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the LIFE programme of the European Union
LIFE15 ENV/IT/000586 – MONZA



LIFE MONZA

Methodologies for Noise Low Emission Zones introduction and management

DEVELOPMENT OF LIFE MONZA PROJECT: INTRODUCTION AND MANAGEMENT OF NOISE LOW EMISSION ZONES

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Partner:



ISPRA
Istituto Superiore per la Protezione
e la Ricerca Ambientale



**COMUNE DI
MONZA**



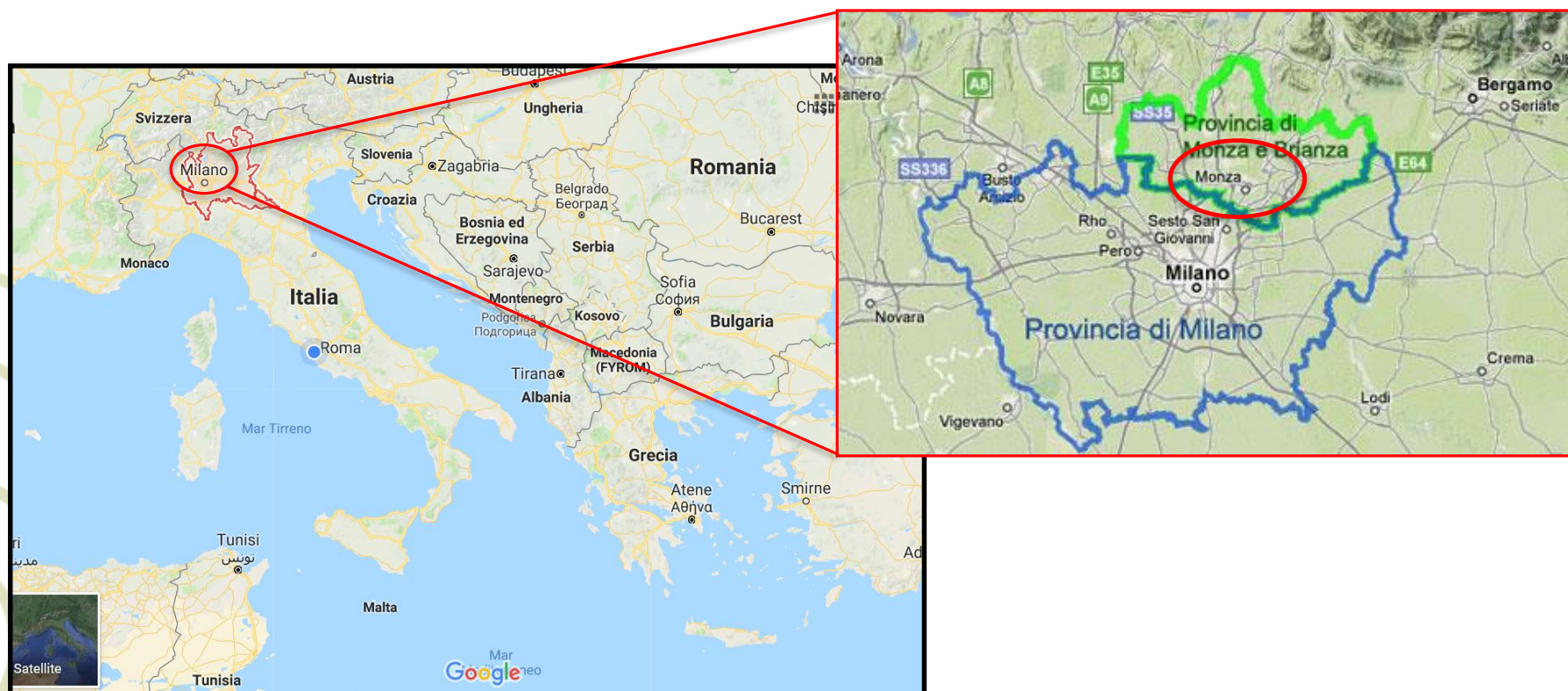
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Project location and beneficiaries

PROJECT LOCATION: Pilot area is in the Municipality of MONZA located in the Northern part of ITALY – Region of Lombardy



The project started on 1st September 2016 and the completion date is scheduled by June 2020.

Project location and beneficiaries

Beneficiaries

ISPRA- Istituto Superiore per la Protezione e la Ricerca Ambientale



Municipality of Monza



UNIFI – University of Florence



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SCOPE

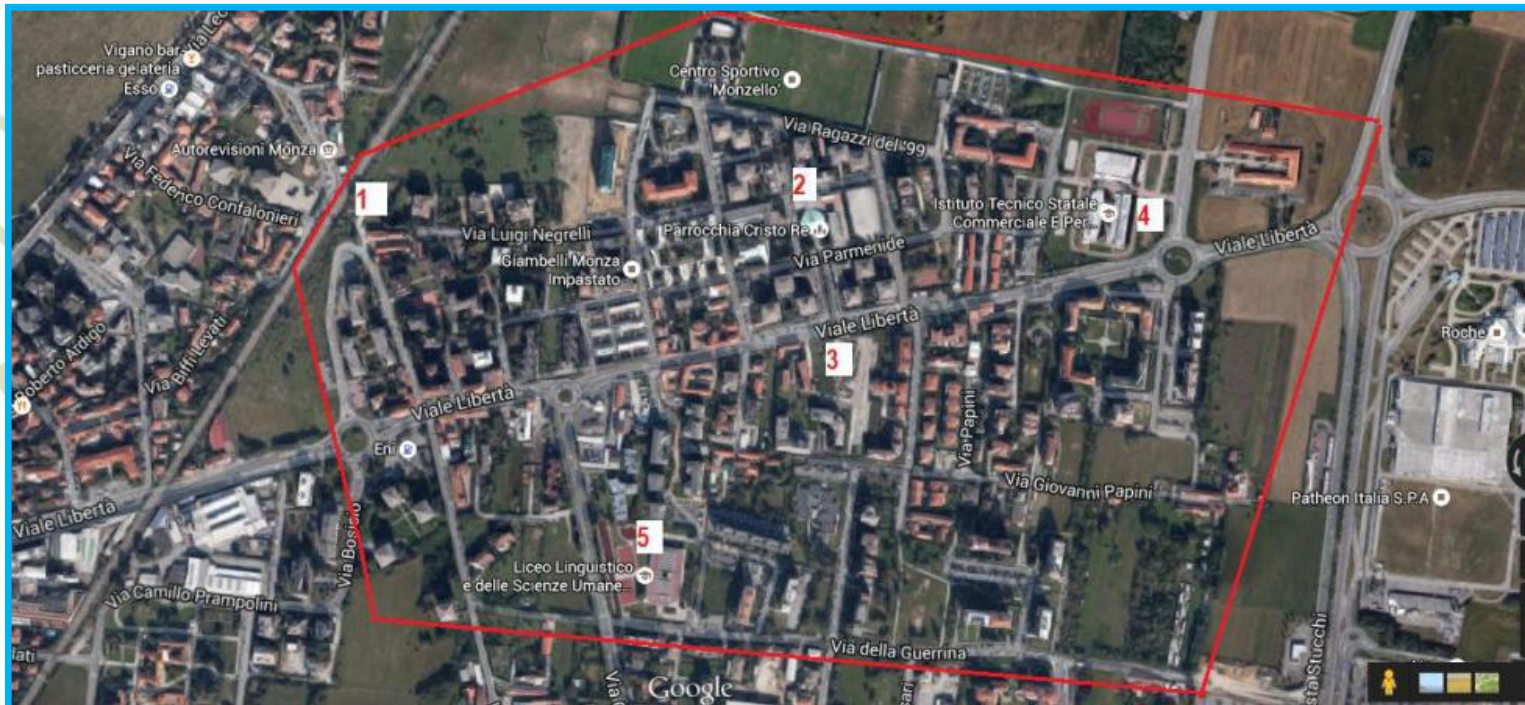
The introduction of **Low Emission Zones**, urban areas subject to road traffic restrictions in order to **ensure compliance with the air pollutants limit values**, set by the European Directive on ambient air quality (2008/50/EC), is a common and well-established action in the administrative government of the cities and the impacts on air quality improvement are widely analyzed, whereas the **effects and benefits concerning the noise have not been addressed in a comprehensive manner**.

The definition, the criteria for analysis and the management methods of a **Noise Low Emission Zone** are not yet clearly expressed and shared.

LIFE MONZA project (Methodologies fOr Noise low emission Zones introduction And management - LIFE15 ENV/ IT/000586) addresses these issues.

OBJECTIVES

The **main objective** of the project is to **introduce an easy-replicable method**, and related guidelines, for the **identification and the management of the Noise Low Emission Zone**, an urban area subject to traffic restrictions, whose **impacts and benefits regarding noise issues** will be analyzed and tested in the **pilot area of the city of Monza** - **Viale della Libertà district**.



OBJECTIVES

Other objectives of the project are:

- ☐ adoption of specific ***top-down measures*** by the municipality, able to turn up the urban area in a permanent Noise LEZ, concerning infrastructural interventions.
- ☐ reducing the **average noise levels** in the pilot area of Libertà district, with positive complementary effects also on the **air quality** and benefits on the **quality of life** of the inhabitants
- ☐ involving the population in an active management system (***bottom-up measures***) of lifestyle choices

Measures and interventions

TOP-DOWN MEASURES: adopted by the municipality and able to turn up the area in a permanent Noise LEZ, concerning:

- traffic management (limitation of the vehicles speed and prohibition access to trucks);
- road paving substitution;
- introduction of two pedestrian crossings

BOTTOM-UP MEASURES: people will be involved in an active management system of a more sustainable lifestyle choices, related to noise reduction, air quality and people well-being improving, in their living and working environment. In order to strengthen the dialogue between citizens and public bodies, many activities will be carried out, as:

- meetings in primary and high schools about noise effects
- ideas contests for Noise LEZ picture and logo
- questionnaires on perceptions of specific noise impacts, on quality of life, air quality as well social aspects;
- mobile App to manage voluntary and sustainable actions carried out by citizens.

Method to be developed and tested in pilot area

The Life MONZA has the character of pilot project, since it is developing and testing a new **method for the introduction and management of LEZ**, based on both traditional and innovative techniques, such as a noise smart monitoring system, and air quality monitoring system, already applied in other contexts, though distinctly.

The method proposed consists in the:

- ☐ **evaluation of LEZ measures implementation** (viability restrictions, replacement of road pavement, pedestrians crossing) in order to assess the reduction of noise pollution and the reflections in terms of air quality and well-being conditions for citizens living around the pilot area
- ☐ Identification of a **set of indicators**, such as noise indicators (e.g. percentage of people exposed to defined values of Lden and Lnight), air pollution and socio-economic indicators
- ☐ Health indexes will be introduced and evaluated after the *ante* and the *post-operam* phases of the NLEZ introduction and also combined with indicators of noise and air quality in a **global index for noise LEZ**.

TOP-DOWN actions planning in the pilot area - Update

The Life MONZA has the character of pilot project, since it is developing and testing a new **method for the introduction and management of LEZ**, based on both traditional and innovative techniques, such as a noise smart monitoring system, and air quality monitoring system, already applied in other contexts, though distinctly.

Noise LEZ formal definition, introduction and establishment. Public tender for top-down intervention realization – MONZA



- ✓ Ongoing public tender for replacement Viale Libertà's pavement



- ✓ Road traffic restrictions:
 - Heavy trucks > 3.5 tons (6 months).
 - Heavy trucks > 7.5 tons (after).



Interventions detail design - VIENROSE

- ✓ Final project for Viale Libertà's asphalt replacement is done

Description of the Actions

BOTTOM - UP actions planning in the pilot area and public and stakeholders information and participation

Public involvement, meetings
organization, ideas contest (MONZA)



Administration of questionnaire about
health and mobility habits/noise
perception - Ongoing
About n°600 questionnaires collected so far
(February 2018)

Public involvement: environmental
aspect (VIENROSE)



Description of the Actions

BOTTOM - UP actions planning in the pilot area and public and stakeholders information and participation

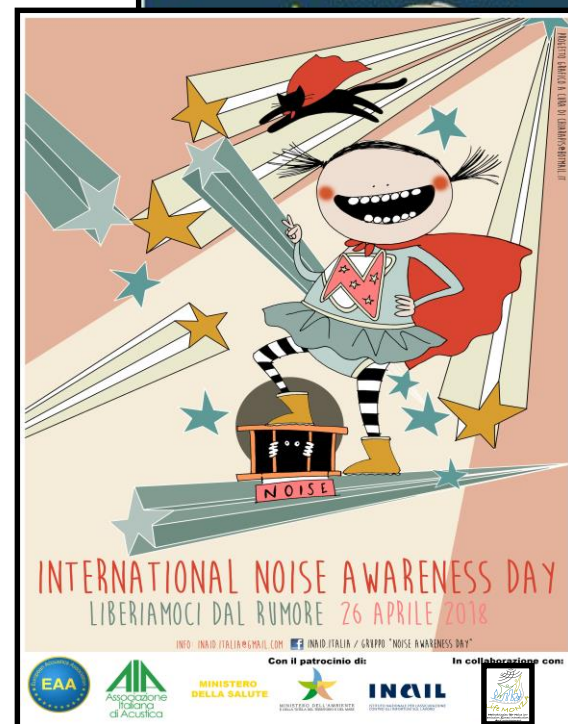
Alternating school-work Programs with Carlo Porta Institute:

- 21 students
- 15 meetings



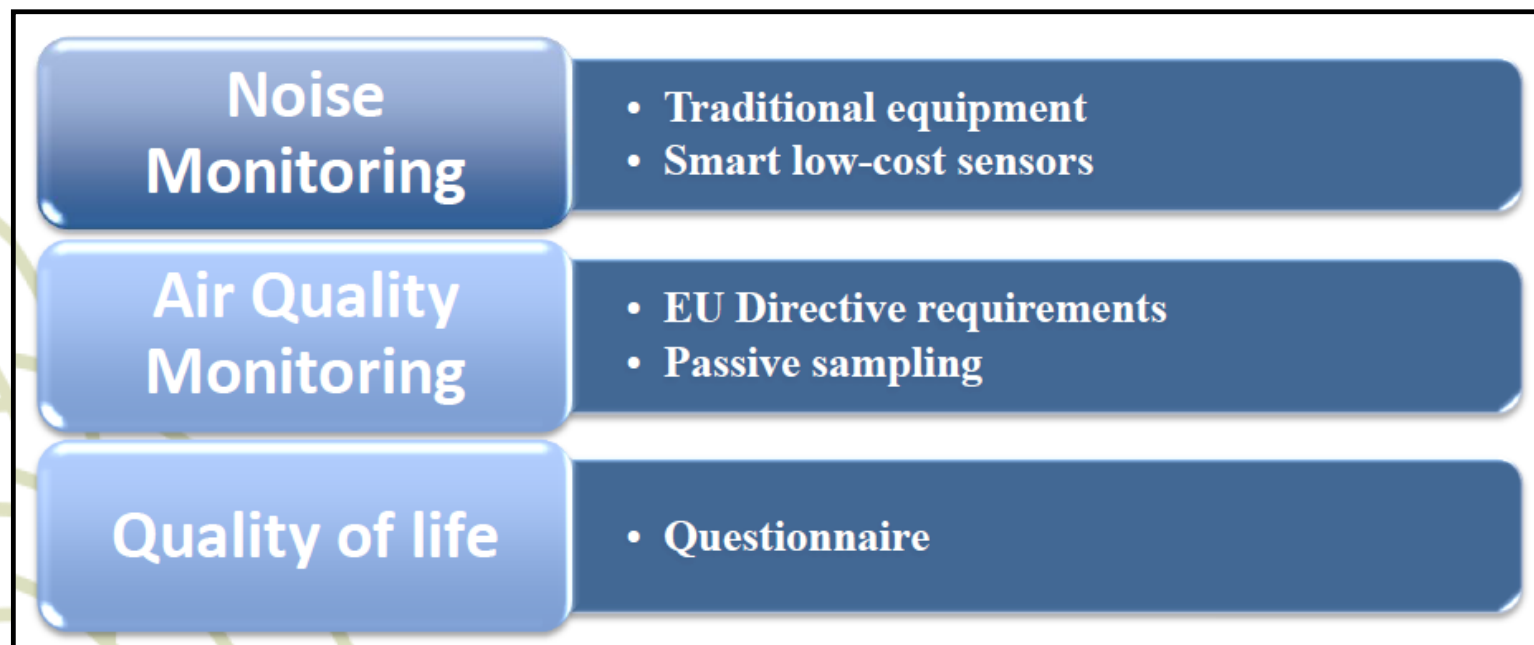
Mobile App design

To manage sustainable actions,
voluntarily undertaken by
citizens, to measure/manage
benefits and concrete changes
in people lifestyle



Monitoring activities and methods tested in pilot area

Objective: reduction of the **average noise levels** in the pilot area of Libertà district, with positive complementary effects also on the **air quality** and benefits on **well-being conditions** of inhabitants. Priority will be given to actions for noise reduction, but attention will be also focused on the improvement of the air quality and citizens' quality of life.

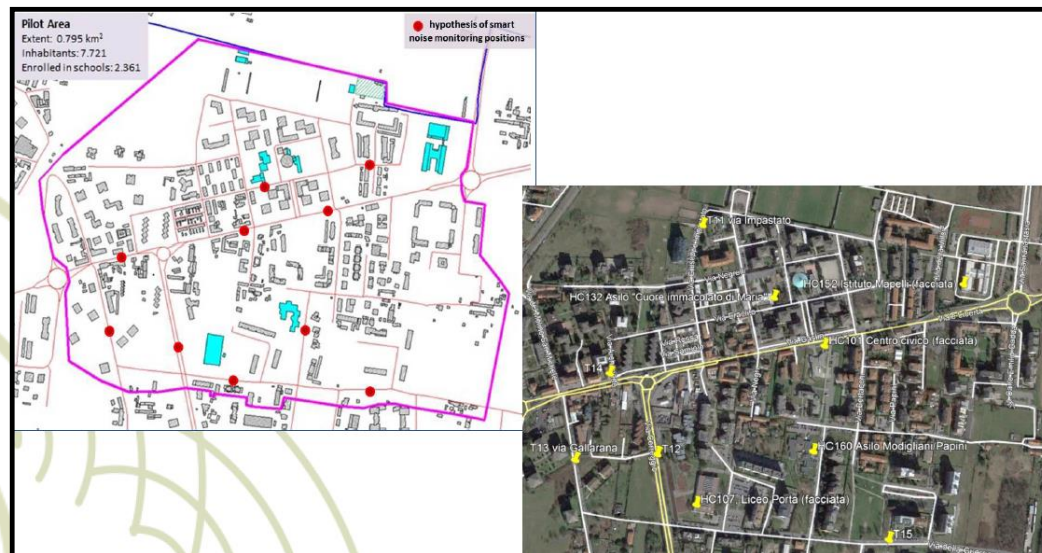


Noise Monitoring in pilot area

Regarding the noise monitoring actions planned in pilot area, the activities will be carried out referring to:

- ❑ A **standard methods**, using sound level meters of class I precision
- ❑ developing and using a **smart low-cost monitoring system** (providing a continuous monitoring).

Monitoring campaigns for both measurement methods are planned for 1 year in the *ante-operam* scenario and 1 year in the *post-operam* scenario. N°10 monitoring stations have been installed in the pilot area.



Smart low-cost noise monitoring system – LIFE MONZA



Monitoring stations located on streetlight or on façade, height 4 m;
power supply: solar panel and energy network.

Monitoring methods and activities tested in pilot area: Air Quality

Air Quality Monitoring

- EU Directive requirements
- Passive sampling

Air Quality monitoring within the pilot area is in progress, according to requirements provided by Directive 2008/50/EC on ambient air quality and cleaner air for Europe.

Also, the low cost and easy operation of the **diffusive sampling technique** will be used for a large scale air pollution surveys with a **high spatial resolution**.

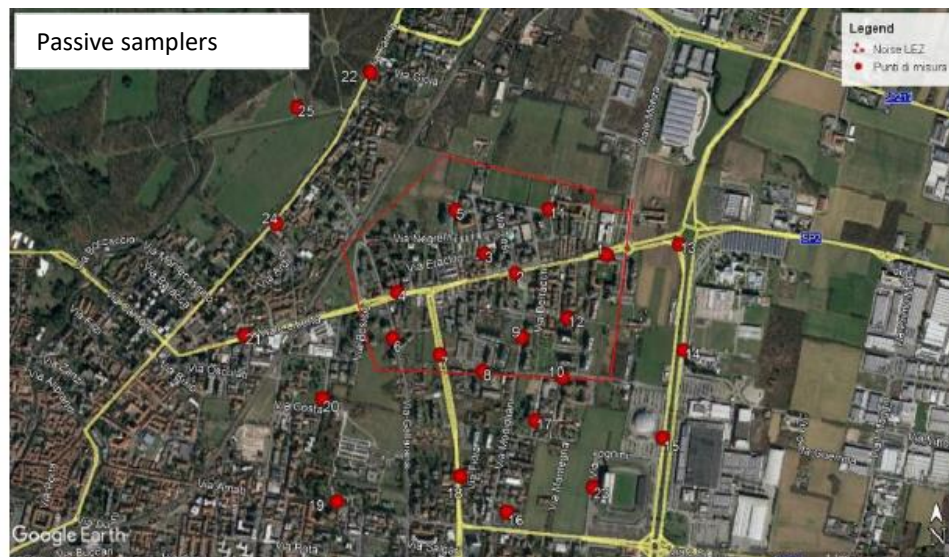
In order to **compare the spatial variability of air pollution** before and after the *NLEZ* implementation, *NO₂* and benzene land use regression models in a defined urban area of Monza of about 4 km², including the noise *LEZ*, will be developed.

The objectives of monitoring will be to assess whether the implementation of the noise low emission zone contributes, as an ancillary effect, to reduce air pollution levels in the pilot area.

Monitoring methods and activities tested in pilot area: Air Quality

Study of the temporal variability of gaseous and particulate pollutants in pilot area

Monitoring campaigns, before the LEZ introduction, in pilot area, have been carried out by the Environmental Protection Agency of Lombardia Region. The same activities will be carried out after the LEZ implementation. Eighth weeks equally distributed during the year: ex ante: May 2017 - February 2018 ex post: 2019-2020 Air pollutants: SO₂, CO, NO_x, NO₂, PM₁₀, PM_{2.5}, black carbon, etc.



Study of the spatial variability of gaseous pollutants in pilot area

Monitoring campaigns, before the LEZ introduction, in pilot area, have been carried out by the Environmental Protection Agency of Lombardia Region, using passive samplers. The same activities will be carried out after the LEZ implementation.

Two monitoring campaigns of two weeks:

ex ante: July 2017 - February 2018

ex post: 2019-2020

Pollutants: nitrogen dioxide (NO₂); volatile organic compounds (benzene and toluene)

Monitoring methods and activities tested in pilot area: Survey

Quality of life

- questionnaire

Structure of the questionnaire

- socio-demographic data
- building (location, noise exposure, time spent at home)
- quality of life in the district (opinion on social, economic and environmental aspects)
- perception about air quality
- perception about noise
- health and life quality
- transport mobility situation
- potential effects of LIFE MONZA project on local system aspects

Currently the questionnaires filled in are 100, equal to about 17.5% of the sample (570 expected) Further actions about the questionnaire administration are in progress, in order to guarantee the expected number of compiled copies.

Conclusions

Contribution of the project to policy implications at National and Local level in terms of:

- ☐ Harmonization and simplification process among transposition decrees of EU Directives concerning noise and air pollution.
- ☐ Development of a common method for establishment and management of *NLEZ* and related guidelines, as a proposal to be adopted by national legislation
- ☐ More knowledge about impacts and benefits due to *NLEZ* introduction
- ☐ Enforcement of the dialogue between public institutions and citizens

Thanks for your kind attention

For further information visit the official web-site:

www.lifemonza.eu