



MINISTRY OF THE ENVIRONMENT OF THE SLOVAK REPUBLIC



**STATE OF THE ENVIRONMENT REPORT
SLOVAK REPUBLIC 2005**





Fire is every undesirable burning, by which damages of property or environment emerge, or which results in death or injured person or killed animal; fire is also undesirable burning, which endangers lives or health of people, animals, property or environment.

§ 2 par. 1 letter a/ of the Act No. 314/2001 Coll. on Prevention from Fires

• NATURAL AND TECHNOLOGICAL HAZARDS

Accidental deterioration of water quality

According to the SEI statistics on emergency deterioration or a threat to water quality (WQEDA) in 2005, there was a reduction in the number of these occurrences, compared to the previous year - especially in case of the surface water. However, this number is still significant.

Special declination or quality menace of water of the SR in the years 1993 - 2005

Year	WQEDA recorded by SEI	Special deterioration of water					
		Surface			Ground		
		Total number	Watercourses and basins	Water courses	Total number	Pollution	Endangerment
1993	142	95	3	12	47	10	37
1994	121	82	5	7	39	10	29
1995	129	73	5	11	56	8	48
1996	117	71	1	10	46	7	39
1997	109	63	0	6	46	14	32
1998	117	66	2	1	51	10	41
1999	98	61	2	9	37	3	34
2000	82	55	2	9	27	3	24
2001	71	46	1	4	25	1	24
2002	127	87	1	6	40	5	35
2003	176	134	2	3	42	0	42
2004	137	89	1	10	48	11	37
2005	119	66	2	5	53	2	51

Source: SEI

In terms of water-threatening compounds (WTC), exceptional deterioration of water quality in a long run has been caused mainly by crude oil compounds - as was also the case in 2005. Wastewater has smaller impact on WQEDA, together with livestock excrements, insoluble substances, alkali, pesticides, other toxic substances, most of all those WTC in which it was impossible to determine the category.

Progress in number of WQEDA according to the sort of WTC in the years 1993 – 2005

Sorts of water deteriorative substances:	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Oil substances	63	76	69	50	61	54	33	40	64	59	70	63
Alkalis	3	3	5	10	3	5	2	2	5	3	1	0
Pesticides	1	0	1	1	3	1	0	0	1	0	3	0
Excrements of farm animals	9	11	14	8	3	7	5	4	9	21	15	14
Silage fluids	0	0	1	1	0	2	4	0	2	1	1	0
Industrial fertilisers	0	1	0	0	0	0	0	0	0	1	0	0
Other toxic substances	5	5	1	5	0	6	12	5	3	3	0	4
Insoluble substances	4	6	4	8	7	1	5	2	6	11	3	4
Waste water	6	1	6	11	17	6	10	10	17	35	20	10
Other substances	13	10	9	6	6	4	2	1	3	7	10	8
Water detrimental substances impossible to determine	17	16	7	9	17	12	9	7	17	35	14	10

Source: SEI

Major causes of accidental deterioration of water quality and 2005 included traffic and transportation (45 cases), and human factor (21 cases).

Scheme about WQEDA arose out of area of SR, caused by foreign organizations or unknown originator in the years 1993 – 2005

Year	WQEDA caused or originated (number)					
	Outside the SR territory		Foreign organizations		Unknown originator	
	Number	%	Number	%	Number	%
1993	7	4.9	7	4.9	44	31.0
1994	2	1.7	2	1.7	44	36.4
1995	5	3.9	3	2.3	28	21.7
1996	3	2.6	3	2.6	23	19.7
1997	1	0.5	6	5.5	20	18.4
1998	0	0	7	6	28	23.9
1999	3	3.1	3	3.1	27	27.6
2000	5	6.1	1	1.2	28	34.1
2001	0	0	3	4.2	16	22.5
2002	1	0.7	4	3.1	35	27.5
2003	2	1.1	8	4.5	52	29.5
2004	7	5.1	8	5.8	36	26.3
2005	3	2.5	15	12.6	33	27.7

Source: SEI

Summary of the WQEDA causes recorded by the SEI in 1993 – 2005

	Events by causes of their origin:	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
1.	Breaching the technological and work discipline	25	34	20	35	29	20	14	15	17	43	16	21
	Poor state of the device caused by:												
	2A lack of maintenance and spare parts	14	12	11	10	10	6	7	4	8	14	9	6
2.	2B inappropriate technical architecture	12	9	11	4	4	11	5	9	11	12	8	13
	2C inadequate capacity of storage unit and emergency tanks	0	3	3	0	1	2	1	1	6	3	4	5
3.	Emergency event : 3A fire					0	0	0	0	1	1	3	2
	3B explosion	2	3	2	0	1	0	1	1	0	3	0	0
	Impact of the climate:												
4	4A climate factors	6	4	15	4	1	5	3	0	5	12	5	1
	4B oxygen deficit					0	0	1	0	0	0		0
5.	Traffic and transportation : 5A traffic					24	14	11	9	28	28	19	40
	5B transportation	16	14	20	28	9	6	1	1	6	2	2	5

6.	Event outside the territory of the Slovak Republic	2	5	3	1	0	3	5	0	0	2	7	3
7.	Other	13	29	14	13	15	15	14	18	21	19	37	7
8.	Unknown	32	16	18	13	23	16	19	0	24	37	27	16

Source: SEI

Scheme of the most significant WQEDA caused in the year 2005

Year	Date	Place of occurrence, object	Cause of event	Aftermath of event
2005	23. 8.	Hriňová, Slatina stream, former ZŤS site	Cyanide, cadmium, zinc, nickel, chromium, copper - released at destruction works - galvanizing	Approximately 1 200 kg of fishes dead along 13.1 km
	7.8.	WWTP, OKTAN Kežmarok, Poprad stream	Release of contaminated wastewater at increased rainfall activity	Contamination of the border stream by the oil compounds

Source: SEI

Accidental deterioration of air quality

In 2005, Air Protection Inspectorate Division, recorded five events that caused deterioration in air quality (ADA). The following table shows a trend in the number of Air Quality Endangerment and Deterioration Accidents recorded by the SEI.

The following table shows the most critical ADA cases.

Summary of the major events (accidents) leading to exceptional deterioration or threatening of air quality in 2005

Year	Date	Place of occurrence, object	Cause of accident	Aftermath of accident
2005	22. 5. – 1.6.	DZ Koksovňa, U.S.Steel Košice, inc., VKB 3	Malfunction of the exit dust conveyor number 776 at dry dust removal from gases from the coke extrusion at VKB 3	PM release of 39.22 tons
	18.6.	DZ Energetika, U.S. Steel Košice, inc.	Outage in burning kiln gas caused by extinguishing of flame and subsequent release of non-burnt kiln gas	Release of non-burnt kiln gas of approximately 10 000 m ³

Source: SEI

Trends in number of ADA in years 1993 - 2005

Year	Recorded events	Accidental deterioration or endangerment of air quality (ADA)	
		Deterioration	Endangerment
1994	1	1	-
1995	9	8	1
1996	5	5	-
1997	7	7	-
1998	5	5	-
1999	3	3	-
2000	4	3	1
2001	1	1	-
2002	4	4	-
2003	3	3	-
2004	1	1	-
2005	5	5	-

Source: SEI

Trends in number of ADA by air contaminant types in years 1995 to 2005

Type of pollutant	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
SO ₂	2	2	1	1	2	1	1	-	1	-
NO _x	2	2	1	1	1	1	1	-	1	-
SPM	2	1	1	1	2	1	1	2	1	1
CO	2	1	1	1	1	1	-	1	1	-
C _{org}	2	1	1	1	1	-	-	-	1	-
H ₂ S	-	1	-	-	-	-	-	-	-	-
NH ₃	-	-	-	-	-	-	1	-	-	-
Vinylchloride	-	-	1	-	-	-	-	-	-	-
chlorine	-	-	-	-	1	-	-	-	-	-
HCl	-	-	-	-	-	-	-	-	-	1
CO ₂	-	-	-	-	-	-	-	-	-	1

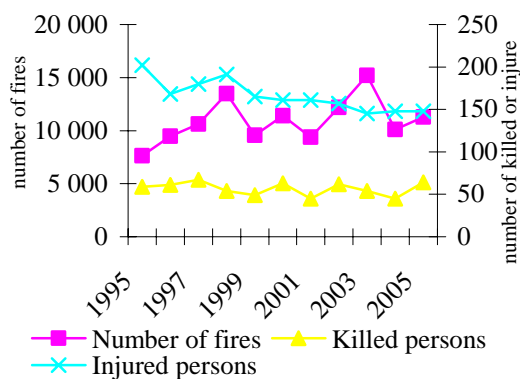
Source: SEI

Fire risk

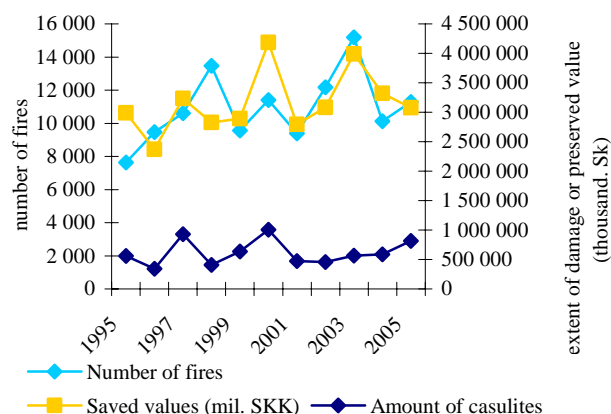
11 294 fires causing 64 casualties and 166 injured were documented in the SR in 2005. Direct material damage reached 813 494 900 SKK, while the volume of preserved values was calculated at 3 074 208 000 SKK.

In terms of damage caused by fires in individual sectors of economic activities, **most fires were documented** in the area of **agriculture**, just like in the previous years. There were 2 481 fires in agriculture causing direct material damage of about 39.1 million SKK, 2 casualties and 4 injured. In terms of fire statistics, **household management** shows the second greatest number of fires-1 821 fires occasioning direct material damage at about 129 million. SKK, killing 41 people. Least number of fires was recorded in the **commercial** sector, with 132 direct material damage totalling 43.3 mil. SKK.

Relationship between number of fires and number of killed or injured persons in the years 1995 - 2005



Relationship between number of fires and number of casualties or amount of saved values in the years 1995 - 2005



Source: SEI

Floods

Floods and natural phenomena with impact made stronger by human activities. Since 1997, the territory of the Slovak Republic has experienced annual floods of great magnitude. In terms of time and space, the floods are distributed unevenly. Spring floods are caused by long-term intensive rainfalls or by a sudden warm weather with rapid melting of snow. The floods of June and July are caused by intensive local rainfalls.

In 2005, there were 237 municipalities afflicted by floods. 791 residential houses were flooded. This number included 74 destroyed or temporarily uninhabitable houses. Further, 35 administrative buildings schools and medical facilities were flooded, together with 35 production facilities, 715 household wells, 8 770.5 hectares of the agricultural land, 22 hectares of the forest land, and 445 hectares of land inside the towns and villages. The floods damaged 68 bridges and 69 benches, together with 96.5 km of river bank fortification, and 131 km of dams. 2 411 inhabitants felt the aftermath of the floods, including 125 persons who had to be evacuated. 99 inhabitants temporarily lost their housing. 62 people were rescued during rescue operations.

Floods aftermath over the period of 1999-2005

Year	Number of flood stricken residential areas	Flooded Territories (ha)	Damages by floods (mil. SKK)	Costs (mil. SKK)		Total costs and damages (mil. SKK)
				Rescue activities	Maintenance and safety activities	
1999	682	181 433	4 460.90	58.30	65.10	4 584.30
2001	379	22 993	1 960.60	57.10	32.10	2 049.80
2002	156	8 678	1 525.70	58.10	50.10	1 639.90*
2003	41	744	43.90	5.69	4.20	53.79
2004	333	13 717	1 051.80	37.23	102.93	1 191.96
2005	237	9 237	800.46	67.82	80.64	948.92

* including also the sum of 6.0 mil. SKK – cost of anti-mosquito chemical spray treatment

Source: SEI