A novel method that helps reducing noise problems produced by road traffic

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Scientists from the universities of Granada (UGR) and Southampton

(United Kingdom) have designed a new method to reduce noise problems caused by road traffic, one of the main environmental impacts of roads, and which has important effects on people's health and their physical and psychological well-being.

The application of the European Environmental Noise Directive by various public administrations of the European Union member countries in relation to road traffic noise has generated a significant number of Noise Action Plans (NAPs) by the administrations responsible for European infrastructures.

However, the directive does not establish a regulated process to choose the most critical road stretches that require action and, once chosen, selecting the most suitable option to mitigate noise. In fact, the critical study of the noise action plans published in Spain shows the general lack of methodologies and criteria taken into account on the problem of prioritizing the actions they include.

The research, carried out by scientists from the UGR (Alejandro Ruiz Padillo, Ángel Ramos-Ridao and Diego Pablo Ruiz) and the University of Southampton (Antonio J. Torija), proposes a practical methodology based on exclusively technical criteria using available data from the groups responsible for the infrastructures.

This methodology, called PATRON (Prioritizing AcTions against Road Noise), consists of two stages. The first stage is defining and weighing the main criteria used to prioritize the road stretches included in a plan. In the second stage, the main criteria and choices to be taken into account are defined, and the appropriate options are chosen for each of the roads. In addition, weights are obtained for each of the criteria, which allows to assess their relative importance in each problem.

The final product is an easily implemented method for decision making

by choosing the most suitable alternatives for the reduction of the exposure to the noise generated in each road, once those roads are selected.

Alejandro Ruiz Padillo, lead author of this paper explains that the application of the PATRON methodology is possible regardless of the simulation or techniques used for measuring the noise. Therefore, it can be easily applied to future phases of implementation of the European Environmental Noise Directive, especially now that the CNOSSOS-EU method is to be used as the common method of generating strategic noise maps in Europe starting in 2017.

More information: Alejandro Ruiz-Padillo et al. Selection of suitable alternatives to reduce the environmental impact of road traffic noise using a fuzzy multi-criteria decision model, *Environmental Impact Assessment Review* (2016). DOI: 10.1016/j.eiar.2016.06.003

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