IV. AIR QUALITY IN THE CR

The evaluation of air quality set forth in this yearbook covers the entire territory of the CR. Documentation of compliance with legal requirements including areas where none of the pollution limit values are exceeded is one of the fundamental principles of Directive 2008/50/ES. Where the targets for ambient air quality stipulated in this Directive are not met the member states are obliged to take measures towards compliance with the pollution limit values and long-term air pollution targets. Air quality assessment is carried out with regard to the protection of population health and the protection of ecosystems and vegetation.

The air quality was evaluated for this yearbook employing the calculation criteria in Annex I of Directive 2008/50/ES and Annex IV of Directive 2004/107/ES. These annexes set the data quality targets for ambient air quality assessment. According to Annex I of Directive 2008/50/ES and Annex IV of Directive 2004/107/ES, air quality may be evaluated only using data from monitoring stations at which the requirement of minimum data collection of 90 % was met, not including losses of data as a consequence of regular calibration or normal maintenance of the instrumental technology. Without prejudice to Annex I of Directive 2008/50/ES, data collection and calculation of statistical parameters are based on the criteria set forth in Annex XI of this Directive. As a consequence of these changes, some of the data presented in earlier yearbooks may differ slightly from the data presented in this yearbook.

The concentrations measured at the monitoring stations form the basis for evaluation of the air quality. The monitoring network is densest in areas with the highest pollution concentrations but nonetheless covers the entire CR. In 2021, measured data from a total of 198 locations were supplied to the AQIS database. The National Air Quality Monitoring Network (NAQMN), operated by CHMI, forms the backbone of monitoring stations. It includes both stations with an automated measuring program and a manual measuring program, from which samples are analysed in the CHMI laboratories. At many locations, the air pollution is monitored simultaneously by both automatic and manual methods. The national pollution monitoring network is supplemented by the monitoring stations of other organizations and their measurements are also employed in evaluating the air quality. The AQIS also includes information from the border areas of Germany, Poland, Austria and Slovakia obtained as part of the reciprocal exchange of data.

Map interpretation is an essential starting point for indication of areas where the pollution limit levels are exceeded from the viewpoint of protection of human health, for which the legislation requires preparation of programmes to improve the air quality or regulatory rules. A uniform colour scale has been introduced to improve orientation in the area maps of pollutants where a specific colour corresponds to a particular level of the air pollution (Tab. IV.1). Exceeding the pollution limit is indicated in red, the other basic distinctions between the categories consist of the WHO recommended values and the lower and upper assessment thresholds (Tab. I.1-I.3, Chap. Introduction). The upper and lower assessment thresholds for evaluating the level of pollution and the permitted number of cases exceeding the limit are set out in Annex No. 4 of Decree No. 330/2012 Coll., on the method of assessing and evaluating the level of pollution, the scope of informing the public about the level of pollution and during smog situations. In places where the pollution level reaches or exceeds the upper assessment threshold for evaluating the pollution level, the assessment of the pollution level is carried out by measurements made in accordance with the data quality objectives according to Part I of Annex No. 1 to this Decree. In places where the pollution level does not exceed the lower assessment threshold for evaluating the pollution level, the assessment of the pollution level is carried out by calculation through the model. In places where the pollution level is lower than the upper assessment threshold, the evaluation of the level of pollution is carried out by a combination of site measurement and orientation measurement. The diagram maps clearly depict the trends in pollution level characteristics in the period 2011–2021.

The graphs showing a course of pollution characteristics of selected pollutants in agglomerations and in the whole territory of the CR (if data are available) present variations of air pollution levels in the last 11 years, comparison of the situation in the currently evaluated year with the average for the previous ten-year period, variations of pollution levels during the current year, and pollutant concentrations at individual monitoring stations. A uniform colour scale has been introduced to improve orientation in the graphs where a specific colour corresponds to a particular type of station (Tab. IV.2). This is a simplified classification, which is based on the official EoI classification, including subcategories (for more explicit explanation and details see CHMI 2022d). The "Summary Table Survey" data yearbook (CHMI 2022e) provides overviews of measured concentrations of pollutants in outdoor air in the CR at individual measuring stations in 2021. The values are arranged in descending order and the grey background indicates exceeding the pollution limit level.

Tab. IV.1 Colour scale in the legend of the areal maps of polluting substances for classification of areas by assessment thresholds and areas above the pollution limit

	≤ WHO air quality guideline
	≤ lower assessment threshold
	lower assessment threshold – upper assessment threshold
	upper assessment threshold – limit value
	> limit value
	> limit value (heavily polluted areas)

Tab. IV.2 Colour scale in the legend of the graphs for classification of monitoring stations by a type of station (x – any letter in the classification)

	Simplified classification	EoI locality classifi-cationl
	rural regional stations (REG)	B/R/xxx-REG
	rural near city stations (R)	B/R/xxx-NCI
	suburban background stations (SUB)	B/S/xxx
	urban background stations (UB)	B/U/xxx
	traffic stations (T)	T/x/xxx
	industrial stations (I)	I/x/xxx