

Yearbook Environmental of the Ústí Region

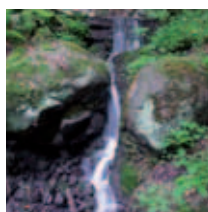
2013

Basic information about the region

The Ústí Region is situated in the north-west part of the Czech Republic. Agricultural land accounts for more than a half of its area and a third of the region is covered with forests. Mountain range of Krušné hory Mountains, Lužické hory Mountains and Labe Sandstone Area stretches along the northern border of the region.

The Region comprises of sixteen administrative districts - municipalities with extended powers - Bílina, Děčín, Chomutov, Kadaň, Litoměřice, Litvínov, Louny, Lovosice, Most, Podbořany, Roudnice nad Labem, Rumburk, Teplice, Ústí nad Labem, Varnsdorf, and Žatec.

Its area is 5 335 km², which accounts for 6.8 % of the CR territory. With its population density of 154 inhabitants per square kilometre it ranks among more populated regions of the republic. The average age of the population is less than 41 years. Compared with population age structure in other regions, the Ústí Region shows a higher number of inhabitants under 14 and less inhabitants above 65 years of age. One of the highest death rates in the Czech Republic, however, persists as well as a high number of newly born children.



Water management

The Labe River basin covers 5288 km² of the Ústí Region territory. From hydrological balance point of view the precipitation totals were highly above-average in the Lower Ohře River, Bílina River, Ploučnice River, and Lower Labe River basin in 2013. As to runoff, the main water course of the Lower Labe River was above average. Typical feature of the Labe and Ohře River was extraordinary aqueous month of June.

More significant flood episode on the Labe River was due to long-lasting rainfall at the turn of May and June in Bohemia. In June, twenty- to fifty-year flow rates were recorded on the Lower Labe River (Ústí nad Labem, Děčín, Hřensko). Basic functions in the area were disturbed during the flood: it was necessary to evacuate 8 746 inhabitants, transport services were reduced considerably (impassable bridges over the Labe River in Ústí nad Labem, Děčín and Litoměřice), public telecommunication networks, housing, drinking water, electricity and gas supply, waste water discharge, and municipal waste collection were affected. Land-slides and landed up water courses were further consequences. In total 2 506 buildings were flooded (of which 2 020 residential houses), 76 bridges, viaducts and foot-bridges and 130 km of roads were damaged, and one building had to be demolished based on a structural engineer's expertise. There were 86 flood-affected municipalities, towns or parts thereof in the Ústí Region.

Completed construction works on flood-control measures in 2013 included: flood protection against Q₁₀₀ on the Labe River in Lovosice area (total costs of about 720 million CZK), Terezín, Bo- hušovice nad Ohří, Děčín – left and right river bank

– improvement of urban built-up area protection (about 300 million CZK), Ústí nad Labem – left bank (about 335 million CZK), and flood-control measures in Roudnice nad Labem.

The Labe River is the most important water way in the Czech Republic enabling navigation to Hamburg. There were no problems related to navigation depths in Mělník – Hřensko section of the Labe River and navigation for draft of 200 cm was possible throughout the year.

Surface water intakes viewed in the long-term showed slightly decreasing trend. In year-to-year comparison the total amount of both groundwater and surface water intakes dropped by 15.9 million cubic meters which means the decrease by 8.3%. It was the lowest water intake in past 8 years. Of total volume of groundwater and surface water intakes only 26.7% are used for water supply.

Total amount of discharged waste water, on the contrary, increased by 13 million cubic meters compared to 2012. Industrial waste water accounts for the biggest share in discharged waste water, but the increase in total amount is mainly due to mine water and municipal waste water. The reason might be a higher number of households connected to public sewerage system. The amount of waste water from industry slightly decreased in year-to-year comparison. Downward trend in discharged process water is also evident in long-term horizon.

In 2013, a number of households connected to public water and sewerage systems increased compared to 2012. The share of inhabitants supplied from public water supply system increased by 0.6% and share of inhabitants living in houses connected to sewerage system increased by 1.4%. Invoiced water-rate in the Region was 1 440 million CZK and sewerage charges amounted to 1 258 million CZK in 2013. Average price of

water in the Region is the highest one in the CR (39.3 CZK/m³), sewerage charge of 37.1 CZK/m³ ranks second; even higher average price of discharged waste water was recorded in the Liberec Region. In 2013, the Board of Representatives of the Ústí Region granted subsidies of about 39 million CZK from the Water Management Fund to 33 applicants. Moreover, 19 contracts concluded in previous period were administered. Total sum drawn in 2013 amounted to about 28 million CZK.

From surface water quality point of view smaller water courses in areas with high share of industry and/or mining, such as the Chomutovka River, Bílina River, Teplický Stream, and Ploučnice River, showed the highest pollution levels. The cleanest water course was the Kamenice River at Hřensko. Like in past years, the average annual concentrations of suspended sediments in the Labe River were relatively low with values between 17 and 20 mg/l¹. Not even June flood episodes affected these values markedly. In general, they were interpreted as average or under-average. Contrary to that, the Labe River tributaries showed higher annual concentration averages.

Groundwater quality has not changed markedly in year-to-year comparison. In light of percentage of nonconforming values of all analyzed indicators we can state that in partial river basin of the Ohře River, Lower Labe River and other Labe River tributaries only 9.7% of above-limit samples containing ammonia ions and relatively low percentage of nonconforming analyses of nitrates (4.8%) were recorded, while concentrations of sulphates, fluorides and also lithium were the highest ones in the CR. At the national level, maximum concentrations of hazardous substances were detected at a number of cases in this region.

There were 18 accidents of common type without long-term consequences registered in 2013.



Air Quality and Power Generation, Geological Environment

Air Quality

Even though the new Air Protection Act No. 201/2012 Coll. came into force on 1 September 2012, the most important executive legal regulation – Decree No. 415/2012 Coll. on Permissible Level of Pollution and its determination and implementation of other provisions of the Air Protection Act – was promulgated in the Collection of laws as late as on 30 November 2012 with effect from 1 December 2012. Thus, the enforcement of state administration as such according to the new law started in the last month of 2012. The new Air Protection Act has currently four implementation regulations.

Total emissions of main pollutants emitted from all sources located in the Ústí Region territory in 2013 were not available at the time of the annual report close (the data are taken over from the Czech Hydrometeorological Institute). As far as the amount of emissions from significant sources of air pollution (these data are available to the Regional Authority from charges administration), such as big coal-fired power plants and heating plants, is concerned, it is at far lower level compared to previous year thanks to very mild winter. Therefore we can also expect a decrease in all air pollutants' emissions in total emission balance for the Ústí Region. Mild winter should reflect in a significant decrease in amount of pollutants emitted from local combustion sources, too. Low amount of emissions produced by chemical industry sources corresponds with production reduction or shutdown during floods in June 2013.

Air quality in the Region is assessed based on data obtained from automated monitoring stations included into the Air Quality Information System (ISKO) operated by the Czech Hydrometeorological Institute (CHMI) under the authority of the Ministry of the Environment of the Czech Republic. There were in total 28 automated monitoring stations operated in the Ústí Region territory in 2013.

In 2013, 24-hour concentration of PM_{10} was exceeded at 6 stations, annual average concentration of benzo(a)pyrene at 2 stations and maximum daily 8-hour average of ground-level ozone (O_3) at 7 monitoring stations. Any other ambient air quality limits were not exceeded at

any monitoring station located in the Ústí Region territory.

Data from monitoring stations are further processed and used for calculation of percentage of area within a zone or agglomeration where the ambient air quality for one or more pollutants was exceeded. The area where some of the ambient air quality limits were exceeded decreased considerably in year-to-year comparison. This favourable situation resulted mainly from meteorological conditions during winter months (very mild winter, less frequent occurrence of inversion episodes with unfavourable dispersion conditions).

In 2013, monitoring of persistent organic pollutants (POPs) in the air in the Ústí Region territory continued in following localities: Ústí nad Labem (Trmice, incineration plant), Teplice, Most, Chomutov, and Ústí nad Labem (Kočkov); moreover, polychlorinated dioxins and furans (PCDD/F) were monitored in Ústí nad Labem – Trmice (incineration plant) and in Most.

POPs monitoring results are summarized in final report "Determination of Concentrations of Selected Persistent Organic Pollutants (POPs) in Ambient Air in the Ústí Region in 2013" (Centre for Research of Toxic Substances in the Environment, Masaryk University Brno, July 2014).

PAH levels in majority of localities showed typical season trends when the highest values were recorded in winter season (local heating burning fossil fuels).

The locality with the highest concentration of polychlorinated biphenyls was Trmice station. In the long term, peak PCB levels measured at Trmice monitoring station correspond with results of previous measurements in 2009, 2011 and 2012. Nevertheless, we can state that the measured PCB levels were lower than those recorded in 2012. Pollution level at Trmice monitoring station thus corresponds with pollution in industrial zones; other stations were comparable with urban type of background.

Samples for PCDD/F analysis were taken at Most and Trmice localities. Comparison of both localities showed that values at Most were lower than those at Trmice station. In the long-term assessment downward trend was evident at Most locality, which was clearly confirmed by values recorded in 2013.

The Board of Regional Authority of the Ústí Region approved participation of the Ústí

Region in the Joint Programme for Support of Replacement of Boilers Burning Fossil Fuels in Households (so called Boiler subsidies) with the Ústí Region's co-financing amounting to 10 million CZK through the Environmental Fund of the Ústí Region. In scope of the 2nd Joint Call for Applications for subsidy from this grant programme a total of 467 applications were submitted of which 235 applications are administered by the Regional Authority of the Ústí Region. After evaluation, 214 applications were registered, i.e. granted the subsidy based on formal correctness, completeness and compliance with the terms (with total allocated sum of 9.395 million CZK), and 21 applications were dismissed.

Power Generation

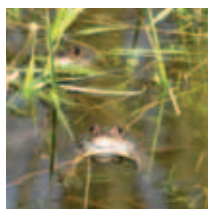
Power generation in the Ústí Region plays an important role among industrial branches. Electricity generated in the Ústí Region accounts for considerable share in the national power generation total. It is given by occurrence of deposits of power generation raw material – brown coal. Several of the biggest coal-fired power stations in the Czech Republic are located just in the Ústí Region.

Compared with previous years, power generation in hydro-power stations increased significantly in 2013. Wind turbines and solar power stations more or less maintained their output at the same level. Nevertheless, the share of power generation from wind turbines in the Ústí Region's territory is still significant in comparison with the national power generation from these sources.

In scope of the national balance of power generation from renewable sources in 2013 the highest increase was recorded in bio-gas stations' production.

Geological Environment

The territory of the Ústí Region is rich in power generation, metallic and non-metallic as well as construction raw materials. The Ústí Region is the main producer of brown coal, production of which in scope of the CR exceeded 80% in 2013. Brown coal in the Most coal basin is excavated by Severočeské doly a.s., Severní energetická a.s. and Vršanská uhelná a.s. Extraction of mineral resources is closely related to soil reclamation and revitalisation issues.



Nature Conservation, Environmental Education, Training and Awareness

Nature Conservation

There is 1 national park in the Ústí Region, 4 protected landscape areas stretch into its territory, and currently, at the end of 2013, 12 national nature reserves, 13 national natural monuments, 56 nature reserves, and 83 natural monuments were declared (according to data registered in the central database of nature conservation). In 2013, the Ústí Region Administration declared 11 new special protection areas, all of them with the aim at protection of localities of Natura 2000 network.

In order to protect landscape character there have been 7 natural parks set up in the Region. Moreover, there are 439 notable trees or alleys. Registered are more than 130 significant landscape elements including mainly meadows and baulks rich in flora and fauna species, pools or localities of occurrence of endangered plant and animal species and species subject to special protection. In 2013, the Regional Authority of the Ústí Region arranged for care of about 30 localities with the aim at supporting populations of valuable species and species subject to special protection or rare and extinguishing

types of biotopes. Total area where the Regional Authority on its own expenses provided for necessary care in order to support biodiversity is about 120 hectares. The most frequent management interventions carried out were: grass mowing, self-seeded bushes clearing, and, most importantly, arrangements for controlled sheep and goat grazing. Furthermore, there were 18 voluntary agreements on care of lands in the nature conservation interest concluded with land owners and tenant farmers last year. The regional grant programme subsidized 12 projects focused on landscape revitalisation and biodi-

versity. In 2013, in scope of species' protection the Regional Authority of the Ústí Region issued (based on delivered applications) more than 110 decisions on exceptions from ban on harmful interventions in natural development of species subject to special protection.

The Ústí Region continued to participate in the long-term project "Revitalisation of Peat-bogs between Hora Sv. Šebestiána and Satzung – Implementation Phase" supported by "Cíl 3 / Ziel 3 grant programme for strengthening of cross-border cooperation between the Czech Republic and the Free State of Saxony, 2007 – 2013". In the implementation phase of the project the Ústí Region carries out monitoring of peat bodies' condition and changes thereof after implementation of revitalisation measures both in hydrological parameters and as to their impact on natural components of the ecosystem.

Implementation of the project focused on preservation and support of endemic species of *Cylindromorphus bohemicus*, the objective of which is mainly care of some existing biotopes of the aforementioned species provided in scope of long-term project co-financed by the European Union through the Environment Operation programme continued also in 2013.

Environmental Education, Training and Awareness

The Board of Representatives of the Ústí Region approved on 26.6.2013 by its resolution no. 92/7Z/2013 the "Update of Environmental Education, Training and Awareness Programme (EVO) in the Ústí Region". The Ústí Region continued in successful cooperation with its partner EKO-KOM, a. s. in development of EVO in the Ústí Region with the aim at intensification of separated waste collection and providing for utilisation of municipal waste, including packages. In June 2013, results of environmental competition "Landscape corners of the Ústí Region" were announced.



Winners of the competition, in which 30 schools took part, were pupils of Tisá basic school and kindergarten with their project "We live where others go for holiday". In November 2013, already second EVO conference was held. It was intended mainly for educationalists specialized in development of environmental education in schools. A meeting with representatives of municipalities with extended powers focused on EVO issues took place in December 2013. In scope of the "Programme for Development of Eco-agro Areas in the Ústí Region for period of 2013-2016" the Ústí Region supported 21 projects focused on EVO with a total of 1 million Czech crowns in 2013.



Waste Management, Old Environmental Burdens, Prevention of Serious Accidents

Waste Management

General decrease in waste production in the Ústí Region continued also in 2013. In year-to-year comparison the total amount of produced waste dropped from 2.69 million tons to 2.22 million tons. Similarly to 2012, the most significant drop by almost 83 thousand tons was observed at waste category no. 170504 – soil and aggregates. Decrease in waste soil production corresponds with completion of construction of large shopping centres in Teplice, landscaping at Brewery area in Děčín or Campus construction development in Ústí nad Labem. Further significant decrease can be seen in soil containing harmful substances (waste category no. 170503) which results from gradual termination of soil sanitation of former phenol production plant in Chemopetrol Litvínov premises as well as that of Spolek pro chemickou a hutní výrobu (Association for Chemical and Metallurgical Production) in Ústí nad Labem, and decrease in waste category no. 170107 – mixtures or sorted components of concrete, bricks, roof tiles and ceramic products by 50 thousand tons. The same applies to waste category 170106 – mixtures or sorted components of concrete, bricks, roof tiles and ceramic products containing harmful substances, the production of which dropped by 28 thousand tons. As to municipal waste is concerned the most significant decrease by 4 thousand tons is evident in waste category no. 200202 – soil and aggregates.

The biggest increase - by 47 thousand tons - was recorded in waste category no. 170904 – mixed construction and demolition waste, which is related to removal of waste from areas affected by flood in 2013. Significant increase occurred also in waste from waste sorting plants, namely in category no. 191204 – plastics and rubber by 8

thousand tons, in category no. 190202 – iron by 7 thousand tons, in category no. 191201 – paper and cardboard by almost 3 thousand tons, and in category no. 200201 – biologically degradable waste by almost 5 thousand tons. Increase in these wastes amounts, except for mixed construction waste, can be understood as a positive trend since it is a sign of increased yield from waste sorting. Increase in the aforementioned waste categories, except for mixed construction waste, can be perceived as a positive tendency since it is a sign of increased yield from waste sorting. Despite more intensive separation of biologically degradable waste the objective of the Waste Management Plan of the Ústí Region to divert dumping of biologically degradable municipal waste could not be achieved. The amount of this waste dumped at landfills keeps exceeding the limits set by the national as well as European legislation significantly.

Waste handling has not shown any considerable changes. Utilisation prevails over disposal: in case of the "other wastes" category up to five times. Maximum of the "other wastes" was recycled, which accounts for 21% of total amount of utilized "other wastes" (2.69 million tons), mainly of construction waste. Together with soil 12% of these wastes are used for landscaping, 9% for reclamation on landfill bodies, and/or 4% as technological material. Also 5% of "other wastes" used in composting plants have remained unchanged as well as 18% of wastes exported abroad. Disposed was a total of 511 thousand tons of "other wastes", of which 72% were dumped at landfills and 22% disposed on waste water treatment plants.

As to hazardous waste is concerned the difference between utilisation and disposal is not as significant as at "other wastes". Nevertheless, utilization of waste still prevails. In 2013, a total of almost 247 thousand tons of hazardous waste

was utilized, and only 120 thousand tons were liquidated. Only 7% of all liquidated hazardous waste were dumped at landfills untreated, as absolute majority of hazardous waste undergoes various ways of treatment before dumping, such as physical and chemical treatment (stabilisation, solidification), biological or another treatment of its composition. The waste coming out from these facilities is classified as "other wastes". Regardless whether it was treatment for further utilisation or final disposal, 138 thousand tons of hazardous waste underwent some kind of treatment in 2013.

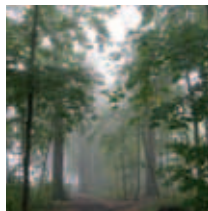
Municipal waste production of 344 thousand tons is also unvarying. The same has applied to municipal waste handling for already several years: 87% of municipal waste is dumped at landfills. Usable components of municipal waste are mainly exported abroad, biologically degradable component is composted, and inert waste, if any, is used for crude landscaping and soil reclamation at landfills.

Old Environmental Burdens

There has been no significant progress in liquidation of registered environmental burdens since 2012. Soil sanitation interventions by which ground water contamination by chlorinated hydrocarbons is removed have currently been in progress in 11 localities.

Prevention of Serious Accidents

In the Ústí Region territory there are 32 establishments classified according to Act No. 59/2006 Coll., on Prevention of Serious Accidents. There are 5 emergency planning zones set in the Region for which an external emergency plan has been prepared. Details can be found on the Ústí Region's website: http://www.kr-ustecky.cz/zivotni_prostredi.asp.



Agriculture, Forest management, Game Keeping and Hunting and Fishery

Agriculture

Year 2013 in vegetable production brought an average harvest at negligible variation in acreage in year-to-year comparison. In livestock production, production of poultry increased significantly. From the "Programme for Support of Agriculture Development Directions and Rural Areas in the Ústí Region for Period of 2008 – 2013", which is coming to its end, 54 projects obtained subsidies amounting to 5,476 thousand CZK in 2013. A new grant programme called "Programme for Development of Eco-agro Areas in the Ústí Region for Period of 2013 – 2016" which also includes support for bee-keepers, supported not only beginning bee-keepers,



but at the same time enabled extension of bee keeping and exchange of old bee hives for up-to-date ones with possibility to monitor health state of the bees. There were 148 projects supported with the amount of 1,431 thousand CZK in scope of this Programme in 2013.

Harvest-home fest at Peruc and "The Best Food Product of the Ústí Region – Přemysl, the Ploughman's Region" and "Regional Food Product of the Ústí Region" competitions enjoyed great attention of general public.

Agricultural land of the highest quality in the Ústí Region can be found in Louny, Litoměřice, Žatec and Lovosice area. Exploitation of the acreage of agricultural land for vegetable production in these areas prevails. The soils are characterized not only by higher quality, but also by soil blocks consolidation enabling efficient farming. In the Ústí Region, the most prevalent are arable land and permanent grassland. Decrease in soil acreage in the Ústí Region in 2013 was mainly in favour of residential development and construction of production and storage facilities. One of significant means of agricultural land acreage protection is obligatory payment for agricultural land appropriation for construction development. In 2013, payments for agricultural land appropriation based on issued decisions amounted to about 30 million CZK in the Ústí Region.

Forest Management

Forest stands cover a total of 157 000 ha in the Ústí Region. Most part of the forests can be found on the Krušné hory Mountain range, in Šluknov area and part of the Bohemian Central Highlands (Litoměřice, Lovosice and Ústí area). Forest stands in the Ústí Region have been exposed to harmful abiotic impacts in the long term. In 2013, damage caused by snow and frost deposits decreased considerably. Serious biotic pests damaging forest stands include mainly eight-toothed spruce beetle, larch bark beetle and pine bark beetle. Rodents have become another considerable pest lately accounting for damage and in some cases even for destruction of whole forest stands. Also this damage, however, decreased in year-to-year comparison.

In Krušné hory Mountains higher occurrence of spruce needle-cast was observed at blue spruce and Norway spruce. In the north-east part of Krušné hory Mountains significant pest affecting substitute tree species keeps to be fungal pathogen *Gemmamyces piceae*. In some localities the existing stands have already been critically endangered by this pathogen. Since 2009, the Regional Authority of the Ústí Region has been monitoring the development and health state of the forest stands in Krušné hory Mountains and puts maximum efforts to raising sufficient funds for financing following reconstruction of the forest stands in order to ensure future fulfilment of forest functions. In 2013,

owners of damaged forest stands could draw money only from a grant programme of the Ústí Region and from the Environment Operation Programme. There were 6 million Czech crowns allocated by the Board of Representatives of the Ústí Region in 2013 for the "Grant Programme for Forest Management in the Ústí Region for period 2010 – 2013".

Game Keeping and Hunting

Game keeping consists mainly in breeding and protection of individual animal species. Recently, due to its diversity of habitats, following animal species can be found in the Ústí Region:

Krušné hory Mountains, Lužické hory Mountains and Labe Sandstone Area host the largest population of red deer in the Region. Roebuck, fallow deer, moufflon, sika deer and wild boar range throughout the Region. Polabí area with intensive agricultural production provides suitable habitat for population of small game, both furred (brown hare) and feathered (pheasant). Occurrence of heath grouse was recorded in Krušné hory Mountains, and population of chamois in Česká Kamenice area can be mentioned as a curiosity.

In 2013, in hunting grounds of the Ústí Region, total area of which is 425 841 ha, 12594 pieces of wild boar, 5632 pieces of roebuck, 3955 pieces of red deer, 1070 pieces of moufflon, 971 pieces of fallow deer, 321 pieces of sika deer, and 3 pieces of chamois were hunted down. Of small game it was 6057 pieces of pheasant, 3767 pieces of mallard duck and 488 pieces of brown hare.

Considerable problem related to game keeping is damage to forest and field plantations or lands, mainly in areas with high stock of hoofed game.

Fishery

Fishery management in the Ústí Region ranks almost exclusively among leisure activities in form of sport fishing in designated fishing grounds on streams and water reservoirs. Under the umbrella of the Czech Angler Union and the North Bohemian Regional Union fishermen associate in 47 local organizations (28 in the Ústí Region and 19 in the Liberec Region) representing basic organizational units of the Union. With its 29 108 members (1239 women, 24 405 men and 3464 juveniles) it is the biggest hobby organization in the Czech Republic.

