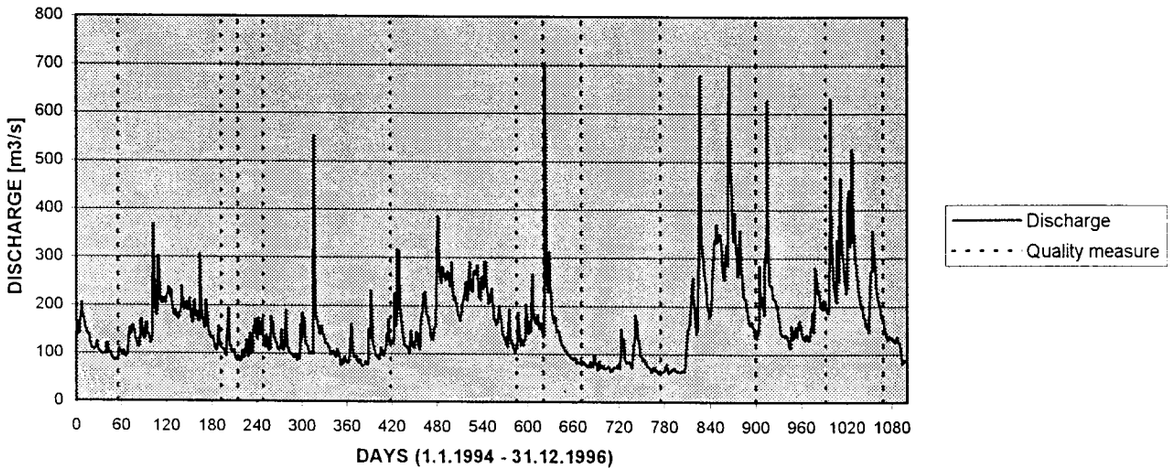
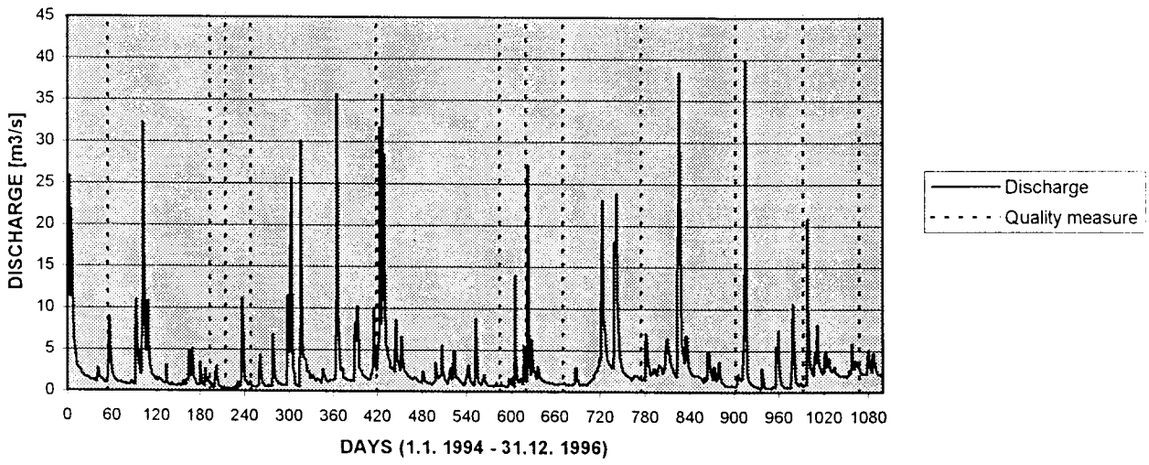
Annex 4.9.-1

Graphs of Flow and Water Quality Measurements

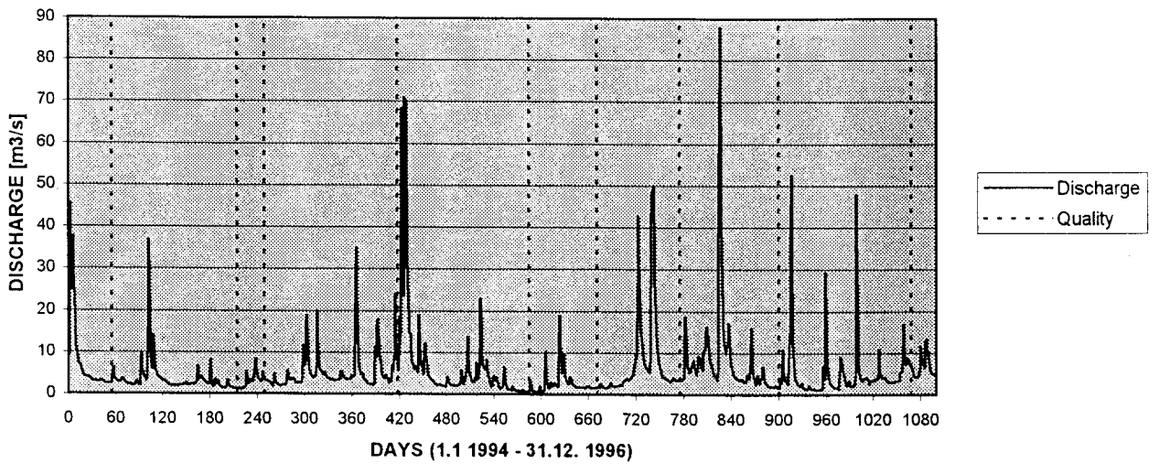
MURA-PETANJCI



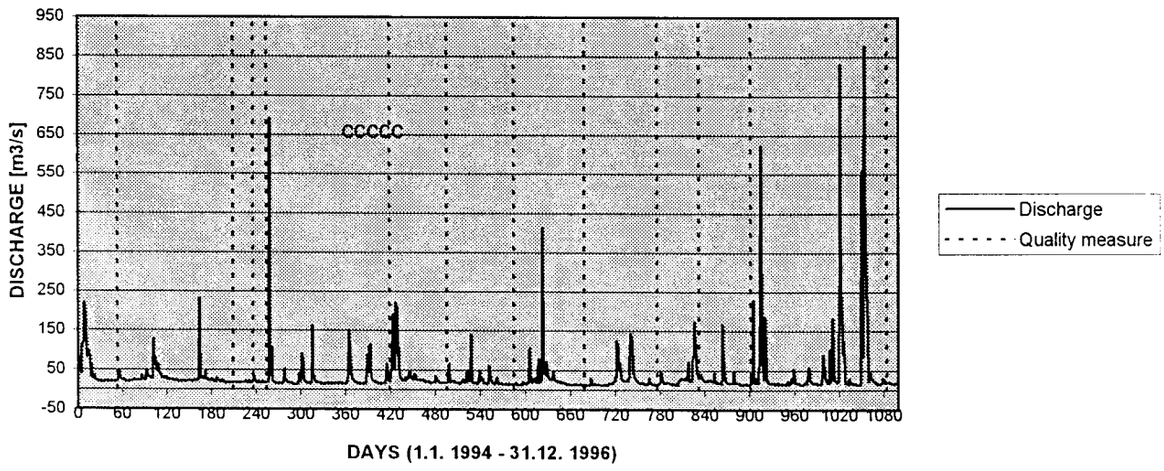
ŠČAVNICA-PRISTAVA



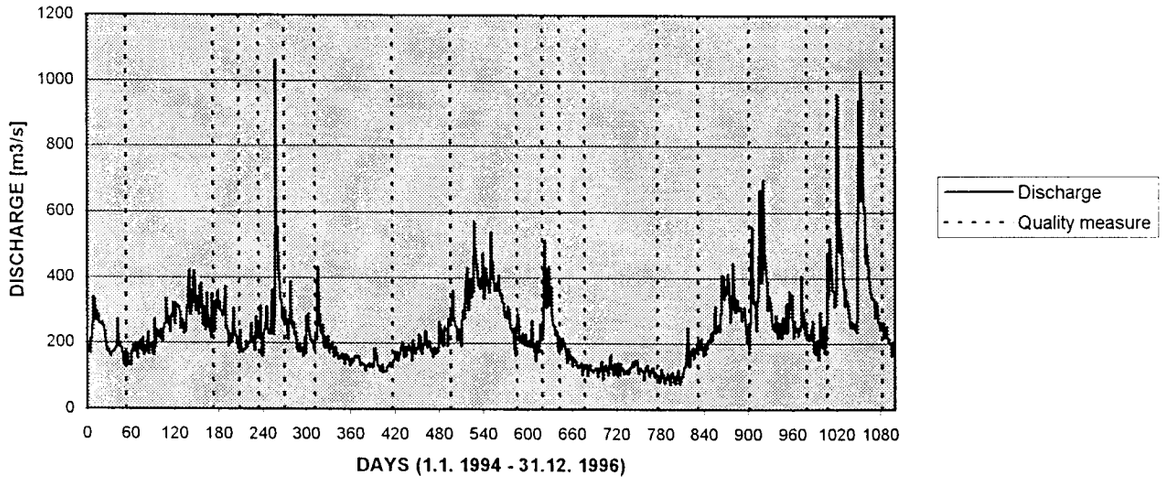
LEDAVA-ČENTIBA



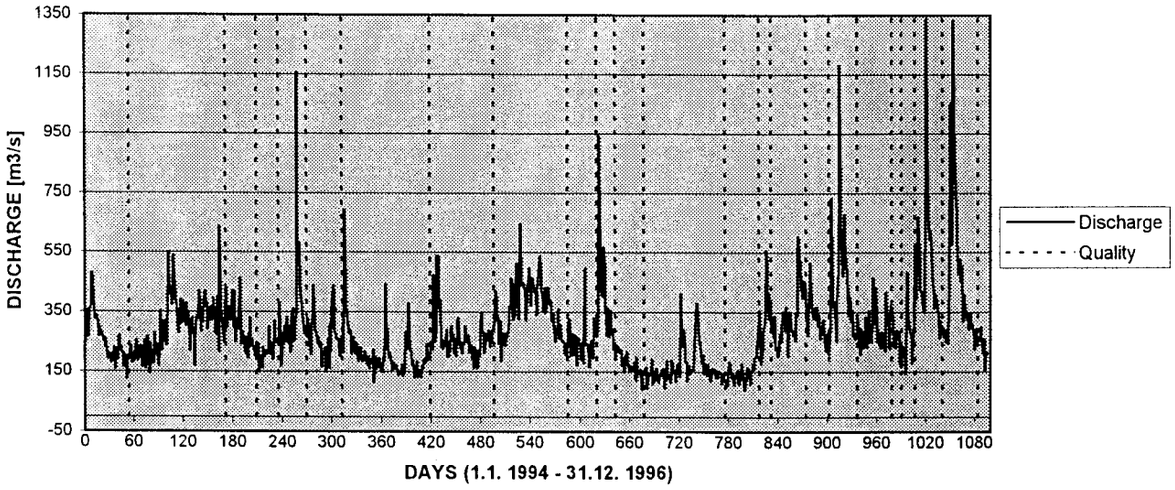
DRAVA-BORL



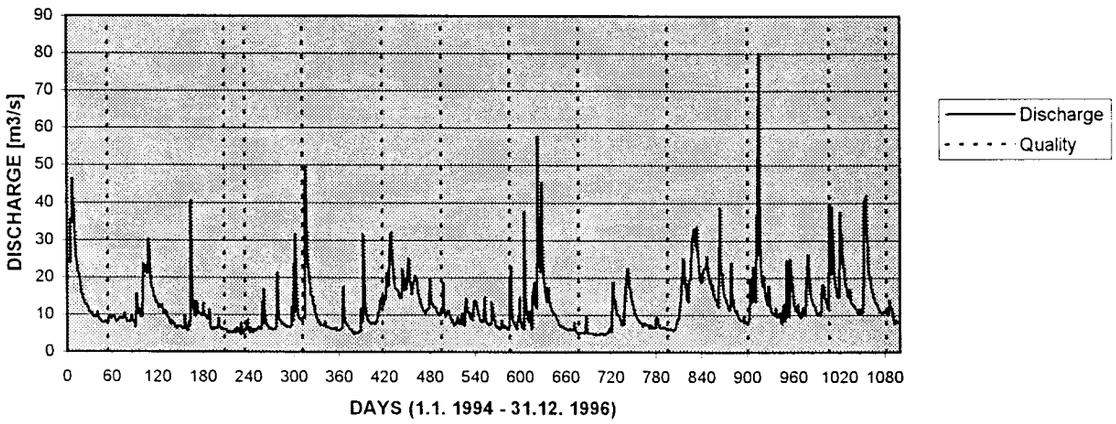
DRAVA-HE DRAVOGRAD



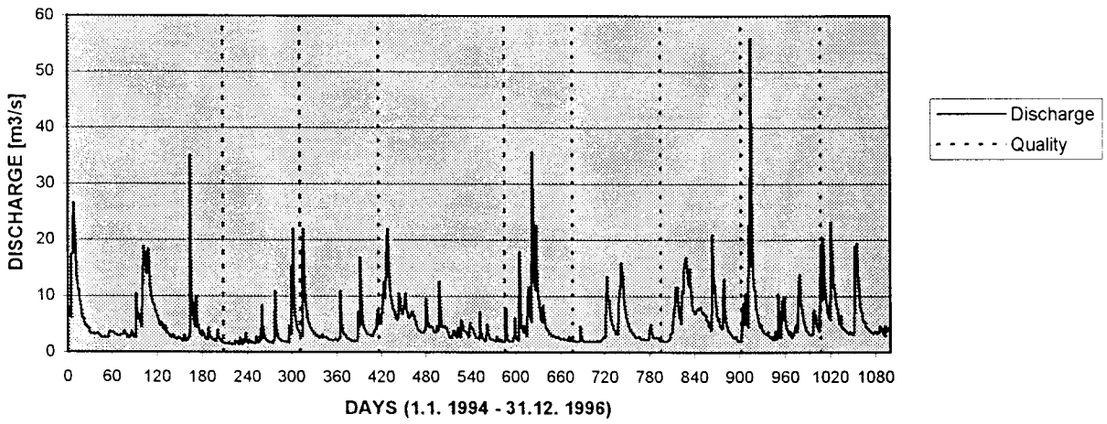
DRAVA-ORMOŽ



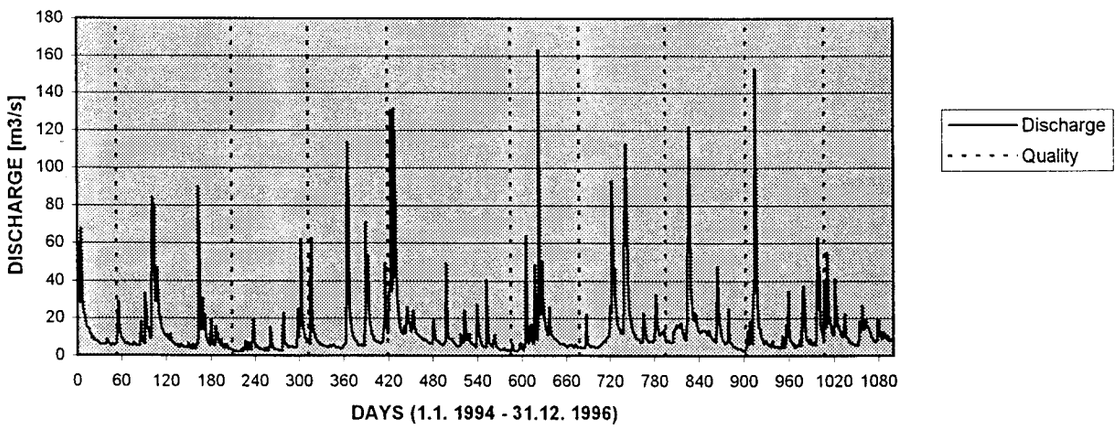
MEŽA-OTIŠKI VRH



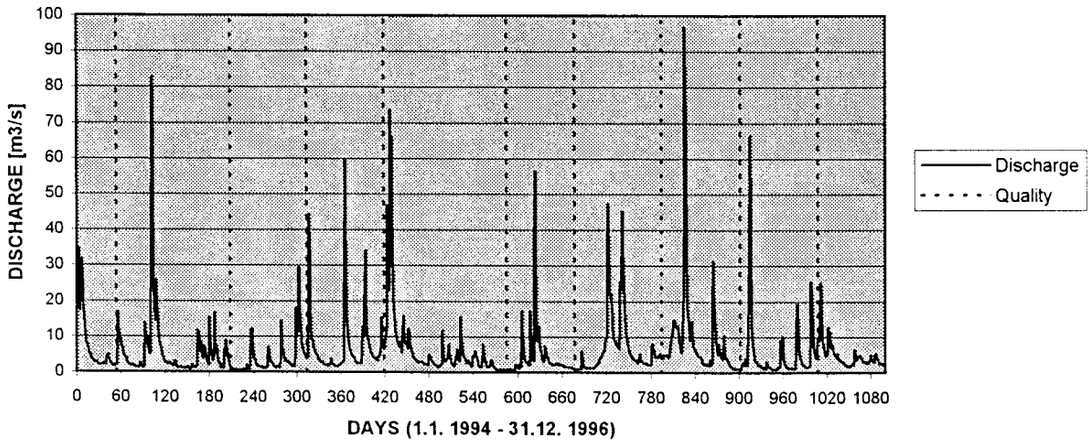
MISLINJA-OTIŠKI VRH



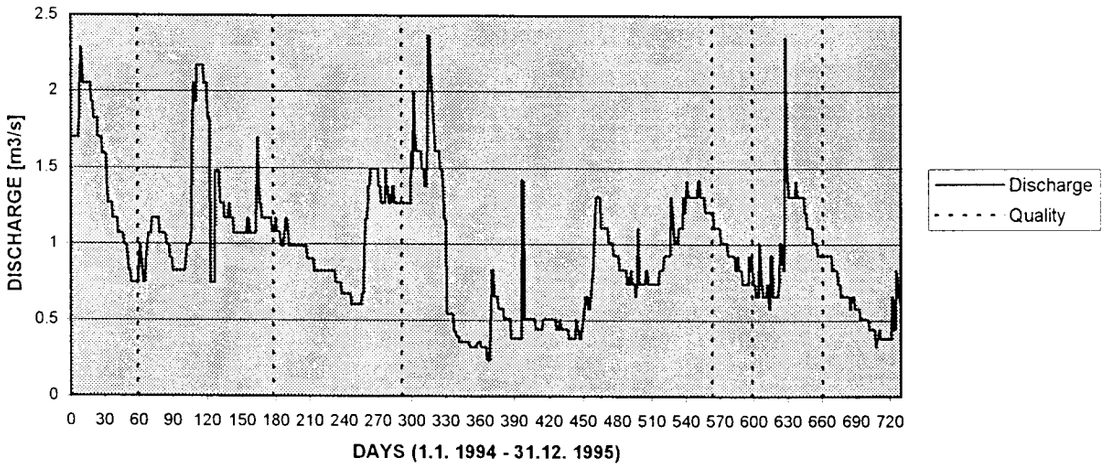
DRAVINJA-VIDEM



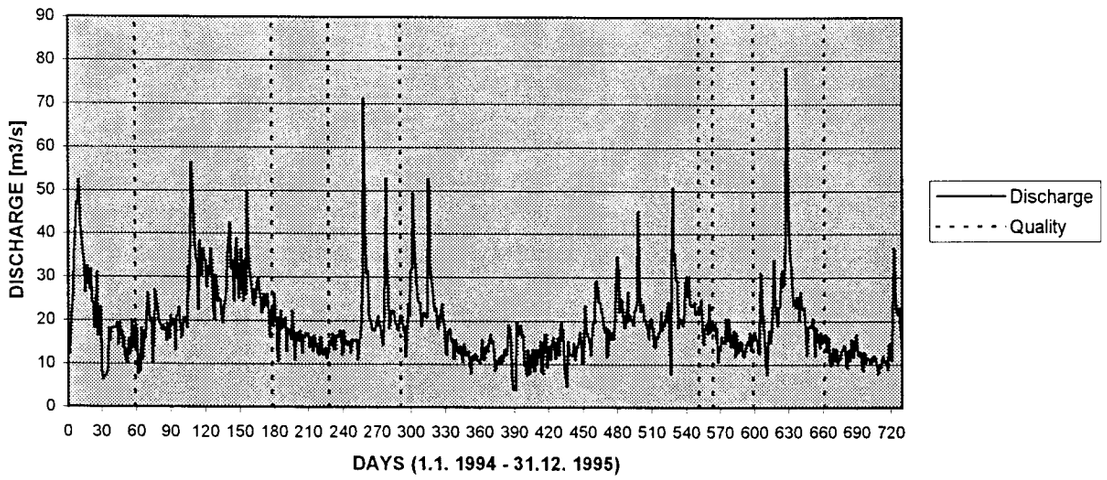
PESNICA-ZAMUŠANI



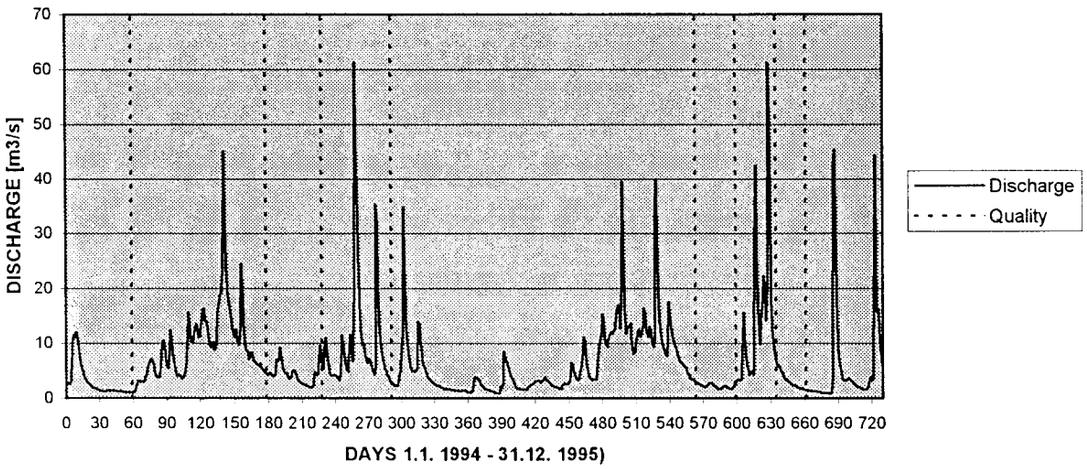
SAVA DOLINKA-KRANJSKA GORA



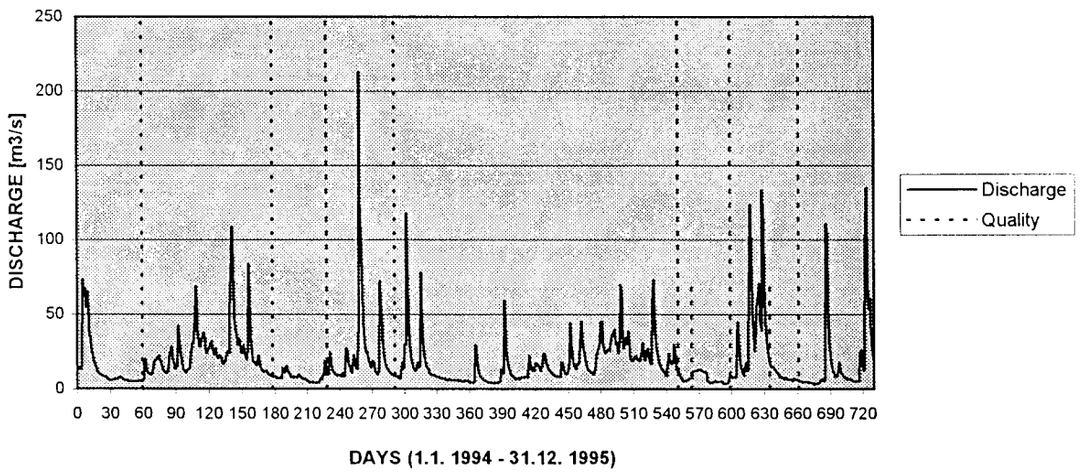
SAVA DOLINKA-BLEJSKI MOST



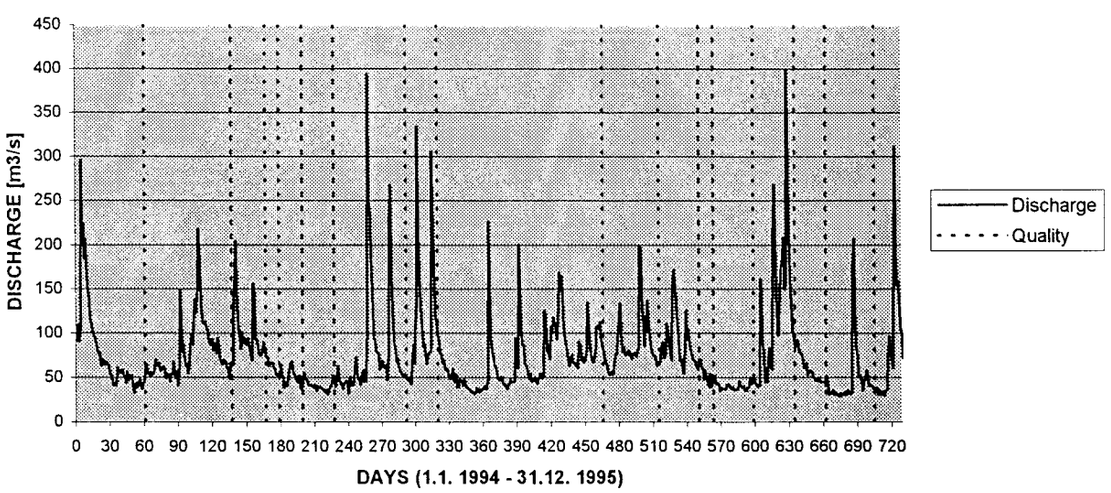
SAVA BOHINJKA-SVETI JANEZ



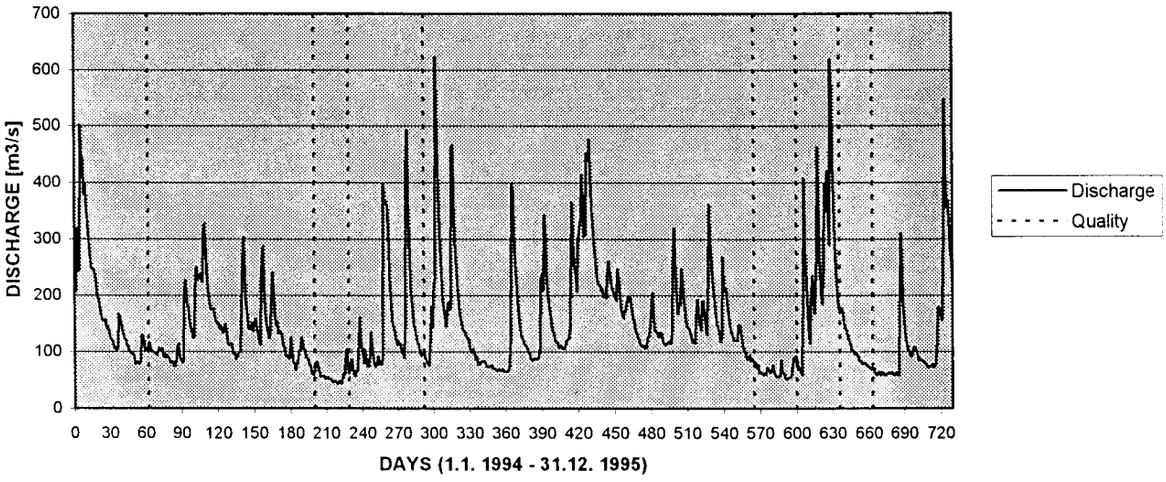
SAVA BOHINJKA-BODEŠČE



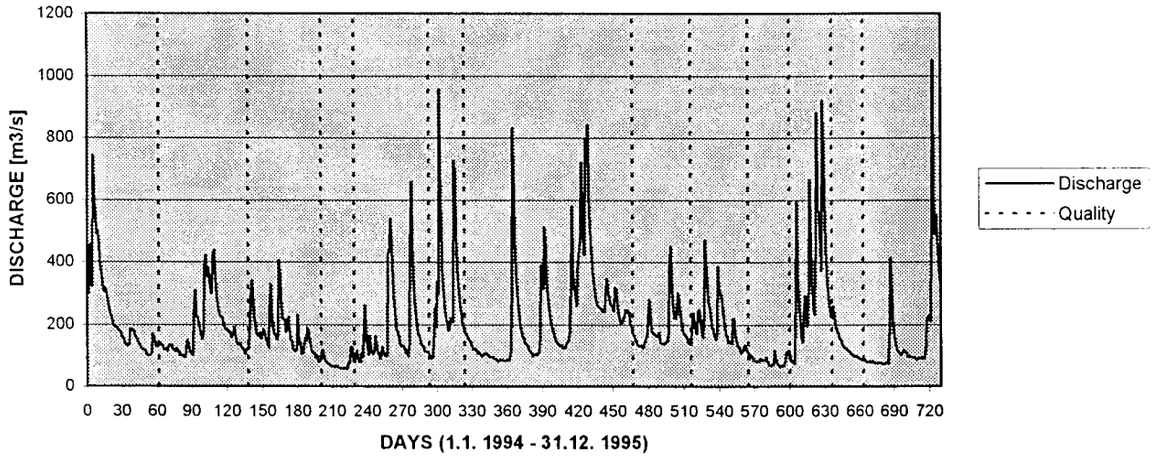
SAVA-MEDNO



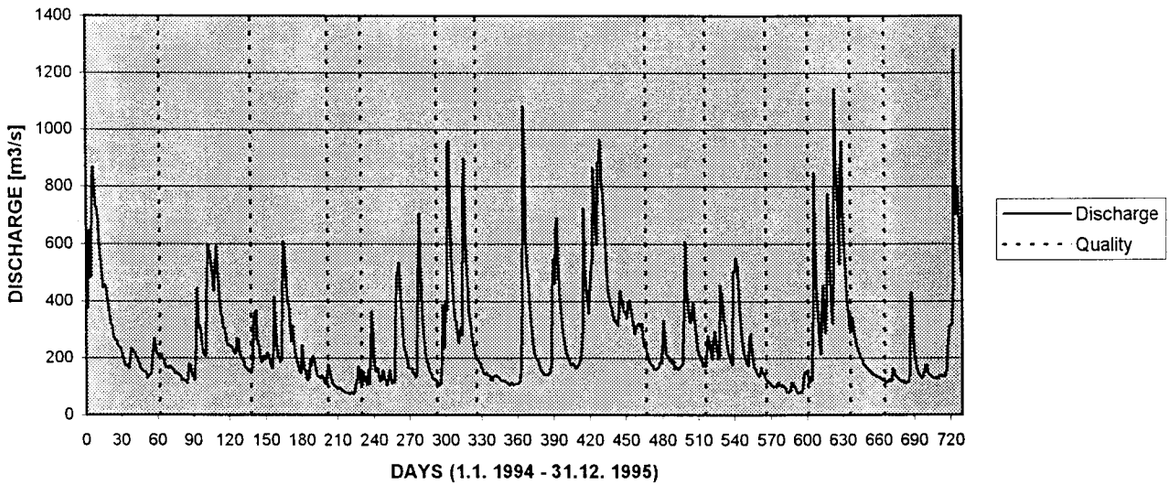
SAVA-LITIJA



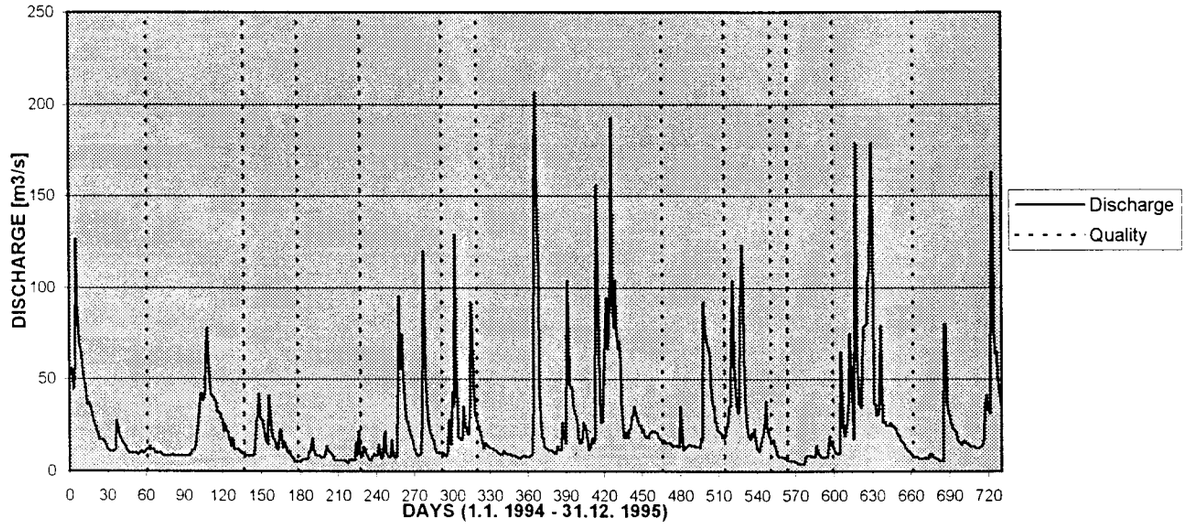
SAVA-RADEČE



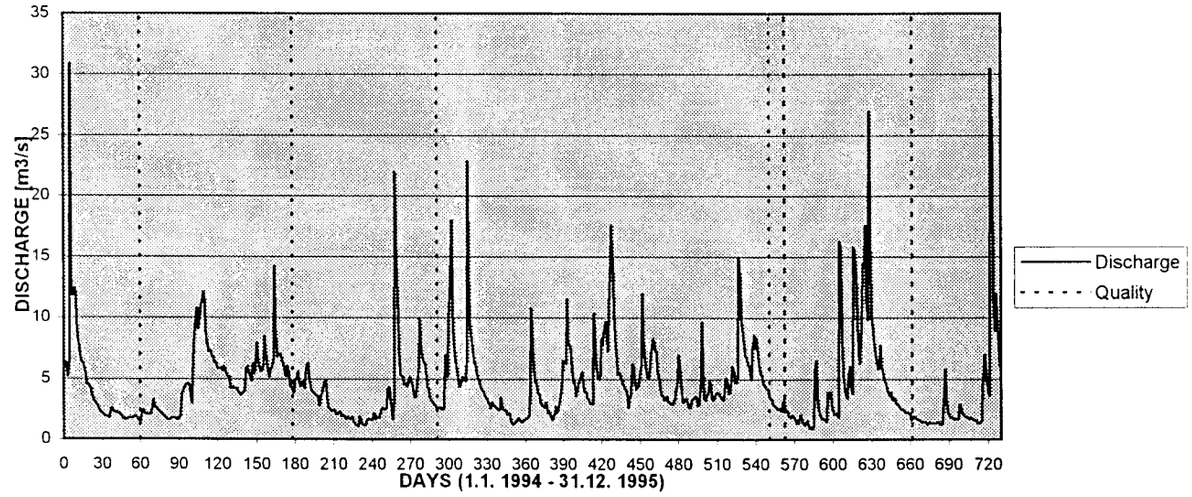
SAVA-ČATEŽ



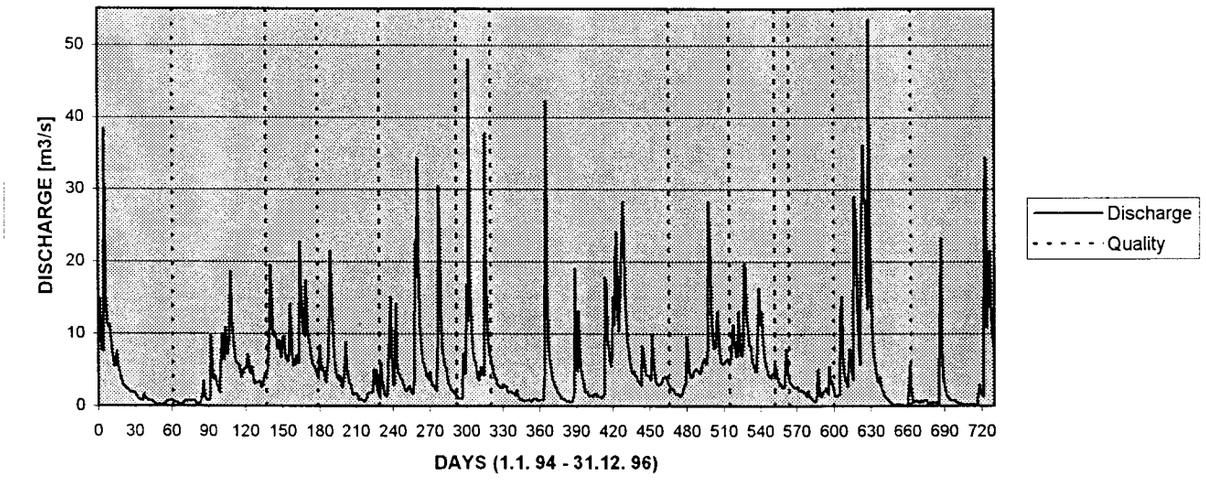
SORA-MEDVODE



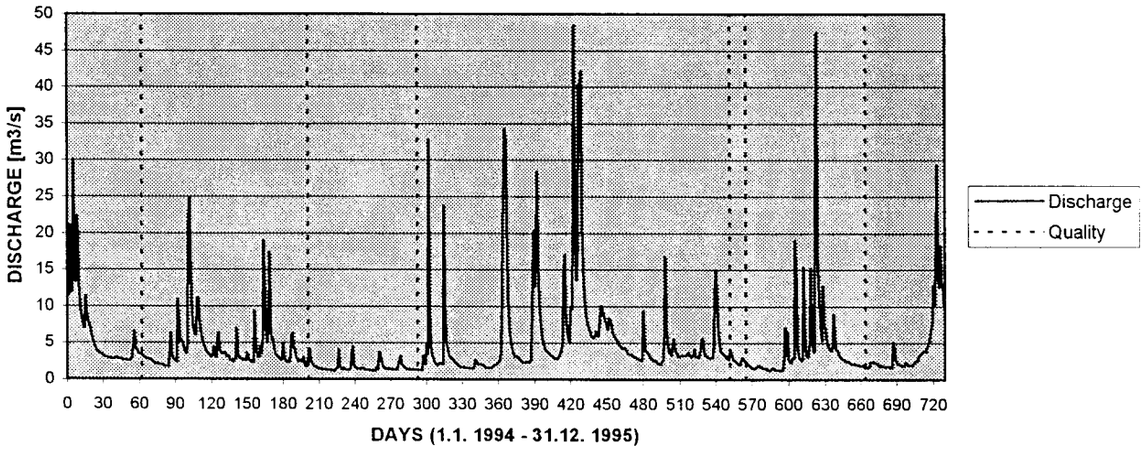
KOKRA-KRANJ



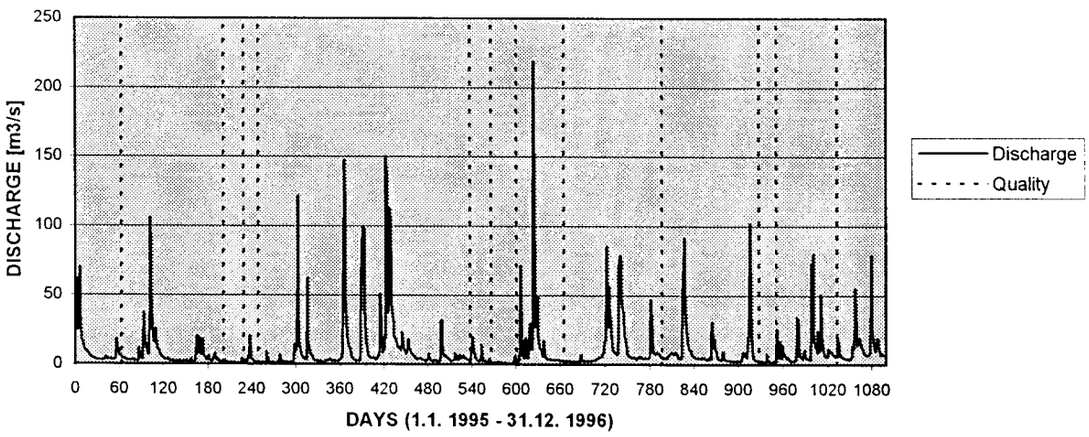
KAMNIŠKA BISTRICA-VIR (BERIČEVO)



MIRNA-BOŠTANJ (JELOVEC)

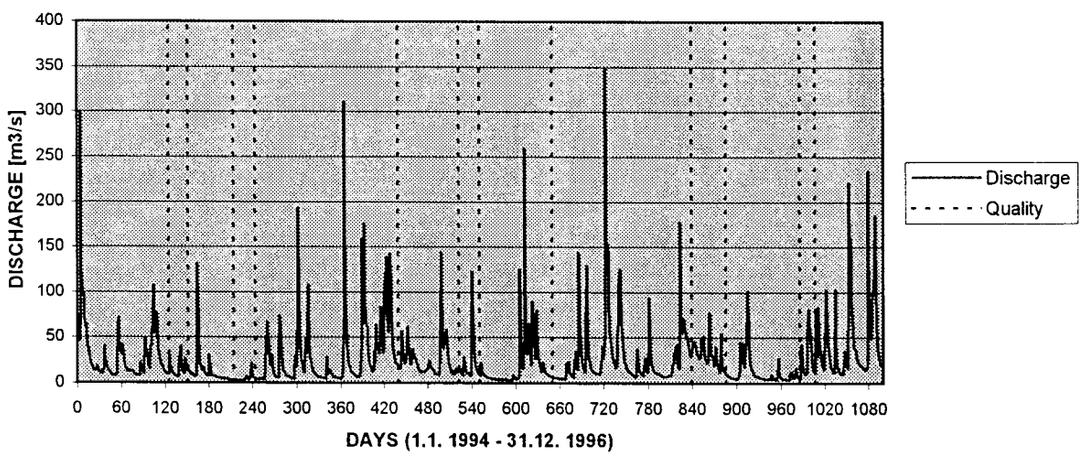


SOTLA-RAKOVEC

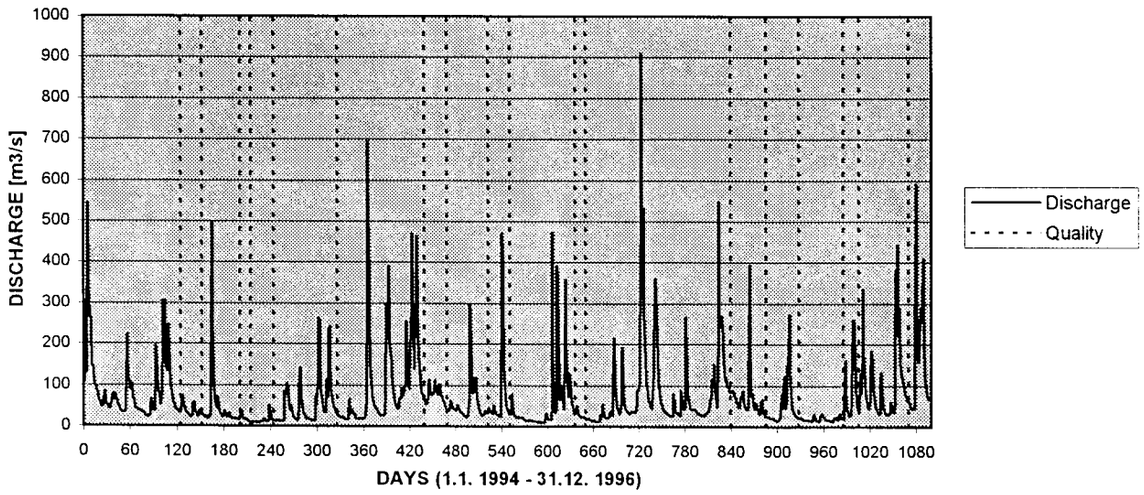


DISCHARGE [m3/s]

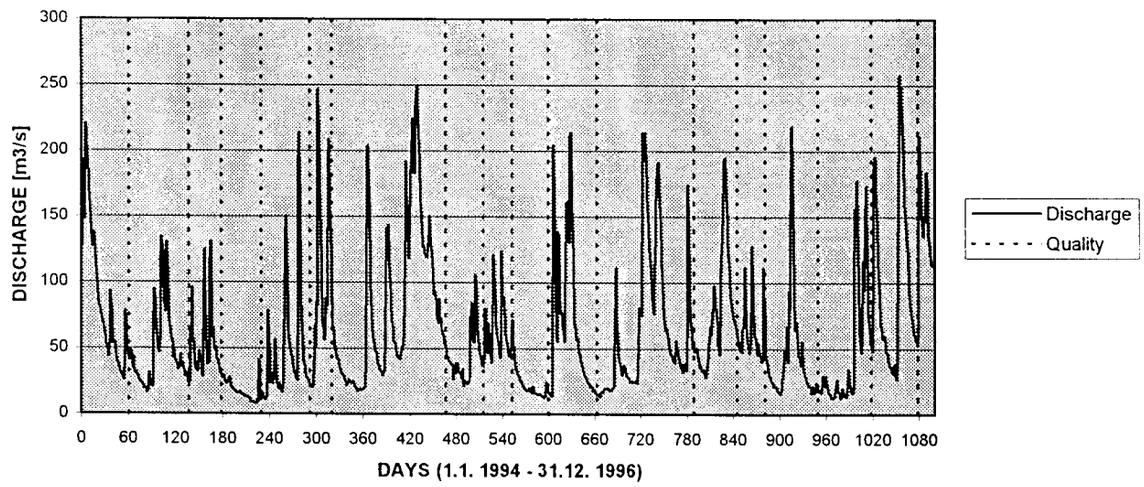
KOLPA-PETRINA



KOLPA-METLIKA

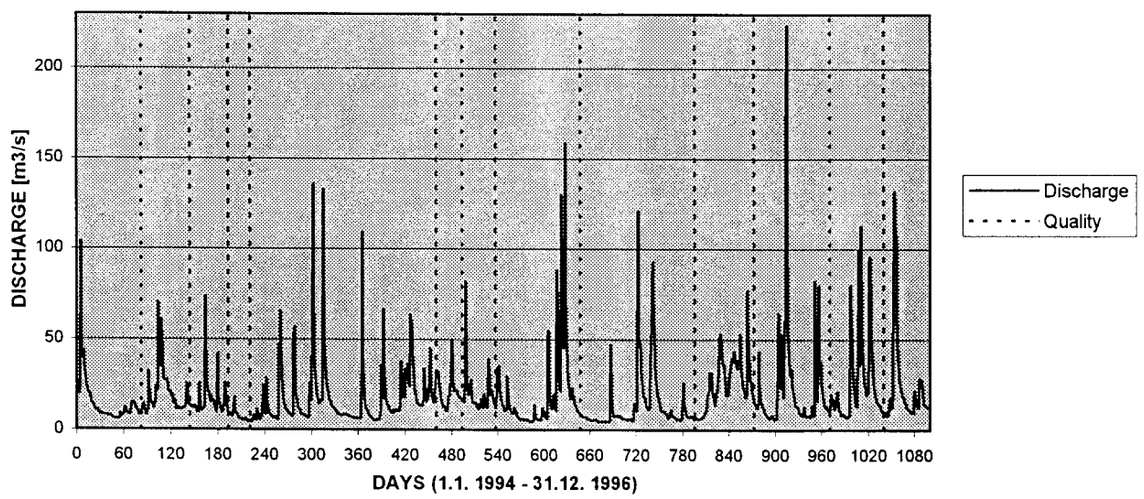


LJUBLJANICA-MOSTE(ZALOG)

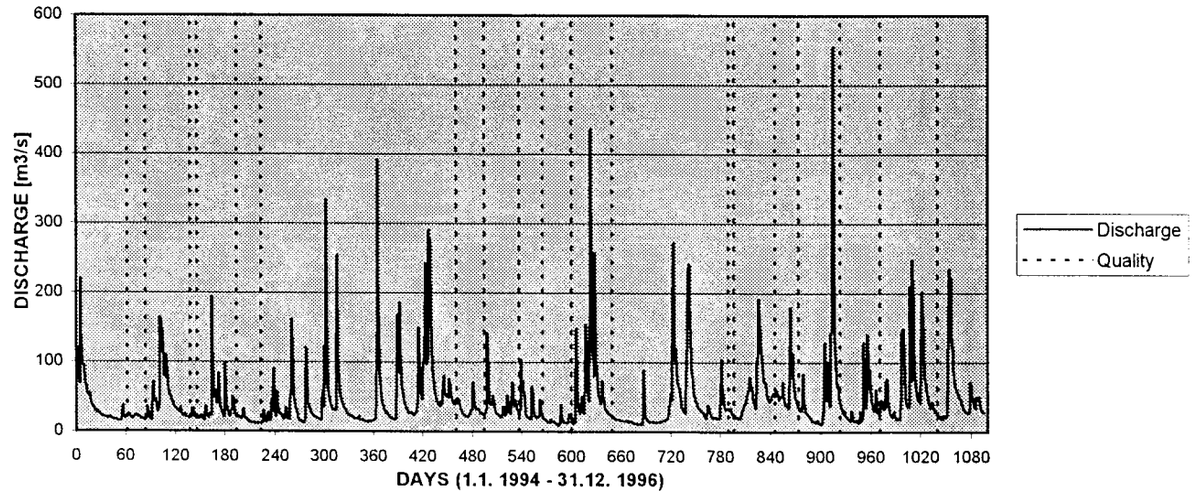


DISCHARGE [m3/s]

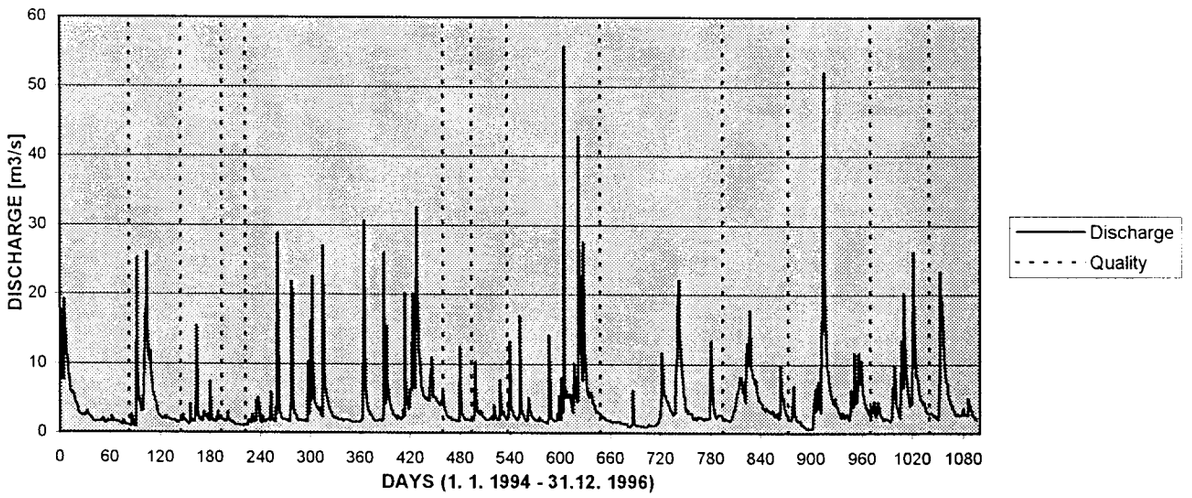
SAVINJA-LETUŠ



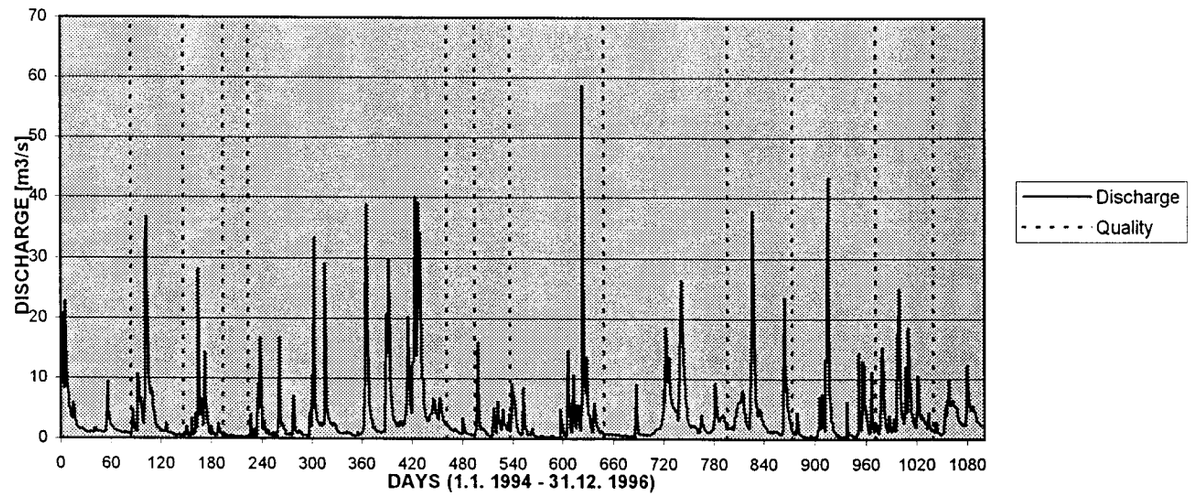
SAVINJA-VELIKO ŠIRJE



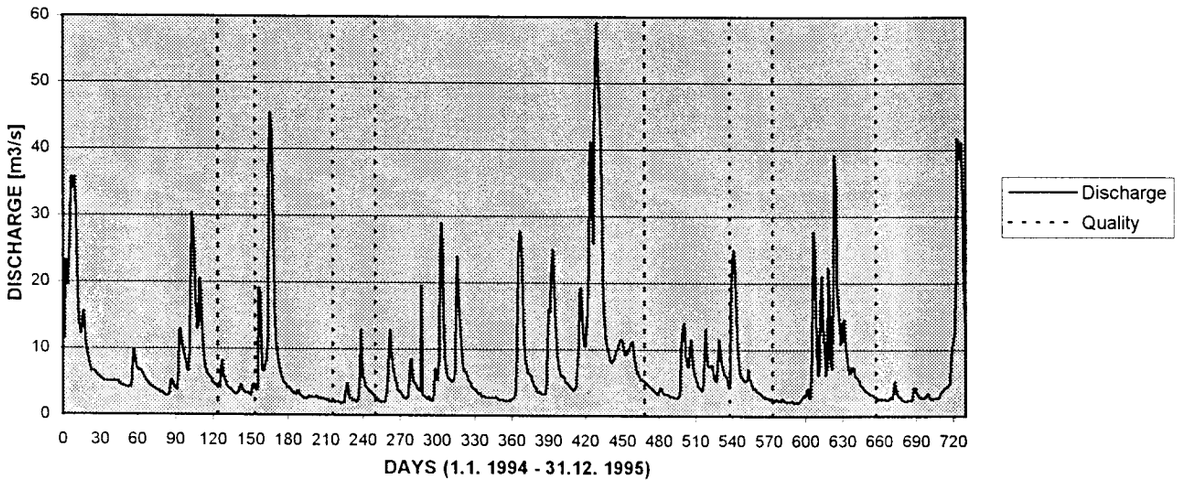
PAKA-REČICA



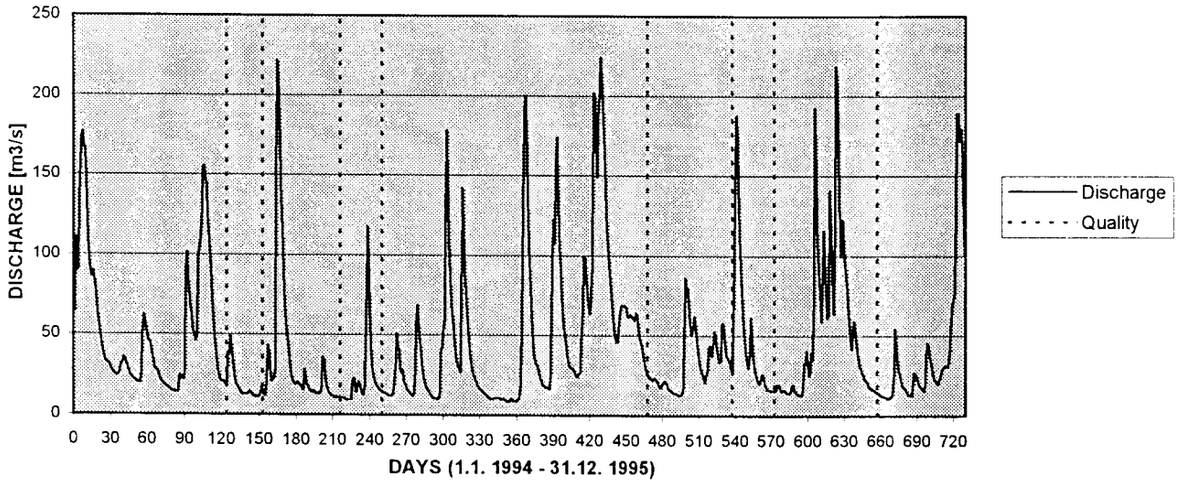
VOGLAJNA-CELJE



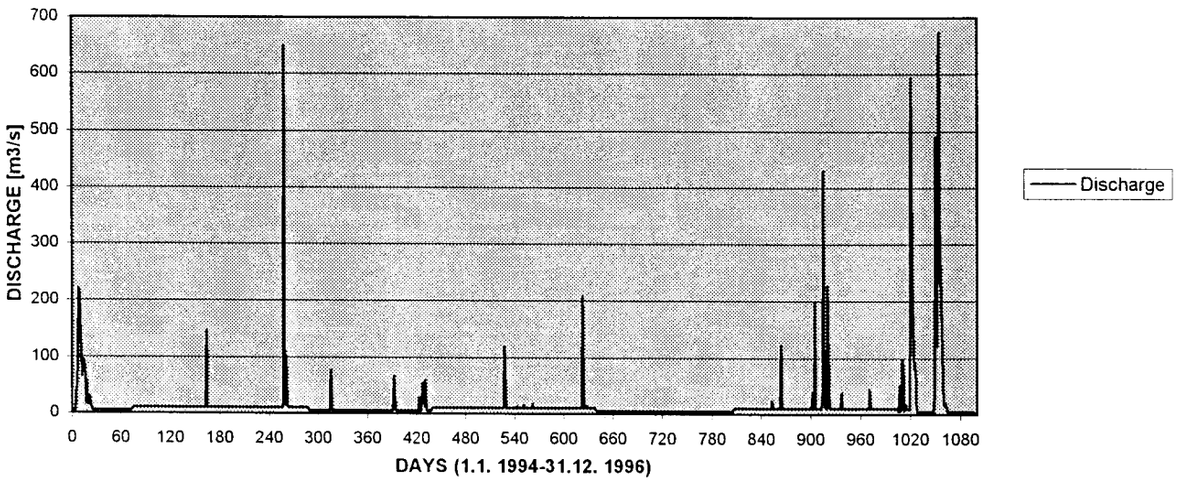
KRKA-PODBUKOVJE



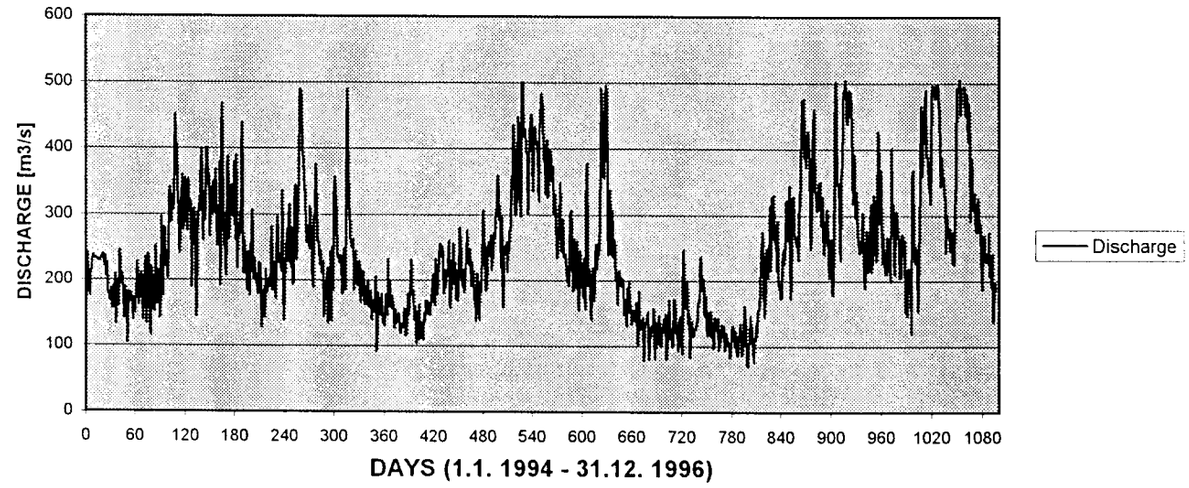
KRKA-GORNJA GOMILA



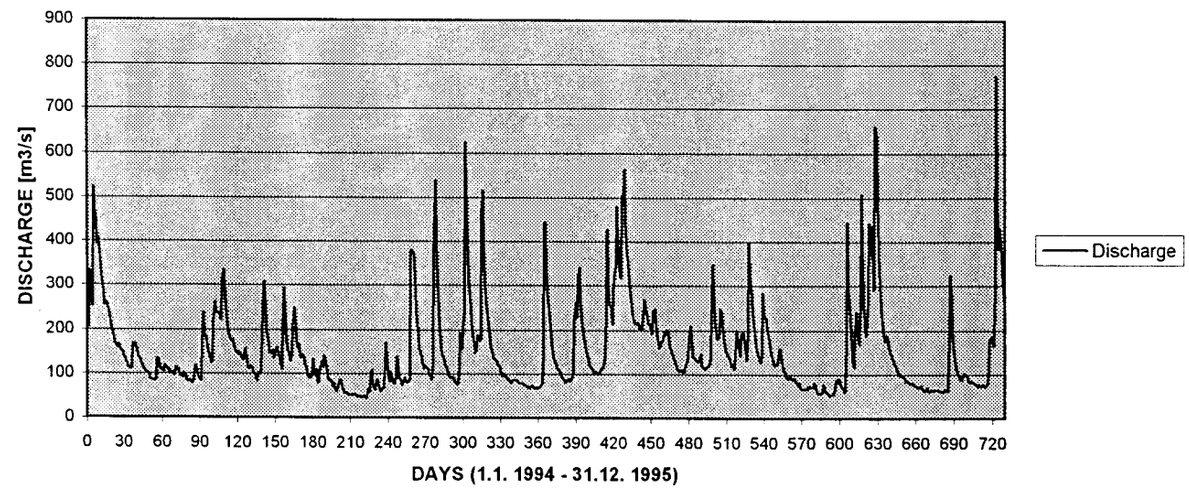
DRAVA-JEZ MARKOVCI



DRAVA(KANAL)-HE FORMIN



SAVA-HRASTNIK



Annex 4.9.-2

Periods of Observation and Data Evaluation (HMI, 1998b)

Preglednica 7: Obdobja opazovanj in ocena
Table 7: Periods of observations and data evaluation

POSTAJA gauging station	VODOTOK stream	OPREMA POSTAJE equipment	MANJKAJOČA LETA missing years	DOPOLNITEV S KORELACIJO correlation supplement	SKUPAJ LET years	OCENA PODATKOV data eval.
POMURJE						
GORNJA RADGONA I	MURA	V, L (73)	0		30	A
CANKOVA	KUČNICA	V	10	Polana – Ledava K=0.79	30	C
PRISTAVA I	ŠČAVNICA	V, L (73)	0		30	A
POLANA I	LEDAVA	L (61)	0		30	A
ČENTIBA	LEDAVA	V, L (73)	10	Polana – Ledava K=0.86	30	C
MARTJANCI	MARTJANSKI P.	V, L (73)	21	Polana – Ledava K=0.82	30	C
HODOŠ	VELIKA KRKA	L (71)	13	Polana – Ledava K=0.93	30	C
PODRAVJE						
BORL	DRAVA	L (53)	0		30*	C
ČRNA	MEŽA	L (71)	12	Mislinja – Otiški v. K=0.83	30	C
OTIŠKI VRH I	MEŽA	L (61)	0		30	A
DOVŽE I	MISLINJA	V, L (71)	3	Mislinja – Otiški v. K=0.73	27	D
OTIŠKI VRH I	MISLINJA	L (65)	4		26	D
STARI TRG I	SUHADOLNICA	V	12	Mislinja – Otiški v. K=0.94	26	D
MUTA	BISTRICA	V, L (67)	0		30	A
RUTA	RADOLJNA	V, L (72)	6		24	D
ZREČE	DRAVINJA	L (74)	13	Dravinja – Videm K=0.84	30	C
LOČE	DRAVINJA	V	10	Dravinja – Videm K=0.94	30	C
VIDEM I	DRAVINJA	V, L (71)	0		30	A
DRAŽA VAS	OPLOTNICA	L (75)	14	Dravinja – Videm K=0.94	30	C
PODLEHNIK	ROGATNICA	L (75)	14	Dravinja – Videm K=0.82	30	C
TRŽEC	POLSKAVA	V, L (71)	0		30	B
GOČOVA	PESNICA	V, L (74)	9	Pesnica – Zamušani K=0.93	30	C
ZAMUŠANI I	PESNICA	V, L (66)	0		30	A
POSAVJE						
JESENICE	SAVA DOLINKA	L (12)	1		29	A
BLEJSKI MOST	SAVA DOLINKA	L (59)	17	Sava D. – Radovljica K=0.93	29	C
PODHOM	RADOVNA	L (54)	0		30	A
SVETI JANEZ	SAVA BOHINJKA	L (59)	0		30	A
BODEŠČE	SAVA BOHINJKA	V, L (87)	0		30	B
STARA FUŽINA II	MOSTNICA	V	1		29	B
BOHINJSKA BISTRICA	BISTRICA	V (68)	8		22	D
RADOVLJICA I	SAVA	L (53)	0		30	A
MEDNO	SAVA	L (67)	18	Sava – Šentjakob K=0.99	30	C
ŠENTJAKOB	SAVA	L (53)	0		30	A
LITIJA I	SAVA	L (53)	0		30	A
RADEČE	SAVA	L (12)	0		30	A
ČATEŽ I	SAVA	V, L (75)	0		30	B
OVSIŠE I	LIPNICA	V	5		25	D
PRESKA	TRŽIŠKA B.	V	1		29	B
PODBREZJE	TRŽIŠKA B.	L (77)	17		13	D
KOKRA I	KOKRA	L (56)	0		30	A
KRANJ II	KOKRA	V, L (85)	0		30	B
SUHA I	SORA	L (53)	0		30	A
ŽIRI II	POLJANSKA SORA	V	3		27	D
VEŠTER	SELŠKA SORA	V, L (89)	0		30#	C
KAMNIK I	KAMNIŠKA B.	L (57)	0		30	A
NEVLJE I	NEVLJICA	V	0		30	B
PODREČJE	RAČA	V	9	Nevljica – Nevlje K=0.65	30	C
ZAGORJE I	MEDIJA	V	0		30	B
ŽEBNIK	SOPOTA	V	18	Mirna – Martinja v. K=0.87	30	C
MARTINJA VAS I	MIRNA	V	0		30	B
GABERJE	MIRNA	V	0		30	B
RAKOVEC I	SOTLA	V	0		30	B
SODNA VAS I	MESTINJŠČICA	V	8	Voglajna – Černolica K=0.9	30	C

POSTAJA gauging station	VODOTOK stream	OPREMA POSTAJE equipment	MANJKAJOČA LETA missing years	DOPOLNITEV S KORELACIJO correlation supplement	SKUPAJ LET years	OCENA PODATKOV data eval.
ZAGAJ I	BISTRICA	V	6	Sotla – Rakovec K=0.61	30	C
KOMIN	LJUBLJANICA	V L (60)	0		30	B
MOSTE	LJUBLJANICA	L (23)	0		30	A
BOROVNICA	BOROVNIŠČICA	V	14	Iška – Iška K=0.68	30	C
IŠKA	IŠKA	V (69)	7		23	D
DVOR	GRADAŠČICA	V L (76)	23	Sora – Zminec K=0.99	30	C
RAZORI	ŠUJICA	V	5		25	D
CERKNICA I	CERKNIŠČICA	V	3		27	D
PRESTRANEK	PIVKA	V	0		30	B
MALI OTOK	NANOŠČICA	V(68)	13		17	D
HASBERK	UNICA	V L (73)	0		30	B
MALNI	MLINŠČICA	V	0		30	B
SOLČAVA I	SAVINJA	L (59)	0		30	A
NAZARJE	SAVINJA	L (905)	0		30	A
LETUŠ I	SAVINJA	V L (71)	7	Savinja – Nazarje K=0.85	30	C
CELJE II – BRV	SAVINJA	V L (72)	0		30	A
LAŠKO I	SAVINJA	L (53)	0		30	A
LUČE	LUČNICA	V	10	Dreta – Kraše K=0.72	30	C
KRAŠE	DRETA	L (58)	0		30	A
VELENJE	PAKA	V	16	Paka – Šoštanj K=0.78	30	C
ŠOŠTANJ	PAKA	L (55)	0		30	A
REČICA	PAKA	L (71)	13	Paka – Šoštanj K=0.95	30	C
DOLENJA VAS II	BOLSKA	V L (71)	0		30	B
LEVEC I	LOŽNICA	V L (71)	0		30	B
ČRNOLICA	VOGLAJNA	V	0		30	B
CELJE II	VOGLAJNA	V L (83)	6	Voglajna – Črnolica K=0.89	30	C
STRMEC	HUDINJA	V	1		29	B
ŠKOFJA VAS	HUDINJA	L (83)	22	Hudinja – Strmec K=0.98	30	C
VODIŠKO I	GRAČNICA	V	11	Voglajna – Črnolica K=0.86	30	C
PODBUKOVJE	KRKA	V	0		30	B
G. GOMILA	KRKA	L (61)	0		30	A
PODBOČJE	KRKA	L (14)	0		30	A
MENIŠKA VAS	RADEŠCA	V	6	Krka – Dvor K=0.73	30	C
PREČNA	PREČNA	L (52)	0		30	A
ŠKOCJAN	RADULJA	V	0		30	B
SODRAŽICA	BISTRICA	V L (78)	11		19	D
POKOLPJE						
PETRINA	KOLPA	L (54)	0		30	A
RADENCI II	KOLPA	V L (78)	0		30	B
METLIKA	KOLPA	V L (78)	0		30	B
GRADAC	LAHINJA	L (57)	0		30	A
POSOČJE						
KRŠOVEC	SOČA	V L (63)	0		30	A
LOG ČEZSOŠKI	SOČA	L (53)	0		30	A
KOBARID I	SOČA	L (53)	0		30	A
SOLKAN I	SOČA	V L (77)	0		30	B
KAL	KORITNICA	V L (63)	0		30	B
ŽAGA	UČEJA	L (53)	0		30	A
TOLMIN	TOLMINKA	V	0		30	B
PODROTEJA I	IDRIJCA	V	0		30	B
HOTEŠČEK	IDRIJCA	L (53)	0		30	A
CERKNO II	CERKNICA	V	20	Bača – Bača pri M. K=0.85	30	C
DOLENJA TREBUŠA	TREBUŠČICA	V	0		30	B
BAČA PRI MODREJU	BAČA	L (40)	0		30	A
VIPAVA I	VIPAVA	V	0		30	B
DORNBERK	VIPAVA	L (57)	0		30	A
MIREN	VIPAVA	V L (63)	0		30	B
AJDOVŠČINA I	HUBELJ	V	0		30	B
NEBLO	REKA	V(81) L(83)	21		9	D

POSTAJA gauging station	VODOTOK stream	OPREMA POSTAJE equipment	MANJKAJOČA LETA missing years	DOPOLNITEV S KORELACIJO correlation supplement	SKUPAJ LET years	OCENA PODATKOV data eval.
GOLO BRDO	IDRIJA	V L (83)	23		7	D
POTOKI	NADIŽA	V L (84)	18	Učeja – Žaga K=0.84	30	C
JADRANSKO POVODJE (del) / Adriatic drainage basin (part)						
CERKVENIKOV MLIN	REKA	L (57)	0		30	A
KUBED II	RIŽANA	V L (65)	0		30	B
PODKAŠTEL I	DRAGONJA	V (69)	17		13	D

V = vodomer – trenutne dnevne vrednosti /gauge staff – actual daily values
L = limnigraf – srednje dnevne vrednosti / water-level recorder – mean daily values
A – limnigrafski podatki – 30 letni niz / water-level recorder – 30-years string of data
B – podatki – dnevna opazovanja – 30 letni niz / daily observations – 30-years string of data
C – limnigrafski ali opazovani podatki dopolnjeni z korelacijo / data of water-level recorder and daily observations supplemented with correlation
D – nepopolen niz podatkov / incomplete string of data
30* – od leta 1979 (po izgradnji HE Formin) upoštevani pretoki v.p. Borl in jezu akumulacije / from 1979 onwards (after the construction of HPP Formin), discharges at the gauging station Borl and the reservoir dam are taken into acount
30# – od leta 1987 podatki povzeti za v.p. Škofja Loka / from 1987 onwards, data of the gauging station Škofja Loka are taken into acount

Annex 4.9.-3

Data Sample of Water Discharge (source database of HMI)

Data Sample of Water Discharge

```
1  ------------------------------------------------------------------------
     HMZ  R SLOVENIJE            2-OCT-98                SSOHP-program LP*
                            OVERVIEW FOR YEAR 1996                Code:1070

     River: MURA                          Station: PETANJCI
     DATA TIPE : 2202-DISCHARGE – MEAN DAILY VALUES - m3/s
     "0" of gauge:  193.763 m.n.m.          Catchment Area :  10391.4 km2
     Monitored since  :  25.12.1955         River mouth at:  100.470 km
   ------------------------------------------------------------------------
   DAY  JAN   FEB   MAR   APR   MAY   JUN   JUL   AUG   SEP   OKT   NOV   DEC
   ------------------------------------------------------------------------
    1  83.0  68.4  71.3   141-  350   239   284   118   156   210   224   181+
    2  83.0  62.8  69.8   152   345   223   343   113-  147-  208-  214   171
    3  84.5  67.0  71.3   235   334   217   628+  132   204   338   208   173
    4  81.5  74.1  65.6   280   317   213   379   158   281   285   200   162
    5  78.5  74.1  65.6   679+  284   213   291   140   271   252   200   156

    6  77.1  72.7  62.8   439   266   198   247   132   252   369   190   147
    7  72.7  65.6  67.0   369   255-  186   243   133   232   467   182   140
    8  86.0  67.0  64.2   330   257   173   241   144   228   369   175   135
    9   124  67.0  62.8   306   292   168   243   158   235   341   171   130
   10   124  60.0- 64.2   300   328   161   230   142   212   311   162   139

   11   134  60.0  61.4-  276   302   162   218   137   200   293   156   139
   12   183+ 61.4  67.0   253   284   168   216   139   196   271   155   133
   13   170  65.6  62.8   251   555   164   212   165   202   252   153   137
   14   152  64.2  65.6   229   700+  157   212   171   192   239   147-  132
   15   136  64.2  64.2   209   549   155   208   164   214   228   214   137

   16   126  62.8  68.4   194   478   146   198   160   212   235   252   128
   17   113  62.8  71.3   185   434   136   190   147   210   415   271   132
   18  96.7  64.2  96.7   177   390   134   179   140   198   442   273   125
   19  99.8  65.6   128   183   352   133-  164   133   192   405   357+  125
   20  93.6  75.6   143   194   334   143   153   132   188   324   327   127

   21  87.5  80.0+  153   213   395   145   147   130   186   334   315   135
   22  87.5  74.1   157   259   348   166   140   139   194   526+  285   137
   23  89.0  67.0   164   296   328   286   140   142   350   520   269   125
   24  84.5  60.0   186   323   292   235   139   137   631+  405   241   125
   25  81.5  62.8   205   334   263   202   140   130   392   355   222   120

   26  83.0  62.8   242   343   266   221   142   132   329   322   214   115
   27  74.1  62.8   259+  369   292   211   137   130   287   295   210  92.9
   28  75.6  68.4   215   334   357   194   139   139   254   279   206  79.6-
   29  74.1  68.4   196   332   319   181   139   151   237   265   196  81.0
   30  72.7        172   345   282   300+  132   162   224   254   184  84.0
   31  71.3-       157         255         128-  188+        239         89.9

   Sum: 3078  1931  3600  8530 10802  5631  6602  4438  7306 10046  6573  4032
 Urank:13:22 13:52 19:40  7:26 10:05 13:55 19:59  4:38  3:03 13:41 15:36 14:47
 Dannk:  31    10     6     2    31    19    30     2     2     2    14    28
   Qnk:61.4  50.6  49.3   131   242   119   122   104   142   184   133  62.8
   Qsr:99.3  66.6   116   284   348   188   213   143   244   324   219   130
   Qvk: 194  92.1   300   733   856   483   802   224   760   662   400   192
 Danvk:  12    21    27     5    14    30     3    31    24    23    19     1
 Uravk: 6:10  1:27  4:00 12:06  5:00 15:08 10:28  2:15  2:05  3:08 15:01 11:43
   ------------------------------------------------------------------------
        HOUR     DAY      QNK     QNP     QSR     QVP     QVK     DAY     HOUR
       19:40    06.03    49.3    60.0     198     700     856    14.05    05:00
   ------------------------------------------------------------------------
+  max. mean daily value                    -  minimal mean daily value

Urank -Hour of low stage                      Qvk   -High stage
Dannk -Day of low stage                       Danvk -Day of high stage
Qnk   -Low stage                              Uravk -Hour of high stage
Qsr   -Average stage
```

Annex 4.9.-4

Characteristic Discharges of the 1961-90 Period (HMI, 1998b)

Preglednica 2: Karakteristični pretoki v obdobju 1961-90
Table 2: Characteristic discharges of the 1961-90 period

VODOMERNA POSTAJA gauging station VODOTOK stream	nQnk – nizek / low sQs – srednji pretok(m^3/s) / mean discharge vQvk – visok / high													DATUM ZABELEŽENIH EKSTREMOV V OBDOBJU date of extreme
	jan	feb	mar	apr	maj	jun	jul	avg	sep	okt	nov	dec	LETO year	
POMURJE														
G. RADGONA I	44.9	45.4	56.8	82.2	89.8	101	46.4	66.3	54.8	55.8	44.8	40.5	40.5	14.12.1989
	87.5	94.5	133	188	251	241	208	178	147	128	119	103	157	
MURA	369	438	794	1130	903	1145	1205	1142	913	1067	781	589	1205	17.07.1972
PRISTAVA	0.14	0.23	0.07	0.2	0.1	0.09	0.08	0.06	0.1	0.11	0.18	0.23	0.06	7.08.1974
	2.69	3.68	4.22	3.17	1.97	1.75	1.49	1.4	1.29	1.81	3.03	2.84	2.44	
ŠČAVNICA	31.2	37.8	42.4	33.7	41.5	27.3	37.8	38.1	35.9	48.7	43	29.6	48.7	21.10.1974
POLANA I	0.12	0.14	0.18	0.08	0.03	0.02	0.04	0.02	0.03	0.04	0.04	0.05	0.02	17.08.1964
	1.34	1.94	2.4	1.58	1.12	1.03	1.2	1	0.796	1.08	1.58	1.39	1.37	
LEDAVA	36	45.3	40.8	50.7	52.5	49.7	80.5	63.3	69.8	57.5	43	45	80.5	15.07.1972
PODRAVJE														
OTIŠKI VRH I	3.3	2.45	3.6	4.74	3.32	3.14	3.31	3.2	3.2	2.7	2.5	3.51	2.45	17.02.1964
	8.75	9.57	14.1	20.1	15.8	14.5	13.3	9.88	12.3	13.2	15.4	11.3	13.2	
MEŽA	131	147	133	134	148	196	198	145	224	264	371	337	371	1.11.1990
MUTA	0.96	0.81	0.81	1.33	1	1.25	1.02	1.17	1.17	0.95	0.95	0.95	0.81	28.02.1975
	2.81	1.98	2.32	3.8	4.34	3.97	4.11	3.52	3.45	3.17	2.95	2.81	3.28	
BISTRICA	34	6.54	9.09	26.6	16.2	32.5	48.4	28.7	20.1	25.8	16.1	35.9	48.4	15.07.1972
VIDEM I	0.99	2.68	2.87	2.04	1.13	1.92	1.52	0.99	1.3	0.63	0.63	1.56	0.63	11.10.1985
	11.3	13.3	15	17.1	11.9	9.85	10.2	8.68	8.71	11.2	14	12.7	12	
DRAVINJA	125	134	128	214	136	138	228	193	165	291	190	206	291	25.10.1964
TRŽEC	0.28	0.23	0.46	0.29	0.17	0.08	0.1	0.12	0.12	0.22	0.24	0.05	0.05	19.12.1973
	3.06	3.02	3.39	3.16	2.21	2.13	2.19	2.14	1.9	2.44	3.05	2.97	2.64	
POLSKAVA	53.2	30.7	57.2	39.6	26.6	28.8	43.2	52.3	31.3	77.5	47	32.4	77.5	25.10.1964
ZAMUŠANI I	0.65	0.817	0.757	0.87	0.7	0.32	0.21	0.24	0.24	0.29	0.41	0.54	0.21	16.07.1971
	5.17	7.23	9.45	7.34	4.23	4.08	3.88	3.56	3.33	4.93	7.12	5.82	5.5	
PESNICA	60.8	112	121	120	103	73.5	150	92.8	107	99.4	112	97.5	150	17.07.1972
POSAVJE														
PODKOREN	0.011	0.008	0.005	0.011	0.13	0.13	0.2	0.34	0.12	0.09	0.158	0.093	0.005	04.03.1989
	0.605	0.378	0.347	0.789	1.02	1.23	1.37	1.12	0.968	0.94	1.07	0.965	0.903	
SAVA DOLINKA	2.11	1.28	1.74	5.26	2.64	2.99	3.5	3.69	7.9	4.43	5.85	3.58	7.9	28.09.1965
PODHOM	1.23	1.09	1.02	2.93	3.25	3.08	2.4	1.94	1.78	1.21	1.55	1.3	1.02	13.03.1984
	4.17	3.56	4.9	10.9	14.6	11.6	8.17	6.59	8.33	8.99	9.59	5.97	8.13	
RADOVNA	96.3	72.2	56.4	96	87.4	65.4	51.2	89.8	107	105	113	61.8	113	5.11.1966
SVETI JANEZ	0.38	0.38	0.66	1.51	2.85	1.1	1.1	1.05	0.89	0.66	0.5	0.56	0.38	17.01.1972
	3.28	2.46	3.35	9.04	18.9	15.4	8.45	6.49	9.06	8.53	10	4.83	8.34	
SAVA BOHINJKA	152	67.3	65	127	88.2	90.1	69.7	123	179	169	218	102	218	14.11.1969
STARA FUŽINA I	0.17	0.17	0.191	0.34	0.619	0.34	0.247	0.139	0.19	0.16	0.15	0.15	0.139	19.08.1988
	1.75	1.58	2.46	4.93	5.91	4.31	2.53	2.41	3.27	3.4	4.54	2.26	3.28	
MOSTNICA	157	84.6	55.2	86.7	51.5	85.5	28.7	117	116	119	131	94.3	157	28.01.1979
RADOVLJICA I	5.56	4.8	4.8	10.2	14	12.2	7.8	7.75	7.16	6.33	5.6	6.42	4.8	1.03.1975
	26.8	24.5	31.7	58.1	74.2	61.6	43.9	35.9	43.1	48.3	53.7	36.1	44.9	
SAVA	645	388	287	569	464	300	257	561	718	580	805	401	805	5.11.1966
ŠENTJAKOB	19.8	17.8	22.3	29	33.2	27.4	24.5	23.3	21	17.3	19.1	23	17.3	9.10.1985
	71.7	68.7	83.3	122	124	106	78.5	66.8	81.9	96.4	115	85.5	91.6	
SAVA	1281	900	807	1198	797	617	555	915	1280	1151	1422	936	1422	1.11.1990
LITIJA I	39.2	35.9	42.1	60.8	62.3	48	36.7	35.7	32.9	32.9	32.9	37.7	32.9	27.09.1971
	153	148	177	226	203	180	133	110	138	172	217	181	170	
SAVA	1724	1392	1218	1554	1248	895	900	1105	1745	1595	2069	1427	2069	2.11.1990
RADEČE	45.6	39.7	52.8	78	82.7	67	50.4	45.5	38.4	41	41	47.2	38.4	16.09.1964
	196	195	237	298	259	237	177	143	178	225	278	234	221	
SAVA	2498	1708	1857	1930	1913	1699	1691	1755	2460	2699	2991	2350	2991	02.11.1990
ČATEŽ I	60.4	51.9	75.7	106	108	82	55	52	53	56.3	52.6	60.8	51.9	18.02.1989
	263	269	328	393	325	295	228	185	228	291	362	313	290	
SAVA	3114	2012	2042	2220	2860	1631	2003	1993	2873	3001	3267	2383	3267	2.11.1990
PRESKA	1.88	1.88	1.88	1.95	1.95	1.91	1.94	1.95	1.98	1.89	1.7	1.85	1.7	13.11.1970
	3.87	3.7	4.19	6.31	6.4	5.57	4.79	4.54	5.31	5.18	5.91	4.71	5.04	
TRŽIŠKA B.	93.1	80.8	42.8	77	59.1	42.6	58.1	133	95.6	88.4	109	62.8	133	28.08.1986
KOKRA I	0.716	0.716	1.05	1.66	1	1.66	1.42	0.98	0.774	0.84	0.9	1.06	0.716	30.01.1989
	3.61	3.02	3.62	6.11	6.06	5.36	4.16	3.28	3.83	4.77	5.83	4.43	4.51	
KOKRA	188	150	81.8	147	74	58.7	99.8	163	93.1	142	147	150	188	28.01.1979

VODOMERNA POSTAJA gauging station VODOTOK stream	nQnk – nizek / low sQs – srednji pretok (m^3/s) / mean discharge vQvk – visok / high													DATUM ZABELEŽENIH EKSTREMOV V OBDOBJU date of extreme
	jan	feb	mar	apr	maj	jun	jul	avg	sep	okt	nov	dec	LETO year	
SUHA I	2.98	2.42	4.24	5	3.78	4	2.4	2.9	2.12	2.6	2.79	3.58	2.12	6.09.1967
	20.5	19.9	26.2	29.9	19.9	18.7	12.7	11	16.2	22.2	29.1	22.7	20.7	
SORA	458	354	473	390	273	300	211	269	584	439	687	388	687	01.11.1990
KAMNIK I	1.3	1.18	1.39	1.94	1.94	1.6	2.36	1.38	1.3	1.3	2.07	1.47	1.18	22.02.1989
	5.16	5.07	5.65	8.29	10.7	10.8	8.01	5.63	6.37	7.87	9.02	6.19	7.4	
KAMNIŠKA B.	121	88.3	85.8	72.3	121	131	99.8	82.7	185	155	282	101	282	1.11.1990
NEVLJE I	0.376	0.25	0.25	0.25	0.42	0.21	0.09	0.09	0.1	0.18	0.103	0.3	0.09	23.07.1983
	1.72	1.68	2.02	2.23	1.83	1.97	1.64	1.21	1.43	1.68	2.3	1.81	1.79	
NEVLJICA	38.6	22.6	36.9	21.8	31.6	37.6	49.9	27.7	47.7	42.7	50.8	25	50.8	1.11.1990
MARTINJA VAS I	0.508	0.606	0.602	0.61	0.49	0.53	0.54	0.5	0.526	0.5	0.47	0.43	0.43	2.12.1983
	2.68	2.89	3.7	3.48	2.6	2.79	2.07	1.95	2	2.5	3.07	3.17	2.74	
MIRNA	38.9	23.2	38.1	35.7	36.1	47.3	48.2	76.7	59.9	60.6	36.9	64	76.7	10.08.1984
GABRJE I	0.796	0.961	0.796	0.981	0.8	1.17	0.93	0.95	0.896	0.93	0.93	0.93	0.796	26.01.1990
	4.31	4.75	5.93	5.62	4.36	4.73	3.4	3.1	3.17	4.15	5.13	5.17	4.48	
MIRNA	61.8	41.7	62.3	55.1	64.2	75.1	81.8	81	65.3	86.2	59.7	92.5	92.5	03.12.1966
RAKOVEC I	1.27	1.19	1.07	1.06	0.961	0.769	0.4	0.42	0.497	0.497	0.826	0.67	0.4	27.07.1988
	9.01	11.4	13.3	11.7	7.75	7.6	6.45	4.5	5.36	8.87	11.6	11.4	9.06	
SOTLA	108	121	108	176	165	154	264	142	222	281	172	176	281	25.10.1964
VRHNIKA II	2.09	1.76	2.59	3.78	3.78	2.22	1.5	1.19	0.98	1.35	1.87	2.31	0.98	4.09.1962
	27.2	25.6	29.6	36.4	23.8	20.8	13.5	11.1	17.2	25.2	34.8	33.3	24.8	
LJUBLJANICA	95.9	91	94.2	94.9	93.8	88.7	93.1	93.9	96.9	98.1	97.1	93.7	98.1	4.10.1984
MOSTE	4.07	4.76	7.68	9.34	9.14	9.24	5.99	3.8	3.41	3.72	3.76	5.86	3.41	11.09.1987
	61.6	60.4	72	80.4	54.3	50.8	35.8	28.9	40.8	56.2	75.2	72.2	57.3	
LJUBLJANICA	335	259	405	273	344	296	289	240	352	377	297	320	405	20.03.1975
VERD I	0.683	0.2	1.02	0.99	1.43	1.22	0.75	0.43	0.59	0.39	0.59	0.92	0.2	14.02.1964
	7.68	7.2	8.07	9.56	7.11	6.33	4.59	3.49	5.01	6.89	9.07	9	6.99	
LJUBIJA	21.8	21	21	22.5	22.6	20.3	22.6	22.2	23.7	23	21.1	22	23.7	02.09.1965
RAZORI	0.168	0.168	0.168	0.291	0.353	0.291	0.168	0.168	0.23	0.29	0.236	0.263	0.168	15.01.1975
	1.57	1.6	2.02	1.94	1.3	1.4	0.975	0.945	1.25	1.52	1.97	1.71	1.51	
ŠUJICA	23.6	13.2	22.1	18	18.8	20.5	17.9	17	29.5	29.5	21.9	19.2	29.5	22.09.1968
PRESTRANEK	0	0	0	0	0	0	0	0	0	0	0	0	0	24.2.1961
	3.67	3.27	3.44	4.54	2.86	1.66	0.46	0.261	1.33	2.93	5.16	4.79	2.86	
PIVKA	16.9	17.2	20.7	20	23	13	10.6	12.6	25.5	17.9	19.6	18.3	25.5	3.09.1965
HASBERG	2.44	2.07	2.6	4.74	4.31	3.16	2.51	1.63	1.2	1.2	1.2	1.45	1.2	6.11.1971
	26.4	24.2	25.8	33.9	23.8	19.2	11.8	8.68	13.7	21.6	30.7	31.3	22.6	
UNICA	83.9	85.6	83.4	87.7	87.2	72.5	70.7	77.1	83.5	100	81.7	80.6	100	23.10.1974
MALNI	1.28	1.28	1.64	3.29	3.92	2.91	2.22	1.48	1.27	1.14	1.1	1.48	1.1	01.11.1985
	6.99	6.53	6.95	7.89	7.39	7.05	6.23	5.09	5.46	6.1	7.16	7.61	6.7	
MALENŠČICA	9.73	9.9	9.71	9.7	9.71	9.71	9.73	9.46	9.82	9.7	9.72	9.78	9.9	18.02.1979
NAZARJE	2.52	2.2	3	5.76	4.5	4.03	3.3	3.01	2.8	2.62	3	2.5	2.2	1.02.1987
	12.2	11.8	16.3	25.1	23.8	19.9	14.6	11.2	14.1	17.5	21.2	15.6	17	
SAVINJA	412	189	234	182	250	218	274	258	308	377	635	305	635	1.01.1990
LAŠKO I	5.69	5.69	7.56	10.4	10.9	8.8	5.6	4.2	5.85	4.8	5.6	6.9	4.2	2.08.1983
	35.2	36.2	47	57.1	46.4	43.5	35.2	27.6	32.7	43	51.9	42.7	41.5	
SAVINJA	810	461	831	536	593	759	722	744	1030	1179	1406	926	1406	1.11.1990
KRAŠE	0.25	0.462	0.597	1.2	0.923	0.98	0.67	0.501	0.4	0.37	0.67	0.37	0.25	26.01.1964
	3.68	3.45	4.66	6.35	4.91	4.2	3.35	2.75	3.37	4.49	5.48	4.37	4.26	
DRETA	173	109	131	116	108	116	202	131	208	199	236	119	236	1.11.1990
ŠOŠTANJ	0.05	0.23	0.34	0.26	0.2	0.16	0.02	0.02	0.12	0.06	0.1	0.12	0.02	31.07.1963
	2.17	2.32	3	3.4	2.44	2.58	2.43	1.8	2.09	2.55	3.09	2.55	2.53	
PAKA	55.2	35.2	53.4	39.9	47.2	55.2	56.7	57.4	100	137	112	92	137	24.10.1964
DOLENJA VAS II	0.35	0.35	0.418	0.85	0.19	0.3	0.32	0.15	0.3	0.24	0.35	0.35	0.15	17.08.1985
	3.63	4.05	5.05	5.39	3.49	3.63	2.92	2.45	2.64	3.74	5.16	4.59	3.89	
BOLSKA	52.3	36.9	81.8	46.3	56	96	89.1	84.3	86	94.4	182	90	182	1.11.1990
LEVEC I	0.107	0.15	0.129	0.17	0.12	0.12	0.076	0.08	0.07	0.088	0.1	0.09	0.07	20.09.1974
	1.71	1.84	2.34	2.12	1.41	1.64	1.43	1.22	1.26	1.69	2.25	1.98	1.74	
LOŽNICA	72.8	31.2	61.1	46.1	56	74	71.6	64.5	81	76	82.3	40.7	82.3	1.11.1990
STRMEC	0.28	0.278	0.32	0.35	0.2	0.27	0.15	0.15	0.237	0.25	0.25	0.252	0.15	29.07.1988
	1.02	1	1.19	1.44	1.15	1.25	1.41	1.04	1.12	1.47	1.29	1.36	1.23	
HUDINJA	38.1	25.6	35.6	59	75.5	78.5	144	88.7	129	127	60.8	110	144	18.07.1966
PODBUKOVJE	1.37	1.26	1.81	1.46	1.17	1.75	1.46	0.8	0.92	1.26	1.35	1.35	0.8	23.08.1967
	7.6	8.71	11.7	11.5	7.63	7.54	6.26	4.99	6.12	8.15	10.5	9.47	8.34	
KRKA	61.2	49.5	68.4	49.4	60.2	45.5	57.5	54.4	79.9	73.8	67	62.5	79.9	25.09.1973
DVOR	2.35	2.03	2.53	2.28	2.28	2.69	2.03	1.76	1.9	1.92	2.1	2.05	1.76	2.08.1988
	15.5	17.5	25.2	25.7	15.1	14.7	11	8.94	12.1	17.8	23	20.1	17.2	
KRKA	156	122	148	120	124	122	160	119	136	169	164	117	169	13.10.1980

VODOMERNA POSTAJA gauging station VODOTOK stream	nQnk – nizek / low sQs – srednji pretok (m^3/s) / mean discharge vQvk – visok / high													DATUM ZABELEŽENIH EKSTREMOV V OBDOBJU date of extreme
	jan	feb	mar	apr	maj	jun	jul	avg	sep	okt	nov	dec	LETO year	
G. GOMILA	5.54	4.44	6.4	7.94	7.94	8.49	6.46	3.62	3.1	3.88	4.56	4.56	3.1	1.09.1967
	39.7	46.6	63.8	68.2	41.4	39.9	31.1	25.4	35.1	45	56.8	54.2	45.6	
KRKA	213	209	228	215	224	226	233	215	231	239	221	218	239	13.10.1980
PODBOČJE	7.69	7.04	9.54	14	11.7	10.9	8.18	5.75	4.5	6.21	7.6	6.82	4.5	2.09.1967
	48.1	56.1	75.6	80.9	51.8	48.6	38.8	30.7	40	53.1	68.8	64.5	54.7	
KRKA	307	295	338	299	329	280	356	276	336	362	317	315	362	26.10.1964
ROŽNI VRH	0.102	0.087	0.143	0.12	0.12	0.15	0.12	0.071	0.071	0.06	0.1	0.08	0.06	18.10.1967
	0.911	0.891	1.08	1.06	0.856	0.849	0.768	0.626	0.757	0.799	1.07	0.996	0.888	
TEMENICA	8.51	9.79	10.7	8.96	8.9	9.02	13.5	11.9	8.51	13.3	12.5	14	14	3.12.1966
PREČNA	1.16	1.16	1.28	1.28	1.02	1.14	1.13	0.81	0.76	0.56	0.75	1.14	0.56	17.10.1961
	4.64	5.01	6.27	5.81	4.22	4.02	3.57	3.11	3.55	4.2	5.35	5.45	4.6	
PREČNA	19.1	18.3	18.4	18.4	16.1	19.2	14.7	19.5	19.6	21.8	19.7	19.1	21.8	25.10.1964
ŠKOCJAN	0.13	0.21	0.14	0.42	0.13	0.13	0.09	0.13	0.13	0.13	0.1	0.1	0.09	10.07.1966
	1.78	2.01	2.74	2.45	1.65	1.64	1.29	1.12	1.24	1.58	2.22	2.14	1.82	
RADULJA	29.4	19.5	30.3	22.4	23.3	24.6	25	34.9	29.1	34.9	35.5	25.9	35.5	16.11.1977
POKOLPJE														
PETRINA	2.16	1.55	3.38	5.62	4.3	3.08	2.06	1.8	1.62	1.55	1.98	4.03	1.55	14.10.1985
	27.7	26.1	31.9	40.2	25.6	17.9	10.6	11	19.7	30.9	41.1	36.6	26.6	
KOLPA	497	520	411	310	441	340	247	392	492	624	649	700	700	3.12.1966
RADENCI II	4.76	4.41	7.49	13	9.21	8.48	2.35	3.77	4.27	3.59	5	8.61	2.35	31.07.1983
	54.6	55	67.8	81.4	50	36.8	21.5	22.9	38.8	58.1	80.6	73.7	53.4	
KOLPA	689	742	653	487	660	432	447	720	820	904	955	993	993	3.12.1966
METLIKA	8.32	7.23	11.1	20.1	14.5	11.7	5.76	4.6	6.1	5.76	8.2	10.6	4.6	1.08.1983
	75.4	78.8	98.8	110	69.5	51.5	31.6	32.6	51.4	77.1	104	97.9	73.1	
KOLPA	1072	929	794	737	814	550	568	996	1116	1050	1072	1100	1116	25.09.1979
GRADAC	0.523	0.23	0.28	0.87	0.45	0.38	0.18	0.15	0.17	0.19	0.22	0.42	0.15	24.08.1971
	5.84	6.82	9.1	8.13	5.22	3.58	2.53	2.36	3.59	5.7	8.04	7.83	5.72	
LAHINJA	62.1	69.9	66.7	65.3	72.6	55.7	70.1	95.1	101	90.9	71.8	77.9	101	9.09.1963
POSOČJE														
KRŠOVEC	1.79	1.68	2	2.57	4.44	3.89	3.27	2.72	2.45	2.09	2.37	2.45	1.68	16.02.1989
	5.6	5.05	6.26	13.5	23.1	20.5	12.7	8.97	11.6	12.8	14.8	8.04	11.9	
SOČA	133	90.5	66.3	116	118	130	117	228	219	256	232	123	256	8.10.1980
LOG ČEZSOŠKI	3.8	3.29	4.32	4.7	8.54	11.5	6.38	5.33	5.32	3.81	4.16	3.62	3.29	21.02.1989
	13.5	11.8	14.9	29.3	45.6	41.1	26.9	20.2	24.9	27.1	31.3	18.3	25.4	
SOČA	418	244	194	343	324	308	254	554	440	427	450	307	554	28.08.1986
KOBARID I	4.59	4.59	6	10.5	12	12.2	8.28	7.95	7.24	5.7	5.55	5.35	4.59	31.01.1987
	19.7	17.6	22.3	40.9	57.4	50.2	33.3	25.7	33.5	37.3	43.7	26.7	34.1	
SOČA	427	362	291	389	406	347	337	664	484	578	525	437	664	28.08.1986
SOLKAN I	9.6	9.32	8.79	18.5	19.2	8.7	11.5	16.5	7.15	5.58	6.38	6.04	5.58	30.10.1985
	82.6	76.4	89.4	123	126	111	72.6	59.3	81.5	102	130	92.4	95.5	
SOČA	1956	1569	1452	1405	1027	1007	933	1844	1871	2134	2066	1856	2134	1.11.1990
KAL	1.13	0.896	1.65	2.02	3.61	4.49	2.82	2	2	1.85	0.98	1.75	0.896	19.02.1989
	4.22	4.03	4.58	8.58	12.1	11	8.23	5.96	6.99	7.73	8.95	5.81	7.35	*
KORITNICA	61.6	45.5	33	66.6	68.2	125	82	311	173	77.8	100	55.8	311	28.08.1986
ŽAGA	0.361	0.364	0.5	0.75	0.901	0.71	0.42	0.24	0.23	0.25	0.49	0.23	0.23	1.09.1962
	2.48	2.26	3.34	5.34	5.12	3.63	2.23	2.17	3.17	3.72	5.13	3.11	3.48	
UČJA	140	117	168	102	129	165	64.4	174	187	157	203	147	203	13.11.1969
TOLMIN	0.63	0.862	0.94	0.79	3.4	1.16	0.84	0.8	0.81	0.501	0.41	0.85	0.41	2.11.1989
	4.57	4.11	5.22	8.96	14.5	12.6	6.98	5.07	7.13	8.93	10.4	6.05	7.89	
TOLMINKA	96.5	59.2	61.8	51.9	87	72.8	76.2	89.6	122	126	130	92	130	14.11.1982
PODROTEJA	1.32	1.04	1.32	1.46	1.4	1.5	1.2	1.16	0.84	0.84	0.95	1.02	0.84	22.09.1985
	10.4	9.15	11.9	12.8	7.49	7.3	5.37	5	7.24	10.2	13.9	10.8	9.29	
IDRIJCA	256	174	205	172	124	285	206	154	306	304	231	271	306	22.09.1968
HOTEŠK	3.87	3.7	5.22	5.72	5.8	4.7	4.31	3.72	3.8	3.46	3.6	3.7	3.46	23.10.1985
	26.5	25.2	30.7	35	22.7	21.5	14.3	12.4	18.1	26.4	34.9	29	24.7	
IDRIJCA	874	594	520	454	340	541	406	422	724	685	852	652	874	28.01.1979
D. TREBUŠA	0.496	0.471	0.64	0.73	0.648	0.454	0.421	0.274	0.274	0.27	0.49	0.496	0.27	27.10.1961
	3.21	2.89	3.5	4.11	3.02	2.62	1.77	1.64	2.17	3.25	4	3.44	2.97	
TREBUŠA	53.3	39.7	46.2	37.6	39.5	48.5	26.6	64.4	83.2	105	83.2	82.8	105	18.10.1961
BAČA PRI M.	0.589	1.49	1.28	2.08	0.734	0.734	1.06	0.8	1	0.996	1.17	0.379	0.379	11.12.1989
	7.26	6.74	7.67	9.93	8.15	6.97	4.37	3.65	5.09	7.16	9.89	8.18	7.08	
BAČA	158	150	117	111	121	104	117	239	208	226	175	160	239	21.08.1988
VIPAVA I	0.829	0.727	0.96	1.3	1.3	1.3	1.12	0.81	0.87	0.756	0.79	1.08	0.727	21.02.1989
	6.87	6.9	8.59	10.1	6.49	6.16	3.75	3.62	4.8	6.85	9.13	8.13	6.78	
VIPAVA	64.9	48	52.3	70	45.5	54.1	50.5	69.8	56.6	63.8	65.1	61	70	10.04.1987

VODOMERNA POSTAJA gauging station VODOTOK stream	nQnk – nizek / low sQs – srednji pretok (m^3/s) / mean discharge vQvk – visok / high													DATUM ZABELEŽENIH EKSTREMOV V OBDOBJU date of extreme
	jan	feb	mar	apr	maj	jun	jul	avg	sep	okt	nov	dec	LETO year	
DORNBERK	1.74	1.92	1.88	2.26	2.65	1.8	1.24	0.84	1.14	0.9	0.94	1.86	0.84	13.08.1988
	17.3	16.5	18.1	20.7	13.1	12.4	7.07	6.36	9.57	15.2	20.9	18.5	14.6	
VIPAVA	192	171	215	180	124	176	187	178	205	289	203	211	289	5.10.1974
MIREN	1.61	1.61	2.93	2.9	2.93	2.36	1.56	1.44	1.15	1.22	1.56	2.22	1.15	12.09.1964
	21.7	20.1	21.4	24.5	15.6	15.3	8.38	7.42	11.8	19.4	25.8	23.6	17.9	
VIPAVA	331	226	312	271	168	236	253	275	353	320	288	303	353	28.09.1965
AJDOVŠČINA I	0.283	0.194	0.355	0.46	0.485	0.38	0.332	0.231	0.185	0.215	0.24	0.366	0.185	23.09.1987
	2.75	2.88	3.66	4.91	3.2	2.7	1.52	1.32	2.18	3.58	4.19	3.51	3.03	
HUBELJ	38.9	37.1	37.1	32.8	40.8	42.7	28.2	38.5	41.2	59.5	38.9	37	59.5	4.10.1974
JADRANSKO POVODJE (del) / Adriatic drainage basin (part)														
CERKVENIKOV MLIN	0.497	0.874	1.03	1.05	0.57	0.39	0.352	0.18	0.277	0.19	0.19	0.55	0.18	18.08.1988
	11.1	11.1	10.7	11.1	6.78	5.44	2.15	2.23	4.38	8.92	13.6	12	8.26	
REKA	224	174	204	138	305	110	93.6	118	277	248	262	276	305	16.05.1972
KUBED	0.093	0.087	0.207	0.41	0.245	0.16	0.12	0.03	0.03	0.03	0.03	0.1	0.03	31.8.1986
	5.87	5.82	5.75	5.85	3.57	3.24	1.13	1.36	2.56	4.04	6.53	6.02	4.3	
RIŽANA	67.9	69.6	64.4	48.4	42.8	51.1	35.8	36.5	51.1	90.9	74	65	90.9	16.10.1980

nQnk – najmanjši nizek pretok v obdobju – konica
– the minimum low discharge in a period – extreme

sQs – srednji pretoki obdobja
– mean discharge in a period

vQvk – največji visok pretok v obdobju – konica
– the maximum high discharge in a period – extreme

Annex 4.9.

Flow Duration Curves (Figure 4.9.-2) (Source VGI, 1976)

V.P. REPUBLIŠKA MEJA

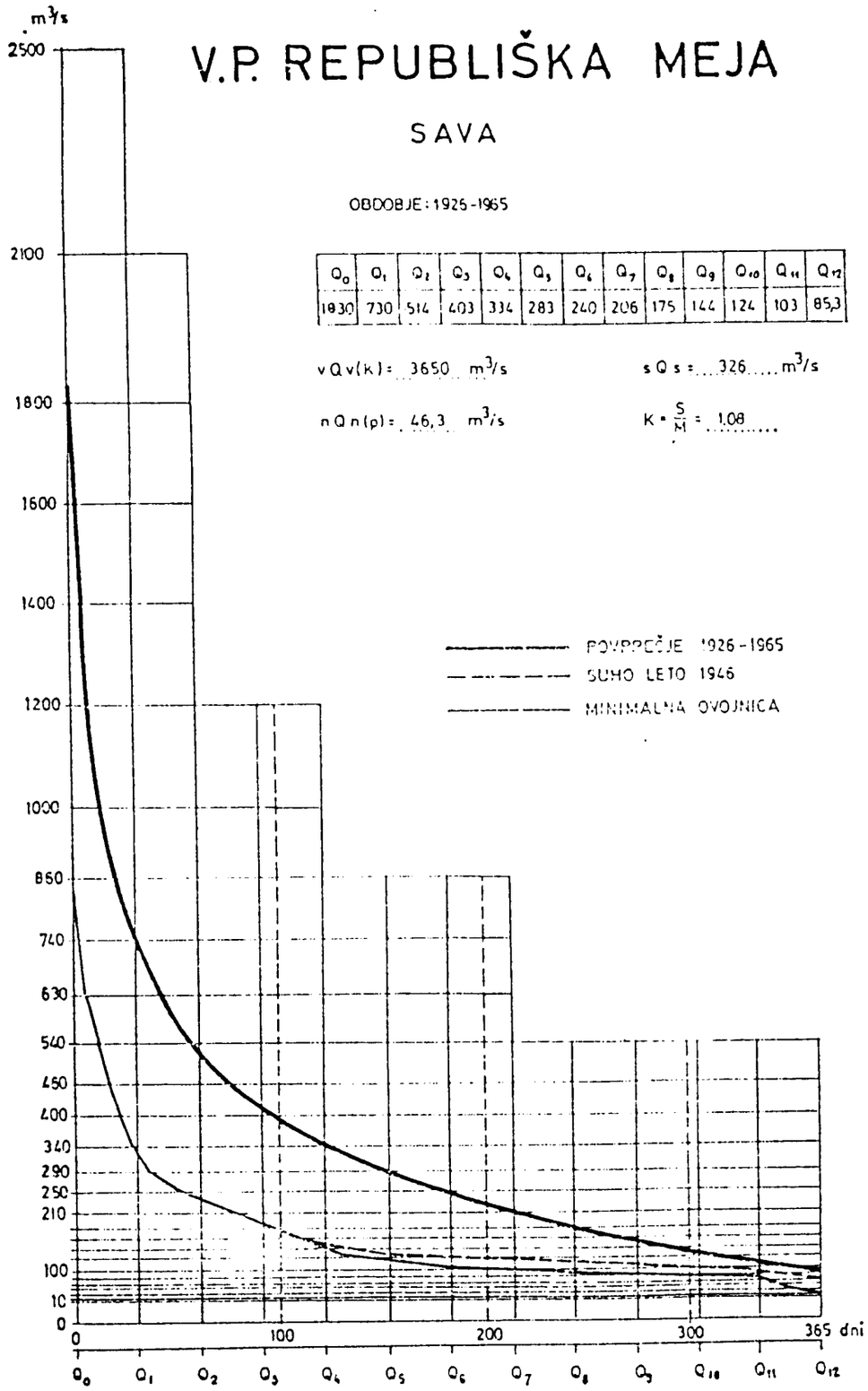
SAVA

OBDOBJE: 1926-1965

Q_0	Q_1	Q_2	Q_3	Q_4	Q_5	Q_6	Q_7	Q_8	Q_9	Q_{10}	Q_{11}	Q_{12}
1830	730	514	403	334	283	240	206	175	144	124	103	85,3

$vQv(k) = 3650\ m^3/s$ $\qquad sQs = 326\ m^3/s$

$nQn(p) = 46,3\ m^3/s$ $\qquad K = \frac{S}{M} = 1,08$



V.P. DRAVOGRAD

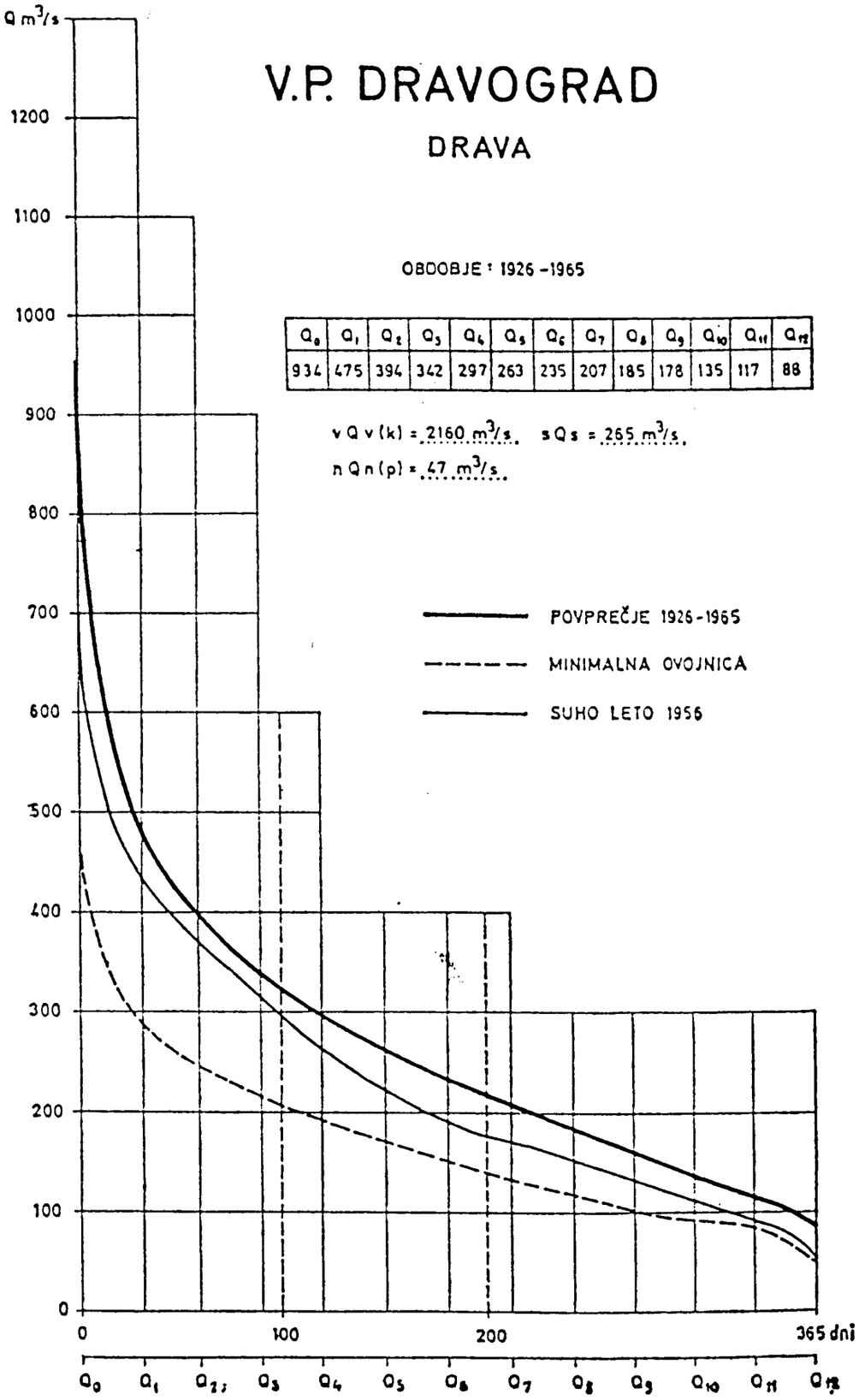
DRAVA

OBDOBJE : 1926 -1965

Q_0	Q_1	Q_2	Q_3	Q_4	Q_5	Q_6	Q_7	Q_8	Q_9	Q_{10}	Q_{11}	Q_{12}
934	475	394	342	297	263	235	207	185	178	135	117	88

v Q v (k) = 2160 m^3/s s Q s = 265 m^3/s

n Q n (p) = 47 m^3/s



V.P. ORMOŽ

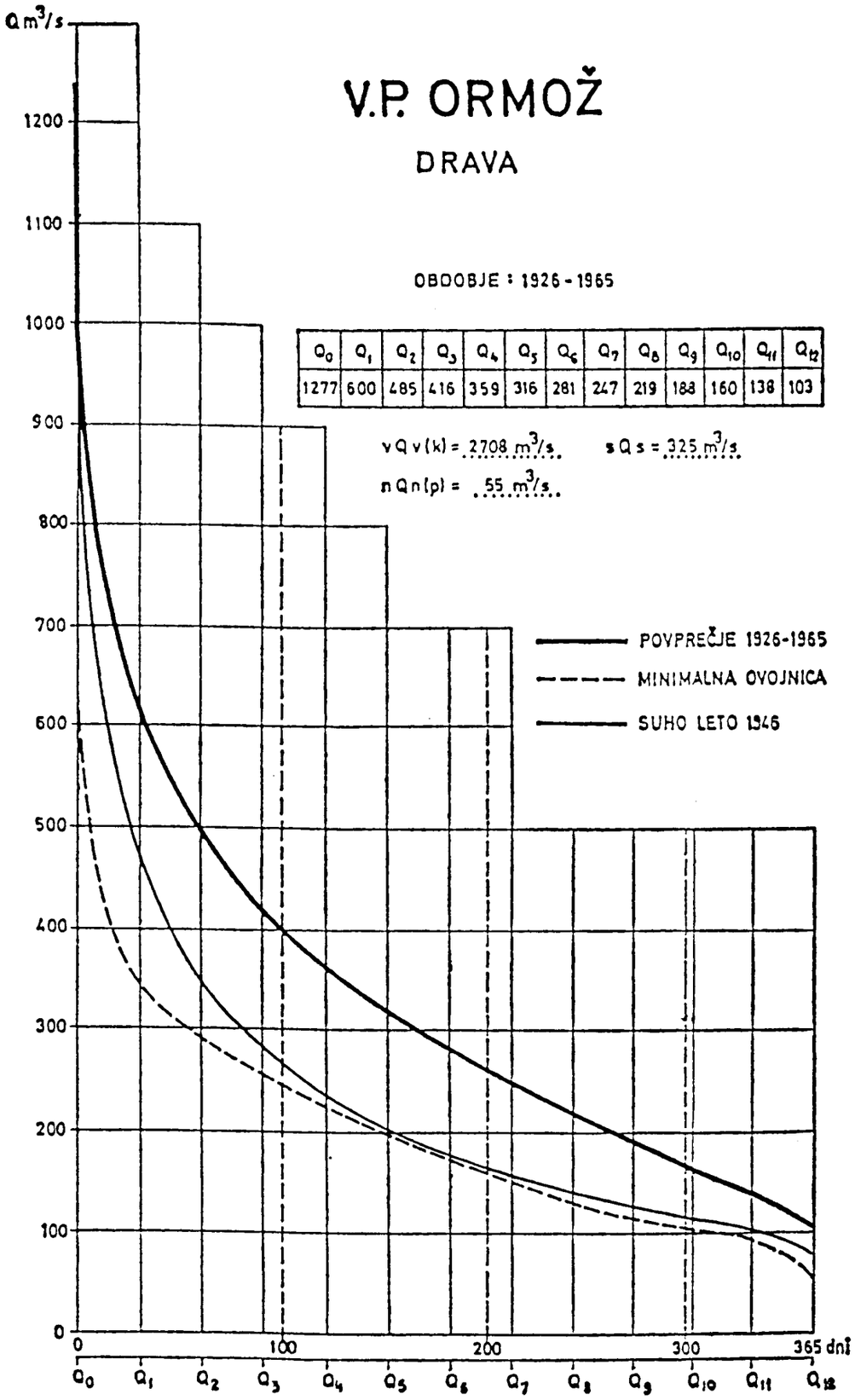
DRAVA

OBDOBJE : 1926 - 1965

Q_0	Q_1	Q_2	Q_3	Q_4	Q_5	Q_6	Q_7	Q_8	Q_9	Q_{10}	Q_{11}	Q_{12}
1277	600	485	416	359	316	281	247	219	188	160	138	103

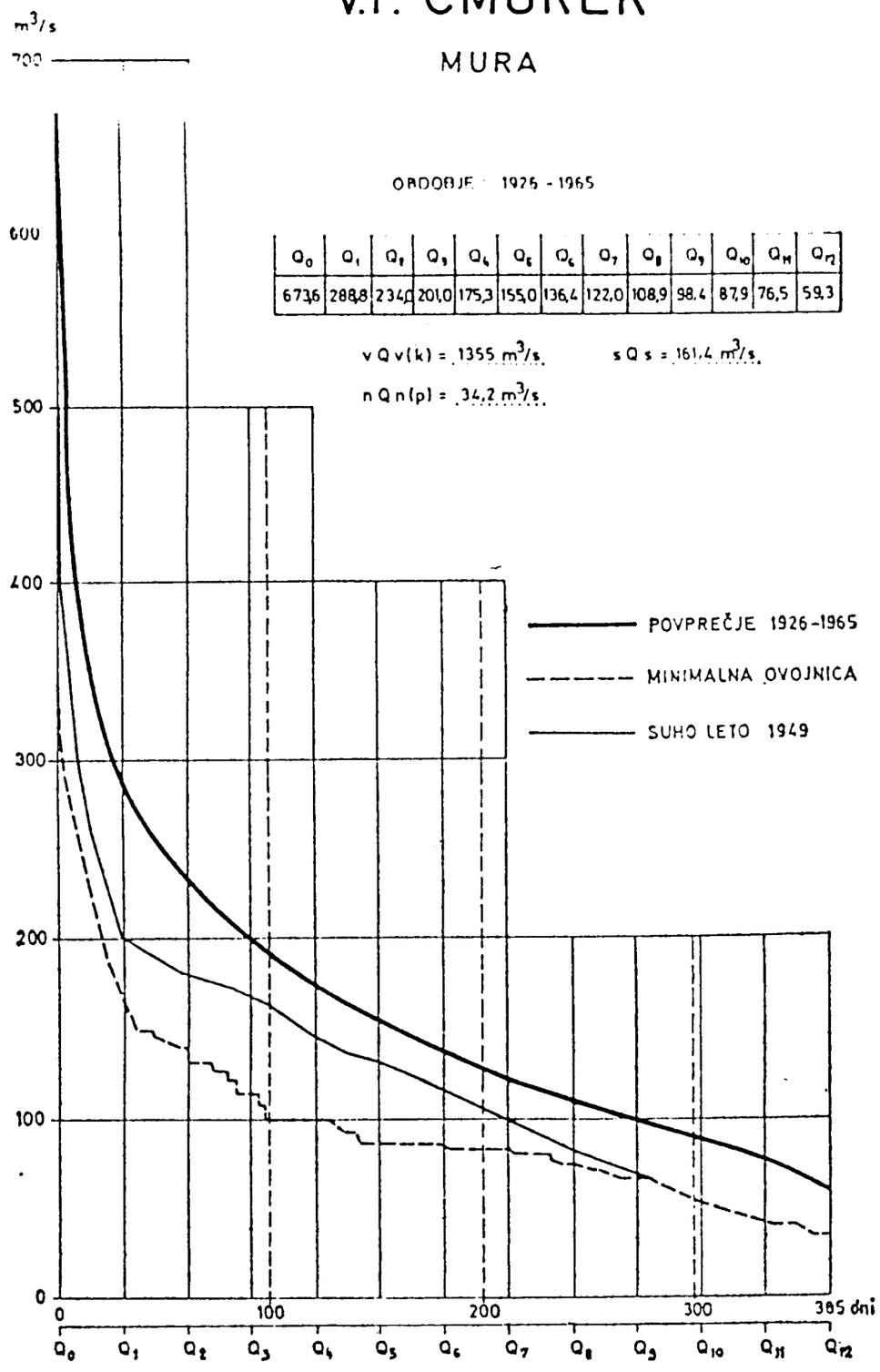
$vQv(k) = 2708\ m^3/s$ $\quad sQs = 325\ m^3/s$

$nQn(p) = 55\ m^3/s$



V.P. CMUREK

MURA



OBDOBJE 1926 - 1965

Q_0	Q_1	Q_2	Q_3	Q_4	Q_5	Q_6	Q_7	Q_8	Q_9	Q_{10}	Q_{11}	Q_{12}
673,6	288,8	234,0	201,0	175,3	155,0	136,4	122,0	108,9	98,4	87,9	76,5	59,3

v Q v(k) = 1355 m^3/s s Q s = 161,4 m^3/s

n Q n(p) = 34,2 m^3/s

V.P. MURSKO SREDIŠČE

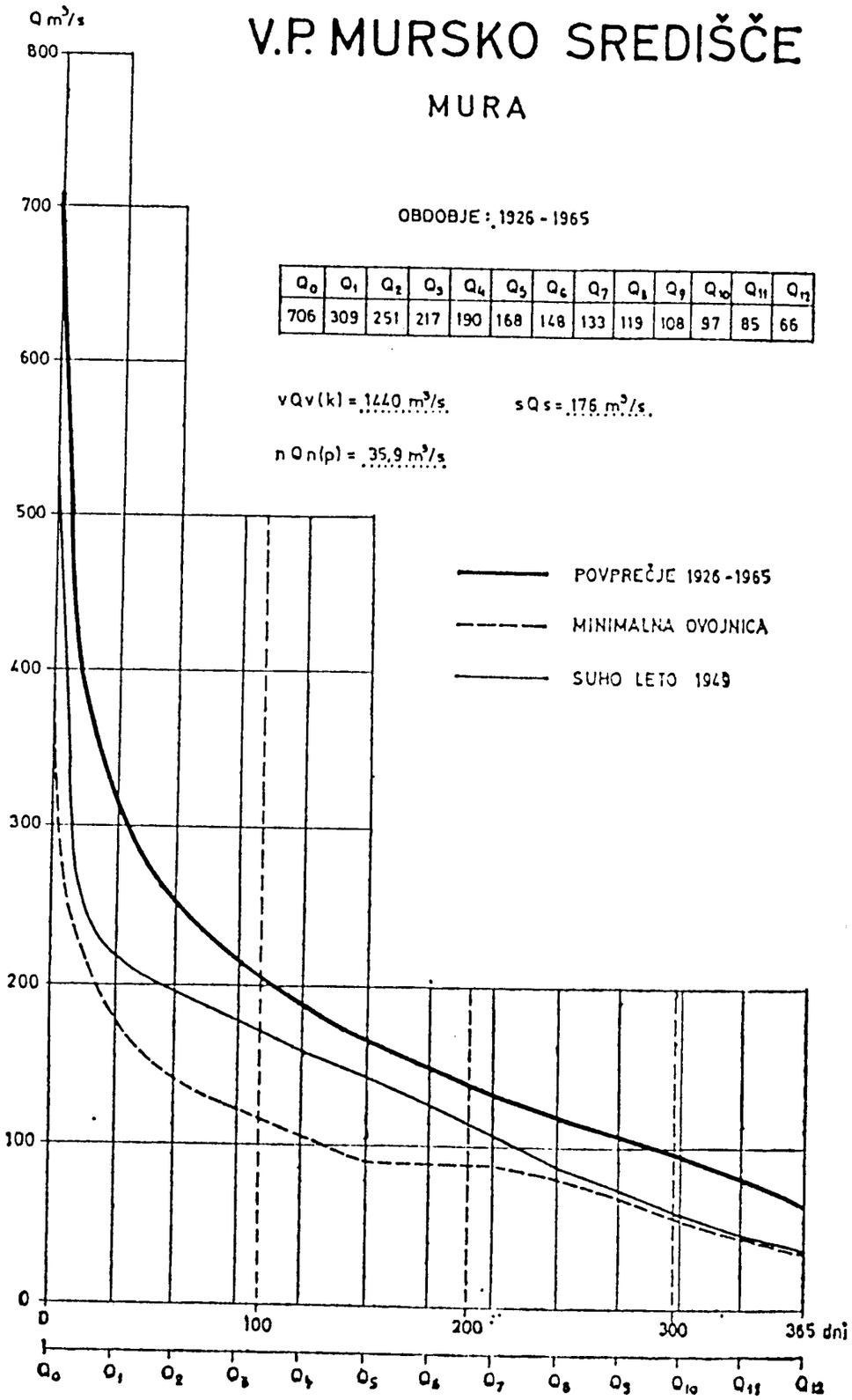
MURA

OBDOBJE : 1926 - 1965

Q_0	Q_1	Q_2	Q_3	Q_4	Q_5	Q_6	Q_7	Q_8	Q_9	Q_{10}	Q_{11}	Q_{12}
706	309	251	217	190	168	148	133	119	108	97	85	66

vQv(k) = 1440 m³/s sQs = 176 m³/s

nQn(p) = 35,9 m³/s



V.P. METLIKA

KOLPA

OBDOBJE : 1926 - 1965

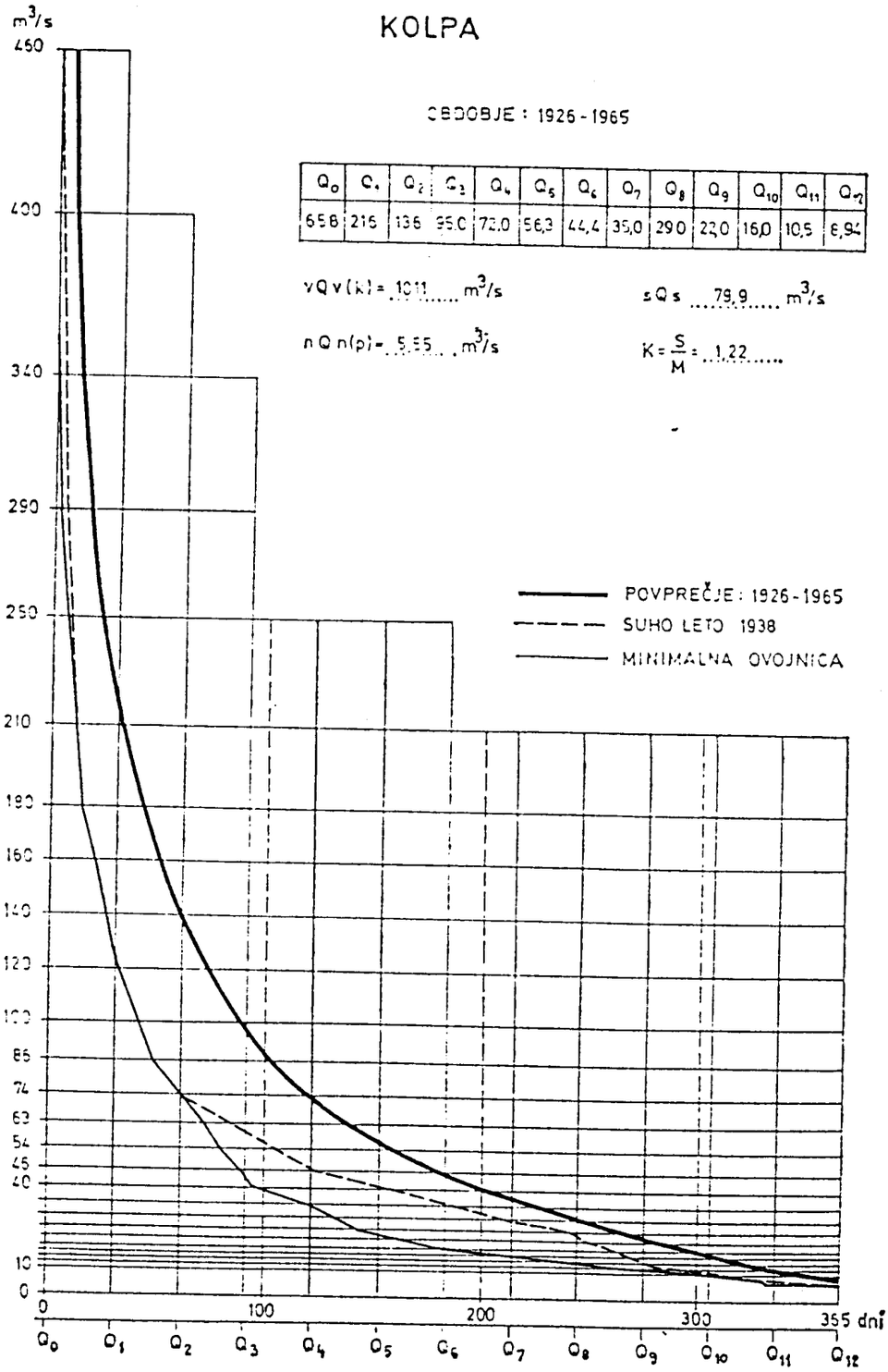
Q_0	Q_1	Q_2	Q_3	Q_4	Q_5	Q_6	Q_7	Q_8	Q_9	Q_{10}	Q_{11}	Q_{12}
658	216	136	95,0	72,0	56,3	44,4	35,0	29,0	23,0	16,0	10,5	6,94

$\nu Q\,\nu(k) =$ 1011 m^3/s

$n Q\, n(p) =$ 5,55 m^3/s

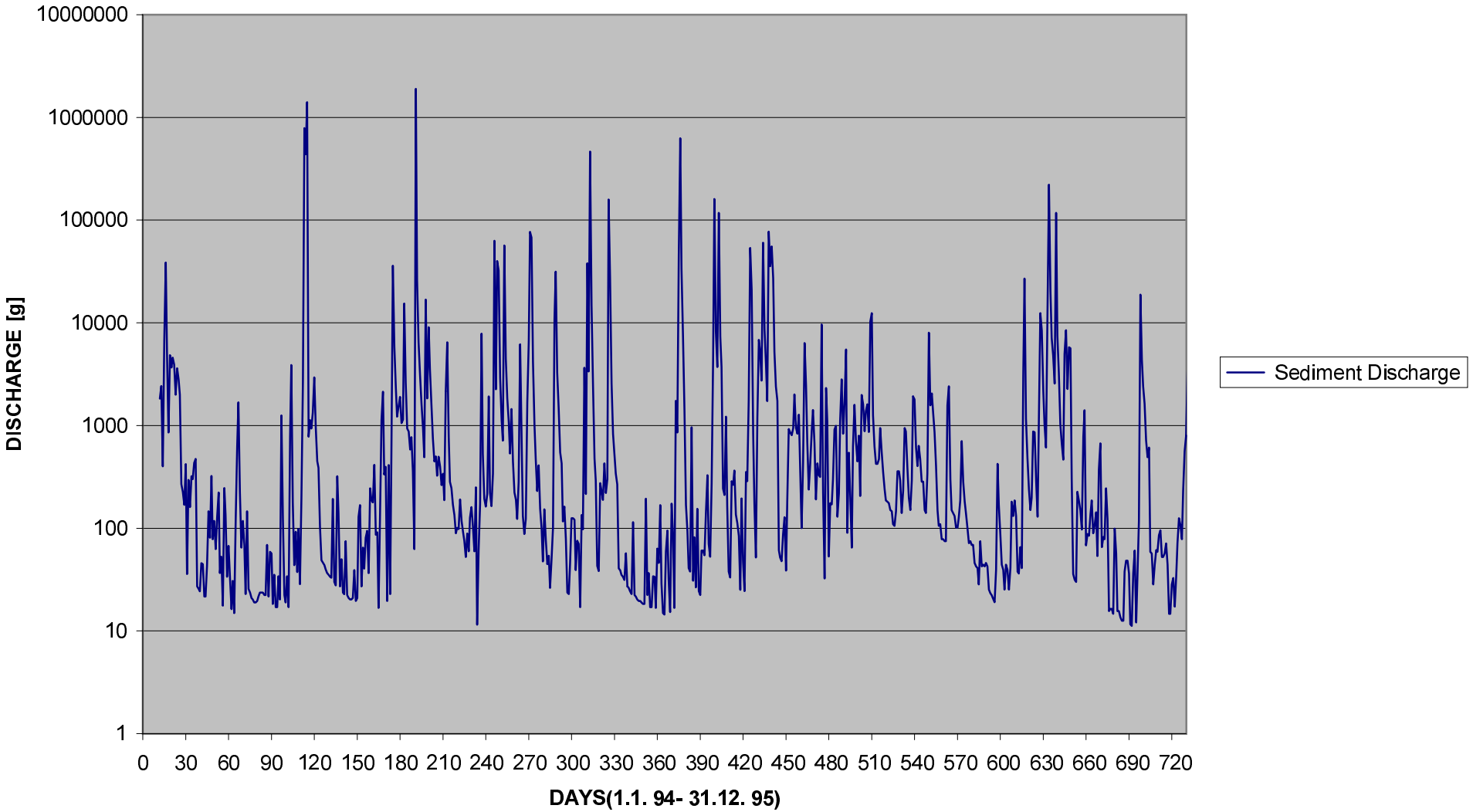
$s Q\, s =$ 79,9 m^3/s

$K = \frac{S}{M} =$ 1,22



Annex 4.11.

Flow Duration Curves
(Source VGI, 1976)


SAVINJA-VELIKO ŠIRJE
DISCHARGE [g]
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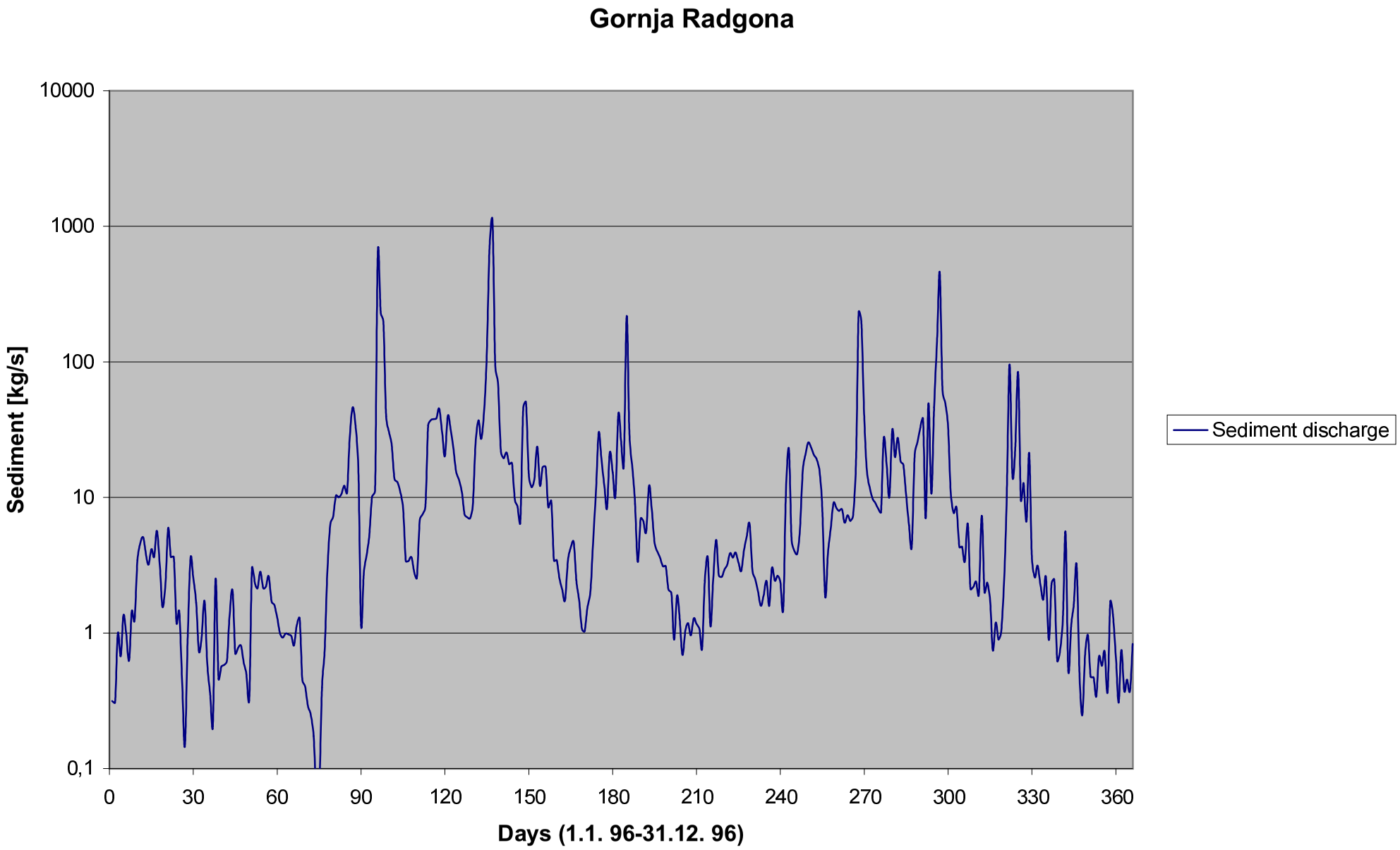
100000
10000
1000
100
10
1
0 30 60 90 120 150 180 210 240 270 300 330 360 390 420 450 480 510 540 570 600 630 660 690 720
DAYS(1.1. 94- 31.12. 95)
Sediment Discharge


Gornja Radgona
Sediment [kg/s]
10000
1000
100
10
1
0,1
0
30
60
90
120
150
180
210
240
270
300
330
360
Days (1.1. 96-31.12. 96)
Sediment discharge

Annex 4.12.

Basic Water Quality Data

Basic water quality data

Code	Sampling station	year	mth	day	h	min	NO_2 mg NO_2/l	NO_3 mg NO_3/l	NH_4 mg NH_4/l	PO_4 mg PO_4/l	TOT. PO_4 mg PO_4/l	COD ($KMnO_4$) mgO_2/l	COD ($K_2Cr_2O_7$) mgO_2/l	BOD5 mg O_2/l	Q m^3/s
1010	Mura Ceršak	1994	2	24	15	0	0,05	7,5	0,37	0,09	0,10	6,0	12,2	2,7	-
1010	Mura Ceršak	1994	6	21	11	30	0,02	7,0	0,60	0,10	0,14	4,9	14,2	3,9	-
1010	Mura Ceršak	1994	7	12	10	35	0,01	5,8	0,31	0,05	0,14	6,5	10,3	3,2	-
1010	Mura Ceršak	1994	8	3	10	20	0,16	6,3	0,60	0,12	0,19	6,0	14,2	2,6	-
1010	Mura Ceršak	1994	9	6	11	0	0,08	10,1	0,23	0,15	0,29	6,3	14,8	2,8	-
1010	Mura Ceršak	1994	9	27	13	50	0,03	5,6	0,42	0,09	0,13	6,3	12,7	1,8	-
1010	Mura Ceršak	1995	2	22	11	0	0,07	9,9	0,44	0,14	0,23	6,4	9,7	3,4	-
1010	Mura Ceršak	1995	8	8	9	30	1,21	6,3	0,35	0,10	0,14	6,8	15,4	4,7	-
1010	Mura Ceršak	1995	9	13	10	30	0,11	5,6	0,46	0,09	0,22	6,3	13,1	2,8	-
1010	Mura Ceršak	1995	10	5	13	55	0,08	13,4	0,50	0,04	0,09	6,2	18,6	3,3	-
1010	Mura Ceršak	1995	11	2	10	15	0,06	7,1	0,50	0,25	0,37	6,2	14,9	1,7	-
1010	Mura Ceršak	1995	11	16	11	10	0,10	7,3	0,55	0,23	0,29	6,9	16,1	2,3	-
1010	Mura Ceršak	1996	2	14	11	15	0,04	8,8	0,87	0,21	0,06	8,7	9,2	3,1	-
1010	Mura Ceršak	1996	6	18	10	30	0,13	6,4	0,51	0,20	0,05	4,7	5,9	2,2	-
1010	Mura Ceršak	1996	7	25	12	15	0,12	6,2	0,50	0,14	0,04	4,5	11,0	1,9	-
1010	Mura Ceršak	1996	9	18	12	15	0,06	5,2	3,21	0,07	0,10	4,6	10,7	3,0	-
1010	Mura Ceršak	1996	11	6	10	50	0,07	6,1	0,41	0,11	0,10	3,7	9,8	2,4	-
1010	Mura Ceršak	1996	12	3	10	5	0,05	6,5	0,45	0,11	0,08	6,9	10,1	3,4	-
1010	Mura Ceršak	1997	2	19	10	45	0,07	7,9	0,63	0,09	0,10	7,5	27,7	4,1	-
1010	Mura Ceršak	1997	4	9	12	30	0,07	6,3	0,60	0,09	0,10	5,3	10,1	2,0	-
1010	Mura Ceršak	1997	5	6	10	45	0,07	4,8	0,43	0,03	0,08	7,1	18,2	4,7	-
1010	Mura Ceršak	1997	8	21	11	30	0,07	4,5	0,29	0,04	0,09	6,1	6,5	2,6	-
1010	Mura Ceršak	1997	9	24	10	0	0,08	5,7	0,94	0,05	0,07	5,0	20,9	1,9	-
1010	Mura Ceršak	1997	10	23	9	50	0,13	5,8	0,49	0,09	0,10	5,6	13,8	2,1	-
1070	Mura Petanjci	1994	2	24	13	30	0,06	11,0	0,31	0,09	0,10	5,8	10,7	4,3	90,3
1070	Mura Petanjci	1994	7	12	12	15	0,02	8,5	0,16	0,08	0,09	5,7	11,2	2,9	111
1070	Mura Petanjci	1994	8	3	12	0	0,18	9,3	0,35	0,07	0,12	5,8	15,6	2,4	94,7
1070	Mura Petanjci	1994	9	6	13	45	0,07	7,6	0,22	0,09	0,18	6,6	14,6	1,8	127
1070	Mura Petanjci	1995	2	22	12	15	0,07	15,1	0,56	0,15	0,22	5,4	7,7	2,4	129
1070	Mura Petanjci	1995	8	8	11	0	0,51	8,1	0,20	0,09	0,17	7,0	18,7	2,7	114
1070	Mura Petanjci	1995	9	13	12	50	0,08	6,8	0,17	0,12	0,16	5,3	14,5	1,9	136
1070	Mura Petanjci	1995	11	2	12	15	0,08	10,6	0,55	0,34	0,66	6,3	16,1	3,2	78,5
1070	Mura Petanjci	1996	2	14	13	30	0,05	13,6	0,69	0,23	0,09	8,6	11,4	3,0	64,2
1070	Mura Petanjci	1996	6	18	12	45	0,11	8,1	0,17	0,06	0,07	4,3	5,6	2,4	134
1070	Mura Petanjci	1996	9	18	14	10	0,11	6,4	0,16	0,10	0,10	4,2	8,8	2,3	198
1070	Mura Petanjci	1996	12	3	12	10	0,06	7,9	0,39	0,11	0,11	6,4	14,4	2,7	173
1070	Mura Petanjci	1997	2	19	12	20	0,06	13,8	0,43	0,09	0,11	5,7	29,9	4,6	-
1070	Mura Petanjci	1997	8	21	13	20	0,11	5,6	0,23	0,05	0,08	7,0	8,5	2,4	-
1070	Mura Petanjci	1997	9	24	12	10	0,08	7,1	0,67	0,06	0,07	5,1	18,6	2,5	-
1070	Mura Petanjci	1997	10	23	12	0	0,18	8,1	0,43	0,11	0,13	5,7	15,1	2,4	-
1082	Mura Mota	1994	2	24	10	30	0,06	9,2	0,41	0,07	0,08	7,3	14,8	6,3	-
1082	Mura Mota	1994	6	21	16	30	0,07	9,7	0,68	0,07	0,20	5,3	7,8	3,9	-
1082	Mura Mota	1994	7	12	16	25	0,02	7,2	0,36	0,09	0,13	7,2	15,9	3,0	-
1082	Mura Mota	1994	8	3	17	0	0,15	8,4	0,53	0,11	0,20	6,5	11,5	3,2	-
1082	Mura Mota	1994	9	6	17	50	0,08	6,7	0,27	0,15	0,18	6,1	13,9	2,2	-
1082	Mura Mota	1994	9	27	15	40	0,03	6,7	0,41	0,14	0,19	6,1	12,4	2,5	-
1082	Mura Mota	1995	2	22	16	30	0,08	9,2	0,57	0,14	0,38	5,7	5,8	3,7	-
1082	Mura Mota	1995	8	8	13	0	0,60	7,7	0,28	0,11	0,14	7,2	16,1	2,9	-
1082	Mura Mota	1995	9	13	14	30	0,09	6,1	0,30	0,14	0,16	6,8	23,0	2,1	-
1082	Mura Mota	1995	10	5	15	30	0,09	7,7	0,18	0,16	0,20	5,2	17,3	1,9	-
1082	Mura Mota	1995	11	2	15	0	0,08	9,4	0,51	0,32	0,54	5,8	16,0	2,8	-
1082	Mura Mota	1995	11	16	13	45	0,08	9,0	0,33	0,23	0,35	6,3	9,0	3,1	-

Code	Sampling station	year	mth	day	h	min	NO_2 mg NO_2/l	NO_3 mg NO_3/l	NH_4 mg NH_4/l	PO_4 mg PO_4/l	TOT. PO_4 mg PO_4/l	COD ($KMnO_4$) mgO_2/l	COD ($K_2Cr_2O_7$) mgO_2/l	BOD5 mg O_2/l	Q m^3/s
1082	Mura Mota	1996	2	14	17	10	0,05	11,2	0,89	0,24	0,08	9,5	24,0	4,1	-
1082	Mura Mota	1996	6	18	17	15	0,09	6,9	0,24	0,13	0,07	4,4	4,7	1,6	-
1082	Mura Mota	1996	7	25	14	30	0,11	6,3	0,48	0,15	0,13	4,4	10,6	2,1	-
1082	Mura Mota	1996	9	18	15	40	0,11	5,9	0,29	0,11	0,14	5,1	13,9	2,3	-
1082	Mura Mota	1996	11	6	13	50	0,11	6,7	0,38	0,18	0,08	3,7	9,7	2,1	-
1082	Mura Mota	1996	12	3	15	10	0,06	6,7	0,38	0,12	0,09	7,0	16,7	2,3	-
1082	Mura Mota	1997	2	19	16	50	0,06	11,1	0,44	0,13	0,14	5,6	30,8	5,2	-
1082	Mura Mota	1997	4	9	14	50	0,07	7,0	0,30	0,06	0,08	5,9	15,3	3,1	-
1082	Mura Mota	1997	5	6	13	55	0,13	5,4	0,42	0,07	0,09	8,0	18,5	3,8	-
1082	Mura Mota	1997	8	21	15	40	0,10	5,0	0,24	0,05	0,08	6,2	8,1	2,5	-
1082	Mura Mota	1997	9	24	15	55	0,06	6,4	0,88	0,08	0,09	5,8	21,5	2,6	-
1082	Mura Mota	1997	10	23	16	20	0,20	8,1	0,49	0,15	0,20	5,8	16,8	2,4	-
1140	Ščavnica Pristava	1994	2	24	9	0	0,12	6,5	0,28	0,21	0,30	14,4	51,0	18,3	3,09
1140	Ščavnica Pristava	1994	7	12	15	20	0,10	0,2	0,35	0,09	0,29	11,4	39,3	19,3	0,849
1140	Ščavnica Pristava	1994	8	3	16	0	0,06	0,5	3,34	0,44	0,47	9,3	21,7	8,8	0,332
1140	Ščavnica Pristava	1994	9	6	17	0	0,14	0,6	0,22	0,09	0,20	11,5	31,5	16,4	0,789
1140	Ščavnica Pristava	1995	2	23	16	10	0,08	5,8	0,58	0,14	0,44	7,7	22,2	9,5	2,54
1140	Ščavnica Pristava	1995	8	8	14	0	0,05	0,5	1,76	0,32	1,00	10,9	18,0	9,8	0,67
1140	Ščavnica Pristava	1995	9	13	16	30	0,16	3,3	0,64	0,14	0,30	9,3	26,3	14,4	1,25
1140	Ščavnica Pristava	1995	11	2	16	20	0,07	1,7	5,30	0,43	0,86	8,9	36,4	13,7	1,06
1140	Ščavnica Pristava	1996	2	14	16	0	0,07	7,3	1,02	0,31	0,08	8,1	12,2	10,8	1,52
1140	Ščavnica Pristava	1996	6	20	16	30	0,67	2,6	0,85	0,34	0,09	9,6	21,6	8,5	0,765
1140	Ščavnica Pristava	1996	9	18	16	35	0,14	3,2	2,07	0,29	0,20	12,4	42,0	12,2	0,804
1140	Ščavnica Pristava	1996	12	3	16	20	0,08	5,9	0,83	0,14	0,11	8,5	26,5	10,6	2,83
1140	Ščavnica Pristava	1997	2	19	15	45	0,08	12,2	0,74	0,06	0,11	5,0	25,9	5,2	-
1140	Ščavnica Pristava	1997	8	21	17	0	0,08	0,4	2,20	0,27	0,38	7,8	18,7	16,7	-
1140	Ščavnica Pristava	1997	9	24	17	10	0,08	0,2	18,18	0,18	0,31	18,2	77,1	47,2	-
1140	Ščavnica Pristava	1997	10	23	17	30	0,11	1,0	0,95	0,19	0,30	11,7	33,5	14,5	-
1260	Ledava Centiba	1994	2	24	12	0	0,10	7,3	0,80	0,09	0,11	4,8	6,3	6,0	3,25
1260	Ledava Centiba	1994	8	3	14	30	0,13	4,1	0,45	0,18	0,24	4,2	13,8	2,6	1,33
1260	Ledava Centiba	1994	9	6	15	45	0,12	6,1	0,38	0,20	0,29	10,6	22,9	2,1	3,54
1260	Ledava Centiba	1995	2	22	15	0	0,13	13,4	0,61	0,13	0,22	5,9	13,1	4,0	8,06
1260	Ledava Centiba	1995	8	8	12	0	0,62	6,7	0,26	0,19	0,57	5,1	19,1	2,7	0,64
1260	Ledava Centiba	1995	11	2	13	30	0,07	12,5	0,56	0,39	0,63	3,5	11,5	1,4	1,73
1260	Ledava Centiba	1996	2	14	14	45	0,13	10,1	2,41	0,43	0,38	6,4	17,3	8,6	3,5
1260	Ledava Centiba	1996	6	18	15	35	0,13	7,4	0,10	0,42	0,31	4,6	18,8	4,8	1,7
1260	Ledava Centiba	1996	12	3	13	20	0,08	9,4	0,55	0,15	0,30	4,8	16,2	3,2	6,9
1260	Ledava Centiba	1997	2	19	14	10	0,10	15,1	0,38	0,09	0,10	5,1	35,8	4,5	-
1260	Ledava Centiba	1997	9	24	14	0	0,24	11,4	1,93	0,16	0,25	4,4	23,8	2,5	-
1260	Ledava Centiba	1997	10	23	14	50	0,19	12,9	1,05	0,50	0,52	3,5	8,1	1,4	-
2010	Drava Dravograd	1994	2	23	11	35	0,03	5,5	0,23	0,12	0,15	2,2	7,4	2,0	171
2010	Drava Dravograd	1994	6	22	11	30	0,02	3,6	0,08	0,01	0,04	1,9	5,6	2,1	268
2010	Drava Dravograd	1994	7	27	14	0	0,03	3,7	0,29	0,01	0,01	2,7	5,0	2,0	204
2010	Drava Dravograd	1994	8	23	13	15	0,09	3,4	0,17	0,05	0,10	4,8	14,8	2,0	224
2010	Drava Dravograd	1994	9	27	10	0	0,03	3,4	0,35	0,03	0,05	2,5	5,0	1,8	268
2010	Drava Dravograd	1994	11	8	13	20	0,03	4,3	0,27	0,03	0,04	3,2	7,8	1,0	230
2010	Drava Dravograd	1995	2	21	13	0	0,02	6,3	0,23	0,07	0,13	3,2	7,1	2,3	141
2010	Drava Dravograd	1995	5	11	12	0	0,03	4,3	0,20	0,01	0,04	3,1	6,6	2,3	290
2010	Drava Dravograd	1995	8	9	11	30	0,05	3,4	0,26	0,04	0,06	4,2	15,6	2,6	290
2010	Drava Dravograd	1995	9	12	11	15	0,03	3,8	0,17	0,02	0,05	3,6	7,3	2,4	213
2010	Drava Dravograd	1995	10	5	10	30	0,02	5,4	0,16	0,05	0,08	2,8	4,2	0,9	178
2010	Drava Dravograd	1995	11	8	13	45	0,02	4,6	0,21	0,05	0,08	2,3	8,8	0,8	135
2010	Drava Dravograd	1996	2	15	9	45	0,02	5,3	0,23	0,05	0,10	1,8	7,5	1,9	106
2010	Drava Dravograd	1996	4	11	10	50	0,03	7,5	0,17	0,01	0,25	3,2	6,3	3,3	207
2010	Drava Dravograd	1996	6	19	14	0	0,02	3,4	0,13	0,03	0,52	2,3	2,8	1,7	187
2010	Drava Dravograd	1996	9	5	11	15	0,03	4,0	0,27	0,04	0,07	2,3	3,1	0,7	223

Code	Sampling station	year	mth	day	h	min	NO_2	NO_3	NH_4	PO_4	TOT. PO_4	COD	COD	BOD5	Q
							mg NO_2/l	mg NO_3/l	mg NH_4/l	mg PO_4/l	mg PO_4/l	($KMnO_4$) mg O_2/l	($K_2Cr_2O_7$) mg O_2/l	mg O_2/l	m^3/s
2010	Drava Dravograd	1996	10	3	12	0	0,03	4,2	0,23	0,04	0,05	2,5	12,5	2,8	463
2010	Drava Dravograd	1996	12	17	11	30	0,02	5,4	0,24	0,02	0,06	2,0	5,1	1,8	258
2010	Drava Dravograd	1997	2	11	14	20	0,02	5,2	0,10	0,01	0,05	2,2	5,1	2,2	-
2010	Drava Dravograd	1997	4	8	11	0	0,03	5,3	0,16	0,03	0,06	2,5	3,0	2,0	-
2010	Drava Dravograd	1997	8	12	14	0	0,02	3,2	0,18	0,02	0,03	1,8	7,6	0,8	-
2010	Drava Dravograd	1997	10	1	14	15	0,02	3,7	0,19	0,01	0,02	1,6	4,7	1,5	-
2010	Drava Dravograd	1997	10	28	11	30	0,02	4,1	0,16	0,04	0,05	1,8	2,0	1,0	-
2010	Drava Dravograd	1997	11	19	10	30	0,03	3,7	0,11	0,01	0,04	2,6	5,9	0,9	-
2150	Drava Borl	1994	2	23	17	30	0,06	9,5	0,55	0,12	0,13	3,6	12,5	4,9	22,2
2150	Drava Borl	1994	7	28	14	0	0,16	0,7	2,44	0,04	0,21	4,1	7,0	3,2	17
2150	Drava Borl	1994	8	24	12	30	0,36	7,4	1,15	0,15	0,18	4,5	17,8	6,4	20
2150	Drava Borl	1994	11	9	14	30	0,11	9,7	0,79	0,15	0,28	3,6	10,2	2,1	18,5
2150	Drava Borl	1995	2	23	12	50	0,04	10,7	0,55	0,08	0,14	3,2	12,3	2,2	21,2
2150	Drava Borl	1995	5	11	17	0	0,13	8,3	0,67	0,06	0,10	4,8	12,3	3,8	18,2
2150	Drava Borl	1995	8	8	16	30	0,26	7,2	0,76	0,14	0,26	4,0	13,8	3,7	13,9
2150	Drava Borl	1995	11	9	13	20	0,11	10,6	1,04	0,11	0,13	3,1	13,2	2,9	12,8
2150	Drava Borl	1996	2	15	15	30	0,06	12,2	1,21	0,09	0,02	2,9	7,9	3,3	13,9
2150	Drava Borl	1996	4	11	15	50	0,06	9,5	0,44	0,06	0,05	3,2	7,3	3,4	30,1
2150	Drava Borl	1996	6	20	13	45	0,25	6,5	0,57	0,13	0,01	4,0	7,1	4,2	41,4
2150	Drava Borl	1996	12	19	13	20	0,03	8,8	0,53	0,06	0,05	3,1	8,6	2,4	18
2150	Drava Borl	1997	2	13	14	45	0,06	13,0	0,70	0,11	0,14	6,5	7,8	5,0	-
2150	Drava Borl	1997	3	11	12	25	0,07	9,2	0,86	0,05	0,05	3,1	6,1	3,3	-
2150	Drava Borl	1997	4	8	16	20	0,07	8,0	0,54	0,02	0,06	2,8	7,1	3,6	-
2150	Drava Borl	1997	9	30	14	20	0,14	6,1	0,74	0,06	0,08	2,9	6,1	3,6	-
2150	Drava Borl	1997	10	29	13	15	0,10	7,2	0,95	0,12	0,14	3,2	7,5	3,9	-
2200	Drava Ormoz	1994	2	23	18	10	0,03	7,2	0,11	0,12	0,17	2,2	4,5	2,9	204,49
2200	Drava Ormoz	1994	6	21	18	0	0,02	3,9	0,18	0,01	0,05	2,8	3,4	3,2	439,66
2200	Drava Ormoz	1994	7	28	16	50	0,03	3,7	1,36	0,01	0,12	2,8	6,3	3,0	244,35
2200	Drava Ormoz	1994	8	24	14	0	0,07	3,9	0,16	0,02	0,06	2,6	7,5	3,7	242,11
2200	Drava Ormoz	1994	9	27	17	0	0,04	4,1	0,33	0,03	0,12	2,6	8,7	1,3	264,55
2200	Drava Ormoz	1994	11	9	17	0	0,04	5,5	0,24	0,04	0,08	2,7	4,7	1,1	268,73
2200	Drava Ormoz	1995	2	23	15	35	0,03	7,7	0,17	0,06	0,16	3,0	13,1	2,3	213,69
2200	Drava Ormoz	1995	5	11	18	30	0,03	4,8	0,19	0,01	0,04	4,1	10,1	2,2	309,35
2200	Drava Ormoz	1995	8	8	15	0	0,03	4,1	0,21	0,02	0,12	3,0	12,6	2,6	253,61
2200	Drava Ormoz	1995	9	12	15	40	0,03	4,9	0,19	0,05	0,06	3,3	4,0	1,8	268,05
2200	Drava Ormoz	1995	10	5	16	20	0,03	6,2	0,13	0,04	0,08	3,2	12,1	1,4	191,71
2200	Drava Ormoz	1995	11	9	15	40	0,03	5,6	0,22	0,04	0,07	2,8	7,3	1,8	150,99
2200	Drava Ormoz	1996	2	15	16	50	0,03	6,4	0,16	0,03	0,04	2,6	10,1	2,7	124,22
2200	Drava Ormoz	1996	3	28	13	55	0,03	7,3	0,20	0,02	0,04	3,5	5,5	3,0	358,1
2200	Drava Ormoz	1996	4	11	16	20	0,04	7,7	0,20	0,01	0,14	3,4	5,4	3,3	312,5
2200	Drava Ormoz	1996	5	23	15	0	0,03	4,8	0,19	0,03	0,05	2,7	3,2	1,9	375,35
2200	Drava Ormoz	1996	6	20	17	45	0,03	4,3	0,08	0,02	0,06	3,0	4,0	2,6	222,53
2200	Drava Ormoz	1996	7	25	16	15	0,03	4,0	0,27	0,03	0,08	2,9	3,6	2,0	324,79
2200	Drava Ormoz	1996	9	5	16	15	0,05	4,7	0,28	0,04	0,14	3,9	9,7	1,9	368,7
2200	Drava Ormoz	1996	9	17	12	30	0,03	5,2	0,20	0,04	0,05	2,9	6,0	1,3	165,44
2200	Drava Ormoz	1996	10	3	16	30	0,04	4,6	0,26	0,05	0,07	2,7	9,0	2,2	575,72
2200	Drava Ormoz	1996	11	6	15	30	0,04	5,1	0,21	0,02	0,01	2,5	8,4	1,6	298,4
2200	Drava Ormoz	1996	12	19	14	30	0,07	6,3	0,29	0,02	0,03	3,2	6,6	2,4	251,2
2200	Drava Ormoz	1997	1	15	14	45	0,03	6,7	0,22	0,04	0,05	2,3	4,2	2,6	-
2200	Drava Ormoz	1997	2	12	11	20	0,03	6,0	0,06	0,01	0,07	2,4	5,0	3,9	-
2200	Drava Ormoz	1997	3	11	15	20	0,03	6,2	0,18	0,01	0,01	3,4	4,8	3,5	-
2200	Drava Ormoz	1997	4	9	16	20	0,04	5,8	0,14	0,01	0,03	3,0	6,4	3,4	-
2200	Drava Ormoz	1997	5	6	15	30	0,03	4,6	0,24	0,01	0,04	3,3	8,5	3,6	-
2200	Drava Ormoz	1997	6	10	11	40	0,03	3,4	0,16	0,01	0,04	2,2	4,3	1,9	-
2200	Drava Ormoz	1997	7	23	12	50	0,02	3,2	0,20	0,01	0,02	2,5	3,2	1,0	-
2200	Drava Ormoz	1997	8	13	14	20	0,02	3,1	0,12	0,01	0,03	2,8	4,9	2,1	-

Code	Sampling station	year	mth	day	h	min	NO_2 mg NO_2/l	NO_3 mg NO_3/l	NH_4 mg NH_4/l	PO_4 mg PO_4/l	TOT. PO_4 mg PO_4/l	COD ($KMnO_4$) mgO_2/l	COD ($K_2Cr_2O_7$) mgO_2/l	BOD5 mg O_2/l	Q m^3/s
2200	Drava Ormoz	1997	9	30	16	10	0,02	3,7	0,19	0,01	0,03	2,4	3,4	1,9	-
2200	Drava Ormoz	1997	10	29	14	30	0,02	4,7	0,18	0,03	0,04	2,3	3,8	3,0	-
2200	Drava Ormoz	1997	11	19	14	35	0,03	4,6	0,16	0,02	0,05	2,8	8,9	2,5	-
2200	Drava Ormoz	1997	12	4	14	25	0,08	9,1	0,20	0,09	0,16	8,0	26,5	9,6	-
2260	Meza Otiški vrh	1994	2	23	11	10	0,03	6,2	0,35	0,10	0,12	2,2	12,5	5,1	8,14
2260	Meza Otiški vrh	1994	7	27	13	10	0,07	5,6	0,43	0,10	0,11	3,9	17,0	4,5	5,92
2260	Meza Otiški vrh	1994	8	23	12	10	0,10	4,6	0,22	0,12	0,15	6,2	21,6	4,2	6,29
2260	Meza Otiški vrh	1994	11	8	12	45	0,05	5,4	0,55	0,09	0,10	5,1	15,8	3,2	9,47
2260	Meza Otiški vrh	1995	2	21	12	15	0,02	7,3	0,20	0,10	0,23	4,3	12,1	4,4	13,1
2260	Meza Otiški vrh	1995	5	11	11	0	0,04	5,3	0,28	0,05	0,13	3,8	8,4	2,4	10,4
2260	Meza Otiški vrh	1995	8	9	13	30	0,13	4,7	0,65	0,08	0,13	7,4	45,4	8,8	18,2
2260	Meza Otiški vrh	1995	11	8	12	50	0,04	6,2	0,50	0,17	0,18	3,2	8,1	2,2	5,23
2260	Meza Otiški vrh	1996	3	5	13	30	0,03	6,3	0,42	0,17	0,03	4,0	14,7	5,9	5,93
2260	Meza Otiški vrh	1996	6	19	12	45	0,09	5,8	0,37	0,12	0,04	3,7	8,7	4,7	7,65
2260	Meza Otiški vrh	1996	10	3	11	15	0,06	5,0	0,26	0,05	0,05	8,0	12,0	3,4	39,6
2260	Meza Otiški vrh	1996	12	17	10	15	0,03	6,1	0,45	0,07	0,16	2,5	5,3	3,6	10,8
2260	Meza Otiški vrh	1997	2	11	13	15	0,03	5,5	0,31	0,11	0,13	3,9	7,3	6,2	-
2260	Meza Otiški vrh	1997	8	12	13	10	0,08	4,7	0,49	0,07	0,09	3,9	10,7	3,8	-
2260	Meza Otiški vrh	1997	10	1	13	15	0,09	4,1	0,55	0,11	0,11	3,6	7,0	3,5	-
2260	Meza Otiški vrh	1997	10	28	10	30	0,04	5,9	0,31	0,04	0,06	3,9	7,4	4,1	-
2390	Mislinja Otiški vrh	1994	7	27	11	45	0,06	7,5	0,42	0,09	0,13	2,8	9,1	2,1	1,61
2390	Mislinja Otiški vrh	1994	11	8	11	30	0,03	6,6	0,40	0,12	0,18	2,8	15,7	1,8	3,33
2390	Mislinja Otiški vrh	1995	2	21	11	30	0,02	8,6	0,24	0,10	0,21	3,8	8,9	4,1	5,81
2390	Mislinja Otiški vrh	1995	8	9	16	40	0,12	5,5	0,60	0,12	0,20	7,6	44,1	9,2	8,04
2390	Mislinja Otiški vrh	1995	11	8	10	35	0,03	8,7	0,26	0,07	0,10	4,1	14,9	2,2	2,11
2390	Mislinja Otiški vrh	1996	3	5	12	0	0,03	8,6	0,37	0,21	0,08	3,1	17,6	5,9	2,11
2390	Mislinja Otiški vrh	1996	6	19	11	15	0,11	8,0	0,42	0,19	0,12	3,3	6,4	3,4	2,58
2390	Mislinja Otiški vrh	1996	10	3	9	45	0,03	6,0	0,28	0,05	0,08	8,0	21,9	3,0	19,4
2390	Mislinja Otiški vrh	1997	2	11	11	0	0,03	7,2	0,18	0,14	0,19	6,9	9,1	7,0	-
2390	Mislinja Otiški vrh	1997	8	12	11	10	0,07	5,3	0,38	0,08	0,10	2,6	5,5	2,4	-
2390	Mislinja Otiški vrh	1997	10	1	11	0	0,07	7,6	0,47	0,11	0,13	2,8	8,7	2,6	-
2650	Dravinja Videm	1994	2	23	15	40	0,06	7,5	0,35	0,09	0,12	4,7	12,2	4,4	10,5
2650	Dravinja Videm	1994	7	28	11	30	0,04	6,0	1,73	0,12	0,68	4,6	9,3	2,1	3,09
2650	Dravinja Videm	1994	11	9	13	0	0,09	6,5	0,38	0,07	0,13	6,6	13,9	1,3	7,66
2650	Dravinja Videm	1995	2	23	11	45	0,04	8,4	0,27	0,06	0,15	3,6	10,6	2,1	11,9
2650	Dravinja Videm	1995	8	8	17	30	0,03	5,3	0,21	0,07	0,11	4,4	11,6	2,2	2,76
2650	Dravinja Videm	1995	11	9	12	25	0,07	7,3	0,29	0,06	0,11	3,4	8,7	2,5	4,71
2650	Dravinja Videm	1996	3	5	16	20	0,05	7,2	0,33	0,05	0,11	3,0	11,6	3,9	8,19
2650	Dravinja Videm	1996	6	20	10	40	0,07	6,1	0,07	0,06	0,13	3,8	9,0	2,2	3,63
2650	Dravinja Videm	1996	10	3	17	45	0,11	7,4	0,37	0,07	0,09	13,9	48,4	5,5	40,5
2650	Dravinja Videm	1997	2	13	13	30	0,07	13,1	0,53	0,09	0,11	14,2	16,7	5,8	-
2650	Dravinja Videm	1997	3	11	10	30	0,05	5,9	0,23	0,03	0,05	3,1	8,3	2,8	-
2650	Dravinja Videm	1997	8	13	11	30	0,08	4,9	0,11	0,08	0,09	4,1	10,3	1,7	-
2650	Dravinja Videm	1997	9	30	13	20	0,05	4,0	0,19	0,03	0,05	3,5	7,5	3,2	-
2900	Pesnica Zamušani	1994	2	23	17	30	0,05	14,6	0,14	0,13	0,17	3,4	14,8	3,7	2,29
2900	Pesnica Zamušani	1994	7	28	15	30	0,04	15,3	1,26	0,11	0,49	5,8	12,0	1,6	4,35
2900	Pesnica Zamušani	1994	11	9	15	45	0,05	9,6	0,30	0,06	0,11	4,6	15,9	1,7	4,13
2900	Pesnica Zamušani	1995	2	23	14	15	0,03	10,7	0,23	0,04	0,12	3,8	8,1	1,9	6,49
2900	Pesnica Zamušani	1995	8	8	15	45	0,02	23,4	0,20	0,14	0,24	4,5	13,2	2,2	0,715
2900	Pesnica Zamušani	1995	11	9	14	20	0,04	16,8	0,24	0,05	0,08	4,3	12,0	1,8	1,19
2900	Pesnica Zamušani	1996	3	5	17	15	0,02	11,5	0,16	0,02	0,11	3,6	9,0	6,2	3,93
2900	Pesnica Zamušani	1996	6	20	15	20	0,03	23,7	0,08	0,14	0,06	4,2	8,3	2,0	1,13
2900	Pesnica Zamušani	1996	10	3	15	30	0,11	5,7	0,38	0,09	0,19	11,4	21,2	6,9	9,72
2900	Pesnica Zamušani	1997	2	13	16	0	0,05	22,2	0,62	0,12	0,15	7,6	19,2	5,4	-
2900	Pesnica Zamušani	1997	3	11	13	50	0,02	10,9	0,14	0,02	0,02	3,1	6,7	3,7	-
2900	Pesnica Zamušani	1997	8	13	13	30	0,04	10,3	0,11	0,08	0,11	5,2	14,5	1,9	-

Code	Sampling station	year	mth	day	h	min	NO_2 mg NO_2/l	NO_3 mg NO_3/l	NH_4 mg NH_4/l	PO_4 mg PO_4/l	TOT. PO_4 mg PO_4/l	COD ($KMnO_4$) mgO_2/l	COD ($K_2Cr_2O_7$) mgO_2/l	BOD5 mg O_2/l	Q m^3/s
2900	Pesnica Zamušani	1997	9	30	15	0	0,03	10,2	0,17	0,04	0,07	5,0	13,4	1,7	-
3010	Sava Dolinka Pod.	1994	3	1	10	10	0,00	1,8	0,07	0,04	0,05	1,5	2,0	1,1	-
3010	Sava Dolinka Pod.	1994	6	27	10	0	0,00	1,9	0,05	0,01	0,02	1,4	1,6	0,9	-
3010	Sava Dolinka Pod.	1994	10	18	9	30	0,00	2,1	0,18	0,03	0,04	1,3	1,9	0,5	-
3010	Sava Dolinka Pod.	1995	7	17	9	30	0,00	2,2	0,29	0,01	0,04	2,1	3,8	0,3	-
3010	Sava Dolinka Pod.	1995	8	22	9	0	0,00	2,1	0,13	0,02	0,12	1,4	3,0	0,9	-
3010	Sava Dolinka Pod.	1995	10	23	9	15	0,00	2,2	0,14	0,02	0,02	1,0	1,6	0,4	-
3010	Sava Dolinka Pod.	1997	5	13	9	30	0,02	0,4	0,26	0,02	0,09	9,0	10,9	2,3	-
3010	Sava Dolinka Pod.	1997	7	8	8	50	0,00	1,8	0,18	0,01	0,01	1,5	2,1	1,0	-
3080	Sava D. Blej. Most	1994	3	1	13	45	0,03	4,2	0,20	0,06	0,10	4,1	10,4	2,1	17,7
3080	Sava D. Blej. Most	1994	6	27	11	30	0,01	2,8	0,13	0,01	0,03	1,3	2,7	1,4	22,9
3080	Sava D. Blej. Most	1994	8	16	9	0	0,03	2,9	0,22	0,02	0,03	1,7	6,0	-	15,3
3080	Sava D. Blej. Most	1994	10	18	11	0	0,02	3,2	0,28	0,03	0,05	1,5	5,8	0,9	21,3
3080	Sava D. Blej. Most	1995	7	5	8	45	0,01	2,2	0,27	0,01	0,02	1,3	6,1	2,2	21,7
3080	Sava D. Blej. Most	1995	7	17	10	50	0,02	3,3	0,28	0,02	0,06	2,5	4,6	1,0	19
3080	Sava D. Blej. Most	1995	8	22	10	30	0,04	3,4	0,21	0,03	0,08	2,1	5,1	2,1	15,5
3080	Sava D. Blej. Most	1995	10	23	10	20	0,04	3,8	0,24	0,03	0,05	1,2	3,6	0,8	15,9
3200	Sava B. Sv. Janez	1994	3	1	12	0	0,01	0,8	0,07	0,03	0,07	2,2	2,9	1,4	1,11
3200	Sava B. Sv. Janez	1994	6	27	12	30	0,00	1,8	0,07	0,01	0,03	1,9	3,1	0,9	4,6
3200	Sava B. Sv. Janez	1994	8	16	10	30	0,01	1,6	0,23	0,01	0,01	1,3	3,3	-	6,74
3200	Sava B. Sv. Janez	1994	10	18	12	30	0,01	1,9	0,18	0,01	0,02	2,4	4,5	1,1	2,79
3200	Sava B. Sv. Janez	1995	7	17	12	40	0,01	2,0	0,28	0,01	0,05	2,2	4,7	0,2	2,95
3200	Sava B. Sv. Janez	1995	8	22	12	30	0,01	2,1	0,17	0,02	0,15	1,9	3,7	0,8	3,31
3200	Sava B. Sv. Janez	1995	9	27	10	30	0,01	1,4	0,17	0,02	0,03	2,1	5,1	1,2	6,87
3200	Sava B. Sv. Janez	1995	10	23	13	20	0,01	1,9	0,21	0,02	0,02	1,9	5,8	0,4	1,49
3200	Sava B. Sv. Janez	1997	5	13	13	45	0,01	2,0	0,23	0,01	0,03	2,4	6,9	1,7	-
3200	Sava B. Sv. Janez	1997	7	8	10	30	0,01	1,9	0,21	0,01	0,01	2,4	2,5	1,1	-
3250	Sava B. Bodešce	1994	3	1	14	20	0,01	2,9	0,07	0,06	0,08	1,7	2,4	1,5	6,56
3250	Sava B. Bodešce	1994	6	27	14	20	0,00	2,1	0,07	0,01	0,03	1,7	5,4	1,0	8,25
3250	Sava B. Bodešce	1994	8	16	13	0	0,01	2,4	0,19	0,01	0,02	1,5	3,4	-	11,3
3250	Sava B. Bodešce	1994	10	18	13	45	0,01	2,9	0,22	0,03	0,05	2,4	4,8	1,5	8,84
3250	Sava B. Bodešce	1995	7	5	10	0	0,01	2,7	0,26	0,01	0,05	1,5	1,8	1,4	14,3
3250	Sava B. Bodešce	1995	7	17	15	0	0,01	2,7	0,30	0,04	0,07	1,7	3,9	0,9	7,31
3250	Sava B. Bodešce	1995	8	22	14	0	0,01	3,0	0,17	0,06	0,21	1,7	8,3	1,4	9,84
3250	Sava B. Bodešce	1995	10	23	14	30	0,02	2,7	0,19	0,04	0,05	1,6	3,0	1,1	5,12
3530	Sava Medno	1994	3	2	15	0	0,05	7,0	0,13	0,06	0,08	1,8	4,4	2,2	59,9
3530	Sava Medno	1994	5	17	11	30	0,01	4,7	0,01	0,01	0,01	2,1	4,8	2,0	62,5
3530	Sava Medno	1994	6	16	16	30	0,00	4,3	0,12	0,02	0,03	2,2	8,4	1,7	74,4
3530	Sava Medno	1994	6	28	16	15	0,01	5,5	0,07	0,01	0,02	1,3	4,4	2,3	50,1
3530	Sava Medno	1994	7	19	11	0	0,03	5,8	0,07	0,01	0,10	2,8	5,3	2,1	44,2
3530	Sava Medno	1994	8	16	17	0	0,03	5,4	0,24	0,02	0,05	1,9	4,8	-	46,5
3530	Sava Medno	1994	10	19	16	45	0,02	6,7	0,26	0,02	0,04	1,9	6,2	1,9	51,3
3530	Sava Medno	1994	11	16	12	15	0,02	5,1	0,17	0,02	0,03	2,7	8,0	0,6	97,5
3530	Sava Medno	1995	4	11	14	50	0,01	6,6	0,22	0,01	0,05	2,3	7,6	2,1	81,4
3530	Sava Medno	1995	5	30	17	20	0,01	5,9	0,29	0,06	0,06	2,4	4,4	1,4	64,7
3530	Sava Medno	1995	7	5	17	25	0,02	5,1	0,23	0,02	0,02	1,9	5,8	2,4	70,7
3530	Sava Medno	1995	7	18	9	35	0,02	6,1	0,27	0,02	0,05	1,7	2,4	1,6	46
3530	Sava Medno	1995	8	22	17	40	0,04	5,5	0,21	0,07	0,29	1,7	8,7	2,2	53,1
3530	Sava Medno	1995	9	27	8	20	0,02	6,0	0,20	0,04	0,09	2,4	5,1	1,6	84,6
3530	Sava Medno	1995	10	24	8	20	0,03	8,0	0,23	0,03	0,07	1,6	8,4	1,6	40,8
3530	Sava Medno	1995	12	6	10	0	0,03	7,4	0,25	0,06	0,08	2,8	5,8	1,2	34
3530	Sava Medno	1996	2	28	12	15	0,03	7,1	0,25	0,03	0,01	1,7	8,9	2,1	-
3530	Sava Medno	1996	3	26	10	20	0,03	5,6	0,16	0,04	0,02	2,4	6,6	1,7	-
3530	Sava Medno	1996	4	24	12	20	0,01	5,3	0,18	0,02	0,04	2,1	3,2	2,0	-
3530	Sava Medno	1996	5	28	15	45	0,05	4,5	0,21	0,07	0,03	2,1	7,3	2,5	-
3530	Sava Medno	1996	7	11	10	15	0,02	4,4	0,12	0,02	0,05	2,1	3,0	1,7	-

Code	Sampling station	year	mth	day	h	min	NO_2 mg NO_2/l	NO_3 mg NO_3/l	NH_4 mg NH_4/l	PO_4 mg PO_4/l	TOT. PO_4 mg PO_4/l	COD ($KMnO_4$) mgO_2/l	COD ($K_2Cr_2O_7$) mgO_2/l	BOD5 mg O_2/l	Q m^3/s
3530	Sava Medno	1996	8	6	15	55	0,03	5,9	0,22	0,02	0,03	1,9	3,2	1,9	-
3530	Sava Medno	1996	10	14	14	0	0,01	5,6	0,21	0,02	0,02	1,4	3,2	1,4	-
3530	Sava Medno	1996	12	11	8	30	0,02	6,8	0,23	0,03	0,03	1,6	3,5	1,7	-
3530	Sava Medno	1997	2	20	11	30	0,02	6,2	0,19	0,01	0,03	2,6	4,3	2,1	-
3530	Sava Medno	1997	3	18	15	35	0,02	6,9	0,19	0,03	0,07	1,9	2,8	1,8	-
3530	Sava Medno	1997	4	16	9	0	0,03	8,0	0,26	0,01	0,04	2,9	8,0	2,6	-
3530	Sava Medno	1997	5	13	18	20	0,03	5,5	0,22	0,02	0,04	2,2	6,6	1,7	-
3530	Sava Medno	1997	6	4	16	30	0,04	5,9	0,16	0,01	0,04	2,5	9,4	2,5	-
3530	Sava Medno	1997	7	8	18	50	0,02	6,0	0,24	0,02	0,04	1,8	4,5	1,4	-
3530	Sava Medno	1997	8	26	16	25	0,03	6,1	0,16	0,01	0,03	2,2	5,0	2,3	-
3530	Sava Medno	1997	11	4	9	45	0,04	8,3	0,26	0,02	0,02	1,9	5,4	1,8	-
3650	Sava Litija	1994	3	3	9	20	0,05	7,1	0,31	0,10	0,11	3,2	11,1	4,0	117
3650	Sava Litija	1994	7	19	10	0	0,18	6,4	0,49	0,16	0,20	3,1	7,8	3,3	65,5
3650	Sava Litija	1994	8	17	14	20	0,18	7,5	0,47	0,13	0,19	3,3	10,3	5,4	62,5
3650	Sava Litija	1994	10	19	13	0	0,03	7,6	0,52	0,12	0,21	2,7	2,8	2,2	95,4
3650	Sava Litija	1995	7	19	11	15	0,10	6,9	0,45	0,17	0,20	2,9	4,1	3,3	84
3650	Sava Litija	1995	8	23	14	30	0,12	7,6	0,51	0,17	0,33	3,9	14,3	3,5	85,7
3650	Sava Litija	1995	9	28	9	10	0,02	6,4	0,28	0,06	0,12	3,7	12,5	2,7	169
3650	Sava Litija	1995	10	25	13	20	0,09	9,0	0,39	0,13	0,19	3,2	16,7	3,1	69,5
3650	Sava Litija	1996	3	26	13	0	0,06	6,8	0,36	0,07	0,03	3,4	7,8	3,1	-
3650	Sava Litija	1996	4	25	9	0	0,04	5,8	0,32	0,06	0,04	2,8	8,0	2,6	-
3650	Sava Litija	1996	5	29	10	0	0,05	5,5	0,32	0,07	0,03	3,1	8,6	2,5	-
3650	Sava Litija	1996	8	7	13	0	0,11	7,7	0,31	0,11	0,05	2,8	7,3	2,9	-
3650	Sava Litija	1996	10	15	9	45	0,08	6,3	0,34	0,09	0,03	2,8	9,8	2,2	-
3650	Sava Litija	1996	12	11	14	20	0,03	7,1	0,38	0,04	0,03	2,0	5,2	1,4	-
3650	Sava Litija	1997	2	20	14	0	0,03	7,4	0,39	0,05	0,05	4,0	10,3	3,2	-
3650	Sava Litija	1997	3	19	14	5	0,05	8,2	0,57	0,09	0,10	3,0	8,1	3,2	-
3650	Sava Litija	1997	5	14	14	10	0,07	7,4	0,43	0,07	0,10	3,2	11,2	3,7	-
3650	Sava Litija	1997	7	9	17	0	0,07	8,1	0,47	0,09	0,10	2,6	8,0	3,4	-
3650	Sava Litija	1997	8	27	8	30	0,25	7,3	0,39	0,14	0,17	3,5	6,8	4,4	-
3650	Sava Litija	1997	11	5	13	10	0,20	9,3	0,92	0,18	0,25	3,7	13,9	3,4	-
3744	Sava Radece	1994	3	3	13	15	0,09	7,7	0,47	0,06	0,09	6,0	11,8	3,4	144,3
3744	Sava Radece	1994	5	18	13	55	0,01	6,1	0,18	0,87	0,96	2,6	3,1	2,7	120,6
3744	Sava Radece	1994	7	20	10	40	0,20	6,7	0,29	0,12	0,19	6,3	10,4	5,5	116,5
3744	Sava Radece	1994	8	17	17	30	0,20	6,8	0,29	0,23	0,55	2,8	9,9	2,8	89,4
3744	Sava Radece	1994	10	20	15	15	0,10	8,1	0,53	0,35	0,54	2,6	6,7	2,1	105,9
3744	Sava Radece	1994	11	22	9	30	0,06	7,2	0,41	0,27	0,51	3,3	14,2	1,4	179,2
3744	Sava Radece	1995	4	12	11	15	0,03	7,0	0,44	0,13	0,19	2,9	9,1	2,0	172,4
3744	Sava Radece	1995	5	31	11	45	0,13	6,5	0,45	0,22	0,26	3,2	4,5	2,8	136,3
3744	Sava Radece	1995	7	19	14	30	0,10	6,9	0,44	0,20	0,30	3,4	11,7	2,4	109,5
3744	Sava Radece	1995	8	23	17	0	0,12	7,3	0,37	0,20	0,21	4,0	15,9	2,8	106,7
3744	Sava Radece	1995	9	28	10	50	0,03	7,2	0,33	0,18	0,22	2,9	10,3	2,0	221,4
3744	Sava Radece	1995	10	26	10	45	0,08	9,5	0,43	0,16	0,20	3,7	7,8	2,3	84
3744	Sava Radece	1996	2	29	12	45	0,05	7,1	0,49	0,40	0,10	2,6	9,8	3,2	-
3744	Sava Radece	1996	4	25	11	50	0,06	5,6	0,30	0,14	0,08	3,0	6,0	2,0	-
3744	Sava Radece	1996	5	29	13	45	0,07	5,7	0,34	0,25	0,06	2,9	7,3	2,8	-
3744	Sava Radece	1996	8	7	15	10	0,16	7,4	0,30	0,47	0,21	3,0	7,2	2,6	-
3744	Sava Radece	1996	10	15	13	50	0,09	7,0	0,44	0,34	0,12	3,0	10,8	2,3	-
3744	Sava Radece	1996	12	12	10	30	0,05	7,3	0,52	0,15	0,05	2,4	3,8	2,7	-
3744	Sava Radece	1997	3	19	17	15	0,08	7,4	0,59	0,26	0,33	3,8	13,9	4,1	-
3744	Sava Radece	1997	4	16	15	55	0,11	9,4	0,56	0,94	0,98	3,2	11,5	3,7	-
3744	Sava Radece	1997	5	15	11	5	0,14	6,7	0,39	0,28	0,29	3,2	11,9	4,3	-
3744	Sava Radece	1997	7	10	9	30	0,06	7,1	0,40	0,18	0,20	2,8	8,1	3,2	-
3744	Sava Radece	1997	8	27	10	40	0,12	8,4	0,18	0,26	0,33	3,3	6,3	2,5	-
3744	Sava Radece	1997	11	5	15	30	0,15	10,7	0,66	0,23	0,26	3,9	13,8	2,5	-
3860	Sava Jeseni. na D.	1994	3	4	10	30	0,06	7,3	0,11	0,11	0,11	4,0	4,5	2,0	216

Code	Sampling station	year	mth	day	h	min	NO_2	NO_3	NH_4	PO_4	TOT. PO_4	COD	COD	BOD5	Q
							mg NO_2/l	mg NO_3/l	mg NH_4/l	mg PO_4/l	mg PO_4/l	($KMnO_4$) mg O_2/l	($K_2Cr_2O_7$) mg O_2/l	mg O_2/l	m^3/s
3860	Sava Jeseni. na D.	1994	5	18	15	30	0,01	5,4	0,07	0,25	0,26	4,3	5,3	3,0	150
3860	Sava Jeseni. na D.	1994	7	21	16	50	0,14	6,3	0,27	0,26	0,30	5,0	18,6	2,1	179
3860	Sava Jeseni. na D.	1994	8	18	13	50	0,08	7,1	0,29	0,55	0,62	3,7	10,9	2,3	108
3860	Sava Jeseni. na D.	1994	10	20	9	50	0,10	8,1	0,29	0,78	1,00	4,0	8,8	2,3	119
3860	Sava Jeseni. na D.	1994	11	22	13	15	0,05	7,8	0,28	0,09	0,36	3,9	13,3	1,3	200
3860	Sava Jeseni. na D.	1995	4	12	15	20	0,02	6,5	0,31	0,07	0,10	3,3	10,2	1,7	224
3860	Sava Jeseni. na D.	1995	5	31	16	50	0,08	6,1	0,26	0,10	0,18	3,7	7,8	2,7	176
3860	Sava Jeseni. na D.	1995	7	20	14	30	0,08	6,4	0,22	0,17	0,28	4,7	11,8	2,5	122
3860	Sava Jeseni. na D.	1995	8	24	14	15	0,10	7,6	0,28	0,39	0,62	5,8	19,2	2,2	122
3860	Sava Jeseni. na D.	1995	9	28	13	30	0,06	7,5	0,20	0,09	0,13	6,8	22,5	3,0	290
3860	Sava Jeseni. na D.	1995	10	27	14	55	0,08	8,9	0,33	0,12	0,14	4,1	21,3	2,8	121
3860	Sava Jeseni. na D.	1996	2	29	9	40	0,04	7,3	0,24	0,12	0,98	3,4	6,9	2,1	-
3860	Sava Jeseni. na D.	1996	3	26	15	40	0,06	6,8	0,25	0,16	0,29	3,6	11,0	3,6	-
3860	Sava Jeseni. na D.	1996	4	25	17	20	0,04	6,1	0,19	0,16	0,20	3,4	5,0	2,4	-
3860	Sava Jeseni. na D.	1996	5	29	17	45	0,09	5,9	0,29	0,16	0,33	2,9	9,2	2,6	-
3860	Sava Jeseni. na D.	1996	7	11	16	10	0,05	6,4	0,29	0,13	0,26	2,7	8,5	2,1	-
3860	Sava Jeseni. na D.	1996	8	8	15	35	0,07	7,5	0,29	0,43	0,34	7,1	8,8	3,2	-
3860	Sava Jeseni. na D.	1996	8	29	10	15	0,23	7,8	0,22	0,34	0,21	4,1	5,2	2,5	-
3860	Sava Jeseni. na D.	1996	10	15	16	45	0,08	7,2	0,29	0,21	0,22	2,5	10,7	1,4	-
3860	Sava Jeseni. na D.	1996	10	29	16	30	0,08	7,1	0,30	0,27	0,23	2,5	4,8	2,3	-
3860	Sava Jeseni. na D.	1996	12	5	13	10	0,03	7,4	0,33	0,06	0,25	3,3	8,2	3,6	-
3860	Sava Jeseni. na D.	1996	12	12	15	40	0,05	7,5	0,31	0,09	0,28	3,3	5,4	2,1	-
3860	Sava Jeseni. na D.	1997	1	15	9	45	0,06	7,8	0,33	0,43	0,47	3,4	13,2	1,9	-
3860	Sava Jeseni. na D.	1997	2	20	16	20	0,03	7,1	0,18	0,08	0,10	4,0	8,4	2,9	-
3860	Sava Jeseni. na D.	1997	3	20	15	20	0,07	7,3	0,24	0,14	0,16	7,7	17,1	3,1	-
3860	Sava Jeseni. na D.	1997	4	3	11	30	0,06	7,2	0,10	0,11	0,13	5,1	5,5	3,4	-
3860	Sava Jeseni. na D.	1997	5	15	17	10	0,08	6,4	0,23	0,14	0,16	4,9	6,5	4,1	-
3860	Sava Jeseni. na D.	1997	6	4	10	30	0,14	7,1	0,13	0,13	0,15	4,6	13,9	2,8	-
3860	Sava Jeseni. na D.	1997	7	10	14	50	0,05	6,1	0,22	0,08	0,13	5,6	12,6	3,4	-
3860	Sava Jeseni. na D.	1997	8	27	14	0	0,06	6,6	0,13	0,19	0,20	9,6	14,4	3,5	-
3860	Sava Jeseni. na D.	1997	9	11	15	30	0,04	7,6	0,27	0,25	0,26	2,8	10,7	2,7	-
3860	Sava Jeseni. na D.	1997	10	16	13	0	0,15	10,5	0,13	0,09	0,13	13,0	33,7	4,2	-
3860	Sava Jeseni. na D.	1997	11	4	12	35	0,07	9,4	0,31	0,22	0,27	10,3	19,2	2,0	-
3860	Sava Jeseni. na D.	1997	12	4	9	45	0,11	6,0	0,30	0,20	0,25	12,3	34,6	4,2	-
4170	Kokra Kranj	1994	3	1	17	0	0,02	4,6	0,17	0,13	0,15	2,6	4,3	2,6	1,45
4170	Kokra Kranj	1994	6	27	16	35	0,00	3,5	0,07	0,01	0,04	2,1	8,4	1,9	4
4170	Kokra Kranj	1994	10	18	16	20	0,01	4,2	0,27	0,03	0,05	2,6	12,9	2,3	2,63
4170	Kokra Kranj	1995	7	5	14	10	0,02	4,6	0,22	0,20	0,27	2,1	9,4	2,2	3,41
4170	Kokra Kranj	1995	7	17	17	15	0,01	5,4	0,26	0,12	0,28	3,1	3,9	2,2	2,62
4170	Kokra Kranj	1995	10	24	10	50	0,03	4,3	0,19	0,05	0,38	2,8	8,4	2,5	1,93
4170	Kokra Kranj	1996	3	7	17	20	0,02	4,4	0,72	0,52	0,32	2,2	15,6	4,4	-
4170	Kokra Kranj	1996	8	6	12	30	0,02	4,2	0,15	0,03	0,47	2,3	2,4	1,1	-
4170	Kokra Kranj	1996	12	10	14	5	0,02	4,7	0,22	0,04	0,10	1,4	2,7	1,9	-
4170	Kokra Kranj	1997	3	18	12	30	0,02	4,5	0,16	0,02	0,08	2,1	11,2	1,3	-
4170	Kokra Kranj	1997	7	8	15	30	0,02	3,8	0,17	0,08	0,13	2,9	4,2	3,1	-
4170	Kokra Kranj	1997	11	4	12	15	0,03	3,9	0,23	0,18	0,22	3,5	11,8	4,6	-
4208	Sora Medvode	1994	3	2	14	0	0,00	6,8	0,13	0,06	0,07	2,5	4,8	2,8	12,2
4208	Sora Medvode	1994	5	17	10	15	0,02	9,5	0,08	0,03	0,04	2,1	4,3	1,9	10,3
4208	Sora Medvode	1994	6	28	15	15	0,01	9,9	0,11	0,06	0,09	1,5	4,3	1,2	5,3
4208	Sora Medvode	1994	8	16	16	0	0,02	9,4	0,30	0,03	0,04	2,1	6,8	-	9,35
4208	Sora Medvode	1994	10	19	16	0	0,02	8,8	0,39	0,05	0,06	2,2	6,5	1,6	10,3
4208	Sora Medvode	1994	11	16	11	0	0,01	7,2	0,16	0,02	0,03	2,3	7,1	0,4	26,7
4208	Sora Medvode	1995	4	11	13	30	0,01	7,1	0,30	0,02	0,03	2,5	7,6	1,9	17
4208	Sora Medvode	1995	5	30	16	30	0,01	8,0	0,27	0,05	0,06	2,2	7,1	1,3	18,5
4208	Sora Medvode	1995	7	5	16	25	0,02	8,4	0,26	0,04	0,06	2,0	2,9	1,9	16
4208	Sora Medvode	1995	7	18	8	30	0,01	9,9	0,23	0,02	0,05	1,7	2,7	1,3	6,31

Code	Sampling station	year	mth	day	h	min	NO_2 mg NO_2/l	NO_3 mg NO_3/l	NH_4 mg NH_4/l	PO_4 mg PO_4/l	TOT. PO_4 mg PO_4/l	COD ($KMnO_4$) mgO_2/l	COD ($K_2Cr_2O_7$) mgO_2/l	BOD5 mg O_2/l	Q m^3/s
4208	Sora Medvode	1995	8	22	16	50	0,02	8,4	0,19	0,12	0,28	1,8	8,8	1,8	13,5
4208	Sora Medvode	1995	10	24	9	35	0,03	10,6	0,25	0,08	0,14	2,0	6,3	1,2	8,69
4208	Sora Medvode	1996	2	28	10	10	0,01	8,1	0,18	0,05	0,16	1,4	4,6	1,5	-
4208	Sora Medvode	1996	4	24	11	20	0,01	7,2	0,12	0,02	0,13	2,3	2,9	2,5	-
4208	Sora Medvode	1996	5	28	14	20	0,03	5,6	0,19	0,06	0,16	4,1	12,9	2,1	-
4208	Sora Medvode	1996	8	6	14	50	0,03	10,7	0,22	0,06	0,15	3,1	6,5	1,8	-
4208	Sora Medvode	1996	10	14	13	15	0,01	8,2	0,14	0,02	0,13	1,6	3,8	1,3	-
4208	Sora Medvode	1996	12	10	16	20	0,01	9,2	0,19	0,04	0,20	1,5	2,1	1,0	-
4208	Sora Medvode	1997	3	18	14	30	0,02	9,0	0,21	0,03	0,06	1,6	8,7	1,3	-
4208	Sora Medvode	1997	4	16	8	10	0,03	10,9	0,28	0,03	0,05	2,5	6,1	1,5	-
4208	Sora Medvode	1997	5	13	17	15	0,02	6,7	0,25	0,03	0,09	2,3	5,5	1,8	-
4208	Sora Medvode	1997	7	8	17	45	0,02	9,1	0,23	0,03	0,06	1,7	3,4	2,0	-
4208	Sora Medvode	1997	8	26	14	45	0,02	11,2	0,14	0,02	0,05	1,8	3,8	2,1	-
4208	Sora Medvode	1997	11	4	14	20	0,02	11,4	0,23	0,02	0,03	2,0	7,3	1,8	-
4470	Kamn. B. Bericevo	1994	3	2	11	30	0,15	8,0	4,85	0,82	0,94	15,5	58,0	32,5	-
4470	Kamn. B. Bericevo	1994	5	17	14	0	0,08	4,9	0,26	1,56	2,00	16,4	51,0	30,9	-
4470	Kamn. B. Bericevo	1994	6	28	11	0	0,05	6,3	3,19	0,69	1,20	7,0	18,8	17,2	-
4470	Kamn. B. Bericevo	1994	8	17	10	20	0,13	0,7	6,84	2,85	3,85	14,2	94,2	47,9	-
4470	Kamn. B. Bericevo	1994	10	19	11	30	0,20	4,4	11,67	5,85	7,30	25,6	83,7	80,0	-
4470	Kamn. B. Bericevo	1994	11	16	14	30	0,10	6,2	4,09	0,43	0,47	24,6	100,5	41,3	-
4470	Kamn. B. Bericevo	1995	4	11	10	10	0,04	7,0	1,00	0,45	0,74	7,0	30,7	11,6	-
4470	Kamn. B. Bericevo	1995	5	30	12	50	0,10	3,4	5,26	2,34	2,92	21,6	62,7	35,8	-
4470	Kamn. B. Bericevo	1995	7	6	10	10	0,04	6,3	3,93	0,36	0,64	7,1	20,4	7,0	-
4470	Kamn. B. Bericevo	1995	7	18	12	50	0,07	7,6	2,60	0,66	0,95	8,6	15,2	9,0	-
4470	Kamn. B. Bericevo	1995	8	23	11	0	0,07	7,9	4,52	1,25	2,33	11,9	40,9	12,3	-
4470	Kamn. B. Bericevo	1995	10	25	12	10	0,06	9,8	7,88	1,29	1,67	10,3	31,5	11,6	-
4470	Kamn. B. Bericevo	1996	2	28	14	30	0,06	9,3	4,67	1,54	0,27	10,4	37,4	16,2	-
4470	Kamn. B. Bericevo	1996	4	24	14	50	0,05	6,2	3,64	0,63	0,25	6,8	20,3	12,8	-
4470	Kamn. B. Bericevo	1996	5	28	18	30	0,06	6,2	1,67	0,33	0,04	8,0	18,6	9,3	-
4470	Kamn. B. Bericevo	1996	8	7	10	30	0,23	5,8	7,25	3,33	0,05	16,9	65,1	40,7	-
4470	Kamn. B. Bericevo	1996	10	14	16	10	0,18	7,6	10,41	2,08	0,02	22,8	45,9	26,2	-
4470	Kamn. B. Bericevo	1996	12	13	10	45	0,05	9,0	3,70	0,37	0,08	8,5	21,1	9,9	-
4470	Kamn. B. Bericevo	1997	3	19	11	0	0,23	5,1	11,75	1,60	1,80	69,1	184,5	88,5	-
4470	Kamn. B. Bericevo	1997	4	16	12	50	0,11	12,7	5,13	0,94	1,08	7,2	22,8	17,1	-
4470	Kamn. B. Bericevo	1997	5	14	12	30	0,08	6,6	3,19	0,34	0,39	4,7	12,8	9,0	-
4470	Kamn. B. Bericevo	1997	7	9	11	50	0,08	9,4	2,61	0,39	0,43	4,9	11,0	6,3	-
4470	Kamn. B. Bericevo	1997	8	26	12	0	0,08	8,5	2,33	0,57	0,61	4,9	13,5	5,3	-
4470	Kamn. B. Bericevo	1997	11	5	11	10	0,20	10,9	9,43	1,30	1,60	10,3	30,6	8,9	-
4700	Mirna Boštanj	1994	3	3	16	0	0,01	3,5	0,05	0,05	0,07	2,8	5,0	1,2	3,28
4700	Mirna Boštanj	1994	7	20	14	30	0,03	3,6	0,24	0,03	0,06	4,3	11,4	4,1	3,54
4700	Mirna Boštanj	1994	10	20	14	0	0,00	2,3	0,20	0,01	0,03	3,7	8,3	2,4	1,28
4700	Mirna Boštanj	1995	7	6	16	10	0,05	4,4	0,23	0,05	0,13	5,0	11,1	1,9	3,96
4700	Mirna Boštanj	1995	7	19	17	45	0,01	3,9	0,27	0,04	0,07	2,6	13,4	0,9	2,48
4700	Mirna Boštanj	1995	10	26	13	0	0,08	9,3	0,31	0,16	0,27	3,5	7,7	1,2	1,68
4700	Mirna Boštanj	1996	4	25	14	10	0,01	2,9	0,15	0,01	0,13	2,4	5,7	1,5	-
4700	Mirna Boštanj	1996	8	8	17	20	0,06	5,2	0,43	0,06	0,22	15,1	27,1	4,5	-
4700	Mirna Boštanj	1996	12	12	12	40	0,02	4,4	0,19	0,01	0,06	3,1	4,2	2,6	-
4700	Mirna Boštanj	1997	3	20	16	10	0,02	3,9	0,18	0,02	0,05	2,6	4,4	1,9	-
4700	Mirna Boštanj	1997	7	10	11	35	0,02	3,3	0,37	0,02	0,04	2,6	10,7	1,1	-
4700	Mirna Boštanj	1997	11	6	10	45	0,01	3,1	0,16	0,02	0,03	2,2	3,2	1,6	-
4750	Sotla Rakovec	1994	3	4	13	30	0,04	5,6	0,15	0,10	0,10	3,3	4,1	1,9	5,33
4750	Sotla Rakovec	1994	7	21	13	40	0,14	5,3	1,57	0,16	0,18	5,1	18,9	5,1	3,43
4750	Sotla Rakovec	1994	8	18	12	30	0,20	7,6	0,96	0,22	0,37	6,2	18,9	4,9	1,67
4750	Sotla Rakovec	1994	9	7	13	0	0,06	4,8	0,87	0,33	0,39	4,1	15,5	3,3	1,46
4750	Sotla Rakovec	1995	6	22	16	30	0,09	7,2	1,43	0,37	0,63	5,1	11,6	10,8	3,01
4750	Sotla Rakovec	1995	7	20	13	20	0,10	7,5	0,77	0,26	0,29	5,6	17,1	3,0	1,89

Code	Sampling station	year	mth	day	h	min	NO_2 mg NO_2/l	NO_3 mg NO_3/l	NH_4 mg NH_4/l	PO_4 mg PO_4/l	TOT. PO_4 mg PO_4/l	COD ($KMnO_4$) mgO_2/l	COD ($K_2Cr_2O_7$) mgO_2/l	BOD5 mg O_2/l	Q m^3/s
4750	Sotla Rakovec	1995	8	24	15	30	0,17	8,0	1,44	0,40	0,52	6,8	22,0	6,6	2,24
4750	Sotla Rakovec	1995	10	27	12	40	0,06	5,2	2,33	0,33	0,41	4,4	20,1	4,6	2,37
4750	Sotla Rakovec	1996	3	7	10	30	0,04	5,3	0,40	0,14	0,05	4,2	17,0	3,2	5,03
4750	Sotla Rakovec	1996	7	16	15	45	0,04	4,8	0,29	0,17	0,03	4,0	6,8	1,0	2,56
4750	Sotla Rakovec	1996	8	8	12	40	0,12	5,3	2,13	0,46	0,03	13,1	26,5	6,5	15,7
4750	Sotla Rakovec	1996	10	29	15	0	0,04	5,1	0,70	0,19	0,01	3,6	7,3	2,4	5,76
4750	Sotla Rakovec	1997	3	20	12	50	0,03	4,2	0,45	0,22	0,30	3,3	5,5	3,1	-
4750	Sotla Rakovec	1997	5	15	14	30	0,07	2,6	0,86	0,23	0,26	4,1	13,3	4,6	-
4750	Sotla Rakovec	1997	7	10	16	20	0,08	6,3	1,42	0,12	0,14	5,4	12,4	4,0	-
4750	Sotla Rakovec	1997	11	6	13	40	0,02	3,7	0,18	0,05	0,07	5,2	10,1	1,9	-
4820	Kolpa Petrina	1994	5	5	11	20	0,01	3,6	0,07	0,00	0,01	2,1	3,0	0,7	10,7
4820	Kolpa Petrina	1994	6	1	11	15	0,01	3,8	0,08	0,03	0,07	2,3	3,2	1,3	14,3
4820	Kolpa Petrina	1994	8	2	10	0	0,01	2,7	0,20	0,00	0,03	2,2	3,6	1,5	2,97
4820	Kolpa Petrina	1994	9	1	11	30	0,01	3,9	0,08	0,06	0,12	2,1	5,1	0,9	4,56
4820	Kolpa Petrina	1995	3	15	11	30	0,00	3,9	0,16	0,01	0,03	1,6	2,7	1,6	18,1
4820	Kolpa Petrina	1995	6	6	10	0	0,00	3,5	0,28	0,05	0,07	2,4	3,5	1,1	13,7
4820	Kolpa Petrina	1995	7	4	11	30	0,01	2,9	0,20	0,01	0,02	1,9	5,7	1,6	8,93
4820	Kolpa Petrina	1995	10	12	11	50	0,00	2,7	0,17	0,02	0,04	2,0	4,1	0,7	6,66
4820	Kolpa Petrina	1996	4	18	13	0	0,01	3,2	0,21	0,01	0,61	2,0	2,2	1,6	34,4
4820	Kolpa Petrina	1996	6	4	10	50	0,01	3,4	0,13	0,02	1,60	1,9	3,0	2,2	9,79
4820	Kolpa Petrina	1996	9	11	12	30	0,01	3,1	0,49	0,01	0,05	1,8	3,4	1,3	5,39
4820	Kolpa Petrina	1996	10	2	11	45	0,05	2,7	0,21	0,01	0,04	1,7	4,2	1,2	11,2
4820	Kolpa Petrina	1997	3	4	11	30	0,01	4,7	0,16	0,01	0,01	1,3	3,9	0,9	-
4820	Kolpa Petrina	1997	5	21	13	10	0,01	3,5	0,10	0,01	0,03	1,7	2,0	1,2	-
4820	Kolpa Petrina	1997	7	30	12	0	0,01	3,0	0,24	0,01	0,02	2,1	4,1	1,6	-
4820	Kolpa Petrina	1997	9	25	11	30	0,01	3,5	0,17	0,01	0,02	1,7	3,9	0,5	-
4862	Kolpa Radovici	1994	5	5	17	10	0,03	3,1	0,11	0,01	0,04	2,8	3,9	1,7	36,6
4862	Kolpa Radovici	1994	6	1	17	30	0,01	3,1	0,07	0,02	0,07	2,4	4,5	2,9	31,5
4862	Kolpa Radovici	1994	7	20	16	45	0,02	2,3	0,18	0,01	0,05	2,8	8,2	2,6	21,6
4862	Kolpa Radovici	1994	8	2	17	0	0,02	1,8	0,20	0,00	0,03	2,9	6,4	1,9	10,1
4862	Kolpa Radovici	1994	9	1	17	10	0,01	3,3	0,08	0,01	0,15	2,4	5,5	1,3	13,9
4862	Kolpa Radovici	1994	11	22	16	15	0,01	3,8	0,30	0,06	0,11	1,9	4,5	1,0	30,5
4862	Kolpa Radovici	1995	3	15	18	10	0,01	4,4	0,21	0,03	0,23	2,2	5,8	3,2	64
4862	Kolpa Radovici	1995	4	13	14	15	0,01	3,5	0,31	0,04	0,05	2,6	7,1	1,4	39,8
4862	Kolpa Radovici	1995	6	6	17	15	0,01	3,8	0,37	0,07	0,11	2,2	7,3	1,5	35,2
4862	Kolpa Radovici	1995	7	4	17	15	0,01	2,9	0,27	0,02	0,04	2,4	6,5	1,7	30,1
4862	Kolpa Radovici	1995	9	28	15	40	0,01	3,3	0,22	0,03	0,05	3,0	14,5	2,5	31,5
4862	Kolpa Radovici	1995	10	12	17	25	0,01	2,7	0,16	0,02	0,05	3,3	5,5	2,1	20,1
4862	Kolpa Radovici	1996	4	18	17	30	0,01	2,6	0,24	0,01	0,30	2,6	3,7	1,5	83,8
4862	Kolpa Radovici	1996	6	4	18	20	0,02	3,3	0,16	0,03	0,26	3,5	5,8	1,6	26,1
4862	Kolpa Radovici	1996	7	16	13	0	0,01	2,5	0,08	0,04	0,14	2,9	7,6	1,1	23,2
4862	Kolpa Radovici	1996	9	11	17	30	0,01	3,7	0,62	0,01	0,07	2,6	6,2	1,9	20,1
4862	Kolpa Radovici	1996	10	2	16	30	0,01	3,7	0,22	0,02	0,02	2,1	5,3	1,2	37,6
4862	Kolpa Radovici	1996	12	5	10	30	0,01	4,3	0,25	0,02	0,05	2,2	7,0	3,4	62,8
4862	Kolpa Radovici	1997	3	4	17	15	0,01	4,2	0,26	0,01	0,01	2,0	6,2	1,5	-
4862	Kolpa Radovici	1997	5	21	17	45	0,02	3,1	0,21	0,01	0,05	1,9	4,9	2,4	-
4862	Kolpa Radovici	1997	7	30	16	50	0,01	2,0	0,33	0,01	0,03	2,5	4,7	1,9	-
4862	Kolpa Radovici	1997	8	27	17	25	0,02	2,7	0,12	0,01	0,04	2,9	4,5	2,4	-
4862	Kolpa Radovici	1997	9	25	15	50	0,01	3,3	0,22	0,02	0,05	2,4	3,3	2,1	-
4862	Kolpa Radovici	1997	10	16	10	20	0,01	5,0	0,11	0,04	0,07	3,3	9,8	1,6	-
4940	Rinza Kocevje	1994	5	5	9	30	0,06	0,4	5,86	0,92	0,99	12,6	27,8	8,1	-
4940	Rinza Kocevje	1994	6	1	10	0	0,04	0,8	1,20	0,17	0,28	7,5	27,9	8,6	-
4940	Rinza Kocevje	1994	9	1	10	0	0,35	2,7	3,30	0,31	0,56	8,1	18,9	7,9	-
4940	Rinza Kocevje	1995	3	15	9	10	0,04	6,9	1,17	0,42	0,99	5,5	12,5	5,6	-
4940	Rinza Kocevje	1995	11	23	12	30	0,07	4,3	1,52	0,25	0,27	5,9	27,1	5,3	-
4940	Rinza Kocevje	1995	12	19	10	30	0,04	7,4	0,32	0,13	0,20	3,8	16,0	2,9	-

Code	Sampling station	year	mth	day	h	min	NO_2 mg NO_2/l	NO_3 mg NO_3/l	NH_4 mg NH_4/l	PO_4 mg PO_4/l	TOT. PO_4 mg PO_4/l	COD ($KMnO_4$) mgO_2/l	COD ($K_2Cr_2O_7$) mgO_2/l	BOD5 mg O_2/l	Q m^3/s
4940	Rinza Kocevje	1996	4	18	10	10	0,10	6,1	0,34	0,10	0,02	8,1	16,1	11,2	-
4940	Rinza Kocevje	1996	7	16	10	35	0,10	0,1	2,35	0,12	0,01	12,0	26,2	5,6	-
4940	Rinza Kocevje	1996	9	11	8	45	0,18	0,5	9,87	0,22	0,01	8,5	24,8	4,5	-
4940	Rinza Kocevje	1997	3	4	8	30	0,05	4,9	0,98	0,08	0,10	3,5	18,0	1,7	-
4940	Rinza Kocevje	1997	11	27	10	10	0,03	5,9	0,41	0,15	0,18	5,0	11,9	3,6	-
4940	Rinza Kocevje	1997	12	16	12	30	0,03	4,6	1,00	0,07	0,09	3,5	7,2	1,6	-
5060	Ljubljanica Livada	1994	6	28	17	15	0,01	4,0	0,43	0,02	0,07	2,4	5,4	1,5	-
5060	Ljubljanica Livada	1994	8	16	18	15	0,09	7,3	0,42	0,04	0,09	4,7	11,6	-	-
5060	Ljubljanica Livada	1994	10	19	8	35	0,04	5,1	0,70	0,01	0,03	3,6	10,9	1,9	-
5060	Ljubljanica Livada	1995	7	19	8	35	0,04	3,8	0,63	0,03	0,31	3,2	8,2	2,7	-
5060	Ljubljanica Livada	1995	8	22	18	30	0,08	5,5	0,53	0,12	0,29	4,0	13,4	3,0	-
5060	Ljubljanica Livada	1995	10	25	8	45	0,04	4,2	0,32	0,06	0,07	2,8	3,5	0,7	-
5060	Ljubljanica Livada	1996	4	24	8	15	0,02	5,1	0,34	0,01	0,01	2,6	4,5	2,1	-
5060	Ljubljanica Livada	1996	8	6	17	5	0,08	4,1	0,51	0,05	0,05	2,7	3,7	1,6	-
5060	Ljubljanica Livada	1996	12	13	8	30	0,02	4,1	0,32	0,02	0,03	3,2	6,9	1,8	-
5060	Ljubljanica Livada	1997	3	18	17	0	0,02	4,6	0,38	0,04	0,06	2,5	5,3	0,9	-
5060	Ljubljanica Livada	1997	7	9	8	0	0,03	5,1	0,49	0,03	0,04	2,8	5,6	1,6	-
5060	Ljubljanica Livada	1997	11	5	8	10	0,12	4,7	2,52	0,03	0,05	6,1	13,9	5,1	-
5110	Ljubljanica Zalog	1994	3	2	9	45	0,05	6,3	0,63	0,11	0,13	4,8	13,2	6,6	41,1
5110	Ljubljanica Zalog	1994	5	17	16	0	0,51	3,9	1,95	1,18	1,53	9,6	51,0	22,9	25,7
5110	Ljubljanica Zalog	1994	6	28	8	30	0,02	4,7	0,62	0,08	0,14	2,9	10,4	5,9	29,8
5110	Ljubljanica Zalog	1994	8	17	8	30	0,11	7,6	1,79	0,06	0,22	5,8	22,0	10,9	15,9
5110	Ljubljanica Zalog	1994	10	19	10	0	0,07	6,1	1,80	0,34	0,39	5,5	18,2	9,5	22,6
5110	Ljubljanica Zalog	1994	11	16	16	30	0,04	6,1	0,59	0,11	0,13	7,9	22,0	8,8	87,5
5110	Ljubljanica Zalog	1995	4	11	9	15	0,03	4,8	0,39	0,01	0,05	2,7	14,6	5,2	51,5
5110	Ljubljanica Zalog	1995	5	30	10	10	0,03	4,9	0,68	0,09	0,13	5,7	15,2	14,5	36,7
5110	Ljubljanica Zalog	1995	7	6	8	30	0,05	4,7	0,75	0,09	0,21	6,7	12,9	5,8	69,6
5110	Ljubljanica Zalog	1995	7	18	16	50	0,32	4,0	1,04	0,23	0,28	6,2	23,7	16,1	24,9
5110	Ljubljanica Zalog	1995	8	23	9	40	0,24	5,3	1,35	0,43	0,55	6,2	36,2	10,4	17,3
5110	Ljubljanica Zalog	1995	10	25	9	30	0,06	5,2	0,52	0,23	0,28	5,2	18,6	6,5	15,2
5110	Ljubljanica Zalog	1996	2	28	15	45	0,07	6,3	1,30	0,31	0,04	9,2	34,3	17,4	47,6
5110	Ljubljanica Zalog	1996	4	24	17	20	0,07	5,5	0,98	0,03	0,05	6,5	15,6	12,7	60,8
5110	Ljubljanica Zalog	1996	5	30	11	30	0,07	4,9	0,53	0,06	0,07	8,9	16,2	12,6	76,5
5110	Ljubljanica Zalog	1996	8	6	18	25	0,40	3,7	1,91	0,22	0,10	11,0	35,1	24,2	18,8
5110	Ljubljanica Zalog	1996	10	14	17	0	0,08	4,8	1,19	0,12	0,18	6,1	16,0	8,7	52,6
5110	Ljubljanica Zalog	1996	12	13	9	45	0,04	4,8	0,87	0,07	0,09	4,9	8,7	3,8	59
5110	Ljubljanica Zalog	1997	3	18	18	0	0,10	5,4	2,06	0,35	0,46	9,9	36,8	19,6	-
5110	Ljubljanica Zalog	1997	4	16	11	0	0,11	6,1	2,02	0,14	0,26	13,1	14,4	10,7	-
5110	Ljubljanica Zalog	1997	5	14	9	50	0,07	6,2	0,50	0,05	0,10	4,1	9,8	5,1	-
5110	Ljubljanica Zalog	1997	7	9	9	20	0,43	5,7	0,95	0,09	0,14	5,5	15,5	6,5	-
5110	Ljubljanica Zalog	1997	8	26	9	30	0,61	5,4	13,33	0,11	0,24	6,4	18,0	17,7	-
5110	Ljubljanica Zalog	1997	11	5	9	20	0,13	7,3	2,06	0,15	0,22	6,3	28,8	10,8	-
5820	Pivka Postojna	1994	5	12	16	0	0,10	4,2	0,12	0,12	0,15	4,9	8,3	4,2	-
5820	Pivka Postojna	1994	7	7	9	0	0,02	3,8	0,15	0,24	0,31	12,6	17,3	4,3	-
5820	Pivka Postojna	1994	8	9	15	30	0,05	1,2	0,32	0,23	0,33	7,9	28,6	3,6	-
5820	Pivka Postojna	1995	4	19	9	0	0,05	3,4	0,54	0,04	0,10	3,5	13,9	1,5	-
5820	Pivka Postojna	1995	7	25	10	30	0,03	0,6	0,37	0,12	0,19	5,6	19,2	13,0	-
5820	Pivka Postojna	1995	10	17	8	50	0,03	2,1	0,22	0,11	0,18	5,7	15,4	1,6	-
5820	Pivka Postojna	1996	6	6	9	0	0,08	4,0	0,20	0,15	0,03	4,9	5,5	2,7	-
5820	Pivka Postojna	1996	8	20	8	45	0,12	2,9	0,32	0,35	0,04	5,0	14,8	2,6	-
5820	Pivka Postojna	1996	12	4	10	50	0,02	3,6	0,24	0,01	0,03	3,2	10,8	1,4	-
5820	Pivka Postojna	1997	4	2	8	55	0,07	3,6	1,07	0,09	0,11	5,9	16,2	3,8	-
5820	Pivka Postojna	1997	6	3	9	0	0,21	2,8	9,22	0,88	1,04	7,8	23,0	6,2	-
5820	Pivka Postojna	1997	10	2	8	40	0,03	3,8	0,44	0,13	0,18	6,8	18,6	5,0	-
6070	Savinja Letuš	1994	3	24	12	30	0,01	3,0	0,12	0,02	0,03	2,4	5,4	1,7	9,57
6070	Savinja Letuš	1994	5	25	12	0	0,00	3,1	0,07	0,01	0,01	1,9	2,5	1,4	12,5

Code	Sampling station	year	mth	day	h	min	NO_2 mg NO_2/l	NO_3 mg NO_3/l	NH_4 mg NH_4/l	PO_4 mg PO_4/l	TOT. PO_4 mg PO_4/l	COD ($KMnO_4$) mgO_2/l	COD ($K_2Cr_2O_7$) mgO_2/l	BOD5 mg O_2/l	Q m^3/s
6070	Savinja Letuš	1994	7	13	11	0	0,01	3,9	0,10	0,03	0,06	2,1	5,5	1,5	9,57
6070	Savinja Letuš	1994	8	10	11	20	0,01	3,4	0,21	0,01	0,02	1,9	3,6	1,2	4,18
6070	Savinja Letuš	1995	4	5	12	0	0,01	4,9	0,27	0,01	0,02	1,9	3,3	1,3	32,5
6070	Savinja Letuš	1995	5	9	11	45	0,01	3,3	0,21	0,01	0,07	2,0	6,1	1,4	16,8
6070	Savinja Letuš	1995	6	21	12	10	0,01	4,0	0,24	0,01	0,05	2,9	7,5	0,7	12
6070	Savinja Letuš	1995	10	10	11	30	0,01	4,6	0,21	0,02	0,10	1,9	2,8	1,6	8,39
6070	Savinja Letuš	1996	3	6	16	0	0,01	5,1	0,18	0,02	0,03	1,7	5,3	3,1	6
6070	Savinja Letuš	1996	5	22	10	20	0,01	4,0	0,18	0,01	0,03	1,4	4,5	1,1	15,3
6070	Savinja Letuš	1996	8	27	9	30	0,01	4,7	0,28	0,04	0,03	2,3	4,0	1,4	9,99
6070	Savinja Letuš	1996	11	5	8	35	0,01	4,4	0,17	0,06	0,05	2,0	3,2	1,2	9,55
6070	Savinja Letuš	1997	3	12	9	50	0,01	3,7	0,15	0,01	0,02	1,7	6,8	1,6	-
6070	Savinja Letuš	1997	4	24	9	15	0,01	3,7	0,18	0,01	0,34	1,8	2,8	1,5	-
6070	Savinja Letuš	1997	6	10	15	10	0,02	3,2	0,15	0,01	0,04	1,7	2,7	1,7	-
6070	Savinja Letuš	1997	9	9	9	20	0,01	4,7	0,16	0,01	0,02	2,2	4,1	0,7	-
6120	Savinja Medlog	1994	3	24	16	30	0,04	9,5	0,10	0,09	0,10	3,2	7,4	5,0	-
6120	Savinja Medlog	1994	5	18	10	15	0,01	8,3	0,10	0,06	0,06	2,6	2,8	2,7	-
6120	Savinja Medlog	1994	5	25	15	30	0,01	8,9	0,10	0,10	0,12	2,6	6,0	3,2	-
6120	Savinja Medlog	1994	7	13	13	45	0,00	8,9	0,20	0,08	0,11	3,0	4,5	1,5	-
6120	Savinja Medlog	1994	7	28	9	30	0,06	12,2	1,13	0,03	0,18	3,0	5,4	2,3	-
6120	Savinja Medlog	1994	8	10	15	45	0,13	12,4	0,42	0,02	0,04	2,8	9,2	3,3	-
6120	Savinja Medlog	1994	11	9	9	30	0,04	12,0	0,36	0,04	0,10	2,5	5,9	1,3	-
6120	Savinja Medlog	1994	12	6	14	0	0,06	14,8	0,42	0,03	0,03	2,5	6,1	3,6	-
6120	Savinja Medlog	1995	2	21	9	15	0,04	12,1	0,20	0,05	0,09	2,6	8,2	3,6	-
6120	Savinja Medlog	1995	4	6	10	15	0,03	8,8	0,22	0,02	0,03	2,7	9,6	1,9	-
6120	Savinja Medlog	1995	5	10	10	30	0,05	7,2	0,33	0,02	0,05	3,5	9,7	4,2	-
6120	Savinja Medlog	1995	5	31	9	20	0,13	8,9	0,33	0,04	0,22	3,4	6,1	2,3	-
6120	Savinja Medlog	1995	6	21	15	20	0,04	9,0	0,27	0,07	0,11	3,0	10,9	1,0	-
6120	Savinja Medlog	1995	9	27	14	15	0,04	11,2	0,21	0,05	0,07	2,2	11,7	1,8	-
6120	Savinja Medlog	1995	10	11	10	10	0,06	13,3	0,23	0,05	0,29	3,2	13,4	1,7	-
6120	Savinja Medlog	1995	11	9	8	45	0,10	14,2	0,34	0,06	0,07	2,9	13,7	0,9	-
6120	Savinja Medlog	1996	3	6	12	30	0,04	14,1	0,36	0,04	0,03	2,6	8,4	4,1	-
6120	Savinja Medlog	1996	3	28	9	45	0,03	8,1	0,23	0,04	0,41	3,5	7,8	3,3	-
6120	Savinja Medlog	1996	5	22	13	40	0,05	9,5	0,27	0,03	0,14	2,4	5,4	1,7	-
6120	Savinja Medlog	1996	7	25	9	0	0,11	15,1	0,32	0,03	0,38	3,1	3,2	2,4	-
6120	Savinja Medlog	1996	8	27	13	15	0,02	12,9	0,28	0,04	0,02	2,6	5,0	1,9	-
6120	Savinja Medlog	1996	9	18	10	35	0,10	14,3	0,13	0,07	0,34	2,2	3,4	0,7	-
6120	Savinja Medlog	1996	10	29	9	45	0,08	12,6	0,31	0,07	0,04	2,6	3,0	1,5	-
6120	Savinja Medlog	1996	11	5	13	0	0,09	13,9	0,26	0,06	0,02	2,3	3,3	1,7	-
6120	Savinja Medlog	1997	3	13	9	15	0,04	11,3	0,18	0,02	0,04	2,9	6,5	3,3	-
6120	Savinja Medlog	1997	4	9	10	45	0,11	11,1	0,34	0,04	0,09	3,3	9,4	3,2	-
6120	Savinja Medlog	1997	4	24	14	0	0,09	9,6	0,27	0,07	0,07	3,0	8,4	3,6	-
6120	Savinja Medlog	1997	6	11	9	30	0,26	7,3	1,08	0,07	0,15	4,8	17,4	7,3	-
6120	Savinja Medlog	1997	7	23	9	30	0,05	8,6	0,17	0,04	0,06	2,8	5,9	1,2	-
6120	Savinja Medlog	1997	8	13	9	0	0,07	10,0	0,10	0,05	0,06	2,8	9,6	2,1	-
6120	Savinja Medlog	1997	9	10	9	45	0,07	12,6	0,09	0,02	0,04	2,6	9,5	1,6	-
6120	Savinja Medlog	1997	10	29	9	30	0,07	13,9	0,27	0,08	0,09	3,0	7,1	3,4	-
6210	Savinja Veliko Širje	1994	3	3	11	0	0,06	7,6	0,14	0,12	0,18	4,3	4,9	3,2	24,3
6210	Savinja Veliko Širje	1994	3	25	15	30	0,07	7,0	0,45	0,10	0,11	3,2	9,3	4,0	17
6210	Savinja Veliko Širje	1994	5	18	11	45	0,01	5,8	0,08	0,06	0,07	3,6	3,9	2,9	19,6
6210	Savinja Veliko Širje	1994	5	26	14	30	0,01	6,0	0,13	0,07	0,10	3,3	9,7	4,5	18,9
6210	Savinja Veliko Širje	1994	7	13	17	10	0,02	8,6	0,13	0,12	0,17	3,3	8,9	2,3	22,3
6210	Savinja Veliko Širje	1994	8	11	15	0	0,28	6,4	0,26	0,05	0,09	3,7	13,4	3,7	25
6210	Savinja Veliko Širje	1995	4	6	15	30	0,03	7,0	0,21	0,01	0,02	3,2	19,0	3,5	11,5
6210	Savinja Veliko Širje	1995	5	10	15	30	0,08	6,4	0,34	0,01	0,05	4,3	13,1	2,6	47,7
6210	Savinja Veliko Širje	1995	6	21	18	40	0,05	7,4	0,28	0,21	0,28	3,4	11,7	1,3	26,5
6210	Savinja Veliko Širje	1995	7	19	13	20	0,07	8,2	0,31	0,25	0,32	3,0	8,9	2,3	23,5

Code	Sampling station	year	mth	day	h	min	NO_2	NO_3	NH_4	PO_4	TOT. PO_4	COD	COD	BOD5	Q
							mg NO_2/l	mg NO_3/l	mg NH_4/l	mg PO_4/l	mg PO_4/l	($KMnO_4$) mgO_2/l	($K_2Cr_2O_7$) mgO_2/l	mg O_2/l	m^3/s
6210	Savinja Veliko Širje	1995	8	23	18	15	0,10	7,6	0,39	0,14	0,23	4,6	12,2	3,4	18,7
6210	Savinja Veliko Širje	1995	10	11	16	20	0,08	10,5	0,18	0,05	0,13	3,7	13,5	2,7	23,5
6210	Savinja Veliko Širje	1996	2	29	14	50	0,04	9,1	0,22	0,11	0,15	3,0	16,9	4,4	21,9
6210	Savinja Veliko Širje	1996	3	6	9	0	0,05	9,9	0,37	0,09	0,06	2,5	12,3	3,7	32,5
6210	Savinja Veliko Širje	1996	4	25	10	30	0,05	6,3	0,21	0,01	0,06	3,2	4,7	2,4	24,3
6210	Savinja Veliko Širje	1996	5	23	10	15	0,07	7,6	0,28	0,08	0,04	3,2	4,1	3,7	52,5
6210	Savinja Veliko Širje	1996	7	11	13	0	0,05	9,4	0,11	0,04	0,09	3,2	4,5	2,6	35
6210	Savinja Veliko Širje	1996	8	28	14	20	0,03	9,0	0,37	0,11	0,07	2,9	7,7	2,2	43,2
6210	Savinja Veliko Širje	1996	11	5	16	45	0,09	9,5	0,30	0,11	0,16	2,6	8,1	2,5	25,8
6210	Savinja Veliko Širje	1997	3	13	15	10	0,04	7,8	0,25	0,05	0,07	2,8	8,4	3,3	-
6210	Savinja Veliko Širje	1997	4	24	17	50	0,08	7,4	0,22	0,08	0,12	4,2	11,4	4,1	-
6210	Savinja Veliko Širje	1997	5	15	9	15	0,13	5,2	0,24	0,09	0,10	3,4	13,4	3,5	-
6210	Savinja Veliko Širje	1997	6	11	15	30	0,29	7,4	0,68	0,11	0,13	6,5	20,6	7,8	-
6210	Savinja Veliko Širje	1997	7	9	19	10	0,05	7,1	0,26	0,06	0,07	3,0	9,1	2,7	-
6210	Savinja Veliko Širje	1997	9	10	15	0	0,12	9,5	0,24	0,07	0,11	3,4	14,3	1,4	-
6340	Paka Recica	1994	3	24	13	30	0,33	8,0	1,96	0,21	0,22	6,3	25,2	13,4	1,05
6340	Paka Recica	1994	5	25	13	0	0,03	6,6	2,43	0,34	0,44	5,5	16,3	9,0	1,75
6340	Paka Recica	1994	7	13	11	45	0,03	6,3	0,87	0,24	0,31	6,9	20,3	7,4	1,95
6340	Paka Recica	1994	8	10	12	10	0,94	4,7	1,50	0,38	0,68	5,2	19,9	7,8	1,2
6340	Paka Recica	1995	4	5	12	30	0,14	7,3	0,90	0,12	0,22	4,7	9,0	3,0	5,45
6340	Paka Recica	1995	5	9	13	0	0,40	7,3	1,03	0,26	0,41	4,2	16,1	8,8	1,75
6340	Paka Recica	1995	6	21	11	0	0,22	6,8	1,17	0,36	0,54	5,7	16,3	10,2	1,91
6340	Paka Recica	1995	10	10	12	15	0,22	7,7	1,00	0,17	0,29	3,2	15,2	5,1	2,65
6340	Paka Recica	1996	3	5	9	20	0,15	6,3	1,17	0,24	0,15	2,9	16,6	5,8	2,1
6340	Paka Recica	1996	5	22	9	15	0,24	6,8	1,15	0,27	0,08	3,8	14,0	8,2	2,27
6340	Paka Recica	1996	8	27	10	20	0,08	7,1	0,84	0,14	0,06	4,2	7,0	4,8	2,27
6340	Paka Recica	1996	11	5	9	5	0,17	7,1	1,31	0,31	0,15	4,7	14,5	5,6	2,85
6340	Paka Recica	1997	3	12	11	30	0,15	6,9	2,00	0,20	0,24	5,1	15,7	5,5	-
6340	Paka Recica	1997	4	24	10	0	0,30	6,8	2,69	0,26	0,34	4,9	20,4	10,5	-
6340	Paka Recica	1997	6	10	14	0	0,46	3,6	5,46	0,78	1,14	6,7	23,1	10,8	-
6340	Paka Recica	1997	9	9	10	30	0,66	7,2	3,33	0,39	0,44	5,3	17,2	6,6	-
6740	Voglajna Celje	1994	3	25	11	30	0,15	5,8	1,85	0,46	0,52	6,1	31,9	20,1	0,77
6740	Voglajna Celje	1994	5	26	11	30	0,04	6,7	1,93	0,35	0,50	6,5	27,8	10,2	0,357
6740	Voglajna Celje	1994	7	13	14	50	0,05	6,8	0,80	0,14	0,21	10,1	23,0	9,2	0,98
6740	Voglajna Celje	1994	8	11	9	50	0,49	4,9	10,38	1,25	1,90	7,5	30,2	9,2	0,219
6740	Voglajna Celje	1995	4	6	12	10	0,04	4,7	0,72	0,09	0,16	6,0	24,8	5,6	2,33
6740	Voglajna Celje	1995	5	10	11	20	0,13	5,3	1,88	0,32	0,44	7,5	22,8	10,7	1,09
6740	Voglajna Celje	1995	6	21	16	30	0,13	7,1	1,35	0,46	0,59	3,0	17,7	10,0	1,28
6740	Voglajna Celje	1995	10	11	11	15	0,12	6,3	1,03	0,22	0,29	8,1	35,6	9,3	0,816
6740	Voglajna Celje	1996	3	6	11	30	0,06	7,2	1,77	0,24	0,10	6,4	36,5	34,0	1,78
6740	Voglajna Celje	1996	5	22	15	20	0,13	7,0	1,05	0,23	0,13	4,4	20,2	9,2	1,48
6740	Voglajna Celje	1996	8	28	9	20	0,04	6,8	1,07	0,35	0,07	4,5	12,0	11,0	2,1
6740	Voglajna Celje	1996	11	5	14	0	0,08	5,7	1,04	0,14	0,11	5,9	16,0	10,3	1,58
6740	Voglajna Celje	1997	3	13	11	30	0,05	6,2	1,54	0,21	0,22	5,9	10,8	6,3	-
6740	Voglajna Celje	1997	4	24	15	40	0,09	5,2	2,00	0,27	0,32	5,6	25,4	9,3	-
6740	Voglajna Celje	1997	6	11	12	20	0,42	9,6	0,87	0,21	0,29	14,8	44,7	18,3	-
6740	Voglajna Celje	1997	9	10	10	30	0,14	7,8	1,60	0,22	0,24	6,4	18,7	9,7	-
7030	Krka Podbukovje	1994	5	4	10	0	0,00	6,1	0,13	0,05	0,05	1,6	5,4	1,5	4,15
7030	Krka Podbukovje	1994	6	2	9	45	0,01	6,5	0,13	0,10	0,30	1,8	2,9	1,5	4,37
7030	Krka Podbukovje	1994	8	4	9	35	0,01	7,7	0,24	0,04	0,14	2,1	3,0	1,4	2,05
7030	Krka Podbukovje	1994	9	7	18	0	0,01	6,7	0,07	0,10	0,13	1,9	5,6	0,7	2,74
7030	Krka Podbukovje	1995	4	13	10	0	0,01	5,6	0,25	0,06	0,08	2,2	3,6	0,6	5,22
7030	Krka Podbukovje	1995	6	22	10	0	0,01	0,6	0,16	0,07	0,10	2,0	5,0	0,4	4,98
7030	Krka Podbukovje	1995	7	27	9	25	0,00	7,6	0,29	0,07	0,09	2,0	3,1	1,5	2,24
7030	Krka Podbukovje	1995	10	19	9	30	0,00	7,7	0,26	0,05	0,09	2,5	5,0	0,7	2,91
7030	Krka Podbukovje	1996	3	12	10	0	0,01	6,8	0,19	0,08	0,24	1,8	3,7	1,1	-

Code	Sampling station	year	mth	day	h	min	NO_2 mg NO_2/l	NO_3 mg NO_3/l	NH_4 mg NH_4/l	PO_4 mg PO_4/l	TOT. PO_4 mg PO_4/l	COD ($KMnO_4$) mgO_2/l	COD ($K_2Cr_2O_7$) mgO_2/l	BOD5 mg O_2/l	Q m^3/s
7030	Krka Podbukovje	1996	5	9	10	15	0,00	5,3	0,16	0,06	0,34	1,9	5,0	0,8	-
7030	Krka Podbukovje	1996	6	21	10	30	0,01	8,2	0,07	0,03	1,14	1,8	3,3	0,4	-
7030	Krka Podbukovje	1996	7	18	10	0	0,01	6,7	0,19	0,05	0,44	2,1	7,0	1,2	-
7030	Krka Podbukovje	1996	9	10	10	50	0,01	7,0	0,18	0,11	0,07	2,4	4,7	1,1	-
7030	Krka Podbukovje	1997	3	5	10	20	0,01	5,4	0,15	0,04	0,06	1,4	3,0	1,1	-
7030	Krka Podbukovje	1997	5	22	10	15	0,01	6,2	0,12	0,05	0,07	1,9	2,7	1,8	-
7030	Krka Podbukovje	1997	7	1	9	35	0,01	6,2	0,08	0,06	0,09	2,5	4,0	1,0	-
7030	Krka Podbukovje	1997	9	11	9	35	0,01	7,1	0,19	0,06	0,08	1,6	5,2	1,8	-
7110	Krka Gornja Gomila	1994	5	4	14	20	0,03	5,7	0,11	0,02	0,03	2,5	6,7	2,1	19,8
7110	Krka Gornja Gomila	1994	6	2	13	15	0,01	6,0	0,14	0,04	0,25	2,3	5,5	1,7	15,2
7110	Krka Gornja Gomila	1994	8	4	12	0	0,02	1,4	0,26	0,01	0,07	3,4	8,5	3,7	11
7110	Krka Gornja Gomila	1994	9	7	15	0	0,03	6,7	0,08	0,15	0,16	2,9	9,9	1,2	14,8
7110	Krka Gornja Gomila	1995	4	13	15	30	0,02	5,6	0,27	0,06	0,09	2,3	3,0	1,2	25,7
7110	Krka Gornja Gomila	1995	6	22	13	30	0,03	4,8	0,21	0,03	0,09	2,5	6,1	1,2	27,1
7110	Krka Gornja Gomila	1995	7	27	14	0	0,02	2,7	0,36	0,08	0,12	3,0	6,1	2,4	15,6
7110	Krka Gornja Gomila	1995	10	19	13	30	0,04	7,7	0,27	0,12	0,15	2,8	10,4	1,1	14,5
7110	Krka Gornja Gomila	1996	3	12	13	20	0,02	7,2	0,16	0,10	0,24	2,1	5,5	2,1	-
7110	Krka Gornja Gomila	1996	5	9	14	10	0,03	5,8	0,22	0,13	0,06	2,2	4,0	0,9	-
7110	Krka Gornja Gomila	1996	6	21	14	20	0,07	5,2	0,07	0,08	0,06	2,7	8,9	1,3	-
7110	Krka Gornja Gomila	1996	7	18	13	50	0,04	5,1	0,26	0,01	0,07	3,7	10,6	3,7	-
7110	Krka Gornja Gomila	1996	9	10	14	20	0,03	6,4	0,19	0,10	0,09	1,9	4,1	1,3	-
7110	Krka Gornja Gomila	1997	3	5	13	30	0,01	5,8	0,20	0,03	0,06	1,6	6,2	1,4	-
7110	Krka Gornja Gomila	1997	5	22	13	30	0,06	5,3	0,15	0,07	0,09	2,9	4,9	1,6	-
7110	Krka Gornja Gomila	1997	7	1	13	15	0,03	6,7	0,08	0,07	0,10	3,2	6,9	1,7	-
7110	Krka Gornja Gomila	1997	9	11	13	0	0,04	5,1	0,21	0,10	0,11	2,2	8,5	1,6	-

Annex 5.

Legal Aspects

10.3 ANNEX 3: TRANSPOSITION TIMETABLE OF THE SLOVENIAN ENVIRONMENTAL LEGISLATION TO THE EU

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ZAKONODAJA EU EU Legislation	NACIONALNI PREDPIS National Reference	ROK Term
A. HORIZONTAL		
1. Non-White Paper legislation		
Directives		
• Environmental impact assessment, 85/337/EEC, amended by 97/11/EC	Uredba o vrstah posegov v okolje, za katere je obvezna presoja vplivov na okolje Ur.l.RS, št. 66/96 / Regulation on environmental impact assesment Uredba o spremembah in dopolnitvah uredbe o vrstah posegov v okolje, za katere je obvezna presoja vplivov na okolje / Regulation on amendment on environmental impact assesment	June 99
• Environmental information, 90/313/EEC	Zakon o varstvu okolja/Environmental Protection Act, OJ 32/93, 1/96	
• Reporting, 91/692/EEC	Zakon o varstvu okolja/Environmental Protection Act, OJ 32/93, 1/96 Regulation on reporting	March 99
• Council Directive 93/76/EC to limit Carbon dioxide emissions by improving energy efficiency (SAVE)		March 99
Regulations		
• European Environment Agency, EEC/1210/90		
• LIFE, EEC/1836/93	Zakon o varstvu okolja /Environmental protection Act, OJ 32/93, 1/96 Regulation on LIFE	June 99
2. White Paper legislation		
none		
B. AIR QUALITY		
1. Non-White Paper legislation		
Directives		
Air Quality Framework, 96/62/EC, including 3 older directives to be replaced by new requirements under the framework directive SO_2 and particulates, 80/779/EEC, amended by 81/857/EEC, 89/427/EEC, 90/656/EEC and 91/692/EEC Lead, 82/884/EEC amended by 90/656/EEC and 91/692/EEC	1. Zakon o varstvu okolja/Environmental Protection Act, OJ 32/93, 1/96; 2. Uredba o mejnih, opozorilnih in kritičnih imisijskih vrednosti snovi v zraku / Regulation on the limit values, critical values and alert threshold of the concentration of pollutants in ambient air, OJ 73/94; 1. Uredba o spremembi uredbe o mejnih, opozorilnih in ciljnih imisijskih vrednosti snovi v zraku / Decree on amendment on	June 98

ZAKONODAJA EU EU Legislation	NACIONALNI PREDPIS National Reference	ROK Term
Nitrogen oxide, 85/203/EEC, amended by 85/580/EEC, 90/656/EEC and 91/692/EEC and 92/72/EEC tropospheric ozone pollution	the limit, warning and critical immision values into air; 2. Pravilnik o monitoringu onesnaženosti zraka / Ordinance on monitoring of ambient air quality in ciljnih imisijskih vrednosti snovi v zraku	
	Uredba o kakovosti trdnih goriv glede vsebnosti žvepla /Regulation on quality of solid fuels concerning the sulphur content	March 98
Regulations		
none		
2. White Paper legislation		
Directives		
• Emissions from motor vehicles, 70/220/EEC amended by 74/270/EEC, 77/102/EEC, 78/665/EEC, 83/351/EEC, 88/76/EEC, 88/436/EEC, 89/458/EEC, 89/491/EEC, 91/441/EEC, 93/59/EEC, 94/12/EEC, 96/44/EEC and 96/69/EEC - *"Auto-Oil" proposal COM(96) 0163 (COD)* • Emissions from diesel engines - soot, 72/306/EEC amended by 89/491/EEC and 97/20/EC • Emissions from diesel engines 88/77/EEC amended by 91/542/EEC and 96/1/EEC • Emissions from motor vehicles - roadworthiness test for emissions, 92/55/EEC		
• VOC emissions from storage and transport of petrol, 94/63/EC	Uredba o emisiji snovi v zrak iz naprav za prečrpavanje goriv /Regulation on emission of substances into air from storage of kpetrol and its distribution from terminals to service stations	June 98
• *Lead content of petrol, 85/210/EEC* amended by 85/581/EEC and 87/416/EEC • *Sulphur content of liquid fuels, 93/12/EEC* replacing 75/716/EEC • Proposal: on the quality of petrol and diesel fuel, COM(96) 0164 (COD) - "Auto-Oil". ** The proposed directive on the quality of petrol and diesel fuel, COM(96) 0164 (COD) will replace 85/210/EEC and the limit values for sulphur content in diesel fuel for road vehicles found in 93/12/EEC.*	Odredba o kakovosti tekočih goriv glede vsebnosti žvepla, svinca, in benzena / Decree on quality of liquid fuels concerning the sulphur, lead and benzene content, OJ 8/95 Odredba o spremembi odredbe o kakovosti tekočih goriv glede vsebnosti žvepla, svinca in benzena / Decree on amendment on quality of liquid fuels concerning the sulphur, lead and benzene content	January 99

ZAKONODAJA EU EU Legislation	NACIONALNI PREDPIS National Reference	ROK Term
Regulations		
none		
C. Waste management		
1. Non-White Paper legislation		
Directives		
• Waste from the titanium dioxide industry, 78/176/EEC amended by 91/692/EEC, and related directives: Procedures for the surveillance of titanium dioxide industry, 82/883/EEC Harmonisation of reduction programmes, 92/112/EEC	Odredba o ravnanju z odpadki pri proizvodnji titanovega dioksida/Decree on waste management from titanium diokside	June 98
• Municipal waste incineration for existing installations, 89/429/EEC and for new installations, 89/369/EEC	Uredba o emisijah snovi v zrak iz sežigalnic komunalnih odpadkov / Regulation on emission of substances into air from the municipal waste incineration	January 98
• Packaging waste, 94/62/EC	Pravilnik o ravnanju z embalažo / Ordinance on packaging and packaging waste	October 98
	Pravilnik o uporabi biološko razgradljivih olj/Ordinance on use of biodegradable oils in forestry activities	October 98
• Hazardous waste incineration, 94/67/EEC	Uredba o emisiji snovi v zrak iz sežigalnic nevarnih odpadkov/Regulation on emission of substances into air from the incineration of hazardous waste Uredba o spremembi uredbe o emisiji snovi v zrak iz sežigalnic odpadkov/Regulation on amendment on emission of substances into air from the incineration of hazardous waste	January 98
• Proposal for a directive on Landfill of waste, (COM(97)105)-final	Odredba o odlagališčih odpadkov Decree on the landfill of waste	September 97
	Pravilnik o ravnanju s fitofarmacevtskimi odpadki/Ordinance on phytopharmaceutical waste management Uredba o načinu opravljanja javne službe ravnanja s fitofarmacevtskimi odpadki v RS/Regulation on public service on phytopharmaceutical waste management	September 97
	Uredba o načinu opravljanja javne službe ravnanja z živalskimi trupli, deli živalskih trupel in živalskimi proizvodi v RS/Regulation on public service on animal carcases management	September 97

ZAKONODAJA EU EU Legislation	NACIONALNI PREDPIS National Reference	ROK Term
Regulations		
none		
2. White Paper legislation		
Directives		
• Disposal of waste oils, 75/439/EEC amended by 87/101/EEC and 91/692/EEC	Zakon o varstvu okolja/Environmental Protection Act ,OJ 32/93, 1/96; Pravilnik o ravnanju z odpadnimi olji/Ordinance on waste oil management, OJ 4/80; Uredba o emisiji snovi v zrak iz kurilnih naprav /Regulation on emission of substances into air from heating appliances, OJ 78/94; Odredba o ravnanju z odpadnimi olji/Decree on waste oil management	September 97
• Waste Framework directive 75/442/EEC amended by 90/656/ECC, 91/156/EEC and 91/692/EEC	Zakon o varstvu okolja/Environmental Protection Act, OJ 32/93, 1/96; Pravilnik o ravnanju s posebnimi odpadki, ki vsebujejo nevarne snovi/Ordinance on waste management, OJ 20/86, 4/89, 39/96; Odredba o ravnanju z odpadki/Decree on waste management	September 97
• Disposal of PCBs and PCTs, 76/403/EEC replaced by 96/59/EC from 16.03.98	Odredba o odlaganju polikloriranih bifenilov polikloriranih terfenilov/Decree on the disposal of polychlorinated biphenyls and polychlorinated terphenyls	January 99
• Hazardous waste, 91/689/EEC replacing 78/319/EEC amended by 94/31/EC	Zakon o varstvu okolja/Environmental Protection Act, OJ 32/93, 1/96; Pravilnik o ravnanju s posebnimi odpadki, ki vsebujejo nevarne snovi/Ordinance on waste management, OJ 20/86, 4/89, 39/96 Odredba o ravnanju z nevarnimi odpadki/Decree on hazardous waste management	September 97
• Sewage sludge and soil, 86/278/EEC amended by 91/692/EEC	Zakon o varstvu okolja/Environmental Protection Act, OJ 32/93, 1/96; Uredba o vnosu nevarnih snovi in rastlinskih hranil v tla/Regulation on the introduction of hazardous substances and plant nutritients into soil, OJ 68/96;	

ZAKONODAJA EU EU Legislation	NACIONALNI PREDPIS National Reference	ROK Term
	Uredba o mejnih, opozorilnih in kritičnih imisijskih vrednosti nevarnih snovi v tleh/Regulation on the limit, warning and critical imission values of the hazardous substances into soil. OJ 68/96	
• Batteries, 91/157/EEC amended by 93/86/EEC	Odredba o ravnanju z odpadnimi galvanskimi členi/Decree on spent galvanic cells management	January 99
• Packaging waste, 94/62/EC	Pravilnik o ravnanju z embalažo / Ordinance on packaging and packaging waste	October 98
	Pravilnik o uporabi biološko razgradljivih oljih/Ordinance on use of biodegradable oils in forestry activities	October 98
Regulations		
• Regulation on Supervision shipment of waste, EEC/259/93 amended by 120/97/EC	Zakon o varstvu okolja/Environmetal Protection Act, OJ 32/93, 1/96; Zakon o ratifikaciji Baselske konvencije/Act on Ratification of the Basel Convention, OJ 48/93; Odredba o izvozu, uvozu in tranzitu odpadkov/Decree on export, import and transit of waste, OJ 39/96, 45/96, 1/97 Odredba o spremembi odredbe o izvozu, uvozu in tranzitu odpadkov/Decree on amendment on export, import and transit of waste	--- March 98
D. WATER QUALITY		
1. Non-White Paper legislation		
Directives		
• *Proposed Water Quality Framework Directive, (COM(97)49 -final*	Zakon o vodah /water law/	November 97
• Urban waste water, 91/271/EEC	Uredba o emisiji snovi pri odvajanju odapdnih vod iz komunalnih čistilnih naprav (Ur.l. RS, št. 35/96) / Regulation on imission of substances concerning urban waste water treatment Odredba o določitvi ranljivih območij zaradi obremenjevanja voda z komunalnimi odpadnimi vodami / Decree on criteria of special protection for areas designated for eutrophicaly sensitive areas	October 98

ZAKONODAJA EU EU Legislation	NACIONALNI PREDPIS National Reference	ROK Term
• Nitrates, 91/676/EEC	Odredba o določitvi ranljivih območij zaradi uporabe dušičnih spojin v kmetijstvu / Decree on criteria of special protection for areas designated for nutrient sensitive areas	October 98
• Dangerous substances to the aquatic environment, 76/464/EEC 7 daughter directives, all amended by 90/656/ECC and 91/692/EEC Mercury discharges from chlor-alkali industries, 82/176/EEC Cadmium discharges, 83/513/EEC Other mercury discharges, 84/156/EEC HCH discharges, 84/491/EEC List one substances, 86/280/EEC, amended by 88/347/EEC and 90/415/EEC	Regulation on emission of substances from chlor-alkali industries, cadmium discharges, other mercury discharges, HCH discharge.	March 99
• *Drinking water, 80/778/EEC amended by 81/858/EEC, 90/656/EEC and 91/692/EEC • *Bathing water, 76/160/EEC amended by 90/656/EEC • *Surface water for the abstraction of drinking water, 75/440/EEC amended by 79/869/EEC, 90/656/FEEC and 91/692/EEC related decision 77/795/EEC on common procedurres for exchange of information • *Fish water, 78/659/EEC amended by 90/656/EEC and 91/692/EEC • *Shellfish water, 79/923/EEC amended by 91/692/EEC * *will be incorporated in the proposed Water Quality Framework Directive (COM(97)49)*	1.Uredba o klasifikaciji voda medrepubliških vodnih tokov, meddržavnih voda in voda obalnega morja, Ur.l. SFRJ 6/1978 / Regulation on water quality standards of ..... 2. Uredba o imisijskih mejnih vrednosti površinskih in podzemnih vodaklasifikaciji voda / Regulation on water quality standards of surface fresh water and undergroundwater Pravilnik o monitoringu onesnaženosti površinskih voda /ordinance on the monitoring requirements concerning the quality of surface water	January 98 January 98
• *Surface water for the abstraction of drinking water, 75/440/EEC amended by 79/869/EEC, 90/656/EEC and 91/692/EEC related decision 77/795/EEC on common procedures for exchange of information	Pravilnik o monitoringu onesnaženosti površinskih voda /Ordinance on the monitoring requirements concerning the quality of surface water	January 98

ZAKONODAJA EU EU Legislation	NACIONALNI PREDPIS National Reference	ROK Term
• Measurement and sampling of drinking water, 79/869/EEC amended by 81/855/EEC		
• *Ground water 80/68/EEC amended by 90/656/ECC and 91/692/EEC * will be incorporated in the proposed Water Quality Framework Directive (COM(97)49)	Odredba o določitvi vodovarstvenih območij za vodne vire namenjeni oskrbi s pitno vodo / Decree on criteria of special protection for areas designated for the abstraction of water intended for human consumption	March 98
• Proposal for a Council Directive on the ecological quality of water (COM(93)680) (to be incorporated into Water Framework Directive)	Predpis o klasifikaciji voda po ekološkem kakovosti (zakon o vodah) / Ordinance on the ecological quality standards of water	June 99
Regulations		
none		
2. White Paper legislation		
none		----
E. NATURE PROTECTION		
1. Non-White Paper legislation		
Directives		
• Habitats, 92/43/EEC	Nacionalna strategija biotske raznovrstnosti in nacionalni program (National Biodiversity Strategy and Action Plan) Osnutek zakona o varstvu narave (Draft Law on Nature Conservation)	April 98 October 97
• Wild birds, 79/409/EEC amended by 81/854/EEC, 85/411/EEC, 86/122/EEC, 91/244/EEC and 94/24/EC	Zakon o ratifikaciji Bernske konvencije o varstvu flore, favne in habitatov (Law on Ratification of the Convention on the conservation of European wildlife and natural habitats) Zakon o ratifikaciji Bonnske konvencije o varstvu migracijskih prostoživečih vrst živali (Law on Ratification of the Convention on the conservation of migratory species of wild animals) Nacionalna strategija biotske raznovrstnosti in nacionalni program (National Biodiversity Strategy and Action Plan) Osnutek zakona o varstvu narave (Draft Law on Nature Conservation)	December 97 April 98 October 1998
• Skins of seal pups, 83/129/EEC amended by 85/444/EEC, 89/370/EEC		
Regulations		
• Endangered species, 338/97/EC repeals EEC/3626/82	Zakon o ratifikaciji Washingtonske konvencije o mednarodni trgovini z ogroženimi vrstami samonikle favne in flore (CITES) (Law on Ratification of the	July 98

ZAKONODAJA EU EU Legislation	NACIONALNI PREDPIS National Reference	ROK Term
	Washington Convention on international trade in endangered species of wild fauna and flora (CITES))	
• Import of whales, 348/81/EEC		
• Protection of the Antarctic 90/3943/EEC		
• Leghold traps, EEC/3254/91 amended by 35/97/EC		
• Protection of forests against atmospheric pollution, EEC/3528/86 amended by EEC/1696/87, EEC/2157/92, EEC/926/93, EEC/836/94, EC/1091/94, EC/690/95, EC/1398/95 and 307/97/EC		
• Protection of forests against fire, EEC/2158/92 amended by EEC/1170/93, EC/804/94 and 308/97/EC		
2. White Paper legislation		
none		
F. INDUSTRIAL POLLUTION CONTROL AND RISK MANAGEMENT		
1. Non-White Paper legislation		
Directives		
• *Air pollution from industrial plants, 84/360/EEC amended by 90/656/ECC and 91/692/EEC *will be replaced by the IPPC Directive	Uredba o emisiji snovi v zrak iz podzemnih virov onesnaževanja (Ur.l.RS, št. 73/94)	
• Large combustion plants, 88/609/EEC amended by 90/656/ECC and 94/66/EC	1. Uredba o emisiji snovi v zrak iz kurilnih naprav (Ur.l.RS, št. 73/94) / Regulation on emission of substances into air from heating appliances 2. Uredba o spremembah in dopolnitvah uredbe o emisiji snovi v zrak iz kurilnih naprav / Regulation on amendment on emission of substances into air from heating appliances	March 98
• IPPC, 96/61/EC		January 99
• Seveso - Control of major accident hazards, 96/82/EC replacing 82/501/EEC	to be included into the Law on chemicals Decree on monitoring of industrial site risk management activities	October 98
• Proposed Directive on industrial emissions of VOC-solvents , COM(96) 538-final.	Uredba o emisiji VOC v zrak iz virov onesnaževanja / Regulation on emission of VOCs into air from certain processes and industrial installation	October 99
• Proposal for Council Directive on the	1. Uredba o emisiji snovi v zrak iz nepremičnih motorjev z notranjim	

ZAKONODAJA EU EU Legislation	NACIONALNI PREDPIS National Reference	ROK Term
emission of gaseous and paticulate pollutants from internal combustion engines to be installed in non-road mobile machinery (95/C328/01)	izgorevanjem in nepremičnih plinskih turbin, Ur.l. RS,št. 73/94/ Regulation on emission of substances into air form internal combustion engines to be installed in non road mobile machinery 2. Uredba o spremembi uredbe o emisiji snovi v zrak iz nepremičnih motorjev z notranjim izgorevanjem in nepremičnih plinskih turbin /Regulation on amendment on emission of substances into air from internal combustion engines to be installed in non-road mobile machinery	March 98
• Directive 86/280/EEC on the limit values and quality objectives for discharges of certain dangerous substances included in List I of the annex to Directive 76/464/EEC, subsequently amended by Directives 88/347/EEC and 90/41/EEC amending Annex II to Directive 86/280/EEC and • Directive 76/464/EEC on pollution caused by certain dangerous substances discharged into aquatic environment	Uredba o emisiji snovi pri odvajanju odpadnih vod iz virov onesnaževanja: / Regulation on emission of substances concerning urban waste water treatment: - proizvodnja rastlinskih in zivalskih olj in maščob / production of vegetal and animal oils - predelava mleka in proizvodnja mlečnih izdelkov / reproduction of milk - proizvodnja piva in slada / beer and malt production - proizvodnja mesa in mesnih izdelkov / meat production - bolnišnic / hospitals - pralnic in kemičnih čistilnic / washhouses and chemical refinery - objektov za vzdrževanje in popravila motornih vozil in trgovin na drobno z motornimi gorivi / maintenance of vehicles - ribogojnic / fishfarms - kafilerij / disposal of animal carcases - odlagališča odpadkov/landfill	March 98 ----
• Directive 86/280/EEC on the limit values and quality objectives for discharges of certain dangerous substances included in List I of the annex to Directive 76/464/EEC, subsequently amended by Directives 88/347/EEC and 90/41/EEC amending Annex II to Directive 86/280/EEC and • Directive 76/464/EEC on pollution caused by certain dangerous substances discharged into aquatic environment	Uredba o emisiji snovi pri odvajanju odpadnih vod iz virov onesnaževanja: / Regulation on emission of substances concerning urban waste water treatment: - rudarjenje in predelava rudnin / mining, quarrying and processing at the mining site - obdelava lesa / manufacture of wood and of products of wood - proizvodnja papirin vlaknin / manufacture of pulp, paper and paper products, - predelava goriv / manufacture of coke, refined petroleum products	October 98

ZAKONODAJA EU EU Legislation	NACIONALNI PREDPIS National Reference	ROK Term
	- proizvodnja izdelkov iz nekovinskih mineralov / manufacture of nonmetallic mineral products - oskrba z energijo / electricity, gas, steam and hot water supply	
	Pravilnik o imisijskem obratovalnem monitoringu virov onesnaževanja zraka	June 98
	Uredba o emisiji vonjav /Regulation on emission of fragrances; Pravilnik o monitoringu vonjav /Ordinance on monitoring of fragrances	October 98
Regulations		
• Regulation on Eco-Label, EEC/880/92 related Commission Decisions on Eco-Label criteria for: Dishwashers, 93/431/EEC Soil improvers, 94/923/EEC Toilet paper, 94/924/EEC Paper kitchen rolls, 94/925/EEC Laundry detergents, 95/365/EEC Single-ended lightbulbs, 95/533/EEC Indoor paints and varnishes, 96/13/EEC Bed-linen and T-shirts, 96/304/EEC Double-ended lightbulbs, 96/337/EEC Washing machines, 96/461/EEC Copying paper, 96/467/EEC Refrigerators, 96/703/EEC	Zakon o varstvu okolja/Environmental Protection Act, OJ 32/93, 1/96 Regulation on Eco Label	June 99
• Regulation on EMAS, EEC/1836/93	Zakon o varstvu okolja/Environmental Protection Act, OJ 32/93, 1/96 Regulation on EMAS	June 99
2 White Paper legislation		
none		
G. CHEMICALS AND GENETICALLY MODIFIED ORGANISMS		
1. Non-White Paper legislation		
Directives		
• Animal experiments, 86/609/EEC		
• Good laboratory practice, 87/18/EEC related directive 88/320/EEC on inspection		
• GMOs, contained use, 90/219/EEC amended by 94/51/EC	Zakon o gensko spremenjenih organizmih - GMO / Law on genetically modified organisms -GSM	October 98
• Asbestos, 87/217/EEC	Regulation on emission of substances from asbestos processes	
Regulations		
none		
2. White Paper legislation		
Directives		

ZAKONODAJA EU EU Legislation	NACIONALNI PREDPIS National Reference	ROK Term
• Classification, packaging and labelling of dangerous substances, 67/548/EEC amended by 69/81/EEC, 70/189/ECC, 71/144/EEC, 73/146/EEC, 75/409/EEC, 76/907/EEC, 79/370/EEC, 79/831/EEC, 80/1189/EEC, 81/957/EEC, 82/232/EEC, 83/467/EEC, 84/449/EEC, 86/431/EEC, 87/432/EEC, 88/302/EEC, 88/490/EEC, 90/517/EEC, 91/325/EEC, 91/326/EEC, 91/410/EEC, 91/632/EEC, 92/32/EEC, 92/37/EEC, 92/69/EEC, 93/21/EEC, 93/67/EEC, 93/72/EEC, 93/90/EEC, 93/101/EEC, 93/105/EEC, 94/69/EC, 96/54/EC, 96/56/EC		
• Classification, labelling and packaging of dangerous preparations, 88/379/EEC amended by 89/178/EEC, 90/492/EEC, 91/155/EEC, 93/18/EEC, 93/112/EEC, 91/442/EEC, 95/65/EEC		
• Restrictions on the marketing and use of certain dangerous substances and preparations, 76/769/EEC • amended by 79/663/EEC, 82/806/EEC, 82/828/EEC, 83/264/EEC, 83/478/EEC, 85/467/EEC, 85/610/EEC, 89/677/EEC, 89/678/EEC, 91/173/EEC, 91/338/EEC, 91/339/EEC, 91/659/EEC, 94/27/EC, 94/48/EC, 94/60/EC, 96/55/EC and 97/10/EC, 97/16/EC		
• GMOs, deliberate release, 90/220/EEC amended by 94/15/EC, 97/35/EC	Zakon o GMO / Law on GSM	October 98
• Detergents, 73/404/EEC amended by 82/242/EEC and 86/94/EEC related directive on testing the biodegradibility, 73/405/EEC		
• Transport of dangerous goods by road 94/55/EC		
Regulations		
• Regulation on Existing substances, EEC/793/93		
• Regulation laying dawn the Principles for the Evaluation of Risks, EC/1488/94		
• Regulation concerning the first list of priority substances, EC/1179/94		
• Regulation concerning the second list of priority substances, EC/2268/95,		
• Reg. concerning the third list of priority substances, 142/97/EC and 143/97/EC,		
• Regulation on Import and export of		

ZAKONODAJA EU EU Legislation	NACIONALNI PREDPIS National Reference	ROK Term
dangerous chemicals, EEC/2455/92		
• Regulation on Ozone depleting substances, EC/3093/94	1. Zakon o varstvu okolja/Environmental Protection Act, OJ 32/93, 1/96; 2. Zakon o ratifikaciji Dunajske konvencije o zaščiti ozonskega plašča/Act on ratification of Vienna convention for the protection of the ozone layer, OJ 9/92, 35/92; 3. Zakon o ratifikaciji Montrealskega protokola o substancah, ki škodljivo delujejo na ozonski plašč/Act on ratification of the Montreal protocol on substances that deplete the ozone layer, OJ 9/92, 35/92; 4. Uredba o ratifikaciji Londonskega amandmaja/Regulation on ratification of the London amendment to the Montreal protocol, OJ 61/92; 5. Uredba o ratifikaciji Kopenhagenskih amandmajev/Regulation on ratification of the Copenhagen amendment to the Montreal protocol; Odredba o snoveh, ki povzrocajo tanjšanje ozonskega plašča/Decree on substances that deplete the ozone layer	
H. NOISE FROM VEHICLES AND MACHINERY		
1. Non-White Paper legislation		
none		
2. White Paper legislation		
Directives		—
• Motor Vehicles 70/157/EEC amended by 73/350/EEC, 77/212/EEC, 81/334/EEC, 84/372/EEC, 84/424/EEC, 87/354/EEC, 89/491/EEC, 92/97/EEC and 96/20/EC		
• Motor cycles 78/1015/EEC amended by 87/56/EEC and 89/235/EEC		
• Construction plant equipment (framework), 79/113/EEC amended by 81/1051/EEC and 85/405/EEC	Decree on the determination of the noise emission of construction plant and equipment	June 98
• Subsonic aircraft, 80/51/EEC amended by 83/206/EEC		
• Subsonic jet aeroplanes, 89/629/EEC Limitation of the operations of aeroplanes, 92/14/EEC		
• EEC type approval for construction plant	Decree on the common provisions for	

ZAKONODAJA EU EU Legislation	NACIONALNI PREDPIS National Reference	ROK Term
and equipment, 84/532/EEC	construction plant and equipment	June 98
• Compressors, 84/533/EEC amended by 85/406/EEC	Decree on the permissible sound power level of compressors	June 98
• Tower cranes, 84/534/EEC amended by 85/405/EEC	Decree on the permissible sound power level on tower cranes	June 98
• Welding generators, 84/535/EEC amended by 85/407/EEC	Decree on the permissible sound power level of welding generators	October 98
• Power generators, 84/536/EEC amended by 85/408/EEC	Decree on the permissible sound power level of power generators	October 98
• Concrete breakers, 84/537/EEC amended by 85/409/EEC	Decree on the permissible sound power level of powered hand-held concrete breaker sand picks	October 98
• Lawn mowers, 84/538/EEC amended by 87/252/EEC, 88/180/EEC and 88/181/EEC	Decree on the permissible sound power levels of lawnmowers	January 99
• Hydraulic excavators, 86/662/EEC amended by 89/514/EEC and 95/27/EC	Decree on the limitation of noise emitted by hidraulic excavators, rope-operated excavators, dozers, loaders and excavator- loaders.	January 99
• Household appliances, 86/594/EEC		January 99
Regulations		
none		
1. NUCLEAR SAFETY AND RADIATION PROTECTION		
1. Non-White Paper legislation		
Directives		
• Radiation protection of general public and workers, 80/836/EURATOM amended by 84/467/EURATOM		
• Radiation protection of patients, 84/466/EURATOM		Ministry of Health and SNSA
• Early exchange of information in case of a radiological emergency, 87/600/EURATOM	Uredba o ratifikaciji konvencije o zgodnjem obveščanju o jedrskih nesrečah Ratification of the Conventionon on Early Notification of a NUclear incident (OJ.15/89) Zakon o ratifikaciji sporazuma med RS in Austrijo in RS in Madžarsko / Ratification of bilateral Agreement between Slovenia and Austria (OJ.15/96) and Hungary (OJ. 2/96) on Early exchange of information in the Event of a Radiological Emergency	
• Information of the public,		SNSA

ZAKONODAJA EU EU Legislation	NACIONALNI PREDPIS National Reference	ROK Term
89/618/EURATOM		and Ministry of Health
• Radiation protection of outside workers, 90/641/EURATOM		SNSA and Ministry of labour...
Regulations		
none		
2. White Paper legislation		
Directives		
• Shipments of radioactive waste, 92/3/EURATOM supplemented by 93/552/EURATOM	(Zakon o varstvu pred ionizirajočimi sevanji in o posebnih varnostnih ukrepih pri uporabi jedrske enrgije) Act on Radiation Protection and the Safe Use of Nuclear Energy (OJ. 62/84) (Pravilnik o dajanju v promet in uporabi radioaktivne snovi, katerih aktivnosti presegajo določeno mejo, rentgenskih in drugih aparatov, ki proizvajajo ionizirajoča sevanja ter o ukrepih za varstvo pred sevanjem ter virov) Regulation on Trade of Radioactive Materials or Sources (OJ. 40/86, 45/89) (Pravilnik o načinu zbiranja, evidentiranja, obdelave, hrambe, dokončne odložitve in izpuščanja radioaktivnih odpadnih snovi v človekovo okolje) Regulation on Radioactive Wastes (OJ. 40/86) (Uredba o določitvi režima izvoza in uvoza določenega blaga) The Decree on Establishment of Regime for Export and Import of Specific Goods (OJ. 75/95)	October 98 October 98 October 98
• Basic Safety Standards, 96/29/EURATOM		
Regulations		
• Maximum permitted levels of radioactive contamination of foodstuffs following a radiological emergency, 87/3954/EURATOM supplemented by 770/90/EURATOM, 219/89/EURATOM, 944/89/EURATOM.		SNSA and Ministry of Health and Ministry of Agriculture
• Imports of agricultural products following the Chernobyl Accident, 90/737/CEE am. by 94/3034/EEC and 95/686/EC		SNSA and Ministry of Health

ZAKONODAJA EU EU Legislation	NACIONALNI PREDPIS National Reference	ROK Term
		and Ministry of Agroculture
• Shipments of radioactive substances, 93/1493/EURATOM	(Zakon o varstvu pred ionizirajočimi sevanji in o posebnih varnostnih ukrepih pri uporabi jedrske energije)	

10.4 ANNEX 4: FIRST OVERVIEW OF THE COSTS OF IMPLEMENTATION AND THE TIMETABLE FOR MEETING EU ENVIRONMENTAL ACQUIS

DRAFT

PROJECT	INVESTMENT COSTS (M DEM)	IMPLEMENTATION TIME
A/ GENERAL LEGISLATION	no special investments needed	2000
B/ AIR QUALITY		
1/ coal to gas conversion (household heating) [2]	50	cont. to 2005
2/ desulphurisation of Šoštanj V thermal power plant [2]	200	2004
3/ industrial waste gas purification [3]	150	2005
4/ road to rail shift of cargo transit [9]	40	2010
5/ GHG abatement [4]	25 (next 10 years)	stagn. on 1990 level
6/ ODS phaseout [2]	20	according to MP and Ammend
7/ NOx, Ammonia, VOCs abatement [5]	250	according to future protocols
8/ POP, abatement [3]	5	according to future protocols
9/ Heavy Metals abatement [3]	5	according to future protocols
10/ complying of existing installations:		
a/ small, medium, large combustion installations [3]	20	2000, 2002, 2004
b/ waste incineration [3]	5	2000
c/ aluminium electrolysis [3]	7	2004
d/ gas turbines [3]	1	2002
e/ wood processing [3]	15	2000
f/ other installations [3]	100	1997
Total B	1003	
C/ WASTE MANAGEMENT		
1/ landfills (reconstruction and enlargement in conformity with EU standards) [1]	550	2000-2025
2/ technical systems (collection, reprocessing, material utilisation, reuse) [1]	330	2000-2005
3/ incineration (2 installations) [1]	550	2005-2010
4/ disposal of special wastes from industry, energy and building sector (slags, construction wastes) [1]	620	2010

PROJECT	INVESTMENT COSTS (M DEM)	IMPLEMENTATION TIME
5/ disposal of wastes from agriculture and forestry [1]	90	2010
6/ disposal of radioactive wastes [7]	150	2010
Total C	**2290**	
D/ WATER QUALITY		70% by 2010, 100% by 2020 (60%
1/ municipal wastewater treatment plants [2]	400	of pop. connected on sewage
sewage system enlargement [3]	250	system, 50% on WTP)
2/ industrial wastewater treatment plants[3]	200	2010
3/ complying of existing installations:		2001 (over 15000 PE), 2006
a/ municipal wastewater[3]	20	(10000-15000 PE)
b/ textile industry [3]	10	1998
c/ metal industry [3]	30	1998
d/ leather industry [3]	15	1998
e/ other [3]	150	1998
Total D	**1075**	
E/ NATURE PROTECTION		
1/ protected areas and species [6]	250 (25 yearly)	2005-2010
Total E	**250**	
F/ INDUSTRIAL POLLUTION AND RISK MANAGEMENT		
1/ Institutional strengthening [3]	1	2000
2/ Improvements in industrial safety[3]	50	2005
Total F	**51**	
G/ CHEMICALS AND GENETICALLY MODIFIED ORGANISMS	no special investments needed	1999
H/ NOISE ABATEMENT	no larger investments of existing installations needed	1998
I/ NUCLEAR SAFETY[8]		
1/ early exchange of information in case of emergency	0,5	2000
2/ information of the public	1	2002
3/ radiation protection of outside workers	2	2002
4/ basic safety standards	10	2005
5/ shipment of radioactive wastes	1	2001
6/ shipment of radioactive substances	0,5	2002

PROJECT	INVESTMENT COSTS (M DEM)		IMPLEMENTATION TIME	
Total E	15			
J/ EM-RADIATION	no special investments of existing installations needed		implemented	
K/ IONISING RADIATION 1/ improvements on existing installations Total K	 10 10		 2002	
Total A+B+C+D+E+F+G+H+I+J+K	4584			

Annotations
1 Waste Management Strategy
2 Investment Programme
3 Estimation
4 Strategy on Effective Use of Energy
5 Denitrification of flue gases in energy sector, ammonia abatement in agriculture, surface painting in industry
6 Subsidies for restrictive land use, budgeting of protected areas, inst. strengthening for biodiversity preservation
7 Projection of Agency for Radioactive Wastes
8 Projection of Nuclear Safety Authority
9 National Programme for Development of Railway Infrastructure (Ministry of Transport and Communications)

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Part D

Water Environmental Engineering

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List of Abbreviations

BAT	Best Available Technologies
BEP	Best Environmental Practice
BOD5	Biological Oxygen Demand in 5 days
CEFTA	Central European Free Trade Agreement
DDT	Diklorodifeniltrikloroetan, insekticid
DEA	metabolite of antrazine
DIA	metabolite of antrazine
EC	European Community
EIA	Environmental Impact Assessment
EPA	Environmental Protection Act for Slovenia
EU	European Union
GDP	Gross Domestic Product
IBA	Important Bird Areas
IPPC	International Panel on Climate Change
MoEPP	Ministry of Environment and Physical Planning
N	Nitrogen
P	Phosphorus
WHO	World Health Organization
WWTP	Wastewater Treatment Plant

1. Summary

1.1. National Targets and Instruments for Water Pollution Reduction

The Environmental Protection Act (EPA) of 1993 and the national water resources strategy are the two fundamental statements of objectives for water policy and management. The EPA - including its implementing regulations - concentrates on the control of water pollution from point sources. It sets out the principles of control by State organs, local authorities and polluters, of liabilities for pollution and damage, and of public access to relevant information.

The national water resources strategy is to be prepared by the MoEPP and will be part of the national water programme. It will aim at ensuring sufficient water supply for all users. Drinking-water supply is a priority. The programme is expected to be completed in 1998. Its main strategic directions will be:

- Formulation of a sustainable water policy;
- Implementation of integrated water management;
- Creation of regional institutions and enterprises to manage water quantity and quality;
- Development of a financial system for the support of the strategy;
- Development of the inspection and control system;
- Development of an information system on the water economy.

Integral management in individual water basins regarded as closed ecological units comprises, among other things, spatial management and planning (urbanization, agriculture, traffic, recreation and the development of numerous other economic activities), with the following targets of protection and the development of an area:

- introduction of optimum exploitation and protection of the volume of water, as well as the protection of the quality of water riches, taking into account the functioning of water ecosystems and their in-exchangeability, as well as the limited quantity of water reserves, with emphasis on the protection of drinking water supplies and the ecological balance of water basins;
- introduction of dynamic, interactive and multi-sector water management on the basis of the protection and optimum exploitation of potential water resources, with emphasis on drinking water resources and taking into account the technological (BAT), social-economic and ecological (BEP) the existing, as well as the planned development of both, the water basin itself and the country as a whole;
- planning, adopting and implementing programmes that contain clearly defined development guidelines conveyed by the institutions that have responsibility for water management on the national level, as well as by the immediate water managers and water managing systems (on the regional level - offices of the Ministry of the Environment And Regional Planning, operators of power plants, operators of tourist facilities, representatives of fishery, etc.);
- warranting institutional, legal and financial mechanisms to implement programmes and concrete investment projects in the area of integral management of waters in individual water basins;

The drinking-water quality standards that have so far been applied are those of the former Yugoslavia. New legislation came with Regulations on sanitary adequacy of drinking water (Ministry of Agriculture and Forestry), in slovene: Pravilnik o zdravstveni ustreznosti pitne vode (MKGP), Official Gazette of the Republic of Slovenia 46/97, taking into account WHO standards and the EU standards.

A general law on water is currently under preparation. It might be enacted in 1998. Regulations required by the EPA focus on emission limits for wastewater discharges and all aspects of monitoring. They were adopted in 1996. The intention is to regulate discharges along rivers in agreement with the EC water quality directive. Regulations on the amounts and calculations of charges and fees and on EIA are also required. So far, there is no master plan for sewage and wastewater treatment.

To improve water quality, EU standard emission limit values and best available technology are the guiding principles for the MoEPP. However, it is not clear to what extent these principles currently are, or can be, enforced. The efficiency of inspection should be assessed, once the recent organizational changes have stabilized, and the organizational arrangements and resources available for inspection become clear. Efficient economic incentives or market tools to stimulate compliance with regulations require the drafting of more regulations.

The MoEPP decides on investments in water supply, sewerage, wastewater treatment and technology. Since 1991, investment expenditures have amounted to US$ 9,3 to 15,2 million or SIT 1425 to 2375 million per year and are gradually increasing. In 1996, US$ 6,2 million or SIT 950 million were invested in clean industrial technology, US$ 1.7 million or SIT 266 million in water - supply, and US$ 3,5 million or SIT 541,5 million in wastewater treatment. The main difficulties are in financing both investments and operating costs. Therefore, water prices will probably have to be raised in the future. A full assessment of funding needs, financing requirements and the scope of possible supply price changes for water has to wait until a master plan for wastewater sewerage and treatment has been drawn out.

The prices, like in the major part of this document, were originally given in DEM or ECU. We changed them to SIT and US$ by a rounded exchange rate (Oct. 1998) as follows: 1 DEM = 95 SIT, 1 US$ = 153 SIT and 1ECU = 187 SIT.

The level of water-supply prices is based on the Order on Water Use Payments, issued in 1995. Payments are applied to water use (distinguishing between energy and other industries) and water pollution. The pollution charges levied by municipalities differ between the subdivisions and between water use categories (industry, agriculture and households) within them. Taxes on sewage depend on the quality and quantity of discharges.

In 1995, a regulation introducing a wastewater tax was adopted. The tax is either applied to the volume of wastewater discharged, or, in the absence of appropriate measurements, to the water supply. In the first case, the polluter pays directly to the State budget. In the second, the water-supply company collects the tax. The tax is proportional to the pollution loads of the wastewater. It is set to cover both investment and operating costs for a technology reducing pollution loads of effluents to permitted levels. The legal provisions have not yet been fully implemented.

The MoEPP is responsible for the overall water management in Slovenia, and, consequently, for establishing regional plans on all water aspects. The MoEPP acts to solve wider water problems, not only at the national but also at the river-basin level. The Ministry has seven institutes including the Nature Protection Authority and the Hydrometeorological Institute. The Nature Protection Authority includes in particular the water management department, which is divided into six sectors on planning, consents and permits, concessions, public services, investments and the water fund. The Hydrometeorological Institute does the monitoring of groundwater sources, springs and surface waters. However, according to the EPA, polluters are obliged to monitor the quality and quantity of their effluents, but not many do so.

Regarding water management, the Slovene territory is divided into eight subdivisions. They do not constitute a separate ‘regional' level of administration. The inspectorate of the MoEPP is responsible for the implementation of water protection laws and serves as coordinators between the municipalities and the Nature Protection Authority. In each subdivision, the municipal authorities

are responsible for exploiting, supplying and developing the water resources. Possibilities for connecting water distribution networks between different localities within the same subdivision are limited, and between different subdivisions non-existent.

1.2. Measures for Reduction of Water Pollution

For expected impacts of EU-Directives to Water Pollution control, the Legislative Gap Analysis provided covers the entire Environmental Acquis, although the available resources have been focused to emphasize the most important legal differences between the existing Slovenian and EU requirements. Eleven directives and groups of directive were identified as potentially contributing 92% of the total capital cost of environmental approximation. These major categories in the field of water management lie in the following: Water Quality - particularly the Urban Wastewater Directive and the Drinking water Directive. In addition a further 19 directives and groups of Directives were considered to have a medium impact on costs. In general this was because they required changes and improvements in the regulatory, monitoring, information and administration framework. Although these are not very costly - certainly in relation to the Major Category areas - they required to be analyzed further. These medium categories in the field of water management lie in the following: Water Quality - particularly the Bathing Water Directive and Nature Protection - particularly the Habitats and Wild Birds Directives

These 29 project areas and their associated directives cover all of the significant costs of environmental approximation. The total capital costs are estimated to be around US$ 3300 million or SIT 504900 million with annual current costs at full development of US$ 122 Million or SIT 18.700 million. The Present Value of the Cost Stream is US$ 3056 million or SIT 467.500 million at 5% time discount rate and the Total Annualized cost of Approximation is estimated to be US$ 244 million or SIT 37.400 million.

Present preventive measures referring to the water quality management are as follows:

- construction of sewage system network in settlements
- construction of municipal wastewater treatment plants
- new technologies (upgrading or modernizing) in industry
- construction of industrial wastewater treatment plants in terms of pre-treatment and discharge to sewage system network in settlements or construction of industrial wastewater treatment plants in terms of complete treatment and discharge to watercourse
- reduction of pesticides and artificial fertilizers use in soil

Concrete measures are summarized according to investments in the past years, financed by Ecofund.

Ecofund main projects in the field of reduction of water pollution from municipalities in the years 1995, 1996 and 1997 were:

- Municipal infrastructure (sewage/wastewater treatment systems, solid waste disposals, drinking water …, tender in the amount of 5 Mio US$ or 760 Mio SIT)
- Municipal infrastructure 96 (sewage/wastewater treatment systems, solid waste disposals, drinking water…, tender in the amount of 8,1 Mio US$ or 1235 Mio SIT)
- Municipal infrastructure 97 (sewage/wastewater treatment systems, solid waste disposals, city busses, drinking water…, tender in the amount of 8,1 Mio US$ or 1235 Mio SIT)

Ecofund main projects in the field of reduction of water pollution from industries in the years 1995, 1996 and 1997 were:

- Industry 96 A - reduction of pollution (air, water, solid wastes, ODS, tender in the amount of 6,8 Mio US$ or 1045 Mio SIT)
- Industry 96 B - reduction of pollution (air, water, solid wastes, tender in the amount of 5 Mio US$ or 760 Mio SIT)
- Industry 97 A - reduction of pollution & new, environmentally friendly technologies & products (tender in the amount of 9,9 Mio US$ or 1520 Mio SIT)

The list of ongoing and planned projects is shown in Annex. Estimation of investment and running costs of planned projects (wastewater treatment plants for municipalities) is shown in the following table:

Table 1.1. Estimation of investment and running costs of planned projects

wastewater treatment plant	hot spots investment programme			long term investment programme			short term investment programme		
	Capacity	Costs Mio US$	Costs Mio SIT	Capacity	Costs Mio US$	Costs Mio SIT	Capacity	Costs Mio US$	Costs Mio SIT
SAVA river basin	1.170.000	256,3	39.217	514.000	56,3	8624	601.000	131,1	20185
DRAVA river basin	200.000	35,8	5472	280.000	37,7	5757	80.100	17,4	2660
MURA river basin	60.000	14,9	2280	21.000	4,8	723	0	0	0
SUM	1.430.000	307,0	46.969	815.000	98,8	15104	681.000	148,5	22720

Running costs are approximately 18,5 Mio US$ / year or 2830 Mio SIT/year for long term programme, 15,4 Mio US$ / year or 2360 Mio SIT / year for short-term programme and 32,4 Mio US$ / year or 4960 Mio SIT / year for hot spot programme.

The pollution of surface and groundwater by nitrates is considered one of the most serious environmental concerns in the context of agricultural pollution. Atrazine and more often its metabolites DEA and DIA have also been detected. In 1995, in certain regions, the values of these substances in the water exceeded the recommended limit values of the EU. In addition, poorly managed sewage systems and wastewater treatment plants -or their mere absence -contribute to nitrate pollution in groundwater, and it is not always easy to distinguish the share of agriculture in nitrate pollution. Nevertheless, the application of mineral fertilizers in regions with intensive agricultural land use is thought to be the main source of nitrates in the environment. The plains of Pomursko, Mariborsko (intensive field crops with cereals) and Celjsko (hop plantations) are affected by this form of pollution. Manure surpluses from big livestock farms (Pomursko, Celjsko) are reported to be partly responsible for nitrate concentration in groundwater. The regions concerned are not only the most fertile, where even more intensification is planned (according to the National Irrigation Plan), but also the most densely populated. Remedial measures include rehabilitation of floodplains and wetlands. An area of Sečovlje' s salt works is in the list of wetlands with an international significance since 1993. Some of proposals for new local wetlands of international significance, which fulfil conditions to come on the list of international significant wetlands are in preparation:

- Ljubljansko barje (Ljubljana's swampland)
- Cerkniško jezero (Cerknica's lake)

The other important wetlands, suitable to definition of The Ramsar Convention, are classified on the list of IBA – important ornithological regions of Europe (Important Bird Areas in Europe):

- meanders of Drava river from Maribor to Zavrč
- meanders and flooded forests of Mura river from Veržej and Gibina
- Črni log – alder forests along Ledava river
- Krakovski gozd – the rest of flooded oak forests
- Jovsi – wetlands along Sotla river

Drainage, building, construction, regulations, polluting and other human activities exert influence upon wetlands harmfully; they are for that reason the most affected ecosystems in Slovenia.

1.3. Expected Regional and Transboundary Effects of Actual and Planned Measures

Qualitative assessment of transboundary effects is shown in chapter 4.4.

We will achieve with the implementation of planned wastewater treatment plants:

a. improvement of watercourse quality : Sava, Drava and Mura river
   - reduction of biochemical pollution;
     hot spot reduction: 69 t BOD_5/d, short term reduction additionally: 33 t BOD_5/d and long term reduction additionally 39 t BOD_5/d
   - reduction of nutrient quantity;
     hot spot reduction: 14,2 t N/d and 3,2 t P/d, short term reduction additionally: 6,7 t N/d and 1,5 t P/d and long term reduction additionally 8,1 t N/d and 1,8 t P/d

b. improvement of boundary river quality : Mura, Ledava, Sotla and Kolpa river
   - reduction of biochemical pollution
   - reduction of nutrient quantity

c. preservation of river natural conditions, establishment of natural parks and bathing water: Sotla and Kolpa river

d. preservation of natural resources: wetlands, flood-lands etc.

Sedimentation and hydrological regime will be changed with building of hydro power station on the Sava River.

2. National Targets and Instruments for Reduction of Water Pollution

2.1. Actual State and Foreseeable Trends of Water Management with Respect to Water Pollution Control

2.1.1. Wastewater

The sources of water pollution are industry, agriculture and urbanization. Measurements of the quantity of wastewater generated by the different polluting sources and its material composition are not fully controlled by municipalities. Polluters do not generally monitor effluents. In regions without public supply, the problem is much more acute, as uncontrolled pollution is a potential threat to the water resources. Pollution from urbanized areas along the rivers is especially severe, while pollution caused by industry has decreased over recent years partly as a result of reduced economic activity in certain key sectors. For example, many of the polluting heavy metal industrial companies have disappeared since 1990.

Between 1990 and 1994, the total generation of wastewater followed a mild, but clearly recognizable, downward movement - to speak of a trend is perhaps too strong. This observation tallies with the equally slight reduction in water use over the same period. If manufacturing industry was mainly responsible for the decrease in water use, it can be expected that industrial wastewater treatment also went down over the period of observation. The figures included in next table confirm this expectation. They also show a clear downward trend in the discharge of untreated wastewater. However, the overall treatment performance is rather low, as secondary (biological) and tertiary treatments are not extensively developed. There are no data available on the pollution load generated, nor on the pollution eliminated in the wastewater treatment facilities.

Table 2.1. Wastewater generation and treatment

(million m^3)	1990	1991	1992	1993	1994
Total generation	292,0	263,8	256,8	242,8	236,5
Total without treatment	184,5	165,4	147,8	155,2	109,5
Total with treatment	107,5	98,4	109,0	127,6	127,0
Public mechanical	18,1	10,3	39,9	52,7	40,2
Industrial mechanical	22,3	24,6	20,6	26,8	22,8
Public biological	6,3	8,2	7,4	4,2	5,0
Industrial biological	1,1	0,8	0,7	0,9	0,8
Public advanced	25,3	27,7	23,5	30,7	30,0
Industrial advanced	34,4	33,9	28,4	23,2	20,7

2.1.2 Economics

The legacy of self-management sets Slovenia apart among the countries in transition. The system of social ownership, as opposed to State ownership, with the owners of the means of production being the workforce to whom managers were accountable, shaped economic mechanisms, defining liability and accountability and delineating the relationship between the State and the enterprise. In terms of managerial expertise, market practices, technology and experience with western, economic partners, the Yugoslav self management system left behind more favorable preconditions for adjusting to market based economic development than were found in many countries in transition emerging from tight central planning.

Within the former Yugoslav Federation, the Slovene economy was the most industrialized and advanced of the republics. In the past, all industrial activity in the country was carried out by "socially owned" public enterprises. Privatization started in 1991, on the basis of the creation of a privatization agency, but gained momentum only after December 1992, when the Slovene parliament adopted the appropriate legislative framework.

In its first year of independence, the country went into an economic recession, with falling gross domestic product (GDP) and industrial output, the main reason for this being a decrease in aggregate demand and the disruption of trade flows with other republics of the former Yugoslavia and east European countries. Economic recovery, fuelled by a sharp increase in demand as well as a moderate growth in exports, started in the second half of 1993. Slovenia's GDP per capita is far the highest in the transition economies (US$ 9.352 in 1995), twice as high as Hungary's, for example, with values closer to low-income countries in the EU, such as Greece and Portugal.

The economic crisis had a different impact on individual sectors of the economy. Manufacturing and construction suffered most, while the service sector managed to pull itself out of the crisis already at the end of 1992. Growth rates for all sectors began to improve again as of 1994. Economic restructuring changed the sector distribution of output, with the share of industry in GDP decreasing in favor of services. A slowdown occurred at the end of 1995 resulting from the combination of a weakening of export markets in the EU and a strong exchange rate, which eroded Slovenia's competitiveness. This slowdown affected almost all-manufacturing industries except engineering, which reached a record increase in output of 17,3% in 1995. This sector, especially in machine and transport equipment building, remains an important branch of industrial activity, and a major contributor to exports (31% of total export value in 1995 for SITC section 7 output), followed by the textile industry, wood-processing and the paper industry. Other important industrial sectors are leather and footwear, sportswear, pharmaceuticals and chemicals.

Investment grew by 18,4% in 1995 with the highest rates in financial services and construction. The expectation of higher growth rates at the end of 1996 and in 1997 is primarily based on increases in investments.

Like the rest of the former Yugoslavia, Slovenia recorded high rates of inflation in the 1970s and 1980s. These rose and remained high until the summer of 1992, when the introduction of the Slovene tolar (Slt) and the adoption of a tight monetary and credit policy by the Bank of Slovenia brought a sharp fall in the monthly inflation rate, with the annual inflation rate reaching single-digit figures in 1995. Foreign trade recovered in 1993, when exports successfully redirected from the former Yugoslav toward western markets and the export of services began to grow. In comparison with 1992, import trends changed significantly, with a 34,5% increase in the import of consumer goods. A balance-of- trade surplus of US$ 49,5 million in 1992 was followed by a UŠ$ 154 million deficit in 1993. The balance of trade deterioration was due to a rapid growth in imports of capital goods and intermediate goods.

The current account balance for 1995 turned out to be the worst since 1991, revealing a deficit of US$ 36,4 million (0,2% of GDP). Import growth should slow as a result of the depreciation of the currency in the latter part of 1995, but is still likely to exceed export growth in 1996, leading to a further widening of the trade deficit. The growth of expenditures on goods and services resulted in Slovenia's foreign currency holdings falling short of three months' imports in 1995.

A trade and Cupertino agreement signed in April 1993 improved Slovenia's access to the EU markets. The EU has in the last years confirmed its position as Slovenia's leading trade partner. Although the total trade volume with the EU marginally declined in 1995, the Union still accounted for 67% of all exports. The main exports are manufactured goods, electrical appliances, transport equipment, machinery, chemicals, metal goods, furniture and other wood products. In addition, 68,5% of all imports came from the EU. Slovenia's main trading partners are Germany, Italy, France, and Austria.

An interim agreement made the trade provisions of associative agreement signed between the EU and Slovenia in June 1995 operative before ratification the associative agreement. Bilateral free-trade agreements have enabled the country to intensify trade relations with other central European country in transition (Czech Republic, Hungary, Poland and Slovakia), and it became a member of the Center European Free Trade Agreement (CEFTA) on 1 January 1996.

2.2. National Targets for Water Pollution Reduction

2.2.1. Objectives and Implementation of Water Policy and Management

2.2.1.1. Objectives

The Environmental Protection Act (EPA) of 1993 and the national water resources strategy are the two fundamental statements of objectives for water policy and management. The EPA - including its implementing regulations - concentrates on the control of water pollution from point sources. It sets out the principles of control by State organs, local authorities and polluters, of liabilities for pollution and damage, and of public access to relevant information.

The national water resources strategy is to be prepared by the MoEPP and will be part of the national water programme. It will aim at ensuring sufficient water supply for all users. Drinking-water supply is a priority. The programme is expected to be completed in 1997. Its main strategic directions will be:

- Formulation of a sustainable water policy;
- Implementation of integrated water management;
- Creation of regional institutions and enterprises to manage water quantity and quality;
- Development of a financial system for the support of the strategy;
- Development of the inspection and control system;
- Development of an information system on the water economy.

The drinking-water quality standards that have so far been applied are those of the former Yugoslavia. New national standards are being drawn up: They will take into account WHO standards and the EU standards.

A general law on water is currently under preparation. It might be enacted in 1997. Regulations required by the EPA focus on emission limits for wastewater discharges and all aspects of monitoring. They were adopted in 1996. The intention is to regulate discharges along rivers in agreement with the EC water quality directive. Regulations on the amounts and calculations of charges and fees and on EIA are also required. So far, there is no master plan for sewage and wastewater treatment.

To improve water quality, EU standard emission limit values and best available technology are the guiding principles for the MoEPP. However, it is not clear to what extent these principles currently are, or can be, enforced. The efficiency of inspection should be assessed, once the recent organizational changes have stabilized, and the organizational arrangements and resources available for inspection become clear. Efficient economic incentives or market tools to stimulate compliance with regulations require the drafting of more regulations.

2.2.1.2 Implementation

The MoEPP decides on investments in water supply, sewerage, wastewater treatment and technology. Since 1991, investment expenditures have amounted to US$ 9,3 to 15,2 million or SIT 1425 to 2375 million per year and are gradually increasing. In 1996, US$ 6,2 million or SIT 950 million were invested in clean industrial technology, US$ 1,7 million or SIT 266 million in water - supply, and US$ 3,5 million or SIT 541,5 million in wastewater treatment. The main difficulties are in financing both investments and operating costs. Therefore, water prices will probably have to be raised in the future. A full assessment of funding needs, financing requirements and the scope of possible supply price changes for water has to wait until a master plan for wastewater sewerage and treatment has been drawn out.

The level of water-supply prices is based on the Order on Water Use Payments, issued in 1995. Payments are applied to water use (distinguishing between energy and other industries) and water pollution. The pollution charges levied by municipalities differ between the subdivisions and between water use categories (industry, agriculture and households) within them. Taxes on sewage depend on the quality and quantity of discharges.

In 1995, a regulation introducing a wastewater tax was adopted. The tax is either applied to the volume of wastewater discharged, or, in the absence of appropriate measurements, to the water supply. In the first case, the polluter pays directly to the State budget. In the second, the water-supply company collects the tax. The tax is proportional to the pollution loads of the wastewater. It is set to cover both investment and operating costs for a technology reducing pollution loads of effluents to permitted levels. The legal provisions have not yet been fully implemented.

2.3. Technical Regulation and Guidelines

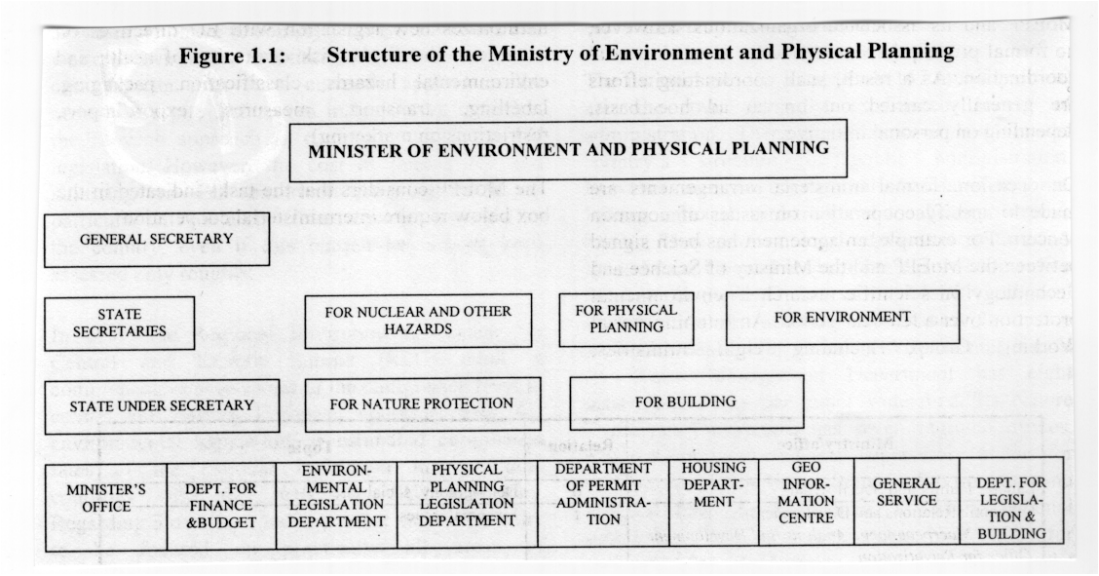
2.3.1. Institutional Set-up

The MoEPP is responsible for the overall water management in Slovenia, and, consequently, for establishing regional plans on all water aspects. The MoEPP acts to solve wider water problems, not only at the national but also at the river-basin level. The Ministry has seven institutes (fig. 1.1), including the Nature Protection Authority and the Hydrometeorological Institute. The Nature Protection Authority includes in particular the water management department, which is divided into six sectors on planning, consents and permits, concessions, public services, investments and the water fund. The Hydrometeorological Institute does the monitoring of groundwater sources, springs and surface waters. However, according to the EPA, polluters are obliged to monitor the quality and quantity of their effluents, but not many do so.

Regarding water management, the Slovene territory is divided into eight subdivisions. They do not constitute a separate ‘regional' level of administration. The inspectorate of the MoEPP is responsible for the implementation of water protection laws and serves as coordinators between the municipalities and the Nature Protection Authority. In each subdivision, the municipal authorities are responsible for exploiting, supplying and developing the water resources. Possibilities for connecting water distribution networks between different localities within the same subdivision are limited, and between different subdivisions non-existent.

The Institute of Public Health tests the quality of water in the supply system. The methodological procedures are modern and carried out according to international standards. Monitoring is done twice a year. In most cases, the measured concentrations of the selected pollutants do not exceed the maximum permitted levels. During recent years, progress has been made in harmonizing methods for measurements, types of parameters, measurement points, preparation of the monitoring database, and enforcement of decisions after accidents.

Figure 2.1. Structure of Ministry of Environment and Physical Planning



2.4. Expected Impacts of EU-Directives to Water Pollution control

The project has developed a transparent method of costing which it hopes will be a useful tool for the ministry and others concerned with the environmental approximation in Slovenia. The major characteristics of the method is that:

The costs are attributable solely to the directives identified and do not make any, allowances for costs that might have been incurred in a "without accession". They are therefore maximum estimates as, in most cases, Slovenia is to incur costs in these areas even without accession to the EU.

The costs are either based on location specific information such as designs and feasibility studies or on typical and unit costs currently relevant to Slovenia.

The costs are expressed in financial terms at constant prices based on costs existing in Slovenia at the beginning of 1998.

Financial costs assessed on this basis are phased over the period 1998 - 2020 on the basis of the current accession strategy and realistic lead and lag periods.

In addition to the financial costs of investment and operation and maintenance at constant 1997 prices the present value of the future stream of costs is calculated and the total annualized costs based on the future stream of costs and the estimated lifetime of the investment are calculated.

The Legislative Gap Analysis provided in this report covers the entire Environmental Acquis, although the available resources have been focused to emphasis the most important legal differences between the existing Slovenian and EU requirements. Eleven directives and groups of directive were identified as potentially contributing 92% of the total capital cost of environmental approximation. These major categories in the field of water management lie in the following:

- Water Quality - particularly the Urban Wastewater Directive and the Drinking water Directive

  In addition a further 19 directives and groups of Directives were considered to have a medium impact on costs. In general this was because they required changes and improvements in the regulatory, monitoring, information and administration framework.

Although these are not very costly - certainly in relation to the Major Category areas they required to be analyzed further. These medium categories in the field of water management lie in the following:

- Water Quality - particularly the Bathing Water Directive
- Nature Protection - particularly the Habitats and Wild Birds Directives

The costs of the Water Quality sector include:

- Municipal Wastewater Treatment Plants and sewage networks to comply with EU legislation (Urban wastewater, 91/271/EEC);
- Industrial Wastewater Treatment Plants to comply with EU legislation (Dangerous substances to the aquatic environment, 76/464/EEC);
- Compliance of Existing installations to EU legislation (Drinking Water, 80/778/EEC);
- Additional Investment around Koper and Bled (Bathing water, 76/160/EEC);
- Administration, Monitoring, Enforcement (all directives in the field).

All 29 projects areas and their associated directives cover all of the significant costs of environmental approximation. The total capital costs are estimated to be around US$ 3300 million or SIT 504900 million with annual current costs at full development of US$ 122 Million or SIT 18700 million. The Present Value of the Cost Stream is US$ 3056 million or SIT 467500 million at 5% time discount rate and the Total Annualized cost of Approximation is estimated to be US$ 244 million or SIT 37400 million. The breakdown by Environmental Field is as follows:

Table 2.2. Approximation cost by environmental field in US$

Environmental Field	Total Investment Cost	O & M Annual Cost	Present Value of Cost Stream	Total Annualized Cost	Public Sector 1998-2005	Private Sector 1998-2005
	Mio US$	Mio US$	Mio US$	Mio US$	%	%
A. HORIZONTAL	12,2	0,0	8,6	1,2	50	50
B. AIR QUALITY	294,6	14,7	410,7	36,7	70	30
C. WASTE MANAGEMENT	1366,4	7,3	1229,6	99,0	68	42
D. WATER QUALITY	1445,9	79,4	1318,8	106,3	73	27
E. NATURE PROTECTION	146,7	1,2	129,6	9,8	100	0
F. IPPC	61,1	3,7	53,8	4,9	0	100
G. CHEMICAL AND GMOs	0,0	3,7	0,0	0,0	61	39
H. NUCLEAR SAFETY AND RADIATION PROTECTION	1,2	20,8	1,2	0,0	100	0
I. TOTAL	3328,1	129,6	3150,9	256,7	70	30

Table 2.3. Approximation cost by environmental field in SIT

Environmental Field	Total Investment Cost	O & M Annual Cost	Present Value of Cost Stream	Total Annualized Cost	Public Sector 1998-2005	Private Sector 1998-2005
	Mio SIT	Mio SIT	Mio SIT	Mio SIT	%	%
A. HORIZONTAL	1870	0	1309	187	50	50
B. AIR QUALITY	45067	2244	62832	5610	70	30
C. WASTE MANAGEMENT	209066	1122	188122	15147	68	42
D. WATER QUALITY	221221	12155	201773	16269	73	27
E. NATURE PROTECTION	22440	187	19822	1496	100	0
F. IPPC	9350	561	8228	748	0	100
G. CHEMICAL AND GMOs	0	561	0	0	61	39
H. NUCLEAR SAFETY AND RADIATION PROTECTION	187	3179	187	0	100	0
I. TOTAL	509201	19822	482086	39270	70	30

Table 2.4. Forecast incidence of costs for environmental approximation by year (at1998 prices) in US$

(Mio US$)	1998	1999	2000	2001	2002	2003
CENTRAL GOVERNMENT	24,4	42,8	52,6	51,3	51,3	51,3
MUNICIPALITIES	111,2	199,2	246,9	238,3	238,3	238,3
INDUSTRY	40,3	72,1	89,2	85,6	85,6	85,6
HOUSEHOLDS	17,1	30,6	37,9	36,7	36,7	36,7
TOTAL	193,1	344,7	426,6	413,1	413,1	413,1

Table 2.5. Forecast incidence of costs for environmental approximation by year (at1998 prices) in SIT

(Mio SIT)	1998	1999	2000	2001	2002	2003
CENTRAL GOVERNMENT	3740	6545	8041	7854	7854	7854
MUNICIPALITIES	17017	30481	37774	36465	36465	36465
INDUSTRY	6171	11033	13651	13090	13090	13090
HOUSEHOLDS	2618	4675	5797	5610	5610	5610
TOTAL	29546	52734	65263	63206	63206	63206

The incidence of costs is not the same as the budgetary requirements but they are strongly connected. Although these costs can be financed in a number of ways including borrowing and international grant finance. Financial good practice would suggest that in most cases, at least half of the above amounts should be available from local budgets. The above analysis suggests that over two thirds of the costs will be incurred by municipalities in the next few years and sensitivity analysis shows that this is inevitable given national priorities and accession driven priorities.

We identify four activities that should follow on from this study:

Development of the Cost Model within the Ministry and integrating it more fully into the Approximation process and strategy. The model could be developed as a part of a Project management tool whereby progress towards approximation could be monitored, evaluated and managed in an efficient and integrated way.

Further emphasis on development of cost recovery mechanisms that can be by the Municipalities concerned as a matter of urgency. European practice in this area should be fully reviewed with a view to incorporating the most effective into Slovenian legislation and practice. This is not only required for the programme but is an essential part of any effective programme to reduce environmental degradation in Slovenia.

Review of the financial and technical ability of Municipalities to undertake the Environmental Approximation investments foreseen in this study.

Review of Ministerial budgets (particularly that of MEPP) to ensure that the Environmental Approximation actions and investments identified in this.

2.5. Law and Practice on Water Pollution Control

In Technical Reports Parts A-B in "Common Annexes" section all the environmental laws, decrees concerning water environmental engineering are given.

3. Actual and Planned Projects and Policy Measures for Reduction of Water Pollution

Present measures referring to the water quality management are as follows:

- construction of sewage system network in settlements
- construction of municipal wastewater treatment plants
- new technologies (upgrading or modernizing) in industry
- construction of industrial wastewater treatment plants in terms of pre-treatment and discharge to sewage system network in settlements or construction of industrial wastewater treatment plants in terms of complete treatment and discharge to watercourse
- reduction of pesticides and artificial fertilizers use in soil

Concrete measures are summarized according to investments in the past years, financed by Ecofund. Additionally there is a summary of data from the part B: "Financing Mechanisms".

3.1. Reduction of Water Pollution from Municipalities

3.1.1. Actual Measures

3.1.1.1. Projects Financed by the Ecofund

Ecofund main projects in the field of reduction of water pollution from municipalities in the years 1995, 1996 and 1997 were:

- Municipal infrastructure (sewage/wastewater treatment systems, solid waste disposals, drinking water …, tender in the amount of 5,0 Mio US$ or 760 Mio SIT)
- Municipal infrastructure 96 (sewage/wastewater treatment systems, solid waste disposals, drinking water…, tender in the amount of 8,1 Mio US$ or 1235 Mio SIT)
- Municipal infrastructure 97 (sewage/wastewater treatment systems, solid waste disposals, city busses, drinking water…, tender in the amount of 8,1 Mio US$ or 1235 Mio SIT)

3.1.1.2. Funds from State and Municipal Budgets

Apart funds being awarded from the state budget by the Ministry of Environment and Physical Planning on the basis of public tenders the budget foresees also other intentional funds for individual projects. In the 1997 budget of the Republic of Slovenia 39,6 million SIT were intended for investments into municipal structures and water management. This amount encompassed 8 million SIT for the construction of the water treatment plant in Gornja Radgona. In 1998, the state budget foresees 143,8 million SIT for investments into municipal structures and water management, where 17 million SIT for the water treatment plant in Gornja Radgona and 11,1 million SIT for the water treatment plant in Libeliče are encompassed.

Individual municipalities co-finance water protection programmes by awarding grants to public companies. It is unknown to us what is the scope of such financing.

3.1.2 Policy for Reduction of Water Pollution

3.1.2.1. Development of Integral Management in Individual Water Basins

Integral management in individual water basins regarded as closed ecological units comprises, among other things, spatial management and planning (urbanization, agriculture, traffic, recreation and the development of numerous other economic activities), with the following targets of protection and the development of an area:

- introduction of optimum exploitation and protection of the volume of water, as well as the protection of the quality of water riches, taking into account the functioning of water ecosystems and their in-exchangeability, as well as the limited quantity of water reserves, with emphasis on the protection of drinking water supplies and the ecological balance of water basins;
- introduction of dynamic, interactive and multi-sector water management on the basis of the protection and optimum exploitation of potential water resources, with emphasis on drinking water resources and taking into account the technological (BAT), social-economic and ecological (BEP) the existing, as well as the planned development of both, the water basin itself and the country as a whole;
- planning, adopting and implementing programmes that contain clearly defined development guidelines conveyed by the institutions that have responsibility for water management on the national level, as well as by the immediate water managers and water managing systems (on the regional level - offices of the Ministry of the Environment And Regional Planning, operators of power plants, operators of tourist facilities, representatives of fishery, etc.);
- warranting institutional, legal and financial mechanisms to implement programmes and concrete investment projects in the area of integral management of waters in individual water basins;
- ensuring interdisciplinary work, i. e. co-operation of experts of various specialties in the process of projecting and producing environmentally and economically admissible programmes and projects of integral exploitation, as well as protection of waters riches in individual water basins;
- securing information dissemination and public participation in the process of designing and producing programmes and projects of integral exploitation and protection of water assets in individual water basins in the following ways:
  - establish an advisory body in which representatives of the public would also participate;
  - ensure information on envisaged measures and report to the public on the implementation prior to the final decision on the necessary measures to be adopted;
  - facilitate public access to information, including high-tech information and communication infrastructure, that have relevance to the global environment, taking into account specific characteristics of individual countries;
  - educate the public about sustainable exploitation of waters;
  - put together opinion polls examining the quality, quantity, price, expenses and the pollution of waters;
  - invite primary and secondary schools to actively participate in various actions (e. g. essays on the occasion of the “Water Day”);
  - publish plans to regulate water basins in order to ensure that interested parties may write their comments on the presented documents thus enabling their active participation.

3.1.2.2. Development of Institutions of Management

In order to perform the measures in the water management programmes there will be administrative bodies, as well as appropriate organization of planning and decision-making put up on the national level. On regional levels, there will be 5 administrative units for each individual water basin governing the administrative procedure, in the co-operation with the Ministry of Environment And Regional Planning. Their representatives, mayors of individual municipalities, representatives of expert institutions, non-government organizations and consumers will perform decision-making and supervising in these units.

Performing the integral national policy of water management in individual water basins requires the development of management and administrative structure in order to:

- determine the legal status of waterside areas (public areas where owner is the State),
- award water concessions,
- perform the polluter-must-pay principle and bring into effect preferential introduction of the best technology, as well as the best environmental practice available,
- protect waters from consequences of acts of unknown offenders and old unremedied pollution sources,
- develop and improve monitoring and the information system,
- deal with international issues.

3.1.2.3. Development of Monitoring and Information Support

In order to keep up with the current state of waters and pursue integral policy in place, time and in individual activities, it is necessary to establish a modern information system that is decentralized according to individual areas and sectors, and that is linked to other data bases or rather other information systems.

Establishing and updating the information system comprises keeping up to date with the state of waters, as well as pursuing integral policy in space, time and according to individual activities. However, there will be a joint decision on a common database, protocols and standards concerning information exchange, as well as the design and dissemination of information. The system will be run by a computer and supported by the GIS and other contemporary information tools, so as to enable composing detailed annual reports on individual water basins, as well as current annual updates of plans. In spite of the decentralized gathering and storing of information, data processing from a single chosen location will be possible, as is the case with centralized databases.

3.1.2.4. Development of the Water Management Economics

The water management programme takes into consideration also the actual economic situation, as well as the strategic trends in the development of investment mechanisms and resources. The new Water Law will define the rights and duties of water consumers, as well as the starting points and principles according to which decrees, statutory regulations (regulations issued on the basis of the general law), standards and instructions will be issued according to which procedures concerning the regulation of relationships among water consumers will be performed.

3.1.2.5. Enforcement of the Principle of the Full Value Costs for Water - Water is an Economic Category

The development of investment mechanisms comprises also the related legislation that motivates both, managers as well as consumers of waters to perform the necessary activities in order to fulfil the programme, while at the same time it provides for punitive measures for violators. The

legislation defines conditions under which a dispensation from consumption rates for the used water, as well as for the deterioration of its quality, can be granted. Motivation mechanisms include budget, as well as extra-budget incentives, domestic and foreign non-commercial loans and the sector of private investments.

Consumption rates that have to cover operational, maintenance and in part also investments expenses for common purifying plants are paid by water consumers and users of services provided by companies discharging (untreated) effluents. The prime goal of pollution taxes is to reduce the influence of individual private, as well as public sectors activities on the environment according to the principles whose aim is to stimulate the use of the best available technology (BAT) and the best environmental practice (BEP). At the moment, the taxes are not used for the water sector purposes but to fill the budget. The fee for water, i. e. the price of a consumed water unit, must become an economic category. The principle objective of the economic price of water is to reduce the water consumption for various purposes by introducing closed technological methods of water consumption, and its reduction, according to the principles of the best available technology (BAT).

3.1.2.6. Financing Extraordinary Expenses Resulting from Water Consumption by Individual Consumer Sectors (Households, Agriculture, etc.)

Financial sources for budgetary and extra-budgetary incentives are secured by national, regional and local public institutions from funds envisaged for the water protection. The responsibility for the establishment, the development and operations of regional funds can be assumed by regional public institutions that have the authority to determine the water management in individual water basins, in constructive co-operation with private institutions (industrial enterprises, users of hydrological potential, providers of tourist services, agriculture, etc.) that perform their operations in the area of individual water basins.

The ecofund as the national institution for implementation programmes dealing with environment protection provides non-commercial government loans for technically and economically carefully selected investment priorities in the national programme of environment protection. The selection of undertakings of prime importance must be based on the benefits that the investment will contribute to the quality, as well as the quantity picture in the water basin itself and in the broader area, i. e. on the national level.

Solidarity resources and funds for supervision are raised from a share in water consumption rates of various sectors, as well as from contributions of local communities (municipalities). In the event of a shortage of maintenance money for emergency repairs, the necessary funds must be provided by the state from the budget.

3.1.2.7. Rational Water Consumption as an Economic Impetus of the Development

In order to ensure sufficient resources for the development, investment and the maintenance of the investments in the management and protection of the waters riches in individual water basins and thus maintain optimum economic cover of the development programme, the policy of water management must provide for:

- a dialogue on the national level with relevant ministries that pursue the development policy of individual economic and non-economic activities, for the development of the financial plan for the implementation;
- the development of a financial plan defining the available and necessary funds to ensure resources for urgent short-term undertakings of prime importance in individual water basins;

- appointment of funds to convey the know-how and the modern technology in the area of water management to public administrative and expert institutions on the national, as well as regional levels;
- mechanisms of economic optimization of technically viable and environmentally efficient alternatives by which it will be warranted that solutions with the minimum invested funds and the optimum benefits are be settled upon;
- limited duration of permits for various activities expiring after 5, 10 or 30 years at most, depending on the sort, as well as the manner of water consumption;
- the development of a system of permits and rates for all water consumers in a manner ensuring optimum water exploitation, the imposition of the BAT and BEP principles, as well as the protection of consumers interests;
- international co-operation.

3.1.2.8. Development of Mechanisms and Institutions to Improve the Supervision of the Programme Implementation

Supervision will be performed by inspectorate that are organized on the national level, as well as in individual water basins, and have the proper powers.

3.1.3. Planned Projects

Here the treatment plants of municipal wastewater are listed.

3.1.3.1. Sewage Treatment Plants of Municipal Wastewater – Long-term Programme

Table 3.1. Sewage treatment plants of municipal wastewater – long-term programme

Wastewater treatment plant	Capacity	Status	Description of receiving water
	P.E.		
SAVA river basin			
BRESTANICA-SENOVO	15.000	NEW	Brestanica, Sava
CERKNICA	5.000	UPGRADING	Cerkniščica river flows to a lake, then to Sava river
GROSUPLJE	15.000	UPGRADING	Bičje, Krka
HRASTNIK	10.000	NEW	Sava
IVANČNA GORICA	15.000	COMPLETION	Višnjica, Krka
KOČEVJE	50.000	UPGRADING	Rinža river disappears, flows to Kolpa river probably
KOSTANJEVICA	5.000	NEW	Krka, Sava
KRANJ	60.000	COMPLETION	Sava
KRANJSKA GORA	8.000	NEW	spring of Sava river
JESENICE	30.000	UPGRADING	Sava Dolinka, Sava
LITIJA	25.000	NEW	Sava
MIRNA NA DOLENJ.	40.000	UPGRADING	Mirna, Sava
RADEČE	7.000	COMPLETION	Sava

Table 3.1. continued

Wastewater treatment plant	Capacity P.E.	Status	Description of receiving water
RADOVLJICA	38.000	NEW	Sava Bohinjka, Sava
RIBNICA	10.000	UPGRADING	Bistrica river disappears, flows to Kolpa river probably
ŠENTJERNEJ	6.000	NEW	flows probably to Krka, Sava -
ŠENTJUR PRI CELJU	15.000	NEW	Voglajna, Savinja, Sava
ŠKOFJA LOKA	80.000	UPGRADING	Sora, Sava
ŠMARJE PRI JELŠAH	5.000	NEW	Sotla, Sava
TREBNJE	6.000	UPGRADING	Temenica river disappear to Krka river probably
TRŽIČ	25.000	NEW	Tržiška Bistrica, Sava
ZAGORJE	9.000	NEW	Sava
ŽALEC	20.000	UPGRADING	Savinja, Sava
ŽELEZNIKI	5.000	UPGRADING	Selška Sora, Sora, Sava
ŽITI	10.000	UPGRADING	Sovra, Poljanska Sora, Sora, Sava
∑	514.000		
DRAVA river basin			
DRAVOGRAD IN OTIŠKI VRH	14.000	NEW	Drava
LENART	6.000	UPGRADING	Velka, Pesnica, Drava
MEŽICA	10.000	NEW	Meža, Drava
PESNICA	8.000	NEW	Pesnica, Drava
PTUJ	110.000	COMPLETION	Drava
ORMOŽ	5.000	COMPLETION	Drava
RADLJE OB DRAVI	5.000	UPGRADING	Drava
RAVNE,PREVALJE, KOTLJE	24.000	NEW	Meža, Drava
RUŠE	10.000	NEW	Drava
SLOVENJ GRADEC	25.000	NEW	Mislinja, Drava
SLOVENSKA BISTRICA	25.000	NEW	Ložnica, Dravinja, Drava
SLOVENSKE KONJICE	38.000	NEW	Dravinja, Drava
∑	280.000		
MURA river basin			
GORNJA RADGONA	15.000	NEW	Mura
RADENCI	6.000	COMPLETION	Mura
∑	21.000		
SUM	815.000		

3.1.3.2. Sewage Treatment Plants of Municipal Wastewater – Short-term Programme

Table 3.2. Sewage treatment plants of municipal wastewater – short-term programme

Wastewater treatment plant	Capacity
SAVA river basin	
Grosuplje (Bičje, Krka)	15.000
Trebnje (Temenica, Krka)	6.000
Ljubljana (Ljubljanica, Sava)	500.000
Ivančna Gorica (Višnjica, Krka)	
Stična (farma) (Višnjica, Krka)	
∑	601.000
DRAVA river basin	
Slovenske Konjice (Dravinja)	25.000
Slovenj Gradec (Mislinja)	25.000
Slovenska Bistrica (Ložnica, Dravinja)	25.100
Lenart (Velka)	5.000
∑	80.100
MURA river basin	
∑	0
∑	681.100

3.1.3.3 Hot spots

See **Figure 3.1.**

Legend to Figure 3.1 (Hot Spots)

Nr.	Slov. Name	English Translation	Type
1	Farma Ihan	Farm Ihan	agricultural
2	Farma Nemščak - Ižakovci	Farm Nemščak – Ižakovci	agricultural
3	Farma Podgrad	Farm Podgrad	agricultural
4	Farma Jezera - Rakičan	Farm Jezera – Rakičan	agricultural
5	Industrija usnja Vrhnika, obrat v Šmartnem pri Litiji	Leather Industry Vrhnika, industrial plant at Šmartno near Litija	industrial
6	Ljubljanske mlekarne	Dairy Ljubljana	industrial
7	Mlekarna Maribor	Dairy Maribor	industrial
8	Pivovarna Laško	Brewing Industry Laško	industrial
9	Pivovarna Union - Ljubljana	Brewing Industry Union Ljubljana	industrial
10	Pomurka Murska Sobota	Food Industry Pomurka Murska Sobota	industrial
11	Radeče papir	Radeče Paper	industrial
12	Tovarna papirja ICEC Krško	Paper Factory ICEC Krško	industrial
13	Tovarna papirja Sladkogorska	Paper Factory Sladkogorska	industrial
15	Brežice		municipal
16	Celje		municipal
17	Črnomelj		municipal
18	Krško		municipal
19	Lendava		municipal
20	Ljubljana		municipal
21	Ljutomer		municipal
22	Maribor		municipal
23	Metlika		municipal
24	Murska Sobota		municipal
25	Novo Mesto		municipal
26	Rogaška Slatina		municipal
27	Sevnica		municipal
28	Trbovlje		municipal
29	Velenje		municipal
30	Vrhnika		municipal
31	Domžale		municipal

Table 3.3. Summary of recommended project for municipal hot spots

Hot Spot Name, River & Location	Parameters & Values which Define the Problem	Ranking of the Problem	Name & Type of Project (Structural or Non-structural)	Project Strategy & Targets	Parameters & Values which Define Project Benefits	Project Beneficiaries
Maribor, River: Drava	200.000 PE		WWTP Maribor, 3. stage			
Ljubljana, River: Sava/Ljubljanica	500.000 PE		WWTP Ljubljana, 3. stage			
Murska Sobota, River: Ledava	45.000 PE		WWTP Murska Sobota, 3. stage			
Celje, River: Savinja	75.000 PE		WWTP Celje, 3. stage			
Rogaška Slatina, River: Sotla	30.000 PE					
Lendava, River: Ledava	15.000 PE					
Ljutomer, River: Ščavnica	20.000 PE					
Krško, River: Sava	20.000 PE					
Brežice, River: Sava	10.000 PE					
Črnomelj, River: Lahinja	5.000 PE		WWTP Črnomelj, 3. stage			
Metlika, River: Kolpa	20.000 PE					
Novo Mesto, River: Krka	50.000 PE					
Velenje, River : Paka	70.000 PE					
Sevnica, River: Sava	10.000 PE					
Vrhnika, River: Ljubljanica	150.000 PE					
Trbovlje, River Sava	30.000 PE					
Domžale, River: Kamniška Bistrica, Sava	200.000 PE					

Table 3.4. Summary of recommended project for agricultural hot spots

Hot Spot Name, River & Location	Parameters & Values which Define the Problem	Ranking of the Problem	Name & Type of Project (Structural or Non-structural)	Project Strategy & Targets	Parameters & Values which Define Project Benefits	Project Beneficiaries
Farm Ihan, River: Kamniška Bistrica, Location: Ihan	daily weight of animals 3150 t	1	Wastewater treatment plant (structural project)	Final treatment		
Farm Podgrad, River Mura, Location: near Gornja Radgona	daily weight of animals 1000 t	2	Wastewater treatment plant (structural project)	Final treatment		
Farm Nemščak, River Mura, Location: near Ižakovci	daily weight of animals 2300 t	3	Wastewater treatment plant (structural project)	Final treatment		
Farm Jezera, River: Mura, Location: near Rakičan	daily weight of animals 930 t	4	Wastewater treatment plant (structural project)	Final treatment		

Table 3.5. Summary of recommended project for industrial hot spots

Hot Spot Name, River & Location	Parameters & Values which Define the Problem	Ranking of the Problem	Name & Type of Project (Structural or Non-structural)	Project Strategy & Targets	Parameters & Values which Define Project Benefits	Project Beneficiaries
Leather Industry Vrhnika, industrial plant at Šmatno pri Litiji, River: Reka, Sava, Location: Šmartno pri Litiji	1300 t COD/y		WWTP (structural)	final treatment		
Paper Factory ICIE Krško, River: Sava, Location: Krško	23816 t COD/y		WWTP (structural)	final treatment		
Food industry Pomurka Murska Sobota, River Ledava, Location Murska Sobota	324 t COD/y		WWTP (structural)	Pretreatment, final treatment in municipal WWTP Murska Sobota		
Pulp and paper Mill Sladkogorska , River: Mura, Location: near Sladki vrh	2007 t COD/y		WWTP (structural)	final treatment		
Brewing Industry Laško, River: Savinja, Location: Laško	2555 t COD/y		WWTP (structural)			
Paper Factory Radeče, River: Sava, Location: Radeče	287 t COD/y		WWTP (structural)	final treatment		
Dairy factory Maribor, River: Drava, Location: Maribor	995 t COD/y		WWTP (structural)	Pretreatment, final treatment in municipal WWTP Maribor		
Dairy factory Ljubljana, River:Ljubljanica, Location: Ljubljana	995 t COD/y		WWTP (structural)	Pretreatment, final treatment in municipal WWTP Ljubljana		
Brewing Industry Union Ljubljana, River: Sava/Ljubljanica, Location: Ljubljana	3467 t COD/y		WWTP (structural)	Pretreatment, final treatment in municipal WWTP Ljubljana		

3.2. Reduction of Water Pollution from Agriculture

3.2.1. Prevention of Pollution from Agricultural Point Sources

3.2.2. Agricultural Non-Point Sources

3.2.2.1. Reduction of Pesticides and Nitrates

The pollution of surface and groundwater by nitrates is considered one of the most serious environmental concerns in the context of agricultural pollution. Atrazine (banned by decree since 1996 - Official Gazette 28/96 and 34/96 -) and, more often, its metabolites DEA and DIA have also been detected. In 1995, in certain regions, the values of these substances in the water exceeded the recommended limit values of the EU. In addition, poorly managed sewage systems and wastewater treatment plants -or their mere absence -contribute to nitrate pollution in groundwater, and it is not always easy to distinguish the share of agriculture in nitrate pollution. Nevertheless, the application of mineral fertilizers in regions with intensive agricultural land use is thought to be the main source of nitrates in the environment. The plains of Pomursko, Mariborsko (intensive field crops with cereals) and Celjsko (hop plantations) are affected by this form of pollution. Manure surpluses from big livestock farms (Pomursko, Celjsko) are reported to be partly responsible for nitrate concentration in groundwater. The regions concerned are not only the most fertile, where even more intensification is planned (according to the National Irrigation Plan), but also the most densely populated.

The seven aquifers under the large plains are routinely monitored. In those regions, the improvement of water quality must be given high priority in the implementation of the Environmental Protection Act. Slovenia's waters are located in the Danube basin (except for the Soča). As a partner in the Danube Environmental Programme, Slovenia has resolved to satisfy the international water quality standards that will be set.

According to the report by the Council for Environment Protection of the Republic of Slovenia, 44% of the country is vulnerable to erosion, which causes an annual loss of 2.5 million m3 of soil. Erosion is reported in the Alpine and hilly regions. Intensive production and specialization have led to poor crop rotation systems and a decline in natural soil fertility in areas with compaction problems.

Agriculture may be partly responsible for soil pollution. Relatively high zinc and copper concentrations occur occasionally in soil, but no connection has been shown with large-scale pig farming (zinc and copper are currently used as additives in pig feed). There is no control on heavy metals in currently used mineral fertilizers and no maximum values are specified.

Pesticides and other organic contaminants (triazine herbicides and DDT derivatives) have been detected locally, but never in high concentrations. Poor crop rotation has led to a greater prevalence of diseases, pests and weeds, and to an increased use of chemicals. The pesticides in soils of intensive agricultural use increasingly leach into the groundwater. In 1991, Slovenia ranked fourth in Europe in terms of pesticide and fertilizer consumption/ha, but overall the use of fertilizers and pesticides fell during 1989-1993 by 45% and 50% respectively.

The Environmental Protection Act provides a general, wide-ranging instrument for the protection of the environment. Most of its basic principles are relevant to agriculture:

- The establishment of efficient environmental monitoring and the application of the polluter pays-principle ensure that agricultural polluters can be ordered to pay fines. Similarly, rehabilitation programmes may be prescribed in order to reduce or stop pollution from agricultural activities.

- The principle of environmental vulnerability studies and of environmental impact assessments (EIAs) aims at determining the environmental acceptability of any new project in a specific location. This is relevant to every land improvement project (irrigation, drainage, land reapportionment, and agricultural buildings for any purpose, livestock farms). Environmental topics treated in these EIAs are water protection (drainage, irrigation, livestock farms), protection of the air (smell) and against noise (ventilation systems), protection of the landscape (land melioration projects, agricultural buildings) and of bio-diversity (land melioration).
- The principle of environmental research will have to be applied to agronomic research whose objectives are not only to increase physical and economic yields, but also develop environmentally friendly agricultural techniques.
- The principle of public expenditure relating to environmental protection, together with the establishment of an environmental protection fund will provide funds for ecological and agronomic research and extension services that provide ecological information.
- The principle of public participation is designed to inform the public about the evaluation of specific projects from an environmental point of view. Current results of monitoring activities and ecological achievements are available to the public through an environmental report, based on an environmental information system.

According to the recently adopted Regulation on Environmental Impact Assessments, land melioration projects or rural constructions above a certain size are subject to EIA. Land consolidation - i.e. merging of individual plots - projects are not subject to EIA.

Maximum concentration levels for atrazine and heavy metals have been established. The new ordinance on the critical values in the soil fixes maximum and critical values for a number of chemicals. The new ordinance on emissions of substances in the soil regulates the application of fertilizers, both mineral and organic. It aims at promoting good agricultural practices in order to reduce leaching of nutrients (especially in regions with shallow groundwater or in catchment areas for drinking water), to adapt the level of fertilization (testing the available nitrogen before fertilizing, application during the growing season, winter interracially crops), and to limit the number of head of cattle on agricultural land (LU/ha). The use of sewage sludge in agriculture is also regulated, and there will be rules governing the concentration values for heavy metals - which are urgently needed, because of the planned increase in the number of municipal wastewater treatment plants.

The implementation of the Plant Protection Act will make it possible to strictly supervise the trade and use of pesticides. In future, triazine and its derivatives will no longer be used in agriculture.

> "Economically oriented sustainable agriculture", under this motto Slovenia defined a strategy for its agricultural development with a target scenario. Its aims are to produce high-quality cheap food, ensure food security (food availability, balanced food supply), improve competitiveness, adapt agricultural production to marketing possibilities, but also to preserve rural population densities, make sure that agricultural production is compatible with natural resources, preserve all agricultural land (to forestall any interruption in supply), protect agricultural land and water from pollution and misuse (sustainable soil production potential, ecologically sound agricultural production).

The National Programme of Irrigation, implemented by the Ministry of Agriculture, Forestry and Food, aims at increasing the country's irrigation capacity. With the assistance of the World Bank, about 10.000 ha will be irrigated mainly in the Vipava valley (3.000 ha), in the north eastern plains and on the Mediterranean coast. Irrigation projects larger than 10 ha are subject to an EIA, which is the case with these projects.

Slovenia estimates that long-term agricultural development will be possible only under conditions similar to those prevailing in other European countries. The country encourages the development of agricultural holdings of an "economically viable size". Greater productivity on private farms is expected from the abolition of the limitation of their maximum size, the concentration of land use and a decrease in the number of farms. The aim is that 70% of the land should belong to farms larger than 15 ha. The further development of the extension service and its functional improvement are envisaged, as is the t expansion of the arable area through land improvement.

A marked shift from the livestock to the crop sector (wheat, sugar beet) occurred between 1989 and 1993. Cattle herds will partially switch from milk to beef production, as a consequence of the higher productivity of dairy cows and herd specialization in a limited market for dairy products.

On the other hand, the Slovene Government is aware that the difficult conditions faced by most of the country's agriculture and its continuing external functions (social and environmental) call for a whole series of intervention policies, strong incentives and financial support.

3.2.2.2. Implementation and Institutions

The mechanisms used by the Government to support domestic agriculture include a price fixing policy for wheat, milk and sugar, preferential low-interest loans for farm investment, export aid, and direct aid for milk producers in less-favored areas.

The extension service appears to be very efficient. Founded by the co-operatives, it is now run and financed by the Ministry of Agriculture. This Ministry ensures the continuous training of all agricultural extension officers in order to familiarize them with the new environmental legislation. The extension officers' training has to comprise a large range of sound agricultural practices and their effects on the environment, the limit values, and the practical and legal effect of the enforcement of the laws, so that they can transmit comprehensive and correct information to the farmers. The same will apply to the technical aspects of ”landscape cultivation“, as soon as the habitats of traditional agricultural landscapes are protected by law and/or encouraged by financial incentives.

The risk of water pollution with nutrients is largely linked to pig farms. The optimal size of such farms is currently under discussion in Slovenia. This debate is supplemented by efforts to find generally applicable solutions to wastewater treatment.

Slovenia's natural beauty is attributable largely to its bio-diversity and the variety of its landscape, which make the country attractive for tourism. One of Slovenia's objectives is to preserve the full cultivation of agricultural land in sparsely populated areas by supporting the (small) farmers in those regions. The switch from a subsidy per litre of milk produced to a subsidy related to the number of head of cattle was intended to encourage the raising of more cattle, thus creating a greater need for grassland. The Ministry of Agriculture also hopes that the concentration of the land in the hands of fewer farmers will enable them to take proper care of it.

In spite of a severe drop in the number of tourists in 1991, tourism is one of the strategic sectors of development. Conservation of the landscapes and of preserved natural areas outside nature reserves forms the basis of tourist development schemes. The success of such schemes, however, cannot be achieved without the collaboration of local agriculture and the farmers' respect for their environment. It is therefore essential to take their interests into account.

The mapping of habitats according to a method used in Bavaria is being planned; a rough survey exists already. A related project was proposed for PHARE funding, but rejected. The preservation of landscape diversity and habitats, particularly in agriculturally marginal areas, depends to a large extent on the attitude of individual farmers - which is largely dominated by their economic prospects.

3.2.3. Reduction of Water Pollution through Improved Land Management

3.2.3.1. Measures to Improve Self-purification of Watercourses

Classification of the quality of surface waters

There are few watercourses in Slovenia, classified to 1st quality class according to evaluation and preparing of cadastre of watercourses by now. In 1st quality class are positioned watercourses preserved in original, natural conditions and they are all in river heads. The majority of surface watercourses or sections in watercourses are in 2nd quality class; it means they were regulated to protect against harmful influence of water or to be a natural resource for economical reasons. However human activities in the past were not taken place in such great extent to ruin natural balance in water bodies completely (exceptions are hydroelectric plants which dried some sections of watercourses completely).

Priorities in water management sector are preparing of regulation, especially "Design of regulation of river basins" - Načrta ureditve povodja (NUP). Design of regulation of river basins set a strategy for protection and regulation of ecosystem in water body and along it and introduces professional basis for preparation of plan and implementation acts.

As a basis to form project task it was used: Decree on concession for economic exploitation of the water course Kokra for additional snowing up of the ski slopes in Krvavec (Official Gazette of the Republic of Slovenia, n_o. 44/95), which was adopted by Government of Republic of Slovenia in July 1995. There is a priority list of exploitation of water of watercourse Kokra and water in its river basin.

3.2.3.2. Wetlands and Other Humid Biotopes

There are 102 works from the field of hydrological sciences preserved as natural monuments. Most of them are waterfalls (31), 19 of them are watercourses, there are 16 of them announced as springs and 16 of them as lakes, 2 see aquatories and 1 lagoon.

Part of hydrological heritage is protected within natural reserves and natural parks indirectly (national and regional parks and landscape).

Record of humid biotopes - wetlands is incomplete. It is estimated that they cover a surface of 26.000 ha or 1,3 %. In future, wetlands register will be made according to EC methodology. Some wetlands are incorporated into natural parks or protected as natural reserves: Zelenci, Malo polje, Udinboršt, Bobovek near Kranj, Kostanjevica and Goriški mah in the Ljubljana moor, Krakovski gozd, Negovsko jezero, Rački ribniki, Drava, the Maribor lake. It is estimated that approximately 10.500 ha of wetlands is protected in natural parks in the Black Sea basin, which represent 17,5 % of all protected areas in natural parks. Half of protected wetlands are situated in the Sava river basin. Wetlands protected in the Drava and Sava river basins represent more than 60 % of all protected areas in natural parks.

Table 3.6. Surface area and share of wetlands in Slovenia

	Wetlands incorporated into natural parks-estimation	Share of natural parks surface area - estimation
the Black Sea basin	10.500 ha	17,5 %
the Sava basin	5.500 ha	10,6 %
the Drava and Mura basins	4.737 ha	63,3 %
the Sotla basin	0 ha	0,0 %
the Kolpa basin	260 ha	100,0 %
Slovenia	11.500 ha	9,5 %

Many wetland areas were suggested to be protected, especially in the Mura, Drava and the Kolpa river basins. The entire course of the Mura, the Ljubljana moor and the Kolpa, and some sections of the Drava and Ormož lake are planned to be protected.

Wetlands are regions or zones between constant wet and constant dry environment. They are the most productive ecosystems and they are the places of extreme bio-diversity.

An area of Sečovlje' s salt works is in the list of wetlands with an international significance since 1993.

Some of proposals for new local wetlands of international significance, which fulfil conditions to come on the list of international significant wetlands are in preparation:

- Ljubljansko barje (Ljubljana's swampland)
- Cerkniško jezero (Lake Cerkniško Jezero)

The other important wetlands, suitable to definition of The Ramsar Convention, are classified on the list of IBA – important ornithological regions of Europe (Important Bird Areas in Europe):

- meanders of Drava river from Maribor to Zavrč
- meanders and flooded forests of Mura river from Veržej and Gibina
- Črni log – alder forests along Ledava river
- Krakovski gozd – the rest of flooded oak forests
- Jovsi – wetlands along Sotla river

Drainage, building, construction, regulations, polluting and other human activities exert influence upon wetlands harmfully; they are for that reason the most affected ecosystems in Slovenia.

3.3. Reduction of water pollution from industries

3.3.1. Project and/or Policies

Ecofund main projects in the field of reduction of water pollution from industries in the years 1995, 1996 and 1997 were:

- Industry 96 A - reduction of pollution (air, water, solid wastes, ODS, tender in the amount of 6,8 Mio US$ or 1045 Mio SIT)
- Industry 96 B - reduction of pollution (air, water, solid wastes, tender in the amount of 5,0 Mio US$ or 760 Mio SIT)
- Industry 97 A - reduction of pollution & new, environmentally friendly technologies & products (tender in the amount of 9,9 Mio US$ or 1520 Mio SIT)

Table 3.7. Sewage treatment plants of special industry wastewater with severe impact on water quality

No.	Industrial Wastewater Treatment Plant
1	Pivovarna Union Ljubljana Brewery Union Ljubljana
2	Pivovarna Laško Brewery Laško
3	Tovarna papirja in lepenke Sladkogorska Pulp and Paper Mill Sladkogorska
4	Tovarna papirja ICEC Krško Paper Factory ICEC Krško
5	Industrija usnja Vrhnika Leather Industry Vrhnika
6	Ljubljanske mlekarne Dairy Factory Ljubljana
7	Radeče papir Paper Radeče
8	Pomurka / Murska Sobota Food-processing industry / Murska Sobota
9	Mariborske mlekarne / Maribor Dairy Factory / Maribor

3.3.2. Oil and Grease

There is no river traffic in Danube river Basin in Slovenia, nor river ports.

3.4. Reduction of Water Pollution from Dump Sites

3.4.1. Waste Management in Slovenia

The collection and disposal of municipal waste are, as a rule, performed by the existing municipal services, which are adapting to the provisions of the EPAct and the Public Services Trading Act (PTS Act). The percentage of the population covered by the regular waste collection network has grown from 64% in 1987 to approximately 76% in 1996. The collection of waste sorted at source occurs sporadically and mainly in north-eastern Slovenia. A limiting factor is the lack of composting or other recovery plants. The collection and disposal of municipal waste is organized by 50 local public enterprises. Almost all municipal waste ends up at the 54 municipal waste landfills. In addition, industrial wastes that comply with the criteria for the disposal of municipal waste (not dangerous substances) are dumped along with municipal wastes.

There were 522 wastewater treatment and sludge treatment facilities in 1994 (422 industrial and 100 municipal). Some wastewater treatment sludge is used in agriculture or in the recultivation of degraded surfaces, but the bulk is deposited at municipal landfills. The total available capacity of all landfills amounts to approximately 13 million cubic meters. Even if the waste volume is reduced by compression and there is zero growth in the annual quantities of disposed waste, all sites will be filled up in 5 to 7 years' time. Pressure on the present municipal landfills is rising because of the excavation of scattered illegal disposal sites, on 6.000 of them containing more than 1 cubic meter of waste. Leakage from legal and illegal waste dumps has contaminated the drinking water supply in some areas. In the future, the quantities of domestic waste will increase as consumption rises and more households are incorporated in the regular waste collection network. The sludge from the growing number of municipal wastewater treatment plants will add to this trend as will the growing number of discarded cars.

In 1995, manufacturing and the energy sector generated almost one quarter of the total waste, or some 2 million tones, of which about 41 % came from energy production, 29% from manufacturing and 16% from mining. The quantities of generated waste are expected to grow until the year 2000, as the economy expands. An increase of energy waste is expected, but due to the introductive further flue-gas desulphurization facilities, producing and usable waste.

The bulk of industrial wastes is deposited at sites destined to receive either single or mixed-waste types. There are currently 13 such sites, including the landfill at Ljubljana for the disposal of slag and ash generated in the district's heating and power plant in Ljubljana, and one landfill for selected hazardous wastes mainly from local industry (manufacturing, the supply and use of coatings). Two incineration plants for special industrial wastes operated in 1995 (pharmaceutical waste, with a capacity of 7000 tones per year, and phyto-pharmaceutical waste, with a capacity of 1000 tones per year).

The Statute on the Handling of Special Waste of 1986 also covers dangerous substances and remains in force. It obliges companies to keep records of hazardous wastes. Available data suggests that the generation of hazardous waste rose between 1992 and 1993. The licensing of companies for the collection and disposal of dangerous waste is also regulated using the same instrument. It stipulates that companies should be equipped with the adequate storage space, facilities, technologies and qualified human resources. The number of licensed companies grew to about 40 in 1996; the quantity of hazardous waste dealt with has grown. It includes waste from mineral oil production, used tyres, electroplating sludge and waste solvents. The biggest share (around 75%) stems from used lead batteries form cars. Until August 1996 the licensing and control of these conditions had been the responsibility of the Ministry of Health and the Health Inspectorate, while the Chamber of Economy kept the records. Since then, the tasks have been transferred to the MEPP and its Inspectorate for Environment and Physical Planning.

The recent expansion of the construction industry is reflected in its generation of waste, currently reaching an annual level of 2,3 million tones. This is equivalent to more than 25% of waste generation in 1995. Construction waste includes excavation wastes, concrete and brick waste, asphalt waste and all demolition waste. Some 30% of the waste arise from excavations. The high level of generation of construction waste is expected to continue until 2005. Most of them are disposed on landfills.

The quantity of mining by products, predominantly tailings, will gradually decrease as coal mines are abandoned, while the amount of wastes from the processing and refining of stone aggregates will follow the trends in construction activities.

Farming, forestry and food processing generate 3,5 million tones of waste annually, measured as dry matter. The total amount is composed of animal tissue waste (approximately 0,05 million t/y), plant tissue waste (0,8 million t/y), animal faeces including spoiled straw collected separately and treated off-site (about 1,57 million t/y) and forestry waste (1,1 million t/y).

Small-scale livestock farming is a significant source of effluent waste biomass. Septic tank residues constitute a similar problem for the contamination of underground water reserves. At present, the average input of fertilizers and other chemical compounds to agricultural land amounts to 35,6 kg/ha nitrogen, 20,9 kg/ha phosphates, 23,3 kg/ha potassium, 1,1 kg/ha pesticides, up to 5,4 tones of solid animal waste and 8 m^3/ of slurry.

Radioactive wastes are generated by the Krško nuclear power plant (NPP), the TRlGA M II research reactor; hospitals, research institutes and industry. All low and intermediate radioactive waste generated by NPP is packaged in 200-litre drums, approximately 753 per year, with an average specific activity of 31 GBq/m^3. In addition, 442 spent fuel assemblies are stored in the storage pool. Other low and intermediate-level radioactive waste generated in Slovenia, mainly by research reactors and smaller users is stored in the low- and Intermediate-level radioactive waste interim storage facility in Podgorica in 145 drums, with an activity ranging from 3 to 30 GBq, another 97 larger contaminated items, with a total activity of 5400GBq, as well as 324 sealed sources with a total activity of 1000 GBq are also stored there. Inside the building of the research reactor, 313 fuel elements are stored. Slovenia also has two disposal sites for radioactive waste from past uranium mining and milling.

Non-uranium mines, thermopower plants, aluminum and phosphate factories have also generated - highly radioactive wastes. This contains up to 10 times more uranium and thorium than natural background levels. Under current regulations, they are not classified as radioactive waste, although their use would be unacceptable. A ministerial decree on threshold levels of radioactivity and the use of such materials and surfaces is being prepared.

Iron, non-ferrous, metals, glass, paper, fabrics, used car batteries, plastics and waste oil are considered as secondary raw materials. Slovenia has a long tradition of collecting and reusing them. Supply and demand for waste materials for reuse and recycling are partly organized in the framework of the “Waste Material Stock Exchange” initiated by the Chamber of Economy. The share of waste flows for reuse and recycling that passes through this market is continuously increasing. The amounts traded are generally separated at source, can be reused either directly or after only minor treatment, and are easy to transport. The Waste Exchange does not seem to have exhausted the potential for reuse or recycling. Collection of sorted municipal waste at its source is still in its infancy. Roughly 10% of the annual amount of hazardous waste is exported, mainly to neighboring countries and some EU Member States. In 1995 monitoring was tightened under the Basel Convention, revealing that 1.986 tones of hazardous waste were exported, mainly residues and waste from mineral oil processing, and 22.124 tones imported, Slovenia is currently seeking authorization to import used car batteries from abroad (Croatia, Hungary and Austria) for its recycling unit.

In the Strategic Guidelines on Waste Management completed in 1996 and adopted by the government, the goal of reducing industrial waste generation by about 45% before 2000 is to achieved by the technological development and research, the introduction of the appropriate environmental standards, the valuation of natural resources, a number of economic measures (different types of charges, insurance premiums, deposits, and economic incentives), inter-ministerial co-ordination and the promotion of waste minimization practices. Several laws and regulations are devoted to different types of dangerous substances. Other industrial hazards are partly covered by the environmental impact assessment regulation. In the event of technological accidents, two laboratories carry out measurements. Preventive actions are financed from the state budget.

3.4.2. Planned Measures

The first gap analysis shows the differences with respect to the requirements in the "framework" waste directive (751442/EEC), where there are no provisions for the registration and licensing for the collection, transport and disposal facilities, and waste management plans are not specifically provided for. The DISAE project on the Development of an Implementation Programme for the Slovenian Waste Management Strategy will also cover the requirements prescribed in the "framework" waste directive.

For the disposal of PCBs/PCTs (761403/EEC), for batteries and accumulators (911157/EEC), and for packaging and the packaging of waste (94I62/EC), for titanium oxide (9111121EEC), and the incineration of municipal waste (89I429/EEC), and for waste landfills, there are currently no regulations in force.

For closing the existing gaps MEPP has chosen the most expedient way, that is to prepare drafts of secondary legislation on the basis of the EPAct and the Public Services Trading Act and, if necessary.

A number of decrees are currently being drafted on waste oil management, on waste management, on hazardous waste management, on the management of used galvanic cells, on the transit of waste, on titanium dioxide and on landfill waste. The current legal regime in Slovenia falls almost totally under public service provisions (Articles 25 and 26 of the EPAct). This means there are few or no provisions for competition for access to this service.

These different draft decrees and the waste management strategy will need to be assessed in depth in order to develop a comprehensive approach to waste management, as detailed in the EU waste framework directive (75/442/EEC).

The MEPP will need to assess the different approaches to be taken to address the existing gaps.

One approach, currently being followed by the MEPP, is to close these gaps mostly by adopting different pieces of secondary legislation on the basis of the EPAct and the Public Services Trading Act (PSTA), and if necessary, to amend these two laws accordingly.

The other approach would be to assess the advantages in the long term of adopting a special framework law for waste management and incorporate the missing EU provisions in this statute law. Such an assessment would include an in-depth analysis of the type (regulation, directive, decision) and content (provision for fixed requirements, fixing limit values or targets to be reached or prohibiting certain activities) of the EU provisions relevant to the overall sector and the consequent evaluation by the MEPP of the best choice and content of the national measures to be implemented in order to comply fully with EU requirements.

The first approach would certainly be faster in filling the most urgent and visible gaps for different sectoral provisions (batteries, titanium oxide, PCBs/PCTs, etc.) but would not provide a comprehensive and tightly implementable legal framework for waste management. The present

legal measures in the waste sector do not give adequate grounds for all the necessary rights and obligations to be given or imposed on different subjects, relating chiefly to the producer's liability, to ownership of waste, to local communities, and to some others. Generally, the appropriate application of the regime of public services and the introduction of competition with licensing procedures require a tight legal framework. Adopting secondary legislation on the grounds of the existing legal structure does not seem to allow for a comprehensive long-term approach, which would allow for the implementation of all the necessary measures.

One would need to concentrate all efforts necessary in this first phase of the work programme on evaluating the best approach for waste management in Slovenia. This would include identifying the need to have short-term expert advice from member states (with similar administrative and legal structures to Slovenia) through the TAIEX Office for the White Paper legislation (i.e. framework directive). The related requirements for the successful implementation and enforcement of the legislative measures will also be included in the comprehensive assessment for approximation efforts in the waste.

3.5. Special Policy Measures

3.5.1. Policy Actions

The basic act is Environmental Protection Act (Official Gazette of the Republic of Slovenia, no 32/93).

Standards for household wastewater:

Regulation of emissions of materials and heat in wastewater from sources of pollution (Official Gazette of the Republic of Slovenia -OG no 35/96) - Uredba o emisiji snovi in toplote pri odvajanju odpadnih voda iz virov onesnaženja (U.L. RS 35/96)

Regulation of emissions of materials in wastewater from households wastewater treatment plants (OG no 35/96) Uredba o emisiji snovi pri odvajanju odpadnih vod iz komunalnih čistilnih naprav (Ur.l. RS, št. 35/96)

Standards (numerical thresholds) for industrial wastewater

Regulation of emissions of materials in wastewater from sources of pollution in textile industry (OG no 35/96) Uredba o emisiji snovi pri odvajanju odpadnih vod iz objektov in naprav za proizvodnjo, predelavo in obdelavo tekstilnih vlaken (Ur.l. RS, št. 35/96)

Regulation of emissions of materials in wastewater from sources of pollution in the tanning and fur industry (OG no 35/96) Uredba o emisiji snovi pri odvajanju odpadnih vod iz objektov in naprav za proizvodnjo usnja in krzna (Ur.l. RS, št. 35/96)

Regulation of emissions of materials in wastewater from sources of pollution in metal industry (OG no 35/96) Uredba o emisiji snovi pri odvajanju odpadnih vod iz objektov in naprav za proizvodnjo kovinskih izdelkov (Ur.l. RS, št. 35/96)

These standards sets Ministry of Environmental and Physical Planning Ljubljana. The expert groups prepare the technical basis for standards (regulations) according to:

- EU standard emission values (Slovenia ratified the Association Agreement with EU and has to accepted the basic policies and instruments of the Union)
- Experiences in Germany, Austria
- Specific water management condition in Slovenia

You need a wastewater discharge permit/licence for discharge of:

- wastewater from an urban wastewater treatment plant
- household wastewater to sewer
- household wastewater to surface water
- industrial wastewater to sewer
- industrial wastewater to surface water

The permits/licence issues Ministry of environment in Ljubljana, Nature Protection Authority and its departments in Maribor, Celje, Kranj, Novo Mesto, Koper and Nova Gorica. The permits/licenses are issued according to procedures of Zakon o varstvu okolja (Ur.l. RS, št. 32/93) - Environmental Protection Act (Official Gazette of the Republic of Slovenia, no 32/93).

3.5.2. Taxes

A legal basis for formation of prices of municipal activities where water supply and discharge as well as municipal waste and precipitation waters treatment are encompassed is represented by the Law on Prices (Official Gazette No. 1/91). Certain questions regarding prices are settled also by the Law on Economic Public Offices (Official Gazette of the RS No. 32/92) and the Law on Environmental Protection (Off. Gazette of the RS No. 32/92) with its sub-laws.

With the Law on Prices the competence regarding formation of prices in the sphere of municipal services passed to municipalities. However, already at the end of 1991, the Government deprived the municipalities of this competence with the explanation that they allowed a too big rise in prices. So the competence and the mode of prices bringing into force in the sphere of municipal products and services were transferred under state control. From 1992 on, the State has been settling modification of prices in the sphere of municipal activities by governmental decrees by which it allowed rise in prices lower than the inflation rate. This retention of prices of municipal services resulted in worsening of financial results of the public companies performing municipal services. Regarding the fact that public companies performing municipal services are mainly in the ownership of municipalities their financial operation has been solved by introduction of special contributions, taxes and fees included into prices. With such measures the majority of public companies succeeded in retaining their revenues on the level of costs. But in the same time this resulted in a price composed of two parts, i.e. of the official price and of the additions to the price, dictated by the municipalities.

3.5.3. Washing Powder

We use washing powder without phosphates in Slovenia.

3.5.4. Special Remedial Measures

- Development of methodology for integral evaluation of waste impact on the water environment (classification to classes); based on the European union legislation (Directive 93/21/EEC, 1993, p.p. 46-70) as an efficient tool for the assessment of potential waste danger and harmful effects
- Toxicity Reduction in Effluents, TRE; increasing concentration of toxic and hazardous substances in some industrial wastewaters requires the development of new and the introduction of best available technologies for clean water actions and waste reduction.

- Expert guidelines for management and control of municipal biological treatment facilities; elaboration of guidelines for seminars management targeted at heads and operators of municipal and mixed biological treatment equipment.
- Development of persistent toxic tests; together with an overall environmental impact assessment of hazardous waste, a methodology is to be developed for an overall waste impact assessment on the water environment with a supplement on persistent toxic tests and additional tests for the appraisal of bio-decomposition in specific conditions.
- Balances of organic pollution and nutrients according to individual water basins and a scenario for the wastewaters management (options for the water protection with regard to the drainage system network development and wastewaters treatment); water environment can deteriorate not only due to organic substances but also due to harmful nutrients found not only in different production processes, but also in rural areas; consequently a survey of carbon, nitrogen and phosphorus compounds for individual river basins is to be made; the subject survey should serve as a base for the elaboration of options for the water protection action with respect to the drainage network system development and wastewater treatment (municipal as well as technological).
- Integrated Pollution Prevention and Control; (IPPC); in view of the present technological development, IPPC can be classified into the following categories:
  - new procedure with respect to the reaction technique,
  - new procedure with respect to the process technique,
  - IPPC.

  The first two categories require large periods for their scientific and technical development as well as higher investment costs than those for the "end of pipe" protection. The third category is beyond the prevention of the environmental pollution and means the protection of the environment through recycling and selective supply of useless waste respectively.

Development of new treatment technologies for municipal and industrial (technological) wastewaters and the introduction of best available technologies (BAT) for individual industries into our environment.

4. Expected Effects of Current and Planned Projects and Policy Measures

4.1. Reduction of Nutrients Emission

Existing wastewater treatment plants don't have tertiary grade of treatment; that's why there is no reduction of nutrients. Results of nutrient balance in agriculture is:

- An average input of nitrogen with mineral fertilizer is low - 47 kg/ha.
- An average input of nitrogen with organic fertilizer is pretty higher - 90 kg/h.
- In all areas net balance is less than 100 kg/ha of surplus. An average net balance of nitrogen in Slovenia is about 56 kg/ha of surplus.

The planned reduction of nutrient emission in wastewater treatment plants is seen in the table below:

Table 4.1. Planned reduction of nutrient emission in wastewater treatment

Catchment Area	long term			short term			hot spot		
	Cap. (PE)	N (t/d)	P (t/d)	Cap. (PE)	N (t/d)	P (t/d)	Cap. (PE)	N (t/d)	P (t/d)
SAVA	514.000	5,09	1,16	601.000	5,95	1,35	1.170.000	11,60	2,62
DRAVA	280.000	2,77	0,63	80.000	0,79	0,18	200.000	1,98	0,45
MURA	21.000	0,21	0,05	0	0,00	0,00	60.000	0,59	0,14
SLOVENIA (DANUBE)	815.000	8,07	1,83	681.000	6,74	1,53	1.430.000	14,18	3,21

To prevent input of harmful compounds in soil and to prevent groundwater and surface water from pollution we have to assure some activities, like strengthening of consultant services in agriculture, implementation of demonstration farms, fytoremediatical researches of suitable crops (plants as large consumers of nutrients, particularly of nitrogen: "catch crops", puferske cones etc.). Effects of those measures can not be evaluated by now.

4.2. Hazardous Substances

Proposed measures:

- Development of methodology for integral impact assessment in water environment (classification into quality classes); based on the European Union legislation (Directive 93/21/EEC, 1993, p.p. 46-70), as an efficient tool for the assessment of potentially dangerous and harmful compounds.
- Reduction of toxicity in industrial wastewater (Toxicity Reduction in Effluents; TRE); Due to higher concentrations of toxic and hazardous compounds in some industrial wastewater, development of new and the introduction of best available technologies (BAT) is required.
- Development of persistent toxic tests; together with an overall environmental impact assessment of hazardous waste, a methodology is to be developed for an overall waste impact assessment on the water environment with a supplement on persistent toxic tests and additional tests for the appraisal of bio-decomposition in specific conditions.

Effects of that measures for the planned project can not be evaluated by now.

4.3 Microbiological contamination

The main polluters of waters in Slovenia are industrial and similar production plants, inhabitants and agriculture. Treatment of wastewater in Slovenia is not sufficient, neither according to quantity nor to quality of treated water.

According to the data of Statistical Office of Republic of Slovenia from 1994 it was treated through different treatment procedures about 45 Mio m^3 (45 %) of wastewater from industry and mining industry of all 100 Mio $m^3$of wastewater, produced in all industry and mining. Share of treated municipal wastewater is even smaller.

Ministry for Environment and Physical Planning – Administration for the Nature Protection has data that only 30 % of inhabitants discharge their wastewaters to sewage system and wastewater treatment plants with different grades of treatment.

Common effect of treatment in industrial, municipal and mixed (municipal and industrial) wastewater treatment plants is impossible to evaluate.

Reduction of microbiological contamination is shown in the table below:

Table 4.2. Actual reduction of microbiological contamination

Catchment Area	Capacity of WWTP	BOD_5 reduction (t/d)	N reduction (t/d)	P reduction (t/d)
Sava	934.635	45	9,3	2,1
Drava	126.150	6	1,2	0,3
Mura	64.000	3	0,6	0,1
Slovenia – Danube catchment area	1.124.785	54	11,1	2,5

Estimation of the planned reduction of microbiological contamination is shown in table below:

Table 4.3. Planned reduction of microbiological contamination

Catchment Area	long term			short term			hot spot		
	BOD5 (t/d)	N (t/d)	P (t/d)	BOD5 (t/d)	N (t/d)	P (t/d)	BOD5 (t/d)	N (t/d)	P (t/d)
SAVA	24,67	5,09	1,16	28,85	5,95	1,35	56,16	11,60	2,62
DRAVA	13,44	2,77	0,63	3,84	0,79	0,18	9,60	1,98	0,45
MURA	1,01	0,21	0,05	0,00	0,00	0,00	2,88	0,59	0,14
SLOVENIA (DANUBE)	39,12	8,07	1,83	32,69	6,74	1,53	68,94	14,18	3,21

Table 4.4. Planned reduction of contamination – long-term programme

Wastewater treatment plant	Capacity	BOD5 reduction	N reduction	P reduction
		(t/d)	(t/d)	(t/d)
SAVA river basin				
BRESTANICA-SENOVO	15.000	0,72	0,15	0,03
CERKNICA	5.000	0,24	0,05	0,01
GROSUPLJE	15.000	0,72	0,15	0,03

Table 4.4. continued

Wastewater treatment plant	Capacity	BOD5 reduction	N reduction	P reduction
		(t/d)	(t/d)	(t/d)
HRASTNIK	10.000	0,48	0,10	0,02
IVANČNA GORICA	15.000	0,72	0,15	0,03
KOČEVJE	50.000	2,40	0,50	0,11
KOSTANJEVICA	5.000	0,24	0,05	0,01
KRANJ	60.000	2,88	0,59	0,14
KRANJSKA GORA	8.000	0,38	0,08	0,02
JESENICE	30.000	1,44	0,30	0,07
LITIJA	25.000	1,20	0,25	0,06
MIRNA NA DOLENJ.	40.000	1,92	0,40	0,09
RADEČE	7.000	0,34	0,07	0,02
RADOVLJICA	38.000	1,82	0,38	0,09
RIBNICA	10.000	0,48	0,10	0,02
ŠENTJERNEJ	6.000	0,29	0,06	0,01
ŠENTJUR PRI CELJU	15.000	0,72	0,15	0,03
ŠKOFJA LOKA	80.000	3,84	0,79	0,18
ŠMARJE PRI JELŠAH	5.000	0,24	0,05	0,01
TREBNJE	6.000	0,29	0,06	0,01
TRŽIČ	25.000	1,20	0,25	0,06
ZAGORJE	9.000	0,43	0,09	0,02
ŽALEC	20.000	0,96	0,20	0,05
ŽELEZNIKI	5.000	0,24	0,05	0,01
ŽITI	10.000	0,48	0,10	0,02
∑	514.000	24,67	5,09	1,16
DRAVA river basin				
DRAVOGRAD IN OTIŠKI VRH	14.000	0,67	0,14	0,03
LENART	6.000	0,29	0,06	0,01
MEŽICA	10.000	0,48	0,10	0,02
PESNICA	8.000	0,38	0,08	0,02
PTUJ	110.000	5,28	1,09	0,25
ORMOŽ	5.000	0,24	0,05	0,01
RADLJE OB DRAVI	5.000	0,24	0,05	0,01
RAVNE,PREVALJE, KOTLJE	24.000	1,15	0,24	0,05
RUŠE	10.000	0,48	0,10	0,02
SLOVENJ GRADEC	25.000	1,20	0,25	0,06
SLOVENSKA BISTRICA	25.000	1,20	0,25	0,06
SLOVENSKE KONJICE	38.000	1,82	0,38	0,09
∑	280.000	13,44	2,77	0,63
MURA river basin				
GORNJA RADGONA	15.000	0,72	0,15	0,03
RADENCI	6.000	0,29	0,06	0,01
∑	21.000	1,01	0,21	0,05
TOTAL	815.000	39,12	8,07	1,83

Table 4.5. Planned reduction of contamination – short-term programme

Wastewater treatment plant	Capacity	BOD5 reduction	N reduction	P reduction
		(t/d)	(t/d)	(t/d)
SAVA river basin				
Grosuplje (Bičje, Krka)	15.000	0,72	0,15	0,03
Trebnje (Temenica, Krka)	6000	0,29	0,06	0,01
Ljubljana (Ljubljanica, Sava)	500.000	24,00	4,95	1,13
Ivančna Gorica (Višnjica, Krka)				
Stična (farma) (Višnjica, Krka)				
∑	601.000	28,85	5,95	1,35
DRAVA river basin				
Slovenske Konjice (Dravinja)	25.000	1,20	0,25	0,06
Slovenj Gradec (Mislinja)	25.000	1,20	0,25	0,06
Slovenska Bistrica (Ložnica, Dravinja)	25.100	1,20	0,25	0,06
Lenart (Velka)	5.000	0,24	0,05	0,01
∑	80.100	3,84	0,79	0,18
MURA river basin				
∑	0			
∑	681.100	32,69	6,74	1,53

Table 4.6. Planned reduction of contamination – hot spots

Wastewater treatment plant	Capacity	BOD5 reduction	N reduction	P reduction
		(t/d)	(t/d)	(t/d)
SAVA river basin				
Rogaška Slatina (Sotla)	30.000	1,44	0,30	0,07
Novo Mesto (reconstruction of industrial and municipal wastewater treatment plant) (Krka)	50.000	2,40	0,50	0,11
Vrhnika (Ljubljanica, Sava)	150.000	7,20	1,49	0,34
Ljubljana (Ljubljanica, Sava)	500.000	24,00	4,95	1,13
Celje (Savinja)	75.000	3,60	0,74	0,17
Krško (Sava)	20.000	0,96	0,20	0,05
Brežice (Sava)	10.000	0,48	0,10	0,02
Črnomelj (Lahinja)	5.000	0,24	0,05	0,01
Metlika (Kolpa)	20.000	0,96	0,20	0,05
Velenje (Paka)	70.000	3,36	0,69	0,16
Sevnica (Sava)	10.000	0,48	0,10	0,02
Trbovlje (Sava)	30.000	1,44	0,30	0,07
Domžale (Kamn. Bistrica, Sava)	200.000	9,60	2,00	0,44
∑	1.170.000	56,16	11,60	2,62

Table 4.6. continued

Wastewater treatment plant	Capacity	BOD5 reduction	N reduction	P reduction
		(t/d)	(t/d)	(t/d)
DRAVA river basin				
Maribor (derivacijski kanal HE Zlatoličje, Drava)	200.000	9,60	1,98	0,45
∑	200.000	9,60	1,98	0,45
MURA river basin				
Murska Sobota (Ledava)	45.000	2,16	0,45	0,10
Lendava (Ledava)	15.000	0,72	0,15	0,03
∑	60.000	2,88	0,59	0,14
∑	1.430.000	68,94	14,18	3,21

4.4. Adverse Environmental Effects

4.4.1. Actual Measures

Extent of researches of groundwater has increased in the last past years due to fact that groundwater is the main source of drinking water. Results of analysis shows increasing in quantity of nitrates, pesticides, heavy metals and AOX.

The quality of surface watercourses has improved since 1989, in 1995 the situation in comparison to 1994 has worsening.

The quantity of heavy metals in river sediment is higher (Drava river, in Otoče in Sava river, in Zalog in Ljubljanica river), analyses shows also presence of organic compounds without recognizable toxicity.

Even in 1996 the share of polluted sampling points increased. Sampling points with the worst quality of water were (4th quality class): Ščavnica-Pristava, Kamniška Bistrica-Beričevo, Sotla-Rogaška Slatina, and spring of Krupa river.

Table 4.7. Worsening and improvements in quality of surface watercourses

WORSENING	1994	1995	IMPROVEMENT	1994	1995
DRAVA-Borl	(2)-3	3	SAVA-Litija	3	(2)-3
MEŽA-Podklanc	(2)-3	3	SORA-Medvode	2-(3)	2
MEŽA-Otiški Vrh	(2)-3	3	LJUBLJANICA-Zalog	4	(3)-4
MISLINJA-Otiški Vrh	(2)-3	3	CERKNIŠČICA-Cerknica	3-(4)	3
SAVA DOLINKA-Podkoren	1-2	2	SAVINJA-Tremerje	3	2-3
SAVA BOHINJKA-Bodešče	2	2-(3)	SAVINJA-Rimske Toplice	3	(2)-3
BLEJSKO JEZERO- Mlino izliv	2	2-3	BOLSKA-Dolenja vas	3	(2)-3
SAVA-Otoče	2	2-(3)	VOGLAJNA s HUDINJO-Celje	4	3-4
MALENŠČICA-Malni	2	2-(3)	RINŽA-Kočevje	4	3-4
LOGAŠČICA-Jačka	3	3-4	KORITNICA-Kal	2	1-(2)
SAVINJA-Medlog	2-3	3			
KRKA-Podbukovje	2	2-(3)			
SOTLA-Rakovec	3	(3)-4			
KRAŠKI IZVIR-Podroteja	1-2	2			
LEDAVA-Čentiba	3	3-(4)	DRAVA-Borl	3	(2)-3
DRAVINJA-Videm	2-3	3	PIVKA-Postojnska jama	3	2-(3)
PESNICA-Zamušani	2-3	3	SAVINJA-Medlog	3	(2)-3
SAVA-Prebačevo	3-3	3	KRKA-Gradiček	2-(3)	2
SAVA-Brežice	3	3-(4)	KRKA-Podbukovje	2-(3)	2
SORA-Medvode	2	2-(3)	SOTLA-Rogaška Slatina	4	(3)-4
VELIKI MOČILNIK-Vrhnika	2	2-(3)	SOTLA-Rakovec	(3)-4	3
KOLPA-Metlika (Radoviči)	2-(3)	3	NADIŽA-Potoki	2	1-2

On the contrary with the general improvement of quality of surface watercourses, the quality of standing surface water and groundwater is getting worse constantly. This is alarming for two reasons: these water are very sensitive, the self-purification period is longer; and secondly their pollution is mostly not result of point discharges but non-point pollution. We understand it as

rinsing from banks, leaking through cesstanks, underground dumps, old sewage system networks and other works for wastewater, rinsing of leachate from landfills, leaking of rainfall- runoff through polluted soil. It is more difficult to handle with non-point pollution as point discharges. Direct control is almost impossible, what makes searching and remediation of the causes more difficult.

In addition to use groundwater for water-supply in Slovenia there are still karstic springs in karst region used for the same purpose. Inconsistency in collecting the data and unsystematically determined sampling points result in inadequate view of spring quality. On the other hand all the karstic springs which were subject of analysis are polluted.

The least input of antropogenic substances into Slovenian lakes is in Lake Bled. The quality of lake Bled has improved in 1995 and 1996 due to increased inflow of the Radovna river.

The quality of Lake Cerkniško Jezero has improved in 1995, but in 1996 there were worsening identified again.

In spite of uncompleted data about operation of wastewater treatment plants in Slovenia in 1996, we can summarize and point out the main problems, which need to be solved in near future.

According to acquired data of COD as indicator of organic matter in wastewater treatment plants we can estimate that their operation is satisfying. At the same time we have to know that because of leaking of sewage system network the waste waster discharged to wastewater treatment plant is pretty diluted and therefore the operation of wastewater treatment plant is not as efficient as it could be. Capacity of wastewater treatment plants are not exploited completely - consequences are pollution of groundwater and soil.

Beside diluted inflow in wastewater treatment plant there are still some more disadvantages:

- overloading in hydraulic sense and overloading with organic compounds (particularly because of industrial wastewaters)
- inadequate disposal or use of sewage sludge
- frequent troubles (inadequate operational stuff)
- non-operation due to uncompleted construction of sewage system network
- non-operation due to old or uncompleted construction of sewage system works
- tertiary grade of treatment is missing (consequently we have higher input of phosphorus and nitrogen compounds – Eutrophication; particularly in lakes, accumulations, rivers with low flow, see etc.)

4.4.2. Planned Measures

- Identification of the existing condition, assessment and control of non-point sources of underground waters pollution, application of the existing studies and elaboration of clear charts of endangered underground waters
- Exchange of information and education of staff at all levels (rural acceleration service, rural producers)
- Production of fundamental and application research for determination of putrefied zones and fitoremedial measures (catch-crops, plants as large consumers of nitrogen compounds), organization of demonstration farms above all in Karst, water protection areas and irrigation regions
- Restoration of monitoring for the underground waters pollution in irrigation areas with vegetable intensive production (emphasis on water protection areas) and introduction of regular control of prevention protection measures especially in irrigation zones and water protection areas

- Abatement of stockbreeding pollution (endorsement of the Act) and implementation of good rural practice and introduction of economic incentives
- Reactivation of melioration and production communities which beside rural acceleration services assume the responsibility for the operation of systems (irrigation, drainage, monitoring)

Efficient appliance of the principle "polluter pays" combined with other measures for pollution control from points sources in agriculture.

4.4.3. Transboundary Effects of Actual and Planned Measures

Qualitative assessment of transboundary effects is shown in chapter 4.0.

We will achieve with the implementation of planned wastewater treatment plants:

a. improvement of watercourse quality : Sava, Drava and Mura river
   - reduction of biochemical pollution;
     hot spot reduction: 69 t BOD_5/d, short term reduction additionally: 33 t BOD_5/d and long term reduction additionally 39 t BOD_5/d
   - reduction of nutrient quantity;
     hot spot reduction: 14,2 t N/d and 3,2 t P/d, short term reduction additionally: 6,7 t N/d and 1,5 t P/d and long term reduction additionally 8,1 t N/d and 1,8 t P/d
b. improvement of boundary river quality : Mura, Ledava, Sotla and Kolpa river
   - reduction of biochemical pollution
   - reduction of nutrient quantity
c. preservation of river natural conditions, establishment of natural parks and bathing water: Sotla and Kolpa river
d. preservation of natural resources: wetlands, flood-lands etc.

5. Cost Estimation of Programmes and Projects

5.1. Ongoing Projects

There are no data about investments to wastewater treatment plants (municipalities and industry), we have only data about financing in water sector programmes and projects by Ecofund.

Table 5.1. Financing in water sector programmes by Ecofund

Investment costs	Mio SIT	Mio US$
Wastewater treatment plants (industry)	240	1,6
Wastewater treatment plants (municipalities)	493	3,2
Sewer systems (municipalities)	859	5,6
Total	1592	10,4

5.2. Planned Projects

5.2.1. Long-term Programme

Table 5.2. Investment costs of long-term investment programme of WWTP

Wastewater treatment plant	Capacity	Status	Costs Mio US$	Costs Mio SIT	Description
SAVA river basin					
BRESTANICA-SENOVO	15.000	NEW	3,2	485	Brestanica, Sava
CERKNICA	5.000	UPGRADING	0,5	76	Cerkniščica sinks in a lake, then flows to the Sava river
GROSUPLJE	15.000	UPGRADING	1,6	238	Bičje, Krka
HRASTNIK	10.000	NEW	3,2	485	Sava
IVANČNA GORICA	15.000	COMPLETION	0,9	143	Višnjica, Krka
KOČEVJE	50.000	UPGRADING	1,7	266	Rinža river disappears, flows to Kolpa river probably
KOSTANJEVICA	5.000	NEW	1,2	190	Krka, Sava
KRANJ	60.000	COMPLETION	0,9	143	Sava
KRANJSKA GORA	8.000	NEW	1,8	276	springSave, Sava
JESENICE	30.000	UPGRADING	1,6	238	Sava Dolinka, Sava
LITIJA	25.000	NEW	9,0	1378	Sava
MIRNA NA DOLENJ.	40.000	UPGRADING	2,2	333	Mirna, Sava
RADEČE	7.000	COMPLETION	1,7	266	Sava
RADOVLJICA	38.000	NEW	5,4	827	Sava Bohinjka, Sava
RIBNICA	10.000	UPGRADING	1,1	171	Bistrica river disappears, then to Kolpa river probably
ŠENTJERNEJ	6.000	NEW	1,5	228	probably Krka, Sava - but not near any of them

Table 5.2. continued

Wastewater treatment plant	Capacity	Status	Costs Mio US$	Costs Mio SIT	Description
ŠENTJUR PRI CELJU	15.000	NEW	2,2	333	Voglajna, Savinja, Sava
ŠKOFJA LOKA	80.000	UPGRADING	3,0	456	Sora, Sava
ŠMARJE PRI JELŠAH	5.000	NEW	1,2	190	Sotla, Sava
TREBNJE	6.000	UPGRADING	1,6	238	Temenica sinks probably to v Krka
TRŽIČ	25.000	NEW	4,8	741	Tržiška Bistrica, Sava
ZAGORJE	9.000	NEW	2,0	314	Sava
ŽALEC	20.000	UPGRADING	2,8	428	Savinja, Sava
ŽELEZNIKI	5.000	UPGRADING	0,5	76	Selška Sora, Sora, Sava
ŽITI	10.000	UPGRADING	0,6	95	Sovra, Poljanska Sora, Sora, Sava
∑	514.000		56,3	8624	
DRAVA river basin					
DRAVOGRAD IN OTIŠKI VRH	14.000	NEW	3,0	466	Drava
LENART	6.000	UPGRADING	0,7	114	Velka, Pesnica, Drava
MEŽICA	10.000	NEW	2,2	342	Meža, Drava
PESNICA	8.000	NEW	1,8	276	Pesnica, Drava
PTUJ	110.000	COMPLETION	1,6	238	Drava
ORMOŽ	5.000	COMPLETION	0,5	76	Drava
RADLJE OB DRAVI	5.000	UPGRADING	0,8	124	Drava
RAVNE,PREVALJE, KOTLJE	24.000	NEW	4,8	732	Meža, Drava
RUŠE	10.000	NEW	2,2	342	Drava
SLOVENJ GRADEC	25.000	NEW	8,1	1245	Mislinja, Drava
SLOVENSKA BISTRICA	25.000	NEW	5,0	760	Ložnica, Dravinja, Drava
SLOVENSKE KONJICE	38.000	NEW	6,8	1045	Dravinja, Drava
∑	280.000		37,7	5757	
MURA river basin					
GORNJA RADGONA	15000	NEW	3,2	485	Mura
RADENCI	6.000	COMPLETION	1,6	238	Mura
∑	21.000		4,8	723	
TOTAL	815.000		98,8	15104	

Running costs are approximately 18,5 Mio US$ / year or 2830 Mio SIT / year.

5.2.2. Short-term Programme

Table 5.3. Investment costs of short term investment programme of WWTP

Wastewater treatment plant	Capacity	Mio US$	Mio SIT
SAVA river basin			
Grosuplje (Bičje, Krka)	15.000	1,6	237,5
Trebnje (Temenica, Krka)	6000	1,6	237,5
Ljubljana (Ljubljanica, Sava)	500.000	124,2	19000
Ivančna Gorica (Višnjica, Krka)		2,5	380
Stična (farma) (Višnjica, Krka)		2,2	330
∑	601.000	131,1	20185
DRAVA river basin			
Slovenske Konjice (Dravinja)	25.000	5,0	760
Slovenj Gradec (Mislinja)	25.000	6,2	950
Slovenska Bistrica (Ložnica, Dravinja)	25.100	5,0	760
Lenart (Velka)	5.000	1,2	190
∑	80.100	17,4	2660
MURA river basin			
∑	0	0	0
∑	681.100	148,5	22720

Running costs are approximately 15,4 Mio US$ / year or 2360 Mio SIT / year.

5.2.3. Hot Spots

Table 5.4. Investment costs of hot spots investment programme of WWTP

Wastewater treatment plant	Capacity	Mio US$	Mio SIT
SAVA river basin			
Rogaška Slatina (Sotla)	30.000	5,6	855
Novo Mesto (reconstruction of industrial and municipal wastewater treatment plant) (Krka)	50.000	4,5	684
Vrhnika (Ljubljanica, Sava)	150.000	68,3	10450
Ljubljana (Ljubljanica, Sava)	500.000	124,2	19000
Celje (Savinja)	75.000	11,8	1805
Krško (Sava)	20.000	2,5	390
Brežice (Sava)	10.000	2,2	342
Črnomelj (Lahinja)	5.000	2,1	323
Metlika (Kolpa)	20.000	1,6	237
Velenje (Paka)	70.000	10,3	1582
Sevnica (Sava)	10.000	2,2	342

Table 5.4. continued

Wastewater treatment plant	Capacity	Mio US$	Mio SIT
Trbovlje (Sava)	30.000	5,4	827
Domžale (Kamn. Bistrica, Sava)	200.000	15,7	2400
∑	1.170.000	256,3	39217
DRAVA river basin			
Maribor (derivacijski kanal HE Zlatoličje, Drava)	200.000	35,8	5472
∑	200.000	35,8	5472
MURA river basin			
Murska Sobota (Ledava)	45.000	9,9	1520
Lendava (Ledava)	15.000	5,0	760
∑	60.000	14,9	2280
∑	1.430.000	307,0	46969

Generally, the costs of a WWTP versus its capacity are shown in the following table.

Table 5.5. Costs of WWTP versus its capacity

PRICES FOR UWWTP	with capital	without capital	with capital	without capital
CAPACITY	Price (SIT)	Price (SIT)	Price (US$)	Price (US$)
5	1.991.960	1.532.255	13.019	10.015
10	3.718.300	2.860.260	24.303	18.695
20	4.647.875	3.575.230	30.378	23.368
50	6.374.215	4.903.235	41.662	32.047
100	11.553.235	8.887.060	75.511	58.085
200	16.599.445	12.768.855	108.493	83.457
300	21.645.655	16.650.555	141.475	108.827
400	32.800.555	25.231.145	214.383	164.909
500	37.182.810	28.602.125	243.025	186.942
1.000	51.790.295	39.838.725	338.499	260.384
4.000	191.225.785	147.096.765	1.249.842	961.417
5.000	205.833.365	158.333.365	1.345.316	1.034.859
15.000	577.661.275	444.354.805	3.775.564	2.904.280
20.000	1.035.806.470	796.774.215	6.769.977	5.207.675

6. Planning and Implementing Capacities

6.1. Planning Capacities

Authorities:

- Ministry of Environment and Physical Planning - Nature protection agency , Vojkova c. 1b, Ljubljana
- State Secretary for Physical Planning, Dunajska c. 47, Ljubljana
- Hydrometeorological Institute of the Republic of Slovenia, Vojkova 1 b, Ljubljana

Institutions and private enterprises:

- Water management institute, Hajdrihova 28, Ljubljana
- Faculty of Civil and Geodetic Engineering, Institute of Sanitary Engineering, Hajdrihova 28, Ljubljana
- Ecological Engineering Institute, Ljubljanska 9, Maribor

The actual capacities of institutions, engineering companies and consultants are sufficient for the preparation of project documentation for bankable projects.

The fields of activities, where the external support is useful, are the Phare DISAE Studies that are described later, and the field of Integrated River Basin Management.

6.2. Implementing Capacities

6.2.1. Implementing Capacities for Structural Projects

Construction of treatment plants for municipal and industrial wastewater:

Construction work: in Slovenia, we have national construction enterprises that have enough knowledge, capacities and praxis for all construction work at erection of WWTPs. At international competitions, the financial guaranties represent the only problem, as they are relatively low in comparison with the foreign ones.

Machine equipment: special equipment, as the centrifuge for sludge de-watering, special pipes, corrosion resistant pumps, electric regulatory items etc. is not produced in Slovenia, and are imported first of all from EU countries, USA and Japan. The importation of this equipment does not represent any problem and is custom-free in most cases.

Cooperation with foreign companies for turn-key projects: there are several cases for cooperation: concession BOT model for WWTP Maribor, WWTP Sežana and WWTP Kranjska Gora.

We have engineering enterprizes : SMELT, RUDIS, SCT, that are able to construct the entire WWTPs on turn key system...

6.2.2. Implementing Capacities for Non-structural Projects

There is a need for international cooperation for non-structural projects. In the framework of the Phare Environmental Program, development of implementation for approximation in environment (DISAE), the following studies have been worked out:

SLO 101: Development of a costing assessment for the Slovenian environmental approximation strategy

SLO 102: Development for an implementation program for the Slovenian waste management strategy

SLO 103: Revision of Slovenian environmental municipal legislation

SLO 104: Management of the environmental reservation fund

SLO 107: Provision of the technical assistance in the approximation of the urban wastewater directive

Slovenia needs international cooperation for using the Best Available Technologies (BAT) and best environmental practice (BEP).

Annexes

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