

## Countries and regions

# Czech Republic



## Main themes and sectors addressed in the national State of Environment report

The State of the Environment Report (SoER) of the Czech Republic is a basic reporting document of the Czech Republic. The SoER is published annually on the basis of Act No. 123/1998 Coll., on the right to information on the environment, and on the Resolution of the Government No. 446 of the 17th of August 1994. The SoER has to be published within three months of receiving government approval. The methodology of the SoER is indicator-based. The indicators cover the following main environmental themes:

- Atmosphere and Climate
- Water management and water quality
- Biodiversity
- Forests
- Soil and Landscape
- Industry and Energy
- Transportation
- Waste and material flows
- Financing

The set of indicators used is constantly being adapted to the needs of the Czech Republic's current national environmental policy, to the EEA's core set of indicators, to environmental problems, and to the availability of the source data sets. CENIA, Czech Environmental Information Agency, is responsible for producing the SoER.

## Key findings of the State of Environment report

The state of the environment in the Czech Republic is improving. There has been a long-term trend of decline in emissions of acidifying substances, ozone precursors, primary particles, secondary particulate precursors as well as greenhouse gas emissions from the manufacturing industry. Pollution of surface and groundwater has also been following a trend of long-term decline.

Air pollution is closely linked to developments in household heating, transport, the energy sector and the industrial sector. In the energy sector, electricity and heat generation from renewable energy sources has been growing, especially due to photovoltaic power stations as well as biogas stations. However, the generation of electricity in coal-fired power stations and associated environmental pollution is declining only very slowly.

Despite this decrease in emissions, emissions still cause acidification of ecosystems and agricultural land, and defoliation of forest stands. NO<sub>x</sub> emissions are also a precursor to ground-level ozone, which damages plants and reduces their resistance to stress factors of the environment.

Air quality in certain regions and localities still remains unsatisfactory. Household heating is a major, and difficult to regulate, source of emissions of PM10. It produces roughly 40% of particulate matter emissions. Main issues are obsolescence and low efficiency of combustion in heating units and to some extent behavioural traits of households.

There is still high pressure on the landscape connected with land-use development, particularly in large urban areas, and with the construction of transport infrastructure, which are both associated with allocation of agricultural and forest land resources for construction activities. This has increased landscape fragmentation and increased pressure on plant and animal habitats. As a result, migration patterns of animals are changing and there has been an overall decline in biodiversity.

The increasing extent of built-up areas also disrupts the ability of the landscape to retain water and protect against floods. Water retention in the landscape is essential for recharging water resources, which are important for drinking water supply and agriculture.

Positive developments include the decline in water consumption, and the improving quality of surface water. Although a growing share of wastewater is being treated, pollution from non-point sources – in particular agriculture – is growing.

The total waste production has had stagnating to slightly decreasing trend. Although landfilling still remains the main common method of municipal waste management, the trend is decreasing in favour of material and energy recovery.

## Main policy responses to key environmental challenges and concerns

The main policy responses are defined in **the State Environmental Policy of the Czech Republic 2012–2020<sup>[1]</sup>**, which sets a framework for the effective protection of the environment in the following main areas:

- Protection and sustainable use of resources
- Climate protection and improvement of ambient air quality
- Protection of nature and landscape
- Safe environment

A large amount of financial resources and legislation effort has been spent in improving ambient air quality in locations where air quality limit values were being exceeded. The aim of this effort is to improve or maintain air quality and reduce emissions of the main polluting substances into the air, with an emphasis placed on the use of environmentally friendly energy generation and energy efficiency.

Nevertheless an increase in fuel and energy prices forced households to re-evaluate their heating methods and return to solid-fuel heating (brown coal and wood, but also municipal waste and fuels with worse quality). This shift led the government to offer financial support for the replacement of old boilers for environmentally-friendly boilers and also to offer financial support for people to install domestic insulation.

The Czech Republic has also given significant support<sup>[2,3]</sup> to renewable energy in the last few years. This support has led to a growth in electricity generation from photovoltaic cells as well as from biomass. Construction of photovoltaic stations on agricultural land has changed land-use categories and led to the extensification of agricultural land. The financial support for biogas energy stations caused a risk for agriculture. Agricultural commodities (e.g. crops, rape) are now produced for energy use (biofuels or electric power made from biomass) instead of for human consumption. The support to the new RES has been adjusted accordingly.

## Country specific issues

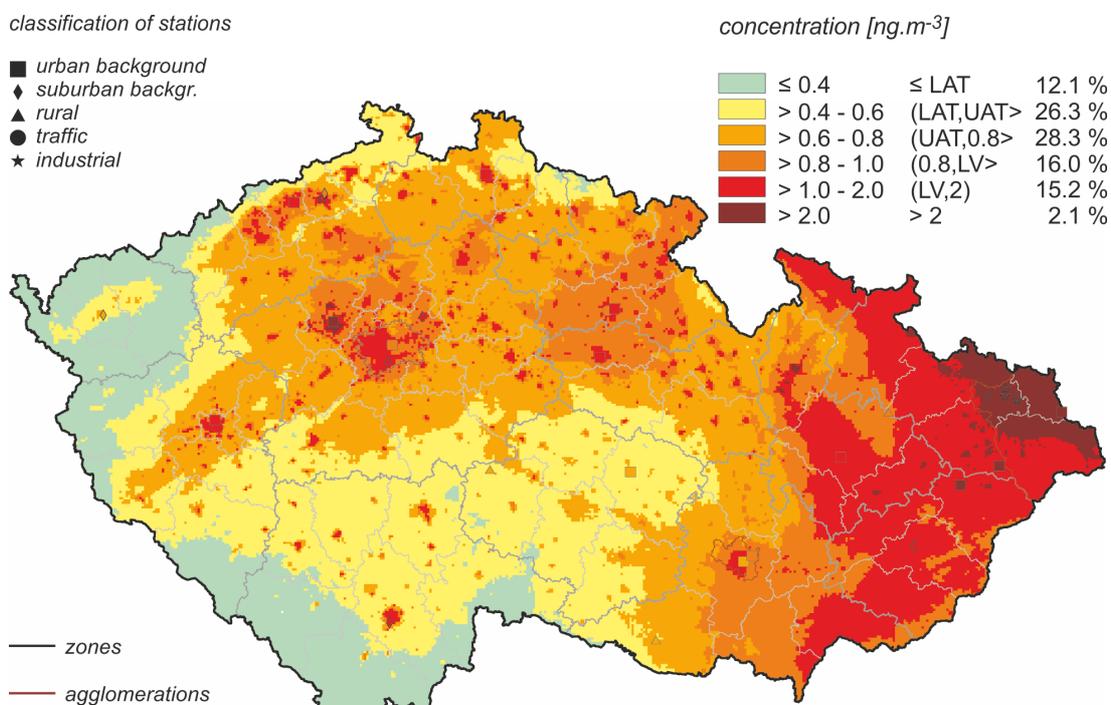
The Czech Republic pays particular attention to the elimination of air pollution because air quality has a direct impact on public health.

The main problems of air quality in the Czech Republic are benzo(a)pyrene (Figure 1), PM<sub>2.5</sub>, PM<sub>10</sub>, and surface ozone. Besides transport, the main sources of benzo(a)pyrene and PM<sub>2.5</sub> is residential fuel combustion. According to the Czech Hydrometeorological Institute, 15% of households use solid fuels for heating. This percentage is declining only very slightly. As a consequence of this trend, local heating represents a significant source of primary particulate matter (PM), especially PM<sub>2.5</sub>, and produces over 80% of the Czech Republic's benzo(a)pyrene emissions. Air quality deteriorates considerably during the winter due to worse dispersion conditions.

In 2013, a number of towns and villages were assessed for benzo(a)pyrene concentrations. In 2013, the benzo(a)pyrene limit value was exceeded in 17.3% of the territory of the Czech Republic (in 2012 it was exceeded in 26.5% of the territory of the Czech Republic). The percentage of inhabitants exposed to the above-the-limit benzo(a)pyrene concentrations in 2013 is estimated at 54.5% (in 2012 it was approximately 66.3%). The highest annual average concentration in 2013 was measured in the industrial locality Ostrava-Radvanice ZÚ (9.4 ng.m<sup>-3</sup>). Above-the-limit concentrations are also reached in traffic localities as well as in the background urban and suburban locations (Czech Hydrometeorological Institute, 2014).

It is necessary to consider that estimates of annual average benzo(a)pyrene concentrations are highly uncertain due to insufficient density of measurement and an absence of measurements at rural air-quality monitoring stations. Further uncertainty is caused by the absence of measurements in small settlements in the Czech Republic. 48% of Czechs (Czech Statistical Office, 2013) live in small settlements (villages and towns of 10 000 inhabitants or less), where the use of solid fuels for household heating represents a significant source of benzo(a)pyrene.

**Figure 1: Annual average concentration of benzo(a)pyrene in the ambient air in 2013**



Source: Czech Hydrometeorological Institute

SOER 2015 country briefings provide an overview of state of the environment across 39 European countries. They are part of the EEA's report SOER 2015, addressing the state of, trends in and prospects for the environment in Europe. The EEA's task is to provide timely, targeted, relevant and reliable information on Europe's environment.

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