



EUROPEAN PROJECTS ON ENVIRONMENTAL NOISE AND LOW EMISSION ZONES THE EXPERIENCE OF LIFE MONZA

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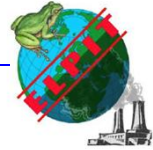
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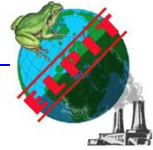
Introduction – The Environmental Noise Directive

The Directive 2002/49/EC (the so called Environmental Noise Directive, “END”) is the EU legislative instrument for the assessment and management of environmental noise.

It provides the definition of **Environmental noise** as “unwanted or harmful outdoor sound created by human activities, including noise emitted by transport, road traffic, rail traffic, air traffic and from sites of industrial activity”.

The Directive was adopted on 25 June 2002, and came into force on 18 July 2002 with two main objectives, defined in its Article 1:

- to achieve a common European approach to avoid, prevent or reduce the effects of exposure to environmental noise harmful for health, which includes annoyance;
- to provide a basis for developing Community measures to reduce noise emitted by major sources, in particular road and rail vehicles and infrastructure, aircraft, outdoor and industrial equipment and mobile machinery.



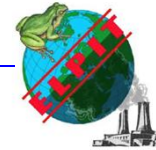
Introduction - EU Projects and funding

Over 76% of the EU budget is managed in partnership with national and regional authorities through a system of "shared management", in projects that help to implement the Europe 2020 strategy.



In the frame of END implementation, some projects has been funded by EU under its different funding lines, co-financing research and development of innovative and demonstrative solutions.

Projects located across the European Union explore ways to facilitate the implementation and enforcement of EU policy and legislation on air quality management and the prevention and reduction of air and noise pollution.



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Projects by theme

- **Nature, Biodiversity**
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- **Climate Action**
- **Info, Governance**

Projects search



Welcome to LIFE

LIFE is the EU's financial instrument supporting environmental, nature conservation and climate action projects throughout the EU. Since 1992, LIFE has co-financed more than 4500 projects. For the 2014-2020 funding period, LIFE will contribute approximately €3.4 billion to the protection of the environment and climate.

[Read more >>](#)

25 Years of LIFE

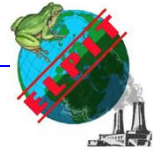
New LIFE Regulation 2014–2020

[Read more >>](#)

Highlights

LIFE launches 2017 call for action grants: more than €373 million available

<http://ec.europa.eu/environment/life/>



LIFE and Environmental Noise

LIFE- SOUNDLESS (España)

New generation of eco-friendly asphalts with recycled materials and high durability and acoustic performance
LIFE14 ENV/ES/000708

LIFE Solar Highways (Nederland)

Solar panels as integrated constructive elements in highway noise barriers
LIFE13 ENV/NL/000971

ISRNM (Latvia Latvija)

Inovative Solutions for Railway Noise Management
LIFE11 ENV/LV/000376

NOISUN (Sverige)

NOIse barriers with SUN energy production for district heating system (NOISUN)
LIFE11 ENV/SE/000837

BIAS (Sverige)

Baltic Sea Information on the Acoustic Soundscape
LIFE11 ENV/SE/000841

HARMONICA (France)

HARMOnised Noise Information for Citizens and Authorities
LIFE10 ENV/FR/000211

NOISEFREETEX (España)

Demonstrative solutions to reduce noise pollution in industrial areas, using finishing technologies in textile materials
LIFE09 ENV/ES/000461

QSIDE (Nederland)

The positive effects of quiet facades and quiet urban areas on traffic noise annoyance and sleep disturbance
LIFE09 ENV/NL/000423

P.A.A.S.A. CUENCA (España)

Cuenca Municipal Action Plan for Sustainable Environmental Acoustics
LIFE08 ENV/E/000110

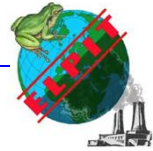
SPAS (Österreich)

Sound and Particle Absorbing System
LIFE06 ENV/A/000345

NoMEPorts (Nederland)

Noise Management in European Ports
LIFE05 ENV/NL/000018





LIFE and Environmental Noise

<http://www.hush-project.eu/>



<http://www.nadia-noise.eu/>



<http://www.quadmap.eu/>



<http://gioconda.ifc.cnr.it/>



<http://www.life-dynamap.eu/>



<http://www.lifemonza.eu>

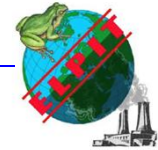


<http://www.nereideproject.eu/it>



<http://brennerlec.life/>





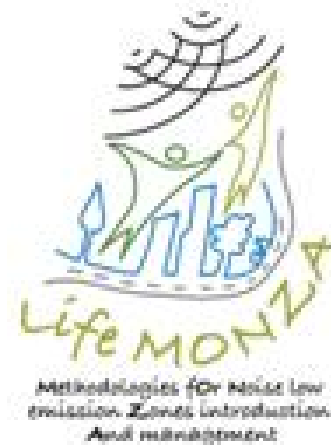
LIFE MONZA



Project
LIFE15 ENV/IT/000586
with contribution of EU
Commission

Program
LIFE 2014-2020.

Call
LIFE Environment and Resource
efficiency 2015



LIFE MONZA
(Methodologies
for
Noise
low emission Zones
introduction
And management)

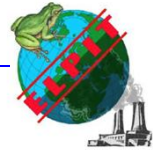


ISPRA

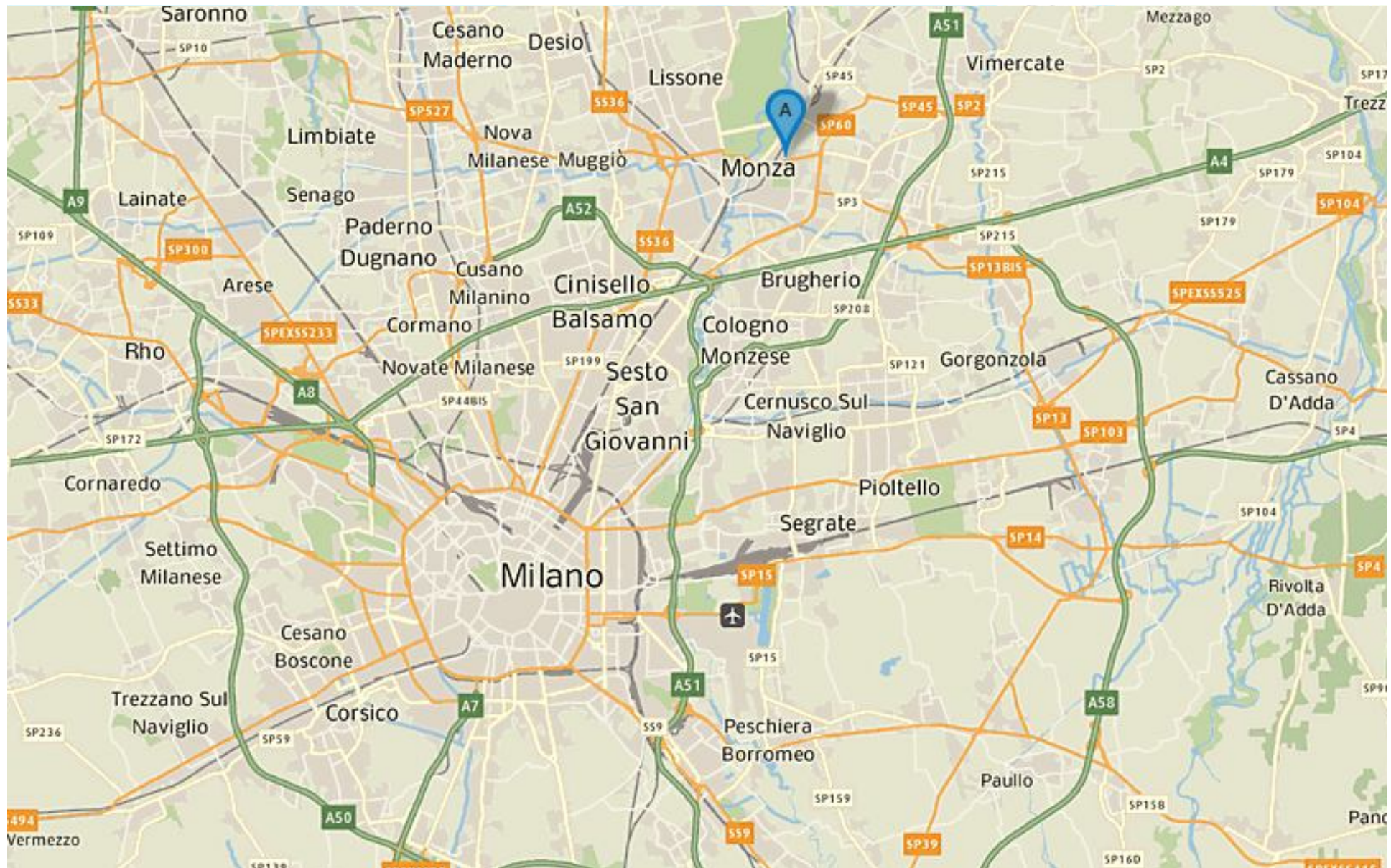
Istituto Superiore per la Protezione
e la Ricerca Ambientale

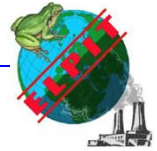


Vie en.ro.se.
Ingegneria



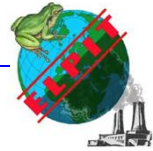
MONZA



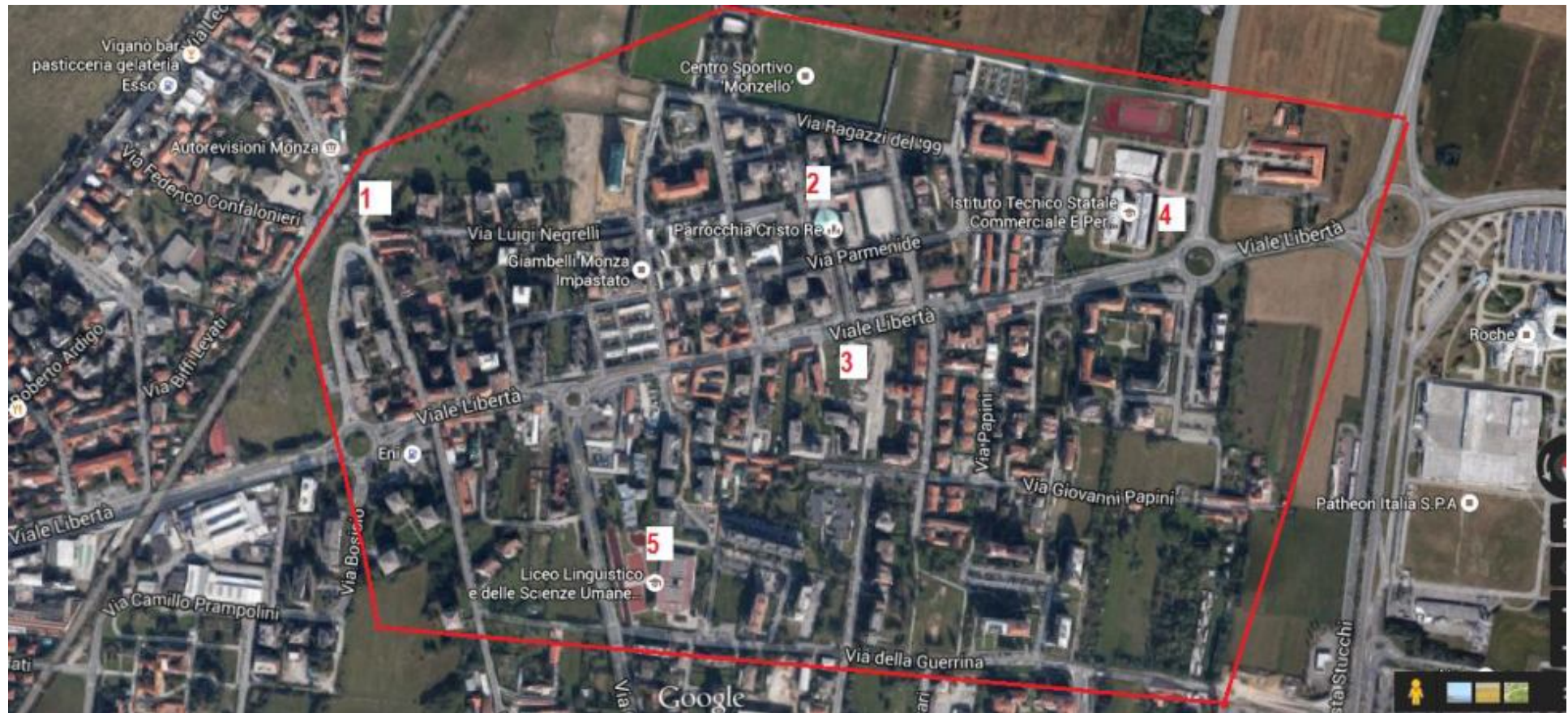


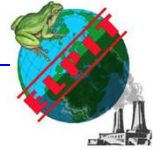
MONZA





MONZA – THE PILOT AREA

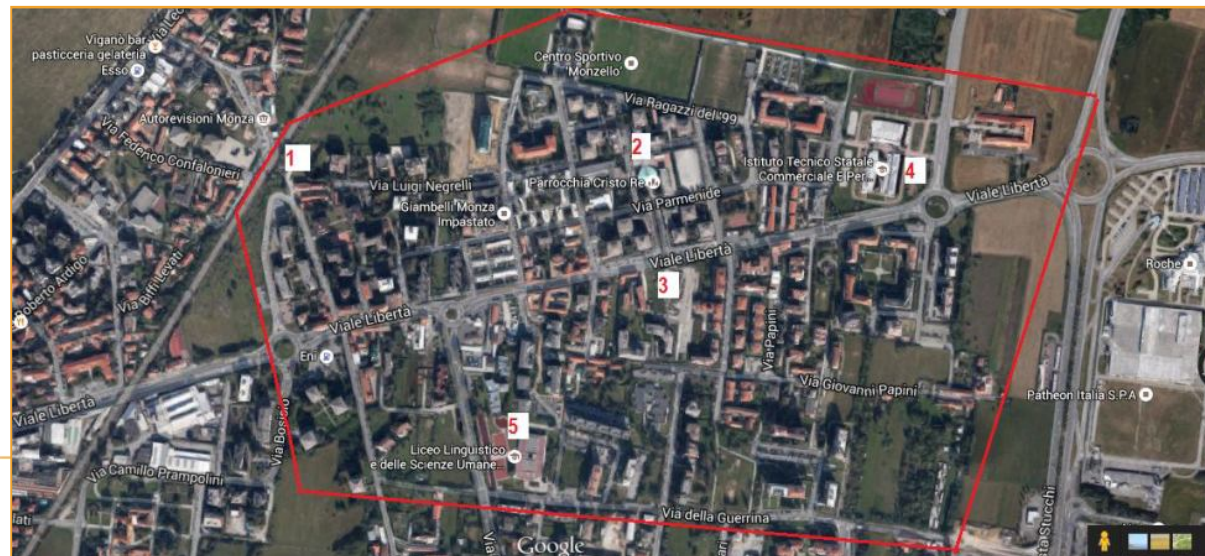


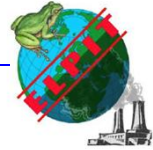


MONZA

Significant levels of noise pollution affect a large number of citizens (15.000)
Libertà district is identified as a hotspot in the Action Plan of the city of Monza.

Noise strategic map of the city of Monza highlights that in a range of 30 m from the Viale Libertà almost the 100% of the receivers are exposed to levels higher than 65 dB(A) during the day and 55 dB(A) during the night.





What is a NOISE LEZ ?

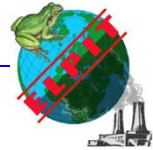
Low Emission Zones (LEZs) are areas where vehicles with high emissions cannot enter or where the more polluting vehicles have to pay for entering the area.

Low Emission Zones are introduced in urban areas in order to ensure compliance with the air pollutants limit values, set by the European Directive on ambient air quality (2008/50/EC).

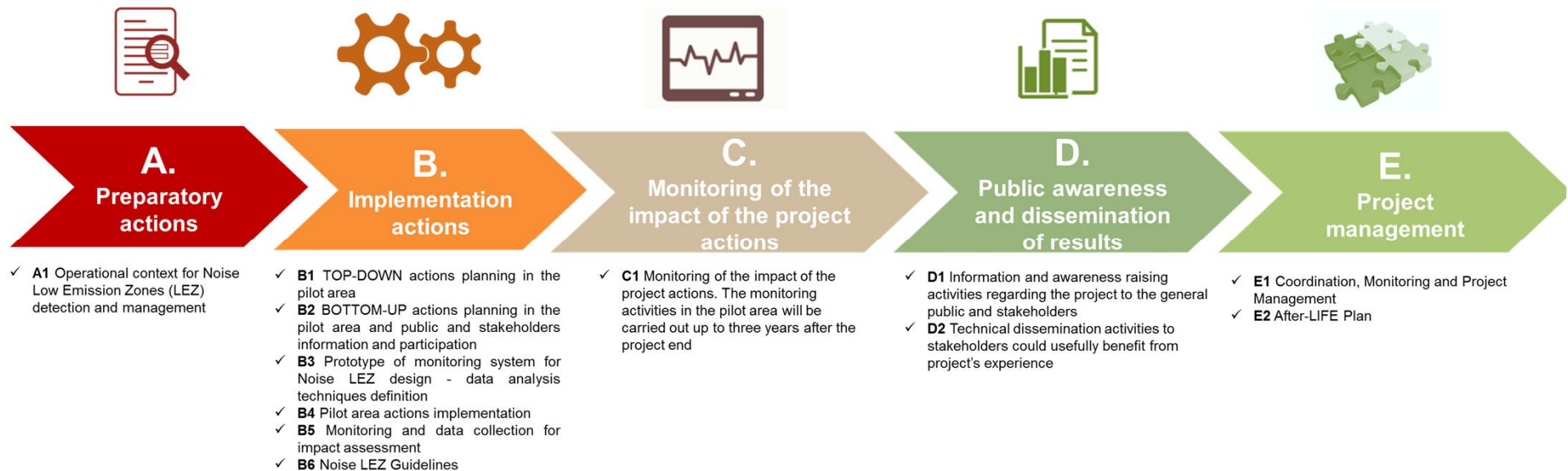
In EU cities air quality improvement are widely analyzed, whereas noise quality improvement policies have not been addressed in a comprehensive manner.

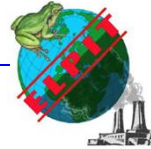
In other words, criteria for analysis and management of Noise Low Emission Zones are not yet clearly expressed and shared.

LIFE MONZA project addresses these issues.

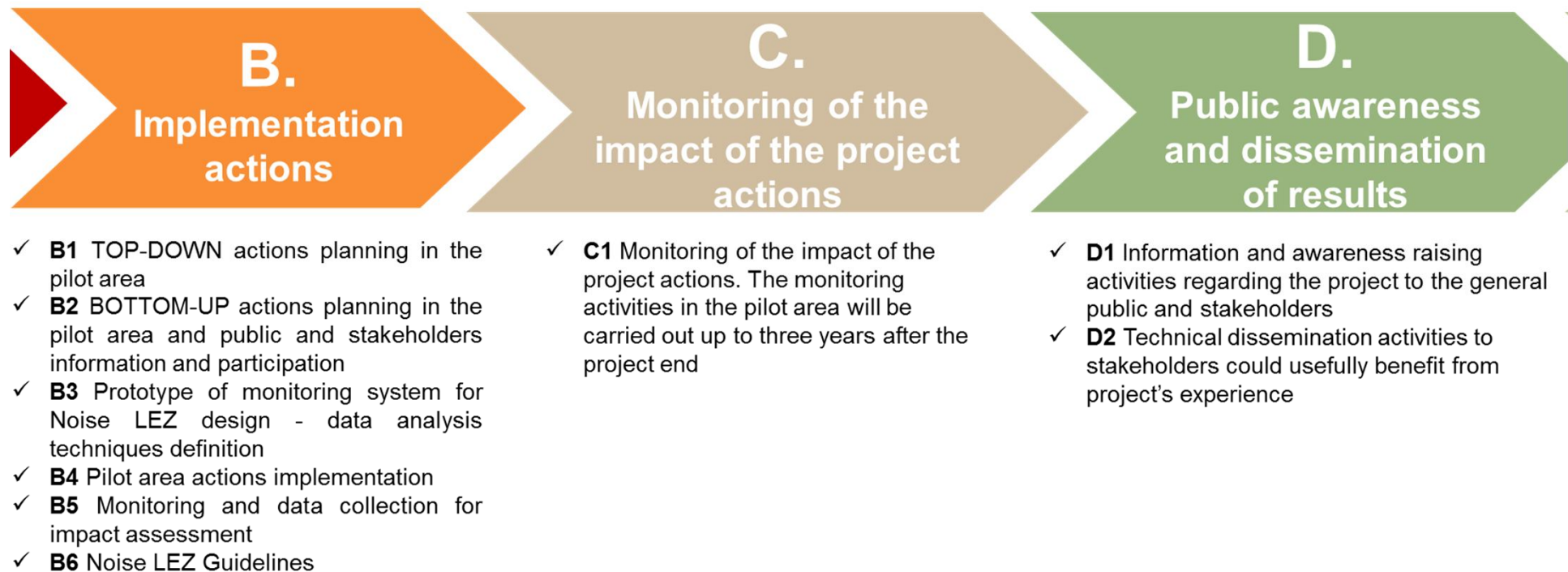


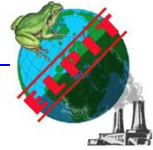
LIFE MONZA - STRUCTURE





LIFE MONZA - STRUCTURE





LIFE MONZA - Methodologies for Noise Low Emission Zones introduction and management

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 wellbeing 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

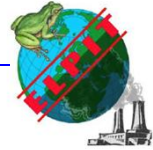
- Traditional equipment
- Smart low-cost sensors

Air Quality Monitoring

- EU Directive requirements
- Passive sampling

Quality of life

- Questionnaires



LIFE MONZA - Methodologies for Noise Low Emission Zones introduction and management

Monitoring activities and methods tested in pilot area

Air Quality Monitoring

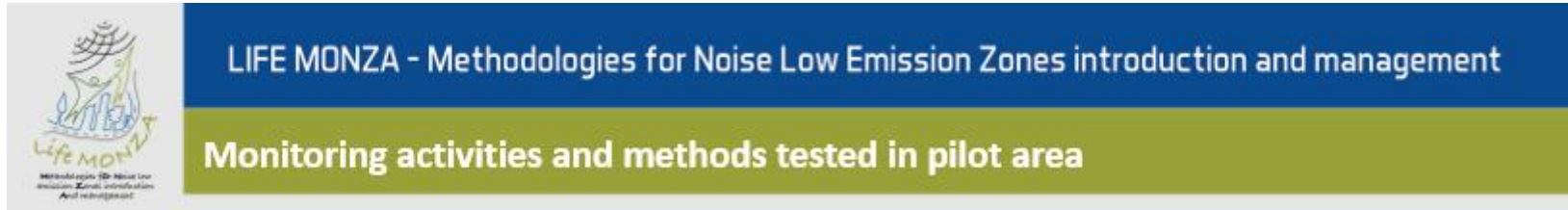
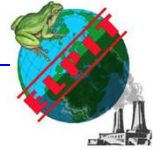
- EU Directive requirements
- Passive sampling

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

Low cost and easy operation of the diffusive sampling technique is 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 noise LEZ implementation, NO₂ and benzene land use regression models in a defined urban area of Monza, 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 and serendipic effect, to reduce air pollution levels in the pilot area.



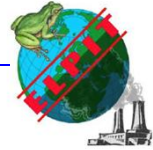
Quality of life

- questionnaire

Regarding the monitoring of the quality of life, a two-step survey will be performed: before and after the institution of the noise LEZ zone (about 2000 citizens and stakeholders involved).

The WHO QOL-Bref questionnaire, as it is the only tool that has a specific environmental section, validated in Italian language.

The WHOQOL-BREF instrument comprises 26 items, which measure the following broad domains: physical health, psychological health, social relationships, and environment.



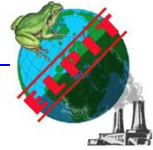
LIFE MONZA - Methodologies for Noise Low Emission Zones introduction and management

Monitoring activities and methods tested in pilot area

Noise Monitoring

- Traditional equipment
- Smart low-cost sensors

Regarding the noise monitoring phases planned in pilot area, the activities will be carried out referring to the standard methods, using sound level meters of class I precision, and also by developing and using a smart low-cost monitoring system.



LIFE MONZA - Methodologies for Noise Low Emission Zones introduction and management

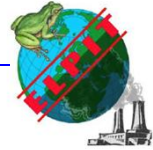
Monitoring activities and methods tested in pilot area

Regarding the smart low-cost noise monitoring system a prototype system for smart monitoring has been designed and implemented, in order to be used as a continuous monitoring unit.

In particular, the state of the art about smart noise monitoring systems has been defined by ISPRA, while smart monitoring system design and data analysis procedures have been performed by UNIFI.

UNIFI is developing the procedures for in situ calibration check and verification of the noise monitoring system performance.

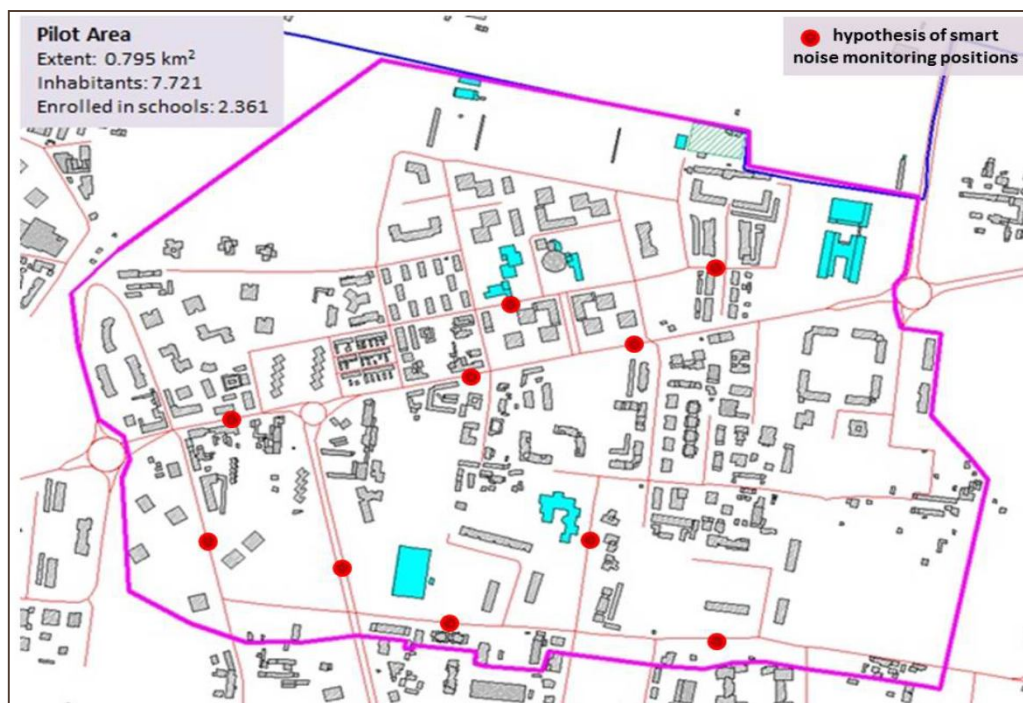
After the end of LIFE MONZA project, the prototype will be given for free to Municipality of Monza that will take care of using it for monitoring activities in the three years after the project end.



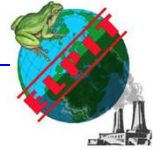
LIFE MONZA - Methodologies for Noise Low Emission Zones introduction and management

Monitoring activities and methods tested in pilot area

Smart low-cost noise monitoring systems, allowing an extensive and long-term noise monitoring, in medium sized territorial scale as urban area, seem to be able to ensure an appreciated quality output measurement data. 10 monitoring stations are expected to be installed in the pilot area of Libertà district.



Libertà district: the red dots indicate measurements points



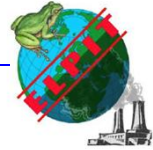
CONCLUSIONS

In the frame of the EU project regarding noise control and END Directive implementation, the LIFE MONZA project aims to define a guideline describing a procedure applicable in different contexts for the definition, the identification and the management of a Noise LEZ.

In the project intervention techniques strongly involving the population will be implemented and tested.

Within the project activities, implementation and testing of a new low noise monitoring system will be carried out and tested in the pilot area in the long period, also after the project's end.

For the monitoring of the environmental impact in the pilot area, indicators will be set taking into account both the noise and air quality as well as the quality of life conditions of the population.



<http://www.lifemonza.eu>

THANK YOU FOR YOUR ATTENTION

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