

# Pollution and Effects on Community Health

## Opinion Letter

# Air and Noise Pollution Are a Deadly Pair of Pollutants in Cities

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In the middle decades of the 20th century when the problem of air pollution has already become evident in big cities of the world people paid little attention to noise pollution. It was nearly ignored. But little by little, especially along with increasing number of light vehicles and high urbanization tempos, they began to pay more attention to it and today noise pollution along with air pollution is considered as a deadly pair of pollutants in big cities of the world. At the same time air pollution is still remains as the leading one as it adversely affects not only on people, but on animals and plants too. There are investigations that leaves of the plants growing in the overcrowded and polluted city conditions are growing worse and their leaves already dry up and twist in the second half of summer. Air pollution is the greatest environment health problem and cause of main death and disease globally. Children are the most vulnerable to polluted air, carrying a risk for lifelong consequences. Poor air quality is a leading risk factor for major chronic diseases in adults too, including heart and lung disease as well as cancer.

The air pollution is still considered the leading environmental cause of premature death in the world, linked to cardiovascular and respiratory diseases as well as cancer. Certain pollutants, such as arsenic (Ar), cadmium (Cd), mercury (Hg), nickel (Ni) and polycyclic aromatic hydrocarbons (PAHs), are human genotoxic carcinogens, capable of causing cancer by directly altering the genetic material of target cells. Air pollution also negatively affects water and soil quality, and damages ecosystems, for example through eutrophication (the increase in concentration of phosphorus, nitrogen and other plant nutrients in a body of water, resulting in excessive plant and algal growth) and acid rain. Agriculture and forests, as well as buildings and goods, are therefore affected too. Air pollution has many sources, but mainly stems from industry,

transport, domestic heating, energy production and agriculture. The most problematic pollutants today are fine particles (PM 2.5), nitrogen oxides and ground-level ozone.

Many people may not know that long-term exposure to noise, even at the levels people are used to in urban areas, has significant health impacts. In most European countries more than 50% of people living in urban areas are exposed to road noise levels of 55 decibels or higher during the day-evening-night period. Long-term exposure to this level can have negative health impacts according to World Health Organization (WHO). At the same time long-term exposure to environmental noise causes premature deaths, contributes to myocardial ischemia diseases, high chronic annoyance and chronic high sleep disturbance.

Environmental noise exposure can lead to annoyance, stress reactions, sleep disturbance, poor mental health and wellbeing, impaired cognitive function in children and negative effects on the cardiovascular and metabolic system. During nights environmental noise starting at levels below 40 decibels can cause negative effects on sleep such as body movements, awakenings, self-reported sleep disturbance, as well as effects on the cardiovascular system that becomes apparent above 55 decibels. The WHO (World Health Organization) established a night-time outdoor noise guideline value for night-40 decibels aiming protecting public, including vulnerable groups, such as children, the chronically ill and the elder people.

Different measures to reduce noise exposure currently are being undertaken by countries including road and rail noise barriers, optimizing aircraft movements around airports as well as using urban planning new, more convenient models. However, it is more effective to reduce noise at the source of origin, for example by reducing the number of vehicles on the

roads, introducing new type of quieter tires for vehicles and quieter road surfaces.

Road traffic is the most widespread noise source in the world and is the source that causes the largest number of people. It is unlikely that noise pollution will decrease significantly in near future. As to the longer period electric cars and zero

emission busses, refuse collection trucks, municipal vans and installment of required infrastructure will be in priorities. These zero-emission vehicles and improved city road infrastructure along with cycling and walking facilities will reduce noise and air pollution levels in cities.

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