

# *Happy Lungs- How clean is our air?*

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Our cities have always been zones with excessive pollution. Heavy traffic, exhausts, industry, over-dusted streets, all these make our city's air unclean, unhealthy and sometimes unbreathable. So, everyday we have to breathe a big amount of CO<sub>2</sub>, Toluene, Hydrogene, Benzene, SO<sub>2</sub> or NO.

This also happens in our hometown, Iasi, but despite the dire situation our air is in, everyone does their best to keep the situation under control and give our citizens a more clear and unblemished air to breathe.

For our article we have chosen to present you the air quality with reference to our city's river, the Bahlui, trying to show the situation accurately.

The Bahlui is the largest river of Iași County, in eastern Romania. Its name is derived from Cuman (The Cumans were Nomadic warriors of the Eurasian steppe who exerted an enduring impact on the medieval Balkans) and it means "muddy waters or river". The Bahlui river has a length of 119 km and an average volume flowing of about 2.8 m<sup>3</sup>/s. The surface of the basin has about 2007 km<sup>2</sup>.

Its spring is located at an altitude of 500 metres in the Tudora Village, Botoșani County, in the eastern part of Suceava Plateau. It flows through the Jijia Plain, from north-west toward south-east and through the cities of Hârlău (formerly named after the river: *Târgul Bahluiului*) and Iași. It flows into the Jijia near Holboca, east of Iași. The quality of its waters is rather low, due to the large amount of industrial spills and plants, especially in Iași.

For our study on air quality around the Bahlui River, we have analysed the data offered by the Structure of Air Quality Monitoring in Iași County.

The Network of Air Quality Monitoring in the congesion of Iași City is composed of six monitoring stations, equipped with performant analyzers that apply reference methods. It was built in 2005 due to the Project PHARE Ro 2002 "Improving the national network of air quality monitoring".

From the six stations that exist in Iași, only 3 can check and register the pollutants around the river: IS-1 The Rock Bridge area, IS-2 Decebal-Cantemir district and IS-5 Tomești area, since they are the only stations nearby the river.

Station IAS 1/ IS-1- The Rock Bridge area - traffic station, located at the intersection between Nicolae Iorga Boulevard and Nicolina Street on the spot of the old market from The Rock

Bridge, in the residential area. This station monitors the influence of traffic exhausts on the purity of the air, trying to emphasize the pollution rate the population is exposed to. Its radius is about 10-100m.

Monitored air pollutants: SO<sub>2</sub>, NO, NO<sub>2</sub>, SO<sub>2</sub>, NO, NO<sub>2</sub>, NO<sub>x</sub>, CO, PM<sub>10</sub> or automatic PM 2,5 (light scattering) and gravimetric, Pb (from PM<sub>10</sub>), Benzene, Toluene, O-xylene, Ethylbenzene, m, p – xylene.

Station IAS 2/ IS-2- Decebal-Cantemir district- urban station, located in the perimeter of the Kindergarten number 6, next to “Dimitrie Cantemir” High School, monitors the level of pollution in the urban areas, the influence on human settlements, without the direct repercussion of the traffic or industry.

The settlement is specially designed to monitor the pollution level with the influence of the factors coming from the opposite direction of the wind, from the residential and commercial areas. Its radius is 1-5km.

Monitored air pollutants: SO<sub>2</sub>, NO, NO<sub>2</sub>, Nox, Pb (from PM<sub>10</sub>), PM<sub>10</sub>, Benzene, Toluene, o-Xylene, Ethylbenzene, m, p – xylene, meteorological parameters (wind speed and direction, temperature, atmospheric pressure, solar radiation, humidity, precipitations).

Station IAS 5/ IS-5- Tomești area- suburban station, located in the perimeter of the General “D.D. Pătrășcanu” Lower Secondary School, in the wind direction, monitors the pollution levels resulted from the transport of the pollutants from Iași City and its surroundings, without being directly influenced by the emission of exhausts from traffic or industry.

It also provides information about the exposure of the population and vegetation to the high levels of ozone. Its radius is 1-5 km.

Monitored air pollutants: SO<sub>2</sub>, NO, NO<sub>2</sub>, NO<sub>x</sub>, CO, O<sub>3</sub>, PM<sub>10</sub>, Pb (from PM<sub>10</sub>), BTX.

As you can see, every area has exceeded the permitted maximum amount of air pollutants because of the construction site around the Bahlui River that tries to level its banks (started in 2012) that had as a consequence much heavy traffic and an increase in anorganic substances in the air.

Thus, authorities have been notified, The National Environmental Guard of Iași County General Commissariat, The County's Hall and The Prefecture, taking several measures such as a request for the cleaning companies to have as a maximum priority the use of modern cleaning systems , the spreading of the green spaces, the setup of temporary green vegetal curtains at the at the outskirts of the working places , as well as “ Traffic restraints in some parts of Iași City, respectively in the area of The Rock Bridge and the ring road”, as it is stipulated in the revised Programme of Air Quality Management from 2012.

