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Abstract submission

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The use of smart noise monitoring system in urban Low Emission Zones, developed in the frame of LIFE MONZA project

The implementation of urban areas subject to traffic restrictions in order to ensure compliance with the limit values for air quality set by the European Directive 2008/50/ EC - Low Emission Zones - is widespread in practice administration of cities, especially in Europe and particularly in Italy, and the positive impacts on air quality have been widely analyzed, whereas the effects and potential benefits regarding the reduction of noise pollution have not yet been fully analyzed.

LIFE MONZA (Methodologies fOr Noise low emission Zones introduction And management - LIFE15 ENV / IT / 000586) project, co-financed by the European Commission and completed in June 2020, aims at developing and testing a methodology, easily replicable in different contexts, for the introduction and management of the Noise LEZ, an urban area with low noise emissions, subject to road traffic restrictions, whose evaluation of the positive effects regarding noise pollution has been carried out in the pilot area of the Liberty District of the Municipality of Monza, where the effects induced on air quality and the benefits on the quality of life of the residents are also analyzed. A further objective of the project concerns the actions undertaken by the Municipality capable of transforming the pilot area into a permanent Noise LEZ (*top-down measures*), such as the choice of road traffic restrictions, the replacement of road pavement with materials that guarantee a low sound emissivity, the introduction of two protected pedestrian crossings. Various activities were dedicated to the information and involvement of the residents and users of the pilot area, to share more sustainable lifestyle choices relating to noise and air pollution and the conditions of well-being in the living and working environments (*bottom-up measures*).

In order to define the effects of Noise Low Emission Zone introduction, the noise monitoring activities, in ante and post-operam interventions, have been carried out using both traditional methods and instruments and developing and implemented a smart and low-cost noise monitoring system. The smart system consists in ten units, located in pilot area of the project and working in continuous way from June 2017 until now.

The structure and specifications of the smart monitoring system, with the comparison of the results in ante and post-operam, are discussing in this paper.