

Water Quality Analysis Data / Republic Institute for Health Protection - Skopje

SHTIP - Public Water Supply System

Parameters \ Date	09.1977	09.1977	05.1978	05.1978	05.1979	05.1979	12.1979	12.1979	01.1981	01.1981	11.1981	11.1981	09.1982	09.1982	09.1982	09.1982
pH	7.30	7.30	7.30	7.30	7.20	7.20	7.20	7.20	7.50	7.50	7.60	7.60	7.40	7.50	7.50	7.50
Dry residue on 105°C	310.00	296.00	364.00	290.00	334.00	324.00	248.00	316.00	265.00	284.00	348.00	334.00	362.00	354.00	354.00	354.00
Total hardness	13.84	13.92	10.68	10.38	11.76	13.02	12.42	12.36	11.16	10.98	13.20	12.30	21.20	13.98	14.99	13.55
Calcium - Ca	1	1	26.40	38.80	52.40	49.20	56.80	39.70	40.00	47.20	49.60	42.40	40.30	48.60	52.40	56.30
Magnesium - Mg	1	1	26.80	18.24	22.56	19.20	25.92	19.68	20.64	15.60	23.04	23.52	67.92	26.90	33.35	19.50
Fluor - F	0.20	0.20	0.10	0.05	0.37	0.61	0.10	0.09	0.18	0.20	0.07	0.09	0.30	0.30	0.30	0.30
Iron - Fe	1.300	0.170	0.100	0.180	0.050	0.080	0.050	0.130	0.000	0.000	0.080	0.000	0.000	0.100	0.000	0.000
Mangan - Mn	1.300	0.170	0.000	0.000	0.100	0.350	0.000	0.300	0.000	0.200	0.150	0.200	0.100	0.200	0.000	0.000

SHTIP - Public Water Supply System

Parameters \ Date	10.1983	04.1985	04.1985	04.1985	08.1985	04.1986	04.1986	10.1986	01.1987	01.1987	01.1987	02.1987	02.1987	04.1987	04.1987	05.1987	12.1987
pH	7.30	7.50	7.40	7.40	7.40	7.40	7.40	7.30	7.30	7.30	7.30	7.40	7.40	7.40	7.40	7.40	7.40
Dry residue on 105°C	338.00	286.00	220.00	206.00	412.00	214.00	392.00	452.00	376.00	410.00	482.00	472.00	486.00	262.00	272.00	522.00	358.00
Total hardness	13.82	10.40	10.00	10.40	17.40	7.80	10.60	16.50	15.30	16.20	18.20	17.90	15.20	10.40	10.90	18.20	13.70
Calcium - Ca	65.80	15.50	30.70	31.80	43.10	36.40	38.80	24.00	76.00	76.40	88.90	68.80	89.80	43.70	37.60	77.50	60.80
Magnesium - Mg	12.50	20.70	17.30	17.70	30.00	11.70	22.10	27.40	15.10	24.00	24.20	24.10	20.60	17.70	23.20	31.70	20.50
Fluor - F	0.30	0.20	0.20	0.20	0.40	0.30	0.30	0.20	0.20	0.20	0.20	0.40	0.40	0.40	0.20	0.20	0.30
Iron - Fe	0.000	0.060	0.012	0.055	0.019	0.000	0.040	0.000	0.000	0.100	0.040	0.040	0.040	0.040	0.080	0.060	0.140
Mangan - Mn	0.100	0.014	0.016	0.070	0.056	0.008	0.030	0.020	0.100	0.090	0.110	0.090	0.040	0.010	0.000	0.090	0.090

SHTIP - Public Water Supply System

Parameters \ Date	12.1987	02.1988	06.1988	06.1988	07.1988	10.1988	12.1988	12.1988	12.1988	06.1989	06.1989	04.1990	04.1990	06.1990	12.1990	12.1990
pH	7.40	7.40	7.40	7.40	7.40	7.40	7.43	7.16	7.29	7.42	7.40	7.83	7.96	8.07	8.00	7.60
Dry residue on 105°C	364.00	404.00	416.00	372.00	310.00	436.00	342.00	422.00	416.00	368.00	345.00	326.00	356.00	400.00	520.00	436.00
Total hardness	13.40	14.60	15.06	15.06	14.86	21.20	13.90	15.35	13.95	13.50	12.50	14.60	16.50	14.15	16.23	15.40
Calcium - Ca	58.10	63.90	39.60	39.60	28.40	127.38	38.80	43.60	11.64	57.60	52.80	53.20	61.20	31.16	48.75	85.02
Magnesium - Mg	21.20	24.80	40.80	40.80	29.50	47.78	36.00	36.00	12.24	26.60	22.40	30.48	34.10	41.40	40.80	14.26
Fluor - F	0.30	0.30	0.30	0.30	0.20	0.30	0.30	0.30	0.30	0.35	0.30	0.30	0.20	0.30	0.30	0.20
Iron - Fe	0.150	0.190	0.028	0.028	0.900	0.080	0.075	0.038	0.072	0.120	0.110	0.004	0.002	0.053	0.033	0.012
Mangan - Mn	0.090	0.160	0.015	0.015	0.013	0.102	0.164	0.029	0.056	0.187	0.209	0.193	0.034	0.276	0.004	0.021

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TITOV VELES - Public Water Supply System

Parameters \ Date	05.1979	01.1981	01.1982	01.1983	02.1984	08.1985	04.1985	08.1985	03.1986	12.1986	04.1987	04.1987	04.1987	04.1987	01.1988	05.1988	07.1988	07.1988	08.1988	09.1988	10.1988
pH	7.20	7.60	7.40	7.50	7.40	7.50	7.40	7.50	7.40	7.40	7.40	7.40	7.40	7.40	7.30	7.40	7.40	7.40	7.40	7.40	7.40
Dry residue on 105°C	310.00	404.00	382.00	232.00	286.00	256.00	368.00	274.00	400.00	246.00	388.00	306.00	338.00	412.00	366.00	172.00	10.00	10.00	10.00	10.00	10.00
Total hardness	14.52	12.86	16.32	10.65	13.46	11.30	14.30	9.50	15.10	10.60	14.00	14.80	13.40	16.20	12.00	10.00	10.00	10.00	10.00	10.00	10.00
Calcium - Ca	38.00	54.40	88.40	52.80	37.62	25.10	62.03	29.00	54.80	49.80	49.20	100.00	54.80	59.20	32.80	18.00	18.00	18.00	18.00	18.00	18.00
Magnesium - Mg	0.00	10.80	12.24	15.87	35.65	35.70	25.40	21.20	31.70	10.80	32.90	3.84	25.00	33.30	33.40	24.96	0.100	0.100	0.100	0.100	0.100
Fluor - F	0.920	0.068	0.040	0.100	0.100	0.200	0.100	0.100	0.400	0.100	0.100	0.200	0.100	0.200	0.100	0.100	0.100	0.100	0.100	0.100	0.100
Iron - Fe	0.000	0.000	0.000	0.000	0.000	0.020	0.020	0.030	0.020	1.000	0.020	0.010	0.010	0.200	0.020	0.075	0.000	0.000	0.085	0.020	0.018
Mangan - Mn	0.000	0.000	0.000	0.000	0.000	0.010	0.010	0.010	0.010	0.110	0.002	0.001	0.020	0.000	0.008	0.049	0.057	0.075	0.017	0.051	0.101

TITOV VELES - Public Water Supply System

Parameters \ Date	11.1988	12.1988	01.1989	07.1989	07.1989	01.1990	06.1990	07.1990	07.1990	08.1990	08.1990	08.1990	08.1990
pH	7.26	7.26	8.02	7.42	7.40	7.34	7.40	7.88	7.88	7.60	7.60	7.60	7.60
Dry residue on 105°C	242.00	274.00	316.00	274.00	28.00	248.00	28.00	324.00	300.00	315.00	315.00	315.00	315.00
Total hardness	15.40	11.65	12.87	10.80	13.10	18.90	13.10	18.90	9.63	11.32	11.32	11.32	11.32
Calcium - Ca	63.20	15.00	52.20	53.20	55.77	40.95	37.44	47.35	18.96	19.20	19.20	19.20	19.20
Magnesium - Mg	28.10	19.55	15.40	32.20	23.00	35.30	18.96	19.20	0.200	0.250	0.250	0.250	0.250
Fluor - F	0.120	0.100	0.100	0.100	0.120	0.100	0.100	0.200	0.016	0.015	0.015	0.015	0.015
Iron - Fe	0.082	0.092	0.065	0.065	0.037	0.033	0.033	0.012	0.016	0.015	0.015	0.015	0.015
Mangan - Mn	0.057	0.065	0.065	0.065	0.070	0.025	0.025	0.004	0.035	0.032	0.032	0.032	0.032

TETOVO - Public Water Supply System

Parameters \ Date	08.1978	11.1978	04.1979	07.1979	06.1980	08.1980	10.1980	01.1982	01.1982	01.1984	11.1985	05.1986	05.1986	05.1986	07.1987	10.1990
pH	7.40	7.50	7.30	7.40	7.40	7.50	7.40	7.50	7.50	7.50	7.40	7.40	7.40	7.40	7.40	7.65
Dry residue on 105°C	100.00	180.00	198.00	108.00	126.00	132.00	116.00	134.00	110.00	213.60	114.00	122.00	118.00	118.00	112.00	112.00
Total hardness	6.12	6.66	6.76	6.05	6.30	6.48	8.16	6.18	6.31	7.30	6.90	6.80	4.50	5.76	5.76	5.76
Calcium - Ca	85.20	34.40	75.20	32.40	12.00	37.60	33.60	36.90	36.48	40.10	26.10	35.50	30.40	36.48	36.48	36.48
Magnesium - Mg	0.00	6.00	0.00	6.48	10.20	3.36	12.50	3.12	5.29	6.64	10.30	7.90	0.46	1.61	1.61	1.61
Fluor - F	0.130	0.090	0.098	0.000	0.095	0.095	0.045	0.033	0.050	0.100	0.100	0.100	0.500	0.080	0.080	0.080
Iron - Fe	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.030	0.130	0.100	0.030	0.011	0.011	0.011
Mangan - Mn	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.020	0.004	0.004	0.004

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KUMANOVO - Public Water Supply System

Parameters \ Date	07.1978	02.1980	03.1980	03.1980	03.1980	08.1980	03.1982	03.1983	03.1986	08.1986	08.1986	08.1986	08.1986	08.1986	08.1986	03.1987	11.1987	03.1988	05.1988	05.1988	05.1988	07.1989	08.1989	08.1989	
pH	7.10	7.10	7.40	7.40	7.40	7.30	7.40	7.10	7.50	7.40	7.40	7.40	7.40	7.40	7.40	7.40	7.40	7.40	7.22	7.24	7.60	7.96	8.09	8.09	7.94
Dry residue on 105°C	622.00	104.00	130.00	130.00	160.00	15.12	6.48	130.00	180.00	52.00	110.00	144.00	190.00	132.00	186.00	24.40	24.40	174.00	140.00	132.00	204.00	158.00	142.00	142.00	166.00
Total hardness	2.56	6.66	9.36	4.08	15.12	6.48	30.00	30.71	33.10	31.20	4.50	7.80	7.80	7.80	36.40	36.40	45.24	35.10	6.90	6.53	6.59	6.50	6.00	6.00	5.94
Calcium - Ca	23.56	28.40	43.60	23.20	43.60	34.42	7.92	6.44	10.60	4.00	10.79	11.20	60.80	4.40	36.40	36.40	10.81	6.74	35.90	35.90	34.32	34.40	76.80	76.80	31.60
Magnesium - Mg	605.00	9.60	11.28	0.00	34.42	0.035	0.200	0.100	0.100	0.100	42.00	18.60	20.40	7.20	78.50	0.400	0.200	0.080	0.080	0.080	0.080	25.52	0.100	0.100	0.100
Fluor - F	0.100	0.38	0.045	0.215	0.035	0.000	0.000	0.000	0.110	0.080	0.030	0.070	0.060	0.002	0.004	0.004	0.012	0.012	0.012	0.012	0.082	0.025	0.018	0.018	0.012
Iron - Fe	0.050	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.006	0.004	0.006	0.005	0.004	0.003	0.003	0.065	0.014	0.003	0.003	0.004
Mangan - Mn	0.100	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.010	0.044	0.002	0.005	0.004	0.004	0.003	0.003	0.065	0.014	0.003	0.003	0.004

KUMANOVO - Public Water Supply System

Parameters \ Date	12.1989	12.1989	05.1990	05.1990	10.1990	10.1990	10.1990	10.1990	10.1990	10.1990	10.1990	10.1990	10.1990	10.1990	10.1990	10.1990	10.1990	10.1990	10.1990	10.1990	10.1990	10.1990	10.1990	10.1990	10.1990		
pH	7.31	7.56	7.28	7.21	7.40	7.40	7.50	7.35	7.50	7.35	7.35	7.35	7.35	7.35	7.35	7.35	7.35	7.35	7.35	7.35	7.35	7.35	7.35	7.35	7.35	7.35	
Dry residue on 105°C	132.00	174.00	122.00	178.00	178.00	178.00	200.00	178.00	200.00	178.00	178.00	178.00	178.00	178.00	178.00	178.00	178.00	178.00	178.00	178.00	178.00	178.00	178.00	178.00	178.00	178.00	178.00
Total hardness	7.90	7.60	7.90	6.60	7.40	7.40	7.21	7.21	7.21	7.21	7.21	7.21	7.21	7.21	7.21	7.21	7.21	7.21	7.21	7.21	7.21	7.21	7.21	7.21	7.21	7.21	7.21
Calcium - Ca	46.30	34.40	34.10	33.20	30.40	36.00	35.10	34.20	34.20	34.20	34.20	34.20	34.20	34.20	34.20	34.20	34.20	34.20	34.20	34.20	34.20	34.20	34.20	34.20	34.20	34.20	34.20
Magnesium - Mg	5.94	12.22	13.00	8.16	11.80	8.80	10.12	10.60	10.12	10.60	10.60	10.60	10.60	10.60	10.60	10.60	10.60	10.60	10.60	10.60	10.60	10.60	10.60	10.60	10.60	10.60	10.60
Fluor - F	0.300	0.300	0.300	0.200	0.200	0.200	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100
Iron - Fe	0.082	0.016	0.011	0.040	0.018	0.013	0.029	0.017	0.011	0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.017
Mangan - Mn	0.057	0.017	0.012	0.008	0.005	0.001	0.004	0.002	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002

STRUMICA - Public Water Supply System

Parameters \ Date	08.1985	09.1985	03.1986	03.1986	07.1986	07.1986	09.1986	09.1986	04.1988	10.1988	10.1988	10.1988	10.1988	04.1989	09.1989	09.1989	10.1990	10.1990	10.1990	10.1990	10.1990	10.1990	10.1990	10.1990	10.1990	
pH	7.00	6.50	7.40	7.40	7.40	7.40	7.40	7.40	7.40	7.40	7.40	7.40	7.40	7.54	7.85	7.70	7.30	7.30	7.30	7.30	7.30	7.30	7.30	7.30	7.30	7.30
Dry residue on 105°C	260.00	348.00	100.00	284.00	152.00	130.00	130.00	130.00	184.00	194.00	194.00	194.00	194.00	142.00	154.00	182.00	156.00	156.00	156.00	156.00	156.00	156.00	156.00	156.00	156.00	156.00
Total hardness	5.04	4.50	4.50	14.10	4.20	5.00	5.00	5.46	5.46	6.10	6.10	6.10	6.10	5.17	5.61	6.16	6.11	6.11	6.11	6.11	6.11	6.11	6.11	6.11	6.11	6.11
Calcium - Ca	24.40	21.10	20.10	65.20	22.40	23.00	23.00	18.72	18.72	30.80	30.80	30.80	30.80	26.50	23.01	23.01	26.60	26.60	26.60	26.60	26.60	26.60	26.60	26.60	26.60	
Magnesium - Mg	8.43	6.10	7.59	7.60	3.70	5.30	5.30	7.59	7.59	12.88	12.88	12.88	12.88	9.60	9.80	12.70	11.04	11.04	11.04	11.04	11.04	11.04	11.04	11.04	11.04	
Fluor - F	0.200	10.200	0.400	0.100	0.100	0.100	0.100	0.080	0.080	0.100	0.100	0.100	0.100	0.300	0.200	0.200	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	
Iron - Fe	0.080	0.000	0.120	0.060	0.000	0.130	0.100	0.012	0.012	0.080	0.080	0.080	0.080	0.100	0.130	0.100	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	
Mangan - Mn	0.015	0.400	0.020	0.000	0.000	0.020	0.010	0.007	0.007	0.190	0.190	0.190	0.190	0.044	0.292	0.089	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	

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GOSTIVAR - Public Water Supply System

Parameters \ Date	03.1977	04.1979	03.1982	10.1983	06.1986	08.1986	08.1986	09.1986	04.1987	10.1987	12.1988	04.1989	05.1990	10.1990	10.1990	04.1991	05.1991
pH	7.30	7.20	7.40	7.40	7.40	7.40	7.40	7.40	7.40	7.40	7.40	7.64	7.34	7.40	7.20	7.45	7.40
Dry residue on 105°C	138.00	100.00	152.00	186.00	325.00	686.00	710.00	381.00	140.00	160.00	178.00	176.00	285.00	208.00	178.00	166.00	140.00
Total hardness	6.72	6.82	6.96	4.31	6.70	6.16	5.90	7.00	7.80	7.00	7.91	7.76	7.21	6.64	7.53	6.54	7.84
Calcium - Ca	\	34.40	38.00	22.40	35.20	26.80	23.60	27.20	27.00	39.60	31.20	38.18	21.84	17.10	16.58	38.00	29.30
Magnesium - Mg	\	2.64	7.44	5.50	3.56	7.90	8.28	8.93	16.60	5.46	11.04	8.96	16.56	47.93	44.73	14.50	31.60
Fluor - F	0.100	0.035	0.085	0.100	0.100	0.100	0.100	0.100	0.050	0.010	0.080	0.100	0.100	0.008	0.008	0.100	0.100
Iron - Fe	0.000	0.060	0.000	0.000	0.360	0.620	0.610	0.430	0.076	0.007	0.012	0.000	0.005	0.010	0.014	0.012	0.047
Mangan - Mn	0.000	0.060	0.000	0.000	0.003	0.140	0.050	0.040	0.010	0.004	0.002	0.016	0.001	0.001	0.002	0.002	0.004

KAVADARCI, NEGOTINO - Public Water Supply System

Parameters \ Date	03.1984	11.1987	04.1987	05.1986	06.1987	05.1988	05.1988	05.1988	05.1988	11.1988	12.1988	03.1989	03.1989	11.1990
pH	7.40	7.40	7.40	7.40	7.40	7.40	7.40	7.40	7.40	7.40	7.30	7.03	7.03	7.40
Dry residue on 105°C	304.00	219.00	214.00	134.00	127.00	122.00	167.00	116.00	126.00	116.00	134.00	306.00	132.00	412.00
Total hardness	12.70	6.20	7.00	6.40	4.60	5.00	6.00	6.14	6.43	6.90	6.64	6.16	5.47	9.30
Calcium - Ca	41.80	38.00	33.90	36.40	31.50	21.60	38.40	36.80	40.40	42.90	44.10	40.80	3.60	57.38
Magnesium - Mg	27.40	1.84	7.59	5.04	1.84	7.60	1.20	2.88	1.92	3.91	2.30	1.60	0.92	5.29
Fluor - F	0.100	0.080	0.280	0.080	0.200	0.080	0.080	0.080	0.080	0.080	0.080	0.050	0.080	0.200
Iron - Fe	0.000	0.020	0.190	0.010	0.200	0.100	0.002	0.005	0.005	0.004	0.005	0.079	0.008	0.016
Mangan - Mn	0.000	0.002	0.000	0.000	0.030	0.003	0.001	0.000	0.002	0.001	0.003	0.050	0.003	0.002

GEVGELIJA - Public Water Supply System

Parameters \ Date	07.1978	09.1978	08.1978	09.1979	12.1979	10.1980	03.1982	12.1984	05.1985	03.1986	09.1986	05.1987	12.1987	04.1988	11.1988	11.1988
pH	7.10	7.10	7.20	7.40	7.10	7.20	7.40	7.40	7.50	7.40	7.50	7.40	7.40	7.40	7.40	7.40
Dry residue on 105°C	316.00	402.00	440.00	426.00	388.00	212.00	376.00	216.00	382.00	278.00	240.00	250.00	338.00	220.00	346.00	344.00
Total hardness	15.06	18.72	16.50	17.34	15.30	10.86	16.38	24.90	15.10	14.20	14.80	13.10	14.40	14.36	12.42	11.91
Calcium - Ca	68.00	82.80	56.00	74.00	70.80	23.76	26.40	19.60	21.00	69.60	20.40	41.80	43.30	58.50	37.44	36.59
Magnesium - Mg	11.00	2.52	32.40	24.96	18.72	32.80	49.68	48.00	9.12	19.30	8.60	24.10	34.70	25.53	30.80	29.83
Fluor - F	0.100	\	0.205	0.170	0.055	0.165	0.100	0.100	0.300	0.050	0.050	0.080	0.010	0.100	0.080	0.800
Iron - Fe	0.080	0.260	0.000	0.000	0.000	0.000	0.000	0.000	0.007	0.040	0.200	0.040	0.005	0.012	0.009	0.008
Mangan - Mn	0.080	0.260	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.005	0.002	0.005	0.003	0.004

CONTENTS OF OXYGEN DISSOLVED AND BIOCHEMICAL OXYGEN DEMAND IN THE SURFACE WATER

RIVER LOCATION	CONCENTRATION OF THE OXYGEN DISSOLVED mg/O ₂								CONCENTRATION OF THE BIOCHEMICAL OXYGEN DEMAND mg/O ₂						
	1994	1993	1992	1991	1990	1989	1988	1988	1994	1993	1992	1991	1990	1989	1988
1															
River VARDAR															
01. v. Vrutok	13.03	11.84	11.53	11.81	11.63	11.81	11.21	3.01	1.47	3.51	1.15	1.12	1.12	3.55	2.68
02. v. Balin Dol	11.31	10.85	11.12	11.01	10.88	10.91	10.91	4.81	4.76	4.03	4.61	5.41	5.41	4.51	5.91
03. v. Saracinci	12.01	12.41	11.73	11.05	11.22	11.81	11.11	2.51	3.62	2.99	3.51	3.31	3.31	3.51	5.31
04. v. Jegunovec	10.51	11.99	11.14	12.03	10.29	11.81	10.71	2.4	4.87	11.4	4.11	4.01	4.01	2.91	4.71
05. v. Saraj-Stopje	13.46	12.27	11.91	12.15	11.78	11.61	11.71	3.43	4.11	3.31	2.21	3.01	3.01	2.61	4.11
06. Vlac-Skopje	13.01	12.02	12.17	12.23	12.87	11.41	11.41	4.01	3.55	5.35	3.21	3.11	3.11	2.61	4.01
07. Complex of benks	12.19	12.01	12.53	12.01	12.56	11.81	11.24	2.11	4.17	4.28	2.41	3.31	3.31	3.01	5.71
08. v. Jurumleri	8.07	7.82	9.04	10.15	8.17	10.11	7.06	4.81	8.31	6.71	6.72	6.72	6.72	8.01	6.71
09. v. Basino selo	8.81	8.94	9.51	9.22	8.16	9.41	7.61	4.01	5.41	5.81	4.56	3.97	3.97	6.34	5.96
10. Titov Veles	8.12	8.81	9.14	9.21	7.72	9.21	6.72	4.21	6.41	5.41	5.67	5.11	5.11	6.58	5.17
11. post r. Babuna	8.21	11.45	9.23	9.08	7.97	9.51	8.04	3.71	7.01	5.21	3.84	3.98	3.98	6.05	5.2
12. v. Nogaevci	8.41	8.55	8.53	8.62	8.28	9.03	8.18	4.41	4.91	4.31	2.97	3.81	3.81	4.97	5.09
13. v. Staro Gradsko	9.01	9.03	9.19	9.02	9.77	8.73	9.68	2.71	5.81	3.91	4.12	4.42	4.42	5.71	5.43
14. Demir Kapija	9.61	10.21	9.97	9.51	9.35	9.14	8.98	4.21	5.11	5.01	3.83	4.47	4.47	5.11	5.37
15. Gevgelija	9.91	11.01	10.6	10.41	11.71	9.87	9.85	2.51	4.81	4.11	2.81	5.32	5.32	3.67	5.81
River BREGALNICA															
16. v. Trabotiviste	10.21	12.21	10.55	10.85	11.42	11.01	10.61	2.56	4.08	3.04	2.41	3.41	3.41	3.02	2.96
17. v. Oci Pale	9.22	9.65	8.46	8.02	7.87	9.53	7.76	8.66	7.91	5.82	4.83	3.82	3.82	5.23	7.22
18. v. Istibanje	12.75	11.23	12.05	10.92	12.38	11.63	12.88	2.29	2.42	3.29	2.78	5.55	5.55	2.31	4.98
19. v. Krupiste	12.3	9.11	8.11	8.91	8.38	8.98	8.71	3.91	3.68	4.23	5.17	5.32	5.32	3.83	4.32
20. Stip	10.71	7.41	8.11	7.98	7.02	8.57	7.48	7.21	6.41	4.58	4.42	5.61	5.61	5.23	5.31
21. v. Ubogo	11.31	10.61	12.11	9.01	9.97	10.72	10.31	4.51	5.53	4.21	3.93	4.58	4.58	5.73	5.02
River CRNA REKA															
22. v. Topolciani	9.23	8.73	8.68	9.64	9.53	10.67	11.56	6.78	5.33	7.24	7.04	2.82	2.82	5.85	4.52
23. v. Novaci	6.78	6.15	7.42	8.73	5.22	9.08	5.98	4.71	6.23	4.75	4.61	3.78	3.78	4.52	5.88
24. v. Skocivir	4.39	3.98	4.15	5.31	2.96	5.01	7.01	6.81	6.78	4.72	4.53	5.06	5.06	4.41	5.53
25. Tikvesko Ezero	10.16	10.08	11.62	9.58	13.02	10.01	10.52	3.55	5.23	5.98	3.81	5.42	5.42	2.87	5.27
26. v. Palikura	12.79	11.05	12.68	10.53	11.91	13.45	12.53	2.96	3.02	3.65	3.98	5.45	5.45	5.11	5.91

CONTENTS OF CHEMICAL OXYGEN DEMAND AND NITROGEN AMMONIA IN THE SURFACE WATER

RIVER LOCATION	CONCENTRATION OF THE CHEMICAL OXYGEN DEMAND mg/O ₂								CONCENTRATION OF THE NITROGEN AMMONIA mg/N							
	1994	1993	1992	1991	1990	1989	1988	1988	1994	1993	1992	1991	1990	1989	1988	
	2	3	4	5	6	7	8	8	9	10	11	12	13	14	15	
River VARDAR																
01. v. Vrutok	1.12	1.67	0.81	0.86	1.17	0.96	0.69	0.017	0.001	0.072	0.001	0.001	0.107	0.001	0.003	
02. v. Balin Dol	2.38	2.91	1.82	2.74	3.52	2.26	2.21	0.262	0.434	0.206	0.262	0.206	0.718	0.352	0.432	
03. v. Saracinci	2.41	1.65	2.35	1.93	2.53	1.67	2.01	0.168	0.025	0.161	0.168	0.161	0.175	0.077	0.106	
04. v. Jegunovce	2.21	2.91	2.74	1.61	2.53	1.61	1.98	0.032	0.033	0.035	0.032	0.035	0.095	0.069	0.065	
05. v. Saraj-Skopje	2.13	1.82	1.98	1.65	2.31	1.52	1.81	0.074	0.038	0.034	0.074	0.034	0.049	0.084	0.105	
06. V'rae-Skopje	2.03	2.05	1.47	1.95	1.88	1.65	1.42	0.055	0.029	0.065	0.055	0.011	0.246	0.087	0.071	
07. Complex of banks	2.28	1.81	2.38	1.95	3.27	1.72	2.08	0.011	0.097	0.438	0.011	0.076	0.076	0.156	0.081	
08. v. Jurumteri	2.96	3.87	3.06	2.67	4.79	2.03	1.71	0.599	1.304	0.989	0.599	0.168	1.569	0.985	1.094	
09. v. Basno selo	3.32	3.37	2.74	2.71	3.88	2.94	3.22	0.468	0.932	0.281	0.468	0.196	1.651	0.867	0.944	
10. Titov Veles	3.85	3.67	3.04	3.33	4.53	3.08	4.81	0.478	0.864	0.273	0.478	0.218	1.833	1.615	1.282	
11. post r. Babuna	3.39	3.95	2.89	2.58	4.06	2.64	4.01	0.322	0.506	0.351	0.322	0.163	1.172	0.694	0.763	
12. v. Nogaevci	3.44	3.34	2.51	2.73	4.04	2.56	4.02	1.121	0.623	0.727	1.121	0.235	1.646	1.077	1.042	
13. v. Staro Gradsko	3.57	3.38	3.07	3.32	3.67	6.91	1.88	0.869	0.676	0.379	0.869	0.216	1.295	0.549	0.683	
14. Demir Kapija	2.99	3.42	2.91	2.63	3.21	3.09	2.41	0.208	0.205	0.179	0.208	0.131	0.322	0.477	0.191	
15. Gevgelija	2.28	3.77	2.48	2.89	3.48	3.08	2.39	0.468	0.109	0.131	0.468	0.198	0.337	0.249	0.163	
River BREGALNICA																
16. v. Trabotiviste	2.78	4.42	2.86	3.41	2.71	3.19	2.81	0.084	0.135	0.146	0.084	0.018	0.301	0.269	0.338	
17. v. Oci Pale	4.98	15.06	4.58	4.43	4.57	6.37	4.79	2.633	3.173	0.908	2.633	0.053	1.255	0.624	0.884	
18. v. Istibanje	2.77	3.48	2.41	3.06	2.59	2.18	2.97	0.134	0.061	0.246	0.134	0.008	0.171	0.171	0.201	
19. v. Krijpiste	3.61	5.73	3.48	6.05	5.53	3.77	2.81	0.309	0.182	0.461	0.309	0.159	0.665	0.516	0.322	
20. Stip	3.62	9.11	3.91	5.01	5.02	5.67	2.95	0.328	0.713	0.344	0.328	0.153	1.011	0.481	1.041	
21. v. Ubogo	6.18	7.61	9.62	5.52	5.39	4.12	3.39	0.362	0.939	0.249	0.362	0.246	0.683	0.234	2.016	
River CRNA REKA																
22. v. Topolcani	3.37	4.79	4.11	4.33	4.54	4.24	4.48	2.048	2.325	0.959	2.048	0.074	3.879	1.669	4.404	
23. v. Novaci	5.67	5.45	5.27	3.48	5.92	4.26	7.03	3.162	2.601	1.797	3.162	0.105	5.961	1.885	5.771	
24. v. Skocivir	7.86	5.91	6.61	5.74	13.89	6.77	4.12	4.021	2.195	0.653	4.021	0.202	5.653	1.147	0.957	
25. Tikvesko Ezero	3.39	5.21	4.14	3.28	4.19	3.47	2.64	0.141	0.123	0.179	0.141	0.071	0.519	0.342	0.247	
26. v. Palikura	3.04	3.51	2.44	2.75	3.25	2.85	1.67	0.212	0.131	0.165	0.212	0.032	0.381	0.344	0.222	

CONTENTS OF NITROGEN NITRITE AND NITRATE IN THE SURFACE WATER

RIVER LOCATION	CONCENTRATION OF THE NITROGEN NITRITE mg/N								CONCENTRATION OF THE NITROGEN NITRATE mg/l							
	1994	1993	1992	1991	1990	1989	1988	1988	1994	1993	1992	1991	1990	1989	1988	
1	2	3	4	5	6	7	8	8	9	10	11	12	13	14	15	
River VARDAR																
01. v. Vrutok	0.002	0.002	0.004	0.001	0.001	0.003	0.001	0.001	0.401	0.411	0.322	0.687	0.194	0.474	0.337	
02. v. Balin Dol	0.118	0.195	0.095	0.655	0.152	0.081	0.065	0.065	0.691	1.092	0.593	0.934	0.616	0.814	0.562	
03. v. Saracinci	0.141	0.134	0.096	0.146	0.098	0.081	0.062	0.062	1.877	1.759	1.348	1.594	1.211	1.061	1.011	
04. v. Jegunovce	0.144	1.101	0.075	0.138	0.143	0.092	0.069	0.069	1.936	1.759	1.221	1.595	1.147	1.121	1.023	
05. v. Saraj-Skopje	0.103	0.871	0.071	0.125	0.079	0.079	0.066	0.066	1.706	1.578	1.153	1.584	1.011	0.998	0.956	
06. Vlae-Skopje	0.068	0.058	0.041	0.066	0.066	0.121	0.197	0.197	0.893	1.036	0.848	1.288	0.542	0.861	0.933	
07. Complex of banks	0.168	0.139	0.178	0.116	0.071	0.085	0.778	0.778	1.396	1.435	1.324	1.171	0.756	1.045	0.977	
08. v. Jurumleri	0.485	0.292	0.228	0.563	0.467	0.228	1.417	1.417	1.616	1.707	1.536	1.619	1.184	0.751	1.417	
09. v. Basino selo	0.925	0.875	0.738	0.418	1.063	0.577	1.531	1.531	2.403	1.853	2.164	1.863	1.506	1.607	1.702	
10. Titov Veles	0.882	0.794	1.041	0.794	0.647	0.598	0.831	0.831	2.422	2.091	2.181	2.121	1.567	1.625	1.674	
11. post r. Babuna	2.214	0.736	0.617	0.554	1.441	0.473	0.681	0.681	2.214	1.992	2.111	2.074	1.401	1.623	1.537	
12. v. Nogaevci	0.734	0.711	0.668	0.856	1.208	0.559	1.107	1.107	1.551	1.749	1.662	2.448	1.615	1.721	1.661	
13. v. Staro Gradsko	1.079	0.058	0.694	0.549	0.532	0.666	0.568	0.568	3.085	2.551	2.413	1.911	1.391	1.639	1.952	
14. Demir Kapija	0.231	0.288	0.301	0.329	0.269	0.234	0.193	0.193	2.729	2.607	2.758	2.641	2.048	1.854	2.181	
15. Gevgelija	0.925	0.135	0.197	0.119	0.246	0.195	0.178	0.178	2.403	2.356	2.662	2.641	1.999	2.013	2.523	
River BREGALNICA																
16. v. Traboviste	0.061	0.093	0.061	0.084	0.053	0.105	0.126	0.126	0.671	0.755	0.664	0.601	0.341	0.901	0.541	
17. v. Oci Pale	0.329	0.541	0.163	1.187	0.197	0.245	0.246	0.246	0.641	1.451	1.027	0.961	0.811	0.971	1.211	
18. v. Istibanje	0.041	0.045	0.027	0.151	0.073	0.041	0.038	0.038	0.661	0.515	0.571	0.741	0.491	0.501	0.401	
19. v. Krupiste	0.066	0.071	0.186	0.103	0.086	0.281	0.156	0.156	0.649	1.452	1.725	0.774	1.008	1.358	0.606	
20. Stip	0.537	0.571	0.157	0.156	0.279	0.201	0.592	0.592	1.237	2.198	1.849	1.354	1.103	1.121	1.956	
21. v. Ubogo	0.345	0.195	0.661	0.112	0.271	0.309	0.466	0.466	3.104	2.087	1.966	3.184	1.801	1.815	1.764	
River CRNA REKA																
22. v. Topolcani	0.488	0.806	0.217	1.338	0.797	0.242	1.154	1.154	0.951	1.011	1.581	1.301	1.021	1.561	0.941	
23. v. Novaci	0.273	0.445	0.748	0.669	0.362	0.556	2.791	2.791	1.321	1.271	1.541	1.221	1.711	1.231	4.191	
24. v. Skocivir	0.286	0.511	0.393	0.511	0.189	0.191	0.203	0.203	1.321	1.581	1.801	1.221	1.394	1.348	1.037	
25. Tikvesko Ezero	0.092	0.095	0.941	0.091	0.152	0.115	0.011	0.011	0.901	0.811	0.851	0.886	0.414	0.854	0.603	
26. v. Palikura	0.073	0.069	0.091	0.059	0.203	0.072	0.078	0.078	1.101	1.631	1.351	1.411	0.662	1.262	1.197	

CONTENTS OF THE TOTAL SUSPENDED MATTERS AND DISSOLVED MATTERS IN THE SURFACE WATER

RIVER LOCATION	CONCENTRATION OF THE TOTAL SUSPENDED MATTERS mg/l								CONCENTRATION OF THE TOTAL DISSOLVED MATTERS mg/l							
	1994	1993	1992	1991	1990	1989	1988	1988	1994	1993	1992	1991	1990	1989	1988	
1	2	3	4	5	6	7	8	8	9	10	11	12	13	14	15	
River VARDAR																
01. v. Vrutok	19	19	27	32	27	14	19	19	112	124	131	124	136	128	149	
02. v. Balin Dol	34	29	29	46	46	14	28	28	118	140	130	113	194	172	127	
03. v. Saracinci	87	38	33	42	50	31	28	28	164	198	166	169	171	144	164	
04. v. Jegunovce	123	35	30	41	42	27	37	37	164	184	180	172	178	144	144	
05. v. Saraj-Skopje	36	39	76	48	62	31	42	42	170	171	196	163	184	153	161	
06. Viae-Skopje	40	36	26	67	45	25	45	45	205	215	212	200	188	224	212	
07. Complex of banks	33	37	66	44	68	40	38	38	198	205	245	204	192	188	167	
08. v. Jurumieri	40	49	93	76	65	29	62	62	227	246	253	211	133	233	262	
09. v. Basino selo	39	38	80	60	57	75	31	31	233	254	209	221	317	222	255	
10. Titov Veles	38	53	109	50	75	83	76	76	261	255	235	248	272	245	268	
11. post r. Babuna	41	44	97	45	58	72	68	68	244	255	210	235	269	215	252	
12. v. Nogaevci	22	68	57	46	77	59	76	76	325	408	324	331	419	347	387	
13. v. Staro Gradsko	37	62	118	57	47	308	76	76	566	355	291	363	477	363	420	
14. Demir Kapija	43	58	74	79	61	77	78	78	321	385	273	294	373	309	363	
15. Gevgelija	52	83	107	81	74	118	78	78	325	297	302	303	319	307	342	
River BREGALNICA																
16. v. Trabotiviste	74	51	34	43	19	32	47	47	209	200	154	155	213	194	187	
17. v. Oci Pale	64	122	41	59	56	59	44	44	339	397	290	256	322	310	299	
18. v. Istibanje	33	31	38	31	20	46	41	41	285	240	244	226	252	222	238	
19. v. Krupiste	57	79	80	62	38	37	73	73	325	474	341	305	380	334	333	
20. Stip	46	213	72	64	100	62	49	49	420	364	413	332	400	354	453	
21. v. Ubogo	125	82	191	47	86	87	99	99	517	547	560	315	407	417	507	
River CRNA REKA																
22. v. Topolcani	37	58	72	29	42	25	45	45	243	299	223	225	301	238	394	
23. v. Novaci	36	74	46	60	53	39	107	107	224	283	194	249	268	188	373	
24. v. Skocvir	43	70	50	52	91	97	71	71	289	357	239	257	301	265	260	
25. Tikvesko Ezero	31	21	60	27	53	29	30	30	195	200	189	162	232	199	197	
26. v. Palikura	30	56	50	24	22	48	41	41	269	300	238	245	260	294	262	

CONTENTS OF THE IRON AND MANGAN IN THE SURFACE WATER

RIVER LOCATION	CONCENTRATION OF THE IRON mg/l								CONCENTRATION OF THE MANGAN mg/l						
	1994	1993	1992	1991	1990	1989	1988	1988	1994	1993	1992	1991	1990	1989	1988
River VARDAR															
01. v. Vrutok	0.045	0.104	0.059	0.054	0.066	0.062	0.121	0.005	0.021	0.021	0.005	0.003	0.003	0.002	0.008
02. v. Balin Dol	0.063	0.202	0.088	0.182	0.171	0.084	0.141	0.004	0.019	0.054	0.006	0.053	0.053	0.012	0.057
03. v. Saracinci	0.173	0.253	0.214	0.261	0.295	0.211	0.371	0.024	0.022	0.018	0.021	0.028	0.028	0.027	0.177
04. v. Jegunovce	0.136	0.455	0.191	0.264	0.238	0.293	0.504	0.012	0.025	0.021	0.032	0.037	0.037	0.028	0.143
05. v. Saraj-Skopje	0.076	0.411	0.359	0.405	0.241	0.359	0.439	0.071	0.032	0.047	0.027	0.021	0.021	0.034	0.131
06. Vlac-Skopje	0.118	0.479	0.198	0.314	0.207	0.277	0.191	0.091	0.031	0.041	0.022	0.008	0.008	0.017	0.047
07. Complex of banks	0.056	0.451	0.311	0.293	0.333	0.503	0.437	0.005	0.018	0.036	0.023	0.058	0.058	0.034	0.222
08. v. Jurumleri	0.055	0.391	0.412	0.289	0.541	0.751	0.418	0.008	0.046	0.027	0.016	0.094	0.094	0.034	0.122
09. v. Basino selo	0.094	0.365	0.436	0.364	0.837	0.735	0.441	0.001	0.033	0.041	0.035	0.078	0.078	0.034	0.208
10. Titov Veles	0.095	0.307	0.496	0.329	0.516	0.691	0.461	0.013	0.038	0.051	0.033	0.081	0.081	0.075	0.248
11. post r. Babuna	0.077	0.532	0.494	0.445	0.621	0.665	0.564	0.011	0.047	0.051	0.035	0.072	0.072	0.072	0.179
12. v. Nogaevci	0.085	0.492	0.281	0.436	0.473	0.704	0.501	0.011	0.046	0.057	0.039	0.098	0.098	0.078	0.162
13. v. Staro Gradsko	0.081	0.425	0.471	0.341	0.333	0.567	0.361	0.011	0.035	0.051	0.026	0.113	0.113	0.043	0.152
14. Demir Kapija	0.117	0.621	0.515	0.701	0.462	0.614	0.407	0.015	0.056	0.047	0.055	0.105	0.105	0.081	0.104
15. Gevgelija	0.104	0.439	0.406	0.474	0.399	0.487	0.471	0.015	0.044	0.043	0.065	0.081	0.081	0.086	0.095
River BREGALNICA															
16. v. Trabotiviste	0.131	0.131	0.233	0.326	0.257	0.191	0.368	0.007	0.049	0.014	0.021	0.021	0.021	0.019	0.125
17. v. Oci Pale	0.184	0.266	0.243	0.216	0.321	0.368	0.349	0.046	0.194	0.045	0.021	0.074	0.074	0.082	0.059
18. v. Istibanje	0.098	0.309	0.144	0.325	0.086	0.091	0.581	0.021	0.036	0.029	0.055	0.016	0.016	0.046	0.144
19. v. Krupiste	0.224	0.728	0.767	0.585	0.729	0.505	0.424	0.108	0.371	0.476	0.366	0.414	0.414	0.468	0.426
20. Stip	0.149	0.852	0.569	0.432	0.564	0.486	0.368	0.024	0.415	0.177	0.107	0.333	0.333	0.179	0.349
21. v. Ubogo	0.255	0.704	0.373	0.722	0.371	0.358	0.281	0.101	0.196	0.122	0.201	0.049	0.049	0.132	0.131
River CRNA REKA															
22. v. Topolciani	0.086	0.355	0.211	0.307	0.413	0.343	0.504	0.011	0.025	0.032	0.028	0.095	0.095	0.051	0.104
23. v. Novaci	0.121	0.473	0.796	0.221	0.425	0.482	0.474	0.013	0.059	0.037	0.031	0.051	0.051	0.066	0.275
24. v. Skocivir	0.282	0.691	0.275	0.529	0.742	0.584	0.139	0.053	0.069	0.035	0.059	0.096	0.096	0.011	0.117
25. Tikvesko Ezero	0.032	0.096	0.273	0.089	0.051	0.063	0.284	0.007	0.008	0.017	0.005	0.004	0.004	0.003	0.023
26. v. Paikura	0.033	0.192	0.081	0.106	0.063	0.078	0.229	0.005	0.015	0.006	0.005	0.007	0.007	0.011	0.015

CONTENTS OF THE LEAD AND ZINC IN THE SURFACE WATER

RIVER LOCATION	CONCENTRATION OF THE LEAD mg/l								CONCENTRATION OF THE ZINC mg/l							
	1994	1993	1992	1991	1990	1989	1988		1994	1993	1992	1991	1990	1989	1988	
	2	3	4	5	6	7	8		9	10	11	12	13	14	15	
River VARDAR																
01. v. Vrutok	0.003	0.006	0.004	0.004	0.009	0.006	0.005		0.008	0.024	0.023	0.024	0.039	0.034	0.033	
02. v. Balin Dol	0.003	0.009	0.004	0.007	0.006	0.007	0.005		0.047	0.035	0.031	0.017	0.131	0.036	0.046	
03. v. Saracinci	0.062	0.009	0.008	0.007	0.013	0.008	0.007		0.016	0.034	0.004	0.024	0.056	0.061	0.064	
04. v. Jegunovce	0.009	0.011	0.008	0.009	0.011	0.008	0.007		0.031	0.059	0.037	0.023	0.056	0.057	0.061	
05. v. Saraj-Skopje	0.027	0.011	0.009	0.011	0.011	0.014	0.009		0.018	0.037	0.033	0.023	0.052	0.061	0.054	
06. Vlae-Skopje	0.011	0.011	0.008	0.006	0.008	0.007	0.009		0.023	0.035	0.024	0.026	0.035	0.047	0.051	
07. Complex of banks	0.011	0.011	0.012	0.009	0.012	0.018	0.008		0.015	0.025	0.031	0.023	0.063	0.051	0.061	
08. v. Jurumleri	0.012	0.011	0.013	0.011	0.014	0.018	0.012		0.039	0.061	0.122	0.027	0.058	0.018	0.071	
09. v. Basino selo	0.014	0.012	0.012	0.011	0.017	0.019	0.023		0.062	0.082	0.067	0.029	0.066	0.084	0.089	
10. Titov Veles	0.025	0.023	0.051	0.015	0.039	0.038	0.036		0.045	0.147	0.067	0.061	0.101	0.087	0.085	
11. post r. Babuna	0.018	0.019	0.032	0.022	0.056	0.029	0.027		0.027	0.161	0.071	0.055	0.104	0.089	0.089	
12. v. Nogaevci	0.014	0.034	0.013	0.016	0.041	0.054	0.022		0.032	0.113	0.053	0.058	0.098	0.081	0.089	
13. v. Staro Gradsko	0.018	0.047	0.021	0.009	0.018	0.013	0.008		0.018	0.036	0.043	0.033	0.041	0.056	0.013	
14. Demir Kaplja	0.012	0.015	0.017	0.019	0.013	0.027	0.013		0.016	0.051	0.054	0.061	0.065	0.063	0.063	
15. Gevgelija	0.019	0.012	0.016	0.016	0.022	0.027	0.012		0.127	0.036	0.038	0.039	0.062	0.072	0.064	
River BREGALNICA																
16. v. Trabotiviste	0.007	0.009	0.013	0.011	0.007	0.008	0.011		0.016	0.033	0.032	0.016	0.029	0.029	0.057	
17. v. Oci Pale	0.012	0.014	0.009	0.006	0.007	0.007	0.011		0.041	0.031	0.027	0.027	0.038	0.049	0.052	
18. v. Istibanje	0.005	0.011	0.019	0.005	0.011	0.013	0.009		0.018	0.033	0.044	0.036	0.033	0.036	0.037	
19. v. Krupiste	0.006	0.017	0.001	0.007	0.014	0.014	0.012		0.033	0.049	0.043	0.037	0.038	0.039	0.076	
20. Slip	0.007	0.017	0.008	0.011	0.014	0.017	0.011		0.017	0.051	0.036	0.054	0.043	0.077	0.056	
21. v. Ubogo	0.009	0.014	0.011	0.009	0.012	0.012	0.012		0.011	0.017	0.021	0.057	0.035	0.069	0.038	
River CRNA REKA																
22. v. Topolcani	0.009	0.009	0.009	0.008	0.013	0.009	0.015		0.014	0.017	0.036	0.029	0.063	0.064	0.163	
23. v. Novaci	0.006	0.009	0.009	0.006	0.009	0.006	0.023		0.021	0.031	0.042	0.022	0.045	0.042	0.066	
24. v. Skocivir	0.008	0.011	0.007	0.007	0.011	0.007	0.007		0.014	0.052	0.038	0.022	0.038	0.037	0.036	
25. Tikvesko Ezero	0.003	0.011	0.007	0.004	0.008	0.004	0.007		0.008	0.017	0.018	0.017	0.032	0.048	0.029	
26. v. Palikura	0.004	0.008	0.005	0.004	0.009	0.005	0.004		0.019	0.037	0.035	0.043	0.041	0.022	0.038	

CONTENTS OF THE CADMIUM AND CHROMIUM IN THE SURFACE WATER

RIVER LOCATION	CONCENTRATION OF THE CADMIUM mg/								CONCENTRATION OF THE CHROMIUM mg							
	1994	1993	1992	1991	1990	1989	1988	1988	1994	1993	1992	1991	1990	1989	1988	
1	2	3	4	5	6	7	8	8	9	10	11	12	13	14	15	
River VARDAR																
01. v. Vrutok	0.0001	0.0001	0.0003	0.0003	0.0002	0.0001	0.0006	0.0006	0.001	0.001	0.001	0.001	0.001	0.001	0.001	
02. v. Balin Dol	0.0007	0.0004	0.0008	0.0003	0.0017	0.0001	0.0002	0.0002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	
03. v. Saracinci	0.0003	0.0006	0.0006	0.0003	0.0004	0.0006	0.0005	0.0005	0.001	0.011	0.002	0.001	0.002	0.001	0.013	
04. v. Jegunovce	0.0009	0.0005	0.0008	0.0003	0.0004	0.0006	0.0038	0.0038	0.006	0.132	0.063	0.021	0.015	0.009	0.029	
05. v. Saraj-Skopje	0.0005	0.0011	0.0006	0.0003	0.0004	0.0005	0.0001	0.0001	0.007	0.011	0.021	0.024	0.014	0.013	0.067	
06. Viae-Skopje	0.0011	0.0008	0.0007	0.0003	0.0004	0.0001	0.0001	0.0001	0.003	0.006	0.003	0.001	0.004	0.006	0.036	
07. Complex of banks	0.0012	0.0005	0.0008	0.0003	0.0001	0.0003	0.0004	0.0004	0.003	0.004	0.003	0.021	0.011	0.015	0.043	
08. v. Jurumleri	0.0013	0.0019	0.0011	0.0004	0.0003	0.0005	0.0061	0.0061	0.006	0.006	0.016	0.021	0.011	0.015	0.043	
09. v. Basino selo	0.0101	0.0006	0.0063	0.0004	0.0006	0.0011	0.0014	0.0014	0.009	0.006	0.003	0.013	0.008	0.011	0.019	
10. Titov Veles	0.0044	0.0121	0.0031	0.0022	0.0119	0.0045	0.0058	0.0058	0.005	0.011	0.005	0.019	0.008	0.014	0.022	
11. post r. Babuna	0.0042	0.0038	0.0036	0.0026	0.0053	0.0123	0.0059	0.0059	0.008	0.007	0.005	0.012	0.008	0.008	0.019	
12. v. Nogaevci	0.0022	0.0024	0.0034	0.0022	0.0042	0.0056	0.0056	0.0056	0.003	0.007	0.004	0.021	0.011	0.011	0.012	
13. v. Staro Gradsko	0.0021	0.0017	0.0021	0.0009	0.0011	0.0024	0.0017	0.0017	0.003	0.004	0.103	0.012	0.004	0.004	0.012	
14. Demir Kapija	0.0014	0.0013	0.0018	0.0016	0.0026	0.0021	0.0011	0.0011	0.003	0.006	0.002	0.031	0.008	0.005	0.014	
15. Gevgelija	0.0011	0.0009	0.0016	0.0018	0.0016	0.0021	0.0009	0.0009	0.004	0.005	0.001	0.021	0.003	0.004	0.012	
River BREGALNICA																
16. v. Trabotiviste	0.0011	0.0641	0.0451	0.0311	0.0211	0.0511	0.0211	0.0211	0.001	0.001	0.001	0	0	0	0	
17. v. Oci Pale	0.0011	0.0016	0.0007	0.0381	0.0971	0.0221	0.0301	0.0301	0.007	0.008	0.006	0.014	0.001	0.011	0.003	
18. v. Istibanje	0.0011	0.0011	0.0011	0.0005	0.0025	0.0005	0.0005	0.0005	0.001	0.001	0.002	0.0003	0.001	0	0.004	
19. v. Krupiste	0.0007	0.0013	0.0006	0.0006	0.0001	0.0004	0.0085	0.0085	0.001	0.002	0.003	0	0.0003	0.0005	0	
20. Stip	0.0011	0.0013	0.0007	0.0006	0.0008	0.0005	0.0008	0.0008	0.001	0.002	0.002	0	0.0005	0.0014	0	
21. v. Ubogo	0.0006	0.0016	0.0004	0.0009	0.0002	0.0014	0.0016	0.0016	0.001	0.004	0.001	0.016	0.0007	0.0003	0	
River CRNA REKA																
22. v. Topolcani	0.0002	0.0004	0.0371	0.0005	0.0011	0.0024	0.0004	0.0004	0.001	0.001	0.002	0	0	0.001	0.001	
23. v. Novaci	0.0003	0.0671	0.0004	0.0005	0.0003	0.0007	0.0005	0.0005	0.001	0.002	0.003	0.029	0.002	0.003	0.011	
24. v. Skocvir	0.0002	0.0002	0.0008	0.0009	0.0003	0.0005	0.0009	0.0009	0.002	0.002	0.002	0.014	0.001	0.003	0	
25. Tikvesko Ezero	0.0331	0.0621	0.0161	0.0006	0.0002	0.0002	0.0006	0.0006	0.001	0.001	0.002	0.005	0	0.001	0	
26. v. Palikura	0.0008	0.0008	0.0061	0.0004	0.0005	0.0003	0.0006	0.0006	0.001	0.002	0.002	0.005	0.001	0.002	0	

EVALUATION OF THE SURFACE WATER
QUALITY IN THE REPUBLIC OF MACEDONIA

River, Lake Sampling point Station	Quality regulated with law	EVALUATION WATER QUALITY WITH ANALISES					
		WATER QUALITY CLASSES IN THE YEAR					
		1989	1990	1991	1992	1993	1994
1	2	3	4	5	6	7	8
River VARDAR							
01. v. Vrutok	1	1..2	1..2	1..2	1..2	1..2	1..2
02. v. Balin Dol	2	3..2	3..4	3..4	3..2	3	3
03. v. Sarakinci	2	4..3	3..4	3..4	3	3..4	3..4
04. v. Jegunovce	2	4..3	4..3	3..4	3..4	3..4	3..4
05. SKOPJE - Saraj	2	3..4	3..4	3	3..4	3..4	3..4
06. SKOPJE - Viae	2	3	3..2	4..3	2..3	3..2	2..3
07. Complex of bancs	2	3..4	3..4	3..4	3..4	3..4	3
08. v. Jurumleri	3	4	Out..4	4	4..Out	4	4
09. v. Basino Selo	2	4	4..3	4..3	4	4	4
10. TITOV VELES	3	4	4..Out	4..3	4	4	4
11. Post r. Babuna	3	4	4..Out	4..3	4	4	4
12. v. Nogaevci	3	4	4	4..3	4..3	3..4	3..4
13. Staro Gradsko	3	4..3	3..4	4..3	4..3	3..4	3..4
14. Demir Kapija	2	3..4	4..3	4..Out	3..4	4..3	3..4
15. Gevgelija	2	3	3..4	4	3..4	3..4	3..4
River Bistrica							
16. v. Jegunovce - mouth	2				4..Out	4..Out	4..Out
River Lepenec							
17. Asphalt Base	2	2..3	3..2	3..4	3..4	3..4	3..4
18. Skopje - mouth	2	3	3..4	4..3	4..3	3..4	4..3
River Treska							
19. v. Izvor	1	2..1	1..2	1..2	1..2	1..2	1..2
20. v. Blgor Dolenci	2	3..2	3	3..2	3..4	2..3	2..3
21. Skopje - Saraj	2	2..3	2..3	2..3	2..3	2	2
River Zajaska							
22. Kicevo	3	4..Out	4..3	3..4	3..4	3..2	2..3
River Pcinja							
23. v. Pelince	2	2	2..3	2..3	2..3	2..3	2
24. Kattlanovska Banja	2	4	3..4	3..4	3..4	3..2	3..2
River Kriva Reka							
25. v. Klecovce	2	3..2	2..3	2..3	3	3..2	2..3
River Kumanovska							
26. Lipkovsko Lake-dam	1	2..3	3..2	2	2	2	2..1
27. v. Dobrosane	3	Out	Out	4..Out	Out	Out	Out
River BREGALNICA							
28. v. Traboliviste	2	2..3	3	2..3	2..3	3	3
29. v. Oci Pale	2	3..4	4..3	3..4	3..4	4..3	3..4
30. v. Istibanje	2	2..3	2..3	3..2	2..3	2..3	2..3
31. v. Krupiste	3	3..4	3..4	3..4	3..4	3..4	3..4
32. Post STIP	3	4..Out	4..Out	3..4	3..4	4	4..Out
33. v. Ubogo	3	4	3..4	3	4..3	4	4..3

1	2	3	4	5	6	7	8
River Kamenicka							
34. Mak. Kamenica	3	3..2	3..4	3..2	3..2	2..3	2..3
River Zletovska							
35. Zletovska - mouth	3	3	4..3	2..3	2..3	3..2	2..3
River CRNA REKA							
36. v. Topolcani	3	3..4	3..4	3..4	4..3	4..3	3..4
37. v. Novaci	3	4..Out	4..Out	4..3	4..3	4	4
38. v. Skocivir	3	4..Out	Out..4	4..Out	4..Out	4..Out	4..Out
39. Tikves Lake - dam	2	2..3	3..2	3..2	3..4	2..3	2
40. v. Palikura	2	3	3..2	3..2	2..3	2..3	2
River Dragor							
41. Under city BITOLA	3	Out	Out	4..Out	4..Out	Out..4	Out..4
River Eleska							
42. v. Brod	2	3..2	2..3	3..4	3..4	2..3	2..3
DOJРАН LAKE							
43. Nov. Dojran	2	3	3..2	3..4	3..4	4	4
44. Star Dojran	2	2..3	3..2	3..2	4..3	4..3	4..3
River Strumica							
45. Under city Radovis	3	4..Out	4..3	4..Out	4	4..Out	4..Out
46. v. Novo Selo	3	3..4	4	3..4	4..3	3..4	3..4
River Crni Drim							
47. Under city Struga	2	2..3	2..3	2	2..3	2	2
48. Debar Lake - dam	2	2	2	2	2	2	2
49. Under HE Spilje	2	2..3	2..3	2..3	2	2..3	2
River Radika							
50. v. Zirovnica	1	2	2	2	2..3	2..1	1..2
51. Boskov most	1		2..3	2	2	2..3	2
52. Mavrovo Lake - Anovi	2	2	2..3	2	2	2	2
PRESPA LAKE							
53. v. Otesevo	1	2	2..3	2..1	2	2..3	2
54. v. Pretor	1	2	3..2	2	2	2	2
River Golema Reka							
55. Post Resen	2	4	3..4	3..2	4	4..Out	4..Out
OHRID Lake							
56. St. Naum	1	2	2	1..2	1..2	1..2	1..2
57. Metropol Hotel	1	2	2	2..1	1..2	1..2	1..2
58. Ohrid - port	1	2..3	2..3	2	2	2..3	2..3
59. Ohrid - citys bich	1	3..2	3	2..3	2..3	3	3
60. Biser Hotel	1	2	2..3	2..1	1..2	2	1..2

RIVER LOCATION	CONCENTRATION OF THE TOTAL SUSSPENDED MATTERS mg/l								
	1988	1989	1990	1991	1992	1993	1994	1995	1996
R. Vardar									
01. v. Vrutok	19	14	27	32	27	19	19	30	25
02. v. Balin Dol	28	14	46	46	29	29	34	163	52
03. v. Sarachinci	28	31	50	42	33	38	87	93	73
04. v. Jegunovce	37	27	42	41	30	35	123	62	115
05. v. Saraj Skopje	42	31	62	48	76	39	36	65	130
06. v. Vlae Skopje	45	25	45	67	26	36	40	43	75
07. Complex of benks	38	40	68	44	66	37	33	175	103
08. v. Jurumleri	62	29	65	76	93	49	40	117	123
09. v. Bashino selo	31	75	57	60	80	38	39	135	123
10. Titov Veles	76	83	75	50	109	53	38	273	107
11. Post r. Babuna	68	72	58	45	97	44	41	114	75
12. v. Nogaevci	76	59	77	46	57	68	22	140	463
13. v. Staro Gradsko	76	308	47	57	118	62	37	116	537
14. Demir Kapija	78	77	61	79	74	58	43	189	499
15. Gevgelija	78	118	74	81	107	83	52	220	495
R. BREGALNICA									
16. v. Trabotivishte	47	32	19	43	34	51	74	210	
17. v. Oci Pale	44	59	56	59	41	122	64	123	404
18. v. Istibanje	41	46	20	31	38	31	33	43	
19. v. Krupishte	73	37	38	62	80	79	57	95	395
20. Shtip	49	62	100	64	72	213	46	80	467
21. V. Ubogo	99	87	86	47	191	82	125	295	480
R. CRNA REKA									
22. v. Topolchani	45	25	42	29	72	58	37	225	
23. v. Novaci	107	39	53	60	46	74	36	165	
24. v. Skochivir	71	97	91	52	50	70	43	83	
25. Tikveshko Ezero	30	29	53	27	60	21	31	235	
26. V. Palikula	41	48	22	24	50	56	30	273	
R. TRESKA								106	
R. PCHINJA								275	
R. STRUMICA								108	

RIVER LOCATION	CONCENTRATION OF THE TOTAL SUSSPENDED MATTERS mg/l								
	1988	1989	1990	1991	1992	1993	1994	1995	1996
R. Vardar									
01. v. Vrutok	19	14	27	32	27	19	19	30	25
02. v. Balin Dol	28	14	46	46	29	29	34	163	52
03. v. Sarachinci	28	31	50	42	33	38	87	93	73
04. v. Jegunovce	37	27	42	41	30	35	123	62	115
05. v. Saraj Skopje	42	31	62	48	76	39	36	65	130
06. v. Vlae Skopje	45	25	45	67	26	36	40	43	75
07. Complex of benks	38	40	68	44	66	37	33	175	103
08. v. Jurumleri	62	29	65	76	93	49	40	117	123
09. v. Bashino selo	31	75	57	60	80	38	39	135	123
10. Titov Veles	76	83	75	50	109	53	38	273	107
11. Post r. Babuna	68	72	58	45	97	44	41	114	75
12. v. Nogaevci	76	59	77	46	57	68	22	140	463
13. v. Staro Gradsko	76	308	47	57	118	62	37	116	537
14. Demir Kapija	78	77	61	79	74	58	43	189	499
15. Gevgelija	78	118	74	81	107	83	52	220	495
R. BREGALNICA									
16. v. Trabotivishte	47	32	19	43	34	51	74	210	
17. v. Oci Pale	44	59	56	59	41	122	64	123	404
18. v. Istibanje	41	46	20	31	38	31	33	43	
19. v. Krupishte	73	37	38	62	80	79	57	95	395
20. Shtip	49	62	100	64	72	213	46	80	467
21. V. Ubogo	99	87	86	47	191	82	125	295	480
R. CRNA REKA									
22. v. Topolchani	45	25	42	29	72	58	37	225	
23. v. Novaci	107	39	53	60	46	74	36	165	
24. v. Skochivir	71	97	91	52	50	70	43	83	
25. Tikveshko Ezero	30	29	53	27	60	21	31	235	
26. V. Palikula	41	48	22	24	50	56	30	273	
R. TRESKA								106	
R. PCHINJA								275	
R. STRUMICA								108	

RIVER LOCATION	CONCENTRATION OF THE NITROGEN AMMONIA								
	1988	1989	1990	1991	1992	1993	1994	1995	1996
R. Vardar									
01. v. Vrutok	0.003	0.001	0.107	0.001	0.072	0.001	0.017	0.508	0.270
02. v. Balin Dol	0.432	0.352	0.718	0.023	0.206	0.434	0.262	0.372	0.290
03. v. Sarachinci	0.106	0.077	0.175	0.027	0.161	0.025	0.168	0.268	0.270
04. v. Jegunovce	0.065	0.069	0.095	0.032	0.035	0.033	0.032	0.239	0.280
05. v. Saraj Skopje	0.105	0.084	0.049	0.032	0.034	0.038	0.074	0.301	0.267
06. v. Vlae Skopje	0.071	0.087	0.246	0.011	0.065	0.029	0.055	0.157	0.214
07. Complex of benks	0.081	0.156	0.076	0.031	0.438	0.097	0.011	0.384	0.430
08. v. Jurumleri	1.094	0.985	1.569	0.168	0.989	1.304	0.599	1.929	0.919
09. v. Bashino selo	0.944	0.867	1.651	0.196	0.281	0.932	0.468	1.036	0.635
10. Titov Veles	1.282	1.615	1.833	0.218	0.273	0.864	0.478	0.997	0.808
11. Post r. Babuna	0.763	0.694	1.172	0.163	0.351	0.506	0.322	0.876	0.604
12. v. Nogaevci	1.042	1.077	1.646	0.235	0.727	0.623	0.121	0.770	0.710
13. v. Staro Gradsko	0.683	0.549	1.295	0.216	0.379	0.676	0.869	0.977	0.830
14. Demir Kapija	0.191	0.477	0.322	0.131	0.179	0.205	0.208	0.606	0.970
15. Gevgelija	0.163	0.249	0.337	0.198	0.131	0.109	0.468	0.406	0.362
R. BREGALNICA									
16. v. Trabotivishte	0.338	0.269	0.301	0.018	0.146	0.135	0.084	0.218	
17. v. Oci Pale	0.884	0.624	1.255	0.053	0.908	3.173	2.633	0.646	0.338
18. v. Istibanje	0.201	0.171	0.171	0.008	0.246	0.061	0.134	0.241	
19. v. Krupishte	0.322	0.516	0.665	0.159	0.461	0.182	0.309	0.391	0.395
20. Shtip	1.041	0.481	1.011	0.153	0.344	0.173	0.328	2.277	0.465
21. V. Ubogo	2.016	0.234	0.683	0.246	0.249	0.939	0.362	1.107	0.190
R. CRNA REKA									
22. v. Topolchani	4.404	1.669	3.879	0.074	0.959	2.325	2.048	1.053	
23. v. Novaci	5.771	1.885	5.961	0.105	1.797	2.601	3.162	1.482	
24. v. Skochivir	0.957	1.147	5.653	0.202	0.653	2.195	4.021	1.782	
25. Tikveshko Ezero	0.247	0.342	0.519	0.071	0.179	0.123	0.141	5.380	
26. V. Palikula	0.222	0.344	0.381	0.032	0.165	0.131	0.212	0.612	
R. TRESKA								0.660	
R. PCHINJA								1.298	
R. STRUMICA								5.380	

RIVER LOCATION	CONCENTRATION OF THE BIOCHEMICAL OXIGEN DEMAND mg/l (BOD ₅)								
	1988	1989	1990	1991	1992	1993	1994	1995	1996
R. Vardar									
01. v. Vrutok	2.68	3.55	1.12	1.15	3.51	1.47	3.01	3.29	1.71
02. v. Ballin Dol	5.91	4.51	5.41	4.61	4.30	4.76	4.81	7.05	5.61
03. v. Sarachinci	5.31	3.51	3.31	3.51	2.99	3.62	2.51	7.10	3.83
04. v. Jegunovce	4.71	2.91	4.01	4.11	11.40	4.87	2.4	9.27	4.44
05. v. Saraj Skopje	4.11	2.61	3.01	2.21	3.31	4.11	3.43	6.56	3.57
06. v. Vlae Skopje	4.01	2.61	3.11	3.21	5.35	3.55	4.01	4.68	2.21
07. Complex of benks	5.71	3.01	3.31	2.41	4.28	4.17	2.11	7.04	6.59
08. v. Jurumleri	6.71	8.01	6.72	6.72	6.71	8.31	4.81	8.15	6.39
09. v. Bashino selo	5.96	6.34	3.97	4.56	5.81	4.41	4.01	7.61	7.33
10. Titov Veles	5.17	6.58	5.11	5.67	5.41	6.41	4.21	8.00	7.39
11. Post r. Babuna	5.20	6.05	3.98	3.84	5.21	7.01	3.71	7.98	8.56
12. v. Nogaevci	5.09	4.97	3.81	2.97	4.31	4.91	4.41	5.23	6.40
13. v. Staro Gradsko	5.43	5.71	4.42	4.12	3.91	5.81	2.71	7.67	5.76
14. Demir Kapija	5.37	5.11	4.47	3.83	5.01	5.11	4.21	5.96	6.79
15. Gevgelija	5.81	3.67	5.32	2.81	4.11	4.81	2.51	5.84	5.21
R. BREGALNICA									
16. v. Trbotivishte	2.92	3.02	3.41	2.41	3.04	4.08	2.56	5.87	
17. v. Ochi Pale	7.22	5.23	3.82	4.83	5.82	7.91	8.66	6.85	6.04
18. v. Istibanje	4.98	2.31	5.55	2.78	3.29	2.42	2.29	4.11	
19. v. Krupishte	4.32	3.83	5.32	5.17	4.23	3.68	3.91	12.55	3.72
20. Shtip	5.31	5.23	5.61	4.42	4.58	6.41	7.21	7.68	6.10
21. V. Ubogo	5.02	5.73	4.58	3.93	4.21	5.53	4.51	4.85	1.52
R. CRNA REKA									
22. v. Topolchani	4.52	5.85	2.82	7.04	7.24	5.33	6.78	5.18	
23. v. Novaci	5.88	4.52	3.78	4.61	4.75	6.23	4.71	10.97	
24. v. Skochivir	5.53	4.41	5.06	4.53	4.72	6.78	6.81	15	
25. Tikveshko Ezero	5.27	2.87	5.42	3.81	5.98	5.23	3.55	6.65	
26. V. Palikula	5.91	5.11	5.45	3.98	3.65	3.02	2.96	7.04	
R. TRESKA								12.32	
R. PCHINJA								9.01	
R. STRUMICA								5.39	

RIVER LOCATION	CONCENTRATION OF THE OXYGEN DISSOLVED mg/l O ₂								
	1988	1989	1990	1991	1992	1993	1994	1995	1996
R. Vardar									
01. v. Vrutok	11.21	11.81	11.63	11.81	11.53	11.84	13.03	13.27	12.33
02. v. Balin Dol	10.91	10.91	10.88	11.01	11.12	10.85	11.31	13.10	13.00
03. v. Sarachinci	11.11	11.81	11.22	11.05	11.73	12.41	12.01	12.79	12.50
04. v. Jegunovce	10.71	11.81	10.29	12.03	11.14	11.99	10.51	14.35	12.80
05. v. Saraj Skopje	11.71	11.61	11.78	12.15	11.91	12.27	13.46	12.80	14.10
06. v. Vlae Skopje	11.41	11.41	12.87	12.23	12.17	12.02	13.01	12.64	12.76
07. Complex of benks	11.24	11.81	12.56	12.01	12.53	12.01	12.19	12.69	12.83
08. v. Jurumleri	7.06	10.11	8.17	10.15	9.04	7.82	8.07	12.05	11.76
09. v. Bashino selo	7.61	9.41	8.16	9.22	9.51	8.94	8.81	11.25	
10. Titov Veles	6.72	9.21	7.72	9.21	9.14	8.81	8.12	11.20	12.56
11. Post r. Babuna	8.04	9.51	7.97	9.08	9.23	11.45	8.21	12.95	11.97
12. v. Nogaevci	8.18	9.03	8.82	8.62	8.53	8.55	8.41	10.62	10.64
13. v. Staro Gradsko	9.68	8.73	9.77	9.02	9.19	9.03	9.01	12.95	
14. Demir Kapija	8.98	9.14	9.35	9.51	9.97	10.21	9.61	12.05	11.55
15. Gevgelija	9.85	9.87	11.71	10.41	10.60	11.01	9.91	12.50	13.13
R. BREGALNICA									
16. v. Trbotivishte	10.61	11.01	11.42	10.85	10.55	12.21	10.21	5.04	
17. v. Oci Pale	7.76	9.53	7.87	8.02	8.46	9.65	9.22	11.43	12.60
18. v. Istibanje	12.88	11.63	12.38	10.92	12.05	11.23	12.75	12.46	
19. v. Krupishte	8.71	8.98	8.38	8.91	8.11	9.11	12.3	11.84	11.58
20. Shtip	7.48	8.57	7.02	7.98	8.11	7.41	1.71	8.76	24.24
21. v. Ubogo	10.31	10.57	9.97	9.01	12.11	10.61	11.31	11.41	11.18
R. CRNA REKA									
22. v. Topolchani	11.38	10.67	9.53	9.64	8.68	8.73	9.23	9.82	
23. v. Novaci	5.98	9.08	5.22	8.73	7.42	6.15	6.78	7.63	
24. v. Skochivir	7.01	5.01	2.96	5.31	4.15	3.98	4.39	5.27	
25. Tikveshko Ezero	10.52	10.01	13.02	9.58	11.62	10.08	10.16	11.13	
26. V. Pallkula	12.53	13.45	11.91	10.53	12.68	11.05	12.79	11.60	
R. TRESKA								35.67	
R. PCHINJA								24.71	
R. STRUMICA								9.56	

St. No	Name of station	Date of sampling	Flow Q (m3/s)	BOD5 mg/l O2
		1995	1995	1995
1	01. River VARDAR village VRUTOK (intake point)	21.03.1995		0.80
2		08.05.1995		2.85
3		13.06.1995		2.10
4		21.08.1995		3.74
5		02.10.1995		0.65
6		Average		2.08
7	02. R. VARDAR v. BALIN DOL v. BALIN DOL	21.03.1995		5.41
8		08.05.1995		5.45
9		12.06.1995		6.50
10		21.08.1995		7.60
11		02.10.1995		5.00
12	Average		6.00	
13	03. R. VARDAR v. SARA KINCI	25.01.1995		2.70
14		15.02.1995		2.80
15		21.03.1995		5.10
16		19.04.1995		2.50
17		08.05.1995		4.10
18		12.06.1995		7.30
19		11.07.1995		6.45
20		21.08.1995		6.15
21		02.10.1995		6.90
22		23.10.1995		0.80
23		12.12.1995		4.10
24	Average		4.44	
25	04.R. VARDAR v. JEGUNOVCE	25.01.1995		48.90
26		15.02.1995		1.80
27		21.03.1995		4.10
28		21.03.1995		2.80
29		19.04.1995		4.30
30		08.05.1995		3.26
31		12.06.1995		5.00
32		11.07.1995		10.70
33		21.08.1995		7.84
34		02.10.1995		3.40
35		23.10.1995		0.90
36	12.12.1995		1.20	
	Average		8.56	
37	05.R.VARDAR - SKOPJE - SARA J	25.01.1995		2.50
38		15.02.1995		5.00
39		21.03.1995		5.40
40		19.04.1995		2.60
41		08.05.1995		1.52
42		12.06.1995		5.20
43		11.07.1995		3.04
44		21.08.1995		5.92
45		02.10.1995		0.10
46		24.10.1995		7.20
47		12.12.1995		1.50
48	Average		3.63	

St. No	Name of station	Date of sampling	Flow Q (m3/s)	BOD5 mg/l O2
		1995	1995	1995
49	06. R. VARDAR - SKOPJE - VLAE	21.03.1995		5.40
50		08.05.1995		
51		12.06.1995		2.40
52		21.08.1995		3.97
53		02.10.1995		1.90
54		Average		3.42
55				
56	07. R. VARDAR - SKOPJE - KOMLEKS BANKI	25.01.1995		3.90
57		15.02.1995		2.90
58		21.03.1995		3.30
59		19.04.1995		4.10
60		08.05.1995		2.45
61		12.08.1995		2.00
62		11.07.1995		4.72
63		21.08.1995		6.32
64		02.10.1995		3.10
65		24.10.1995		7.70
66		13.12.1995		2.30
67		Average		3.89
68	08. R. VARDAR - SKOPJE - JURUMLERI	25.01.1995		6.10
69		15.02.1995		9.40
70		21.03.1995		6.90
71		19.04.1995		4.20
72		08.05.1995		3.00
73		12.08.1995		2.10
74		11.07.1995		5.82
75		21.08.1995		1.97
76		02.10.1995		
77		17.10.1995		2.80
78		12.12.1995		5.80
79		Average		4.81
80	09. R. VARDAR - v. BASINO SELO	26.01.1995		4.40
81		16.02.1995		6.60
82		22.03.1995		6.20
83		20.04.1995		7.00
84		10.05.1995		1.85
85		13.06.1995		5.30
86		12.07.1995		8.22
87		22.08.1995		5.05
88		03.10.1995		4.80
89		17.10.1995		3.60
90		13.12.1995		3.20
	Average		5.11	

St. No	Name of station	Date of sampling	Flow Q (m ³ /s)	BOD5 mg/l O ₂
		1995	1995	1995
	10. R. VARDAR - VELES			
91		26.01.1995		9.30
92		16.02.1995		4.10
93		22.03.1995		5.30
94		20.04.1995		5.80
95		10.05.1995		4.87
96		13.06.1995		2.30
97		12.07.1995		6.69
98		22.08.1995		4.00
99		03.10.1995		1.90
100		17.10.1995		3.10
101		13.12.1995		2.30
102		Average		4.51
	11. R. VARDAR - After inflow of R. BABUNA			
103		26.01.1995		4.00
104		16.02.1995		5.90
105		22.03.1995		6.60
106		20.04.1995		7.10
107		10.05.1995		4.59
108		13.06.1995		7.10
109		12.07.1995		8.86
110		22.08.1995		4.43
111		03.10.1995		2.60
112		17.10.1995		4.70
113		13.12.1995		1.70
114		Average		5.23
	12. R. VARDAR - v. NOGAEVCI			
115		22.03.1995		2.10
116		10.05.1995		5.81
117		14.06.1995		3.80
118		22.08.1995		4.66
119		03.10.1995		3.20
120		18.10.1995		1.20
121		Average		3.46
	13. R. VARDAR - v. STARO GRADSKO			
122		26.01.1995		9.30
123		16.02.1995		5.50
124		22.03.1995		3.10
125		20.04.1995		3.70
126		10.05.1995		5.77
127		13.06.1995		3.50
128		12.07.1995		6.04
129		22.08.1995		3.34
130		03.10.1995		3.00
131		18.10.1995		1.50
132		13.12.1995		5.70
133		Average		4.59

St. No	Name of station	Date of sampling	Flow Q (m ³ /s)	BOD5 mg/l O ₂
		1995	1995	1995
	14. R. VARDAR - DEMIR KAPIJA			
134		26.01.1995		5.60
135		16.02.1995		4.80
136		23.03.1995		4.70
137		20.04.1995		6.20
138		11.05.1995		5.72
139		15.06.1995		2.90
140		12.07.1995		5.84
141		23.08.1995		4.55
142		04.10.1995		1.50
143		19.10.1995		2.30
144		13.12.1995		1.20
145		Average		4.12
	15. R. VARDAR - GEVGELIJA			
146		26.01.1995		2.70
147		16.02.1995		5.80
148		23.03.1995		2.50
149		20.04.1995		3.50
150		11.05.1995		5.89
151		14.06.1995		1.10
152		12.07.1995		5.22
153		23.08.1995		0.76
154		04.10.1995		1.70
156		19.10.1995		3.90
157		13.12.1995		2.30
158		Average		3.22
	16. R. BISTRICA - Estuary in R. Vardar			
159		25.01.1995		2.90
160		15.02.1995		2.00
161		21.03.1995		5.20
162		19.04.1995		6.90
163		08.05.1995		1.65
164		12.06.1995		2.70
165		11.07.1995		5.49
166		21.08.1995		4.59
167		02.10.1995		1.30
168		23.10.1995		1.10
169		12.12.1995		2.50
170		Average		3.30
	17. R. LEPENEC			
171		15.02.1995		3.40
172		21.03.1995		3.50
173		19.04.1995		4.10
174		08.05.1995		2.88
175		12.06.1995		2.40
176		11.07.1995		6.77
177		21.08.1995		7.17
178		02.10.1995		1.40
179		13.12.1995		3.60
180		Average		3.20

St. No	Name of station	Date of sampling	Flow Q (m ³ /s)	BOD5 mg/l O ₂
		1995	1995	1995
181	18. R. LEPENEC -Estuary in R. Vardar	25.01.1995		3.30
182		15.02.1995		9.40
183		21.03.1995		2.20
184		20.04.1995		1.80
185		08.05.1995		3.13
186		12.06.1995		7.80
187		11.07.1995		5.75
188		21.08.1995		7.47
189		02.10.1995		1.70
190		12.12.1995		3.50
191		Average		4.61
192	19. R. TRESKA - v. IZVOR Spring	28.03.1995		0.20
193		15.05.1995		0.64
194		05.06.1995		0.10
195		29.08.1995		0.50
196		25.09.1995		4.20
197		Average		4.09
198	20. R. TRESKA v. BIGOR DOLENCI Under Kichevo	28.03.1995		0.70
199		15.05.1995		1.28
200		05.06.1995		3.80
201		29.08.1995		7.03
202		25.09.1995		10.20
203		Average		4.60
204	21. R. TRESKA - SARAJ - SKOPJE	21.03.1995		0.90
205		08.05.1995		1.47
206		12.06.1995		0.70
207		21.08.1995		0.53
208		02.09.1995		1.10
209		Average		0.94
210	22. R. KICHEVSKA - KICHEVO	28.03.1995		6.90
211		15.05.1995		0.79
212		06.06.1995		1.80
213		29.08.1995		2.04
214		25.09.1995		2.70
215		Average		2.84
216	23. R. PCHINJA - v. Pelince	30.03.1995		2.50
217		17.05.1995		1.54
218		07.06.1995		2.10
219		30.08.1995		2.39
220		17.09.1995		2.40
221		Average		2.19

St. No	Name of station	Date of sampling	Flow Q (m ³ /s)	BOD5 mg/l O ₂
		1995	1995	1995
222	24. R. PCHINJA -KATLANOVSKA BANJA	29.03.1995		8.30
223		17.05.1995		1.77
224		08.06.1995		2.00
225		30.08.1995		4.83
226		27.09.1995		3.90
227		Average		4.16
228		25. KRIVA REKA v. Klechovce	30.03.1995	
229	17.05.1995			2.18
230	07.06.1995			3.70
231	30.08.1995			8.37
232	27.09.1995			3.00
233	Average			4.47
234	26. R. KUMANOVSKA - v. DOBROSANE		30.03.1995	
235		17.05.1995		18.90
236		08.06.1995		2.60
237		30.08.1995		5.52
238		27.09.1995		2.40
239		Average		7.00
240		27. R. BREGALNICA v. Trebotivishte	23.03.1995	
241	11.05.1995			3.09
242	14.06.1995			7.10
243	23.08.1995			4.65
244	04.10.1995			4.00
245	Average			4.29
246	29. R. BREGALNICA - v. OCI PALE		23.03.1995	
247		11.05.1995		5.00
248		14.06.1995		5.60
249		23.08.1995		4.87
250		04.10.1995		7.60
251		Average		5.83
252		30. R. BREGALNICA - ISTIBANJE	23.03.1995	
253	11.05.1995			1.10
254	14.06.1995			1.50
255	23.08.1995			5.72
256	04.10.1995			2.50
257	Average			2.56
258	31. R. BREGALNICA - v. Krupishte		22.03.1995	
259		10.05.1995		2.92
260		13.06.1995		2.40
261		22.09.1995		5.90
262		03.10.1995		19.20
263		Average		6.62

St. No	Name of station	Date of sampling	Flow Q (m3/s)	BOD5 mg/l O2
		1995	1995	1995
264	32. R. BREGALNICA - Under Shtip-Svilari	22.03.1995		8.00
265		10.05.1995		5.00
266		13.06.1995		4.60
267		22.08.1995		7.36
268		03.08.1995		3.80
269		Average		5.75
270	33. R. BREGALNICA - v. UBOGO	29.03.1995		5.20
271		17.05.1995		1.49
272		08.06.1995		1.10
273		30.08.1995		2.37
274		27.09.1995		4.50
275		Average		2.93
276	34. R. KAMENICA - M. KAMENICA	23.03.1995		2.30
277		11.05.1995		1.73
278		14.06.1995		5.50
279		23.08.1995		2.20
280		04.10.1995		2.20
281		Average		2.79
282	35. R. ZLETOVSKA - Esturey in r. Bregal.	22.03.1995		1.60
283		10.05.1995		4.65
284		13.06.1995		3.60
285		22.08.1995		7.02
286		03.10.1995		2.80
287		Average		3.93
288	36. CRNA RIVER v. TOPOLCHANI	29.03.1995		5.50
289		16.05.1995		1.60
290		29.08.1995		4.86
291		26.09.1995		3.70
292		Average		3.13
293		37. CRNA RIVER v. NOVACI	29.03.1995	
294	16.05.1995			16.20
295	29.08.1995			5.75
296	26.09.1995			3.40
297	Average			5.71
298	38. CRNA REKA v. SKOCHIVIR		29.03.1995	
299		16.05.1995		12.42
300		29.08.1995		10.10
301		26.09.1995		16.00
302		Average		10.50

St. No	Name of station	Date of sampling	Flow Q (m3/s)	BOD5 mg/l O2
		1995	1995	1995
303 304 305 306 307	39. R. DRAGOR Esturey in CRNA REKA	29.3.1995 16.05.1995 29.08.1995 26.09.1995 Average		
308 309 310 311 312	40. R. ELESKA Esturey in CRNA REKA	29.03.1995 16.05.1995 29.03.1995 26.09.1995 Average		3.10 3.24 3.47 2.60 2.48
313 314 315 316 317 318 319	41. CRNA REKA v. PALIKULA	29.03.1995 17.05.1995 08.06.1995 30.08.1995 27.09.1995 18.10.1995 Average		4.20 1.79 2.40 9.17 3.10 4.90 4.26
320 321 322 323 324 325	42. R. STARA under RADOVISH	22.03.1995 10.05.1995 13.06.1995 22.08.1995 04.10.1995 Average		12.08 2.73 5.80 11.28 8.50 8.08
326 327 328 329 330 331	43. R. STRUMICA - NOVO SELO	22.03.1995 11.05.1995 14.06.1995 23.08.1995 04.10.1995 Average		2.40 2.38 3.50 4.47 6.30 3.81
332 333 334 335 336 337	44. GOLEMA REKA under RESEN	29.03.1995 16.05.1995 06.06.1995 28.08.1995 26.09.1995 Average		4.40 1.56 3.80 6.81 4.40 4.19
338 339 340 341 342 343	45. R. RADIKA v. ZIROVNICA	28.03.1995 15.05.1995 06.06.1995 28.08.1995 25.09.1995 Average		1.50 0.29 1.10 4.81 1.50 1.84

St. No	Name of station	Date of sampling	Flow Q (m ³ /s)	BOD5 mg/l O ₂
		1995	1995	1995
347	46.R. RADIKA - BOSJKOV MOST	28.03.1995		0.90
348		15.05.1995		1.91
349		05.06.1995		1.10
350		28.08.1995		1.75
351		25.09.1995		3.20
352		Average		1.77
353	47. R. CRN DRIM under STRUGA	28.03.1995		1.40
354		15.05.1995		0.93
355		05.06.1995		0.70
356		28.08.1995		4.01
357		25.09.1995		4.80
358		Average		2.37
359	48.R. CRN DRIN under HE"SHPIIJE"	28.03.1995		2.00
360		15.05.1995		2.22
361		05.06.1995		2.00
362		28.08.1995		3.50
363		25.09.1995		4.80
364		Average		2.90

St. No	Name of station	Date of sampling	Flow Q (m3/s)	BOD5 mg/l O2
		1996	1996	1996
1	01. R. VARDAR - v. VRUTOK (intake point)	22.01.1996		0.86
2		01.14.1996		2.00
3		27.05.1996		1.41
4		26.08.1996		0.35
5		28.10.1996		1.14
6		Average		1.15
7	02. R. VARDAR - v. BALIN DOL	22.01.1996		4.65
8		01.04.1996		6.56
9		27.05.1996		3.41
10		26.08.1996		1.68
11		28.10.1996		2.79
12		Average		3.82
13	03. R. VRDAR - v. SARA KINCI	23.01.1996		3.89
14		27.02.1996		2.70
15		01.04.1996		2.53
16		27.05.1996		2.09
17		01.07.1996		2.97
18		26.08.1996		1.37
19		28.10.1996		1.77
20		17.12.1996		3.78
21		Average		2.64
22	04. R. VARDAR - v. JEGUNOVCE	23.01.1996		3.53
23		27.02.1996		3.70
24		01.04.1996		2.93
25		27.05.1996		1.30
26		01.07.1996		3.96
27		26.08.1996		4.65
28		28.10.1996		4.23
29		17.12.1996		1.71
30		Average		3.25
31	05. R. VARDAR - SKOPJE - SARAJ	24.01.1996		0.87
32		27.02.1996		3.10
33		02.04.1996		2.77
34		28.05.1996		0.48
35		01.07.1996		3.21
36		27.08.1995		0.12
37		29.10.1996		2.32
38		17.12.1996		3.93
39		Average		2.10
40	06. R. VARDAR - SKOPJE - VLAE	27.02.1996		1.3
41		02.04.1996		2.22
42		28.05.1996		0.83
43		01.07.1996		1.73
44		27.08.1996		0.17
45		29.10.1996		2.2
46		18.12.1996		2.13
47		Average		1.51

St. No	Name of station	Date of sampling	Flow Q (m3/s)	BOD5 mg/l O2
		1996	1996.00	1996
48	07. R. VARDAR - SKOPJE - KOMPLEKS BANKI	24.01.1996	49.80	0.99
49		27.02.1996	67.60	5.20
50		02.04.1996	103.00	6.27
51		28.05.1996	79.20	1.22
52		01.07.1996	33.90	6.91
53		27.08.1995	17.90	1.77
54		29.10.1996	36.40	4.71
55		18.12.1996	51.80	1.62
56		Average	54.95	3.59
57	08. R. VARDAR - SKOPJE	24.01.1996		2.29
58		28.02.1996		6.30
59		03.04.1996		4.04
60		29.05.1996		4.63
61		02.07.1996		5.53
62		28.08.1996		6.48
63		30.10.1996		4.64
64		18.02.1996		3.30
65		Average		4.65
66	09. R. VARDAR - v. BASHINO SELO	25.01.1996		7.11
67		28.02.1996		4.5
68		03.04.1996		6.06
69		29.05.1996		5.6
70		02.07.1996		4.66
71		Average		5.59
72	10. R. VARDAR - v. BASHINO SELO	28.08.1996		4.52
73		30.10.1996		7.54
74		18.12.1996		5.89
75		Average		5.98
76	11. R VARDAR - VELES	25.01.1996	63.60	5.22
77		28.02.1996	97.80	7.30
78		03.04.1996	140.00	5.51
79		29.05.1996	108.00	7.00
80		02.07.1996	33.90	6.40
81		28.08.1996	16.90	5.32
82		30.10.1996	62.70	5.43
83		18.12.1996	70.70	7.49
84		Average	74.20	6.21
85	12. R. VARDAR After inflow of R. BABUNA	25.01.1996		9.54
86		28.02.1996		6.8
87		03.04.1996		5.88
88		29.05.1996		7.58
89		02.07.1996		6.02
90		28.08.1996		2.42
91		30.10.1996		7.37
92		18.12.1996		3.99
93		Average		6.2

St. No	Name of station	Date of sampling	Flow Q (m ³ /s)	BOD5 mg/l O ₂
		1996	1996.00	1996
94	13. R. VARDAR - v. NOGAEVCI	04.04.1996		6.75
95		30.05.1996		6.05
96		29.08.1996		2.81
97		31.10.1996		6.03
98		Average		5.41
99	14. R. VARDAR - v. STARO GRADSKO	26.01.1996		7.10
100		29.02.1996		5.10
101		04.04.1996		6.40
102		30.05.1996		2.84
103		03.07.1996		4.46
104	Average		5.18	
105	15. R. VARDAR - v. STARO GRADSKO	29.03.1996		1.27
106		31.10.1996		4.41
107		19.12.1996		1.68
108		Average		2.45
109	16. R. VARDAR - DEMIR KAPIJA	26.01.1996	112.00	5.03
110		29.02.1996	305.00	2.60
111		05.04.1996	347.00	5.39
112		31.05.1996	207.00	2.91
113		03.07.1996	71.30	2.85
114		30.08.1996	42.00	1.36
115		01.11.1996	53.40	2.75
116		19.12.1996	99.30	3.44
117		Average	154.63	3.29
118	17. R. VARDAR - GEVGELIJA	26.01.1996	120.00	4.64
119		29.02.1996	331.70	4.90
120		05.04.1996	377.80	3.43
121		31.05.1996	224.10	3.90
122		03.07.1996	75.10	3.20
123		30.08.1996	42.90	2.70
124		01.11.1996	55.40	3.38
125		19.12.1996	105.80	2.68
126		Average	166.60	3.62
127	18. LIPKOVSKO LAKE	26.03.1996		2.60
128		21.05.1996		8.69
129		20.08.1996		4.21
130		22.10.1996		0.52
131		Average		4.01
132	19. R. LIPKOVSKA - v. BEDINJE	26.03.1996		2.21
133		21.05.1996		3.08
134		20.08.1996		2.33
135		22.10.1996		1.01
136		Average		2.16

St. No	Name of station	Date of sampling	Flow Q (m3/s)	BOD5 mg/l O2
		1996	1996.00	1996
137	20. R. KUMANOVSKA - v. DOBROSANE	26.03.1996		8.57
138		21.05.1996		2.66
139		20.08.1996		25.1
140		22.10.1996		59.63
141		Average		23.92
142	21. R. BREGALNICA - v. BUDINARCI	27.03.1996	6.56	4.31
143		23.05.1996	3.30	2.83
144		21.08.1996	0.40	5.52
145		23.10.1996	1.05	0.59
146		Average	2.83	3.31
147	22. R. BREGALNICA - v. OCHI PALE	27.03.1996	12.30	6.72
148		23.05.1996	4.44	5.36
149		21.08.1996	0.90	3.54
150		23.10.1996	1.68	5.17
151		Average	4.83	5.20
152	23. Acumulation " KALIMANCI " - Dam	27.03.1996		1.80
153		23.05.1996		4.25
154		21.08.1996		2.72
155		23.10.1996		1.71
156		Average		2.62
157	24. R. BREGALNICA - Downflow from acum. " KALIMANCI "	27.03.1996		2.54
158		23.05.1996		3.08
159		21.08.1996		3.60
160		23.10.1996		4.37
161		Average		3.40
162	25.R. BREGALNICA - v. KRUPISHTE	28.03.1996		0.88
163		22.05.1996		3.59
164		21.08.1996		3.85
165		23.10.1996		1.60
166		Average		2.48
167	26. R. BREGALNICA v. SVILARI (under SHTIP)	28.03.1996		2.76
168		22.05.1996		6.80
169		21.08.1996		5.40
170		23.10.1996		3.92
171		Average		4.72



Annex 7

Information of Wastewater Prepared by

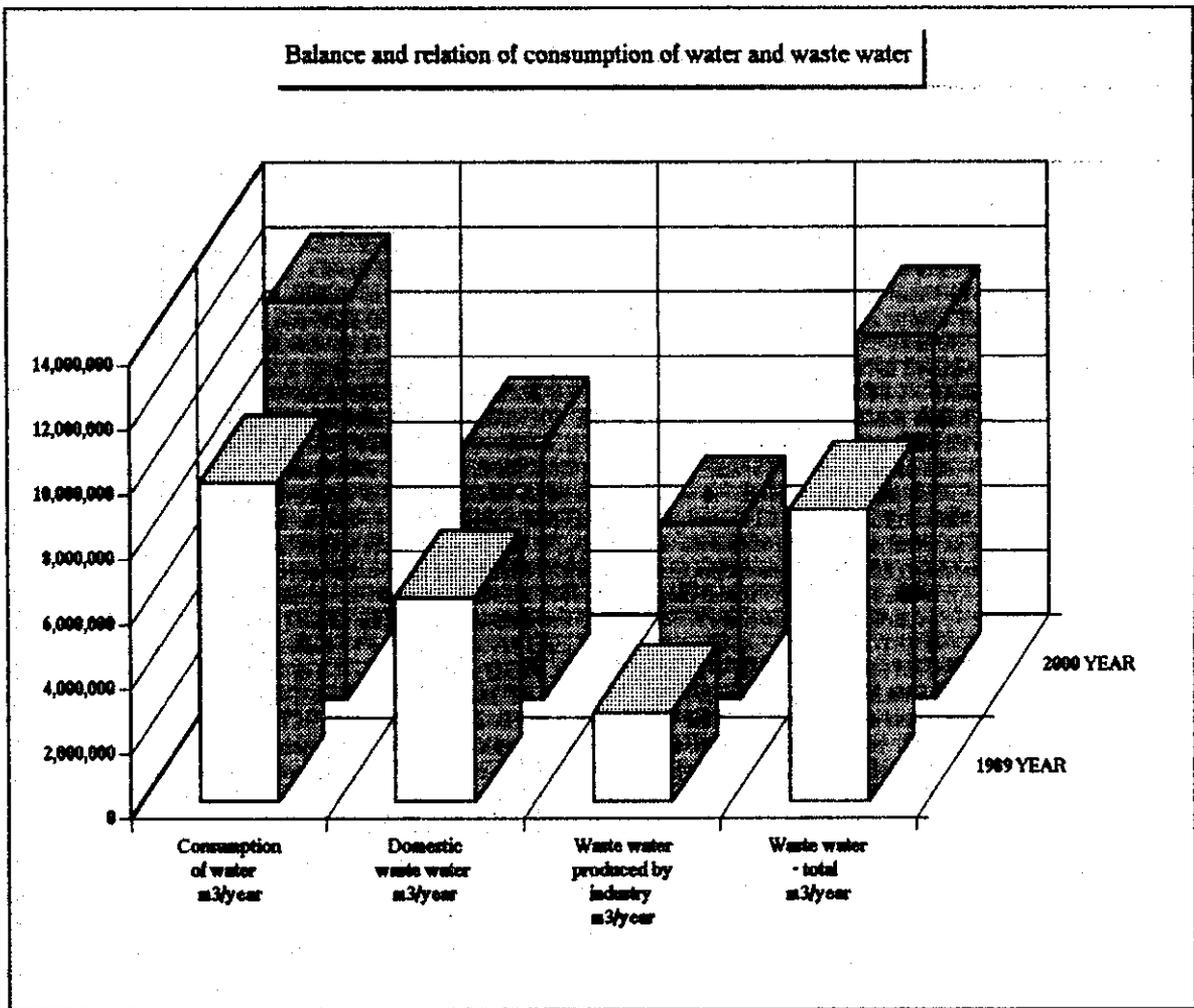
Hydrometeorological Institute



**BALANCE AND RELATION OF CONSUMPTION
 OF WATER AND WASTE WATER**

City - Gostivar	1989 Year	2000 Year
1	2	3
Habitants	45,000	50,000
Consumption of water m ³ /year	9,829,000	12,286,253
Domestic waste water m ³ /year	6,283,878	7,854,848
Waste water produced by industry m ³ /year	2,723,662	5,404,578
Waste water - total m ³ /year	9,007,540	11,259,425

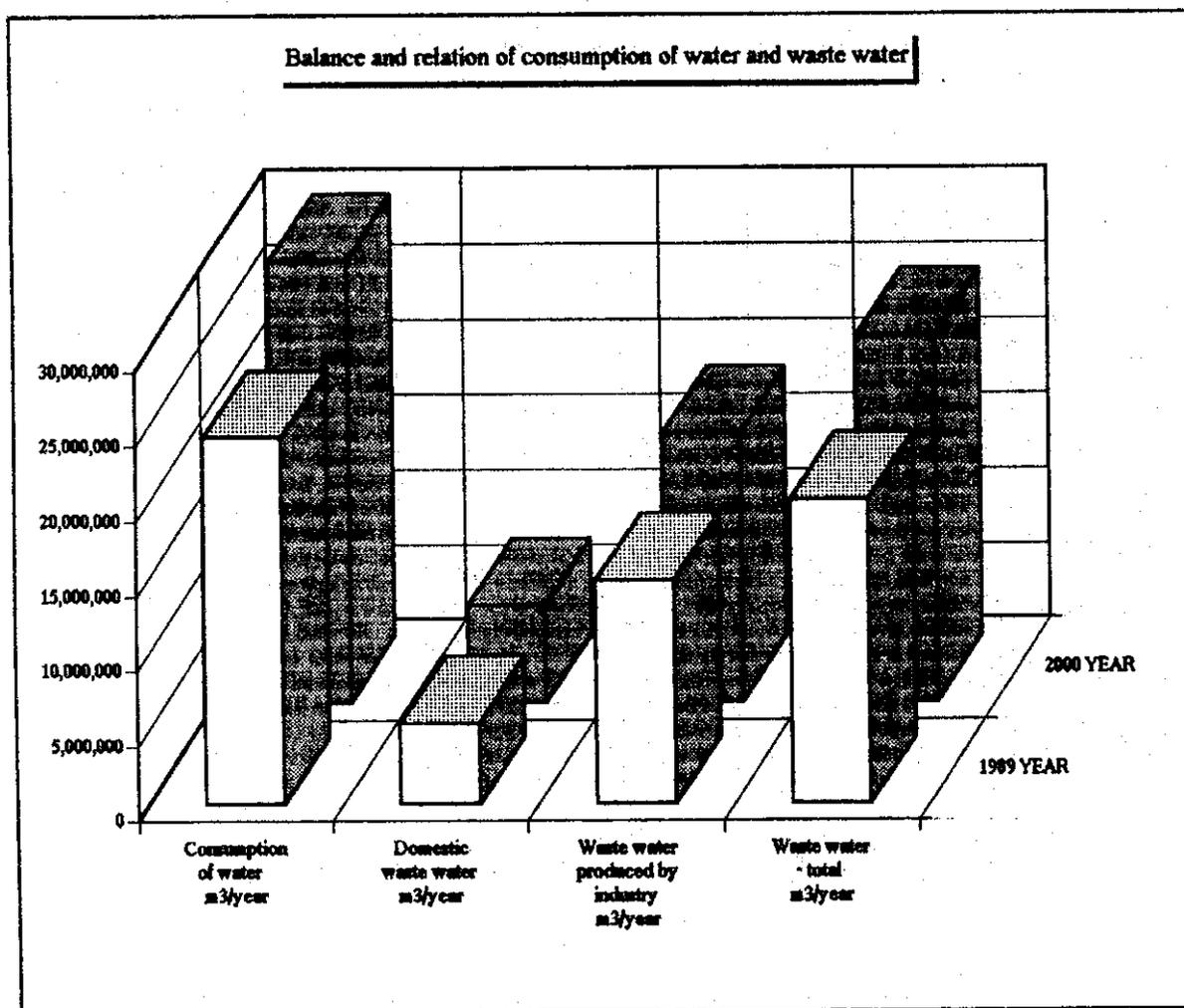
CITY GOSTIVAR



**BALANCE AND RELATION OF CONSUMPTION
 OF WATER AND WASTE WATER**

City - Tetovo	1989 Year	2000 Year
1	2	3
Habitants	54,000	65,000
Consumption of water m ³ /year	24,460,720	29,443,460
Domestic waste water m ³ /year	5,393,189	6,491,800
Waste water produced by industry m ³ /year	14,889,350	17,922,300
Waste water - total m ³ /year	20,282,539	24,444,100

CITY TETOVO

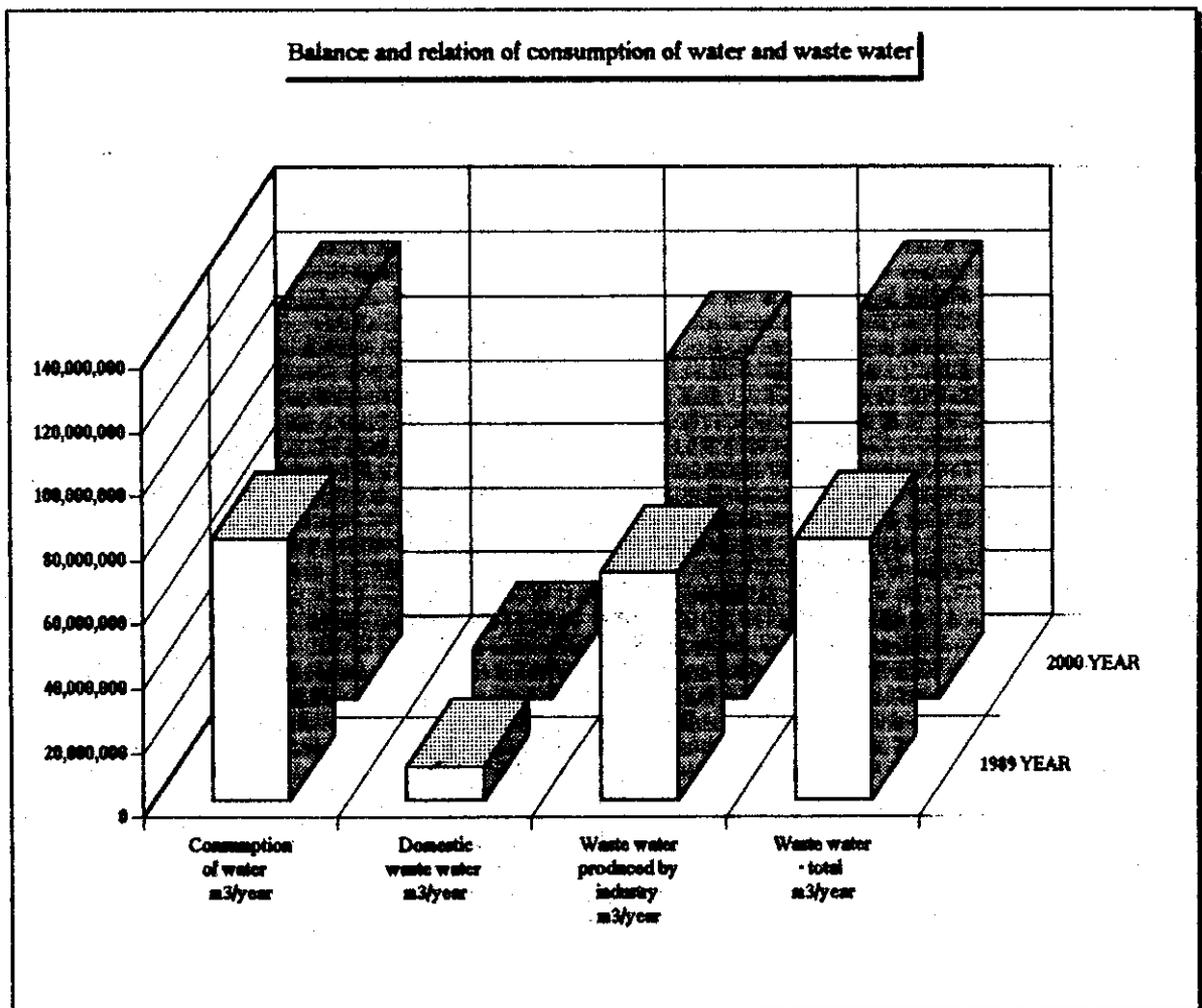


Author: ZORAN KARAMANOLEVSKI, technology engineer

**BALANCE AND RELATION OF CONSUMPTION
 OF WATER AND WASTE WATER**

City - Skopje	1989 Year	2000 Year
1	2	3
Habitants	400,000	600,000
Consumption of water m ³ /year	81,510,000	122,270,800
Domestic waste water m ³ /year	10,457,400	15,686,000
Waste water produced by industry m ³ /year	70,845,000	106,270,800
Waste water - total m ³ /year	81,302,400	121,956,800

CITY SKOPJE

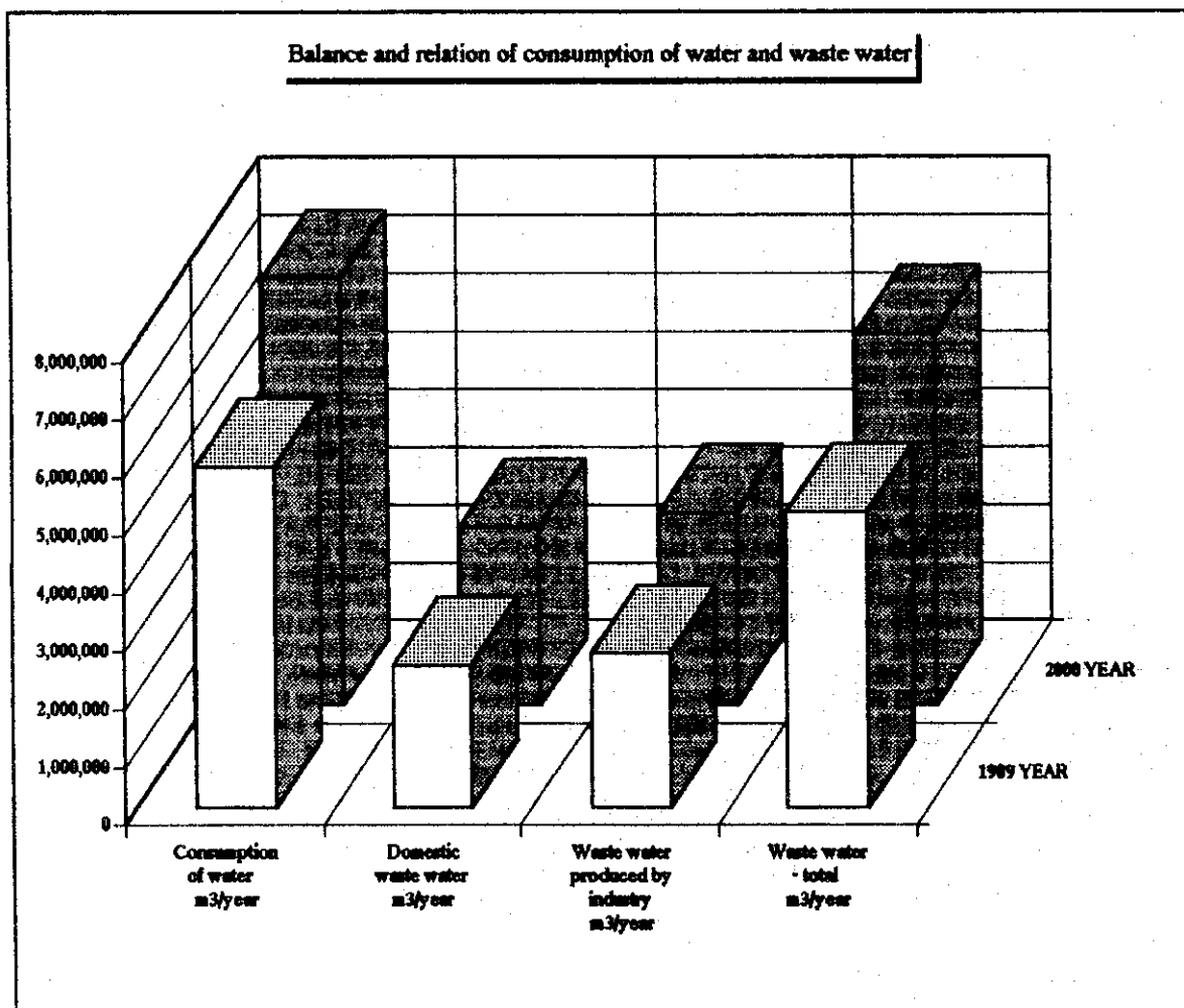


Author: ZORAN KARAMANOLJEVSKI, technology engineer

**BALANCE AND RELATION OF CONSUMPTION
 OF WATER AND WASTE WATER**

City - Kumanovo	1989 Year	2000 Year
1	2	3
Habitants	67,839	85,000
Consumption of water m ³ /year	5,888,533	7,378,332
Domestic waste water m ³ /year	2,462,312	3,085,300
Waste water produced by industry m ³ /year	2,667,138	3,329,400
Waste water - total m ³ /year	5,119,450	6,414,700

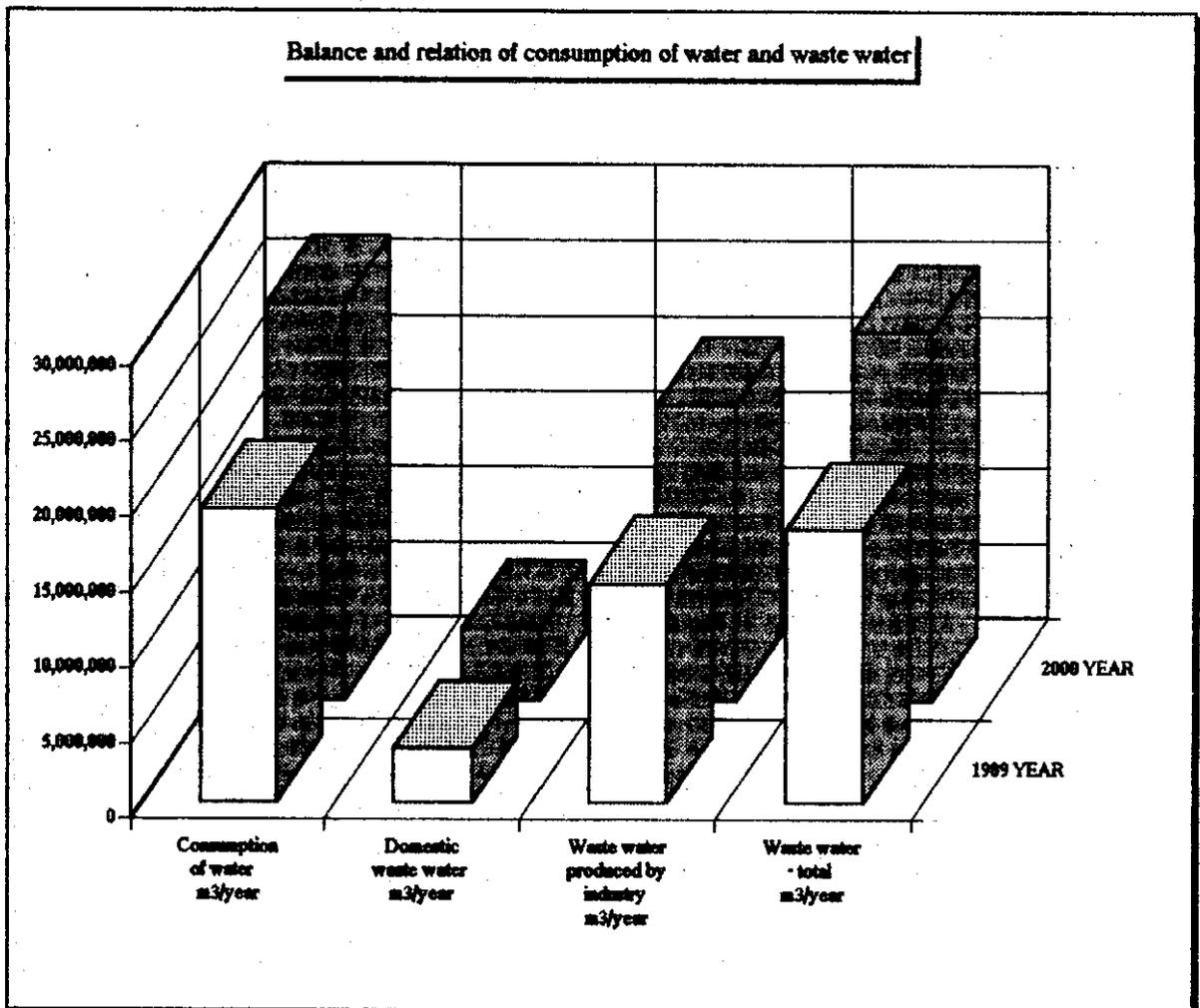
CITY KUMANOVO



**BALANCE AND RELATION OF CONSUMPTION
 OF WATER AND WASTE WATER**

City - Veles	1989 Year	2000 Year
1	2	3
Habitants	48,000	60,000
Consumption of water m ³ /year	19,437,994	26,319,000
Domestic waste water m ³ /year	3,601,243	4,876,100
Waste water produced by industry m ³ /year	14,502,940	19,637,000
Waste water - total m ³ /year	18,104,186	24,513,000

CITY VELES

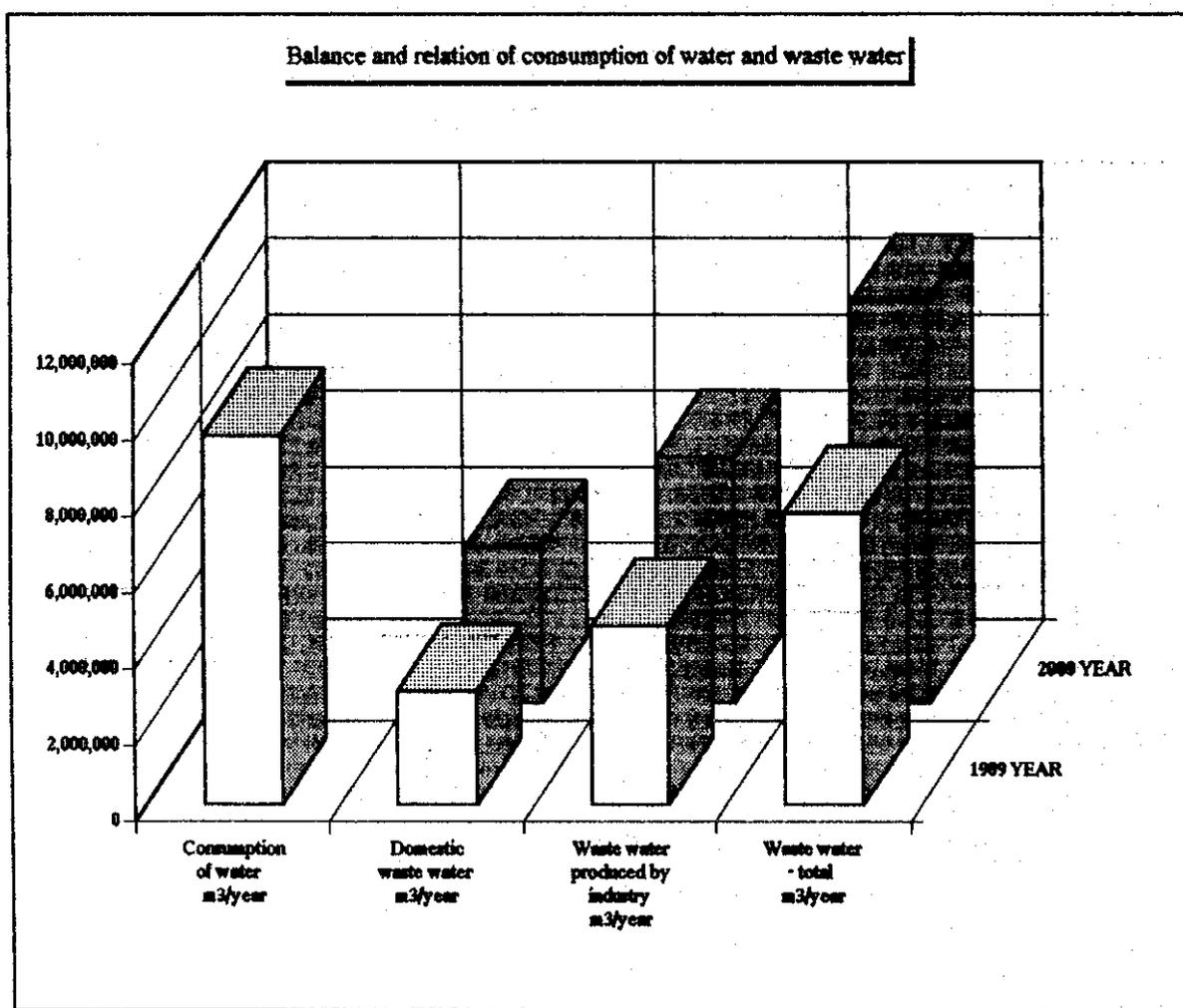


Author: ZORAN KARAMANOLEVSKI, technology engineer

**BALANCE AND RELATION OF CONSUMPTION
 OF WATER AND WASTE WATER**

City - Stip	1989 Year	2000 Year
1	2	3
Habitants	36,230	50,000
Consumption of water m ³ /year	9,679,934	
Domestic waste water m ³ /year	2,955,264	4,078,300
Waste water produced by industry m ³ /year	4,681,404	6,460,400
Waste water - total m ³ /year	7,636,671	10,538,700

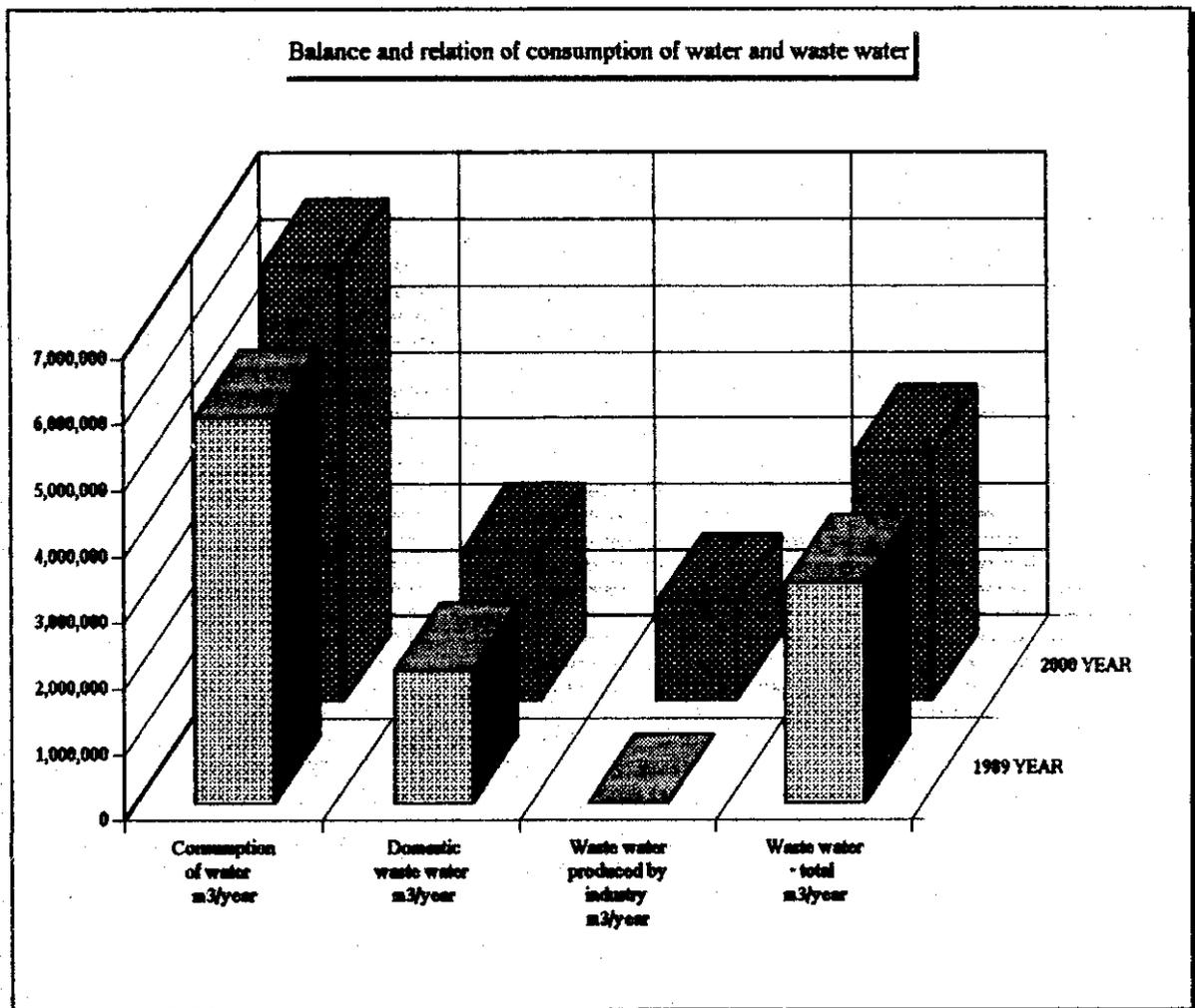
CITY STIP



**BALANCE AND RELATION OF CONSUMPTION
 OF WATER AND WASTE WATER**

City - Negotino	1989 Year	2000 Year
1	2	3
Habitants	16,000	18,000
Consumption of water m ³ /year	5,837,932	6,567,673
Domestic waste water m ³ /year	2,004,170	2,254,700
Waste water produced by industry m ³ /year	-	1,491,500
Waste water - total m ³ /year	3,332,650	3,749,200

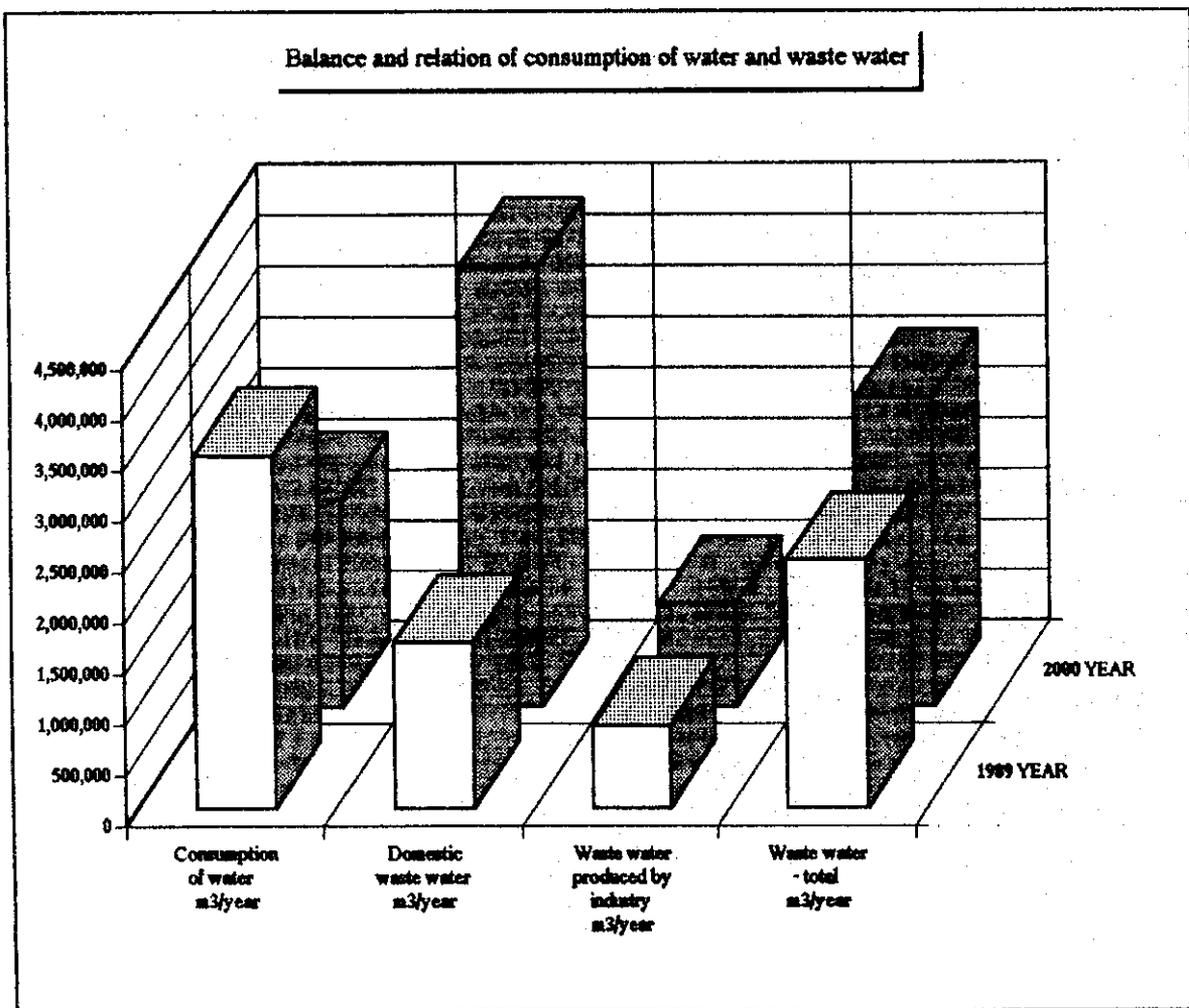
CITY NEGOTINO



**BALANCE AND RELATION OF CONSUMPTION
 OF WATER AND WASTE WATER**

City - Gevgelija	1989 Year	2000 Year
1	2	3
Habitants	18,899	23,500
Consumption of water m ³ /year	3,478,000	2,031,300
Domestic waste water m ³ /year	1,633,608	4,324,726
Waste water produced by industry m ³ /year	808,192	1,005,000
Waste water - total m ³ /year	2,441,800	3,036,300

CITY GEVGELJA



Author: ZORAN KARAMANOLEVSKI, technology engineer

WASTE WATER PRODUCED BY MINING AND INDUSTRY - 1994 YEAR

1	Waste water produced by industry and mining, 1994 Year, '000 m3				
	2	3	4	5	6
Total	Production	Coolin water	Sanitation	Other	
Generation, transmission and distribution of electricity	86,381	84,098	1,282	954	47
Hydroelectric power station					
Stream power station	1,316		1,282	27	7
Distribution of electricity	3,901	3,041		860	
Other areas	91,536	55,265	21,978	8,961	5,332
Extraction of coal					
Petroleum products industry					
Extraction of iron ore	3,150			15	3,135
Iron and steel industry	7,304	2,132	2,972	1,991	209
Non-ferrous ore mining	1,487	1,446	5	34	2
Non-ferrous metal production	17,008	12,785	3,762	351	110
Non-ferrous metal processing	196	154		32	10
Extraction of non-metal minerals	654	457	114	52	31
Processing of non-metal minerals	1,288	349	492	213	234
Manufacture of metal products	1,699	1,270	80	302	47
Machine industry	6	4		2	
Manufacture of transport equipment	2,667	1,605	384	635	43
Manufacture of electrical equipment	1,630	849	220	405	156
Basic chemical industry	13,338	11,755	686	755	109
Chemical products industry	310	35	157	104	14
Stone, gravel and sand quarrying	8,854	129	8,670	34	21
Building materials industry	358	134	131	52	41
Lumber industry	340	239		87	14
Finished wood products industry	205	70	8	106	21
Paper and paper products	2,483	2,391		92	
Textil fiber and fabric industry	5,663	4,341	442	389	488
Finished textil products industry	1,594	892	82	488	132
Leather and fur industry	434	367	3	64	
Leather footwear and accessories man.	575	478	45	47	5
Rubber industry					
Food products industry	8,648	5,537	1,699	1,132	280
Beverage industry	9,880	6,656	1,966	1,203	55
Feed industry	3			3	
Tobacco industry	1,377	1,003	2	225	147
Printing	356	181	58	89	28
Recycling of industrial waste	24			24	
Miscellaneous manufacturing	5	3		2	

DISCHARGE OF WASTE WATER PRODUCED BY MINING AND INDUSTRI - 1994 YEAR

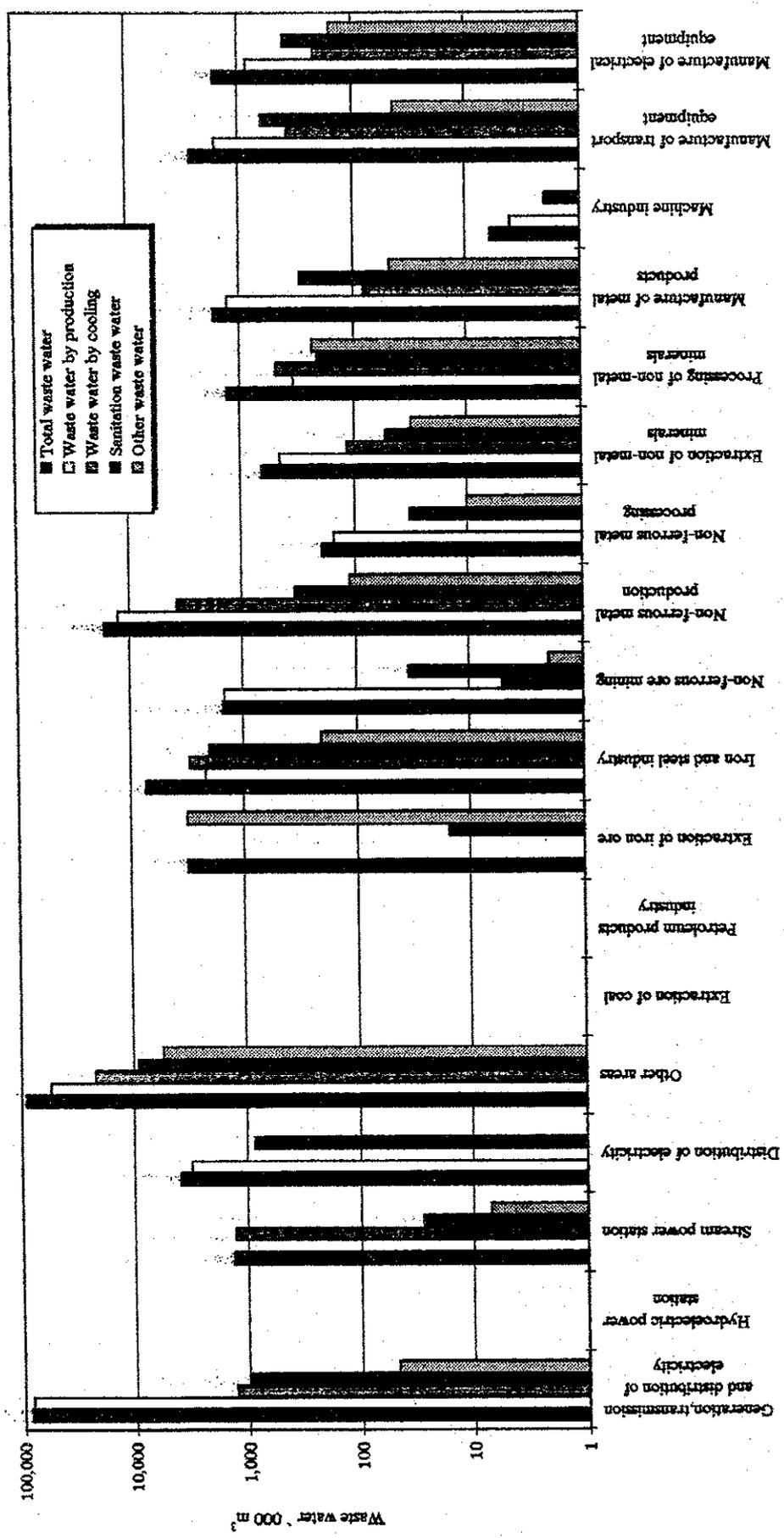
1	Discharge of unpurified water , 1994 Year, '000 m3					
	2	3	4	5	6	7
Total	Ground	Public sewer system	Water courses	Reservoirs	Lakes	
Generation, transmission and distribution of electricity	84,439	9	591	83,222	7	10
Hydroelectric power station	34			25	7	2
Stream power station	3,242		534	2,708		
Distribution of electricity	81,163	9	57	81,089		8
Other areas	38,708	8,551	11,740	33,463	3,220	1734
Extraction of coal						
Petroleum products industry						
Extraction of iron ore	3,150				3,150	
Iron and steel industry	5,042	519	1,620	2,903		
Non-ferrous ore mining	36		6	30		
Non-ferrous metal production	537			537		
Non-ferrous metal processing	172	2	20	150		
Extraction of non-metal minerals	422	30	21	371		
Processing of non-metal minerals	863	50	47	766		
Manufacture of metal products	818	9	617	2	57	133
Machine industry	6		6			
Manufacture of transport equipment	1,007	15	583	20	1	388
Manufacture of electrical equipment	1,217	66	225	307		619
Basic chemical industry	5224		378	4846		
Chemical products industry	309		100	63		146
Stone, gravel and sand quarrying	8,846		1	8,845		
Building materials industry	213		107	105		1
Lumber industry	340	1	272	67		
Finished wood products industry	193	17	11	65		
Paper and paper products	2,483		44	2,439		
Textil fiber and fabric industry	5,589	48	532	5,009		
Finished textil products industry	1,466	27	1,107	56	12	264
Leather and fur industry	434		224	210		
Leather footwear and accessories man.	575		30	545		
Rubber industry						
Food products industry	8,173	125	2,977	4,938		133
Beverage industry	9,828	7,589	1,883	338		18
Feed industry	3		3			
Tobacco industry	1,377	49	457	849		22
Printing	356	2	344	2		8
Recycling of industrial waste	24		22			2
Miscellaneous manufacturing	5	2	3			
Total	143,147	8,560	13,331	117,285	3,227	1744

DISCHARGE OF WASTE WATER PRODUCED BY MINING AND INDUSTRI - 1994 YEAR

	Discharge of purified water, 1994 Year, '000 m3					
	Total	Ground	Public sewer system	Water courses	Reservoirs	Lakes
1	2	3	4	5	6	7
Generation, transmission and distribution of electricity	649			649		
Hydroelectric power station						
Stream power station	648			648		
Distribution of electricity	1			1		
Other areas	32,828	3	2,680	29,534		611
Extraction of coal						
Petroleum products industry						
Extraction of iron ore						
Iron and steel industry	2,262		110	2,152		
Non-ferrous ore mining	1,451			1,451		
Non-ferrous metal production	16,471			14,671		
Non-ferrous metal processing	24			24		
Extraction of non-metal minerals	232			232		
Processing of non-metal minerals	425		408	17		
Manufacture of metal products	881		851			30
Machine industry						
Manufacture of transport equipment	1,660		24	1,100		536
Manufacture of electrical equipment	413		29	384		
Basic chemical industry	8114		909	7205		
Chemical products industry	1					1
Stone, gravel and sand quarrying	8			8		
Building materials industry	145			145		
Lumber industry						
Finished wood products industry	12		6			6
Paper and paper products						
Textil fiber and fabric industry	74			74		
Finished textil products industry	128	3	125			
Leather and fur industry						
Leather footwear and accessories man.						
Rubber industry						
Food products industry	475		166	271		38
Beverage industry	52		52			
Feed industry						
Tobacco industry						
Printing						
Recycling of industrial waste						
Miscellaneous manufacturing						
Total	33,477	3	2,680	30,183		611

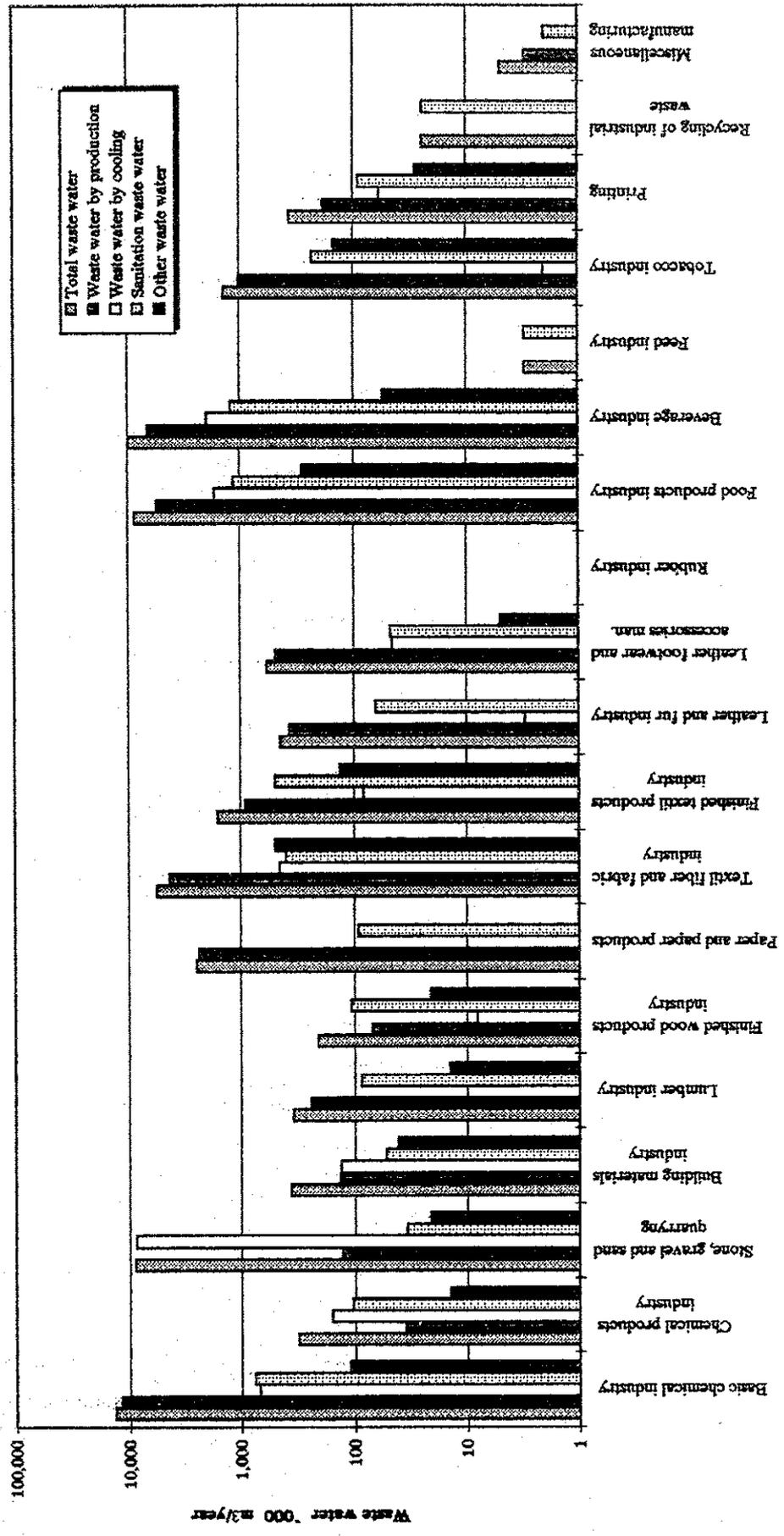
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WASTE WATER PRODUCED BY INDUSTRY AND MINING - 1994 YEAR

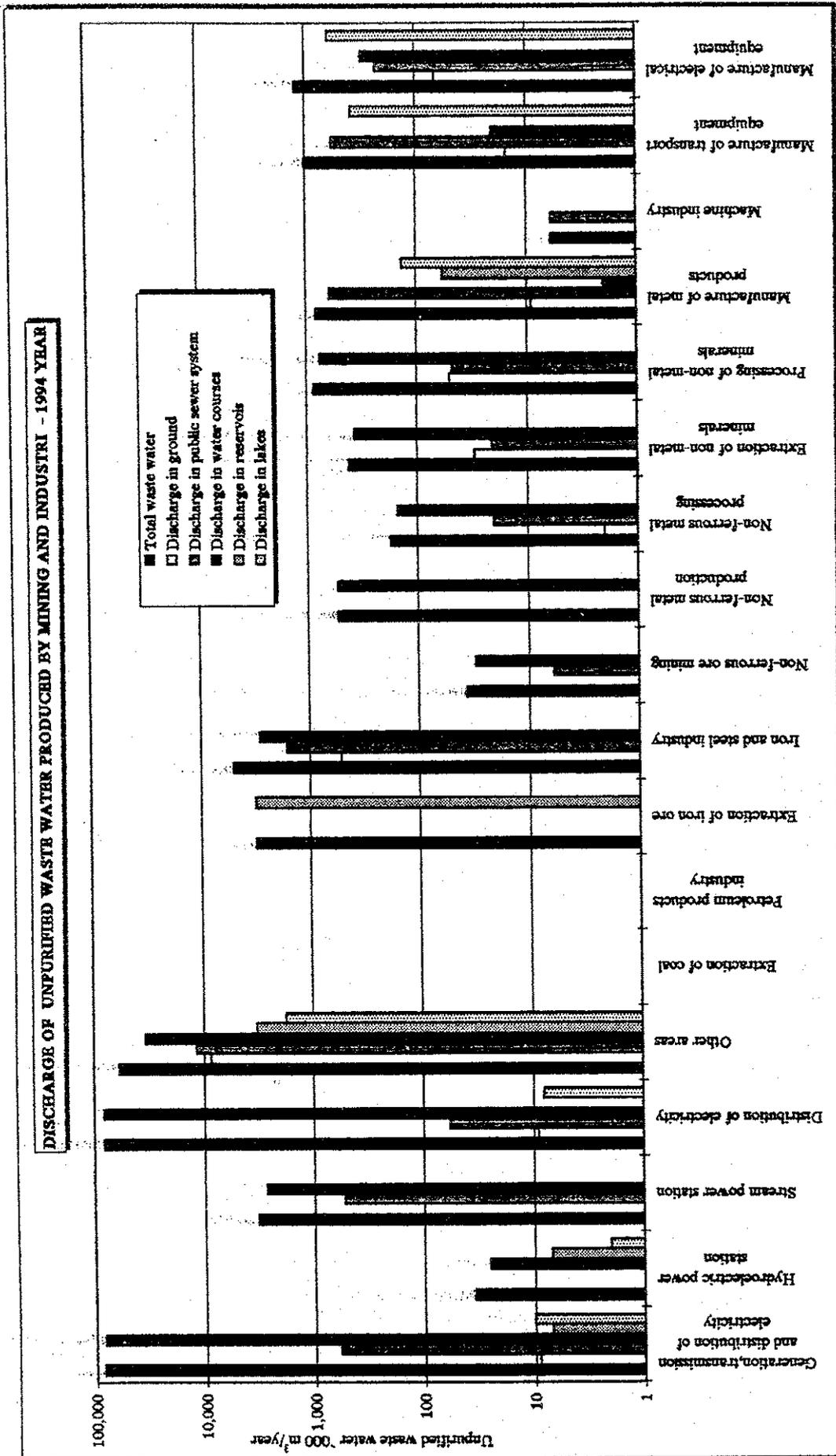


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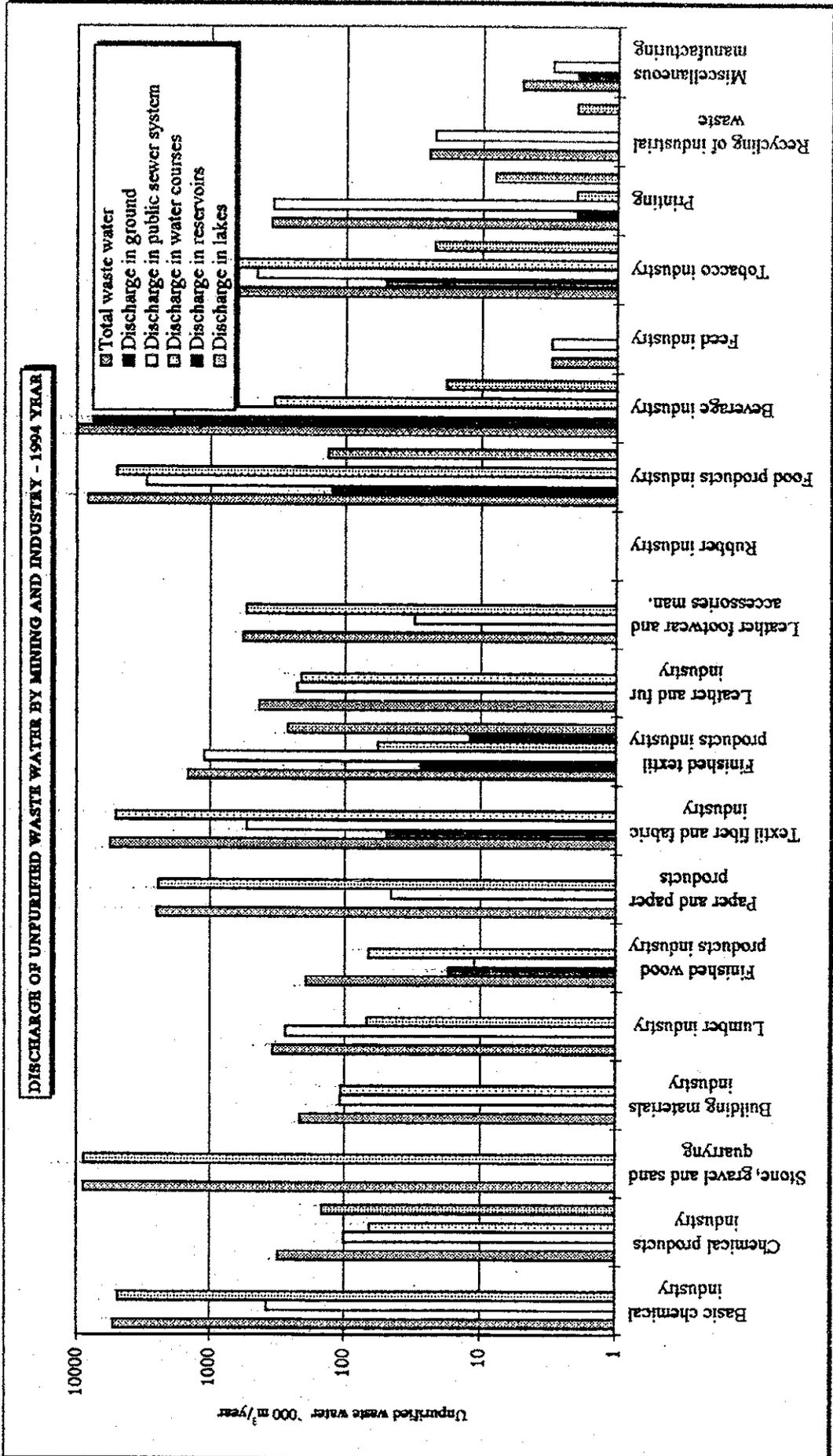
WASTE WATER PRODUCTION BY MINING AND INDUSTRY - 1994



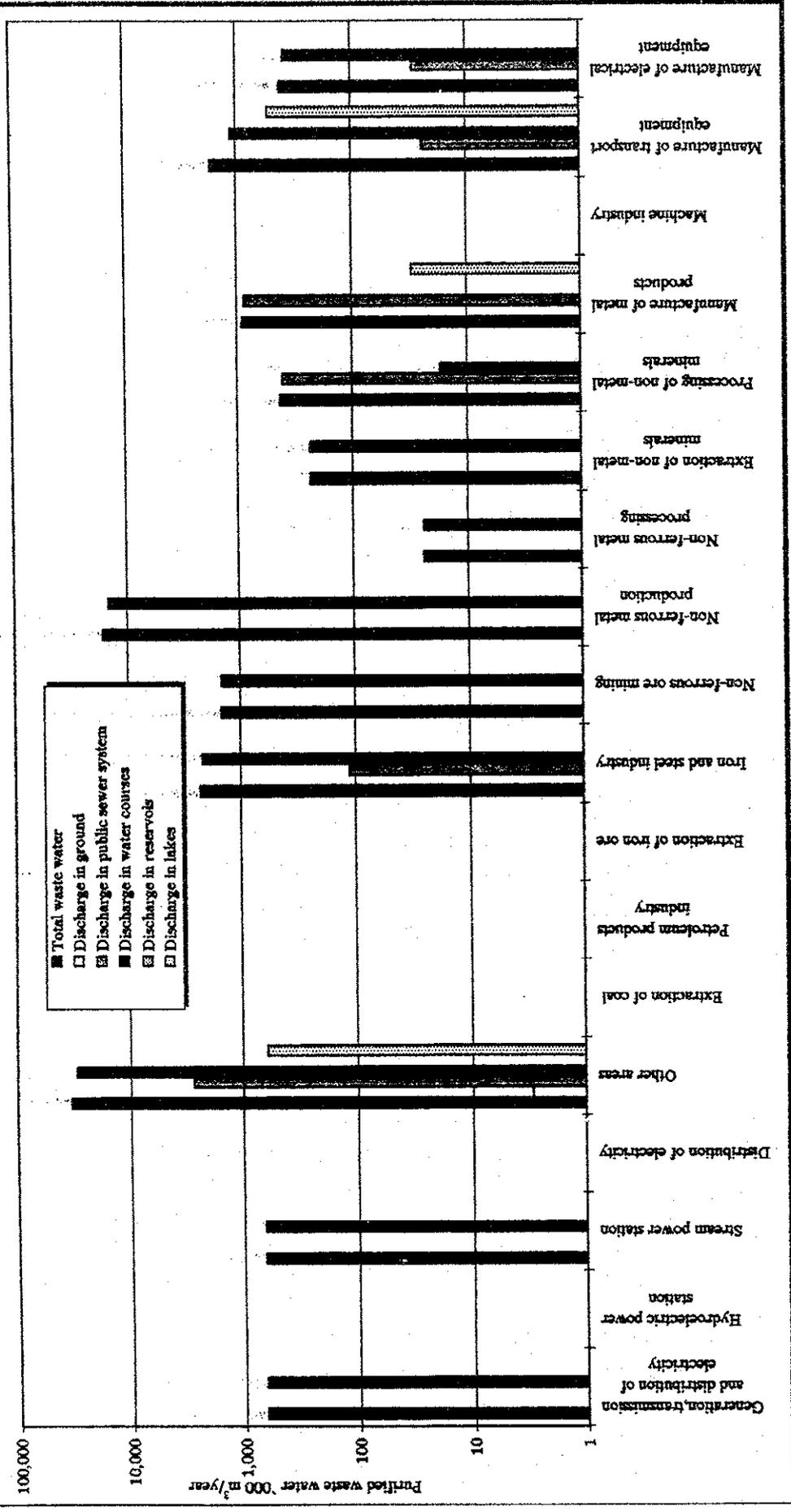
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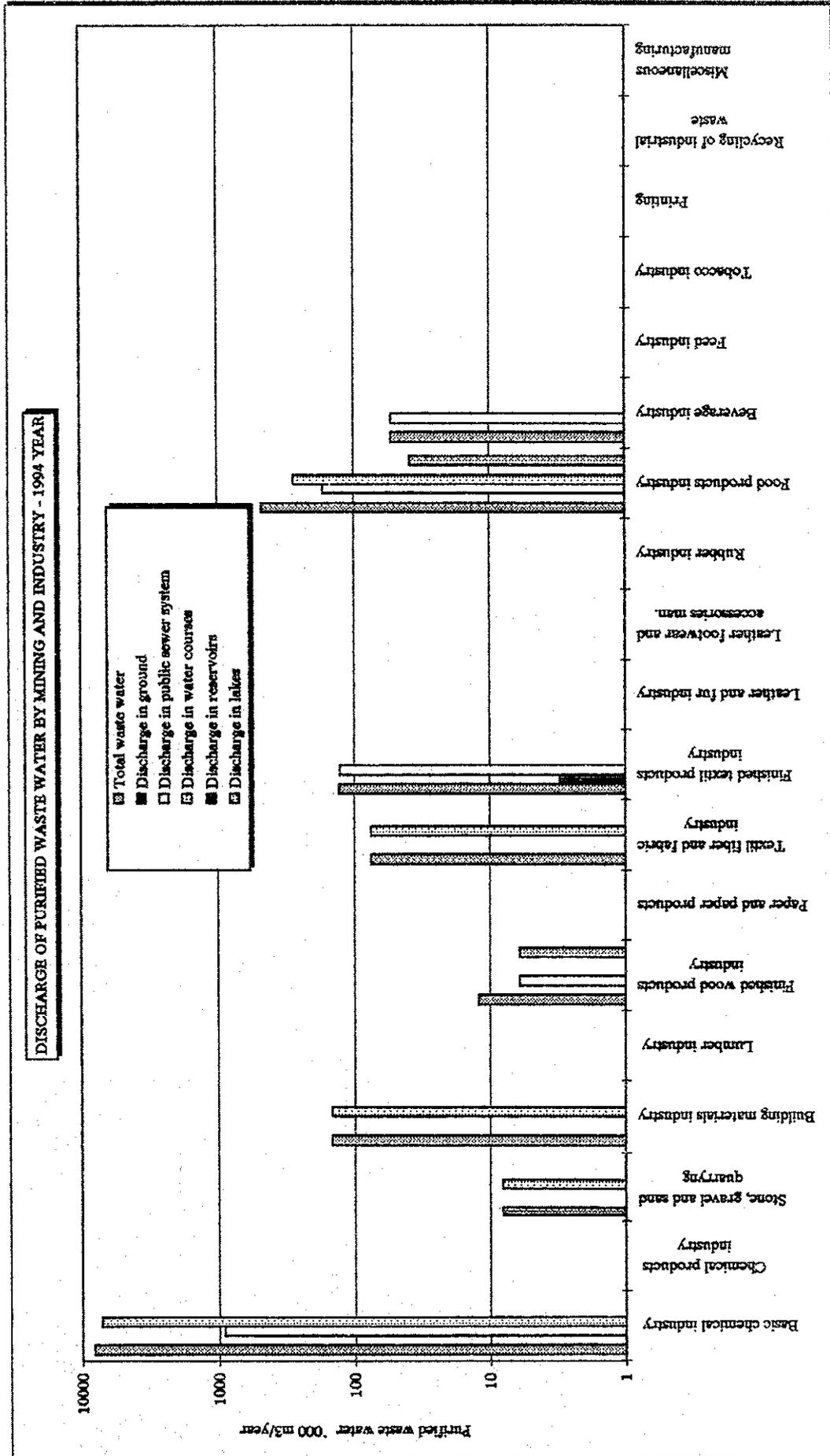
Author: ZORAN KARAMANOJEVSKI, technology engineer



DISCHARGE OF PURIFIED WASTE WATER PRODUCED BY MINING AND INDUSTRY - 1994 YEAR



Author: ZORAN KARAMANOJEVSKI, technology engineer



THE STUDY ON INTEGRATED WATER RESOURCES DEVELOPMENT AND MANAGEMENT MASTER PLAN IN REPUBLIC OF MACEDONIA - WATER QUALITY
CONSUMPTION OF WATER AND WASTE WATER PRODUCED BY INDUSTRY IN THE GOSIVAR

Number	1	2	3	4	5	6	7	8
Name of companies or factories	Factory "VIDOE SMILEVSKI BATO"	Factory "GOTEKS"	Factory RIOM "SILKA"	Slaughter-hous "GORNI POLOG"	Factory "DEKON"	Company PRO "MERMERI"	Milk Factory NAPPEDOK	
Industrial production	Glass wool and fibres 6000 t/year	Cotton and wool fabrics 1,451,000 m ² /fabrics and 200,000 m ² /year	Raw and refractory clay, raw dolomite 85 000 t/year	Fresh meat and meat products 8 100 t/year	Products 350 000 Ready-to-wear clothing units	Production of marble blocks	Milk, cheese production 2 274 t/year	
Number of employees	560	1,460			580	343	14	
Water supplied to industry - sanitation m ³ /year	120 000	50 000	77 300	442 010	2 350	2 400	1 460	
Water supplied to industry - production m ³ /year	85 000	400 000	252 280	27 626	992	308 000	Public water supply 2 555	
Water supplied to industry - cooling m ³ /year	210 000	25 000	832 480	27 626	866	9 600	730	
Water supplied to industry - other m ³ /year	65 000	25 000	14 600	55 251	1 556	-	365	
Water supplied to industry - Total m ³ /year	480 000	min. 900 000 max. 600 000	1 176 660	552 513	5 764	320 000	min. 5 110 max. 10 220	
Waste water produced by industry - sanitation m ³ /year	120 000	50 000	65 700	442 010	-	-	1 460	
Waste water produced by industry - production m ³ /year	85 000	320 000	169 000	27 626	126	-	2 555	
Waste water produced by industry - cooling m ³ /year	210 000	25 000	430 000	92	-	-	730	
Waste water produced by industry - other m ³ /year	65 000	25 000		55 158	-	-	365	
Waste water produced by industry - Total m ³ /year	480 000	min. 420 000 max. 480 000	664 700	524 886	5 764	255 000	5 110	
Discharge of waste water in	River Vardar	Public sewer system	River Vardar	River Vardar	River Vardar	River Vardar	River Vardar	
Discharge of waste water - Unpurified water m ³ /year	395 000		1 064 700					
Discharge of waste water - Purified water m ³ /year	85 000	max. 480 000		524 886				
Number of discharge	2	1	1	1	1	1	1	
Purifying station of waste water	Mechanical and chemical treatment	Mechanical and biological treatment		Mechanical, fizical and chemical treatment				
Landfill for solid waste	City landfill							
Indicators of pollution	COD, pH and Suspended Matter	COD, pH and Sedi- mentation Matter		BOD, COD, Fatness and other		Suspended Matter	BOD, COD, Fatness and other	

**THE STUDY ON INTEGRATED WATER RESOURCES DEVELOPMENT AND MANAGEMENT MASTER PLAN IN REPUBLIC OF MACEDONIA - WATER QUALITY
CONSUMPTION OF WATER AND WASTE WATER PRODUCED BY INDUSTRY IN THE TETOVO**

Number	1	2	3	4	5	6	7	8
Name of companies or factories	Company "TETKES"	HRK "JUGOBROM" JEGUNOVCE	HRK "JUGOBROM" OZT Plastics products for health	HDINSTIVO Pigs farm "CELOPEK" - v. Celopek	ZZ "ZITO POLOG" Poultry farm "STRENCE" - v. Stence	Factory "TETOVO"	Factory KOKO "GOCE DELCEV" RE VELUR AND RE MISKA	MAKEDONIA TABAK Tobacco Factory
Industrial production	Yarn 6000000; fabrics 3600000 m ² ; knit 500 ; finish. textil prod. 3400000 m ²	Non-ferrous metal processing	Plastics products for health 180000/year	Pigs 21 000 for year	Eggs 10 500 000 for year	Processing of non-ferrous metal 6 000 t/year	Leather accessories manufacturing 450 000 Units	Tobacco fermented 5 000 t/year
Number of employees	2,491	2,513	564	112	3 064	375	200	100
Water supplied to industry - sanitation m ³ /year	150 000	1 710 720	14 000	26 280	730	17 000	5 300	10 000
Water supplied to industry - production m ³ /year	Public water supply 160 000	142 560	Public water supply	Ground water	Ground water 2 920	Surface - r. Pena 16 200	Surface - r. Pena 184 105	Public water supply 20 000
Water supplied to industry - cooling m ³ /year	140 000	11 119 690	112 000	-	-	-	6 095	-
Water supplied to industry - other m ³ /year	210 000	997 920	14 000	-	-	-	-	5 000
Water supplied to industry - Total m ³ /year	2 200 000	13 970 880	160 000	26 280	4 000	33 200	212 000	35 000
Waste water produced by industry sanitation m ³ /year	100 000	1 710 720	13 000	26 280	730	17 000	5 300	10 000
Waste water produced by industry - production m ³ /year	900 000	1 710 720	-	-	3,270	16 200	179 700	-
Waste water produced by industry - cooling m ³ /year	50 000	8 696 160	112 000	-	-	-	-	-
Waste water produced by industry - other m ³ /year	150 000	997 920	14 000	-	-	-	-	-
Waste water produced by industry - Total m ³ /year	1 200 000	13 115 520	138 000	26 280	4,000	33 200	185 500	10 000
Discharge of waste water in	River Pena	River Bistrica	Ground	River Vardar	Ground	River Pena	River Vardar	Public sewer system
Discharge of waste water - Unpurified water m ³ /year	-	12 000 000	138 000	26 280	4,000	33 200	185 500	10 000
Discharge of waste water - Purified water m ³ /year	1 200 000	142 560	-	-	-	-	-	-
Number of discharge	1	1	1	1	1	1	1	1
Purifying station of waste water	Mechanical sedimentation	Mechanical, chemical purified	Sedimentation	Sedimentation - non flocculation	Sedimentation	-	Mechanical sedimentation	-
Landfill for solid waste	-	-	-	-	-	-	-	-
Indicators of pollution	BOD, COD, pH and Suspended Matter	COD, Mn, Fe, Cr+6, Phos., susp. matters	Suspended Matter and organic matters	BOD, COD, NHA, pH and Suspended Matter	BOD, COD, pH and Sedi mentation Matter	Fe, Mn, Al, pH and Suspended Matter	Sedimentation Matter	BOD, COD, pH and Sedi mentation Matter

THE STUDY ON INTEGRATED WATER RESOURCES DEVELOPMENT AND MANAGEMENT MASTER PLAN IN REPUBLIC OF MACEDONIA - WATER QUALITY CONSUMPTION OF WATER AND WASTE WATER PRODUCED BY INDUSTRY IN THE KUMANOVO

Number	1	2	3	4	5	6	7	8
Name of companies or Factories	Factory for welded pipes and profiles "11 OKTOMVRI"	EPK KUMANOVO Leather and fur industry	"TSKRA" Factory for non-ferrous metal structures	AIK KUMANOVO Produced pigs being fatted	"CIK" Leather footwear manufacturing	"30 JULI" Factory for plastic products	"KIRO FELAK" Finished wood products industry	"DIER" Finished wood products industry
Industrial production	213300 t/year steel for welded pipes and profiles	1516000 m2/year units leather	236000/year metal structures, metal sheets	50000 pigs/year pigs being fatted	2900000 Units leather footwear and accessories	3600 t/year plastic packaging and other products	2810704 Units finished wood products, 903908 kg/year fabrics	24300 household furniture items
Number of employees	2,174	806	843		3,350	436	1,251	772
Water supplied to industry - sanitation m3/year	450,000	189,300	-	700	28,000	37,630	7,260	3280
Water supplied to industry - production m3/year	50000	175,848	-	Own water supplies 36300	Public water supply 840	Public water supply 131950	Public water supply 499620	Public water supply 18480
Water supplied to industry - cooling m3/year	300,000	-	-	-	560	-	-	-
Water supplied to industry - other m3/year	100,000	-	-	146,000	32,200	-	-	2240
Water supplied to industry - Total m3/year	900,000	665,148	36,000	183,200	65800 max. 700000	169,580	506,880	26000
Waste water produced by industry - sanitation m3/year	450,000	189,300	36,000	700	28,000	37,630	4,380	6000
Waste water produced by industry - production m3/year	50,000	475,843	-	-	840	131,950	490,000	18000
Waste water produced by industry - cooling m3/year	300,000	-	-	-	560	-	-	-
Waste water produced by industry - other m3/year	100,000	-	-	-	560	-	9,620	-
Waste water produced by industry - Total m3/year	900,000	665,148	36,000	175,200	36,000	169,580	504,000	24000
Discharge of waste water in	Public sewer system	Public sewer system	Public sewer system	River Konjarka	Public sewer system	Public sewer system	Public sewer system	Public sewer system
Unpurified water m3/year	850,000	-	36,000	-	56,000	169,580	504,000	24000
Purified water m3/year	33,000	532,119	-	175,200	56,000	169,580	504,000	24000
Number of discharge	2	2	1	2	2	1	3	2
Purifying station of waste water	Mechanical and chemical purified	Mechanical treatment non function	-	Mechanical treatment - Sedimentation with laugae	-	-	-	-
Landfill for solid waste	-	City landfill	-	-	-	-	-	-
Indicators of pollution	Mn, Fe, Zn, Cd, Cl, COD, Teuzide, SM, pH	BOD, COD, pH, SO ₄ , Cl, Sulfides, Cr, SM, Teuzide	Fe, Mn, Suspended Matter	BOD, COD, NH ₄ , Suspended Matter	COD, BOD, Suspended Matter	BOD, COD, Organic compounds	pH, CO ₃ , SO ₄ , Cl ₂ , Suspended Matter	pH, Phenols, Suspended Matter, organic compounds

**THE STUDY ON INTEGRATED WATER RESOURCES DEVELOPMENT AND MANAGEMENT MASTER PLAN IN REPUBLIC OF MACEDONIA - WATER QUALITY
CONSUMPTION OF WATER AND WASTE WATER PRODUCED BY INDUSTRY IN THE SITP**

Number	1	2	3	4	5	6	7	8
Name of companies or Factories	TK "MAKEDONKA" Textile fiber and fabric industry	ZIK "CRVENA ZVEZDA" Pigs farm	ZIK "CRVENA ZVEZDA" Cows farm v. Tarinci	ZIK "CRVENA ZVEZDA" Poultry farm	ZIK "CRVENA ZVEZDA"-VINAL Wine beverage	ZIK "CRVENA ZVEZDA"-Slaughterhouse and cooler	METALSKI ZAVOD "ITO - RO" METALNA "	MODNA KONFEKCIJA "ASTIBO" Finished textile products industry
Industrial production	14114799 kg yarn 36927713 m2 fabrics 10032715 text. products	30000 pigs/year	380 Calves/year 1804720 Milk/year	400000000 eggs/year	13500 l/year wine 20000000 beverage	3000000 fresh meat and meat products	1444 t/year manufacture of metal products	3055000 items Finished textile products
Number of employees	5,592	115	79	300	210	122	479	4680
Water supplied to industry - sanitation m3/year	139,000	-	-	365	5,000	6,600	6,000	-
Water supplied to industry - production m3/year	2938000	Own water supplies	Own water supplies	Own water supplies ground 12775	Own water supplies ground 55000	Own water supplies ground 171600	Public water supply 9000	-
Water supplied to industry - cooling m3/year	1,163,000	-	-	-	-	-	7,000	-
Water supplied to industry - other m3/year	572,000	-	-	1,460	-	2,640	7,000	-
Water supplied to industry - Total m3/year	4,812,000	495,000	10,950	14,600	60,000	180,840	29,000	48800
Waste water produced by industry - sanitation m3/year	139,000	-	-	365	5,000	6,000	5,000	-
Waste water produced by industry - production m3/year	2,938,000	-	-	12,775	55,000	174,155	16,000	-
Waste water produced by industry - cooling m3/year	1,163,000	-	-	-	-	-	-	-
Waste water produced by industry - other m3/year	572,000	-	-	1,460	-	-	2,000	-
Waste water produced by industry - Total m3/year	4,075,000	495,000	10,950	14,600	60,000	180,155	23,000	48800
Discharge of waste water in Unpurified water m3/year	4,075,000	River Bregalnica	River Bregalnica	Ground	Public sewer system	River Bistrica	Public sewer system	River Bregalnica
Discharge of waste water - Purified water m3/year	-	-	-	14,600	60,000	180,155	15,000	48800
Number of discharges	2	1	1	1	1	1	1	1
Purifying station of waste water	-	-	-	-	-	-	Sedimentation	-
Landfill for solid waste	-	-	-	-	-	-	-	-
Indicators of pollution	BOD, COD, pH, Suspended Matter, C.C.	BOD, COD, pH, NHA, Suspended Matter	BOD, COD, pH, Suspended Matter, Fatness	BOD, COD, pH, Suspended Matter	BOD, COD, pH, Suspended Matter	BOD, COD, pH, Suspended Matter, Fatness	Fe, Mn, Suspended Matter	BOD, COD, Suspended Matter

THE STUDY ON INTEGRATED WATER RESOURCES DEVELOPMENT AND MANAGEMENT MASTER PLAN IN REPUBLIC OF MACEDONIA - WATER QUALITY
CONSUMPTION OF WATER AND WASTE WATER PRODUCED BY INDUSTRY IN THE VELES - I

Number	1	2	3	4	5	6	7	8
Name of companies or factories	Non-ferrous metal production "ZLETOVO"	Chemical industry "VELES"	Factory for oil "BLAGOJ GOREV"	Manufacture of metal products "BRAKO"	Textile fiber and fabric industry "NOKATEKS"	Porcelain and tiles industry "BORIS KIDRIC"	Building materials industry "KIRO CUCUK"-RE Prevlac	Building materials industry "KIRO CUCUK"-RE Sajenka
Industrial production	100000 t/year produced lead and zinc	120000 t fertilizer/year	22462 t oil/year	1810 t metal products	3200000 textile and yarn	57523 t/year Porcelain and tiles products	25000 t quicklime	25000000 items porcelain products
Number of employees	1,334	420	603	635	1,736	3,064	120	100
Water supplied to industry - emission m3/year	186,000	49,275	88,000	38,633	198,508	156,950	15,000	10000
Water supplied to industry - production m3/year	Own water supplies - Varder 840000	Own water supplies - Varder 5208000	Own water supplies 1182000	Public water supply 16557	Own water supplies 321300	Reservoir Topolka 625300	River Topolka 150000	Own water supplies 10000
Water supplied to industry - cooling m3/year	7,200,000	-	463,000	-	15,300	73,000	-	-
Water supplied to industry - other m3/year	270,000	-	83,000	-	4,471	109,500	-	-
Water supplied to industry - Total m3/year	8,226,000	5,257,275	1,334,000	55,189	539,579	1,224,000	165,000	20000
Waste water produced by industry - emission m3/year	186,000	49,275	88,000	38,633	148,508	110,000	15,000	10000
Waste water produced by industry - production m3/year	840,000	4,092,000	376,400	16,557	226,500	144,000	145,000	-
Waste water produced by industry - cooling m3/year	7,200,000	-	463,000	-	10,000	73,000	-	-
Waste water produced by industry - other m3/year	-	-	-	-	1,000	33,000	-	-
Waste water produced by industry - Total m3/year	8,226,000	4,141,275	894,400	55,189	434,508	360,000	160,000	10000
Discharge of waste water in	River Varder	River Varder	River Varder	River Varder	River Topolka	River Topolka	River Topolka	River Varder
Discharge of waste water - Unpurified water m3/year	7,838,950	49,275	518,000	55,189	434,508	360,000	155,000	10000
Discharge of waste water - Purified water m3/year	387,500	4,092,000	376,400	-	-	-	5,000	-
Number of discharge	1	2	1	2	2	2	3	1
Purifying station of waste water	Mechanical and chemical treatment	Physical and chemical treatment	Mechanical (with flotation) treatment	-	-	Mechanical treatment non function	Mechanical, fizio-chemical treatment	-
Landfill for solid waste	Sludge return in processing	Landfill - full	-	-	-	Landfill - Dobrid	-	-
Indicators of pollution	pH, Pb, Zn, Cd, Cu, CN, Suspended Matter	pH, P2O5, Mg, Ca, SO4, Suspended Matter	pH, BOD, COD, OIL, Fatness, °C	Fe, Mn, Suspended Matter	BOD, COD, pH, Suspended Matter	Turbidity, SO4, Ca, Mg, pH, Suspended Matter	pH, Ca, Mg, SO4, Suspended Matter	Ca, Mg, SO4, Suspended Matter

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THE STUDY ON INTEGRATED WATER RESOURCES DEVELOPMENT AND MANAGEMENT MASTER PLAN IN REPUBLIC OF MACEDONIA - WATER QUALITY
CONSUMPTION OF WATER AND WASTE WATER PRODUCED BY INDUSTRY IN THE VELES - II

Number	9	10	11	12	13	14	15	16
Name of companies or Factories	Building materials industry "KIRO CUCUK" - Mosti i fari	Leather and fur industry "DIMKO MITREV"	AGROKOMBH- NAT LOZAR-Produced wine, cooler and slaughter-hous	JUGOTUTUN- "NADA BUTINI- KOSAROVA Tobacco Industry	Printing " GRAFICAR "	Manufacture of transport equipment "VELES"	ZITO VARDAR, Food industry	
Industrial production	85 000 items 1300000 m	739000, 35000.105000 accessories leather manufacturing	130000 t wine, 90 t cheese	1000 t/year fermented tobacco	380 t/year writing and printing paper	804 items repair cars and commercial vehicles	20000 t/year Bread and rolls products	
Number of employees	580		300	236	100	448	455	
Water supplied to industry - irrigation m ³ /year	35,000	15,000	33,200	15,000	3,830	43,200	-	
Water supplied to industry - production m ³ /year	River Topolza 30000	Public water supply 197000	Cheese supplies 78400	Public water supply	-	Public water supply	Public water supply	
Water supplied to industry - cooling m ³ /year	-	-	44,800	-	-	-	-	
Water supplied to industry - other m ³ /year	-	-	33,600	5,000	-	-	-	
Water supplied to industry - Total m ³ /year	65,000	212,000	190,000	20,000	3,830	43,200	90,000	
Waste water produced by industry - sanitation m ³ /year	30,000	15,000	33,200	15,000	3,830	43,200	220	
Waste water produced by industry - production m ³ /year	5,000	197,000	78,400	-	-	-	41,240	
Waste water produced by industry - cooling m ³ /year	-	-	44,800	-	-	-	-	
Waste water produced by industry - other m ³ /year	-	-	33,600	-	-	-	-	
Waste water produced by industry - Total m ³ /year	35,000	212,000	190,000	15,000	3,830	43,200	41,460	
Discharge of waste water in	Public sewer system	River Vardar	River Vardar	Public sewer system	Public sewer system	Public sewer system	Public sewer system	
Discharge of waste water - Unpurified water m ³ /year	35,000	212,000	190,000	15,000	3,830	43,200	41,240	
Discharge of waste water - Purified water m ³ /year	-	-	-	-	-	-	-	
Number of discharge	2	10	1	2	1	1	1	
Purifying station of waste water	-	-	-	-	-	-	-	
Landfill for solid waste	-	-	-	-	-	-	-	
Indicators of pollution	Suspended Matter, Fe, Mn	pH, Sulphides, Cr, Suspended Matter, BOD, COD	BOD, COD, Suspended Matter	BOD, COD, Suspended Matter		Oil, Suspended Matter, Tenczide	BOD, COD, Suspended Matter	

THE STUDY ON INTEGRATED WATER RESOURCES DEVELOPMENT AND MANAGEMENT MASTER PLAN IN REPUBLIC OF MACEDONIA - WATER QUALITY
CONSUMPTION OF WATER AND WASTE WATER PRODUCED BY INDUSTRY IN THE SKOPJE - I

Number	1	2	3	4	5	6	7	8
Name of companies or factories	OHIS "NAUM NAUMOVSKI BORCE" Organic, chemical industry	Petroleum products industry "OKTA"	"PIVARA"-SKOPJE Beer industry	KOZARSKI KOMBINAT "GODEL"	"ALKALOID" Medical products	"ALKALOID"-PREMAZI I SINTEZI Paints and varnishes products	"USJE" Cement Factory	EAS*11 OKTOMVRI Factory for bus-mounting of bodies on chassis
Industrial production	Chemical products	190000 t motor oil 390000 t diesel and 620000 t mazut	100000 hl beer, 220000 soft drinks, 80000 hl vinegar	720000m2 big leather, 1600000 m2pigs leather, 350000 kgline	700 t/year medical and 1100 t/year veteria. products	3270 t/year Paints and varnishes products	710000 t/year cement, 1100000 t/year, t/year build. mat.	1500 buses
Number of employees	5,759			1,120	2,380		1,469	2950
Water supplied to industry - sanitation m3/year	765,400	87,600	100,000	71,000	13,500	10,000	219,000	242000
Water supplied to industry - production m3/year	16242500	Ground 1252680	Public water supply 965000	Ground 1593750	Public water supply 83700		Ground 356000	Ground 263000
Water supplied to industry - cooling m3/year	-	-	83,000	531,250	37,800	Ground 36400	839,500	77000
Water supplied to industry - other m3/year	-	459,720	-	-	9,600	-	-	-
Water supplied to industry - Total m3/year	average 19272000 max. 21900000	1,800,000	1,148,000	2,196,000	144,600	46,400	average 1414500 max. 1967846	average 582000 max. 1850000
Waste water produced by industry - sanitation m3/year	4,205,000	87,600	100,000	71,000	13,500	10,000	216,000	193760
Waste water produced by industry - production m3/year	8,037,000	1,482,000	900,000	1,168,750	83,700	36,000	691,000	250416
Waste water produced by industry - cooling m3/year	-	-	-	531,250	37,800	-	-	-
Waste water produced by industry - other m3/year	-	-	-	-	9,600	-	-	-
Waste water produced by industry - Total m3/year	average 15091000 max. 18900000	1,600,000	1,000,000	1,771,000	144,600	46,000	907,000	average 444176 max. 1500000
Discharge of waste water in	River Vardar	Bujkova River	Public sewer system	River Vardar	Public sewer system	River Vardar	River Vardar	River Vardar
Discharge of waste water - Unpurified water m3/year	11,149,000	-	1,000,000	1,700,000	144,600	46,000	907,000	444176
Discharge of waste water - Purified water m3/year	3,942,000	1,570,000	-	-	-	-	-	-
Number of discharge	1	1	2	1	1	1	1	1
Purifying station of waste water	Mechan., Biolog. and chemical treatment	Biological treatment	Mechanical treatment	-	-	-	-	-
Landfill for solid waste	-	-	-	-	-	-	-	-
Indicators of pollution	BOD, COD, pH, Cl ₂ , VAC, VCL, Hg	BOD, COD, Cl ₂ , SO ₄ , PO ₄ , toC, Oils	BOD, COD, Suspended Matter	BOD, COD, Cr, pH, Sulfides, Sump. Mat.	BOD, COD, Cr, pH, Sulfides, Sump. Mat.	COD, BOD, pH, mS, mV, Sump. M., Sedim. M.	Sump. Matter, Sedim. Matter, Si, Ca, Mg	Fe, Mn, Susp. Matter

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**THE STUDY ON INTEGRATED WATER RESOURCES DEVELOPMENT AND MANAGEMENT MASTER PLAN IN REPUBLIC OF MACEDONIA - WATER QUALITY
CONSUMPTION OF WATER AND WASTE WATER PRODUCED BY INDUSTRY IN THE SKOPJE - II**

Number	9	10	11	12	13	14	15	16
Name of companies or Factories	RUDNICA ZELEZARNICA SKOPJE Iron and steel industry	METALSKI ZAVOD TITO Manufacture of metal products	"KOMUNA" old factory-Paper and paper products	"KOMUNA" new factory-Paper and paper products	"ALUMINA" Non-ferrous metal structures	"KUPRUM" Non ferrous metal processing	"PLASTIKA" Factory for plastics products	"EVROPA" Factory for candy, sweets and chocolate
Industrial production	884840, 1046034 t cold-rolled metal sheets	1558 t pumps, 2747 t metal tools, 2866-3663 t metal products	842000kg packing, 3250000 kg and 8230600 kg paperboard	16487000 kg packing box	8000 t/year Non-ferrous metal structures	2500 t/year Non ferrous metal processing	2300 t plastics products	7500 t/year candy, sweets and chocolate
Number of employees			1,050			230	133	834
Water supplied to industry - sanitation m3/year	5,680,000	144,704	182,500	146,000	224,000	8,000	15000-51600	80000
Water supplied to industry - production m3/year	Spring Races 9460000	Ground 191520	Ground 3130000	Public water supply 660000	Public water supply 300000	-	-	Ground 160000
Water supplied to industry - cooling m3/year	98,400,000	-	-	-	2,212,000	Ground 20000	Ground 7300-25500	140000
Water supplied to industry - other m3/year	-	-	-	-	4,000	4,000	-	-
Water supplied to industry - Total m3/year	113,540,000	336,520	3,332,500	806,000	-	32,000	22300-77100	380000
Waste water produced by industry - sanitation m3/year	5,680,000	116,000	90,000	96,000	224,000	8,000	50,000	64000
Waste water produced by industry - production m3/year	81,900,000	154,000	2,500,000	530,000	420,000	-	-	260000
Waste water produced by industry - cooling m3/year	-	-	-	-	-	20,000	20,000	-
Waste water produced by industry - other m3/year	-	-	-	180,000	-	4,000	-	-
Waste water produced by industry - Total m3/year	87,580,000	270,000	2,590,000	626,000	644,000	32,000	70,000	324000
Discharge of waste water in	River Vardar	River Vardar	River Vardar	Sedimentation Lake	Public sewer system	Public sewer system	Public sewer system	River Vardar
Discharge of waste water - Unpurified water m3/year	5,680,000	270,000	2,590,000	626,000	644,000	32,000	70,000	324000
Discharge of waste water - Purified water m3/year	47,820,000	-	-	-	-	-	-	-
Number of discharge	2	2	2	1	8	4	1	1
Purifying station of waste water	Fiscal and sediment. treatment	-	Sedimentation treatm. non function	-	-	-	-	-
Landfill for solid waste	-	-	-	-	-	-	-	-
Indicators of pollution	BOD, COD, pH, Cl, Cr, Cu, Pb, Zn, Oil, NH4,	COD, BOD, NH4, Fe, Mn, Susp.M.	BOD, COD, pH, NH4, Sulfides, Susp. M.	BOD, COD, pH, NH4, Sulfides, Susp. M.	pH, Al, Sedimen. M. Susp. M.	pH, Fe, Mn, Cu Susp. Matter	BOD, COD, pH, NH4, Susp. M.	BOD, COD, pH, NH4, Susp. M.

THE STUDY ON INTEGRATED WATER RESOURCES DEVELOPMENT AND MANAGEMENT MASTER PLAN IN REPUBLIC OF MACEDONIA - WATER QUALITY CONSUMPTION OF WATER AND WASTE WATER PRODUCED BY INDUSTRY IN THE NEGOTINO

Number	1	2	3	4	5	6	7	8
Name of companies or Factories	TEC "NEGOTINO" Generation of thermoelectric	ZIK "POARDARIE" cooler and slaughter-hous	ZIK "POARDARIE" MAKEDONIA Vegetable and fruit, canned	ZIK "POVARDARIE" VIZBA Produced alcoholic and soft beverages	"9 MAJ" Cables and conductors equipment	PPRO "JADRAN" Food products	FGM "8 NOEMVRI" Building materials industry	RO "MOSA PIADE" Tobacco Industry
Industrial production	11,000,000 MWH	1,000,000 kg poultry mean, 300,000 kg pigs and bullock mean, fruit and vegetable	7,700 t/year Vegetable and fruit, canned	3,200,000 l wine, 200,000 l alcohol and 400,000 soft drinks	12,000 t/year Cables and conductors equipment	5,000 t/year	5,500,000 bricks and other building equipment	600 t/year fermented tobacco
Number of employees	300	57	300	150	897	240	287	78
Water applied to industry - sanitation m3/year	120,000	3,750	2,260	1,500	14,000	2,600	19,500	10,400
Water applied to industry - production m3/year	-	Public water supply 21,250	Ground 2,430	Ground 83,500	-	Public water supply 15,600	Public water supply 69,000	Public water supply 18,400
Water applied to industry - cooling m3/year	1,465,560	1,000	20,400	60,000	90,000	13,000	44,000	-
Water applied to industry - other m3/year	-	5,000	2,040	28,000	-	2,080	8,500	-
Water applied to industry - Total m3/year	1,585,560	31,000	49,000	173,000	103,000	33,280	140,000	28,800
Waste water produced by industry - sanitation m3/year	120,000	3,750	2,260	1,500	11,200	2,600	14,600	10,400
Waste water produced by industry - production m3/year	-	21,250	24,300	80,000	-	15,600	10,400	18,400
Waste water produced by industry - cooling m3/year	550,000	1,000	20,400	50,000	90,000	13,000	-	-
Waste water produced by industry - other m3/year	-	5,000	2,040	28,000	-	-	3,000	-
Waste water produced by industry - Total m3/year	670,000	31,000	49,000	159,500	101,200	31,280	64,500	28,800
Discharge of waste water in	River Vardar	River Negotinska	River Vardar	Public sewer system and River Vardar	River Vardar	Public sewer system	River Vardar	Public sewer system
Discharge of waste water - Unpurified water m3/year	-	4,000	24,300	159,500	90,000	31,280	64,500	2,000
Discharge of waste water - Purified water m3/year	670,000	24,000 in recirculation	-	-	11,200	-	-	26,800
Number of discharges	1	1	1	3	1	1	1	2
Purifying station of waste water	Mechanical treatment and oil	-	-	-	Mech. and biological treating - biodiak	-	-	Sedimentation
Landfill for solid waste	-	-	-	-	-	-	-	-
Indicators of pollution	Oil	BOD, COD, Total Suspended Matter	BOD, COD, Suspended and Sodium. M.	BOD, COD, pH, Suspended Matter	BOD, COD, pH, Suspended Matter	BOD, COD, pH, Suspended Matter	Suspended Matter	Suspended Matter

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THE STUDY ON INTEGRATED WATER RESOURCES DEVELOPMENT AND MANAGEMENT MASTER PLAN IN REPUBLIC OF MACEDONIA - WATER QUALITY CONSUMPTION OF WATER AND WASTE WATER PRODUCED BY INDUSTRY IN THE GEVGELIJA

Number	1	2	3	4	5	6	7	8
Name of companies or factories	ZIK "VINOJUG" - ZORA Produced wine, cooler and slaughter-house	ZIK "VINOJUG" - ZORA Poultry farms	RO " SOLUN " - Slaughter	RO " ELEGANT " Finished textil products industry	" JUGUTUTUN " RO TANJA BIKOVA Tobacco industry	OP "KRRAMIKA"	"7 NOEMVERI" Manufacture of plastics electrical equipment	ZAS "TRANSBALKAN" Road transport of goods
Industrial production	3900000 Fruit and vegetable	65000000 eggs	50 y mean products		196 t/year tobacco		650 t/year el. equipment for light	134680 t goods carried
Number of employees	403	450000 poultry	20	2,900	62	429	63	339
Water supplied to industry - sanitation m ³ /year	40,000	7,300	1,176	60,000	4,000	14,000	20,000	1646
Water supplied to industry - production m ³ /year	200000	Ground	Public water supply		Public water supply	Public water supply		
Water supplied to industry - cooling m ³ /year	40,000	217450	6000		7000	45000		
Water supplied to industry - other m ³ /year	-	-	-	-	-	12,000	103,000	-
Water supplied to industry - sanitation m ³ /year	-	-	-	-	-	9,000	8,000	12074
Water supplied to industry - other m ³ /year	min. 280000			60,000		80,000	131,000	13720
Total m ³ /year	500000	max. 250000	7,176	60,000	11,000	80,000	131,000	13720
Waste water produced by industry	40,000	7,300	1,176	60,000	4,000	14,000	20,000	1646
Waste water produced by industry - sanitation m ³ /year	200,000	157,000	6,000		7,000	45,000		
Waste water produced by industry - production m ³ /year	-	-	-	-	-	12,000	103,000	-
Waste water produced by industry - cooling m ³ /year	-	-	-	-	-	9,000	8,000	12074
Waste water produced by industry - other m ³ /year	-	-	-	-	-	80,000	131,000	13720
Waste water produced by industry - Total m ³ /year	240,000	164,300	7,176	60,000	11,000	80,000	131,000	13720
Discharge of waste water in	Public sewer system	Ground	Public sewer system	Public sewer system	Public sewer system	Public sewer system	Public sewer system	Public sewer system
Discharge of waste water - Unpurified water m ³ /year	240,000	164,300	7,176	60,000	11,000	80,000	131,000	13720
Discharge of waste water - Purified water m ³ /year	-	-	-	-	-	-	-	-
Number of discharge	1	Ground, lagune - non function	1	1	1	1	1	1
Purifying station of waste water	-	-	-	-	-	-	-	-
Landfill for solid waste	-	-	-	-	-	-	-	-
Indicators of pollution	COD, BOD, Suspended Matter	BOD, COD, Suspended Matter	BOD, COD, Feitnes	BOD, COD, NH4, Suspended Matter				Suspended Matter, Oil

