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Measurement and assessment of noise pollution across key areas of the Gödöllő area.

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Over the course of recent decades environmental noise became a significant public health issue as a result of the accelerated urbanization rhythm and development of transportation, this increase in ambient noise levels is driven by a series of human activities due to the growth of urban center and the infrastructure which is necessary to support the demand for transportation within different countries. Due to the previous factors, individuals living near major roads, railways and airports have higher chances of being exposed to extreme noise levels, which poses a serious risk to their health and wellbeing in a long term.

The assessment's approach was based in the use of a TES sound level meter (TES1350A) to measure the noise values in both, the manual and remote measurements and a Data logger ALMEMO 2590 to record values for 24-hour periods in different days and under different weather conditions, to get a comprehensive approach on the noise dynamics in the selected points.

Based on this concept the assessment was done in the university campus, focusing on 6 key areas within the campus. Using the manual measurements the two noisiest points were established next to Premontrei utca and the Premontrei templom construction site, showcasing Lden values above the WHO's recommended value (53 dB). Following this result, continuous remote measurements were performed in front of the road, in addition to the external remote measurement done in the Röges residential area close to the M3 motorway, both allowed to collect important data regarding the values during day and night times and analyze them based in the European Guidelines established by the WHO and the European Directive 2002/49/EC, which helped determining that both areas are exposed to Lden and Lnight values that go above the recommended threshold values.

In the studied area within the university, the remote measurements collected enough information to raise concerns about both; the L_{den} values since they might become a challenge for students attending classes and university personnel, especially those whose workplaces are on the side of the road. On the other hand, for the nighttime measurements, the data collected leads to concerns around the sleeping schedule and how it might cause fragmentation and annoyance, especially for the students in the dormitory buildings close to the road, due to the recurrent values above 55 dB, occasionally reaching values above 60 dB.

For the measurements done in the residential area, the L_{night} values are not completely representative of the real environmental noise in the area. However, the L_{den} values show a normal behavior in most parts of the day, with recorded values that remain within the established threshold values for the EU State Members, and a few exceptional cases in which alarming values above 60 dB were recorded likely from far away noises coming from the motorway M3 or the nearby roads in the area or even household noises from the neighbor houses.

Although the study did not include the use of surveys that aimed to qualify the community's perceptions of the symptoms including annoyance, cognitive or sleep disruptions, further research in the area is strongly recommended. Future studies should involve detailed and comprehensive monitoring of both the dormitory area and nearby buildings, especially the ones situated closer to the railways and construction site whereas for the residential area detailed measurements in the nearby roads and the motorway and implementation of noise mapping modeling.

Furthermore, the use surveys that allow to gather resident's opinions and perceptions of how noise impacts in these areas would help create a clearer understanding in the relationship between noise exposure in these areas and health effects.