

## SUSTAINABLE REGIONAL DEVELOPMENT

Besides protecting the values of the natural and built environments, the purpose of sustainable regional development is to guarantee that development will improve the quality of life of the population while it will also ensure a careful use of the economic resources that form the basis of all. To assess the accomplishment of this complex set of targets, we need to have thorough knowledge of the emissions, the condition of the environment, and the responses given to the environmental challenges.

### Air quality

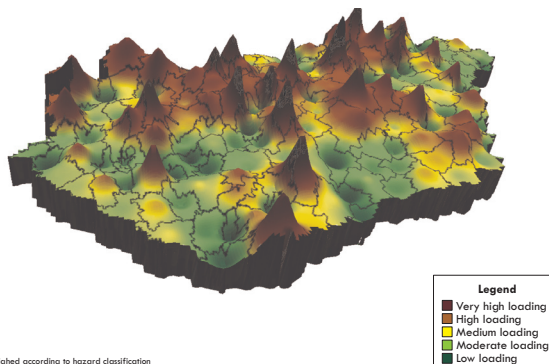
**Point-source emissions of air pollutants** were highest in major cities, in industrial areas and along the main transport corridors. The microregions of Gyöngyös and Budapest were found especially polluted. Continuous areas with higher burdens of pollution were the northern part of Transdanubia, the Transdanu-

bian Mountains, the industrial area of Borsod and the territory along the M3 motorway, the Kecskemét-Jászberény-Mezőtúr triangle, and the area stretching between Békés and Orosháza.

**Air pollution from transport** is well indicated by the emission of nitrogen-oxides because these derive mainly from transport and cause the formation, especially in the winter time, of health-damaging smog. Air pollution from automobiles is higher especially along the motorways – and in particular, along M1 and M5, which channel significant amounts of transit traffic – as well as near the most important transport hubs and in the microregions of major cities and their agglomerations; in the case of nitrogen-oxides, pollution here exceeds 600 kt/year.

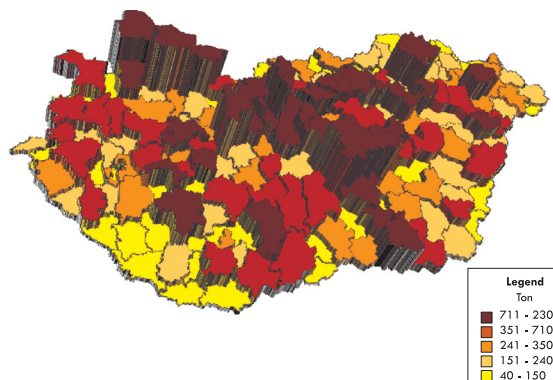
Considering **the composite air pollution index**, the air was classified as polluted in 8 municipalities in 2007, which could be attributed mainly to the high concentrations of settling dust. According to the sulphur dioxide concentration data for settlements included in the monitoring network, air quality, on a

The „terrain map” of the emission index\* of air pollutants from point sources, 2007



\* Weighed according to hazard classification  
Source of basic data: KVM

Air pollutant emission from public road transport (NO<sub>x</sub>), 2007



Data source: Institute for Transport Sciences Nonprofit Ltd.

yearly average, was excellent at all monitoring points, with the exception of 3 municipalities, where it was classified as “acceptable”. This was mainly due to a radical decrease in sulphur dioxide emissions, the use of sulphur-free fuels as well as to the installation of smoke washers at thermal power stations.

### Water quality

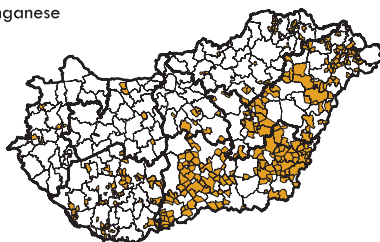
The water quality of the major rivers of Hungary, based on annual average values monitored at their points of entrance to and exit from the country, was not much different from the values measured in the years before. The **water quality of the Danube** was worse at its exit point than at its entrance according to biochemical oxygen demand (BOD5) and the Coliform number related to communal wastewater load. On the other hand, the total phosphorus and total nitrogen contents were more favourable at the exit than at the entrance point of the river course. Along **Tisza**, total phosphorus content was rising until the border with Serbia, while with regards to biochemical oxygen demand (BOD5), the total nitrogen content and the Coliform number, its water quality was better after leaving Hungary than at its entrance point.

The **quality of potable water**, in most of the country, is adequately monitored and acceptable. However, potable water supplied to about 25% of the population contains boron, fluoride, nitrite, arsenic or ammonium in concentrations above the limit values. A further 7% of the population is supplied potable water with high concentrations of iron and/or manganese. In Hungary, 16% of the population (approx. 1.5 million people, living in 413 settlements) receives drinking water on a regular basis which may trigger known health risks if consumed for a longer time.

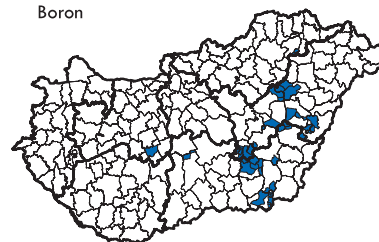
The quantity of **sewage water** per capita was 53.1 m<sup>3</sup> nationally in 2007. Traditionally, higher volumes were found in the most developed industrial and

**Municipalities receiving potable water of unacceptable quality according to the components with concentration above the threshold, 2009**

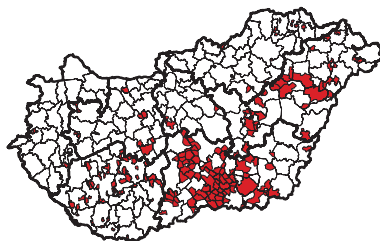
Manganese



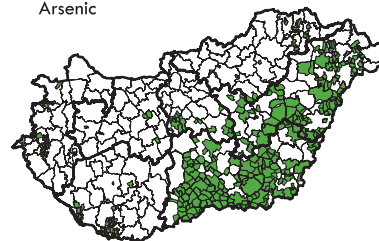
Boron



Iron

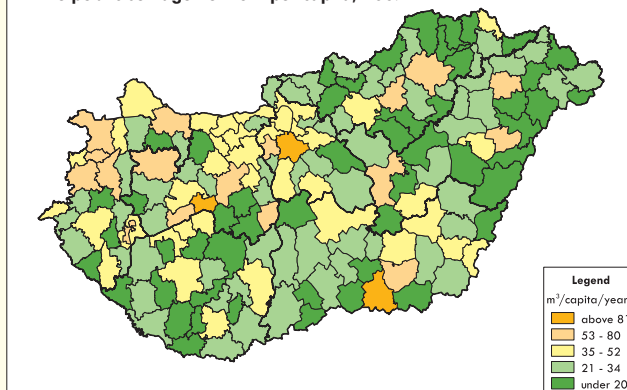


Arsenic

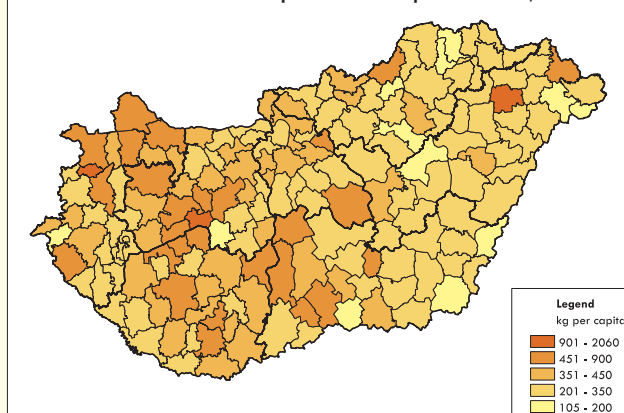


Source: 65/2009. (III. 31.) Gov. Decree

The amount of wastewater collected  
in the public sewage network per capita, 2007



The amount of collected municipal solid waste per inhabitant, 2007



urban regions, i.e. the northern part of Transdanubia, Budapest and its agglomeration, as well as the microregions containing the bigger cities. The disposal of sewage water was more significant also in the case of municipalities where there are establishments using especially great quantities of water, like for instance, thermal baths, spas.

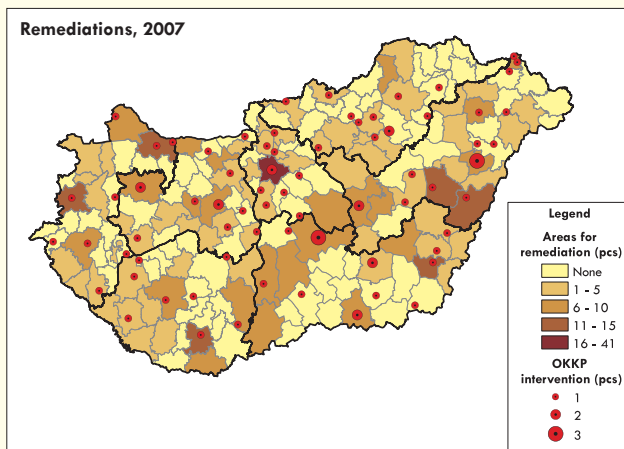
From all collected sewage in Hungary, the ratio of sewage water receiving the **third level of treatment** was 34.6%, while 37.6% of the collected wastewater was released after **biological treatment**. In 2007, there were altogether 13 microregions where the collected sewage was disposed of **without any treatment**; the proportion of this compared to the total amount of collected sewage, was 4.9%.

## Waste management

The proportion of households included in regular **waste collection** was more than 92% in 2007, yet in the microregions of Berettyóújfalu, Tiszafüred,

Kiskunfélegyháza, Kiskunmajsa and Kistelek, it did not even reach 65%. The poor performance of the areas in Kiskunság can be attributed to their settlement structure with farmsteads, while the construction of regional waste management system of the region between the Danube and Tisza rivers was already under way in 2007. In the microregion of Tiszafüred, which had the lowest rate (34.8%), the local waste management system will be completed in 2009, in the framework of which the waste depositing, composting and selecting facilities at Tiszafüred as well as the waste loading and compressing station at Mezőkövesd were already built in 2006.

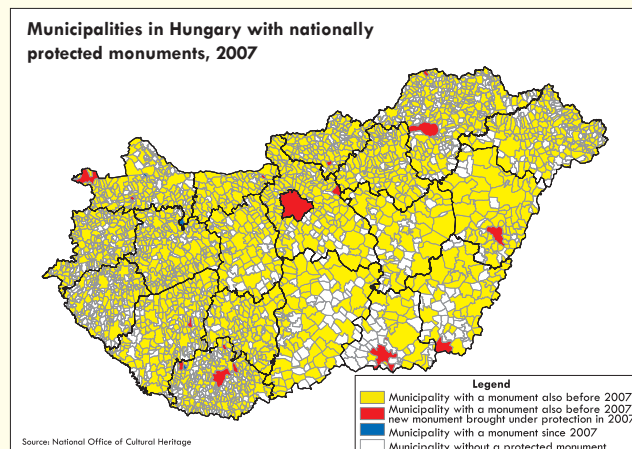
The per capita volume of **municipal solid waste** was generally much higher than the national average in Transdanubia (388 kg/capita), while in the eastern part of Hungary, it was usually less. The region of the Small Hungarian Plain, the area between Székesfehérvár and Ajka, as well as the microregions including the major cities and their agglomerations had particularly high values (above 450 kg/capita).



In 2007, the greatest volumes of **hazardous wastes** were collected from microregions with large industrial and power plants, sites of hydrocarbon mining, and waste incineration stations. The per capita amount of hazardous waste was greatest in the microregion of Veszprém, 4693.7 kg. The significance of territorial differences is indicated by the fact that this volume was less than the national average (102 kg/capita) in 150 microregions of Hungary.

### Environmental remediation

In 2007, 459 sites were registered as ones requiring environmental remediation. The microregion of Budapest had the highest number (41), but the microregions of Győr, Szombathely, Pécs, Békéscsaba, Berettyóújfalu and Püspökladány had also rather high numbers of these sites. In the framework of the National Environmental Remediation Programme (OKKP), most of the interventions (51) – site inves-



tigation, monitoring and remedial action – were performed under the MÁV (Hungarian State Railways Co.) Sub-programme related to the modernisation of fuel supply systems. The Home Defence Sub-programme included 23 remedial measures, and remediation work was carried out on further 6 sites in the course of implementing the Former Soviet Properties Sub-programme.

### Protection of cultural monuments

In 2007, two-thirds of all municipalities, that is, 2 149 settlements owned altogether 10 900 nationally protected **cultural monuments**. In 2007, their number increased by 40 monuments brought under protection in altogether 22 municipalities, while the protection of two buildings ended. The number of **World Cultural Heritage Sites** in Hungary did not change in 2007: there were still 8 sites with this title, which involved 52 local governments and 4 national parks.

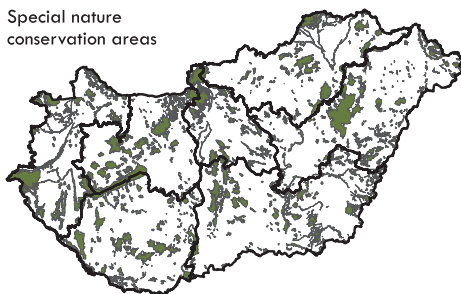
## Nature conservation

The number of **nature conservation areas of national significance protected under separate legislation** was 209 in 2007, and their combined area exceeded 844 thousand hectares, which is 9.1% of Hungary's territory. 11 new areas were declared protected in 2007, meaning a total area of some 4000 ha. The Natura 2000 areas covered 21.2% of Hungary's ter-

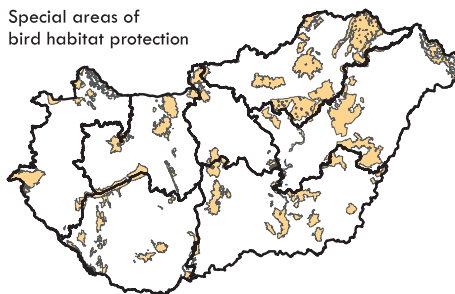
ritory. The nature conservation areas of national significance and the **Natura 2000** areas overlap considerably, and therefore, their spatial distribution is also similar: they are found mostly in mountain regions – in the Northern Hungarian and the Transdanubian Mountains, the Lower Alps and Mecsek Mountains –, along the major rivers, as well as in the territories of Őrség, Hortobágy, Hanság, Kiskunság, the Bihar Plain, the Borsod Plains (*Borsodi-mezőség*) and Heves.

The location of Natura 2000 areas, 2007

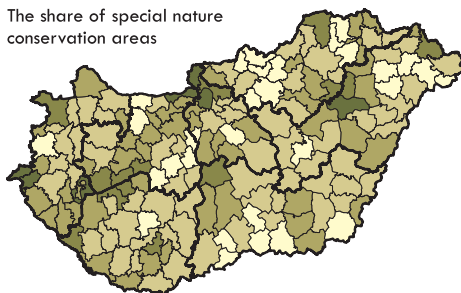
Special nature conservation areas



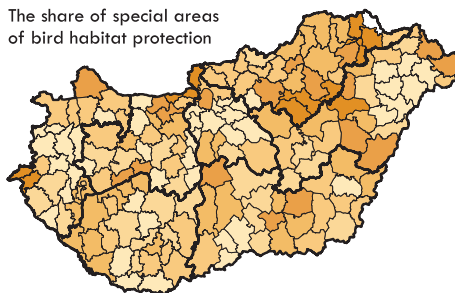
Special areas of bird habitat protection



The share of special nature conservation areas



The share of special areas of bird habitat protection



Source: KvVM

### Legend

much above the average	below the average	much above the average	below the average
above the average	much below the average	above the average	much below the average
around the average		around the average	none