factors in identifying and protecting QUAs are then hinted at, also taking in account significantly different approaches. The consequence of this “freedom of choice” has resulted in non homogeneous collections of data as well as in a divergent approach across the EU.

As a consequence, current practices about selection, assessment and management of Quiet Areas in EU Countries, though regulated by the END, appear to be extremely fragmented and inhomogeneous. Each Country has, during the past years, adopted during past years a set of strategies strictly related to their specific contexts; therefore strategy transfer among EU Countries is now a hard task.

## **2 QUADMAP PROJECT**

The QU.A.D.M.A.P. (Quiet Areas Definition and Management in Action Plans) project, co-financed into the LIFE+2010 Financial Programme, is proposed as a solution to the policy implementation deficit described above. In fact, the main objective of the QUADMAP project is to develop a harmonized methodology for selection, assessment (combining quantitative and qualitative parameters) and management (noise mitigation, increasing of usability of areas and user’s satisfaction) of QUAs, the aim being to overcome the current gap.

These objectives will be attained leaving each responsible body free to produce its own action plan, assessing and addressing both specific territorial features and political priorities.

The project is focused on the problem of quiet in urban areas, where noise is one of the sources of pollution causing discomfort, but where not only noise limits have to be considered. The validated eventual results of the project will facilitate urban planners to apply standard procedures for identification, delimitation and prioritization of QUAs.

One significant part of the project will be devoted to develop and test methods for the determination of the relative weight of concurrent sources of (dis)comfort, considering different acoustic factors and indicators.

Another important topic is the systematic use of soundscape analysis in the qualitative acoustic analysis and in the collection of general stakeholders’ opinions on present and desired features of selected QUAs.

### **2.1 The partnership**

The coordination of the project is within the responsibility of the University of Firenze – Italy (UNIFI) and, in particular, the Department of Mechanics and Industrial Technologies. The Associated Beneficiaries are:

- DCMR, the Environmental Protection Agency of the Greater Rotterdam Area in The Netherlands;
- The municipality of BILBAO;
- TECNALIA, a Spanish research center;
- VIE EN.RO.SE. Ingegneria S.r.l., an Italian leading engineering company in the aspects of environmental noise;
- Municipality of FIRENZE;
- BRUITPARIF, the Environmental Protection Agency in Paris.

The project can also benefit of the support of EUROCIITIES that is involved in the data collection and dissemination activities.

## **2.2 Project structure**

The QUADMAP project started on September 2011 and is expected to end by September 2014. The project is made up of several phases: data collection; methodology definition; methodology demonstration and assessment; methodology optimization; monitoring, networking and dissemination.

In the rest of this paragraph, the different phases will be briefly illustrated with reference to the project Work Packages

(the timetable of the project packages is summarized in table 1).

### *Work Package A: Data Collection*

Work package A considers the collection of data that is required to base and frame the project. For example, UNIFI focuses on coordination and definition of general methods for data collection, information collection regarding other LIFE+ projects, design of a database structure in order to collect data from all partners. In the same work package, the other project partners are meant to collect and analyse methods that are currently available and applied regarding selection, analysis, and management of QUAs. Empirical data is stemming from the Netherlands, Belgium, Norway and the United Kingdom (collected by DCMR), Italy and Germany (collected by VIENROSE), Spain and Portugal (collected by TECNALIA), and France (collected by Bruitparif). A specific questionnaire has been developed for data collection coming from stakeholders, as well as a database that will be used during the whole project for data management, assessment and presentation.

### *Work Package B: Methodology*

Work Package B concerns the choice of the best methods, according to stakeholders survey results (collected in the database), referring to different QUAs typologies: e.g. school gardens, quiet areas in the city centre, etc. The different methods will be analyzed with particular reference to the following aspects: selection of QUAs; quiet areas analysis by using both quantitative and qualitative approaches (both citizens and stakeholders – i.e. civil servants, decision-makers, politicians – will be involved); definition of strategic and operative actions devoted to define and manage QUAs.

Moving from the outcome of the process described above, a new method will be proposed integrating the most promising solutions of the analyzed ones.

### *Work Package C: Demonstration*

In Work Package C pilot areas selection, interventions design and realization, post-operam data collection will be carried out according to methodology defined in the previous phase. Following, pilot areas will be chosen considering: school gardens and squares in the city of Firenze, urban and peri-urban quiet areas in Bilbao and quiet areas in the centre of a city of The Netherlands. Within the project, it is expected to spend about 655.000 € as infrastructural costs for interventions.

### *Work Package D: Results*

In Work Package D the methodology will be reviewed and optimized by UNIFI according to pilot cases results. In this phase, possible issues dealing with methodology implementation will be addressed and solved.

### *Work Package E: General Activities*

Work Package E, spreading from the beginning to the end of the project, is meant to take care of t actions related to project management, monitoring and networking. This Work Package is responsibility of UNIFI in the role of Coordinating Beneficiary.

Some actions of Work Package E will be dedicated to dissemination activities, too. All partners will be involved in the dissemination activities like attending to scientific conferences, reporting to EUROCIITIES network and to EU DG Environment, organizing workshops, etc.

## **2.3 Final Expected Results**

The Expected results of the project can be summarized as follows:

- at the end of the project a guideline about a harmonized methodology for selection, assessment and management of QUAs will be produced so to facilitate the work of stakeholders (e.g. technicians, decision-makers);
- with respect to the average situation pointed out by surveys in package A, the harmonized approach is additionally expected to increase citizens' satisfaction about QUAs;
- a database, publicly available, comprising the collected methodologies along with their limits will be also built (the beta release of the database is currently on line and accessible from the project website at [www.quadmap.eu](http://www.quadmap.eu));
- the on-the-field data employed for case studies will be published, along with applicative examples.

## **2.4 Demonstration Character of the Project**

The project has a high level of demonstration guaranteed by the fact that the methodology will be tested on a number of case study areas. In particular, as already mentioned, the proposed methodology will be tested in a set of pilot cases in Italy, Spain, and the Netherlands.

As a confirmation of both the demonstrative character and the EU added value of the project it is to remark:

- the relatively high number of partners (7), from four different Countries, all carrying specific national experiences, based on data collected in their own Countries as well as in some other EU member states (Germany, Spain, etc);
- the presence of one specific action devoted to the internationalization of the proposed methodologies.

Finally, the project is supported by EUROCITIES, the network of major European cities, operating in 33 European Countries and representing the interests of its members in dialogue with the European institutions across a wide range of policy areas affecting cities. The QUADMAP project, due to its strong link with policy implementation deficit connected to the application of the END, fits mainly with the aims of the Noise Working Group of EUROCITIES, which focuses on information sharing and procedure harmonization regarding noise at European level.

### **3 CURRENT RESULTS ON METHODS FOR DATA COLLECTION AND ANALYSIS**

Results obtained up to the present time may be summarized as follows: state of the art about other EU projects; state of the art in EU Member States according to National legislation; stakeholders questionnaire; database development.

#### *State of the art about other EU projects*

Most significant LIFE+ projects concerning environmental noise that have been carried out in the last fifteen years have been studied, and the ones specifically focusing on quiet areas have been worked out in detail. In particular, UNIFI has tried to establish direct contacts with the responsible experts of SYLVIE (LIFE+1999), QSIDE (LIFE+ 2009) and GIPSYNOISE (LIFE+2010) projects in order to receive more information about each project and to understand whether there are common or shared interests and approaches.

The preliminary responses show that a prolific networking can be established for sure with the QSIDE project. Indeed, QSIDE aims to show how European cities can effectively reduce the harmful effects of traffic noise by offering people noise refuges. Namely, the project defines a new engineering method to estimate the reduction in the numbers of annoyed and sleep-disturbed people as a result of the creation of quiet facades and areas.

#### *State of the art in EU Member States according to National legislation*

In Work Package A each partner of the QUADMAP project has analysed the state of art about legislation concerning QUAs and has collected data about the most significant techniques of assessment and management of QUAs in the countries of reference.

By the end of June 2012 a report summarizing the state of the art on QUAs management will be completed and published on the project website.

### *Stakeholders Questionnaire*

During the first period each partner has been working on the stakeholder questionnaire and sent a draft version to the coordinating beneficiary who matched the different versions into a final one. An English version of the questionnaire was approved in January and has been published on-line on the project website ([www.quadmap.eu](http://www.quadmap.eu)). It is possible to compile the online version of the questionnaire via a new web application developed for the specific need of the project. Moreover, if a localized version is required, each partner has translated the general version (in English) into several languages. These versions can be used as guide for the online compilation as well as for e-mail answering to the survey. This questionnaire will be submitted to all European cities recognized as agglomerates by END.

### *Database*

A database has been built by UNFI at the start of the project. The database consists of the following sections:

- a section containing questionnaires for stakeholders;
- a section for the storage of questionnaires for end users (citizens);
- a section to execute queries and download them (e.g. as excel work-sheet).

The Beta version of the database is currently linked to the project website , although restricted to project partner users. The final version of the database is expected by the end of 2012, available in the public area of the project website.

## **4 CONCLUSIONS**

The END provides European Countries with a definition of QUAs. Nevertheless, this definition is not clear enough to allow an appropriate assessment and management of those areas in urban environment. QUADMAP project focuses on the lack of a common methodological approach in practices about selection, assessment and management of Quiet Areas in EU Countries and has as main objective the definition of a unique strategy to overcome this gap.

This paper described the structure of the project, the main expected results and actual results obtained at 7 months from the kickoff of the QUADMAP project.

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