Noise and the influence of medium localities architectural
Zoltan Horvath, Greta Mândrean, Raluca Mihai, Şerban Tudor

Faculty of Environmental Science and Engineering, University Babeş-Bolyai Cluj-Napoca, Romania. Corresponding author: Z. Horvath, okofalu@yahoo.com

Abstract. Given the modern era one of the most harmful pollutants is physical urban noise. Noise sources are varied. For recording and measuring their specific methods are needed specialized equipment. Urban noise sources besides discomfort may cause changes in the body. In the fight to reduce urban noise a number of steps are required. In this paper are highlighted differences and similarities we found in two locations: Sighet and Gheorgheni.

Key Words: noise, locality, urban, pollutants.

Nowadays the least studied physical polluter is noise. With the help of specialized tools to determine noise poses serious medium cities to have real values. This building does not fall into a pattern so it requires verification standard conditions of measurement and the development of appropriate methods.

To correlate the values measured with a standard MAXWELL MX-25500 dB-meter having measuring range from 0 to 130 dB, were chosen localities with similar profile: Sighet and Gheorgheni (Figures 1a, 1b).

In the two villages near the mountains and forests was similar, as in both cases of settlements near major watercourses and the ratio between the day and night noise from traffic transit transport is similar. In both cities there are two sections of national roads with medium traffic (about 1.5 million a year passes in one direction) a North-South and another East-West.

Figure 1a. Map of Sighetu Marmatiei city.
Night noise values in both cities are higher than those accepted and both are areas where daily noise is below the allowable values. During the measurements we considered places of different shapes to choose "A", "U" and "L".

In the Figure 2 it can be seen that in the city of Sighet Marmatiei daily values of urban noise (but also for the night) are very high.

Only two measuring points have been far below permitted by law: Eminescu street park and the residential area that is just. Instead the court of public hospital have exceeded about 18%, the rest at all points of measurement values were above the law allowed high percentages between 18-32%.

City is a town with traffic crossing the border even has a traffic flow ricicat big heavy car, giving framing the high street, with an annual circulation of over 1.5-2,000,000 to "pass", although roads category are national and county.

DN 18 and DN 19 roads that meet in the city of Sighet Marmatiei feature easy bituminous pavements.

Flooding heavy car but can lead to pronounced degradation of roads, both local and long distance ones.

At roundabout sense would assume that there is a reduction of urban noise, but the city in almost all such sites I found elevated, see roundabout "Big".

Noise values measured on the middle bridge shows what a high value implies a much higher exposure primarily in these locations that we deal with points of type "O" where we have reverberations or secondary reflections (Figure 3).

The Figure 3 shows sound pressure measured at the points of "A" can see that exceeded permitted. This is quite interesting, ptr that no reflections or reverberations here. Excess is due to high traffic of heavy machinery.

The circulation on DN18 and DN19 intense in areas not experiencing "quiet" dendrological parks and gardens in the chart I showed the green columns.

In the city of Sighet Marmatiei due to excessive urbanization in many areas we find the points of "L" and those of "U". In both types of points - features urbanization - we can find tall buildings and very close from each other. They make the existence of reverberation and reflections, the result being the noise increasing, giving high values - sometimes at night.

For points of type "L" also found higher values, see Figure 4.
Figure 2. Exposition value on acoustic pressure in Sighetul Marmatiei city.

Figure 3. Acoustic pressure in Sighetul Marmatiei - locations of "O" type.

Figure 4. Acoustic pressure in Sighetul Marmatiei - locations of "L" type.
Profile of locations with "L" we have several areas where there are differences between the two profiles, such as that of the municipal Cultural House. Specificity area consists in the fact that here we meet national roads in four directions. This may be a much higher flow than class national roads. We performed measurements of sound pressure at two points that were on the corners of the intersection. Once you can see the values did not differ substantially, although one of the corners was vegetation dense but low height (about 2.5 m) and the Cultural House building was over 20 meters. Since the measurements were made off-peak probably values may vary (perhaps even increase). Of only two measurement points were determined to conform to the amount permitted by law.

Of values determined for locations of "U" - values exceeding beyond measure those permitted by law (65dB), we could remember roundabout "Big" which has a special characteristic (Figure 5).

![Figure 5. Acoustic pressure in Sighetul Marmatiei - locations of "U" type.](image)

Although it would make the car flow be continuous because of tall buildings (5-8 floors) sound pressure values are high. Thus it is part of the points with high noise pollution, noise that is present there both day and night. Noise pollution here is exceeded only by the next bridge over Iza (Vadul Iza), where heavy traffic from DN19 - otherwise bypasses the city - is "encounters" with the DN18. This heavy traffic from Baia Mare could be characterized as international traffic road for which allowed higher values (73dB) (road crossings between 1.5 to 3 million vehicles / year).

Ring road built for some years between DN18 and DN19 reduce some of the noise pollution but still is above the law allowed. As we can see in Figure 6, nightly values were much lower than those during the day, however we can see that they exceed the permitted by law. Three of them are due to noise from the street and the Mill Garden Park comes from ambient noise, i.e. a wedding party.

Amount permitted by law, we took 35 decibels 25 decibels while providing standards, but the law is not explicit in the sense that not different between interior and exterior noise, which here may allow higher limits because of "crossing" the number of.
Figure 6. Nightly values for acoustic pressure in Sighetul Marmatiei.

Noise values Sighetu Marmatiei center is much higher than the values allowed by law. In the center of the noise values Gheorgheni permissible values, although this highway goes north-south. Noise values are consistent center roundabout because there is formed around a park with dense vegetation. The park comprises three levels of vegetation, which makes the entire range of noise to be greatly attenuated. But the Main Street is a characteristic large city due to parallel blocks (type U), where the phenomenon of "reverberation" is very strong. Here are exceeded values well above a street in Sighet like.

Air circulation is intense in both places and it heavily affects the measured noise values, especially in areas with a single level buildings.

In Sighet determined values showed that the existence of bypass roads can greatly reduce urban noise due to transit traffic.

In Gheorgheni missing ring road, but high density urban vegetation reduces noise during the day offering residents a noise limits permitted by law (65 dB).

Conclusions. Due to the specific conditions in the two localities could determine values given that road transport is increasing tendency to require intensive monitoring. Choosing unconventional methods can substantially reduce the noise, but as these specific cities "garden city" is preferable example of the Gheorgheni take place in Sighet: i.e. planting of trees on many levels and different heights along street. Urban noise reduction can be done by diverting heavy transport or by converting one-way streets.

References


Authors:
Zoltan Horvath, University Babeş-Bolyai, Faculty of Environmental Science and Engineering, Fantanele Str., no. 30, 400294 Cluj-Napoca, Romania, e-mail: okofalu@yahoo.com
Greta Mândrean, University Babeş-Bolyai, Faculty of Environmental Science and Engineering, Fantanele Str., no. 30, 400294 Cluj-Napoca, Romania
Ralucă Mihai, University Babeş-Bolyai, Faculty of Environmental Science and Engineering, Fantanele Str., no. 30, 400294 Cluj-Napoca, Romania
Şerban Tudor, Faculty of Environmental Science and Engineering, Fantanele Str., no. 30, 400294 Cluj-Napoca, Romania

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