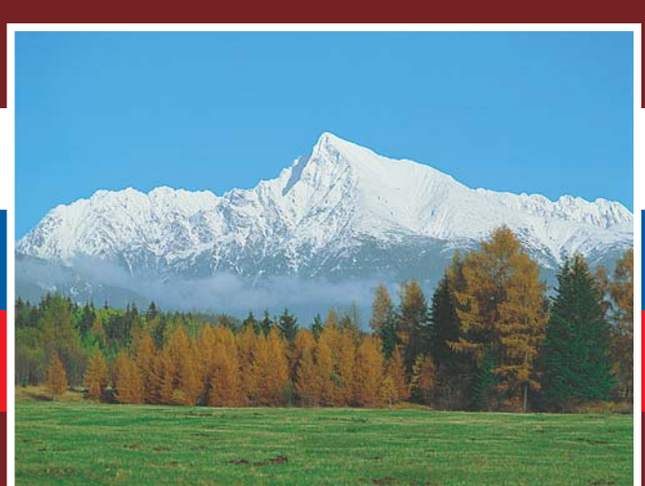
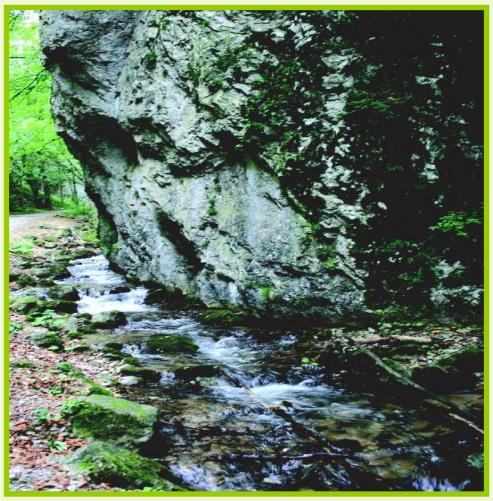
Ministry of the Environment
of the Slovak Republic

STATE OF THE ENVIRONMENT REPORT SLOVAK REPUBLIC 2007



Slovak Environmental Agency

j. Klinda



Whoever is performing an activity, which could have an impact on the ***condition of the surface waters and underground waters, and of water situation,*** *is obliged* ***to exert the necessary effort to provide for their preservation and protection.***

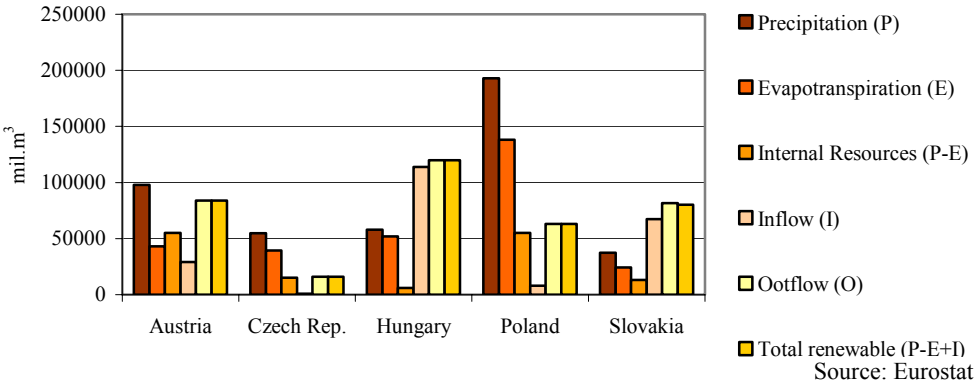
§ 30 par. 1 of the Act No. 364/2004 Coll. on Waters and on Amendment of Act No. 372/1990 Coll. on Offences as amended (Waters Act)

• WATER

Water sources and water fund

Significant part of the Slovak surface water fund flows in from the neighboring states and the usability of this fund is limited. In total, the long-term in-flow average is approximately 2.514 $m^3.s^{-1}$ of water, which is about 86 % of our total surface water fund. In the long run, there is approximately 398 $m^3.s^{-1}$ of water springing in Slovakia, which represents 14 % of the water fund.

Long term freshwater resources in the selected countries in 2007



Source: Eurostat

Surface water

♦ **Precipitation and runoff conditions**

Total **atmospheric precipitations** in the Slovak territory in 2007 reached the value of 854 mm, which represents 112.1 % of the normal level. In terms of precipitations, this year had been considered normal. Total excess of precipitations reached the value of 92 mm.

Average total precipitation in the area of the SR

Month	I.	II.	III.	IV.	V.	VI.	VII.	VIII.	IX.	X.	XI.	XII.	Year
Mm	101	58	70	6	82	92	58	94	133	54	66	39	854
% normal	220	138	149	11	108	107	65	117	210	88	107	74	112
Surplus (+)/ Deficit (-)	55	16	23	-49	6	6	-32	13	70	-7	4	-14	92
Character of rainfall period	MV	V	VV	MS	N	N	S	N	MV	N	N	S	V

Characteristics of the precipitation season: N - normal, S - dry, SS - very dry, V – humid, VV – very humid, MV – exceptionally humid Source: SHMI

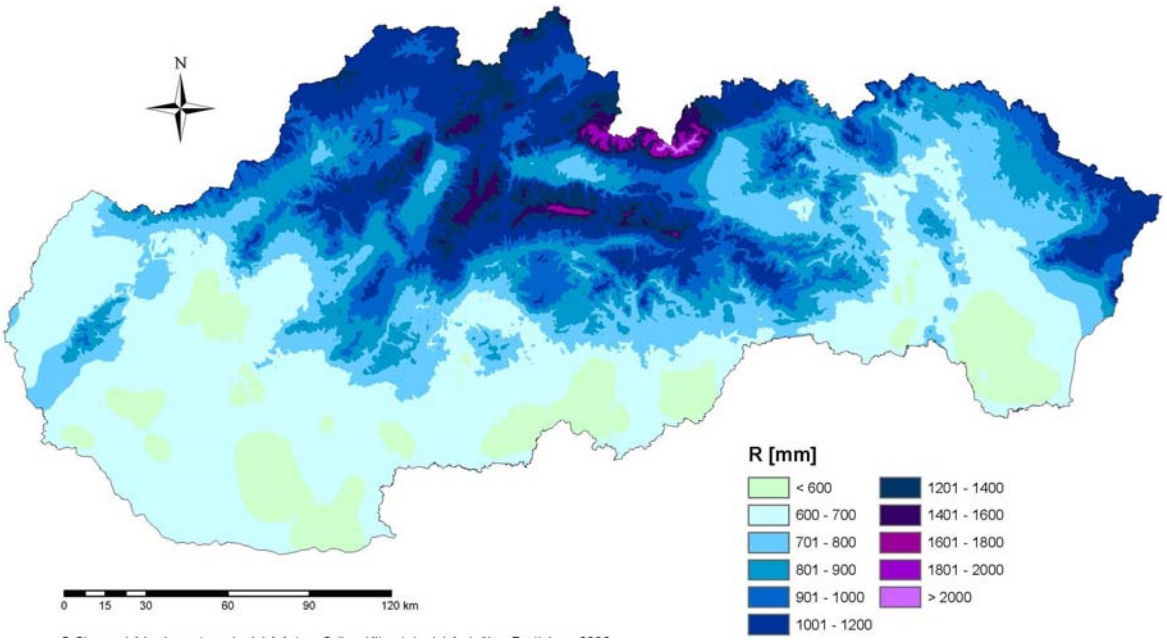
In terms of precipitation period, the year 2007 was humid in the catchments of Váh, Nitra, and Bodrog, and very humid in the catchments of Hornád, Poprad, and Dunajec. The same year was considered normal in all other partial catchments.

Average rates of precipitation and runoff in particular catchment areas

Catchment area	Dunaj		Váh		Hron			Bodrog a Hornád				SR
Subcatchment area	*Morava	*Dunaj	Váh	Nitra	Hron	*Ipeľ	Slaná	Bodva	Hornád	*Bodrog	*Poprad a Dunajec	
Catchment area extent (km^2)	2 282	1 138	14 268	4 501	5 465	3 649	3 217	858	4 414	7 272	1 950	49 014
Average precipitation (mm)	728	650	967	769	869	659	791	745	842	834	1 068	854
% of normal	107	104	115	111	110	96	100	102	124	118	127	112
Character of rainfall period	N	N	V	V	N	N	N	N	VV	V	VV	V
Annual runoff (mm)	65	27	309	113	199	45	98	60	143	198	456	189
% of normal	49	75	99	79	69	33	52	28	32	67	133	72

* watercourses and corresponding data only for the Slovak part of the watershed Source: SHMI
Characteristics of the precipitation season: N - normal, S - dry, SS - very dry, V – humid, VV – very humid, MV – exceptionally humid

Annual atmospheric precipitation (mm) in Slovakia in 2007



Source: SHMI

Annual runoff volumes in SR in 2007 reached 72 % of the long-term average value. Runoff volumes from partial catchments exceeded the long-term average only in the Poprad and Dunajec catchments with the value of 133 %. The remaining catchments showed values within 32 – 99 %.

♦ Water balance

Annual inflow to Slovakia in 2007 was 63 519 mil.m^3, which is 8 192 mil.m^3 less than in 2006. **Runoff** from the territory has grown by 13 053 mil.m^3, compared to the previous year.

Total water volume as of 1.1.2007, in water reservoirs was 766 mil.m^3, which represented 66 % of total usable water volume in water reservoirs. As of 01.01.08, total available volume of the assessed accumulation tanks compared to the previous year 2007 dropped to 798 mil.m^3, which represents 69 % of total exploitable water.

Total hydrological balance of water resources in the SR

	Volume (mil. m^3)		
	2005	**2006**	**2007**
Hydrological balance:			
Rainfall	46 029.00	36 274	39 460
Annual inflow to the SR	69 806.00	70 711	63 519
Annual runoff	79 979.00	85 646	72 593
Annual runoff from the territory of the SR	10 173.00	14 900	9 264
Water management balance			
Total abstraction of the surface and ground water in the SR	906.89	882.47	480
Evaporation from water reservoirs and dams	5.07	55.79	62
Discharge into surface waters	872.00	669.7	628
Impact of water reservoirs (WR)	111.61	7.8	
	improving	**improving**	**accumulation**
Total volume in WR as of 1st January of the following year	721.00	681.60	798
% of supply volume in accumulation WR in the SR	62.00	59.00	69
Rate of water exploitation (%)	8.91	6.38	5

Source: SHMI

♦ Surface water abstraction

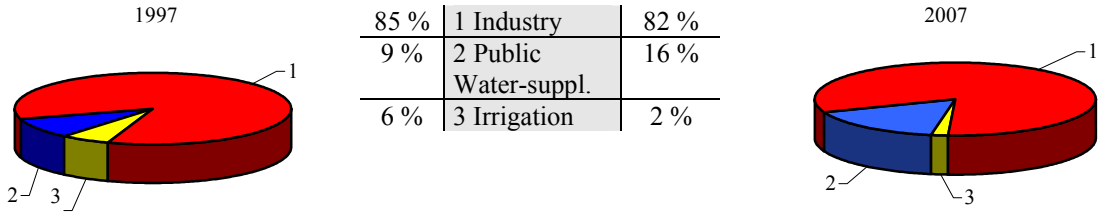
In 2007, surface water abstraction dropped to 326.139 mil.m^3, which means a reduction by 17.5 %, compared to the previous year. This year shows reduced abstractions for all surface water users. Industrial abstractions in 2007 reached 266.78 mil.m^3, which is 56.93 mil.m^3 less than in 2006, e.g. 17.7 %. A slight reduction was recorded also in surface water abstractions for waterlines, which, compared to the previous year, dropped by 2.33 mil.m^3, that is 4.2 %. Surface water abstractions for irrigation purposes also decreased, reaching the value of 6.04 mil.m^3. This means a reduction by 62 %. (Data on surface water use since 2006 have been calculated using information retrieved from the Complex Water Register maintained at SHMI. In previous years, data from the SWME, database were also added to this information.)

Surface water exploitation in the SR (mil.m^3)

Year	Public water-supplies	Industry	Irrigation	Other agriculture	Total	Discharging
1997	73.826	690.733	46.894	0.0360	811.484	1 114.608
2005*	53.828	467.957	11.006	0.0110	532.791	871.865
2006*	55.567	323.709	15.854	0.0120	395.142	748.537
2007*	53.315	266.776	6.036	0.0120	326.139	628.270

*data from database „Aggregate balance sheet of water“ Source: SHMI

Comparison of surface water exploitation between 1997 and 2007



85 %	1 Industry	82 %
9 %	2 Public Water-suppl.	16 %
6 %	3 Irrigation	2 %

Source: SHMI

♦ **Surface water quality**

At present, Slovakia is undergoing changes in surface water assessment, pursuant to the provisions of framework Directive on Water No. 2000/60/EC. In the past, the STN 75 7221 „Water quality. Surface water quality classification“ norm used as the primary reference in assessing water quality by the Slovak Institute of Technical Normalisation, was invalidated as of 01.03.2007.

Surface water quality is assessed primarily through biological indicators such as macro-zoo-benthos, phyto-zoo-bentos, fishes, and macrophytes. Supporting elements in **ecological state water assessment** include physical-chemical and hydro-morphological quality elements, expressed by **five quality categories** (from very good to very bad). Priority chemicals water concentrations define the situation in water chemistry expressed through only **two quality categories:** good/bad. The worse of the two states (ecological or chemical) shows the resulting water situation and determines other activities that relate to reaching the environmental goal by WFD – to attain good water quality for all water bodies by 2015.

Surface water quality assessment has been carried out on the basis of data obtained during the water level monitoring process. For the year 2007, surface water quality monitoring was split into the basic monitoring, operational monitoring, and monitoring of protected territories (PT). This division followed the provisions of **the MoE SR Resolution No. 221/2005 Coll. which sets forth details on detecting the occurrence and assessment of surface and ground water situation, its monitoring, keeping the water register and water balance records.** Surface water quality activities were carried out under the Water Situation Monitoring Programme in 2007. The Programme involved 124 abstraction sites in the catchments of Danube, Váh, Hron, Bodrog, Hornád, Dunajec, and Poprad. Surface water quality was assessed in the length of 4 314 km.

Number of monitored surface water sampling sites in 2007

Catchment	Sampling site		Monitored length
	Basic	Special	(km)
Danube catchments area	20	-	509.8
Váh catchments area	39	-	1 420.8
Hron catchments area	25	-	975.0
Bodrog catchments area and Hornád catchments area	36	-	1 248.9
Poprad and Dunajec catchment area	4	-	159.5
Total	**124**	**-**	**4 314.0**

Source: SHMI

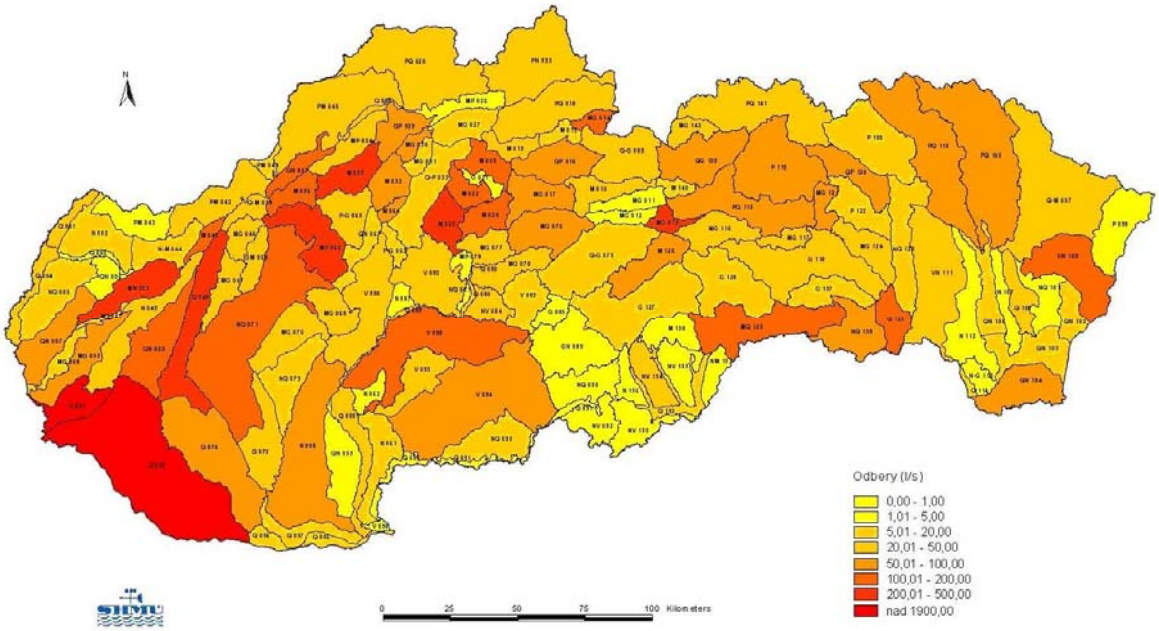
Indicators were monitored within this transitional period that are pursuant to the **SR Government Regulation No. 296/2005 Coll. which introduces requirements on the quality and qualitative goals for surface water, as well as the limit indicator values for wastewater and special water contamination.** General requirements for surface water quality (Annex 1) pursuant to the SR Government Resolution 296/2005 Coll. were fully complied with for the following physical-chemical indicators: total organic carbon, calcium, sulphates, magnesium, as well as micro pollutants that include tensides, cyanides, copper, nickel, chromium, and a various specific organic substances. Indicators with most exceeded values included aluminium and selenium with 100 % occurrence of excessive values. Other frequently exceeded values included AOX and chlorophorm. Values for faecal streptococci, thermo-tolerant and coliform bacteria as part of the microbiological indicators were frequently exceeded. Tetra chloromethane and 1,1,2- Trichloroethylene were not assessed since the set threshold was higher than the limit in NV No. 296/2005 Coll. Despite this, 14 sampling sites showed 1,1,2-Trichloroethylene values higher than the set threshold, therefore exceeding the NV limit 296/2005 Coll. Cis 1,2 – dichloroethene was assessed as complying with the provision of NV 296/2005 Coll. in case that there are only values detected below the set threshold which is 0,1 higher than the value under NV 296/2005 Coll. When the detected values were beyond the set threshold, the indicator was regarded as non-compliant with NV 296/2005 Coll.

Ground water

- **Water resources**

In 2007, based on the hydro-geological assessment and surveys in Slovakia, there were **76 830 l.s^{-1} available groundwater resources**. In comparison with the previous year 2006, there was observed a slight increase of the efficient groundwater volume by 82 l.s^{-1}, i.e. by 0.11 %. In the long-term evaluation, the increase of the efficient volume in comparison with 1990 makes 2,055 l.s^{-1}, i.e. 2.7 %.

Efficient groundwater volumes in the hydrogeological regions in 2006 ($l.s^{-1}$)



Source: SHMI

On the basis of assessment of water management balance expressed by the balance status (proportion of abstractable volumes/abstractions), which is the indicator that shows the rate of wate sources abstraction, we see that in **2007, out of total number of 141 hydro-geological regions in SR, 122 regions show good balance status, 19 regions show acceptable status.** Tensed, critical and emergency balancing state did not occur in any region.

- **Groundwater levels**

In 2007, highest recorded annual values in ground water levels and spring yields come from the period of January through March. In the catchments of Hornád, the autumn non-typical precipitation figures impacted the raising ground water levels with maximum annual recorded ground water values in the course of October. Minimal ground water levels and spring yields were recorded mainly during the winter season in November and December, and during September through October for the springs alone minimal yields persisted until February as well as in September through October.

- **Gabčíkovo interest area**

In 2007, precipitation figures at Žitný ostrov were slightly above the long-term annual average figures. At Bratislava and Veľký Meder, these exceeded also average annual figures for the period of the Gabčíkovo Hydro-electric plant operation. The highest monthly totals were shown at all stations in September, which together with annual maximum Danube levels caused also increased ground water levels. Lowest monthly rainfall totals detected in the whole Žitný ostrov were in April.

♦ **Groundwater abstraction**

In 2007 there was being **extracted 11.366 l.s^{-1} of ground water in average** by the users (which are subjects to reporting obligation) in Slovakia that was 14.8 % of the documented efficient volume. During the year 2007 the groundwater extractions slightly decreased by 299.2 l.s^{-1} which means 2.6 % in comparison with year 2006.

Groundwater extraction in 2006 according to the purpose of use

Year	Public water supplies	Food-processing industry	Industry excl. Food-processing	Agricult. and Livestock	Vegetable prod. Irrigation	Social purposes	Others	Total
2004	9 431.53	322.04	901.65	320.51	65.17	327.02	832.93	12 200.85
2005	9 159.87	288.25	856.75	308.82	95.07	279.72	878.98	11 867.46
2006	8 836.13	295.62	852.34	275.80	94.96	340.15	970.20	11 665.20
2007	8 441.59	383.87	891.32	267.84	146.25	333.44	901.65	11 365.96

Source: SHMI

♦ **Groundwater quality**

Pursuant to the WFD requirements, the older system of dividing Slovakia into significant water management areas was abandoned. Since 2007, classification has been based on delineation of groundwater formations. Monitoring of ground water chemical situation has been divided into:

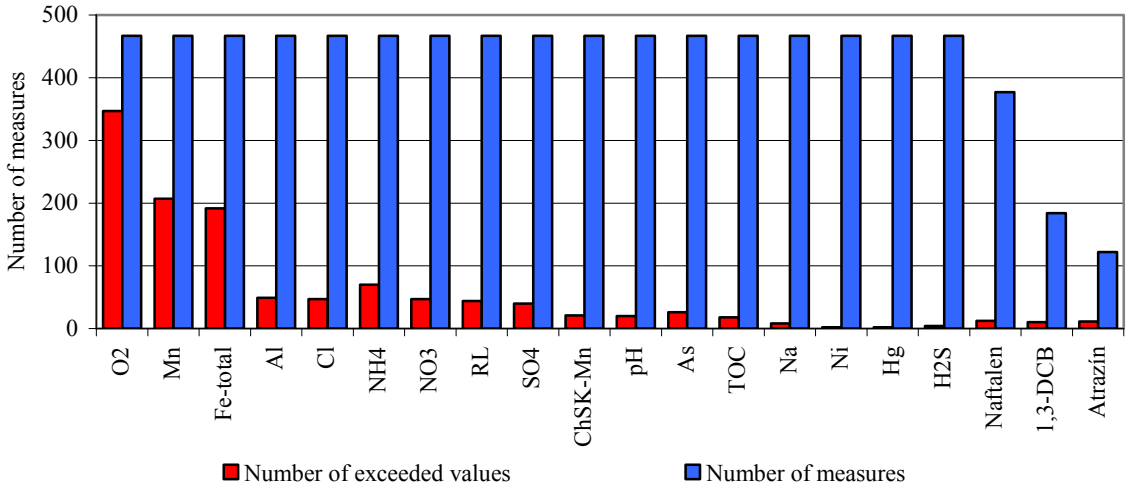
- basic monitoring,
- operation monitoring.

In 2007, ground water quality was monitored at 130 basic monitoring facilities. Ground water samples were taken 1-time in the Autumn for a selected group of indicators.

The results of the analyses were evaluated according to the SR Government Resolution No. 354/2006 Coll. about the requirements for the drinking water and the drinking water quality control, by comparing the measured and limit values for all analyzed indicators.

Adverse **oxidation-reduction** conditions dominate at ground water **basic monitoring** facilities, apparently caused by most frequent occurrences of exceeded acceptable concentrations of total Fe (31 times), Mn (31 times), and NH_4^+ (8 times). Besides these indicators, there has been an untypical event of exceeded concentrations in the group of **physical - chemical indicators,** specifically in the case of the Cl^-, SO_4^{2-}, and NO_3^- anions. Most frequently recorded excessive concentrations in **trace elements** included Al (25 times), As (4 times), Pb (2 times), and Sb (1 time). Contamination by **specific organic substances** shows only local character and the majority of specific organic substances was recorded below the detection limit.

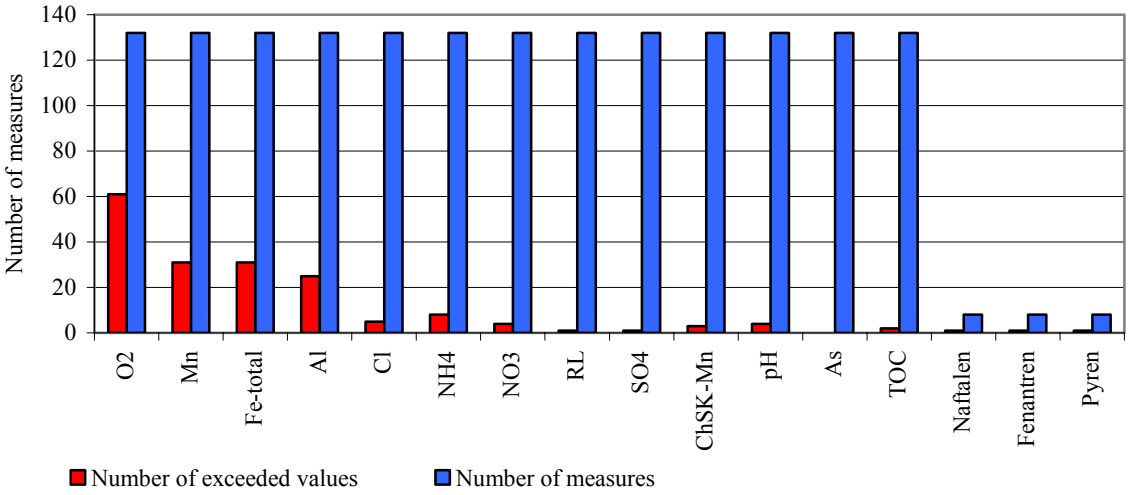
Occurrence of exceeded indicators at basic monitoring facilities pursuant to the SR Government Directive 354/2006 Coll. in 2007



Source: SHMI

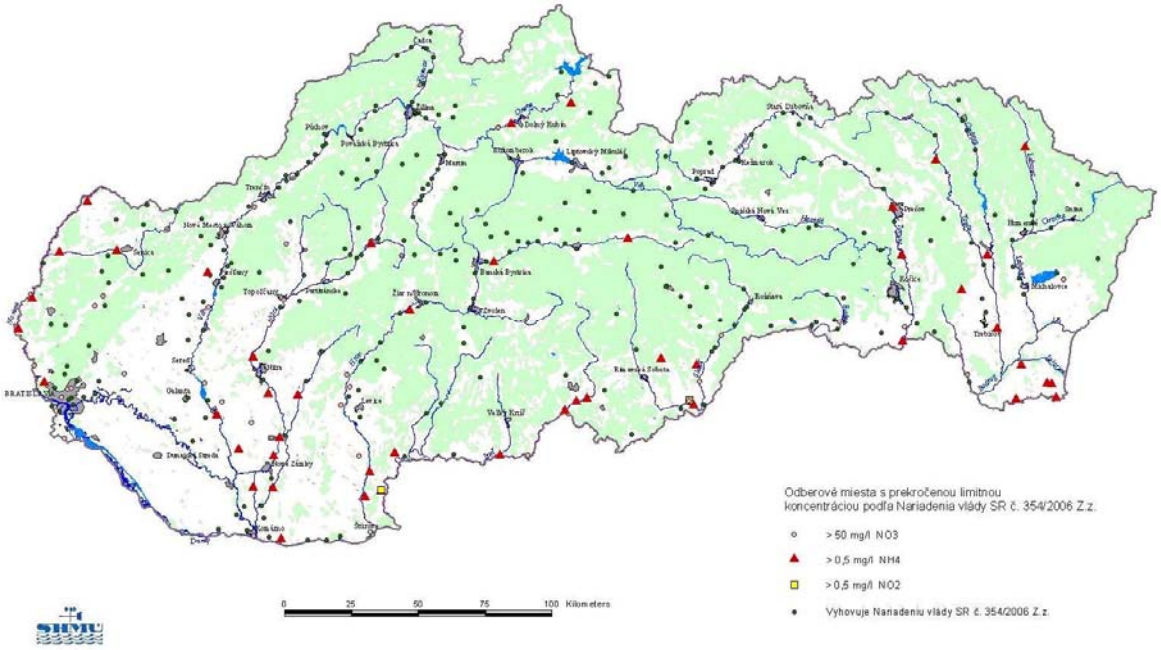
Ground water at **operation monitoring** is relatively low in oxygen, with the exception of the Žitný ostrov area. This is also apparent from the fact that the recommended percentage value for oxygen water saturation was reached only in 26 % of the samples. Most frequently exceeded indicators include Mn and total Fe, which suggests persisting adverse **oxidation-reduction situations.** Exceeded Cl^- and SO_4^{2-} limit values also indicate the impact of anthropogenic pollution on ground water quality. Character of land use (agricultural exploitation) is reflected into increased contents of oxidized and reduced nitrogen forms in ground water, with ammonia ions NH_4^+ (70 times) and NO_3^- (47 times) being the most prevalent. In 2007, the acceptable value set by legislation was exceeded in 5 **trace elements** (Al, As, Sb, Ni, and Hg) at operation monitoring facilities. Most frequently recorded increased contents include Al (49 times) and As (26 times). Presence of **specific organic substances** in ground water indicates impact by human activities. In 2007, operation monitoring facilities detected a wider range of specific organic substances. Most cases involved exceeded limit values in case of indicators from the group of poly-aromatic hydrocarbons (phenanthrene, fluoranthene, benzo(a)pyrene, pyrene) and the group of volatile aromatic hydrocarbons (1,3 dichlorobenzene, 1,4-dichlorobenzene, and 1,2-dichlorobenzene). Limit values for pesticides and volatile aliphatic hydrocarbons were exceeded only sporadically.

Occurrence of exceeded indicators at operation monitoring facilities pursuant to the SR Government Directive 354/2006 Coll. in 2007



Source: SHMI

Groundwater quality in Slovakia in 2007 – concentration NH_4, NO_2, NO_3



Source: SHMI

Waste Water

In 2007 there was discharged 634 419 thousands m^3 of the **waste water** into the Slovak watercourses, which meant the decrease by 99 686 thousands.m^3 (13.6 %) in comparison with year 2006 and 474 119 thousand.m^3 (42.8 %) less in comparison with year 1997.

Reduction in waste water load remained also for the selected indicators of contamination, most markedly seen in chemical oxygen balance by dichromate, by 4 650 tons/year, compared to 2006. For the other indicators, the reduction was less dramatic: insoluble substances (IS) by 1 795 tons/year, biochemical oxygen demand by 2 505 tons/year and indicator ENP_{uv} increase by 14 tons/year.

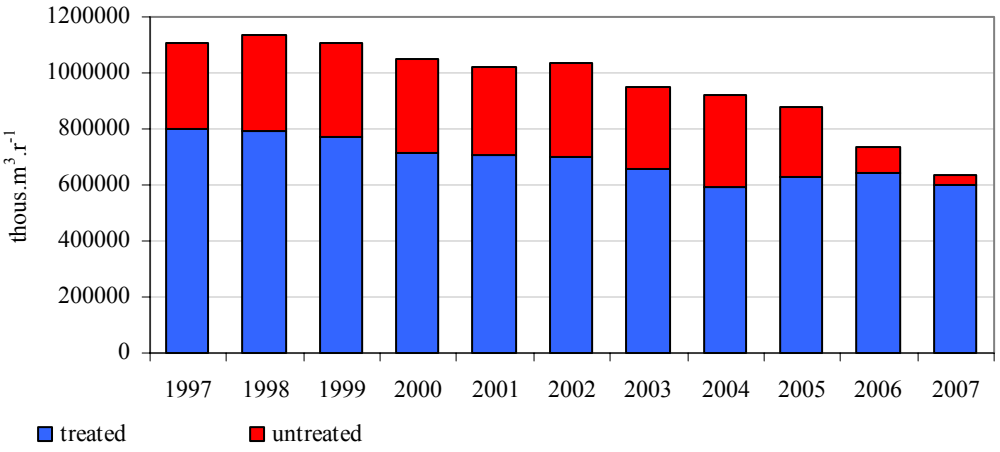
Percentage of discharged treated waste water to **total volumes of waste water** discharged into watercourses in 2007 was 94.05 %.

Load of the balanced contamination sources discharged into surface watercourses in the period of years 1997-2007

Discharged waste water	Volume (thous.$m^3.y^{-1}$)	IS ($t.y^{-1}$)	BOD_5 ($t.y^{-1}$)	COD_{Cr} ($t.y^{-1}$)	ENP_{uv} ($t.y^{-1}$)
1997	1 108 538	37 006	22 601	68 871	565
2004	919 869	21 389	13 702	45 162	57
2005	881 946	12 670	10 661	37 312	55
2006	733 594	11 200	9 026	31 563	44
2007	634 419	9 405	6 521	26 913	58

Source: SHMI

Trend in discharging of the treated and untreated waste waters into watercourses in the period of 1997-2007



Source: SHMI

Proportion of waste water treatment in specific parameters of Directive 91/271//EEC

Category	< 2000 EO	2001 – 10 000 EO	10 001 – 15 000 EO	15 001 – 150 000 EO	> 150 001 EO	Average
COD_{Cr}	78.2 %	91.5 %	90.0 %	90.4 %	66.7 %	**85.37 %**
BOD_5	64.1 %	78.0 %	80.0 %	76.9 %	66.7 %	**72.20 %**
IS	73.1 %	91.5 %	80.0 %	88.5 %	66.7 %	**82.44 %**
N_{total}	-	-	20.0 %	19.2 %	33.3 %	**20.59 %**
P_{total}	-	-	10.0 %	23.1 %	50.0 %	**23.53 %**

Source: WRI

Mentioned values show that the level of treatment in the smallest agglomerations that are not so demanding in terms of the depth of purification is relatively poor, and the ratio of acceptable waste water treatment plants to all plants is little below three quarters. Medium and large size waste water treatment plants remove organic contamination with good efficiency; however, they stay behind in their capacity to remove nutrients. In fact, the largest waste water treatment plants show several cases of overload, when they are not able to remove all received contaminants. This, in turn, is reflected in a lower proportion of acceptable parameters of basic organic contamination.

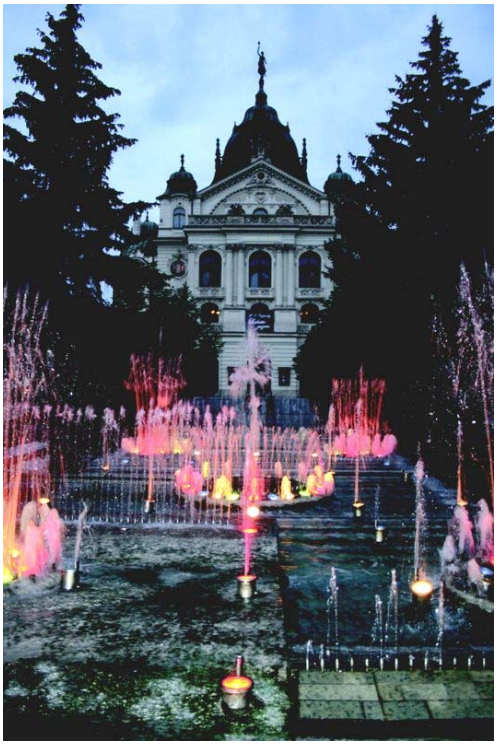
Public water supply, sewerage systems and waste water treatment plants

- **Public water supplies**

Number of inhabitants supplied with drinking water from the public water supply in 2006, reached the number of 4 679 thousand, which represented 86.6 % of supplied inhabitants. There were in the SR 2 353 individual municipalities that were supplied with public water supply, and their portion on total SR municipalities was 81.4 %.

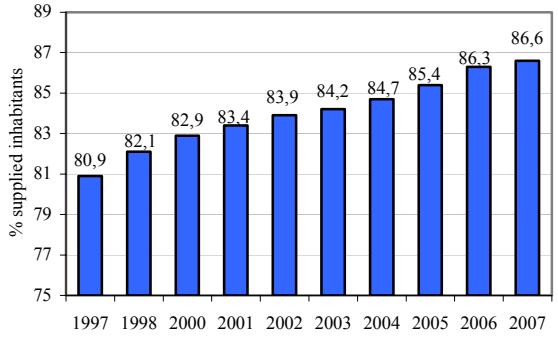
In 2007, there was a marked increase in the percentage of supplied municipalities in the regions of Banská Bystrica (78.5 %), Prešov (62.9 %), and Košice (71.6 %). On the other hand, regions with number of municipalities with public water supplies unchanged since 2006 included Bratislava, Trenčín, Žilina, with percentage from 93 % to 99 %.

Henceforth there persisted the long-term decrease in the drinking water demand. **The volume of the produced drinking water** reached in year 2007 the value of 322 mil. m^3 of the drinking water, which is the decrease in comparison with year 2006 by 12 mil. m^3. From the ground water resources there were produced 271 mil. m^3 (84 %) and from the surface water resources 51 mil. m^3 (16 %) of the drinking water. **Water losses** in the pipe system represented in year 2007 27.1 % from the total water produced in the water management facilities. **Specific water consumption in households** in year 2007 was 107.34 $l.inh^{-1}.day^{-1}$.



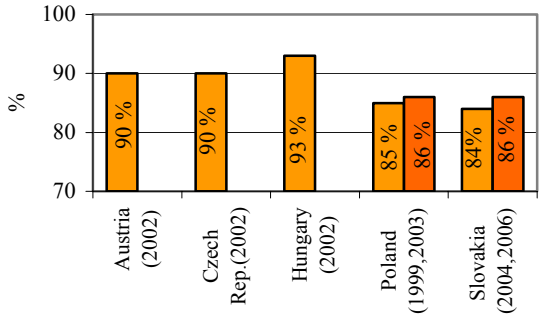
Also other countries showed a decreasing trend in the annual water consumption from public water supplies per capita. Czech Republic and Slovakia are approximately at the same level in terms of water consumption, while Poland shows the least consumption – only 57 $m^3.inhab^{-1}.year$, Hungary shows the best characteristics with having as much as 93 % of its inhabitants supplied with drinking water from public water supplies.

Drinking water supplying of the inhabitants from the public water supplying in the SR



Source: SO SR

Comparison of the drinking water supplying of the inhabitants from the public water supplying in selected countries



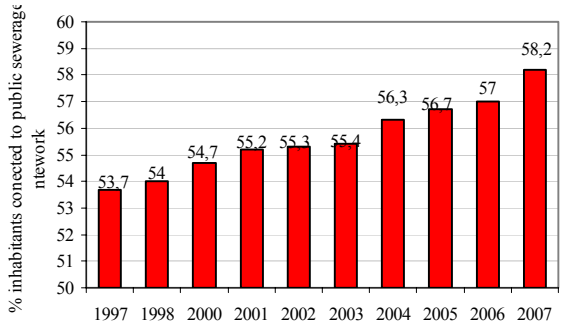
Source: OECD, SO SR

♦ **Sewerage system**

Development of public sewerage systems lags behind that of public water supplies. **Number of inhabitants** living in households **connected to public sewerage systems** in 2007 grew by 45 thousand and reached the number of 3 146 thous. inhabitants, which is 58.2 % of all inhabitants. Of the number of 2 891 of stand-alone municipalities in 2007, 688 of them had public sewerage systems in place (i.e. 23.8 % of all Slovak municipalities), while 568 municipalities (i.e. 19.6 % of all Slovak municipalities) had their wastewater sent directly off to the wastewater treatment plant. Adverse situation remains also in individual regions of Nitra, Trnava, and Prešov, these regions stay behind the national average.

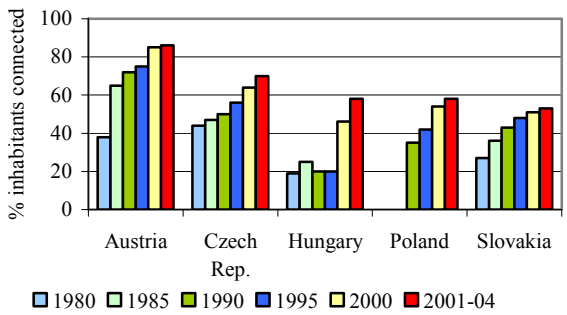
Greatest level of connectedness of the public to the public sewerage system from among the V4 countries reached Austria (86 %), and the Czech Republic (70 %), Poland, Hungary, and Slovakia show approximately the same level of connectedness, 56 % on average.

Connecting of the inhabitants to the public sewerage network in the SR (%)



Source: SO SR

Comparison of the connecting of the inhabitants to the public sewerage network in the selected countries (%)



Source: OECD

♦ **Waste water treatment plants**

In 2007, 46 waste water treatment plants were added into the Administration of water supplies and water sewerage systems (VaK) scheme, reaching the number of 500. Greatest share on these had mechanical-biological WWTPs (84.2 %). Increase in WWTP's capacity was still on the rise, reaching the value of 2 233.6 $m^3.day^{-1}$ in 2007.

In 2007, watercourses with public sewerage system (administered by municipalities and water management companies) received 414 mil.m^3 of discharged waste water, which was by 45 mil.m^3 less than in the previous year, and the volume of treated waste water discharged into the public sewerage system reached 405 mil.m^3.

Volume of the discharged wastewater by the public sewerage system (in administration of VaK and in administration of the municipalities) in 2007

Water discharged by the public sewerage and WWTP	Sewage	Industrial and other	Precipitation	Separate	Administration of the municipalities	Total
	(thous.$m^3.year^{-1}$)					
Treated	114 607	104 829	45 363	129 798	11 185	405 782
Untreated	2 020	916	1 404	2 609	1 376	8 325
Total	**116 627**	**105 745**	**46 767**	**132 407**	**12 561**	**414 107**

Source: WRI

In 2007, there were 55 305 tons of the sludge dry matter produced in municipal WWTPs. Of this, 42 315 tons (76.5 %) were used for soil processes, 9 400 tons (17.0 %) were temporarily stored, and 3 590 tons were landfilled (6.5 %). In 2007, there was direct application of sludge into the agricultural soil. 37 220 tons of sludge dry matter was used for compost production, while 5 095 tons of sludge were used for soil processes (reclamation of landfills, areas, etc.)

Sludge produced in the waste water treatment plant

Year	Amount of the sludge (tons of dry residue)							
	Total	Used			Disposed			
		Applied into the agricultural soil	Applied into the forest soil	Composted and used in other way	Incine-rated	Land filled		In other way
						Total	Suitable for the further use	
2003	54 340	16 640	605	22 085	0	8 110	7 610	6 900
2004	53 085	12 067	0	30 437	0	4 723	3 470	5 858
2005	56 360	5 870	0	33 250	0	8 530	6 960	8 710
2006	54 780	0	0	39 405	0	9 245	8 905	6 130
2007	55 305	0	0	42 315	0	3 590	583	9 400

Source: WRI

Drinking water

♦ **Drinking water quality monitoring and assessment**

As from June 1, 2006, new **SR Government Resolution No. 354/2006 Coll**. came into effect, which sets forth criteria for water for human consumption and control thereof, and which has lead to

minor changes to drinking water quality criteria and assessment criteria (e.g. saprophytic molds were left out of the range of microbiological and biological indicators).

In 2007, radiological indicators were determined in accordance with the SR Government Resolution No. 354/2006 Coll.

Water quality was assessed on the basis of the number or proportion of individual limits shown to have exceeded the pertinent sanitary norms. In 2007, were analysed at operation laboratories of water management companies 8 962 samples. The samples were abstracted at sites located within distribution networks and 240 909 analyses were carried out to monitor individual drinking water quality indicators. Share of drinking water analyses that complied with the sanitary limits in 2007 reached 99.32 % (in 2006 it was 99.44 %). Percentage of samples that meet drinking water quality demands for all indicators reached 89.78 % (in 2006 it was 91.18 %). These samples did not include the active chlorine indicator, as this test was done separately, in relation to the microbiological quality of drinking water.

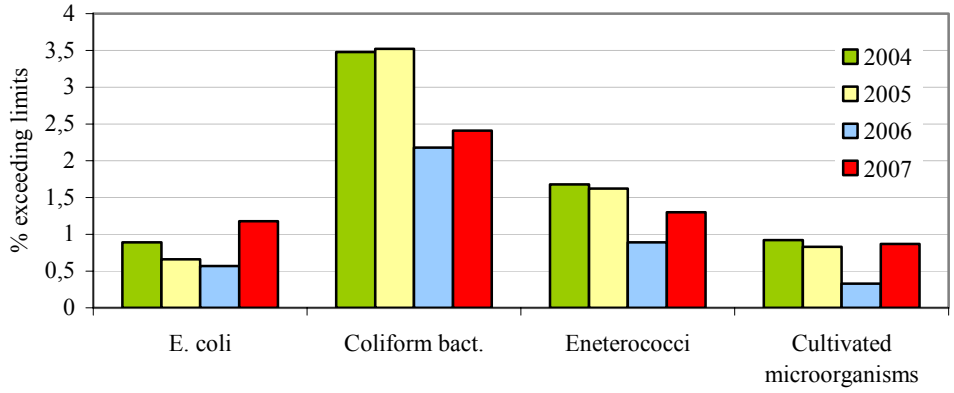
Exceeding limits in drinking water samples in accordance with the Regulation MoH SR No. 151/2004 Coll. on demands on drinking water and drinking water control

Year	2005	2006	2007
Share of drinking water samples that do not meet the NMH and MHRR limit.	2.10 %	1.32 %	2.03 %
Share of drinking water quality indicators analyses that do not meet NMH and MHRR	0.55 %	0.32 %	2.46 %
Share of drinking water samples that do not meet the MH, NMH, MHRR and IH limit.	19.29 %	17.84 %	-
Share of drinking water indicator analyses that do not meet the MH, NMH, MHRR, and IH limits, pursuant to STN 75 711.	1.15 %	1.05 %	-

Source: WRI

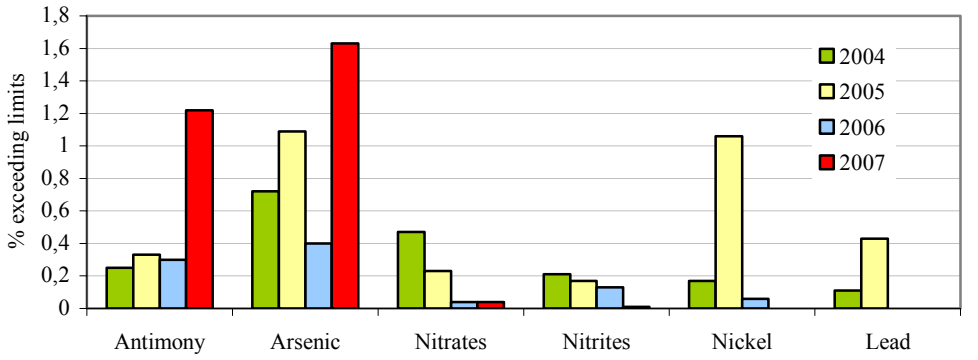
IH – indicative values, MH - threshold values, NMH - maximum threshold values, MHRR – threshold values of the reference risk

Results of monitoring the microbiological and biological indicators of drinking water within Slovakia's distribution networks



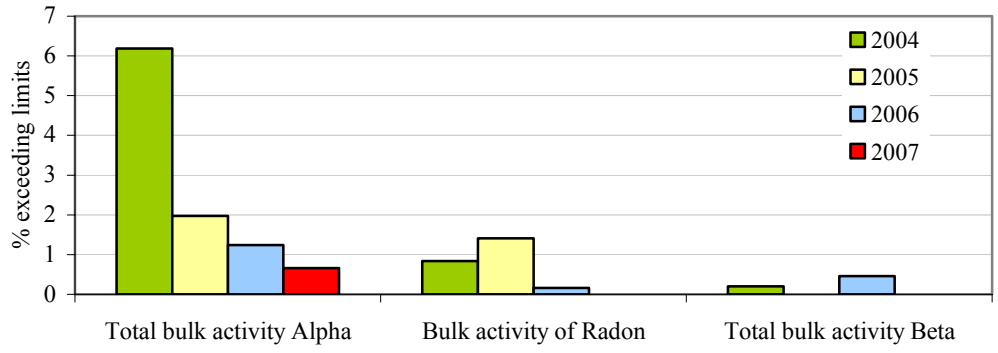
Source: WRI

Results of physical and chemical drinking water indicators monitoring within Slovakia's distribution networks - inorganic indicators



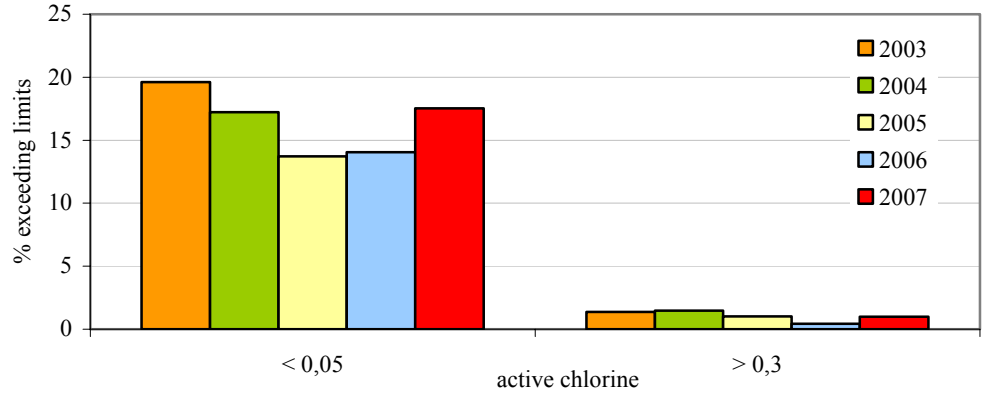
Source: WRI

Results of monitoring for the presence of radiological indicators in drinking water within Slovakia's distribution networks



Source: WRI

Results of monitoring for the presence of disinfection agents and their by-products in drinking water within Slovakia's distribution networks



Source: WRI

Quality of recreational water in 2007

Slovak government established a competency to monitor water designated for recreational use through its **Act 126/2006 Coll. on public health and on amendments of some laws, as well as through the SR Government Resolution 252/2006 Coll. on details regarding the operation of swimming areas, water suitable for swimming, and its control.** The commissioned, competent authorities include PHI SR (Public Health Institute of the Slovak Republic), and regional PHI in SR, along with operators of individual sites, that are to follow the frequency and methods in line with the Directive 76/160/EEC. Since September 2007, this issue has been addressed by a new **Act 355/2007 Coll. on protection, promotion and development of public health and on amendment to other laws.**

Out of 72 natural sites in Slovakia, there are 38 sites with declared water suitable for recreation use with regular monitoring. 21 of these have organized recreation operation with issued permits to operate, with the operator being responsible for quality of the operation and water quality. Sporadic recreational water quality controls were also carried out at sites with so-called non-organized recreation operation, always in the beginning and during the season as scheduled.

Over the season, 380 water samples were extracted in Slovakia and 4 621 tests were done on chemical, physical, microbiological, and biological water quality indicators. 166 analyses exceeded the national limit values. Most frequent cause for insufficient water quality included changes in transparency, in dissolved oxygen, colour, while the limit values for microbiological indicators – coliform bacteria and enterococci were exceeded in less degree. In comparison with the previous years, the occurrence of blue-green algae over the monitored time period was generally lower, in most cases below the limit values.

The SR report on the quality of water for recreational use in 2006 was developed on the basis of article 13 of Resolution 76/160/EEC on quality of water suitable for recrational use. For 2007, the report included 38 swimming areas, 76.3 % of which complied with more stringent water quality criteria. 86.8 % of swimming areas complied with the minimum standards, while 7.9 % did not. Swimming was prohibited in 5.3 %.