



# Updated Integrated Tisza River Basin Management Plan

## Annex 1. List of surface water bodies



Project co-funded by the European Union (ERDF, IPA funds)

## List of surface water bodies in the Tisza River Basin

COUNTRY	RIVER NAME	RIVER WATER BODY NAME	EUCD RWB	RIVER WATER BODY CHARACTER	TRANS-BOUNDARY WATER BODY	LENGTH OF RIVER WATER BODY [km]
Hungary	Berettyó	Berettyó	HUAEP322	HMWB		74.382
Hungary	Bodrog	Bodrog	HUAEP334	NATURAL		51.172
Hungary	Bódva	Bódva felső	HUAEP335	NATURAL		15.597
Hungary	Bódva	Bódva alsó	HUAEP336	NATURAL		39.88
Hungary	Dongéri-főcsatorna	Dong-éri-főcsatorna felső	HUAEP431	HMWB		65.653
Hungary	Dongéri-főcsatorna	Dong-éri-főcsatorna alsó	HUAEP432	HMWB		15.277
Hungary	Ér-főcsatorna	Ér-főcsatorna	HUAEP462	HMWB		8.486
Hungary	Fehér-Körös	Fehér-Körös	HUAEP471	AWB		9.741
Hungary	Fekete-Körös	Fekete-Körös	HUAEP475	HMWB		20.511
Hungary	Hernád	Hernád alsó	HUAEP579	NATURAL		53.699
Hungary	Hernád	Hernád felső	HUAEP580	HMWB		68.225
Hungary	Hortobágy-Berettyó	Hortobágy-Berettyó	HUAEP594	HMWB		79.058
Hungary	Kálló-ér	Kálló-ér	HUAEP625	HMWB		29.392
Hungary	Keleti-főcsatorna	Keleti-főcsatorna dél	HUAEP650	AWB		93.692
Hungary	Keleti-főcsatorna	Keleti-főcsatorna észak	HUAEP651	AWB		4.885
Hungary	Kettős-Körös	Kettős-Körös	HUAEP668	HMWB		37.292
Hungary	Kraszna	Kraszna	HUAEP729	HMWB		46.238
Hungary	Lónyay-főcsatorna	Lónyai-főcsatorna	HUAEP766	AWB		45.190
Hungary	Maros	Maros torkolat	HUAEP783	HMWB		28.612
Hungary	Maros	Maros kelet	HUAEP784	HMWB		22.215
Hungary	Sajó	Sajó felső	HUAEP931	NATURAL		52.904
Hungary	Sajó	Sajó alsó	HUAEP932	NATURAL		70.970
Hungary	Sebes-Körös	Sebes-Körös felső	HUAEP953	NATURAL		44.141

COUNTRY	RIVER NAME	RIVER WATER BODY NAME	EUCD RWB	RIVER WATER BODY CHARACTER	TRANS-BOUNDARY WATER BODY	LENGTH OF RIVER WATER BODY [km]
Hungary	Sebes-Körös	Sebes-Körös alsó	HUAEP954	HMWB		14.490
Hungary	Szamos	Szamos	HUAEP971	NATURAL		50.004
Hungary	Tarna	Tarna középső	HUAEQ039	HMWB		40.883
Hungary	Tarna	Tarna alsó	HUAEQ040	HMWB		42.281
Hungary	Tarna	Tarna felső	HUAEQ041	NATURAL		14.307
Hungary	Tisza	Tisza Túrtól Szipa-főcsatornáig	HUAEQ054	NATURAL		45.618
Hungary	Tisza	Tisza országhatártól Túríg	HUAEQ055	NATURAL		21.031
Hungary	Tisza	Tisza Hármás-Köröstől déli országhatárig	HUAEQ056	HMWB		84.016
Hungary	Tisza	Tisza Szipa-főcsatornától Belfő-csatornáig	HUAEQ057	NATURAL		110.344
Hungary	Tisza	Tisza Belfő-csatornától Keleti-főcsatornáig	HUAEQ058	NATURAL		50.230
Hungary	Tisza	Tisza Keleti-főcsatornától Tiszabábolnáig	HUAEQ059	HMWB		79.260
Hungary	Tisza	Tisza Kiskörétől Hármás-Körösig	HUAEQ060	HMWB		159.911
Hungary	Túr	Túr alsó	HUAEQ082	AWB		11.595
Hungary	Túr	Túr felső	HUAEQ083	HMWB		18.446
Hungary	Vajai-főfolyás	Vajai-főfolyás alsó	HUAEQ090	HMWB		29.188
Hungary	Vajai-főfolyás	Vajai-főfolyás felső	HUAEQ091	NATURAL		16.764
Hungary	Zagyva-patak	Zagyva-patak-alsó	HUAEQ137	NATURAL		37.339
Hungary	Zagyva-patak	Zagyva-patak felső és Bárna-patak	HUAEQ138	NATURAL		14.419
Hungary	Zagyva	Zagyva felső	HUAEQ139	HMWB		66.067
Hungary	Zagyva	Zagyva alsó	HUAEQ140	NATURAL		59.013
Hungary	Tisza	Tisza Tiszabábolnától Kisköréig	HUAIW389	HMWB		37.993
Hungary	Hármás-Körös	Hármás-Körös alsó	HUAOC778	NATURAL		47.691
Hungary	Hármás-Körös	Hármás-Körös felső	HUAOC779	HMWB		43.793
Hungary	Hortobágy-főcsatorna	Hortobágy-főcsatorna	HUAOC785	HMWB		94.619
Hungary	Kati-ér	Kati-ér	HUAOC795	HMWB		67.403
Romania	Tur	Acumularea Calinesti	ROLW1.1.11_B1	HMWB		2.315
Romania	Somesul Mic	Acumularea Fintinele	ROLW2.1.31_B1	HMWB		17.524

COUNTRY	RIVER NAME	RIVER WATER BODY NAME	EUCD RWB	RIVER WATER BODY CHARACTER	TRANS-BOUNDARY WATER BODY	LENGTH OF RIVER WATER BODY [km]
Romania	Somesul Mic	Acumularea Tarnita	ROLW2.1.31_B2	HMWB		8.111
Romania	Somesul Mic	Acumularea Somesul Cald	ROLW2.1.31_B3	HMWB		4.074
Romania	Somesul Mic	Acumularea Gilau	ROLW2.1.31_B4	HMWB		2.274
Romania	Crasna	Acumulare Virsolt	ROLW2.2_B1	HMWB		3.789
Romania	Barcau	Barcau - Ac.Suplacu de Barcau	ROLW3.1.44.33_B4	HMWB		4.767
Romania	Crisul Repede	Crisul Repede - Ac.Tileagd + Afluent	ROLW3.1.44_B5	HMWB		14.551
Romania	Sebes	Sebes, ac. Oasa	ROLW4.1.102_B2A	HMWB		23.149
Romania	Sebes	Sebes, ac. Tau - Baraj Nedeu	ROLW4.1.102_B4A	HMWB		26.113
Romania	Strei	Strei, ac. Subcetate	ROLW4.1.117_B2	HMWB		3.383
Romania	Tarnava Mare	Tarnava Mare, ac. Zetea	ROLW4.1.96_B2	HMWB		2.549
Romania	Viseu	Viseu-izvoare-cf.Ruscova si afluenti	RORW1.1.1_B1A	NATURAL		60.693
Romania	Viseu	Viseu-cf.Ruscova-cf.Tisa	RORW1.1.1_B2	NATURAL		22.076
Romania	Tur	Tur-izvoare-captare Negresti Oas	RORW1.1.11_B1	NATURAL		14.800
Romania	Tur	Tur-av.captare Negresti Oas-am.ac.Calinesti	RORW1.1.11_B2	HMWB		11.393
Romania	Tur	Tur -av.ac.Calinesti-cf.Turt	RORW1.1.11_B3	NATURAL		18.612
Romania	Tur	Tur -cf.Turt-granita RO-HU	RORW1.1.11_B4	NATURAL		21.976
Romania	Iza	Iza-izvoare-cf.Valea Morii si afluenti	RORW1.1.2_B1	NATURAL		56.507
Romania	Iza	Iza -cf.Valea Morii-cf.Tisa	RORW1.1.2_B2	NATURAL		28.549
Romania	Tisa	Tisa	RORW1.1_B1	NATURAL		65.781
Romania	Sieu	Sieu -izvoare-cf.Budac si afluenti	RORW2.1.24_B1	HMWB		37.903
Romania	Sieu	Sieu -cf.Budac-cf.Somesul Mare	RORW2.1.24_B2	NATURAL		41.275
Romania	Somesul Mic	Somesul Cald-izvoare-am.ac.Fintinele si afluenti	RORW2.1.31_B1	NATURAL		19.549
Romania	Somesul Mic	Somesul Cald-av.ac.Fintinele-am.ac.Tarnita si afluenti	RORW2.1.31_B2	NATURAL		20.318
Romania	Somesul Mic	Somesul Mic-av.ac.Gilau-cf.Nadas	RORW2.1.31_B3	NATURAL		23.300
Romania	Somesul Mic	Somesul Mic-cf.Nadas-cf.Somes Mare	RORW2.1.31_B4	HMWB		78.198
Romania	Lapus	Lapus -izvoare-cf.Suciu si afluenti	RORW2.1.66_B1A	NATURAL		36.011
Romania	Lapus	Lapus-cf.Suciu-cf.Cavnic	RORW2.1.66_B2	NATURAL		49.533

COUNTRY	RIVER NAME	RIVER WATER BODY NAME	EUCD RWB	RIVER WATER BODY CHARACTER	TRANS-BOUNDARY WATER BODY	LENGTH OF RIVER WATER BODY [km]
Romania	Lapus	Lapus -cf.Cavnic-cf.Somes	RORW2.1.66_B3	HMWB		45.555
Romania	Somes	Somesul Mare -izvoare-cf.Feldrisel si afluenti	RORW2.1_B1	NATURAL		55.022
Romania	Somes	Somesul Mare -cf.Feldrisel-cf.Sieu	RORW2.1_B2	NATURAL		40.092
Romania	Somes	Somesul Mare -cf.Sieu-Dej	RORW2.1_B3	HMWB		31.855
Romania	Somes	Somes -Dej-cf.Apa Sarata	RORW2.1_B4	NATURAL		94.203
Romania	Somes	Somes-cf.Apa Sarata-cf.Lapus	RORW2.1_B5	NATURAL		67.829
Romania	Somes	Somes-cf.Lapus-cf.Homorodu Nou	RORW2.1_B6	NATURAL		64.322
Romania	Somes	Somes-cf.Homorodu Nou-granita cu Ungaria	RORW2.1_B7	NATURAL		21.175
Romania	Crasna	Crasna -izvoare-am.ac.Virsolt si afluenti	RORW2.2_B1	NATURAL		28.690
Romania	Crasna	Crasna-av.ac.Varsolt-polder Moftin	RORW2.2_B2A	NATURAL		78.409
Romania	Crasna	Crasna - polder Moftin - granita Ungaria	RORW2.2_B2B	NATURAL		25.059
Romania	Crisul Negru	Crisul Negru - izvor - cnf. Valea Mare + Afluent	RORW3.1.42_B1	HMWB		38.731
Romania	Crisul Negru	Crisul Negru - cnf. Valea Mare - cnf. Nimaiesti	RORW3.1.42_B2	NATURAL		13.760
Romania	Crisul Negru	Crisul Negru - cnf. Nimaiesti - cnf. Soimul	RORW3.1.42_B3	NATURAL		26.320
Romania	Crisul Negru	Crisul Negru - cnf. Soimul - cnf. Valea Noua	RORW3.1.42_B4	NATURAL		37.944
Romania	Crisul Negru	Crisul Negru - cnf. Valea Noua - frontiera	RORW3.1.42_B5	NATURAL		47.251
Romania	Ier	Ier - izvor - cnf. Rit	RORW3.1.44.33.28_B1	NATURAL		60.344
Romania	Ier	Ier - cnf. Rit - frontiera	RORW3.1.44.33.28_B2	HMWB		42.226
Romania	Barcau	Barcau - izvor - cnf. Toplita + Afluenti	RORW3.1.44.33_B1	NATURAL		9.571
Romania	Barcau	Barcau - cnf. Toplita - cnf. Groapa	RORW3.1.44.33_B2A	HMWB		32.553
Romania	Barcau	Barcau - cnf. Groapa - am. Ac.Suplacu de Barcau	RORW3.1.44.33_B3A	NATURAL		12.460
Romania	Barcau	Barcau - baraj Suplacu de Barcau - cnf. Bistra	RORW3.1.44.33_B5	NATURAL		32.279
Romania	Barcau	Barcau - cnf. Bistra - frontiera	RORW3.1.44.33_B6	NATURAL		44.636
Romania	Crisul Repede	Crisul Repede - izvor - cnf. Sacuieu	RORW3.1.44_B1	NATURAL		24.779
Romania	Crisul Repede	Crisul Repede - cnf. Sacuieu - cnf. Iad	RORW3.1.44_B2	NATURAL		28.552
Romania	Crisul Repede	Crisul Repede - Def.Crisul Repede - cnf. Iad - av. Def.Crisul Repede + Afluent	RORW3.1.44_B3	NATURAL		18.234

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Romania	Crisul Repede	Crisul Repede - av. Def.Crisul Repede - am. Ac.Lugasu	RORW3.1.44_B4	NATURAL		17.516
Romania	Crisul Repede	Crisul Repede - baraj Tileagd - cnf. Bonor	RORW3.1.44_B6	NATURAL		18.854
Romania	Crisul Repede	Crisul Repede - cnf. Bonor - frontiera	RORW3.1.44_B7	HMWB		34.266
Romania	Crisul Alb	Crisul Alb - izvor - am. Ac.Mihaileni + Afluenti	RORW3.1_B1	NATURAL		25.499
Romania	Crisul Alb	Crisul Alb - Ac.Mihaileni - am. Ac.Mihaileni - baraj Mihaileni + Afluent	RORW3.1_B2	NATURAL		3.417
Romania	Crisul Alb	Crisul Alb - baraj Mihaileni - cnf. Tebea	RORW3.1_B3	NATURAL		22.501
Romania	Crisul Alb	Crisul Alb - cnf. Tebea - cnf. Zimbru	RORW3.1_B4	NATURAL		60.977
Romania	Crisul Alb	Crisul Alb - cnf. Zimbru - cnf. Chisindia	RORW3.1_B5	NATURAL		28.154
Romania	Crisul Alb	Crisul Alb - cnf. Chisindia - cnf. Cigher	RORW3.1_B6	NATURAL		67.153
Romania	Crisul Alb	Crisul Alb - cnf. Cigher - frontiera	RORW3.1_B7	NATURAL		40.048
Romania	Sebes	Sebes, izvor - ac. Oasa si Tartarau	RORW4.1.102_B1	NATURAL		20.174
Romania	Sebes	Sebes, ac. Tau - Baraj Nedeu - conf. Mures	RORW4.1.102_B5A	HMWB		31.549
Romania	Strei	Strei, izvor - ac. Subcetate si afluentii	RORW4.1.117_B1	NATURAL		62.472
Romania	Strei	Strei, ac. Subcetate - conf. Mures	RORW4.1.117_B3	HMWB		31.739
Romania	Aries	Aries (Ariesul Mare), izvor - ac. Mihoiesti si afluentii	RORW4.1.81_B1	NATURAL		44.622
Romania	Aries	Aries, ac. Mihoiesti	RORW4.1.81_B2	HMWB		1.453
Romania	Aries	Aries, ac. Mihoiesti - conf. Abrud	RORW4.1.81_B3	HMWB		6.989
Romania	Aries	Aries, conf. Abrud - conf. Plaiesti	RORW4.1.81_B4	HMWB		80.517
Romania	Aries	Aries, conf. Plaiesti - conf. Mures	RORW4.1.81_B5	HMWB		41.922
Romania	Tarnava Mica	Tarnava Mica, izvor - conf. Sovata si afluentii	RORW4.1.96.52_B1	NATURAL		30.560
Romania	Tarnava Mica	Tarnava Mica, conf. Sovata - conf. Bagaciu	RORW4.1.96.52_B2	HMWB		96.149
Romania	Tarnava Mica	Tarnava Mica, conf. Bagaciu - conf. Tarnava	RORW4.1.96.52_B3	HMWB		64.497
Romania	Tarnava Mare	Tarnava Mare, izvor - ac. Zetea si afluentii	RORW4.1.96_B1	NATURAL		21.767
Romania	Tarnava Mare	Tarnava Mare, ac. Zetea - conf. Bradesti si Desag	RORW4.1.96_B3	NATURAL		17.709
Romania	Tarnava Mare	Tarnava Mare, conf. Bradesti - conf. Cris	RORW4.1.96_B4	HMWB		80.989
Romania	Tarnava Mare	Tarnava Mare, conf. Cris - conf. Paucea	RORW4.1.96_B5	NATURAL		42.793

COUNTRY	RIVER NAME	RIVER WATER BODY NAME	EUCD RWB	RIVER WATER BODY CHARACTER	TRANS-BOUNDARY WATER BODY	LENGTH OF RIVER WATER BODY [km]
Romania	Tarnava Mare	Tarnava Mare, conf. Paucea - conf. Vorumloc	RORW4.1.96_B6	HMWB		14.658
Romania	Tarnava Mare	Tarnava Mare, conf. Vorumloc - conf. Mures	RORW4.1.96_B7	HMWB		63.353
Romania	Mures	Mures, izvor - conf. Carbunele Negru	RORW4.1_B1	NATURAL		12.197
Romania	Mures	Mures, conf. Soimos - conf. Zadarlac	RORW4.1_B10	HMWB		58.890
Romania	Mures	Mures, conf. Zadarlac - Romanian/Hungarian border	RORW4.1_B11	HMWB		90.890
Romania	Mures	Mures, conf. Carbunele Negru - conf. Lazarea	RORW4.1_B2	HMWB		28.441
Romania	Mures	Mures, conf. Lazarea - conf. Toplita	RORW4.1_B3	NATURAL		37.814
Romania	Mures	Mures, conf. Toplita - conf. Pietris	RORW4.1_B4	NATURAL		53.076
Romania	Mures	Mures, conf. Pietris - conf. Petrilaca	RORW4.1_B5	NATURAL		37.172
Romania	Mures	Mures, conf. Petrilaca - conf. Aries	RORW4.1_B6	HMWB		114.333
Romania	Mures	Mures, conf. Aries - conf. Cerna	RORW4.1_B7	HMWB		173.371
Romania	Mures	Mures, conf. Cerna - conf. Dobra	RORW4.1_B8	HMWB		46.258
Romania	Mures	Mures, conf. Dobra - conf. Soimos	RORW4.1_B9	NATURAL		102.864
Romania	Aranca	Aranca + afluenti	RORW4.2_B1	HMWB		108.080
Romania	Bega Veche	Bega Veche (Beregsau, Niraj) - am. cf. Valea Dosului + afluenti	RORW5.1.21_B1A	HMWB		31.591
Romania	Bega Veche	Bega Veche (Beregsau, Niraj) - av. cf. Valea Dosului + afluenti	RORW5.1.21_B2	HMWB		68.911
Romania	Bega	Bega - izvor-cf. Bega Poienilor + afluenti	RORW5.1_B1	NATURAL		33.756
Romania	Bega	Bega - cf. Bega Poienilor-cf. Chizdia	RORW5.1_B2	NATURAL		58.844
Romania	Bega	Bega - cf. Chizdia-cf. Behela	RORW5.1_B3	HMWB		43.782
Romania	Bega	Bega - cf. Behela-frontiera	RORW5.1_B4	AWB		44.713
Serbia	Begej	Begej	RSBEG	HMWB		36.413
Serbia	Bajski kanal	Bajski kanal	RSCAN_BAJ	AWB		13.692
Serbia	DTD Bečej-Bogojevo	DTD kanal Becej - Bogojevo od ušca u Tisu do DTD kanala Vrbas-Bezdan	RSCAN_BEC-BOG_1	AWB		40.307
Serbia	DTD Bečej-Bogojevo	DTD kanal Becej - Bogojevo od DTD kanala Vrbas-Bezdan do DTD kanala Novi Sad-Savino selo	RSCAN_BEC-BOG_2	AWB		13.804
Serbia	DTD Bečej-Bogojevo	DTD kanal Becej - Bogojevo od DTD kanala Novi Sad-Savino selo do DTD kanala Kosancic-Mali Stapar	RSCAN_BEC-BOG_3	AWB		9,039

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Serbia	DTD Bečej-Bogojevo	DTD kanal Becej - Bogojevo od DTD kanala Kosancic-Mali Stapar do DTD kanala Odžaci Sombor	RSCAN_BEC-BOG_4	AWB		16.762
Serbia	DTD Bečej-Bogojevo	DTD kanal Becej - Bogojevo od DTD kanala Odžaci Sombor do DTD kanala Backi Petrovac - Karavukovo	RSCAN_BEC-BOG_5	AWB		5.133
Serbia	DTD Banatska Palanka-Novi Bečej	DTD kanal Banatska Palanka-Novi Becej od DTD Kikindskog kanala do viodozahvata naTisi	RSCAN_BP-NB_10	AWB		15.176
Serbia	DTD Banatska Palanka-Novi Bečej	DTD kanal Banatska Palanka-Novi Becej od DTD kanala Begej do DTD kanala Plovni Begej	RSCAN_BP-NB_7	AWB		3.273
Serbia	DTD Banatska Palanka-Novi Bečej	DTD kanal Banatska Palanka-Novi Becej od DTD kanala Plovni Begej do Starog Begeja	RSCAN_BP-NB_8	AWB		4.991
Serbia	DTD Banatska Palanka-Novi Bečej	DTD kanal Banatska Palanka-Novi Becej od Starog Begeja do DTD Kikindskog kanala	RSCAN_BP-NB_9	AWB		16.435
Serbia	Kikindski kanal	Kikindski kanal	RSCAN_KIK	AWB		50.211
Serbia	DTD Kosančić-Mali Stapar	DTD Kosancic-Mali Stapar	RSCAN_KOS-MS	AWB		20.778
Serbia	DTD Novi Sad-Savino selo	DTD kanal Novi Sad-Savino selo od Jegricke do DTD kanala Becej-Bogojevo	RSCAN_NS-SS_3	AWB		3.501
Serbia	DTD Odzaci-Sombor	DTD kanal Odžaci-Sombor od ušća u DTD kanal Becej - Bogojevo do DTD kanala Prigrevica - Bezdán	RSCAN_OD-SO_1	AWB		21.441
Serbia	DTD Odzaci-Sombor	DTD kanal Odžaci-Sombor od DTD kanala Prigrevica - Bezdán do DTD kanala Vrbas - Bezdán	RSCAN_OD-SO_2	AWB		6.200
Serbia	DTD Vrbas-Bezdan	DTD kanal Vrbas-Bezdan od ušća u DTD kanal Becej Bogojevo do prevodnice Vrbas	RSCAN_VR-BEZ_1	AWB		5.522
Serbia	DTD Vrbas-Bezdan	DTD kanal Vrbas-Bezdan od prevodnice Vrbas do DTD kanala Kosancic-Mali Stapar	RSCAN_VR-BEZ_2	AWB		29.581
Serbia	DTD Vrbas-Bezdan	DTD kanal Vrbas-Bezdan od DTD kanala Kosancic-Mali Stapar do DTD kanala Odžaci Sombor	RSCAN_VR-BEZ_3	AWB		16.270
Serbia	DTD Vrbas-Bezdan	DTD kanal Vrbas-Bezdan od DTD kanala Odžaci Sombor do DTD kanala Bezdán-Baja	RSCAN_VR-BEZ_4	AWB		25.526
Serbia	DTD Vrbas-Bezdan	DTD kanal Vrbas-Bezdan od DTD kanala Bezdán-Baja do viodozahvata na Dunavu	RSCAN_VR-BEZ_5	AWB		3.585
Serbia	Plovni Begej	Plovni Begej	RSPLBEG	AWB		32.226
Serbia	Stari Begej	Stari Begej	RSSTBEG	undefined		37.571
Serbia	Tisa	Tisa od ušća u Dunav do brane Novi Becej	RSTIS_1	HMWB		67.227
Serbia	Tisa	Tisa uzvodno od brane Novi Becej	RSTIS_2	HMWB		101.787



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Serbia	Zlatica	Zlatica od ušca do Kikindskog kanala	RSZLA_1	possibly HMWB		10.627
Serbia	Zlatica	Zlatica od Kikindskog kanala do državne granice	RSZLA_2	possibly HMWB		24.290
Slovakia	Bodva	Bodva	SKA0001	NATURAL		12.777
Slovakia	Bodva	Bodva	SKA0002	NATURAL		34.205
Slovakia	Bodrog	Bodrog	SKB0001	NATURAL		15.352
Slovakia	Ondava	Ondava	SKB0002	NATURAL		22.928
Slovakia	Ondava	Ondava	SKB0003	NATURAL		33.451
Slovakia	Ondava	Ondava	SKB0005	NATURAL		10.094
Slovakia	Ondava	Ondava	SKB0006	NATURAL		56.424
Slovakia	Topľa	Topľa	SKB0012	NATURAL		16.750
Slovakia	Topľa	Topľa	SKB0013	NATURAL		86.418
Slovakia	Topľa	Topľa	SKB0015	NATURAL		28.230
Slovakia	Latorica	Latorica	SKB0140	NATURAL		31.578
Slovakia	Laborec	Laborec	SKB0141	NATURAL		16.567
Slovakia	Laborec	Laborec	SKB0142	NATURAL		51.450
Slovakia	Laborec	Laborec	SKB0144	NATURAL		57.066
Slovakia	Uh	Uh	SKB0150	NATURAL		21.236
Slovakia	Ondava	Ondava	SKB1002	HMWB		19.301
Slovakia	Hornád	Hornád	SKH0001	NATURAL		18.459
Slovakia	Hornád	Hornád	SKH0002	NATURAL		19.468
Slovakia	Hornád	Hornád	SKH0003	NATURAL		47.825
Slovakia	Hornád	Hornád	SKH0004	NATURAL	x	64.559
Slovakia	Torysa	Torysa	SKH0015	NATURAL		29.118
Slovakia	Torysa	Torysa	SKH0016	NATURAL		44.191
Slovakia	Torysa	Torysa	SKH0017	NATURAL		50.374
Slovakia	Hornád	Hornád	SKH1001	HMWB		18.635
Slovakia	Slaná	Slaná	SKS0001	NATURAL		16.953

COUNTRY	RIVER NAME	RIVER WATER BODY NAME	EUCD RWB	RIVER WATER BODY CHARACTER	TRANS-BOUNDARY WATER BODY	LENGTH OF RIVER WATER BODY [km]
Slovakia	Slaná	Slaná	SKS0002	NATURAL		27.872
Slovakia	Slaná	Slaná	SKS0003	NATURAL		46.488
Slovakia	Rimava	Rimava	SKS0013	NATURAL		11.055
Slovakia	Rimava	Rimava	SKS0014	NATURAL		22.486
Slovakia	Rimava	Rimava	SKS0015	NATURAL		49.072
Slovakia	Tisa	Tisa	SKT0001	NATURAL	x	5.416
Ukraine	Borzhava	Borzhava	UABOR01	NATURAL		27.007
Ukraine	Borzhava	Borzhava	UABOR02	NATURAL		49.173
Ukraine	Borzhava	Borzhava	UABOR03	NATURAL		34.467
Ukraine	Bila Tisza	Bila Tisa	UABTR01	NATURAL		15.079
Ukraine	Bila Tisza	Bila Tisa	UABTR02	NATURAL		18.850
Ukraine	Chorna Tisa	Chorna Tisa	UACTR01	NATURAL		15.076
Ukraine	Chorna Tisa	Chorna Tisa	UACTR02	NATURAL		35.643
Ukraine	Latorica	Latorica	UALAR01	NATURAL		16.082
Ukraine	Latorica	Latorica	UALAR02	NATURAL		66.947
Ukraine	Latorica	Latorica	UALAR03	NATURAL		68.306
Ukraine	Rika	Rika	UARIR01	NATURAL		12.600
Ukraine	Rika	Rika	UARIR02	NATURAL		60.000
Ukraine	Rika	Rika	UARIR03	NATURAL		18.439
Ukraine	Tereblya	Tereblya	UATBR01	NATURAL		14.630
Ukraine	Tereblya	Tereblya	UATBR02	NATURAL		19.996
Ukraine	Tereblya	Tereblya	UATBR03	possibly HMWB		6.306
Ukraine	Tereblya	Tereblya	UATBR04	NATURAL		52.767
Ukraine	Teresva	Teresva	UATER01	NATURAL		31.782
Ukraine	Teresva	Teresva	UATER02	NATURAL		37.347
Ukraine	Teresva	Teresva	UATER03	NATURAL		18.454
Ukraine	Tur	Tur	UATIR	NATURAL	x	4.774

COUNTRY	RIVER NAME	RIVER WATER BODY NAME	EUCD RWB	RIVER WATER BODY CHARACTER	TRANS-BOUNDARY WATER BODY	LENGTH OF RIVER WATER BODY [km]
Ukraine	Tisza	Tisa	UATISR01	NATURAL		27.180
Ukraine	Tisza	Tisa	UATISR02	NATURAL	x	29.990
Ukraine	Tisza	Tisa	UATISR03	NATURAL	x	33.043
Ukraine	Tisza	Tisa	UATISR04	NATURAL	x	106.691
Ukraine	Tisza	Tisa	UATISR05	NATURAL	x	17.573
Ukraine	Uzh	Uzh	UAUZR01	NATURAL		5.906
Ukraine	Uzh	Uzh	UAUZR02	NATURAL		67.216
Ukraine	Uzh	Uzh	UAUZR03	NATURAL		11.272
Ukraine	Uzh	Uzh	UAUZR04	NATURAL		26.868

## List of river water bodies in the Tisza River Basin

COUNTRY	LAKE WATER BODY NAME	LAKE WATER BODY CODE	LAKE WATER BODY CHARACTER	AREA (km <sup>2</sup> )
Hungary	Hortobágyi-öregtavak	HUAIG967	HMWB	16.48
Hungary	Csaj-tó	HUAIH054	HMWB	10.23
Hungary	SzegediFehér-tó	HUAIH127	HMWB	14.48
Hungary	Tisza-tó	HUANS560	HMWB	120.83

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Partners: General Directorate of Water Management, Hungary | Global Water Partnership Central and Eastern Europe, Slovakia | International Commission for the Protection of the Danube River, Austria | Ministry of Water and Forest, Romania | Ministry of Foreign Affairs and Trade, Hungary | National Administration "Romanian Waters", Romania | National Institute of Hydrology and Water Management, Romania | Public Water Management Company "Vode Vojvodine", Serbia | Regional Environmental Center for Central and Eastern Europe, Hungary | The Jaroslav Černi Institute for the Development of Water Resources, Serbia | Water Research Institute, Slovakia | World Wide Fund for Nature Hungary

Associated Partners: Interior Ministry, Hungary | Ministry of Agriculture and Environmental Protection Water, Serbia | Secretariat of the Carpathian Convention (SCC), Austria | State Agency of Water Resources of Ukraine | Tisza River Basin Water Resources Directorate, Ukraine





# Updated Integrated Tisza River Basin Management Plan

Annex 2. Further development of the MONERIS Model with particular focus on the application in the Tisza River Basin, for the implementation of JOINTISZA project



**Client:**

Permanent Secretariat of the International Commission for the Protection of the Danube River (ICPDR)

**Contractor**

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April 2018

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# 1 Rationale

The aim of this work is to quantify nutrient emission patterns in the Tisza river basin (TRB) as part of the JOINTISZA project and the updated Tisza River Management Plan. We build on the MONERIS (Modelling nutrient emissions in river catchments, Venohr et al. 2011) application for the 2<sup>nd</sup> DRBMP (ICPDR 2015). The focus is on revising the input data for land use, soil erosion, and nitrogen surplus and integrating them into the latest MONERIS version in order to harmonize the results with the current European-wide model application within the MARS project ([www.mars-project.eu](http://www.mars-project.eu)) and to improve the estimation of nutrient fluxes for the time period 2009-2012. The new database also serves to update three scenario calculations for future nutrient emissions.

To foster the acceptance of the model outcome, it was agreed that the Tisza countries provide national data until 31<sup>st</sup> of October 2018. Since then, two short interim reports were delivered in order to keep the contract partners updated about the ongoing work and receive feedback regarding the setup of the model. On 8<sup>th</sup> of February and after the meeting in Vienna on 12<sup>th</sup> of March 2018 additional hydrological data was delivered by Hungary and Romania and included in the hydrological calibration.

## 2 Model setup of MONERIS and manual

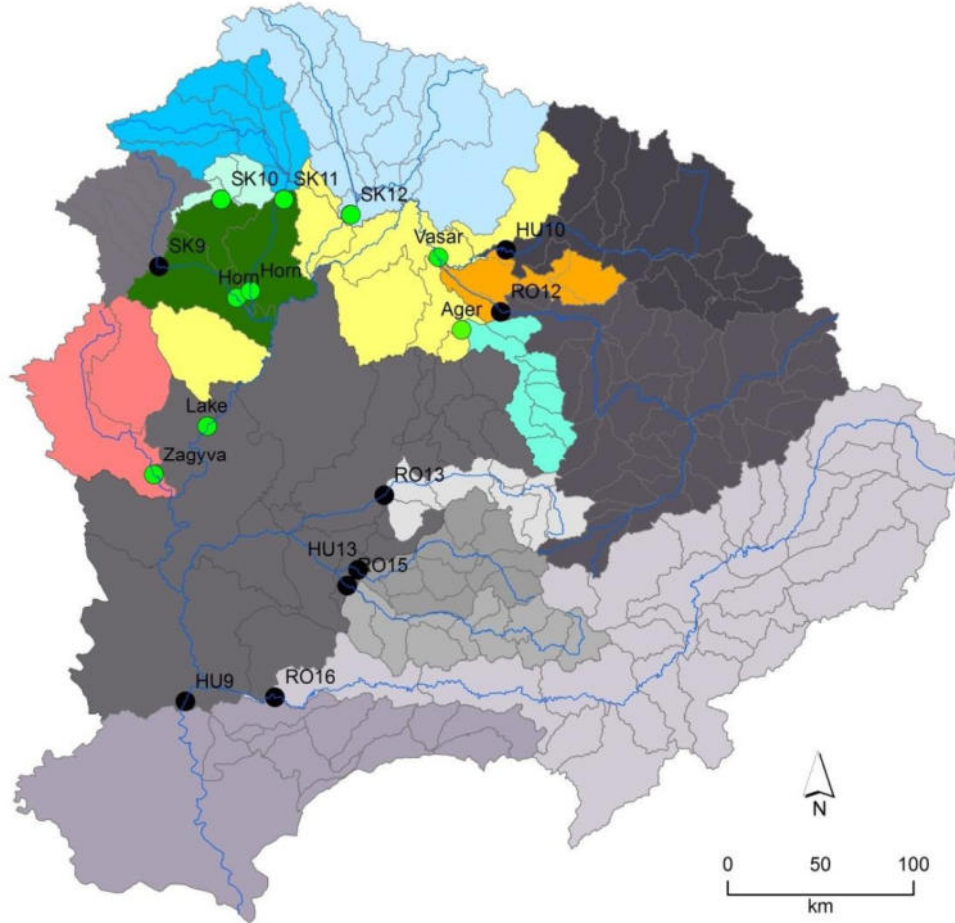
Venohr et al. (2011) provide a comprehensive overview of the MONERIS including model structure, algorithms and implementation of measures (see attachment). Over the recent years MONERIS has been modified including a new P retention approach (see description in Gericke and Venohr 2015a) and a new approach of modelling of dissolved P concentrations in surface runoff (see 3.5). Furthermore, the uptake of N in the root zone has been adapted (Heidecke et al. 2014). The latest user manual of the model is attached to this report (see chapter 8.).

## 3 Input data

In the following, a documentation of the database updates in comparison to the Danube 2014 model setup (Gericke and Venohr 2015a) is given. Note, the appendix provides further information which were delivered as short reports to the ICPDR on 1<sup>st</sup> of December 2017 and 1<sup>st</sup> of February 2018.

### 3.1 Hydrology

Romania and Slovak Republic provided new hydrological and water quality data. Hungary provided new hydrological data. The new data were checked for plausibility and included in the model calibration and validation. Four Hungarian gauges were replaced by near-by Slovakian and Romanian stations in agreement with the ICPDR (more detailed explanation see appendix 6.3). A map of the former and new hydrological stations included in the hydrological calibration is given in Fig. III.1.



*Figure III.1: Hydrological stations used for hydrological setup. Color schemes indicate the groups of analytical units (AUs) which are connected to the same gauge, bright colors represent new hydrological sub-catchments derived for new implemented stations (green): gauges SK9, RO12, RO13, RO15 are substituting former Hungarian gauges (more detailed information: see attachment); blue lines represent major rivers of the catchment.*

Due to the new stations, the water rich upper part of the basin could be much better described and considered. In turn, a partly negative water balance (Fig. 2) became apparent calculated as difference between the discharges observed at HU9 and the sum of discharges of upstream gauges. Partly negative water balances were also observed between discharges at hydrological station Lake and its upstream gauges. These observations were not explainable by precipitation and evapotranspiration (see Fig.III.2, appendix 6.3).

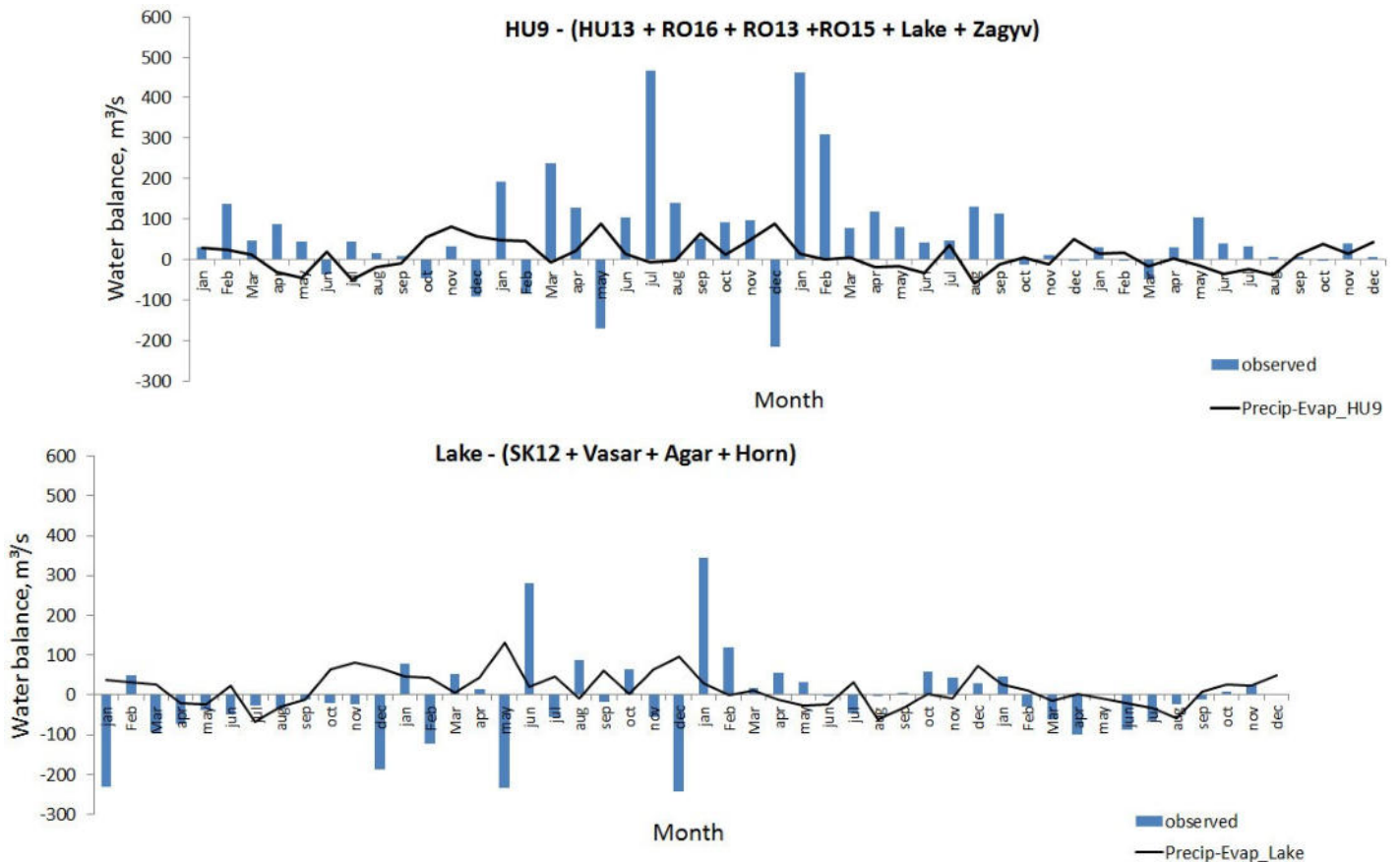


Figure III.2: Monthly water balances as difference between a) hydrological station HU 9 and its upstream hydrological stations and b) hydrological station Lake and its upstream hydrological stations

The strong negative balance between monitoring stations are assumed to originate from increase of evaporation in lakes and reservoirs, water abstractions or inundation of riparian wetlands and result in a complex hydrological situation which is difficult to be modelled without detailed information on the water management in the Tisza basin. We modified our run-off calibration approach in order to reflect these hydrological conditions (Fig.III.3). It consists of following principal elements:

- 1) Monitoring stations were allocated to AUs for which they best represent run-off at the outlet. Un-monitored AUs were allocated to the next downstream located monitoring station or to a station of neighboring sub-catchment showing similar conditions in precipitation, evaporation and topography.
- 2) The observed run-off of neighboring monitoring stations was compared. In particular the sum of run-off from HU10 and RO12 was in individual winter month considerably higher than such observed at the next downstream station Vasar, indicating a water release from the various upstream located reservoirs. To generate realistic run-off values we calculated the mean annual ratio  $Vasar/(HU10+RO12)$  and applied this for monthly ratios larger than 1.1. The residual run-off was considered as water addition from the reservoirs.
- 3) Water balances were calculated as precipitation minus evaporation. For each AU allocated to a monitoring station an additive parameter was calibrated to derive a complete agreement with the observed monthly runoff. This additive parameter represents e.g. snow storage,

groundwater recharge, but could also indicate an erroneous evaporation rate.

- 4) If negative water balances were derived a minimum run-off was calculated as

$$Q_{min} = \frac{WB_{AU}}{WB_{mean}} q_{mean} area_{AU} \cdot 0.001$$

With:

Qmin = minimum monthly run-off per AU in m<sup>3</sup>/s

WBAU = monthly water balance (Precipitation – Evaporation) in AU in mm/month

WBmean = monthly water balance (Precipitation – Evaporation) in Tisza basin in mm/month  
 qmean = mean monthly specific fun-off derived from first calibration run in l/s/km<sup>2</sup>

areaAU = area of AU in km<sup>2</sup>

- 5) Remaining negative balances were replaced by a run-off of 0.01 m<sup>3</sup>/s. Due to this artificial increase in run-off an overestimate of observed run-off occurred. This was counterbalanced by a water abstraction term. This term, however, can still represent different causes for reduced run-off, such as, flooding of polders, or the loosing phenomenon.

This approach lead to a complete agreement between modelled and observed run-off (mean absolute deviation 0 %, r<sup>2</sup> = 1), non-negative run-off generation per AU (pre-requisite for MONERIS) and a realistic spatial pattern of a climate driven run-off generation (see appendix 6.1).

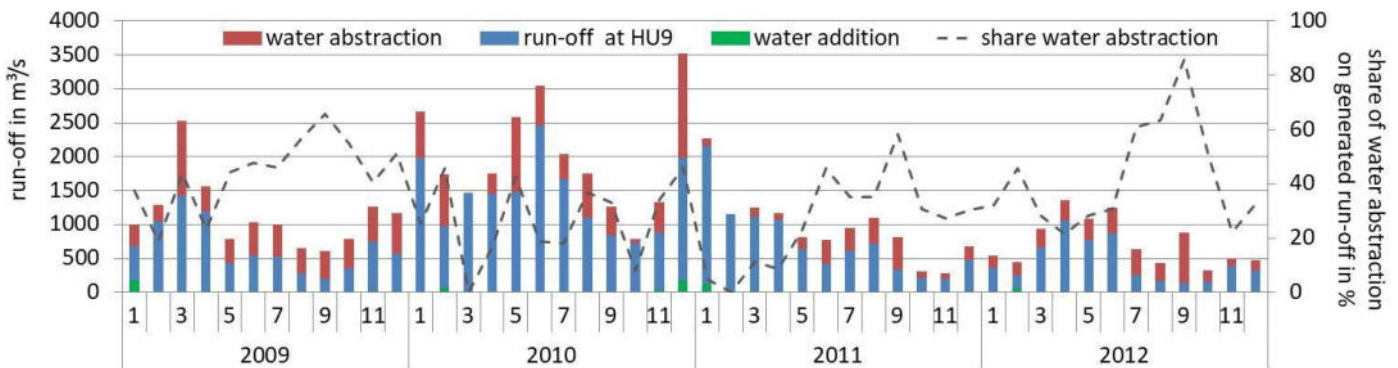


Figure III.3: Principal elements considered for Hydrological calibration in Tisza catchment

### 3.2 Land use

For EU countries, the latest version of Corine Land Cover (CLC 2012) was used to update the land use data. The differences are negligible (Fig. III.4) as the DRBMP is based on a preliminary version of CLC 2012. However, we integrated the ECRINS dataset (EEA 2012) which increased the water surface area in the model setup. More significant differences occur in the Ukraine where the former rather old dataset was replaced by the latest data available from GlobCorine (2009) resulting in a decrease of grassland and naturally covered area and an increase of arable land compared to the setup of Gericke and Venohr 2015a. More details are provided in appendix 6.3.



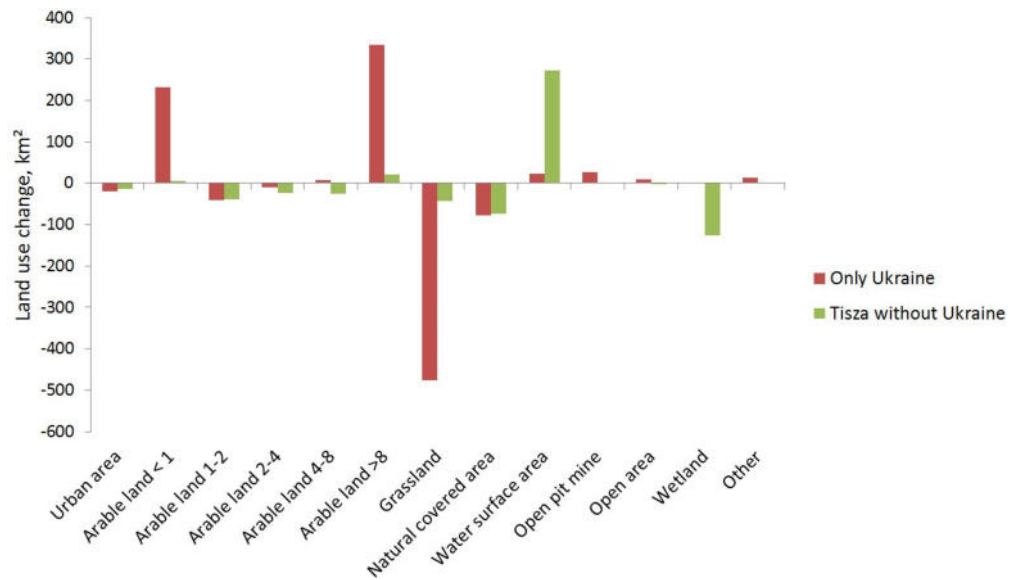


Figure III.4: Changes in land use input data in comparison to MONERIS setup for Danube 2014.

### 3.3 Nitrogen surplus

N surplus is a key input dataset for modelling of nutrient emissions in the Tisza basin. MONERIS needs two datasets: values at AU level for a reference year to describe the spatial variability (ideally derived from regional data) and a national time-series to describe the inter-annual variability.

In the meeting on 10<sup>th</sup> of March, it was agreed on using the same N surplus data for reference year 2012 as used in the Danube 2014 MONERIS setup (Gericke and Venohr 2015a). However, since then the time series of national N surplus was revised by EUROSTAT (EC-EUROSTAT 2018). The new values differed for HU, SK, and RO in comparison to the data available in 2015 – indicating methodological updates (Fig. III.5). Especially for RO, the new values are considerably higher than before. For SK, we observed that the new national value for 2012 (41 kg/ha) matches much better the estimated area-weighted mean of the regional data (46 kg/ha) than before (31 kg/ha).

Similar to the Danube, we used the same time-series for UA and RO. As no time-series was available for Serbia, we used the (slightly changed) time-series from Slovenia in combination with regional data provided by Serbia for 2012.

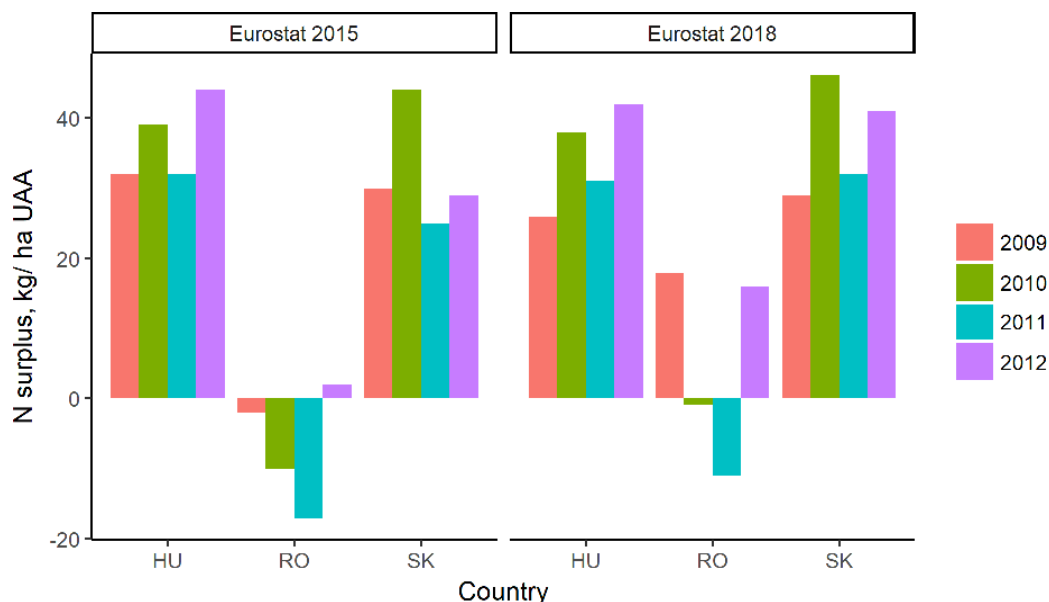


Figure III.5: N surplus data on national level for the years 2009 to 2012 according to EUROSTAT 2015 and EUROSTAT 2018. UAA = utilized agricultural land.

### 3.4 Soil loss and C factor

The update of the soil loss values in the database considers the new land use input data as well as a new soil loss map (Fig. III.6) derived in the MARS project (Venohr et al. 2018a) based on Gericke (2015). Firstly, the R factor (rainfall erosivity) of the USLE was derived from long-term average annual precipitation from 1975-1999 (Vogt et al. 2007) instead of 1961-1990. More important, the R factors were also estimated from published regression models from various countries instead of a single relationship established in Germany. These new regression models result in 50% higher R factors. Secondly, the new K factor (soil erodibility) was derived from the Harmonized World Soil Database (HWSD) considering not only the silt content to estimate K factors (as originally derived by Strauss et al. 2005) but also clay, sand, and stoniness.

Given the multiplicative character of the USLE, the new estimations of R and K factors resulted in an average increase of 100% for the whole Tisza compared to earlier application. Note, this increase is not related to any changes in management. In fact, the USLE C factors were left unchanged. It should rather be seen as a revision of the input data similar to the revision of the nitrogen surplus. Although the revised soil loss map might better reflect the variability of rainfall erosivity and soil erodibility than the original soil loss map, the resolution of European data and the USLE are inherent limitations. The effect of soil protection is separately considered in MONERIS (see chapter 5 – scenarios for the effect of measures on nutrient losses).

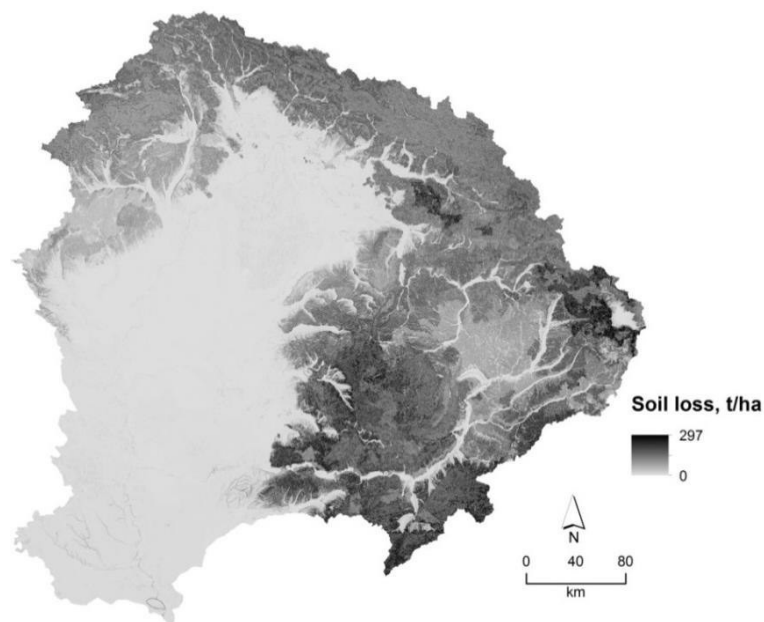


Figure III.6: Potential soil loss per year (without C-factor) in Tisza catchment (Venohr et al. 2018a).

### 3.5 Deriving P losses by surface runoff through degree of phosphorus saturation

Together with nitrogen agricultural soils are usually fertilized with phosphorus. In contrast to nitrogen, phosphorus (P) easily sorbs to soil particles and thus accumulates in the soils. At the same total P content stored in soils the share of easily available P to plants and surface runoff can vary considerably depending on the soil type. Sandy soils have much lower sorption capacities than loamy soils, calcareous and decomposed peat soils and thus are more vulnerable to P losses (Pöthig et al. 2010). The amount of P which is easily available to surface runoff depends on the share of sorption sites occupied by phosphorus on all available P sorption sites in the soils. This percentage is commonly expressed as degree of phosphorus saturation (DPS, Nair 2014). Unfortunately, DPS is not a standard method in soil analyses but can be directly derived from a standard soil test method of water soluble phosphorus (WSP, Pöthig et al. 2010, Fischer et al. 2018). As WSP is also a good predictor of P losses by e.g. surface runoff a method was established to derive WSP and DPS values from P content in soils.

WSP was calculated as weighted mean per 500 m grid cell according to results by (Pöthig, Behrendt, Opitz, & Furrer, 2010) and Pöthig (unpublished data). For loamy and silty soils the correlation found for loamy soils was applied (as no equation for silty soils was available, Fig. III.7 and Equation 1). WSP values calculated by Equation 1 were limited to a maximum of 60 mg/kg, as the range of observed WSP did not exceed this value in the former studies.

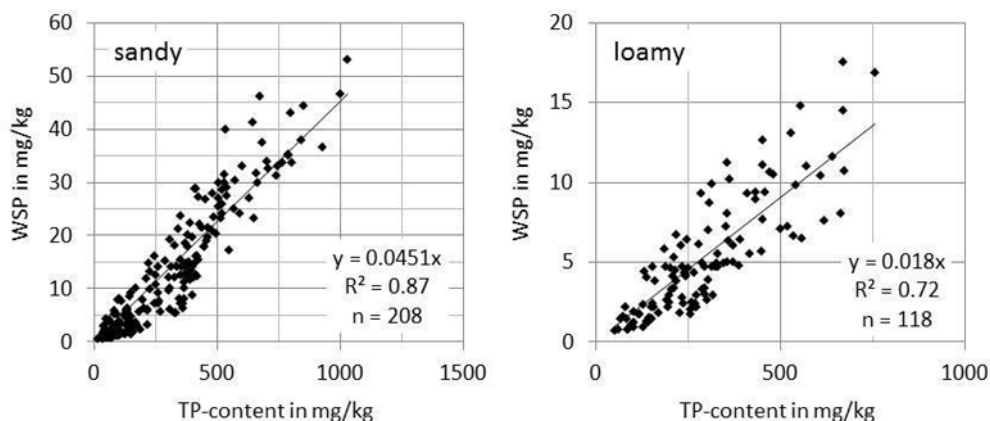


Figure III.7: Correlation between P-content in soils and measured WSP in soil samples of Germany and Switzerland (Pöthig unpublished data).

**Equation 1:** 
$$WSP = \frac{((P\text{-content} \times 0.0451 \times \text{Sand}) + ([P\text{-content}] \times 0.018 \times [\text{Clay}]) + ([P\text{-content}] \times 0.018 \times [\text{Silt}]))}{([\text{Silt}] + [\text{Sand}] + [\text{Clay}])}$$

With:

WSP = water soluble phosphorus, mg/kg Sand = share of sand fraction in soils, in % Clay = share of clay fraction in soils, in % Silt = share of silt fraction in soils, in %

P-content = Phosphorus content in upper 30 cm soil layer, in mg/kg

As a prerequisite, we derived the spatially distributed P content in agricultural soils using the country wide P-accumulations, to calibrate the total P content and using the N-surplus described above to derive the spatial distribution of applied fertilizers. This approach was developed, tested and calibrated for agricultural soils in Germany and subsequently applied to European data.

In a first step countrywide P balance data on agricultural areas were collected from EUROSTAT (EC- EUROSTAT), and area corrected as described before (Fig. III. 8). The longest time series ranged from 1985 to 2014, whereas the shortest time series only covered data after 2004. To estimate the P-accumulation, we considered also fertilisation from earlier years. From a reconstruction of historic nutrient balances in central Europe (Gadegast & Venohr, in prep.) we know that intensive fertilisation already took place in the 1960ies and often found its maximum in the 1980ies. From this we derived following rules of thumb:

- 1) P-balances in 1960 equal the earliest reported available value per country (between 1985 and 2004)
- 2) In 1950 P-balances accounted for 10 % of the values in 1975 (for this year P balances in all countries were positive, but not at their maximum)
- 3) In 1980 P-balances were 20 % higher than in 1960. These values were corrected for Estonia and Hungary, to ensure, that P-accumulation remained positive for all years.

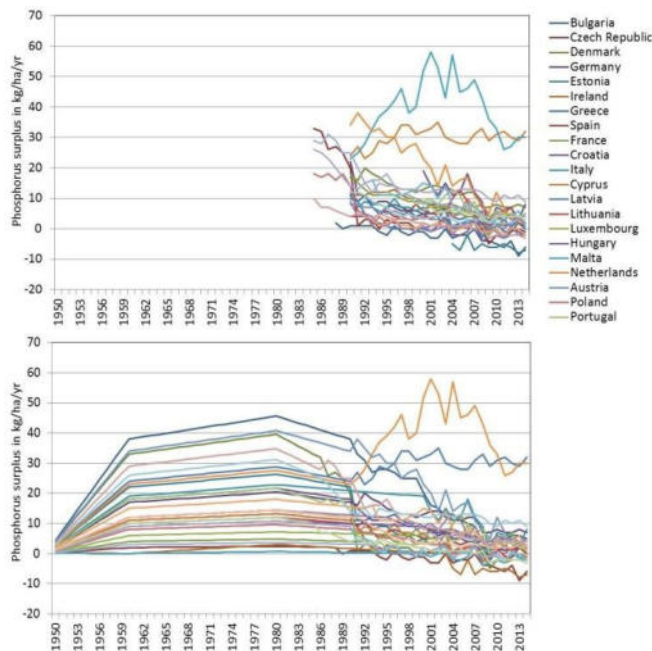


Figure III.8: Available P-balance on country (left) and the accomplished time series (right).

The P-accumulation was calculated as the accumulative sum of P-balances over the years (Fig.III.9).

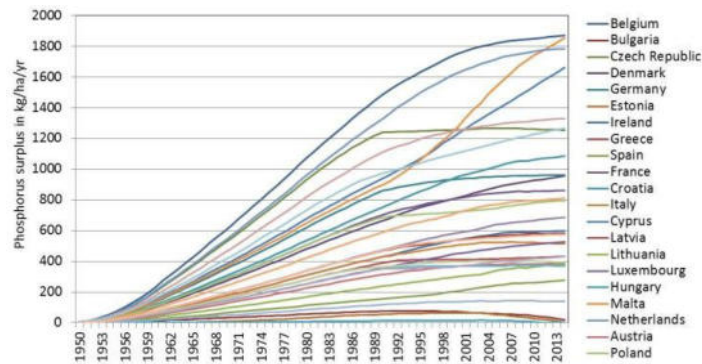


Figure III.9: P-accumulation on agricultural land per country in the period from 1950 and 2014.

P-accumulation was distributed following the approach described in Venoh et al. (2018b) for nitrogen surplus, without taking atmospheric deposition into account, as no spatially distributed P deposition information was available.

P-content was derived from bulk density information by the LUCAS physical top soil information map (Ballabio, Panagos, & Monatanarella, 2016). The LUCAS topsoil dataset was made available by the European Commission through the European Soil Data Centre (ESDAC) managed by the Joint Research Centre (EC-JRC, <http://esdac.jrc.ec.europa.eu/>).

First the soil weight of the top 30 cm soil layer (ploughing horizon) was calculated (Equation 2).

**Equation 2:** Soil weight = BulkDensity × LayerDepth × UCF

With:

Soil weight = soil weight of the top 30 cm soil layer, kg/ha Bulk density = Bulk density, in g/cm<sup>3</sup>

LayerDepth = 30 cm

UCF = unit correction factor (g/cm<sup>2</sup> → kg/ha) = 100 000

By dividing the corrected and spatially distributed P-accumulation by the derived soil weight the mean P- content in top soils was estimated (Equation 3).

$$\text{Equation 3: } P_{\text{content}} = \frac{[P_{\text{acc}}]}{[\text{soil weight}] \times 1\,000\,000}$$

With:

P<sub>content</sub> = Phosphorus content in upper 30 cm soil layer, in mg/kg

P<sub>acc</sub> = P-accumulation, in kg/ha

soil weight = soil weight of the top 30 cm soil layer, kg/ha

DPS was estimated considering the soil type information by LUCAS and considering the transformation function from Pöthig, Behrendt, Opitz, & Furrer (2010, Fig. III.10).

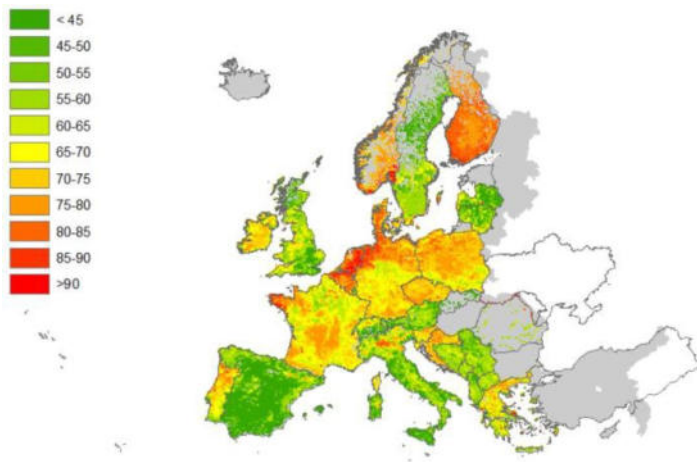


Figure III.10: Degree of phosphorus saturation (DPS) in % derived for Europe.

P-concentrations in surface run-off was finally calculated according to Vadas et al. (2005), which was corrected on basis of findings by Fischer et al. (2017), to eliminate effects originating from different soil to water ratios used by Vadas et al. (2005) and Pöthig et al. (2010, Equation 4).

$$\text{Equation 4: } P_{\text{concSR}} = \left( \frac{11.2 \cdot WSP_{\text{arable}} + 66.9}{1\,000} \right) \times WSP_{\text{corr}}$$

With:

P<sub>concSR</sub> = P-concentration in surface run-off, in mg/l

WSP = water soluble phosphorus, mg/kg

WSP<sub>corr</sub> = WSP correction factor, without uni

## 4 Results

### 4.1 Overall emissions in Tisza catchment

The updated database and the new modelling approaches resulted in average total emissions of 95 kt/yr TN and 4.7 kt/yr TP for the Tisza catchment (Fig. IV.1). This corresponds to an increase of 45% of TN emissions and 10% of TP emissions compared to Gericke and Venohr 2015a.

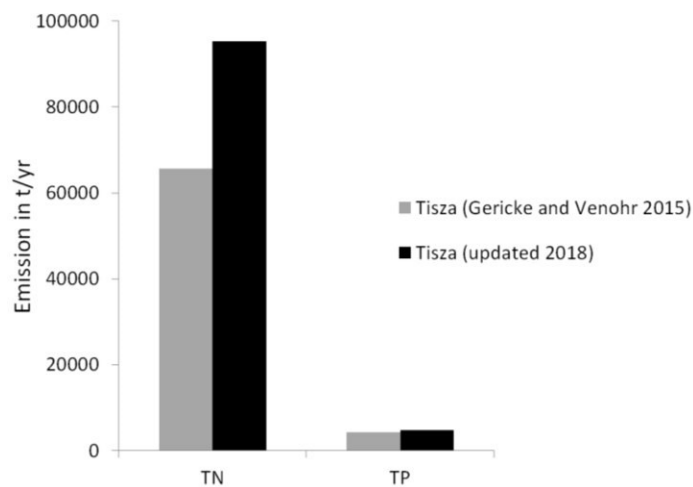


Figure IV.1: Average yearly nutrient emissions (2009-2012) in the Tisza basin in comparison to the last MONERIS application (Gericke and Venohr 2015a).

The increase in N emission is the consequence of the revised N surplus values which affect the emissions via groundwater, interflow and tile drainage (Fig. III.5, Fig. IV.2). The updated potential soil loss (Fig. III.6) contributes to an overall increase in P emissions to surface waters via soil erosion (soil erosion is of minor importance for TN emissions) in the northern part of the catchment. The percentage of P emissions by surface runoff increased due to changes in the model setup (see 3.5., Fig. 12, Gericke and Venohr 2015a).

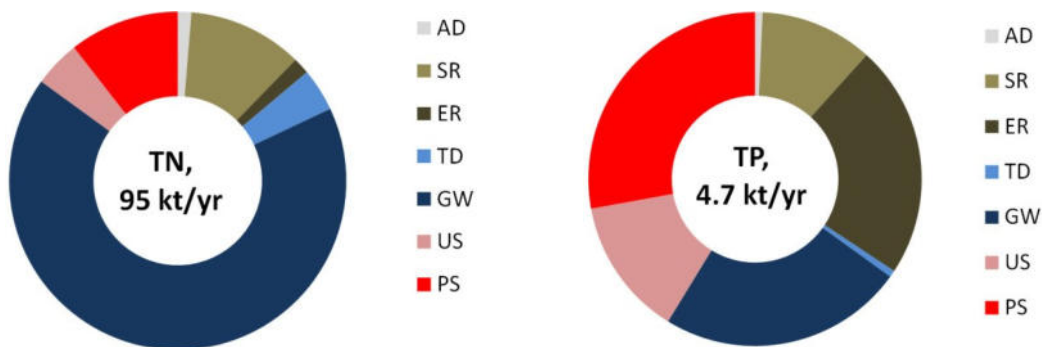


Figure IV.2: Mean share of the pathways on the total nutrient emissions in the Tisza catchment during 2009-2012: AD=atmospheric deposition, SR=surface runoff, ER=erosion, TD=tile drainage, GW=groundwater, US=urban systems, PS=point sources

*Table IV.1: Share of both nitrogen and phosphorus emissions from different land-use types and via considered pathways in Tisza river basin for the reference status (long-term 2012).*

Area specific emission for nitrogen in kg/ha and for phosphorus in kg/km<sup>2</sup>, numbers in brackets represent the share on the total nitrogen or phosphorus emissions. WSA = water surface area; specific emissions on surface waters can be higher than considered in the input data, as we used, for reasons of data consistency, the original water surface area derived from the land-use maps. This does not include areas of smaller rivers, which were supplemented by MONERIS.

Land-use	WSA	Arable	Grassland	Forest	Urban area	Other Areas	Total	
area		1565.1	75598.8	14374.01	56774.2	7133.0	776.0	156221.1
area share		1.0	48.4	9.2	36.3	4.6	0.5	100
Nitrogen	WSA	Arable	Grassland	Forest	Urban area	Other Areas	Total	
atmospheric deposition	8.2 (1.3)							0.1 (1.3)
surface run-off		0.8 (6.2)	0.6 (0.9)	0.7 (4.3)		0.6 (0)		0.7 (11.4)
erosion		0.1 (1.1)	0 (0)	0.1 (0.4)		0 (0)		0.1 (1.6)
tile drainages		0.6 (4.6)	0.1 (0.1)					0.3 (4.7)
groundwater		4.2 (33.3)	4.2 (6.3)	3.2 (19)	9.3 (6.9)	7.3 (0.6)		4.1 (66.1)
urban systems					5.9 (4.3)			0.3 (4.3)
sewer systems					4.4 (3.2)			
DCTP					1.5 (1.1)			
point sources					14.1 (10.5)			0.6 (10.5)
<b>Total</b>	<b>8.2 (1.3)</b>	<b>5.8 (45.2)</b>	<b>4.9 (7.4)</b>	<b>4 (23.8)</b>	<b>29.3 (21.7)</b>	<b>7.9 (0.6)</b>		<b>6.2 (100)</b>
Phosphorus	WSA	Arable	Grassland	Forest	Urban area	Other Areas	Total	
atmospheric deposition	21.9 (0.7)							0.2 (0.7)
surface run-off		3.7 (5.9)	3.3 (1)	3.2 (3.8)		1.8 (0)		3.2 (10.8)
erosion		10.3 (16.6)	2.3 (0.7)	4.5 (5.5)		0 (0)		6.8 (22.7)
tile drainages		0.4 (0.6)	0.3 (0.1)					0.2 (0.7)
groundwater		6.5 (10.4)	6.5 (2)	5 (6)	35.6 (5.4)	5 (0.1)		7.2 (23.9)
urban systems					87.1 (13.2)			4 (13.2)
sewer systems					53.7 (8.2)			
DCTP					33.5 (5.1)			
point sources					184.4 (28)			8.4 (28)



Table IV.1 provides an overview of the shares of different land-use types and pathways on overall nutrient emissions in the Tisza basin for the reference status (long-term 2012). TN emissions by interflow and groundwater from arable land, grassland and forests contribute to more than 58% of total TN emissions in Tisza basin. For TP emissions, urban areas contain major pathways contributing to almost half of the total emissions.

## 4.2 Yearly differences in nutrient emissions

While point sources and urban systems remain almost constant, emissions via groundwater, surface runoff, and erosion are influenced by precipitation and hydrology and vary from year to year (Fig. IV.3). Despite the changes in the hydrological input data, the inter-annual variability is similar to the last Danube application.

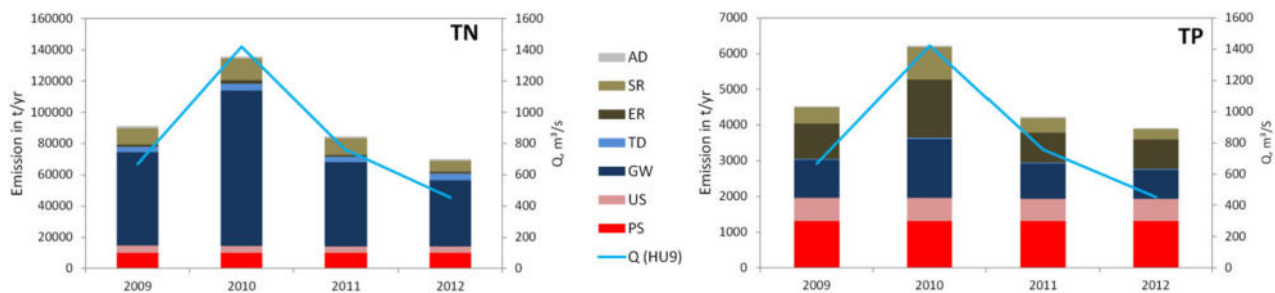


Figure IV.3: Annual variability of TN and TP emissions for different pathways, Q (HU9) is the mean discharge at HU9.

## 4.3 Spatial distribution of nutrient emissions in the catchment

### 4.3.1 Emissions in countries

More than half of both total TN and total TP emissions are emitted from the Hungarian and Romanian part of the catchment. The share on the total emissions by both countries together is 66% and 64% for TP and TN, respectively (Fig. IV.4).



Figure IV.4: Share of nutrient emissions from the Tisza countries on overall TP and TN emissions (2009-2012).

Nonetheless, the area-specific emissions in both countries are on average comparatively low (Fig. IV.5).

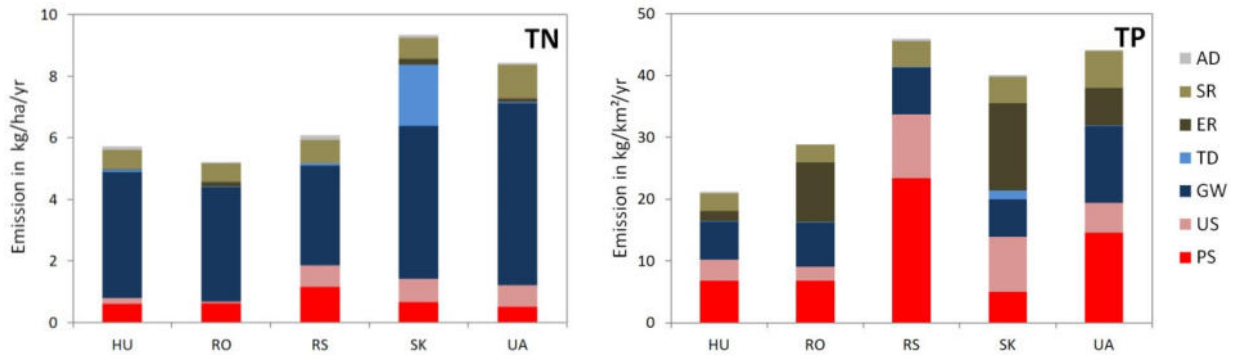


Figure IV.5: Area specific emissions per emission pathway in the different countries (2009-12)

These area-specific emissions are substantially higher in the northern part of the basin, where the specific runoff is also highest (appendix 6.1: Fig. 23). In these countries also the area specific emissions of pathway erosion are relatively high. Point sources and urban areas are the dominating pathways in Serbia. An overview of the shares of different land-use types and pathways on overall nutrient emissions in the different countries is provided in the appendix (chapter 6.2).

#### 4.3.2. Emissions per analytical unit and land use specific nutrient emissions

TN emissions increased in comparison to the Danube application (Fig. 11, 16). Changes in Romania are mainly caused by the revision of the former low N surplus of 2 kg/ha in 2012 to the recent 16 kg/ha. With the new Slovak and Hungarian hydrological data, the calibrated runoff in the mountainous Sajo/Hornad subbasin increased significantly and, accordingly, the TN emissions. Although, the TP emissions increased only by 10% compared to the Danube application, the spatial pattern changed as a result of new implemented data of soil loss and hydrology (Fig. IV.6). For instance, the revised runoff in the upper Sajo/Hornad subbasin resulted in similarly higher TP emissions.

Landuse-specific emissions vary substantially between different countries (appendix 6.2). For instance, urban areas having a similar share on area in Hungary and Serbia differ by a factor of 3 in their land-use specific TP emissions and also differ significantly in their overall contribution to total TP emissions (appendix 6.2: tables VI.3, VI.5). TN emissions from arable land are relatively low when compared to intensively used agricultural areas in central Europe (Fig. IV.7, appendix 6.2 and section 4.4).

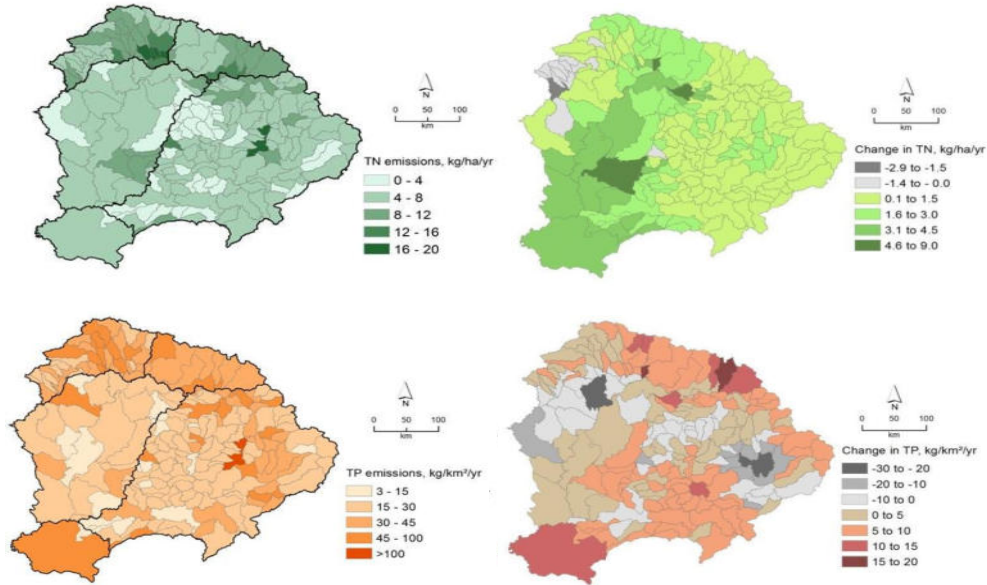


Figure IV.6: TP and TN emissions per analytical unit in the TRB (left side) and changes in nutrient emissions in comparison to the Danube 2014 setup (right side, Gericke and Venohr 2015a), arithmetic means of 2009-12 are shown.

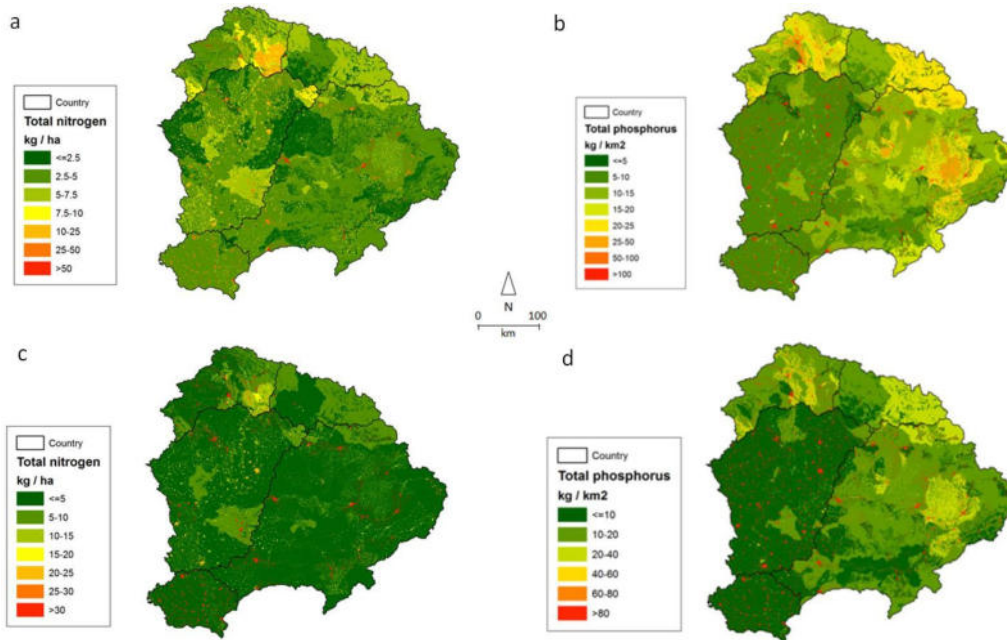


Figure IV.7: a) TN and b) TP emissions per land use (average 2009-2012); for comparability to nutrient emissions on a European scale, label classes are also presented as used in Venohr et al. 2018a (c, d, maps available online: [http://www.mars-project.eu/files/download/deliverables/MARS\\_D7.2\\_MARS\\_suite\\_of\\_tools\\_2.pdf](http://www.mars-project.eu/files/download/deliverables/MARS_D7.2_MARS_suite_of_tools_2.pdf), p.44, figIV.17 a, b).

## 4.4 Comparison to nutrient emissions on an European scale

Nutrient emissions in the Tisza catchment were compared with emissions calculated for Europe in the context of the EU-Project MARS. European wide modelling was conducted for the period 2001-2010 using the same

version of MONERIS as used for the Tisza basin. The comparison shows that for both, TN and TP, the Tisza has a higher share of specific emissions between 5-10 kg/ha/yr and 20-40 kg/km<sup>2</sup>/yr (Fig. IV.8).

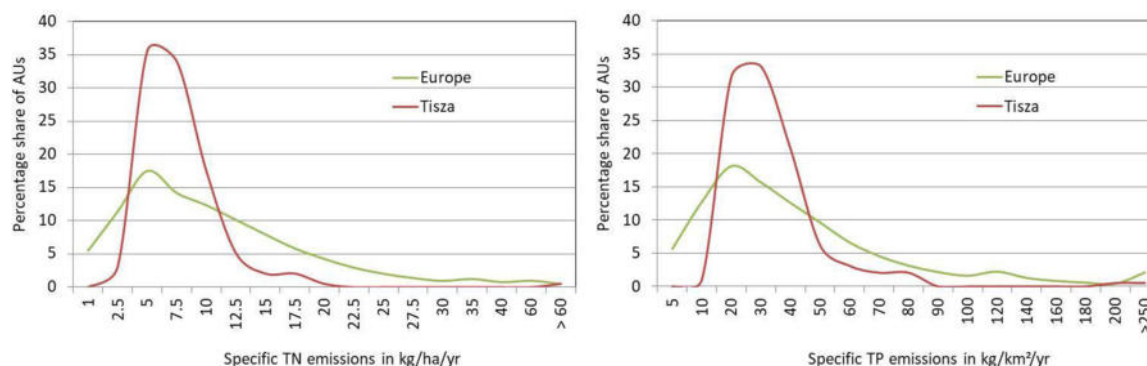
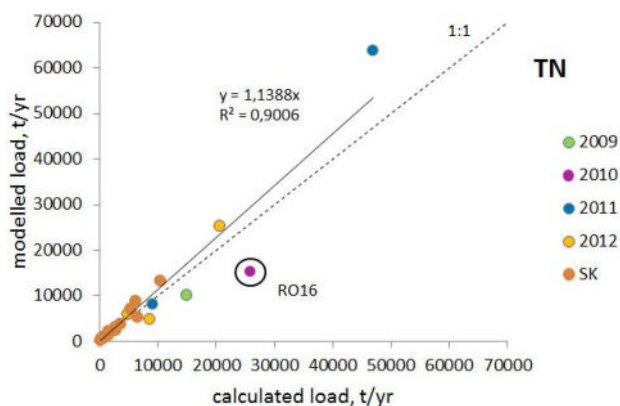


Figure IV.8: Comparison of mean specific TN and TP emissions calculated for Europe (2001-2010, Venohr et al 2018a) and for Tisza (present report).

In contrast, high specific emissions (TN: >12.5 kg/ha/yr and TP: 50 kg/km<sup>2</sup>/yr) have a significantly lower share than the European wide mean. This is also reflected in the area weighted mean specific TN and TP emissions, amounting 6.5 kg/ha/yr and 31.4 kg/km<sup>2</sup>/yr in the Tisza compared to 10.8 kg/ha/yr and 47.7 kg/km<sup>2</sup>/yr in Europe, respectively.

## 4.5 Load comparison

To validate and assess the model results we compared modelled loads provided by MONERIS with observed loads, calculated from monitored monthly nutrient concentrations and run-off data. Similar to the last Danube model run we used monthly disaggregated emissions and combined it with a monthly retention and transport modelling (Gericke and Venohr 2015a). This data was subsequently aggregated to annual values for the comparison with observed data. For deriving observed loads only stations with at least 12 monitored concentrations per year were considered.



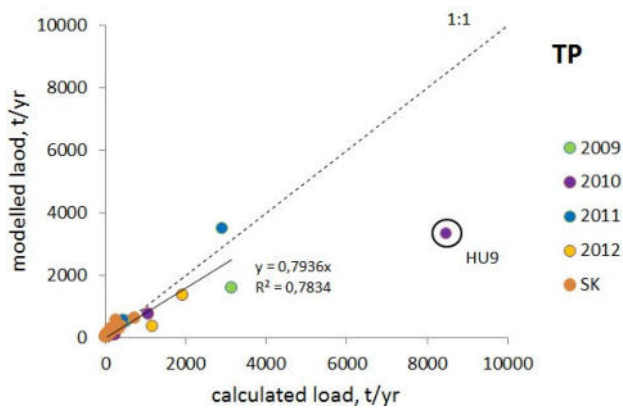


Figure IV.9: Comparison of modelled and observed loads, 2009-2012 (load of HU9 in 2010 not considered in linear regression).

The load comparison revealed a generally good agreement with deviations in the range of assumed uncertainty in monitoring data (Fig. IV.9). However, the modelled TN and TP loads for hydrological stations RO16 and HU9 were underestimated for the year 2010. The underestimation at RO 16 occurred due to an extraordinary high TN concentration in July 2010, contributing 25% of annual load (Gericke and Venohr 2015b). The floods in Tisza river basin in 2010 (ICPDR 2012) was accompanied with discharges about twice as high as in the other years. These distinct, extreme conditions cannot be modelled without further adaptations of the model and are probably the reason for deviations between modelled and observed load. Furthermore, upstream region of HU9 is characterized by a complex hydrological situation (see section 3.1) hindering an accurate calculation of loads. The exclusion of station HU 9 results in a regression line between measured and calculated loads almost perfect fitting the 1:1 line (modelled load=0.97 x measured load,  $R^2=0.87$ , not shown).

## 5 Scenarios

Based on the updated database for the TRB, three DRB scenarios were calculated: Baseline and two mid- term scenarios Intensification and Vision 2. All scenarios were calculated using average hydrological conditions. WSP values were calculated by using equation:  $WSP(\text{scenario year}) = WSP(\text{reference status})$

\*  $P\text{-accumulation}(\text{scenario year}) / P\text{-accumulation}(2012)$ . Detailed information on the three scenarios are available in the 2015 update of the Danube River Basin Management plan (Gericke and Venohr 2015a, p. 86-87). Results of the scenario calculations are presented in in Figures V.1--V.3 and in Tables VI.6 – VI.29 in the appendix (aggregated for whole Tisza and per country).

## 5.1 Baseline scenario

The baseline scenario was developed from a questionnaire initiated by the ICPDR and covers land use change, improved wastewater treatment, and changes in agricultural activities (Table V.1). It also considers an increase of buffer strips in nitrate vulnerable zones (NVZ) and inhabitant-specific TP emissions such as

1.6gTP/PEanddayinUA. Baseline scenario was calculated for two fictitious years: 2021 and 2062.<sup>1</sup>

*Table V.1: Baseline scenario according to Gericke and Venohr 2015a (p.86).*

Measure / tendency	Unit	DE	AT	CZ	SK	HU	HR	RO	MD	UA
Arable to grassland*	%	0.5	2.5	1.44	0.5	3	0	1	3	0.05
Forest to grassland* N-surplus*	%	0	(0)	-0.6	0	0	0	-1	0	-0.09
Modified crop rotation No-tillage farming Riparian buffers	%	0	0	5	5	0	0	0	0	0
Tile drained areas* Retention ponds in tile drained areas Unpaved to paved*	%	13	75	5	5	2	0	0	9	0
	%	9	10	12	0	2	0	3	16	1
	%	13	1	10	38 <sup>#</sup>	5	100 <sup>**</sup>	5	15.5	26
	%	0	0	-1.5	0	2	0	0	14 <sup>+</sup>	5.5

Additional storage volume combined sewers Inhabitants with transport from septic tanks to WWTPs

\* change / tendency, \*\* 100% values is unrealistic, # including buffer strips NVZ, + absolute value

## 5.2 Intensification and Vision 2 scenario

Intensification and Vision 2 scenario were derived from the baseline scenario. The first scenario assumes an intensification of agricultural activities resulting in an annual surplus of minimum 55 kg/ha/yr and a P balance of 5 kg/ha/yr in all analytical units. Vision 2 scenario assumes moderate N surpluses of 15 kg/ha/yr and P balances of 1 kg/ha/yr, respectively. Furthermore, a combination of measures aiming on the reduction of nutrient losses (100% connection to sewers and WWTP in agglomerations, buffer strips for steep slopes, soil protection on steep slopes, expansion of NVZ, no TP emissions laundry and dishwashers) and land-use changes are included. We calculated both with the fictitious year 2062 to exclude the effect of differences in the groundwater residence time within the TRB.

An increase of ca. 38% of total TN emissions (36287 t/yr) was calculated for the intensification scenario (Fig. V.1). Total TP emissions remained almost constant as a strong decrease in urban sources emissions is compensated by the increase in pathways erosion and point sources (Fig. V2). In contrast, the Vision 2 scenario results in an overall decrease of ca. 16% (15001 t/yr) TN and ca. 12% (541 t/yr) for TP (Fig. 20, 21, 22), respectively.

While reducing N surplus (fertilizer application) has the highest reduction potential for TN emissions most of the TP reduction occurs in urban areas and is related to the connection of households to (improved)

<sup>1</sup> Similar to the DRBMP (ICPDR 2015) whose next update is due in 2021. 2062 is fictitious and used to avoid any influence of the past, i.e. to get the full effect of the assumptions on N surplus.

wastewater treatment plants. This accounts for ca. 60% of the total TP reduction. Measures in the agricultural sector like intercropping, buffer strips and reduced fertilizer application are responsible for the remaining 40% of total TP reduction (Fig. V.2, V.3).

The effect of measures implemented in the scenario analyses varies in the different regions and countries. For example in the analytical unit where Romanian city Cluj-Napoca is included, all scenarios result in a strong reduction of TP emissions of up to 67% (123 kg/km<sup>2</sup>/yr) because of investments in the wastewater sector. In contrast, in some rural parts TN emissions increase by 55% in the intensification scenario but decrease by 20% in the vision 2 scenario because of the high influence of different N surpluses on total TN emissions. More detailed information on effects of scenarios on overall nutrient emissions per country are presented in the appendix (6.2).

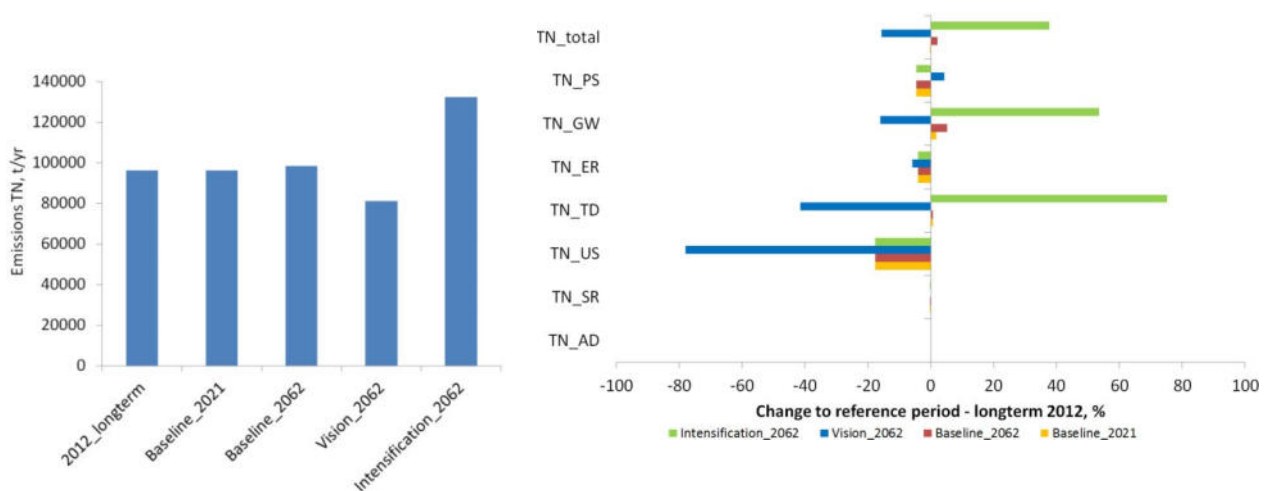


Figure V.1: TN emissions in the Tisza river basin calculated for different scenarios and relative changes in emission pathways in comparison to the reference period – long-term 2012.

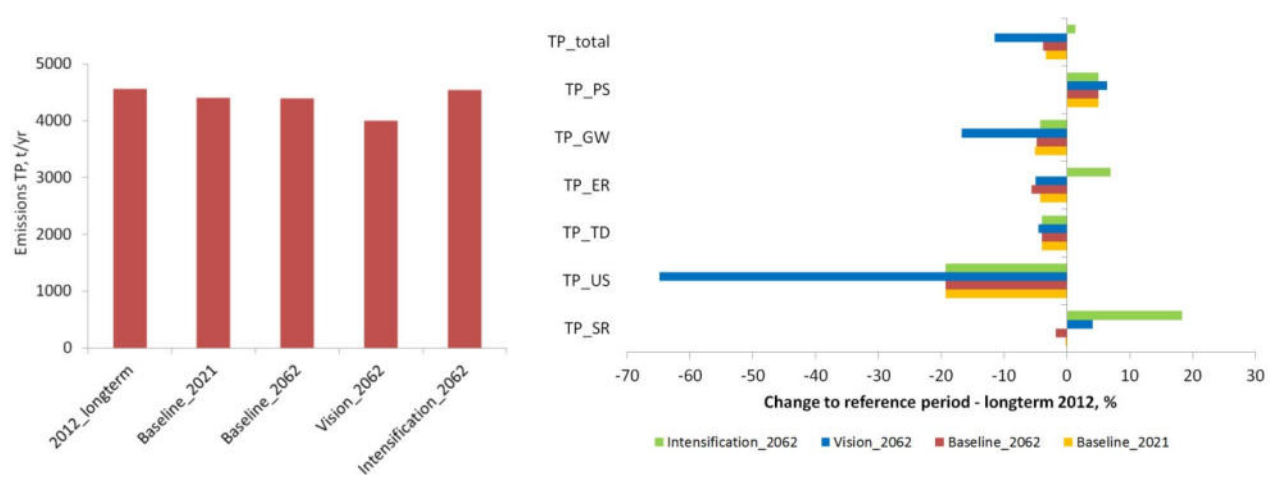


Figure V.2: TP emissions in the Tisza river basin calculated for different scenarios and relative changes in emission pathways in comparison to the reference period - long term 2012.

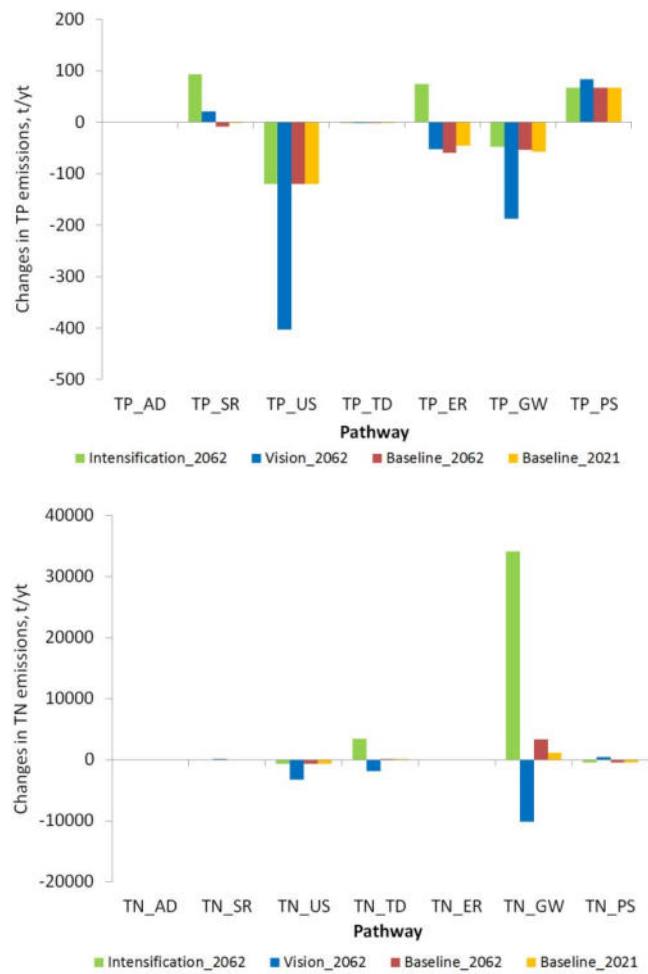


Figure V.3: Absolute changes in TP and TN emissions in comparison to the reference period – long-term 2012 in the different scenarios.



# 6 Appendix 1

## 6.1 Modelled discharges per analytical unit in Tisza catchment

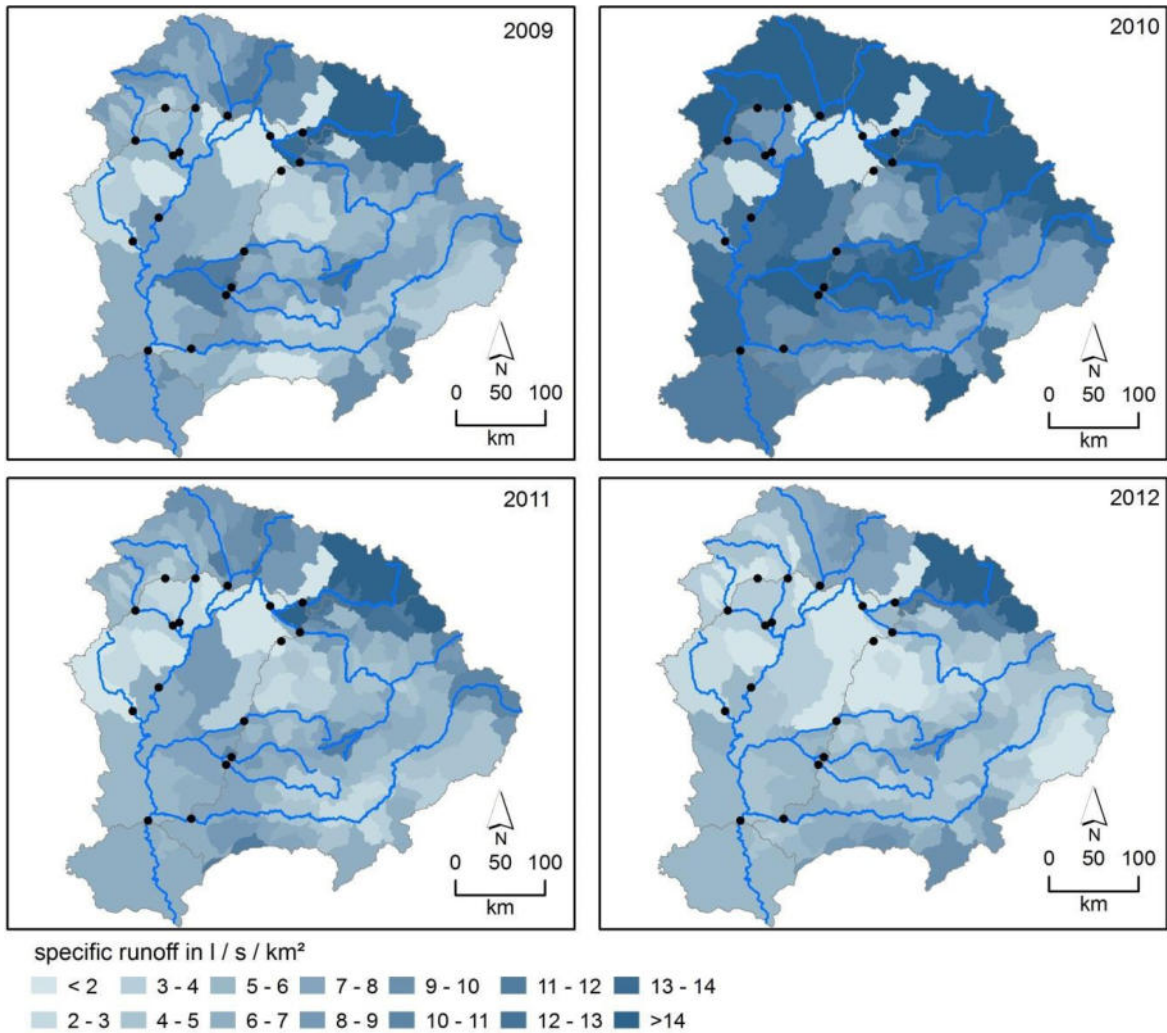


Figure VI.1: Calibrated specific runoff in Tisza catchment in the year 2009-2012 according to approach described in chapter 3.1.

## 6.2 Share of nitrogen and phosphorus emissions from different land-use types and via considered pathways: Long-term 2012, Baseline 2021, Baseline 2062, Intensification, Vision 2

### 6.2.1 Long-term 2012

Table VI.1-29: Share of both nitrogen and phosphorus emissions from different land-use types and via considered pathways, area specific emission for nitrogen in kg/ha and for phosphorus in kg/km<sup>2</sup>, numbers in brackets represent the share on the total nitrogen or phosphorus emissions, WSA = water surface area. Specific emissions on surface waters can be higher than considered in the input data, as we used for reasons of data consistency the original water surface area derived from the land-use maps. This does not include areas of smaller rivers which were supplemented by MONERIS.

Table VI.1: Slovak Republic – long-term 2012

Land/use	WSA	Arable	Grassland	Forest	Urban area	Other Areas	Total	
are in km <sup>2</sup>		80.4	6167.6	834.5	7871.9	795.8	51.3	15801.5
area share in %		0.5	39.0	5.3	49.8	5.0	0.3	100
Nitrogen	WSA	Arable	Grassland	Forest	Urban area	Other Areas	Total	
atmospheric deposition	17.2 (0.9)						0.1 (0.9)	
surface run-off		0.9 (3.6)	0.7 (0.4)	0.7 (3.6)		0.6 (0)	0.7 (7.6)	
Erosion		0.3 (1.4)	0.1 (0)	0.1 (0.4)		0 (0)	0.2 (1.9)	
tile drainages		5.4 (22.1)	0.8 (0.5)				2.2 (22.6)	
groundwater & interflow		6.1 (24.7)	5.7 (3.1)	3.9 (20.4)	7.4 (3.9)	8.5 (0.3)	5 (52.4)	
urban systems					14.8 (7.8)	0 (0)	0.7 (7.8)	
sewer systems					13.8 (7.2)			
point sources					13.1 (6.9)		0.7 (6.9)	
<b>Total</b>	<b>17.2 (0.9)</b>	<b>12.7 (51.8)</b>	<b>7.3 (4)</b>	<b>4.7 (24.4)</b>	<b>35.3 (18.5)</b>	<b>9.1 (0.3)</b>	<b>9.6 (100)</b>	
Phosphorus	WSA	Arable	Grassland	Forest	Urban area	Other Areas	Total	
atmospheric deposition	41.9 (0.5)						0.2 (0.5)	
surface run-off		5.9 (5.7)	5.7 (0.8)	3.1 (3.8)		1.4 (0)	4.1 (10.4)	
Erosion		29.2 (28.7)	4.2 (0.6)	5.1 (6.4)		0 (0)	14.2 (35.6)	
tile drainages		3.1 (3)	2.7 (0.4)				1.4 (3.4)	
groundwater & interflow		5.4 (5.3)	5.6 (0.7)	5 (6.2)	24.6 (3.1)	5.5 (0)	6.1 (15.4)	
urban systems					173.7 (22)	0 (0)	8.7 (22)	

sewer systems					152.7 (19.3)		
DCTP					21 (2.7)		
point sources					100.2 (12.7)		5 (12.7)
Total	41.9 (0.5)	43.6 (42.8)	18.2 (2.4)	13.1 (16.4)	298.5 (37.8)	6.9 (0.1)	39.8 (100)

Table VI.2: Ukraine –long-term 2012

Land-use	WSA	Arable	Grassland	Forest	Urban area	Other Areas	Total	
area in km <sup>2</sup>		27.7	3309.6	67.0	9299.7	34.7	26.7	12765.3
area share in %		0.2	25.9	0.5	72.9	0.3	0.2	100
Nitrogen	WSA	Arable	Grassland	Forest	Urban area	Other Areas	Total	
atmospheric deposition	34.5 (0.9)						0.1 (0.9)	
surface run-off		1.3(3.9)	1.2 (0.1)	1.1 (9.7)		0.6 (0)	1.2 (13.7)	
Erosion		0.2(0.7)	0 (0)	0.1 (0.6)		0 (0)	0.1 (1.3)	
tile drainages		0.4(1.2)	0.1 (0)				0.1 (1.2)	
groundwater & interflow		5(15.2)	5.9 (0.4)	4.8 (40.8)	396.2 (12.6)	1.4 (0)	5.9 (69)	
urban systems					257.6 (8.2)	0 (0)	0.7 (8.2)	
sewer systems					50.5 (1.6)			
DCTP					207.1 (6.6)			
point sources					185.9 (5.9)		0.5 (5.9)	
<b>Total</b>	<b>34.5 (0.9)</b>	<b>6.9(21)</b>	<b>7.3 (0.4)</b>	<b>6 (51)</b>	<b>839.6 (26.6)</b>	<b>1.9 (0)</b>	<b>8.6 (100)</b>	
Phosphorus	WSA	Arable	Grassland	Forest	Urban area	Other Areas	Total	
atmospheric deposition	95.6 (0.5)						0.2 (0.5)	
surface run-off		6.1 (3.6)	7.4 (0.1)	5.8 (9.5)		3 (0)	5.8 (13.2)	
Erosion		12 (7)	1.8 (0)	4 (6.6)		0 (0)	6 (13.7)	
tile drainages		0.4 (0.2)	0.4 (0)				0.1 (0.2)	
groundwater & interflow		9.9 (5.8)	12.4(0.1)	7.6 (12.6)	1582.7 (9.8)	3.9 (0)	12.5 (28.3)	
urban systems					1775.8 (10.9)	0 (0)	4.8 (10.9)	
sewer systems					855.9 (5.3)			
DCTP					919.9 (5.7)			
point sources					5361.7 (33)		14.6 (33)	
<b>Total</b>	<b>95.6 (0.5)</b>	<b>28.5 (16.7)</b>	<b>22 (0.3)</b>	<b>17.4 (28.8)</b>	<b>8720.2 (53.7)</b>	<b>7 (0)</b>	<b>44.1 (100)</b>	

Table VI.3: Hungary –long-term 2012

Land-use	WSA	Arable	Grassland	Forest	Urban area	Other Areas	Total	
area in km <sup>2</sup>		741.5	28278.7	3974.8	9667.3	2370.9	336.4	45369.5
area share in %		1.6	62.3	8.8	21.3	5.2	0.7	100
Nitrogen	WSA	Arable	Grassland	Forest	Urban area	Other Areas	Total	
atmospheric deposition	6.9 (2)						0.1 (2)	
surface run-off		0.8 (8)	0.6 (0.9)	0.5 (2)		0.6 (0.1)	0.6 (11)	
Erosion		0 (0.3)	0 (0)	0 (0.1)		0 (0)	0 (0.3)	
tile drainages		0.1 (1.6)	0 (0)				0.1 (1.6)	
groundwater & interflow		5.1 (54.4)	5.3 (8)	1.6(5.7)	2.7 (2.4)	8.2 (1)	4.2 (71.6)	
urban systems					3.5 (3.2)	0 (0)	0.2 (3.2)	
sewer systems					2.8 (2.5)			
DCTP					0.7 (0.7)			
point sources					11.5 (10.3)		0.6 (10.3)	
<b>Total</b>	<b>6.9 (2)</b>	<b>6 (64.3)</b>	<b>5.9 (8.9)</b>	<b>2.1(7.8)</b>	<b>17.7 (15.9)</b>	<b>8.7 (1.1)</b>	<b>5.8 (100)</b>	
Phosphorus	WSA	Arable	Grassland	Forest	Urban area	Other Areas	Total	
atmospheric deposition	18.3(1.4)						0.3 (1.4)	
surface run-off		3.2 (9.5)	3.1 (1.3)	2 (2.1)		1.7 (0.1)	2.7 (13)	
Erosion		2.2 (6.4)	0.5 (0.2)	1.3(1.3)		0 (0)	1.7 (7.9)	
tile drainages		0.1 (0.2)	0.1 (0)				0 (0.2)	
groundwater & interflow		6.6 (19.6)	6.5 (2.7)	4.2(4.3)	10.6 (2.6)	5.2 (0.2)	6.2 (29.4)	
urban systems					62.9 (15.6)	0 (0)	3.3 (15.6)	
sewer systems					36.6 (9.1)			
DCTP					26.3 (6.5)			
point sources					130.9 (32.5)		6.8 (32.5)	
<b>Total</b>	<b>18.3(1.4)</b>	<b>12 (35.7)</b>	<b>10.1 (4.2)</b>	<b>7.5(7.6)</b>	<b>204.3 (50.8)</b>	<b>6.9 (0.2)</b>	<b>21 (100)</b>	

Table VI.4: Romania –long-term 2012

Land-use	WSA	Arable	Grassland	Forest	Urban area	Other Areas	Total	
area in km <sup>2</sup>		491.5	28754.4	9201.6	29351.8	3356.7	256.2	71412.1
area share in %		0.7	40.3	12.9	41.1	4.7	0.4	100
<b>Nitrogen</b>	<b>WSA</b>	<b>Arable</b>	<b>Grassland</b>	<b>Forest</b>	<b>Urban area</b>	<b>Other Areas</b>	<b>Total</b>	
atmospheric deposition	7.9 (1)						0.1 (1)	
surface run-off		0.7 (5.6)	0.6 (1.5)	0.7 (5.3)		0.6 (0)	0.6 (12.5)	
erosion		0.2 (1.8)	0 (0.1)	0.1 (0.7)		0 (0)	0.1 (2.7)	
tile drainages		0.2 (1.2)	0 (0.1)				0.1 (1.3)	
groundwater & interflow		3.4 (26.2)	3.6 (9)	3.1 (24.5)	10.3 (9.3)	5.4 (0.4)	3.6 (69.3)	
urban systems					1.5 (1.3)	0 (0)	0.1 (1.3)	
sewer systems					1.2 (1.1)			
DCTP					0.3 (0.2)			
point sources					13.1 (11.9)		0.6 (11.9)	
<b>Total</b>	<b>7.9 (1)</b>	<b>4.5 (34.8)</b>	<b>4.3 (10.7)</b>	<b>3.9 (30.6)</b>	<b>24.9 (22.5)</b>	<b>6 (0.4)</b>	<b>5.2 (100)</b>	
<b>Phosphorus</b>	<b>WSA</b>	<b>Arable</b>	<b>Grassland</b>	<b>Forest</b>	<b>Urban area</b>	<b>Other Areas</b>	<b>Total</b>	
atmospheric deposition	21.9(0.5)						0.2 (0.5)	
surface run-off		3 (4.3)	3.2 (1.4)	2.7 (3.9)		1.8 (0)	2.8 (9.6)	
Erosion		17.3 (24.2)	3.1 (1.4)	5.7 (8.1)		0 (0)	9.7 (33.6)	
tile drainages		0.1 (0.2)	0.2 (0.1)				0.1 (0.3)	
groundwater & interflow		6.3 (8.8)	6.6 (3)	4.4 (6.2)	39.4 (6.4)	4.7 (0.1)	7 (24.5)	
urban systems					48.2 (7.9)	0 (0)	2.3 (7.9)	
sewer systems					14.5 (2.4)			
DCTP					33.7 (5.5)			
point sources					144.4 (23.6)		6.8 (23.6)	
<b>Total</b>	<b>21.9(0.5)</b>	<b>26.7 (37.4)</b>	<b>13 (5.8)</b>	<b>12.8 (18.2)</b>	<b>232.1 (37.9)</b>	<b>6.4 (0.1)</b>	<b>28.8 (100)</b>	

Table VI.5: Serbia –long-term 2012

Land-use	WSA	Arable	Grassland	Forest	Urban area	Other Areas	Total	
area in km <sup>2</sup>		224.2	9088.54	296.17	583.6	574.81	105.4	10872.8
area share in %		2.1	83.6	2.7	5.4	5.3	0.97	100
Nitrogen	WSA	Arable	Grassland	Forest	Urban area	Other Areas	Total	
atmospheric deposition	6.7 (2.3)						0.1 (2.3)	
surface run-off		0.8 (11.7)	0.7 (0.3)	0.7 (0.6)		0.6 (0.1)	0.8 (12.7)	
erosion		0 (0)	0 (0)	0 (0)		0 (0)	0 (0)	
tile drainages		0.1 (1.1)	0 (0)				0.1 (1.1)	
groundwater & interflow		2.8 (39.1)	2.8 (1.3)	2.4 (2.1)	10.4 (9.1)	10.2 (1.6)	3.2 (53.2)	
urban systems					13.4 (11.7)	0 (0)	0.7 (11.7)	
sewer systems					13.4 (11.7)			
DCTP					0 (0)			
point sources					21.7 (18.9)		1.1 (18.9)	
<b>Total</b>	<b>6.7 (2.3)</b>	<b>3.8 (51.9)</b>	<b>3.6 (1.6)</b>	<b>3.1(2.8)</b>	<b>45.5 (39.7)</b>	<b>10.9 (1.7)</b>	<b>6.1 (100)</b>	
Phosphorus	WSA	Arable	Grassland	Forest	Urban area	Other Areas	Total	
atmospheric deposition	17.5(0.8)						0.4 (0.8)	
surface run-off		4.6 (8.4)	4.6 (0.3)	2.5 (0.3)		2 (0)	4.1 (9)	
Erosion		0 (0)	0 (0)	0 (0)		0 (0)	0 (0)	
tile drainages		0.1 (0.2)	0.1 (0)				0.1 (0.2)	
groundwater & interflow		6.1 (11.1)	6.1 (0.4)	4.1 (0.5)	38.8 (4.5)	5.1 (0.1)	7.6 (16.5)	
urban systems					192.7 (22.3)	0 (0)	10.2 (22.3)	
sewer systems					167.2 (19.3)			
DCTP					25.5 (3)			
point sources					442.2 (51.2)		23.4 (51.2)	
<b>Total</b>	<b>17.5(0.8)</b>	<b>10.7 (19.7)</b>	<b>10.8 (0.6)</b>	<b>6.6(0.8)</b>	<b>673.7 (78)</b>	<b>7.1 (0.2)</b>	<b>45.7 (100)</b>	

## 6.2.2 Baseline 2021

Table VI.6: Whole Tisza – baseline 2021

Land-use	WSA	Arable	Grassland	Forest	Urban area	Other Areas	Total
area share in %	1.0	48.4	9.1	36.4	4.6	0.5	100
Nitrogen	WSA	Arable	Grassland	Forest	Urban area	Other Areas	Total
atmospheric deposition	8.2 (1.3)						0.1 (1.3)
surface run-off		0.8 (6.1)	0.7 (1)	0.7 (4.3)		0.6 (0)	0.7 (11.5)
erosion		0.1 (1)	0 (0)	0.1 (0.4)		0 (0)	0.1 (1.5)
tile drainages		0.6 (4.6)	0.1 (0.1)				0.3 (4.8)
groundwater & interflow		4.5 (35.2)	4.9 (7.3)	3.2 (18.7)	7.5 (5.6)	7.3 (0.6)	4.1 (67.4)
urban systems					4.8 (3.6)		0.2 (3.6)
sewer systems					3.4 (2.5)		
DCTP					1.4 (1.1)		
point sources					13.5 (10)		0.6 (10)
<b>Total</b>	<b>8.2 (1.3)</b>	<b>6 (46.9)</b>	<b>5.7 (8.5)</b>	<b>4 (23.5)</b>	<b>25.8 (19.1)</b>	<b>7.9 (0.6)</b>	<b>6.2 (100)</b>
Phosphorus	WSA	Arable	Grassland	Forest	Urban area	Other Areas	Total
atmospheric deposition	21.9 (0.8)						0.2 (0.8)
surface run-off		3.6 (6)	3.6 (1.1)	3.2 (4)		1.8 (0)	3.2 (11.1)
Erosion		9.7 (16.2)	2.4 (0.7)	4.5 (5.6)		0 (0)	6.5 (22.5)
tile drainages		0.3 (0.6)	0.3 (0.1)				0.2 (0.7)
groundwater & interflow		6.3 (10.5)	6.9 (2.2)	4.9 (6.2)	28.7 (4.5)	5 (0.1)	6.8 (23.5)
urban systems					70.3 (11.1)		3.2 (11.1)
sewer systems					42.7 (6.7)		
DCTP					27.6 (4.3)		
point sources					193.7 (30.4)		8.8 (30.4)
<b>Total</b>	<b>21.9 (0.8)</b>	<b>19.9 (33.2)</b>	<b>13.2 (4.2)</b>	<b>12.6 (15.7)</b>	<b>292.8 (46)</b>	<b>6.7 (0.1)</b>	<b>29 (100)</b>



Table VI.7: Slovak Republic– baseline 2021

Land/use	WSA	Arable	Grassland	Forest	Urban area	Other Areas	Total
are in km <sup>2</sup>		80.4 6167.6	834.5	7871.9	795.8	51.3	15801.5
area share in %		0.5 39.0	5.3	49.8	5.0	0.32	100
Nitrogen	WSA	Arable	Grassland	Forest	Urban area	Other Areas	Total
atmospheric deposition	17.2(0.9)						0.1 (0.9)
surface run-off		0.9 (3.7)	0.7 (0.4)	0.7 (3.7)		0.6 (0)	0.7 (7.8)
erosion		0.3 (1.5)	0.1 (0)	0.1 (0.5)		0 (0)	0.2 (2)
tile drainages		5.5 (23.3)	0.9 (0.5)				2.2 (23.8)
groundwater & interflow		6.5 (27.4)	6.3 (3.6)	3.9 (20.9)	9.2 (5)	8.4 (0.3)	5.3 (57.1)
urban systems					4.8 (2.6)	0 (0)	0.2 (2.6)
sewer systems					3.5 (1.9)		
DCTP					1.3 (0.7)		
point sources					10.4 (5.7)		0.5 (5.7)
<b>Total</b>	<b>17.2(0.9)</b>	<b>13.3 (55.9)</b>	<b>8 (4.6)</b>	<b>4.7 (25)</b>	<b>24.4 (13.3)</b>	<b>9 (0.3)</b>	<b>9.3 (100)</b>
Phosphorus	WSA	Arable	Grassland	Forest	Urban area	Other Areas	Total
atmospheric deposition	41.9(0.6)						0.2 (0.6)
surface run-off		5.8 (6.6)	5.9 (0.9)	3.1 (4.4)		1.4 (0)	4.1 (11.9)
Erosion		29.4 (33)	4.3 (0.7)	5.1 (7.3)		0 (0)	14.2 (40.9)
tile drainages		3 (3.3)	2.8 (0.4)				1.3 (3.7)
groundwater & interflow		5.4 (6.1)	5.8 (0.9)	5 (7.1)	33.3 (4.8)	5.5 (0.1)	6.6 (18.9)
urban systems					68 (9.8)	0 (0)	3.4 (9.8)
sewer systems					33.8 (4.9)		
DCTP					34.2 (5)		
point sources					96.9 (14)		4.9 (14)
<b>Total</b>	<b>41.9(0.6)</b>	<b>43.6 (48.9)</b>	<b>18.9 (2.9)</b>	<b>13.1 (18.8)</b>	<b>198.2 (28.7)</b>	<b>6.9 (0.1)</b>	<b>34.8 (100)</b>

Table VI.8: Ukraine– baseline 2021

Land-use	WSA	Arable	Grassland	Forest	Urban area	Other Areas	Total		
area in km <sup>2</sup>		27.7	3309.6		66.9	9299.7	34.8	26.6	12765.3
area share in %		0.2	25.9		0.5	72.9	0.3	0.2	100
Nitrogen	WSA	Arable	Grassland	Forest	Urban area	Other Areas	Total		
atmospheric deposition	34.5(0.8)								0.1 (0.8)
surface run-off		1.3 (3.8)	1.2 (0.1)	1.1 (9.4)		0.6 (0)			1.2 (13.3)
erosion		0.2 (0.6)	0 (0)	0.1 (0.6)		0 (0)			0.1 (1.1)
tile drainages		0.4 (1.1)	0.1 (0)						0.1 (1.1)
groundwater & interflow		6.4 (18.8)	7.8 (0.5)	4.7 (38.6)	372.1 (11.5)	1.3 (0)			6.1 (69.4)
urban systems					256 (7.9)	0 (0)			0.7 (7.9)
sewer systems					54.6 (1.7)				
DCTP					201.3 (6.2)				
point sources					202.9 (6.3)				0.6 (6.3)
<b>Total</b>	<b>34.5(0.8)</b>	<b>8.3 (24.3)</b>	<b>9.2 (0.5)</b>	<b>5.9 (48.5)</b>	<b>830.9 (25.7)</b>	<b>1.9 (0)</b>			<b>8.8 (100)</b>
Phosphorus	WSA	Arable	Grassland	Forest	Urban area	Other Areas	Total		
atmospheric deposition	95.6(0.5)								0.2 (0.5)
surface run-off		6.1 (3.7)	7.5 (0.1)	5.8 (9.9)		3 (0)			5.8 (13.7)
erosion		10.4 (6.4)	1.8 (0)	4 (6.9)		0 (0)			5.6 (13.3)
tile drainages		0.4 (0.2)	0.5 (0)						0.1 (0.2)
groundwater & interflow		9.9 (6.1)	12.6(0.2)	7.6 (13.1)	1677 (10.8)	3.9 (0)			12.8 (30.2)
urban systems					1686 (10.8)	0 (0)			4.6 (10.8)
sewer systems					688.9 (4.4)				
DCTP					997.1 (6.4)				
point sources					4852.1 (31.2)				13.2 (31.2)

Table Vi.9: Hungary – baseline 2021

Land-use	WSA	Arable	Grassland	Forest	Urban area	Other Areas	Total	
area in km <sup>2</sup>	741.5	28278.7	3974.8		9667.3	2370.9	336.4	45369.5
area share in %	1.6	62.3	8.8		21.3	5.2	0.7	100
Nitrogen	WSA	Arable	Grassland	Forest	Urban area	Other Areas	Total	
atmospheric deposition	6.9 (1.9)							0.1 (1.9)
surface run-off		0.7 (7.6)	0.7 (1.1)	0.5(1.9)		0.6 (0.1)		0.6 (10.7)
erosion		0 (0.2)	0 (0)	0 (0.1)		0 (0)		0 (0.3)
tile drainages		0.1 (1.5)	0 (0)					0.1 (1.5)
groundwater & interflow		5.4 (56.2)	6.9 (10.2)	1.5(5.4)	2.6 (2.3)	8.1 (1)		4.5 (75.1)
urban systems					3.5 (3.1)	0 (0)		0.2 (3.1)
sewer systems					2.8 (2.5)			
DCTP					0.7 (0.6)			
point sources					8.4 (7.4)			0.4 (7.4)
<b>Total</b>	<b>6.9 (1.9)</b>	<b>6.3 (65.5)</b>	<b>7.7 (11.3)</b>	<b>2.1(7.4)</b>	<b>14.6 (12.8)</b>	<b>8.7 (1.1)</b>		<b>6 (100)</b>
Phosphorus	WSA	Arable	Grassland	Forest	Urban area	Other Areas	Total	
atmospheric deposition	18.3 (1.6)							0.3 (1.6)
surface run-off		3.1 (10.3)	3.8 (1.8)	2 (2.3)		1.7 (0.1)		2.7 (14.4)
erosion		1.9 (6.2)	0.5 (0.2)	1.2(1.4)		0 (0)		1.5 (7.9)
tile drainages		0.1 (0.2)	0.1 (0)					0 (0.2)
groundwater & interflow		6.4 (21.1)	7.9 (3.7)	4.2(4.8)	10.2 (2.8)	5.2 (0.2)		6.2 (32.6)
urban systems					62.6 (17.3)	0 (0)		3.3 (17.3)
sewer systems					36.5 (10.1)			
DCTP					26.2 (7.2)			
point sources					94.1 (26)			4.9 (26)
<b>Total</b>	<b>18.3 (1.6)</b>	<b>11.5(37.8)</b>	<b>12.3(5.7)</b>	<b>7.5(8.5)</b>	<b>166.9(46.2)</b>	<b>6.9(0.3)</b>		<b>18.9(100)</b>

Table VI.10: Romania – baseline 2021

Land-use	WSA	Arable	Grassland	Forest	Urban area	Other Areas	Total	
area in km <sup>2</sup>		491.5	28754.4	9109.5	29443.8	3356.7	256.2	71412.1
area share in %		0.7	40.3	12.8	41.2	4.7	0.4	100
Nitrogen	WSA	Arable	Grassland	Forest	Urban area	Other Areas	Total	
atmospheric deposition	7.9(1.1)							0.1 (1.1)
surface run-off		0.7 (5.6)	0.6 (1.6)	0.7 (5.4)		0.6 (0)		0.7 (12.6)
erosion		0.2 (1.7)	0 (0.1)	0.1 (0.7)		0 (0)		0.1 (2.6)
tile drainages		0.2 (1.2)	0 (0.1)					0.1 (1.3)
groundwater & interflow		3.5 (27.4)	3.9 (9.7)	3.1 (24.5)	6.3 (5.7)	5.3 (0.4)		3.5 (67.7)
urban systems					1.6 (1.5)	0 (0)		0.1 (1.5)
sewer systems					1.5 (1.4)			
DCTP					0.1 (0.1)			
point sources					14.6 (13.3)			0.7 (13.3)
Total	7.9(1.1)	4.6 (35.9)	4.6 (11.5)	3.8 (30.6)	22.5 (20.5)	6 (0.4)		5.2 (100)
Phosphorus	WSA	Arable	Grassland	Forest	Urban area	Other Areas	Total	
atmospheric deposition	21.9 (0.5)							0.2 (0.5)
surface run-off		3 (4.1)	3.2 (1.4)	2.7 (3.8)		1.8 (0)		2.7 (9.3)
Erosion		16.1 (22)	3.1 (1.3)	5.6 (7.8)		0 (0)		9.2 (31.1)
tile drainages		0.1 (0.2)	0.2 (0.1)					0.1 (0.2)
groundwater & interflow		6 (8.2)	6.6 (2.9)	4.3 (6)	21.8 (3.5)	4.6 (0.1)		6.1 (20.6)
urban systems					38 (6)	0 (0)		1.8 (6)
sewer systems					20.6 (3.3)			
DCTP					17.4 (2.8)			
point sources					202 (32.1)			9.5 (32.1)
Total	21.9 (0.5)	25.3 (34.4)	13.1 (5.6)	12.7 (17.7)	261.8 (41.6)	6.4 (0.1)		29.6 (100)

Table Vi.11: Serbia – baseline 2021

Land-use	WSA	Arable	Grassland	Forest	Urban area	Other Areas	Total	
area in km <sup>2</sup>	224.2	9088.5	296.2		583.6	574.8	105.4	10872.8
area share in %	2.1	83.6	2.7		5.4	5.3	1.0	100
Nitrogen	WSA	Arable	Grassland	Forest	Urban area	Other Areas	Total	
atmospheric deposition	6.7 (2.4)							0.1 (2.4)
surface run-off		0.8 (12.1)	0.7 (0.3)	0.7(0.7)		0.6 (0.1)		0.8 (13.2)
Erosion		0 (0)	0 (0)	0 (0)		0 (0)		0 (0)
tile drainages		0.1 (1.1)	0 (0)					0.1 (1.1)
Groundwater & interflow		2.6 (37.6)	2.6 (1.2)	2.5(2.3)	10.7 (9.7)	10.3 (1.7)		3.1 (52.5)
urban systems					13.7 (12.4)	0 (0)		0.7 (12.4)
sewer systems					13.7 (12.4)			
DCTP					0 (0)			
point sources					20.3 (18.4)			1.1 (18.4)
<b>Total</b>	<b>6.7 (2.4)</b>	<b>3.5 (50.8)</b>	<b>3.4 (1.6)</b>	<b>3.2 (3)</b>	<b>44.7 (40.5)</b>	<b>11 (1.8)</b>		<b>5.8 (100)</b>
Phosphorus	WSA	Arable	Grassland	Forest	Urban area	Other Areas	Total	
atmospheric deposition	17.5 (0.8)							0.4 (0.8)
surface run-off		4.6 (8.7)	4.6 (0.3)	2.5(0.3)		2 (0)		4.1 (9.4)
Erosion		0 (0)	0 (0)	0 (0)		0 (0)		0 (0)
tile drainages		0.1 (0.2)	0.1 (0)					0.1 (0.2)
groundwater & interflow		6.1 (11.5)	6.1 (0.4)	4.1(0.5)	39.7 (4.8)	5.1 (0.1)		7.6 (17.2)
urban systems					196.5 (23.5)	0 (0)		10.4 (23.5)
sewer systems					171.3 (20.5)			
DCTP					25.2 (3)			
point sources					408.3 (48.9)			21.6 (48.9)
<b>Total</b>	<b>17.5 (0.8)</b>	<b>10.8 (20.4)</b>	<b>10.8 (0.7)</b>	<b>6.6(0.8)</b>	<b>644.5 (77.2)</b>	<b>7.1 (0.2)</b>		<b>44.1 (100)</b>

### 6.2.3 Baseline 2062

Table VI.12: Whole Tisza – baseline 2062

Land-use	WSA	Arable	Grassland	Forest	Urban area	Other Areas	Total
area in km <sup>2</sup>	1565.1	75598.8	14281.9	56866.3	7133.1	775.9	156221.1
area share in %	1.0	48.4	9.1	36.4	4.6	0.5	100
Nitrogen	WSA	Arable	Grassland	Forest	Urban area	Other Areas	Total
atmospheric deposition	8.2 (1.3)						0.1 (1.3)
surface run-off		0.8 (6)	0.7 (1)	0.7 (4.2)		0.6 (0)	0.7 (11.2)
erosion		0.1 (1)	0 (0)	0.1 (0.4)		0 (0)	0.1 (1.5)
tile drainages		0.6 (4.5)	0.1 (0.1)				0.3 (4.7)
groundwater & interflow		4.7 (36.5)	5.3 (7.6)	3.1 (18.1)	7.4 (5.4)	7.2 (0.6)	4.3 (68.1)
urban systems					4.8 (3.5)		0.2 (3.5)
sewer systems					3.4 (2.5)		
DCTP					1.4 (1)		
point sources					13.5 (9.8)		0.6 (9.8)
<b>Total</b>	<b>8.2 (1.3)</b>	<b>6.2 (47.9)</b>	<b>6 (8.8)</b>	<b>3.9 (22.7)</b>	<b>25.7 (18.6)</b>	<b>7.8 (0.6)</b>	<b>6.3 (100)</b>
Phosphorus	WSA	Arable	Grassland	Forest	Urban area	Other Areas	Total
atmospheric deposition	21.9 (0.8)						0.2 (0.8)
surface run-off		3.5 (5.9)	3.5 (1.1)	3.2 (4)		1.8 (0)	3.2 (11)
erosion		9.5 (15.9)	2.3 (0.7)	4.5 (5.6)		0 (0)	6.4 (22.3)
tile drainages		0.3 (0.6)	0.3 (0.1)				0.2 (0.7)
groundwater & interflow		6.3 (10.6)	7 (2.2)	5 (6.2)	28.4 (4.5)	5 (0.1)	6.8 (23.6)
urban systems					70.3 (11.1)		3.2 (11.1)
sewer systems					42.7 (6.7)		
DCTP					27.6 (4.4)		
point sources					193.7 (30.6)		8.8 (30.6)
<b>Total</b>	<b>21.9 (0.8)</b>	<b>19.7 (33)</b>	<b>13.1 (4.1)</b>	<b>12.6 (15.8)</b>	<b>292.5 (46.2)</b>	<b>6.8 (0.1)</b>	<b>28.9 (100)</b>

Table VI.13: Slovak Republic – baseline 2062

Land/use	WSA	Arable	Grassland	Forest	Urban area	Other Areas	Total	
are in km <sup>2</sup>		80.4	6167.6	834.5	7871.9	795.8	51.3	15801.5
area share in %		0.5	39.0	5.3	49.8	5.0	0.3	100
Nitrogen	WSA	Arable	Grassland	Forest	Urban area	Other Areas	Total	
atmospheric deposition	17.2(0.9)						0.1 (0.9)	
surface run-off		0.9 (3.7)	0.7 (0.4)	0.7 (3.7)		0.6 (0)	0.7 (7.8)	
erosion		0.3 (1.5)	0.1 (0)	0.1 (0.5)		0 (0)	0.2 (1.9)	
tile drainages		5.5 (23.1)	0.9 (0.5)				2.2 (23.6)	
groundwater & interflow		6.7 (28.1)	6.6 (3.7)	3.8 (20.5)	9.1 (4.9)	8.4 (0.3)	5.4 (57.5)	
urban systems					4.8 (2.6)	0 (0)	0.2 (2.6)	
sewer systems					3.5 (1.9)			
DCTP					1.3 (0.7)			
point sources					10.4 (5.6)		0.5 (5.6)	
Total	17.2(0.9)	13.5 (56.4)	8.3 (4.7)	4.6 (24.6)	24.3 (13.1)	9 (0.3)	9.3 (100)	
Phosphorus	WSA	Arable	Grassland	Forest	Urban area	Other Areas	Total	
atmospheric deposition	41.9(0.6)						0.2 (0.6)	
surface run-off		5.8 (6.6)	5.9 (0.9)	3.1 (4.4)		1.4 (0)	4.1 (11.9)	
erosion		29.4 (33)	4.3 (0.7)	5.1 (7.3)		0 (0)	14.2 (41)	
tile drainages		3 (3.3)	2.8 (0.4)				1.3 (3.7)	
Groundwater & interflow		5.4 (6.1)	5.8 (0.9)	5 (7.1)	33 (4.8)	5.5 (0.1)	6.6 (18.9)	
urban systems					68 (9.9)	0 (0)	3.4 (9.9)	
sewer systems					33.8 (4.9)			
DCTP					34.2 (5)			
point sources					96.9 (14)		4.9 (14)	
Total	41.9(0.6)	43.6 (49)	18.9 (2.9)	13.1 (18.8)	197.9 (28.7)	6.9 (0.1)	34.8 (100)	

Table VI.14: Ukraine – baseline 2062

Land-use	WSA	Arable	Grassland	Forest	Urban area	Other Areas	Total	
area in km <sup>2</sup>	27.7	3309.6		66.9	9299.7	34.8	26.6	12765.3
area share in %	0.2	25.9		0.5	72.9	0.3	0.2	100
Nitrogen	WSA	Arable	Grassland	Forest	Urban area	Other Areas	Total	
atmospheric deposition	34.5 (0.8)						0.1 (0.8)	
surface run-off		1.3 (3.8)	1.2 (0.1)	1.1 (9.4)		0.6 (0)	1.2 (13.2)	
erosion		0.2 (0.6)	0 (0)	0.1 (0.6)		0 (0)	0.1 (1.1)	
tile drainages		0.4 (1.1)	0.1 (0)				0.1 (1.1)	
groundwater & interflow		6.6 (19.2)	7.9 (0.5)	4.7 (38.4)	370.8 (11.4)	1.3 (0)	6.1 (69.5)	
urban systems					256 (7.9)	0 (0)	0.7 (7.9)	
sewer systems					54.6 (1.7)			
DCTP					201.3 (6.2)			
point sources					202.9 (6.2)		0.6 (6.2)	
<b>Total</b>	<b>34.5 (0.8)</b>	<b>8.4 (24.7)</b>	<b>9.3 (0.6)</b>	<b>5.9 (48.3)</b>	<b>829.6 (25.6)</b>	<b>1.9 (0)</b>	<b>8.8 (100)</b>	
Phosphorus	WSA	Arable	Grassland	Forest	Urban area	Other Areas	Total	
atmospheric deposition	95.6 (0.5)						0.2 (0.5)	
surface run-off		5.4 (3.3)	6.8 (0.1)	5.8 (10)		3 (0)	5.6 (13.4)	
erosion		10.1 (6.2)	1.8 (0)	4 (7)		0 (0)	5.6 (13.2)	
tile drainages		0.4 (0.2)	0.5 (0)				0.1 (0.2)	
groundwater & interflow		9.9 (6.1)	12.6(0.2)	7.6 (13.2)	1671.1 (10.8)	3.9 (0)	12.7 (30.3)	
urban systems					1686 (10.9)	0 (0)	4.6 (10.9)	
sewer systems					688.9 (4.5)			
DCTP					997.1 (6.5)			
point sources					4852.1 (31.4)		13.2 (31.4)	
<b>Total</b>	<b>95.6 (0.5)</b>	<b>25.8 (15.9)</b>	<b>21.6(0.3)</b>	<b>17.4 (30.2)</b>	<b>8209.3 (53.2)</b>	<b>7 (0)</b>	<b>42.1 (100)</b>	



Table VI.15: Hungary – baseline 2062

Land-use	WSA	Arable	Grassland	Forest	Urban area	Other Areas	Total
area in km <sup>2</sup>	741.5	28278.7	3974.8	9667.3	2370.9	336.4	45369.5
area share in %	1.6	62.3	8.8	21.3	5.2	0.7	100
Nitrogen	WSA	Arable	Grassland	Forest	Urban area	Other Areas	Total
atmospheric deposition	6.9 (1.8)						0.1 (1.8)
surface run-off		0.7 (7.3)	0.7 (1)	0.5 (1.8)		0.6 (0.1)	0.6 (10.2)
erosion		0 (0.2)	0 (0)	0 (0.1)		0 (0)	0 (0.3)
tile drainages		0.1 (1.4)	0 (0)				0.1 (1.4)
groundwater & interflow		5.8 (57.6)	7.4 (10.5)	1.5 (5)	2.5 (2.1)	8 (1)	4.7 (76.2)
urban systems					3.5 (3)	0 (0)	0.2 (3)
sewer systems					2.8 (2.4)		
DCTP					0.7 (0.6)		
point sources					8.4 (7.1)		0.4 (7.1)
<b>Total</b>	<b>6.9 (1.8)</b>	<b>6.6 (66.5)</b>	<b>8.2 (11.6)</b>	<b>2 (6.9)</b>	<b>14.5 (12.1)</b>	<b>8.6 (1)</b>	<b>6.2 (100)</b>
Phosphorus	WSA	Arable	Grassland	Forest	Urban area	Other Areas	Total
	18.3						
atmospheric deposition	(1.6)						0.3 (1.6)
surface run-off		3.1 (10.4)	3.8 (1.8)	2 (2.3)		1.7 (0.1)	2.7 (14.5)
erosion		1.9 (6.3)	0.5 (0.2)	1.2 (1.4)		0 (0)	1.5 (7.9)
tile drainages		0.1 (0.2)	0.1 (0)				0 (0.2)
groundwater & interflow		6.4 (21.1)	7.9 (3.7)	4.2 (4.8)	10 (2.8)	5.2 (0.2)	6.1 (32.5)
urban systems					62.6 (17.3)	0 (0)	3.3 (17.3)
sewer systems					36.5 (10.1)		
DCTP					26.2 (7.2)		
point sources					94.1 (26)		4.9 (26)
<b>Total</b>	<b>18.3 (1.6)</b>	<b>11.5 (37.9)</b>	<b>12.3 (5.7)</b>	<b>7.5 (8.5)</b>	<b>166.7 (46.1)</b>	<b>6.9 (0.3)</b>	<b>18.9 (100)</b>

Table VI.16: Romania – baseline 2062

Land-use	WSA	Arable	Grassland	Forest	Urban area	Other Areas	Total
area in km <sup>2</sup>	491.5	28754.4	9109.5	29443.8	3356.7	256.2	71412.1
area share in %	0.7	40.3	12.8	41.2	4.7	0.4	100
Nitrogen	WSA	Arable	Grassland	Forest	Urban area	Other Areas	Total
atmospheric deposition	7.9(1)						0.1 (1)
surface run-off		0.7 (5.5)	0.6 (1.5)	0.7 (5.3)		0.6 (0)	0.7 (12.3)
erosion		0.2 (1.7)	0 (0.1)	0.1 (0.7)		0 (0)	0.1 (2.5)
tile drainages		0.2 (1.2)	0 (0.1)				0.1 (1.3)
groundwater & interflow		3.8 (28.9)	4.2 (10.3)	3 (23.5)	6.1 (5.4)	5.3 (0.4)	3.6 (68.4)
urban systems					1.6 (1.4)	0 (0)	0.1 (1.4)
sewer systems					1.5 (1.3)		
DCTP					0.1 (0.1)		
point sources					14.6 (13)		0.7 (13)
Total	7.9(1)	4.9 (37.2)	5 (12)	3.8 (29.5)	22.3 (19.9)	5.9 (0.4)	5.3 (100)
Phosphorus	WSA	Arable	Grassland	Forest	Urban area	Other Areas	Total
atmospheric deposition	21.9 (0.5)						0.2 (0.5)
surface run-off		2.8 (3.8)	3 (1.3)	2.7 (3.8)		1.8 (0)	2.6 (9)
erosion		15.7 (21.5)	3 (1.3)	5.6 (7.9)		0 (0)	9 (30.7)
tile drainages		0.1 (0.2)	0.2 (0.1)				0.1 (0.2)
groundwater & interflow		6.2 (8.5)	6.7 (2.9)	4.3 (6.1)	21.4 (3.4)	4.7 (0.1)	6.2 (21)
urban systems					38 (6.1)	0 (0)	1.8 (6.1)
sewer systems					20.6 (3.3)		
DCTP					17.4 (2.8)		
point sources					202 (32.4)		9.5 (32.4)
Total	21.9 (0.5)	24.8 (34)	12.9 (5.6)	12.7 (17.9)	261.5 (41.9)	6.4 (0.1)	29.3 (100)

Table VI.17: Serbia – baseline 2062

Land-use	WSA	Arable	Grassland	Forest	Urban area	Other Areas	Total
area in km <sup>2</sup>	224.2	9088.5	296.2	583.6	574.8	105.4	10873
area share in %	2.1	83.6	2.7	5.4	5.3	1.0	100
Nitrogen	WSA	Arable	Grassland	Forest	Urban area	Other Areas	Total
atmospheric deposition	6.7 (2.4)						0.1 (2.4)
surface run-off		0.8 (12.1)	0.7 (0.3)	0.7 (0.7)		0.6 (0.1)	0.8 (13.3)
erosion		0 (0)	0 (0)	0 (0)		0 (0)	0 (0)
tile drainages		0.1 (1.1)	0 (0)				0.1 (1.1)
groundwater & interflow		2.6 (37.3)	2.6 (1.2)	2.5 (2.3)	10.8 (9.8)	10.3 (1.7)	3 (52.3)
urban systems					13.7 (12.4)	0 (0)	0.7 (12.4)
sewer systems					13.7 (12.4)		
DCTP					0 (0)		
point sources					20.3 (18.5)		1.1 (18.5)
<b>Total</b>	<b>6.7 (2.4)</b>	<b>3.5 (50.6)</b>	<b>3.3 (1.6)</b>	<b>3.2 (3)</b>	<b>44.8 (40.7)</b>	<b>11 (1.8)</b>	<b>5.8 (100)</b>
Phosphorus	WSA	Arable	Grassland	Forest	Urban area	Other Areas	Total
	17.5						
atmospheric deposition	(0.8)						0.4 (0.8)
surface run-off		4.7 (9)	4.7 (0.3)	2.5 (0.3)		2 (0)	4.2 (9.6)
Erosion		0 (0)	0 (0)	0 (0)		0 (0)	0 (0)
tile drainages		0.1 (0.2)	0.1 (0)				0.1 (0.2)
groundwater & interflow		6.1 (11.4)	6.1 (0.4)	4.1 (0.5)	39.9 (4.8)	5.1 (0.1)	7.6 (17.2)
urban systems					196.5 (23.5)	0 (0)	10.4 (23.5)
sewer systems					171.3 (20.5)		
DCTP					25.2 (3)		
point sources					408.3 (48.8)		21.6 (48.8)
<b>Total</b>	<b>17.5 (0.8)</b>	<b>10.9 (20.6)</b>	<b>10.9 (0.7)</b>	<b>6.6 (0.8)</b>	<b>644.7 (77)</b>	<b>7.1 (0.2)</b>	<b>44.3 (100)</b>

## 6.2.4 Intensification

Table VI.18: Whole Tisza – intensification

Land-use	WSA	Arable	Grassland	Forest	Urban area	Other Areas	Total
area in km <sup>2</sup>	1565.1	75598.8	14281.9	56866.3	7133.1	775.9	156221.1
area share in %	1.0	48.4	9.1	36.4	4.6	0.5	100
Nitrogen	WSA	Arable	Grassland	Forest	Urban area	Other Areas	Total
atmospheric deposition	8.2 (1)						0.1 (1)
surface run-off		0.8 (4.4)	0.7 (0.7)	0.7 (3.1)		0.6 (0)	0.7 (8.3)
erosion		0.1 (0.7)	0 (0)	0.1 (0.3)		0 (0)	0.1 (1.1)
tile drainages		1 (5.9)	0.1 (0.1)				0.5 (6)
groundwater & interflow		8.5 (48.8)	10.1 (10.9)	2.5 (10.7)	5.6 (3)	6.9 (0.4)	6.3 (73.8)
urban systems					4.8 (2.6)		0.2 (2.6)
sewer systems					3.4 (1.8)		
DCTP					1.4 (0.8)		
point sources					13.5 (7.2)		0.6 (7.2)
<b>Total</b>	<b>8.2 (1)</b>	<b>10.5 (59.8)</b>	<b>10.9 (11.7)</b>	<b>3.3 (14.2)</b>	<b>23.9 (12.8)</b>	<b>7.5 (0.4)</b>	<b>8.5 (100)</b>
Phosphorus	WSA	Arable	Grassland	Forest	Urban area	Other Areas	Total
atmospheric deposition	21.9 (0.7)						0.2 (0.7)
surface run-off		4.6 (7.3)	4.7 (1.4)	3.2 (3.8)		1.8 (0)	3.8 (12.6)
erosion		11.2 (17.8)	2.8 (0.8)	4.5 (5.3)		0 (0)	7.3 (24)
tile drainages		0.3 (0.5)	0.3 (0.1)				0.2 (0.6)
groundwater & interflow		6.8 (10.8)	7.5 (2.3)	5 (6)	22.5 (3.4)	5.1 (0.1)	6.9 (22.6)
urban systems					70.3 (10.5)		3.2 (10.5)
sewer systems					42.7 (6.4)		
DCTP					27.6 (4.1)		
point sources					193.7 (29)		8.8 (29)
<b>Total</b>	<b>21.9 (0.7)</b>	<b>23 (36.5)</b>	<b>15.3 (4.6)</b>	<b>12.7 (15.1)</b>	<b>286.5 (42.9)</b>	<b>6.9 (0.1)</b>	<b>30.5 (100)</b>

Table VI.19: Slovak Republic – intensification

Land/use	WSA	Arable	Grassland	Forest	Urban area	Other Areas	Total
area in km <sup>2</sup>		80.4	6167.6	834.5	7871.9	795.8	51.3 15801.5
area share in %		0.5	39.0	5.3	49.8	5.0	0.3 100
Nitrogen	WSA	Arable	Grassland	Forest	Urban area	Other Areas	Total
atmospheric deposition	17.2 (0.7)						0.1 (0.7)
surface run-off		0.9 (2.8)	0.7 (0.3)	0.7 (2.8)		0.6 (0)	0.7 (5.9)
erosion		0.3 (1.1)	0.1 (0)	0.1 (0.3)		0 (0)	0.2 (1.5)
tile drainages		8.8 (27.7)	1.1 (0.5)				3.5 (28.1)
groundwater & interflow		11.5 (36.1)	13.2 (5.6)	3.2 (12.6)	7.7 (3.1)	7.9 (0.2)	7.2 (57.6)
urban systems					4.8 (2)	0 (0)	0.2 (2)
sewer systems					3.5 (1.4)		
DCTP					1.3 (0.5)		
point sources					10.4 (4.2)		0.5 (4.2)
<b>Total</b>	<b>17.2 (0.7)</b>	<b>21.5 (67.6)</b>	<b>15.1 (6.4)</b>	<b>3.9 (15.7)</b>	<b>22.9 (9.3)</b>	<b>8.5 (0.2)</b>	<b>12.4 (100)</b>
Phosphorus	WSA	Arable	Grassland	Forest	Urban area	Other Areas	Total
atmospheric deposition	41.9 (0.6)						0.2 (0.6)
surface run-off		6.8 (7.3)	6.8 (1)	3.1 (4.2)		1.4 (0)	4.5 (12.5)
erosion		32.9 (35.3)	4.9 (0.7)	5.1 (7)		0 (0)	15.6 (43)
tile drainages		3 (3.2)	2.8 (0.4)				1.3 (3.6)
groundwater & interflow		5.4 (5.8)	5.8 (0.8)	5 (6.8)	28.4 (3.9)	5.5 (0)	6.3 (17.5)
urban systems					68 (9.4)	0 (0)	3.4 (9.4)
sewer systems					33.8 (4.7)		
DCTP					34.2 (4.7)		
point sources					96.9 (13.4)		4.9 (13.4)
<b>Total</b>	<b>41.9 (0.6)</b>	<b>48 (51.6)</b>	<b>20.3 (3)</b>	<b>13.1 (18)</b>	<b>193.3 (26.8)</b>	<b>6.9 (0.1)</b>	<b>36.3 (100)</b>

Table VI.20: Ukraine – intensification

Land-use	WSA	Arable	Grassland	Forest	Urban area	Other Areas	Total		
area in km <sup>2</sup>		27.7	3309.6		66.9	9299.7	34.8	26.6	12765.3
area share in %		0.2	25.9		0.5	72.9	0.3	0.2	100
<b>Nitrogen</b>	WSA	Arable	Grassland	Forest	Urban area	Other Areas	Total		
atmospheric deposition	34.5 (0.7)							0.1 (0.7)	
surface run-off		1.3 (3)	1.2 (0.1)	1.1 (7.4)		0.6 (0)		1.2 (10.5)	
erosion		0.2 (0.5)	0 (0)	0.1 (0.4)		0 (0)		0.1 (0.9)	
tile drainages		1.1 (2.5)	0.2 (0)					0.3 (2.6)	
groundwater & interflow		17.5 (40.6)	22.4 (1.1)	3.9 (25.4)	294.7 (7.2)	1.3 (0)		8.3 (74.2)	
urban systems					256 (6.2)	0 (0)		0.7 (6.2)	
sewer systems					54.6 (1.3)				
DCTP					201.3 (4.9)				
point sources					202.9 (4.9)			0.6 (4.9)	
<b>Total</b>	<b>34.5 (0.7)</b>	<b>20.1 (46.6)</b>	<b>23.8(1.1)</b>	<b>5.1 (33.2)</b>	<b>753.6 (18.4)</b>	<b>1.8 (0)</b>		<b>11.2 (100)</b>	
<b>Phosphorus</b>	WSA	Arable	Grassland	Forest	Urban area	Other Areas	Total		
atmospheric deposition	95.6 (0.5)							0.2 (0.5)	
surface run-off		8.1 (4.9)	9.8 (0.1)	5.8 (9.9)		3 (0)		6.3 (15)	
erosion		12.3 (7.5)	2.2 (0)	4 (6.9)		0 (0)		6.1 (14.4)	
tile drainages		0.4 (0.2)	0.5 (0)					0.1 (0.2)	
groundwater & interflow		9.9 (6.1)	12.6 (0.2)	7.6 (13.1)	1329.4 (8.5)	3.9 (0)		11.8 (27.9)	
urban systems					1686 (10.8)	0 (0)		4.6 (10.8)	
sewer systems					688.9 (4.4)				
DCTP					997.1 (6.4)				
point sources					4852.1 (31.2)			13.2 (31.2)	
<b>Total</b>	<b>95.6 (0.5)</b>	<b>30.6 (18.7)</b>	<b>25.1(0.3)</b>	<b>17.4 (29.9)</b>	<b>7867.5(50.5)</b>	<b>7 (0)</b>		<b>42.4 (100)</b>	

Table VI.21: Hungary – intensification

Land-use	WSA	Arable	Grassland	Forest	Urban area	Other Areas	Total	
area in km <sup>2</sup>		741.5	28278.7	3974.8	9667.3	2370.9	336.4	45369.5
area share in %		1.6	62.3	8.8	21.3	5.2	0.7	100
Nitrogen	WSA	Arable	Grassland	Forest	Urban area	Other Areas	Total	
atmospheric deposition	6.9 (1.6)						0.1 (1.6)	
surface run-off		0.7 (6.5)	0.7 (0.9)	0.5(1.7)		0.6 (0.1)	0.6 (9.2)	
erosion		0 (0.2)	0 (0)	0 (0.1)		0 (0)	0 (0.3)	
tile drainages		0.2 (1.5)	0 (0)				0.1 (1.6)	
groundwater & interflow		6.7 (60.5)	8.7 (11)	1.3(4.1)	2.3 (1.7)	8 (0.9)	5.4 (78.3)	
urban systems					3.5 (2.7)	0 (0)	0.2 (2.7)	
sewer systems					2.8 (2.1)			
DCTP					0.7 (0.6)			
point sources					8.4 (6.4)		0.4 (6.4)	
Total	6.9 (1.6)	7.6 (68.8)	9.5 (12)	1.9(5.8)	14.3 (10.8)	8.5 (0.9)	6.9 (100)	
Phosphorus	WSA	Arable	Grassland	Forest	Urban area	Other Areas	Total	
atmospheric deposition	18.3(1.5)						0.3 (1.5)	
surface run-off		3.7 (11.8)	4.6 (2)	2 (2.2)		1.7 (0.1)	3.2 (16)	
erosion		2.1 (6.7)	0.6 (0.3)	1.2(1.3)		0 (0)	1.6 (8.2)	
tile drainages		0.1 (0.2)	0.1 (0)				0 (0.2)	
groundwater & interflow		6.9 (21.7)	8.3 (3.7)	4.4(4.7)	9.6 (2.5)	5.2 (0.2)	6.5 (32.7)	
urban systems					62.6 (16.5)	0 (0)	3.3 (16.5)	
sewer systems					36.5 (9.6)			
DCTP					26.2 (6.9)			
point sources					94.1 (24.8)		4.9 (24.8)	
Total	18.3(1.5)	12.8 (40.3)	13.5 (6)	7.6(8.2)	166.3 (43.8)	6.9 (0.3)	19.8 (100)	

Table VI.22: Romania – intensification

Land-use	WSA	Arable	Grassland	Forest	Urban area	Other Areas	Total	
area in km <sup>2</sup>		491.5	28754.4	9109.5	29443.8	3356.7	256.2	71412.1
area share in %		0.7	40.3	12.8	41.2	4.7	0.4	100
Nitrogen	WSA	Arable	Grassland	Forest	Urban area	Other Areas	Total	
atmospheric deposition	7.9 (0.7)							0.1 (0.7)
surface run-off		0.7 (3.6)	0.6 (1)	0.7 (3.5)		0.6 (0)		0.7 (8.2)
erosion		0.2 (1.1)	0 (0.1)	0.1 (0.5)		0 (0)		0.1 (1.7)
tile drainages		0.4 (2.2)	0.1 (0.1)					0.2 (2.3)
groundwater & interflow		9.1 (46.1)	10.4 (16.7)	2.3 (11.9)	4.3 (2.6)	4.8 (0.2)		6.1 (77.5)
urban systems					1.6 (1)	0 (0)		0.1 (1)
sewer systems					1.5 (0.9)			
DCTP					0.1 (0.1)			
point sources					14.6 (8.6)			0.7 (8.6)
Total	7.9 (0.7)	10.5 (53.1)	11.1 (17.9)	3.1 (15.9)	20.5 (12.2)	5.4 (0.2)		7.9 (100)
Phosphorus	WSA	Arable	Grassland	Forest	Urban area	Other Areas	Total	
atmospheric deposition	21.9(0.5)							0.2 (0.5)
surface run-off		4.2 (5.3)	4.5 (1.8)	2.7 (3.6)		1.8 (0)		3.4 (10.7)
erosion		18.9 (24)	3.6 (1.5)	5.6 (7.3)		0 (0)		10.4 (32.8)
tile drainages		0.1 (0.2)	0.2 (0.1)					0.1 (0.2)
groundwater & interflow		6.9 (8.8)	7.4 (3)	4.5 (5.8)	16.3 (2.4)	4.9 (0.1)		6.4 (20.1)
urban systems					38 (5.6)	0 (0)		1.8 (5.6)
sewer systems					20.6 (3.1)			
DCTP					17.4 (2.6)			
point sources					202 (30)			9.5 (30)
Total	21.9(0.5)	30.1 (38.3)	15.7 (6.3)	12.8 (16.7)	256.4 (38.1)	6.7 (0.1)		31.7 (100)



Table VI.23: Serbia – intensification

Land-use	WSA	Arable	Grassland	Forest	Urban area	Other Areas	Total	
area in km <sup>2</sup>		224.2	9088.5	296.2	583.6	574.8	105.4	10872.8
area share in %		2.1	83.6	2.7	5.4	5.3	1.0	100
Nitrogen	WSA	Arable	Grassland	Forest	Urban area	Other Areas	Total	
atmospheric deposition	6.7 (1.4)							0.1 (1.4)
surface run-off		0.8 (7.2)	0.7 (0.2)	0.7 (0.4)		0.6 (0.1)		0.8 (7.9)
erosion		0 (0)	0 (0)	0 (0)		0 (0)		0 (0)
tile drainages		0.3 (2.6)	0 (0)					0.3 (2.6)
groundwater & interflow		7.3 (62.6)	7.3 (2)	1.4 (0.8)	6.1 (3.3)	9.4 (0.9)		6.8 (69.6)
urban systems					13.7 (7.4)	0 (0)		0.7 (7.4)
sewer systems					13.7 (7.4)			
DCTP					0 (0)			
point sources					20.3 (11)			1.1 (11)
<b>Total</b>	<b>6.7 (1.4)</b>	<b>8.4 (72.4)</b>	<b>8.1 (2.3)</b>	<b>2.1 (1.2)</b>	<b>40.1 (21.8)</b>	<b>10 (1)</b>		<b>9.7 (100)</b>
Phosphorus	WSA	Arable	Grassland	Forest	Urban area	Other Areas	Total	
atmospheric deposition	17.5(0.8)							0.4 (0.8)
surface run-off		6.1 (11.4)	6.1 (0.4)	2.5 (0.3)		2 (0)		5.4 (12.1)
erosion		0 (0)	0 (0)	0 (0)		0 (0)		0 (0)
tile drainages		0.1 (0.2)	0.1 (0)					0.1 (0.2)
groundwater & interflow		6.1 (11.4)	6.1 (0.4)	4.1 (0.5)	24.1 (2.9)	5.1 (0.1)		6.8 (15.2)
urban systems					196.5 (23.3)	0 (0)		10.4 (23.3)
sewer systems					171.3 (20.3)			
DCTP					25.2 (3)			
point sources					408.3 (48.4)			21.6 (48.4)
<b>Total</b>	<b>17.5(0.8)</b>	<b>12.2 (22.9)</b>	<b>12.2 (0.7)</b>	<b>6.6 (0.8)</b>	<b>628.8 (74.6)</b>	<b>7.1 (0.2)</b>		<b>44.6 (100)</b>

## 6.2.5 Vision 2

Table VI.24: Whole Tisza – vision 2

Land-use	WSA	Arable	Grassland	Forest	Urban area	Other Areas	Total
area in km <sup>2</sup>	1587.2	75887.3	14603.9	55727.3	7690.5	725.0	156221.1
area share in %	1.0	48.6	9.3	35.7	4.9	0.5	100
Nitrogen	WSA	Arable	Grassland	Forest	Urban area	Other Areas	Total
atmospheric deposition	8.1 (1.6)						0.1 (1.6)
surface run-off		0.8 (7.3)	0.7 (1.2)	0.7 (5)		0.7 (0.1)	0.7 (13.6)
erosion		0.1 (1.2)	0 (0.1)	0.1 (0.5)		0 (0)	0.1 (1.7)
tile drainages		0.3 (3.2)	0.1 (0.1)				0.2 (3.3)
groundwater & interflow		3.5 (32.2)	4 (7.2)	3.3 (22.5)	3.3 (3.1)	8.1 (0.7)	3.4 (65.8)
urban systems					1.2 (1.1)		0.1 (1.1)
sewer systems					0.9 (0.9)		
DCTP					0.3 (0.2)		
point sources					13.7 (12.9)		0.7 (12.9)
<b>Total</b>	<b>8.1 (1.6)</b>	<b>4.7 (43.8)</b>	<b>4.8 (8.6)</b>	<b>4.1 (28)</b>	<b>18.2 (17.2)</b>	<b>8.8 (0.8)</b>	<b>5.2 (100)</b>
Phosphorus	WSA	Arable	Grassland	Forest	Urban area	Other Areas	Total
atmospheric deposition	21.6 (0.8)						0.2 (0.8)
surface run-off		3.8 (7)	3.9 (1.4)	3.2 (4.2)		1.9 (0)	3.4 (12.7)
erosion		9.5 (17.4)	2.5 (0.9)	4.6 (6.1)		0 (0)	6.5 (24.4)
tile drainages		0.3 (0.6)	0.3 (0.1)				0.2 (0.7)
groundwater & interflow		6.4 (11.6)	7.1 (2.5)	4.9 (6.6)	9.1 (1.7)	5.3 (0.1)	6 (22.5)
urban systems					28.4 (5.3)		1.4 (5.3)
sewer systems					21.2 (3.9)		
DCTP					7.2 (1.3)		
point sources					181.9 (33.7)		9 (33.7)
<b>Total</b>	<b>21.6 (0.8)</b>	<b>20.1 (36.6)</b>	<b>13.8 (4.9)</b>	<b>12.6 (17)</b>	<b>219.3 (40.6)</b>	<b>7.2 (0.1)</b>	<b>26.6 (100)</b>

Table VI.25: Slovak Republic– vision 2

Land/use	WSA	Arable	Grassland	Forest	Urban area	Other Areas	Total	
are in km <sup>2</sup>		81.4	6080.7	833.7	7788.1	969.5	48.2	15801.5
area share in %		0.5	38.5	5.3	49.3	6.1	0.3	100
Nitrogen	WSA	Arable	Grassland	Forest	Urban area	Other Areas	Total	
atmospheric deposition	17 (1.2)							0.1 (1.2)
surface run-off		0.9 (4.9)	0.7 (0.6)	0.7 (4.9)		0.7 (0)		0.7 (10.3)
erosion		0.4 (2)	0.1 (0)	0.1 (0.6)		0 (0)		0.2 (2.6)
tile drainages		2.9 (15.9)	0.7 (0.5)					1.2 (16.5)
groundwater & interflow		4.4 (23.9)	4.8 (3.6)	4.1 (29.1)	4.7 (4.1)	9.9 (0.4)		4.3 (61.2)
urban systems					0.8 (0.7)	0 (0)		0 (0.7)
sewer systems					0.5 (0.5)			
DCTP					0.3 (0.2)			
point sources					8.6 (7.5)			0.5 (7.5)
Total	17 (1.2)	8.5 (46.7)	6.3 (4.7)	4.9 (34.5)	14.1 (12.3)	10.6 (0.5)		7 (100)
Phosphorus	WSA	Arable	Grassland	Forest	Urban area	Other Areas	Total	
atmospheric deposition	41.4 (0.7)							0.2 (0.7)
surface run-off		6.1 (7.3)	6.1 (1)	3.1 (4.8)		1.5 (0)		4.2 (13.2)
erosion		31.4 (38)	4.4 (0.7)	5 (7.7)		0 (0)		14.8 (46.5)
tile drainages		2.9 (3.6)	2.8 (0.5)					1.3 (4)
groundwater & interflow		5.4 (6.6)	5.8 (1)	5 (7.8)	10.8 (2.1)	6.3 (0.1)		5.6 (17.5)
urban systems					14.5 (2.8)	0 (0)		0.9 (2.8)
sewer systems					7.3 (1.4)			
DCTP					7.2 (1.4)			
point sources					79.5 (15.4)			4.9 (15.4)
Total	41.4 (0.7)	45.9 (55.5)	19.2 (3.2)	13.1 (20.3)	104.9 (20.2)	7.8 (0.1)		31.8 (100)

Table VI.26: Ukraine – vision 2

Land-use	WSA	Arable	Grassland	Forest	Urban area	Other Areas	Total
area in km <sup>2</sup>	27.7	3312.9	67.1	9311.5	34.8	11.3	12765.3
area share in %	0.2	26.0	0.5	72.9	0.3	0.1	100
Nitrogen	WSA	Arable	Grassland	Forest	Urban area	Other Areas	Total
atmospheric deposition	34.4 (0.9)						0.1 (0.9)
surface run-off		1.3 (4.2)	1.2 (0.1)	1.1 (10.4)		1.4 (0)	1.2 (14.7)
erosion		0.1 (0.5)	0 (0)	0.1 (0.6)		0 (0)	0.1 (1.1)
tile drainages		0.4 (1.2)	0.1 (0)				0.1 (1.2)
groundwater & interflow		6.2 (20.2)	7.5 (0.5)	4.7 (42.8)	50.1 (1.7)	3.2 (0)	5.2 (65.3)
urban systems					35.2 (1.2)	0 (0)	0.1 (1.2)
sewer systems					8.2 (0.3)		
DCTP					26.9 (0.9)		
point sources					458.2 (15.6)		1.2 (15.6)
<b>Total</b>	<b>34.4 (0.9)</b>	<b>8 (26.1)</b>	<b>8.9 (0.6)</b>	<b>5.9 (53.8)</b>	<b>543.5 (18.5)</b>	<b>4.5 (0.1)</b>	<b>8 (100)</b>
Phosphorus	WSA	Arable	Grassland	Forest	Urban area	Other Areas	Total
atmospheric deposition	95.4 (0.5)						0.2 (0.5)
surface run-off		6.5 (4)	8 (0.1)	5.8 (9.9)		7.2 (0)	6 (14)
erosion		8 (4.9)	1.9 (0)	4 (6.9)		0 (0)	5 (11.8)
tile drainages		0.4 (0.2)	0.5 (0)				0.1 (0.2)
groundwater & interflow		10 (6.1)	12.7 (0.2)	7.6 (13.1)	199.3 (1.3)	9.3 (0)	8.8 (20.6)
urban systems					235.8 (1.5)	0 (0)	0.6 (1.5)
sewer systems					111.9 (0.7)		
DCTP					123.9 (0.8)		
point sources					8014.1 (51.3)		21.8 (51.3)
<b>Total</b>	<b>95.4 (0.5)</b>	<b>24.9 (15.2)</b>	<b>23.1 (0.3)</b>	<b>17.4 (29.9)</b>	<b>8449.2 (54.1)</b>	<b>16.5 (0)</b>	<b>42.5 (100)</b>

Table VI.27: Hungary – vision 2

Land-use	WSA	Arable	Grassland	Forest	Urban area	Other Areas	Total
area in km <sup>2</sup>	748.3	28359.4	3984.0	9511.6	2439.8	326.5	45369.5
area share in %	1.6	62.5	8.8	21.0	5.4	0.7	100
Nitrogen	WSA	Arable	Grassland	Forest	Urban area	Other Areas	Total
atmospheric deposition	6.9 (2.8)						0.1 (2.8)
surface run-off		0.7 (11.3)	0.7 (1.6)	0.5 (2.8)		0.6 (0.1)	0.6 (15.9)
erosion		0 (0.3)	0 (0)	0 (0.1)		0 (0)	0 (0.4)
tile drainages		0.1 (0.9)	0 (0)				0 (0.9)
groundwater & interflow		2.8 (43.8)	3.6 (7.9)	2 (10.4)	2 (2.7)	8.9 (1.6)	2.7 (66.5)
urban systems					1.9 (2.5)	0 (0)	0.1 (2.5)
sewer systems					1.7 (2.2)		
DCTP					0.2 (0.3)		
point sources					8.2 (11)		0.4 (11)
Total	6.9 (2.8)	3.6 (56.4)	4.4 (9.6)	2.6 (13.3)	12.1 (16.2)	9.5 (1.7)	4 (100)
Phosphorus	WSA	Arable	Grassland	Forest	Urban area	Other Areas	Total
atmospheric deposition	18.1 (1.7)						0.3 (1.7)
surface run-off		3.3 (11.5)	4 (2)	2 (2.4)		1.7 (0.1)	2.8 (16)
erosion		1.8 (6.5)	0.5 (0.3)	1.2 (1.5)		0 (0)	1.5 (8.2)
tile drainages		0.1 (0.2)	0.1 (0)				0 (0.2)
groundwater & interflow		6.3 (22.2)	7.7 (3.8)	4 (4.8)	5.7 (1.7)	5.2 (0.2)	5.8 (32.8)
urban systems					43.4 (13.2)	0 (0)	2.3 (13.2)
sewer systems					36 (11)		
DCTP					7.4 (2.3)		
point sources					91.4 (27.9)		4.9 (27.9)
Total	18.1 (1.7)	11.4 (40.4)	12.3 (6.1)	7.3 (8.7)	140.5 (42.8)	6.9 (0.3)	17.6 (100)

Table VI.28: Romania – vision 2

Land-use	WSA	Arable	Grassland	Forest	Urban area	Other Areas	Total
area in km <sup>2</sup>	505.4	29035.3	9422.7	28531.9	3670.9	245.9	71412.1
area share in %	0.7	40.7	13.2	40.0	5.1	0.3	100
Nitrogen	WSA	Arable	Grassland	Forest	Urban area	Other Areas	Total
atmospheric deposition	7.7 (1.1)						0.1 (1.1)
surface run-off		0.7 (5.9)	0.6 (1.7)	0.7 (5.3)		0.7 (0)	0.7 (12.9)
erosion		0.2 (1.7)	0 (0.1)	0.1 (0.8)		0 (0)	0.1 (2.6)
tile drainages		0.1 (1.2)	0 (0.1)				0.1 (1.3)
groundwater & interflow		3.7 (29.5)	4.1 (10.7)	3 (24)	3.4 (3.4)	5.7 (0.4)	3.4 (68.1)
urban systems					0.4 (0.5)	0 (0)	0 (0.5)
sewer systems					0.4 (0.4)		
DCTP					0 (0)		
point sources					13.3 (13.6)		0.7 (13.6)
<b>Total</b>	<b>7.7 (1.1)</b>	<b>4.7 (38.2)</b>	<b>4.8 (12.6)</b>	<b>3.8 (30.1)</b>	<b>17.2 (17.5)</b>	<b>6.4 (0.4)</b>	<b>5 (100)</b>
Phosphorus	WSA	Arable	Grassland	Forest	Urban area	Other Areas	Total
atmospheric deposition	21.3 (0.5)						0.2 (0.5)
surface run-off		3.3 (4.8)	3.6 (1.7)	2.7 (3.8)		1.8 (0)	2.9 (10.3)
erosion		15.6 (22.4)	3.3 (1.5)	5.8 (8.2)		0 (0)	9.1 (32.2)
tile drainages		0.1 (0.2)	0.2 (0.1)				0.1 (0.3)
groundwater & interflow		6.3 (9.1)	7 (3.3)	4.3 (6.1)	9.1 (1.7)	5 (0.1)	5.7 (20.2)
urban systems					16.1 (2.9)	0 (0)	0.8 (2.9)
sewer systems					10.1 (1.8)		
DCTP					6 (1.1)		
point sources					184.7 (33.6)		9.5 (33.6)
<b>Total</b>	<b>21.3 (0.5)</b>	<b>25.4 (36.5)</b>	<b>14 (6.5)</b>	<b>12.9 (18.2)</b>	<b>209.9 (38.2)</b>	<b>6.8 (0.1)</b>	<b>28.3 (100)</b>

Table VI.29: Serbia – vision 2

Land-use	WSA	Arable	Grassland	Forest	Urban area	Other Areas	Total
area in km <sup>2</sup>	224.5	9099.0	296.5	584.2	575.5	93.1	10872.8
area share in %	2.1	83.7	2.7	5.4	5.3	0.9	100
Nitrogen	WSA	Arable	Grassland	Forest	Urban area	Other Areas	Total
atmospheric deposition	6.7 (2.6)						0.1 (2.6)
surface run-off		0.8 (13.4)	0.7 (0.4)	0.7 (0.7)		0.7 (0.1)	0.8 (14.7)
erosion		0 (0)	0 (0)	0 (0)		0 (0)	0 (0)
tile drainages		0.1 (1.6)	0 (0)				0.1 (1.6)
groundwater & interflow		3.2 (50.1)	3.2 (1.6)	2.2 (2.3)	3 (3)	11.5 (1.9)	3.1 (58.8)
urban systems					1.7 (1.7)	0 (0)	0.1 (1.7)
sewer systems					1.7 (1.7)		
DCTP					0 (0)		
point sources					20.5 (20.6)		1.1 (20.6)
<b>Total</b>	<b>6.7 (2.6)</b>	<b>4.1 (65)</b>	<b>3.9 (2)</b>	<b>2.9 (3)</b>	<b>25.2 (25.3)</b>	<b>12.2 (2)</b>	<b>5.3 (100)</b>
Phosphorus	WSA	Arable	Grassland	Forest	Urban area	Other Areas	Total
atmospheric deposition	17.5 (1.4)						0.4 (1.4)
surface run-off		4.9 (15.3)	4.9 (0.5)	2.5 (0.5)		2.2 (0.1)	4.4 (16.4)
erosion		0 (0)	0 (0)	0 (0)		0 (0)	0 (0)
tile drainages		0.1 (0.3)	0.1 (0)				0.1 (0.3)
groundwater & interflow		6.1 (19)	6.1 (0.6)	4.1 (0.8)	8.7 (1.7)	5.8 (0.2)	6 (22.4)
urban systems					53.9 (10.7)	0 (0)	2.9 (10.7)
sewer systems					47.6 (9.4)		
DCTP					6.3 (1.3)		
point sources					246.3 (48.9)		13 (48.9)
<b>Total</b>	<b>17.5 (1.4)</b>	<b>11 (34.6)</b>	<b>11.1 (1.1)</b>	<b>6.6 (1.3)</b>	<b>308.9 (61.3)</b>	<b>8 (0.3)</b>	<b>26.7 (100)</b>

## 6.3 Short report from 1<sup>st</sup> of December 2017

- Data input for MONERIS –

1) Hydrological data

2) Land use data

3) Next steps

### 1) Hydrological data

New hydrological data was provided by Romania and Slovak Republic. In table VI.30, locations of the new stations and the neighboring stations of the 2014 Danube project are shown. The comparison of monthly means of the neighboring stations revealed strong deviations (Fig. VI.2) which are apparently not explainable by the hydrology but rather by differing measuring methods of the different countries.

*Table VI.30: New hydrological stations*

Hydrological station	Country	Analytical unit ID	Temporal resolution discharges	Adjacent of hydrological station downstream	Hungarian Approx. distance between hydrological stations km
RO12	Romania	324	Daily	HU11	4.0
RO13	Romania	410	Daily	HU12	3.0
RO15	Romania	430	Daily	HU14	0.4
SK9	Slovak Republic	4062	Daily	HU8	1.0

In order to be able to proceed with the setup of the model a decision is needed how to handle these inaccuracies. The inconsistency in the data needs to be taken into account in the setup of the model. Following options are possible to deal with the inconsistencies:

- 1) Neglect the differences and use the old stations used in the Danube project for hydrological calibration
- 2) Use the new stations for hydrological calibration of the model
- 3) Use arithmetic means of both stations for the hydrological calibration of the model

An advantage of the use of the new hydrological stations is the higher resolution of water quality data available for the Romanian stations (24 values per year) in comparison to the stations in Hungary (12 values per year). Additionally, new hydrological data was delivered for the Slovakian stations SK10, SK11, SK12 (corresponding analytical unit IDs: 4065, 4074, 4088). A comparison of the measured discharges with the modeled discharges revealed partly high deviations. Thus, we would suggest a new hydrological calibration also including stations SK10, SK11 and SK12.

**IMPORTANT:** Please inform us until 15<sup>th</sup> of December 2017: 1) which option we should choose and 2) whether we should include stations SK10, SK11 and SK12 in the hydrological calibration.



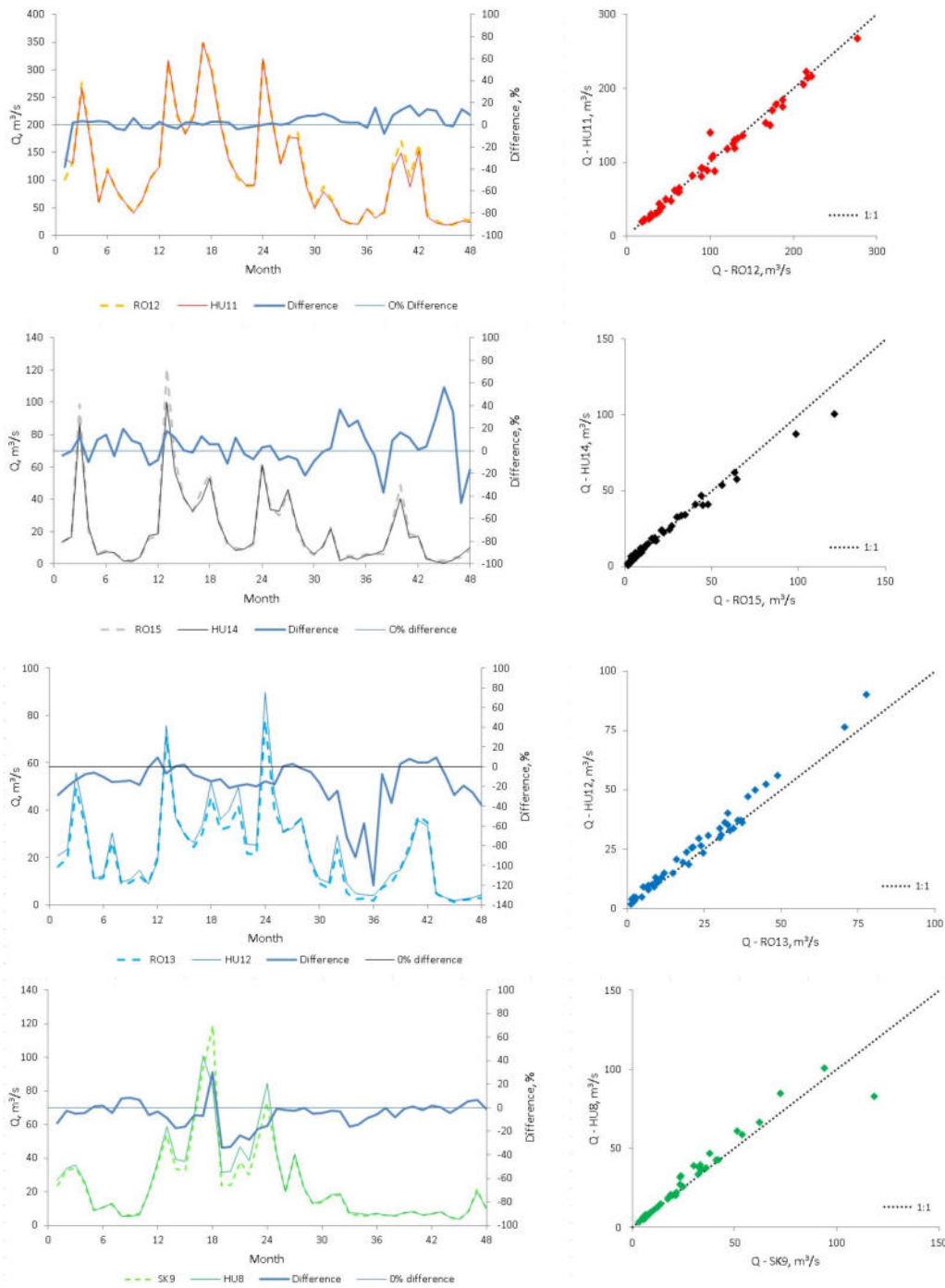


Figure VI.2: Comparison of average monthly discharges in neighbor stations (see Table 1):  $Q$ =discharge, difference =  $(Q_{upstream} - Q_{downstream}) / (Q_{upstream}/100)$ , Month 1 = January 2009, Month 48 =December 2012.

## 2) Land use

We compared the newest land use datasets available for the Tisza region with the input data (Table VI.31) used for the Danube 2014 setup of MONERIS. Differences were predominantly found in Romania and Serbia (Fig. VI.3). They are due to technical reasons rather than changes in land use (data shift in Serbia, vector instead of raster data in Romania) and provide a more precise dataset than the one used in the Danube 2014 setup. Therefore, we decided to update the land use and soil loss values in the MONERIS database

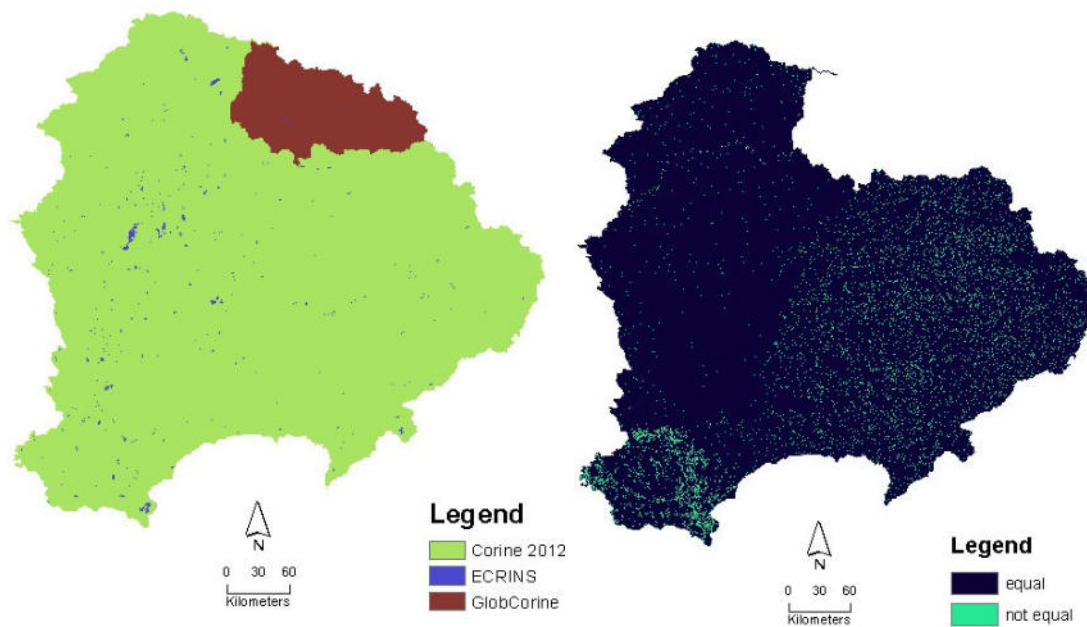


Figure VI.3: Land use data: a) Overview over data sources b) Difference of Corine Land Cover 2012 in comparison to the Danube 2014 project.

Table VI.31: Land use datasets used as input data

Dataset	Spatial resolution	URL	Used for
Corine Land Cover (CLC) 2012, Version 18.5.1	100m	<a href="http://land.copernicus.eu/pan-european/corine-land-cover/clc-2012/view">http://land.copernicus.eu/pan-european/corine-land-cover/clc-2012/view</a>	All Tisza, except Ukraine
GlobCorine 2009	300m	<a href="http://dup.esrin.esa.int/page_project114.php">http://dup.esrin.esa.int/page_project114.php</a>	Ukraine
ECRINS		<a href="https://www.eea.europa.eu/data-and-maps/data/european-catchments-and-rivers-network#tab-gis-data">https://www.eea.europa.eu/data-and-maps/data/european-catchments-and-rivers-network#tab-gis-data</a>	All Tisza

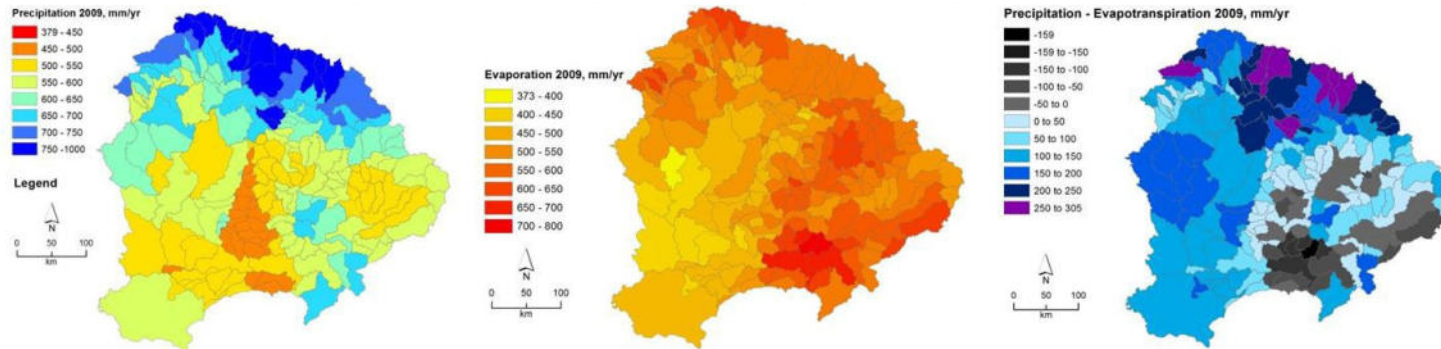
## 3) Next steps

In accordance with latest approaches used in the MARS project, the next steps will be:

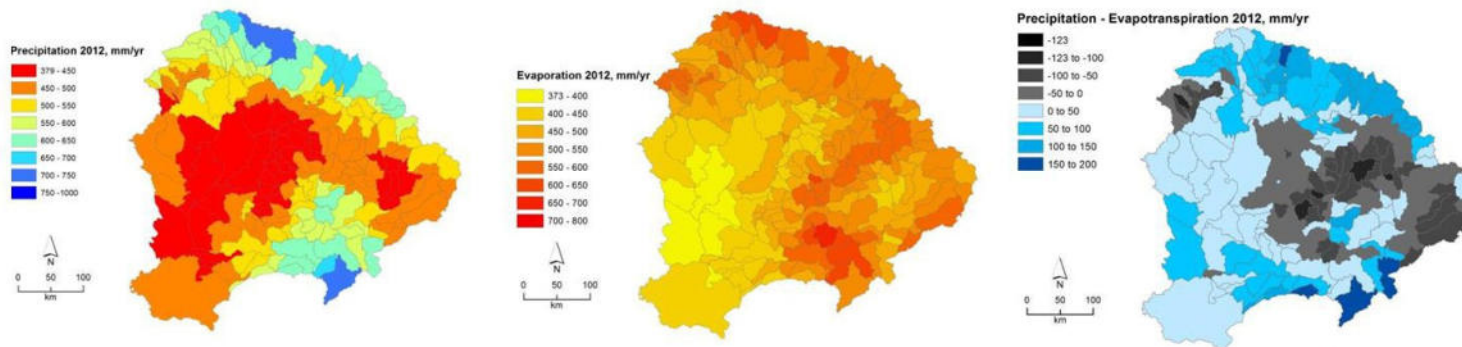
- 1) Update of the land use and soil loss values in the MONERIS database
- 2) Derivation of N surplus

## 6.4 Short report from 1<sup>st</sup> of February 2018

### Precipitation, Evapotranspiration and Precipitation – Evapotranspiration 2009



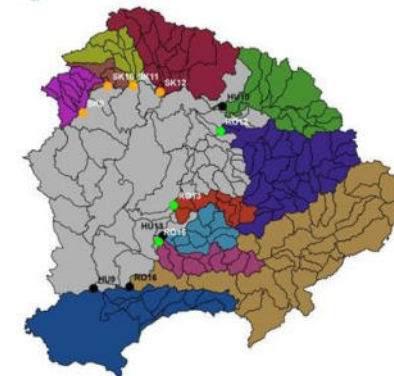
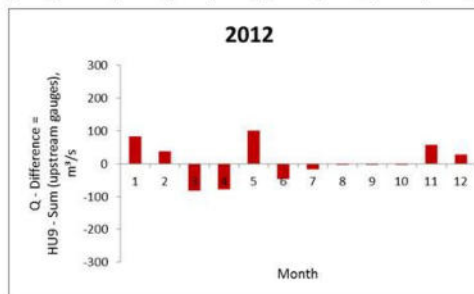
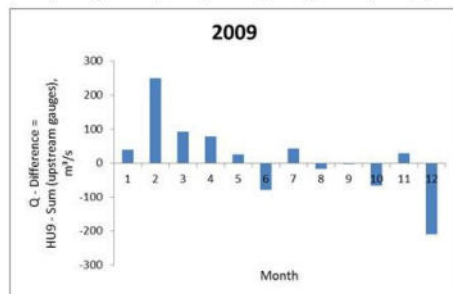
### Precipitation, Evapotranspiration and Precipitation – Evapotranspiration 2012



### Water balances for 2009 and 2012 between HU9 and upstream gauges (monthly means):

Q-difference=

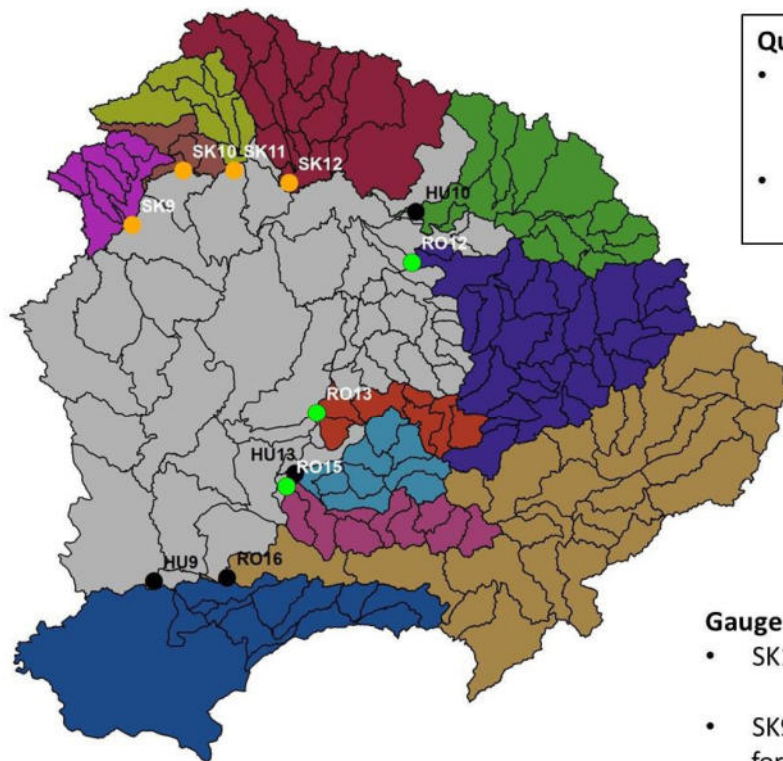
$$Q(\text{HU9}) - [(Q(\text{HU10}) + Q(\text{RO12}) + Q(\text{RO13}) + Q(\text{HU13}) + Q(\text{RO15}) + Q(\text{RO16}) + Q(\text{SK9}) + Q(\text{SK10}) + Q(\text{SK11}) + Q(\text{SK12}))]$$



(larger figure: see next slide)

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### Gauges with corresponding analytical units



#### Questions:

- Are the negative water balances explainable by water extractions (e.g. by agriculture) in the grey marked analytical units?
- Could you provide or indicate us a dataset to verify this assumption?

#### Gauges:

- SK10, SK11, SK12: new implemented gauges
- SK9, RO12, RO13, RO15 : gauges that are substituting former Hungarian gauges
- HU9, RO16, HU13, HU10: gauges also used in Danube 2014 model setup

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Partners: General Directorate of Water Management, Hungary | Global Water Partnership Central and Eastern Europe, Slovakia | International Commission for the Protection of the Danube River, Austria | Ministry of Water and Forest, Romania | Ministry of Foreign Affairs and Trade, Hungary | National Administration "Romanian Waters", Romania | National Institute of Hydrology and Water Management, Romania | Public Water Management Company "Vode Vojvodine", Serbia | Regional Environmental Center for Central and Eastern Europe, Hungary | The Jaroslav Černi Institute for the Development of Water Resources, Serbia | Water Research Institute, Slovakia | World Wide Fund for Nature Hungary

Associated Partners: Interior Ministry, Hungary | Ministry of Agriculture and Environmental Protection Water, Serbia | Secretariat of the Carpathian Convention (SCC), Austria | State Agency of Water Resources of Ukraine | Tisza River Basin Water Resources Directorate, Ukraine







# Draft Updated Integrated Tisza River Basin Management Plan

Annex 3. Summary on elaboration of  
inventories on priority substances emission,  
discharges and losses



Project co-funded by the European Union (ERDF, IPA funds)

## Questionnaires

No	Question /Country	Ukraine	Romania	Slovakia	Hungary	Serbia
1.	<p><b>EU MS: what is the current status of the elaboration of the PS EDL inventory and when will the assessments be available?</b></p> <p><b>Non-EU MS: is there any similar activity on-going or planned?</b></p>	<p>In Ukraine inventory of polluting substances in Tisza basin is done by the Department of use and monitoring of water resources of Tisza river basin authority annually. For this, a special form (ZTP Vodhoz) is used.</p> <p>From 2019 with adoption of the new Decree on State Water Monitoring, a new WFD compliant inventory will be applied.</p>	<p>The first Priority Substances EDL inventory has been achieved in 2013 based on data for the period 2009-2011, followed by the second PS EDL inventory in 2014 with data from 2012-2013, according to the EQS Directive and the WFD CIS Guidance Document no. 28 requirements. Presently, we are in process to update it with new data and information.</p>	<p>Elaboration of the 1<sup>st</sup> PS EDL inventory has been achieved in 2013 based on data for the period 2009-2011.</p>	<p>1<sup>st</sup> EDL Inventory had been published in the 2<sup>nd</sup> River Basin Management Plan of Hungary by the end of 2015. Results are public and available here: <a href="http://www.vizugy.hu/vizstrategia/documents/988BF7DB-B869-46C6-9463-E9E4BFC81D2A/3_6_Hatteranyag_Veszelyesanyagok.zip">http://www.vizugy.hu/vizstrategia/documents/988BF7DB-B869-46C6-9463-E9E4BFC81D2A/3_6_Hatteranyag_Veszelyesanyagok.zip</a></p>	<p>Harmonisation and implementation of legal acts with EU water legislation is envisaged for the period 2018-2021.</p> <p>The responsible institution for implementation of EQSD and PS inventory is the Ministry of Environmental protection.</p> <p>Data collection activities are initiated and Inventory is under development</p>
2.	<p><b>Which point sources are involved into the assessments?</b></p> <p><b>How are the emissions quantified?</b></p>	<p>All legal entities which discharge wastewaters are considered as point sources. The emissions are quantified as difference between the maximum admissible concentrations and real values.</p>	<p>All monitored point sources of pollution discharges are considered in assessment. The emissions are quantified according to the national methodology. The methodology is developed based on the WFD CIS</p>	<p>Into assessment industrial facilities, E-PRTR were involved. (UWWTD data lack information on pollution by PS). Point sources emissions were quantified on the base of effluent measurements.</p>	<p>UWWTPs, industrial and other facilities (every facility with above 15 m<sup>3</sup> waste water discharge/operative days, not just E-PRTR). Emission quantification was based on influent-effluent measures and emission factors in case of UWWTPs, in case of industrial facilities only effluent measures were addressed.</p>	<p>not defined yet</p>

			Guidance Document no. 28 recommendations.			
3.	<b>Do you address PS diffuse pollution? How do you assess the diffuse emissions?</b>	Diffuse pollution is not addressed at the moment. No modelling is applied as well.	Yes. The diffuse emissions are assessed according to the Guidance Document no 28 on the Preparation of an Inventory of Emissions, Discharges and Losses of Priority and Priority Hazardous Substances recommendation. The diffuse load was estimated as the difference between the total riverine load and the load discharged from point sources.	PS diffuse pollution was addressed. Diffuse loads were calculated by formula: $L_{dif} = L_y$ (total riverine load) – $D_p$ (total point source discharge) – $L_b$ (natural background load) The quantification of emissions, discharges and losses was carried out by calculating of the riverine load (by OSPAR, 2004 equation - recommended by technical guidance) and then by linking results with existing information on the pollution sources or eventually with natural background. For metals the natural background concentrations - developed for each of the WB, were taken into account. In case of synthetic substances - for level of background concentration, half of the limit of quantification (0,5LOQ) have been used.	In general, diffuse emissions were calculated according to riverine load approach. Based on available data we addressed different pathways of HS: air deposition, groundwater and transportation. Air deposition loads were calculated based on data of European Monitoring and Evaluation Programme and CORINE Land Cover. HS groundwater loads were estimated based on interflow data and concentrations of the infiltration area. HS loads from transportation were estimated based on the following data: number of motor vehicles and emission factors of toxic metal loads from break wear, tire wear and exhaust gases. The estimation method was developed by Péter Budai <sup>1</sup> in 2011.	<b>NA</b>

<sup>1</sup> [http://www.omikk.bme.hu/collections/phd/Epitomernoki\\_Kar/2011/Budai\\_Peter/ertekezes.pdf](http://www.omikk.bme.hu/collections/phd/Epitomernoki_Kar/2011/Budai_Peter/ertekezes.pdf)

4.	<p><b>Which pollutants/pollutant groups have been involved to the emission assessments?</b></p>	<p>The form 2-TP includes the following substances:          Nitrogen group (nitrogen total, nitrogen ammonia, nitrates, nitrites)          Phosphorus group (phosphates, total phosphorus)          Organic pollution (BOD, COD)          General physical-chemical parameters (dry residue, suspended solids, chlorides, sulphates)          Specific substances (Synthetic surface-active substances, oil products, heavy metals).          In total, 56 pollution substances should be identified. But at present Tisza basin authority laboratory cannot make needed analysis.</p>	<p>All PS according to Annex 1, Part A of the EQS Directive 2008/105/EU for which monitoring data were available.</p>	<p>Relevance substances for RBD and sub-basins. They were identified on the base of following criteria:          i.) the substance causing the failure state of at least one water bodies          ii.) the average concentration of the substance is over half EQS in more than one waterbody          iii.) Data from E-PRTR and national Central water database (SEV) confirm the release, which could lead to a concentration corresponding to the above criteria,          iv.) there are known sources and activities causing inputs to the basin that could lead to a concentration corresponding to the above criteria.</p>	<p>Involved pollutants in the Tisza RB: specific pollutants (Zn, Cr, Cu, As), heavy metals (Pb, Ni, Hg, Cd), PAHs( anthracene, flouranthene, total Benzo(b)fluor-anthene + benzo(k)fluor-anthene, benzo(a)pyrene), pesticides (atrazine, hexachlorobenzene ), other industrial pollutants (dichloroethane, phenols , AOX)</p>	<p><b>NA</b></p>
5.	<p><b>Which pollutants/pollutant groups have been measured in the water bodies? What kind of monitoring is used? Is the data frequency</b></p>	<p><b>According to the Programme of State Water Monitoring</b> laboratory of Tisza basin authority had analyzed pollutants at 32 stations.           The pollutants include</p>	<p>The inventory was developed for 33 PS, except Brominated diphenylethers, Chloroalkanes, Tributyltin compounds and pentachlorophenol, (which are included in monitoring programme since</p>	<p>Priority substances and substances relevant for SK. Mostly surveillance and operational monitoring. For assessment of chemical status are measured all priority substances, frequency is one in month, 12 per year. River basin specific</p>	<p>All parameters of Directive 2008/105/EC were measured (at least by one of the stations) except of tributyltin-cation, chloroalkanes, total cyclodiene pesticides, brominated diphenylethers. Data of surveillance monitoring stations on the national border was used in the Tisza RB (12 samples/year). Riverine load approach cannot be</p>	<p>All 33 Priority and priority hazardous substances have been measured in surface and ground water bodies.           Annual Monitoring program on selected water bodies with mostly monthly ferevencies. Currently monitoring network covers only 24% of SWB and 20% of GWB.</p>

	<p><b>appropriate for load calculations?</b></p>	<p><i>Chemical and physical-chemical parameters</i> Temperature, dissolved oxygen, mineralization. specific conductivity; electric conductivity, pH; BOD, COD, N total, N ammonia, N nitrite, N nitrate, P total, P phosphates.</p> <p><b>Specific synthetic pollutants</b> (surface active specific substances, oil products) <b>Specific non-synthetic pollutants</b> (heavy metals) In practice it is surveillance monitoring. 12 times per year. Monthly – only drinking water sources.</p> <p>The network is not sufficient for load calculations, especially for small rivers.</p> <p>Monitoring of the small rivers is limited to background concentrations measurements prior development of reference values of</p>	<p>2016) where monitoring data were available. The used data resulted from the surveillance and operational monitoring, depending on the status of water bodies, with frequency according to the WFD.</p>	<p>pollutants are measured in the relevant water bodies, where are discharged.</p>	<p>applied properly in Hungary (see question 7), increase of sampling frequency may not give more accurate results or may not be economical.</p>	<p>Load calculations would be possible only for large rivers.</p>
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		the maximum admissible concentrations.				
6.	<b>What particular substances have been found of national importance?</b>	Not identified.	The following substances have been identified as relevant at the national level: Cd, Pb, Hg, Ni.	Following the requirements of the European Water Framework Directive (WFD), a process of selecting relevant dangerous substances and developing a related Pollution Reduction Programme (PRP) has started in the Slovak Republic in 2001. Based on the results of a three years investigative screening campaign, 59 chemical substances were identified as relevant dangerous substances in 2004 and included in the national PRP. From this list of 59 chemical substances, 33 priority substances were already included in the EQS Directive (2008/105/EC). The remaining 26 relevant dangerous substances were assigned as river basin specific pollutants (Annex VIII substances of the WFD) for the Slovak Republic. Priority substances significant for SK part of the Tisza RB are: Atrazine, , p.p. DDT, Dichloromethane, DEHP,	Relevant substances on national level: Cd, Hg, Pb, Ni, diuron, endosulfan, atrazine, lindane, hexachlorobenzene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, anthracene, fluoranthene, nonylphenols, trichloromethane, tetrachloroethylene, DEHP + specific pollutants ( Zn, Cr, Cu, As)	Not identified as such

				<p>PAHs, Trichloromethane, Octylphenols, Hexachlorocyclohexane, Cadmium and its compounds, Mercury and its compounds.</p> <p>From SK relevant substances (identified in 2008) significant for SK part of the Tisza RB are: MCPA, 4-methyl-2,6-di-tert-butylphenol, cyanides, dibutylphthalate, PCB (congeners 28, 52, 101, 118, 138, 153,180), arsenic and its compounds, cuprum and its compounds, zinc and its compounds.</p>		
7.	<p><b>What are the most important problems/gaps identified related to the inventory compilation?</b></p>	<p>1. Absence of the legal basis (it should be solved with the adoption of Decree of State Water Monitoring)</p> <p>2. Absence of national monitoring system, compliant with WFD requirements (to be developed after adoption of the above-mentioned Decree)</p> <p>3. Absence of laboratory equipment</p>	<p>-estimation of the diffuse pollution sources for all pollutants due to the lack of modelling tools.</p> <p>-quantification of the natural backgrounds for some SWBs and the relevant non-synthetic PSs, being available a national methodology which should be updated.</p>	<ul style="list-style-type: none"> <li>insufficiently precise analytical methods for determining some substances as required by Directive 2009/90 / EC laying down further to Directive 2000/60 /EC of the EP and a number of technical requirements for chemical analysis and monitoring of water status</li> <li>absence of data on the concentrations of PS and SK relevant substances identified in 2008) in sediment and biota,</li> <li>insufficient scope of monitoring quality of</li> </ul>	<p>Estimations on diffuse loads have significant uncertainty with the method of riverine load approach. The reason is related to particular geographic and hydrological conditions of Hungary. 95% of water quantity comes from abroad therefore national contribution is very small. Riverine loads based on the difference between inflow and outflow loads cannot be calculated accurately because the error of the estimation exceeds the national contribution. Difficulties related to surface water monitoring system are heterogeneous list of measured parameters and different</p>	<p>The most important gaps are Data availability and Insufficient monitoring network</p>

			<p>discharged waste water in relation to PS and SK relevant substances (legislation lacks a tool for compulsory periodic updating of indicators of the pollution - monitoring the full range of PS and SK RS as part of the renewal of the authorization for the discharge of wastewater)</p> <ul style="list-style-type: none"> <li>• lack of data on air pollution, specific organic substances (PS, SK RS)</li> <li>• comparability of water contamination by heavy metals in the stream, and the waste water discharges. Issued permits for waste water discharge prescribe- the limit values for total form (bound, not only to water but also of suspended solids), in contrast to the requirements for the chemical status of water bodies - where EQS apply to the filtered water. Therefore, it is presently difficult to estimate the contribution from point and diffuse source in the total riverine load.</li> <li>• insufficient information about the</li> </ul>	<p>analytical methods used by national laboratories.</p> <p>To address HS loads by different pathways the available data are often not sufficient. HS pollution occurs in smaller catchments but data are not available on that spatial scale to identify the sources.</p> <p>Other difficulty is because of heterogenic monitoring data: there is no information about HS distribution between different matrixes (sediment, suspended solids, water)</p> <p>Emission and immission data cannot be compared because the measured parameters are different. (E.g. dissolved and total metals).</p>	
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				content of PL and RL pollution in municipal waste water.		
8.	<b>Have specific measures been recommended to control PS emissions?</b>	No	Yes, according to the Article 16 of the WFD, measures have been planned and implemented in order to reduce the pollution with priority substances and to phase out the hazardous priority substances at pollution sources; applying the measures to prevent the deterioration of the chemical status of all water bodies; analysis of the three priority substances (mercury, hexachlorobenzene, hexachlorobutadiene) in biota.	For identified sources of pollution (point and diffuse) measures were proposed. In addition to improve future PS EDL inventory following measures were proposed: <ul style="list-style-type: none"> <li>• reducing the limits LOQ laid down in the case of methods which do not meet the LOQ required by Directive 2010/108 / EC, respectively a switch to other matrix setting of relevant indicators,</li> <li>• introduce monitoring of the organic matter in the monitoring of emissions to air,</li> <li>• creating tools to increase the level of future emissions inventories (e.g. Models, data on the production and use of substances – e.g. Of REACH, from the analysis of substance cycles, production and emission factors).</li> </ul>	Legislative modification is under scientific preparation in order to harmonize the emission control parameters with the EQS Directive. Scientific monitoring program is under preparation for the purpose of identification of HS sources, loads and emission factors.	<p>Harmonisation and implementation of legal acts with EU water legislation is envisaged for the period 2018-2021.</p> <p>The responsible institution for implementation of EQSD and PS inventory is the Ministry of Environmental protection.</p> <p>Data collection activities are initiated and Inventory is under development</p>

#### Project co-funded by the European Union (ERDF, IPA funds)

Partners: General Directorate of Water Management, Hungary | Global Water Partnership Central and Eastern Europe, Slovakia | International Commission for the Protection of the Danube River, Austria | Ministry of Water and Forest, Romania | Ministry of Foreign Affairs and Trade, Hungary | National Administration "Romanian Waters", Romania | National Institute of Hydrology and Water Management, Romania | Public Water Management Company "Vode Vojvodine", Serbia | Regional Environmental Center for Central and Eastern Europe, Hungary | The Jaroslav Černi Institute for the Development of Water Resources, Serbia | Water Research Institute, Slovakia | World Wide Fund for Nature Hungary

Associated Partners: Interior Ministry, Hungary | Ministry of Agriculture and Environmental Protection Water, Serbia | Secretariat of the Carpathian Convention (SCC), Austria | State Agency of Water Resources of Ukraine | Tisza River Basin Water Resources Directorate, Ukraine





# Draft Updated Integrated Tisza River Basin Management Plan

Annex 4. Selected indicators for the  
evolution of agriculture and adopted  
measures in Tisza River Basin countries by  
2015



Table 1.a

Country	Land use development assessment (% change)			Livestock units trends	Inorganic fertilisers application	Nitrogen (N) surplus (trends)	Nitrates Directive implementation		Rural Developmen t Programmes (Axis 2) (mil Euro)
	Cultivated agricultural area	Forestation	Urban area				Year	Vulnerable zones %	
Ukraine	459,9 thousands ha (2015)	723,9 thousands ha (2015)	48 thousands ha (2015)	122,2 thousands (2015)	No official data	No official data	UA is just in the process of Nitrate vulnerable zones designatio n (the relevant legal act should be adopted this year)		Oblast and national rural developmen t programs supporting organic agriculture, wine yards
	452,6 thousand ha (2010)	724,1 thousands ha (2010)	45,8 thousand ha (2010)	148, 1 thousands (2015)					

Country	Land use development assessment (% change)			Livestock units trends	Inorganic fertilisers application	Nitrogen (N) surplus (trends)	Nitrates Directive implementation		Rural Developmen t Programmes (Axis 2) (mil Euro)
	Cultivated agricultural area	Forestation	Urban area				Year	Vulnerable zones %	
<b>Romania</b>	Slightly increasing by 6.82% (based on Statistics: 2006-2015)	Slightly increasing by 1.6% (based on Statistics: 2006-2015)	Increasing by 13% (based on Statistics: 2006-2015)	Increasing by 4.36% but still far behind EU average 20- 25%	Increasing by 1- 2%, but far below the EU average (20- 30%)	It could increase, but N surplus is still very low compared with another EU member	2005-2008 (first action programm e) 2009 - 2013 (second action programm e) 2014 - 2017 (third action programm e)	8.1% (first action plan); 48.3% (second action programme); 100% (third action programme) - whole territory approach	Applied, but no available data yet.
<b>Slovakia</b>	2007-2015 decrease by 1.45%	2007-2015 - increase by 1.01% in TRB	increase by 4.84% in TRB	increase by 0.03 LU/ha of UAA within TRB	increase by 26.54% in TRB	decrease by 16.2% (Gross N balance) in TRB	Implement ed in year 2004;	in 2004-2017 share of vulnerable zones in TRB was 39.2% and since July 2017 it is 35.9%.	In period 2007-2015 (from APA SR): 46, 573,630 € in TRB.

Country	Land use development assessment (% change)			Livestock units trends	Inorganic fertilisers application	Nitrogen (N) surplus (trends)	Nitrates Directive implementation		Rural Developmen t Programmes (Axis 2) (mil Euro)
	Cultivated agricultural area	Forestation	Urban area				Year	Vulnerable zones %	
<b>Hungary</b>	<b>-7,94</b>	<b>3,74</b>	<b>6,9*</b>	<b>stagnant</b>	<b>increasing</b>	<b>decreasing</b>	2015	69	n.d.
<b>Serbia</b>	2007-2015 slightly increased by 0.12% in TRB (calculated for new TRB boundaries in RS)	2007-2015 decreased by 5% (calculated for new TRB boundaries in RS)	2007-2015 increased by 5% in TRB (calculated for new TRB boundaries in RS)	decreased by 5%	No reliable data available.	No data available	Transpositi on of Nitrate Directive is in progress.	NA	NA

\*Eurostat data (2009 to 2015) – Change in built-up areas in NUTS HU3 region

Table 1b.

Country	Afforestation of agricultural land ha /year (2007-2015)	Manure storage capacity (months)	Prohibition periods for applying fertilizer and manure (months)	Limitation of N and phosphorous application		Code of Good Agricultural practices in line with ND requirements (ha)	NVZ (ha) comparison with the values from the ND implementation, respectively similar areas declared	Restrictions of some agricultural activities on slopes (slope in %)
				kg/ha on agricultural land	kg/ha on grassland			
<b>Ukraine</b>	No data	No data		Not controlled		No data	No data	There are legal restrictions, which are not inspected in ground
<b>Romania</b>	a). According to the National Afforestation Program, a surface of 11,292 ha (in average: 1027 ha/year) of degraded land was afforested (2006 – 2015); b). According to the National Program for Rural Development	According to the Action Program for Nitrates Vulnerable Zones (NVZs), the capacity of manure facilities must exceed the necessary storage with one month, considering the longest prohibition	According to the Action Program, the prohibition periods are established for whole territory of Romania. The prohibition periods vary between 4 – 5.5 months depending on crops types and organic	Maximum 170 kg of nitrogen of organic fertilizer per hectare and year for whole territory of Romania	Maximum 170 kg of nitrogen of organic fertilizer per hectare and year for whole territory of Romania	In the process of implementation of the Nitrates Directive, the Code of Good Agricultural Practices (CGAP) has been elaborated. The provisions of the CGAP are mandatory for whole territory of Romania (including TRB). Presently, the	Since December 2008, at the national level, the NVZs surface was about 137,500 km <sup>2</sup> , which was representing 57.7 % of the total national territory. In the Tisza RB, the NVZs surface was about 35,049 2km, representing	The Action Program stipulates among others the following aspects: (1) On the arable land with slope < 8%, it is recommended the preservation of autumn crops and winter cover crops at minimum 20% from the arable land. (2) On the

Country	Afforestation of agricultural land ha /year (2007-2015)	Manure storage capacity (months)	Prohibition periods for applying fertilizer and manure (months)	Limitation of N and phosphorous application		Code of Good Agricultural practices in line with ND requirements (ha)	NVZ (ha) comparison with the values from the ND implementation, respectively similar areas declared	Restrictions of some agricultural activities on slopes (slope in %)
				kg/ha on agricultural land	kg/ha on grassland			
	(Measure 221: first afforestation of agricultural land) a surface of 265.7 ha (in average: 38 ha/year) agricultural land was afforested, for the period 2007-2015. c). In general, the authorities' statistics show that between 2006– 2015 the forest surface increased by 1.6%, respectively by 32,680 ha.	period for applying fertilizers (for example: if the prohibition period is of 5.5 months, the manure facility must have a capacity to store the quality of manure collected for 6.5 months).	fertilizer types.			process of revision of the Code of Good Agricultural Practices (CGAP) is ongoing.	about 48.3 % of the Tisza RB. Starting from June 2013 whole territory approach is applied, meaning that the AP and CGAP are applied throughout whole Romania's territory.	arable land with slope between 8 and 12 %, it is recommended the preservation of autumn crops and winter cover crops at minimum 25% from the arable land. On the arable land with slope > 12 %, it is recommended the preservation of autumn crops and winter cover crops at minimum 30% from the arable land. On these sloping lands, fertilizer application is only permitted by



Country	Afforestation of agricultural land ha /year (2007-2015)	Manure storage capacity (months)	Prohibition periods for applying fertilizer and manure (months)	Limitation of N and phosphorous application		Code of Good Agricultural practices in line with ND requirements (ha)	NVZ (ha) comparison with the values from the ND implementation, respectively similar areas declared	Restrictions of some agricultural activities on slopes (slope in %)
				kg/ha on agricultural land	kg/ha on grassland			
								incorporation into the soil immediately after application (no later than 24 hours). When intense precipitation is predicted, no fertilizers are allowed to be applied, especially liquid effluents.
<b>Slovakia</b>	2 853 ha (estimation for TRB)	Storage capacity for animal manure should be at least for 6 months. In the case the storage capacity is lower, farmer	This period is specified according to land category (arable land; permanent grasslands), category of farming restriction as well as	In the case of nitrogen, it is: 1) ND limit (170 kg N/ha in animal manure) valid for whole agricultural land in defined vulnerable zones, 2) Maximum N rates for individual crops with regard to yield level in defined vulnerable zones, and		Existing Code of Good Agricultural Practice was elaborated in 2001 and via AP was/is obligatory for farmers in ND VZs	Indicator is not clear	Fields with slope over 21.26% (12°) cannot be used as arable land. Application of N fertilizers and animal manure cannot be applied on fields with slope over 17.63% (10°) in

Country	Afforestation of agricultural land ha /year (2007-2015)	Manure storage capacity (months)	Prohibition periods for applying fertilizer and manure (months)	Limitation of N and phosphorous application		Code of Good Agricultural practices in line with ND requirements (ha)	NVZ (ha) comparison with the values from the ND implementation, respectively similar areas declared	Restrictions of some agricultural activities on slopes (slope in %)
				kg/ha on agricultural land	kg/ha on grassland			
		can store liquid or solid animal manure in storage facility of another subject or pass it for another use but up to maximum volume corresponding to three months storage capacity. Temporary storage of FYM on land is also possible under certain conditions.	manure type (liquid animal manure, poultry manure, plus N fertilizers; solid animal manure), and ranges from 2.5 to 4.5 months. Moreover, the farmer, under certain weather conditions, can ask responsible state authority for authorization to apply fertilizer 14 days after the ban fertilizer	3) Maximum single N rate which (according to last AP, incorporated into national Fertilizer Act, it is usually between 40-80 kg N/ha with respect to uptake capacity of given crop). What concerns the P application, P rates in fertilizers are not directly limited – only corrected with regard to available P supply in the soil			the case of arable land and fields with slope over 21.26% on permanent grasslands. On fields of arable land over 8.75% (5°) animal manure and N fertilizes should be applied to sub-surface or incorporate them into soil at latest to 24 hours after application. On permanent grasslands with slope over 12.28% (7°) liquid manure can be applied on to sub-surface. On the agricultural	

Country	Afforestation of agricultural land ha /year (2007-2015)	Manure storage capacity (months)	Prohibition periods for applying fertilizer and manure (months)	Limitation of N and phosphorous application		Code of Good Agricultural practices in line with ND requirements (ha)	NVZ (ha) comparison with the values from the ND implementation, respectively similar areas declared	Restrictions of some agricultural activities on slopes (slope in %)
				kg/ha on agricultural land	kg/ha on grassland			
			application (in the fall) and 14 days before the ban fertilizer application (in the spring).					land near water resources, the use nitrogenous fertilization substances on fields with slope lower than 7° is not allowed in distance from bank line of the watercourse or flood line of the water reservoir (10 m on sites in low and medium level of farming restriction or 20 m on sites in high level of farming restriction). On arable with slope over 7° land is obliged to apply nitrogenous fertilization

Country	Afforestation of agricultural land ha /year (2007-2015)	Manure storage capacity (months)	Prohibition periods for applying fertilizer and manure (months)	Limitation of N and phosphorous application		Code of Good Agricultural practices in line with ND requirements (ha)	NVZ (ha) comparison with the values from the ND implementation, respectively similar areas declared	Restrictions of some agricultural activities on slopes (slope in %)
				kg/ha on agricultural land	kg/ha on grassland			
								substances in distance greater than 25 m from water resource.
<b>Hungary</b>	5335,4	6	3,5*	170 kg N/ha	170 kg N/ha	2.829.500	2.829.500	17,15,12,6**
<b>Serbia</b>	Information not provided							

- **\*Prohibition period 31<sup>st</sup> October – 15<sup>th</sup> February**
- **\*\*above 17% - fertiliser application is prohibited, above 15% - plantation allowed only with erosion control, above 12% - slurry application is prohibited, fertilizers should be processed immediately, above 6% - slurry application is allowed only by injection or sliding pipes**

Table 1.c

Country	Area with organic production (ha)	Measures against erosion: buffer stripes (river in km, of width)	Erosion-minimizing cultivation systems (catch crops) (ha of arable land)	Establishment of wetlands (ha of new wetlands or rehabilitated ones)	Nutrient Balances (% of farmers obliged to do the nutrient balances)	On Farm Advice/Extension Services (no of farmers trained)
<b>Ukraine</b>	No data	There are legal requirements to take measures against erosion, but its application is not measured	No data	2010 - 161,29 thousands ha, 2015 – 163,4 thousands ha	No data	No data
<b>Romania</b>	Area of organic production covers 56,227 ha (2015), representing around 1.5 % of the agricultural area (source: Ministry of Agriculture	The administration of chemical and organic fertilisers and pesticides on agricultural land located near surface waters is forbidden, the buffer strips have a width	Applicable, but no available data yet.	There are measures and research and pre-feasibility studies proposed in the Program of Measures of the National River Basin Management Plan, which will be implemented	All farms with more than 100 animal equivalent units (A.E. = 500 kg) are obliged to elaborate the manure management plans. All farms with more than 8 animal equivalent units should have a Nutrient Register.	In the frame of the project “Integrated Nutrients Pollution Control”, during period 2011-2015, training sessions on implementation of the Nitrates Directive were organized in each River Basin Administration, including those belonging to TRB. The

Country	Area with organic production (ha)	Measures against erosion: buffer stripes (river in km, of width)	Erosion-minimizing cultivation systems (catch crops) (ha of arable land)	Establishment of wetlands (ha of new wetlands or rehabilitated ones)	Nutrient Balances (% of farmers obliged to do the nutrient balances)	On Farm Advice/Extension Services (no of farmers trained)
	and Rural Development)	of: a) 1 m for land with slope < 12%; b) 3 m for land with slope > 12%. To these areas, the protection areas stipulated in the Water Law with a width of 2 - 50 m (depending on the water category, size and uses), are added		particularly in the second and the third planning cycle.		training sessions, workshops, conference, farm-level demonstrations and information and awareness campaigns were addressed to the stakeholders (farmers and their associations, staff of the national, regional and county authorities) involved in the application of the Action Program and the Code of Good Agriculture Practices according to the requirements of Nitrates Directive. Thus, a number of 11,742 participants have been trained in the TRB. Under Measures 111 "Knowledge training, information and dissemination" of the

Country	Area with organic production (ha)	Measures against erosion: buffer stripes (river in km, of width)	Erosion-minimizing cultivation systems (catch crops) (ha of arable land)	Establishment of wetlands (ha of new wetlands or rehabilitated ones)	Nutrient Balances (% of farmers obliged to do the nutrient balances)	On Farm Advice/Extension Services (no of farmers trained)
						National Programme for Rural development, in the Tisza river basin there were assured farm advisory services for around 4850 young farmers and 13447 farmers from uneconomic farms (small individual farms), mainly regarding on Code of Good Agricultural Practices, cross compliance, Code of Good Agricultural and Environmental practices (GAEC), practices for reduction of the soil erosion, rural development measures, etc.
<b>Slovakia</b>	Area of organic agriculture in 2015 was	On arable with slope over 7° land farmer is	No information for TRB is available	No information for TRB is available	Farmers are not obliged to do farm nutrient balance, till now it is voluntary	No information for TRB is available

Country	Area with organic production (ha)	Measures against erosion: buffer stripes (river in km, of width)	Erosion-minimizing cultivation systems (catch crops) (ha of arable land)	Establishment of wetlands (ha of new wetlands or rehabilitated ones)	Nutrient Balances (% of farmers obliged to do the nutrient balances)	On Farm Advice/Extension Services (no of farmers trained)
	59038 ha what represents 6.7% of UAA in TRB	obliged to apply nitrogenous fertilization substances in distance greater than 25 m from water resource; if on these sites are cropped wide-row crops, especially sugar beet, potatoes or maize, he is required keep the anti-erosion measures as follows: 1. to divide arable land sloping to the water resource by				



Country	Area with organic production (ha)	Measures against erosion: buffer stripes (river in km, of width)	Erosion-minimizing cultivation systems (catch crops) (ha of arable land)	Establishment of wetlands (ha of new wetlands or rehabilitated ones)	Nutrient Balances (% of farmers obliged to do the nutrient balances)	On Farm Advice/Extension Services (no of farmers trained)
		transversely stitched belts and create on it anti-erosion boundaries with canopy or other measures with similar effect, 2. between water resource and fertilized field establish the vegetative strip at least 20 m wide with crop which has higher anti-erosion effect, 3. to apply nitrogenous fertilization substances in distance from				

Country	Area with organic production (ha)	Measures against erosion: buffer stripes (river in km, of width)	Erosion-minimizing cultivation systems (catch crops) (ha of arable land)	Establishment of wetlands (ha of new wetlands or rehabilitated ones)	Nutrient Balances (% of farmers obliged to do the nutrient balances)	On Farm Advice/Extension Services (no of farmers trained)
		water resource at least 50 m, or 4. to cover the field outside the vegetation period by vegetation cover.				
<b>Hungary</b>	Data available only on national level	n.d.	n.d.	29.278	0	n.d.
<b>Serbia</b>	Information not provided					

Project co-funded by the European Union (ERDF, IPA funds)

Partners: General Directorate of Water Management, Hungary | Global Water Partnership Central and Eastern Europe, Slovakia | International Commission for the Protection of the Danube River, Austria | Ministry of Water and Forest, Romania | Ministry of Foreign Affairs and Trade, Hungary | National Administration "Romanian Waters", Romania | National Institute of Hydrology and Water Management, Romania | Public Water Management Company "Vode Vojvodine", Serbia | Regional Environmental Center for Central and Eastern Europe, Hungary | The Jaroslav Černi Institute for the Development of Water Resources, Serbia | Water Research Institute, Slovakia | World Wide Fund for Nature Hungary

Associated Partners: Interior Ministry, Hungary | Ministry of Agriculture and Environmental Protection Water, Serbia | Secretariat of the Carpathian Convention (SCC), Austria | State Agency of Water Resources of Ukraine | Tisza River Basin Water Resources Directorate, Ukraine





# Draft Updated Integrated Tisza River Basin Management Plan

## Annex 5. Groundwater bodies of the Tisza River Basin: pressures and measures



Project co-funded by the European Union (ERDF, IPA funds)

## Integrated Tisza River Basin Management Plan (ITRBM Plan) Data Collection - Groundwater

Basis for the Data Collection are the following: The GW TG discussed the modalities of the selection of GW bodies for the level B having on mind the differences in vertical stratification of GW bodies in different countries and came up with the following proposal for selection of GWBs: (1) All GW bodies >1000 km<sup>2</sup>, (2) Those GW bodies important due to various criteria e.g. socio-economic importance, uses, impacts, pressures, interaction with aquatic ecosystems, (3) Most upper levels and the main level GW bodies. (for these two layers the separate pairs of maps should be prepared for chemical and quantitative status presentation) For collection of data on pressures and measures for the Tisza RBMP it was recommended by the GW TG to use the templates prepared for level A. The focus of the data collection is on the whole national part of the Groundwater Body.

Please use for the whole national part of the groundwater body one document and fill in the required information asked for in the templates on GW\_Status, GW\_Measures and on GW\_Pressures

The Tisza Countries are requested to send list of the groundwater bodies, which will be analysed in the frame ITRBM Plan

In case of changes in the Monitoring Network introduced in the map 10b (Tisza Analysis Report - 2007) please indicate it.

### **Groundwater measures**

It is important to mention that all these measures (basic and other basic measures) are taken for all groundwater bodies (even if they are in good status), to prevent deterioration of all groundwater bodies status but also taking into consideration the precautionary principle.



Measures for the protection of water abstracted for drinking water (Article 7) including those to reduce the level of purification required for the production of drinking water (note: these basic measures may not apply to the whole territory)			
Controls over the abstraction of fresh surface water and groundwater and impoundment of fresh surface waters including a register or registers of water abstractions and a requirement for prior authorisation of abstraction and impoundment	x		
Controls, including a requirement for prior authorisation of artificial recharge or augmentation of gw bodies		x	It is no case of the artificial recharges in Romania, so this type of measure is not applicable.
Requirement for prior regulation of point source discharges liable to cause pollution	x		
Prohibition of direct discharge of pollutants into groundwater	x		
Any measures required to prevent significant losses of pollutants from technical installations and to prevent and/or reduce the impact of accidental pollution incidents	x		
<b>Need for Supplementary/Additional Measures WFD Article 11(4) and 11(5)</b>			
Will the basic measures identified above be sufficient to address the significant Pressures		Yes, <del>No</del>	

<b>Name of the Groundwater Body</b>	Locally used name of the Gwbody	<b>Oradea (Campia de Vest)</b>
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<b>EuropeantransboundaryGWBCode</b>	Internationally agreed code for a transboundary GW body e.g. 5 (Mures / Maros) if the concerning GWB is a member of them		<b>ROCR01</b>
<b>EuropeanGWBCode</b>	European code of the GW body e.g. HU_SP.2.16.1		<b>ROCR01</b>
<b>Measures (Basic and other basic measures)</b>			
<b>Basic measures (Directive listed in Annex VI Part A)</b>	<b>Measures implemented to adress ... (tick if yes)</b>	<b>poor status/risk for Quality</b>	<b>poor status/risk for Quantity</b>
			<b>Explanatory Keywords:</b> for non EU-Member States - add information on corresponding national legislation
Drinking Water Directive (80/778/EEC) as amended by Directive (98/83/EC)			
Urban Waste-water Treatment Directive (91/271/EEC)	x		
Plant Protection Products Directive (91/414/EEC)			
Nitrates Directive (91/676/EC)	x		
Habitats Directive (92/43/EEC)			
Integrated Pollution Prevention Control Directive (96/61/EC)			
<b>Other basic measures as required by Article 11(3)(b-I)</b>	<b>Measures implemented to adress ... (tick if yes)</b>	<b>poor status/risk for Quality</b>	<b>poor status/risk for Quantity</b>
			<b>Explanatory Keywords:</b> for non EU-Member States - add information on corresponding national legislation
Measures for the protection of water abstracted for drinking water (Article 7) including those to reduce the level of purification required for the production of drinking water (note: these basic measures may not apply to the whole territory)			
	x		



Controls over the abstraction of fresh surface water and groundwater and impoundment of fresh surface waters including a register or registers of water abstractions and a requirement for prior authorisation of abstraction and impoundment			
Controls, including a requirement for prior authorisation of artificial recharge or augmentation of gwbodyes		x	It is no case of the artificial recharges in Romania, so this type of measure is not applicable.
Requirement for prior regulation of point source discharges liable to cause pollution	x		
Prohibition of direct discharge of pollutants into groundwater			
Any measures required to prevent significant losses of pollutants from technical installations and to prevent and/or reduce the impact of accidental pollution incidents	x		
<b>Need for Supplementary/Additional Measures WFD Article 11(4) and 11(5)</b>			
Will the basic measures identified above be sufficient to address the significant Pressures		Yes, No	

<b>Name of the Groundwater Body</b>	Locally used name of the Gwbody		<b>Valea lui Mihai-Campia de vest</b>
<b>EuropeantransboundaryGWBCode</b>	Internationally agreed code for a transboundary GW body e.g. 5 (Mures / Maros) if the concerning GWB is a member of them		<b>ROCR06</b>



Controls over the abstraction of fresh surface water and groundwater and impoundment of fresh surface waters including a register or registers of water abstractions and a requirement for prior authorisation of abstraction and impoundment			
Controls, including a requirement for prior authorisation of artificial recharge or augmentation of gwbodyes		x	It is no case of the artificial recharges in Romania, so this type of measure is not applicable.
Requirement for prior regulation of point source discharges liable to cause pollution	x		
Prohibition of direct discharge of pollutants into groundwater	x		
Any measures required to prevent significant losses of pollutants from technical installations and to prevent and/or reduce the impact of accidental pollution incidents	x		
<b>Need for Supplementary/Additional Measures WFD Article 11(4) and 11(5)</b>			
Will the basic measures identified above be sufficient to address the significant Pressures		Yes, No	

<b>Name of the Groundwater Body</b>	Locally used name of the Gwbody		<b>Crisuri - Campia de Vest</b>
<b>EuropeantransboundaryGWBCode</b>	Internationally agreed code for a transboundary GW body e.g. 5 (Mures / Maros) if the concerning GWB is a member of them		<b>ROCR07</b>



Controls over the abstraction of fresh surface water and groundwater and impoundment of fresh surface waters including a register or registers of water abstractions and a requirement for prior authorisation of abstraction and impoundment			
Controls, including a requirement for prior authorisation of artificial recharge or augmentation of gwbodyes		x	It is no case of the artificial recharges in Romania, so this type of measure is not applicable.
Requirement for prior regulation of point source discharges liable to cause pollution	x		
Prohibition of direct discharge of pollutants into groundwater	x		
Any measures required to prevent significant losses of pollutants from technical installations and to prevent and/or reduce the impact of accidental pollution incidents	x		
<b>Need for Supplementary/Additional Measures WFD Article 11(4) and 11(5)</b>			
Will the basic measures identified above be sufficient to address the significant Pressures		Yes, No	

<b>Name of the Groundwater Body</b>	Locally used name of the Gwbody		<b>Arad-Oradea-Satu Mare</b>
<b>EuropeantransboundaryGWBCode</b>	Internationally agreed code for a transboundary GW body e.g. 5 (Mures / Maros) if the concerning GWB is a member of them		<b>ROCR08</b>



Controls over the abstraction of fresh surface water and groundwater and impoundment of fresh surface waters including a register or registers of water abstractions and a requirement for prior authorisation of abstraction and impoundment			
Controls, including a requirement for prior authorisation of artificial recharge or augmentation of gwbodyes		x	It is no case of the artificial recharges in Romania, so this type of measure is not applicable.
Requirement for prior regulation of point source discharges liable to cause pollution	x		
Prohibition of direct discharge of pollutants into groundwater	x		
Any measures required to prevent significant losses of pollutants from technical installations and to prevent and/or reduce the impact of accidental pollution incidents	x		
<b>Need for Supplementary/Additional Measures WFD Article 11(4) and 11(5)</b>			
Will the basic measures identified above be sufficient to address the significant Pressures		Yes, No	

<b>Name of the Groundwater Body</b>	Locally used name of the Gwbody		<b>Lunca si terasele Muresului Superior</b>
<b>EuropeantransboundaryGWBCode</b>	Internationally agreed code for a transboundary GW body e.g. 5 (Mures / Maros) if the concerning GWB is a member of them		<b>ROMU03</b>





Controls over the abstraction of fresh surface water and groundwater and impoundment of fresh surface waters including a register or registers of water abstractions and a requirement for prior authorisation of abstraction and impoundment			
Controls, including a requirement for prior authorisation of artificial recharge or augmentation of gw bodies		x	It is no case of the artificial recharges in Romania, so this type of measure is not applicable.
Requirement for prior regulation of point source discharges liable to cause pollution	x		
Prohibition of direct discharge of pollutants into groundwater	x		
Any measures required to prevent significant losses of pollutants from technical installations and to prevent and/or reduce the impact of accidental pollution incidents	x		
<b>Need for Supplementary/Additional Measures WFD Article 11(4) and 11(5)</b>			
Will the basic measures identified above be sufficient to address the significant Pressures		Yes, No	

<b>Name of the Groundwater Body</b>	Locally used name of the Gwbody		<b>Conul Aluvial Mures (Holocen, Pleistocen superior)</b>
<b>EuropeantransboundaryGWBCode</b>	Internationally agreed code for a transboundary GW body e.g. 5 (Mures / Maros) if the concerning GWB is a member of them		<b>5</b>

<b>EuropeanGWBCode</b>	European code of the GW body e.g. HU_SP.2.16.1		<b>RO5 - ROMU20</b>
<b>Measures (Basic and other basic measures)</b>			
<b>Basic measures (Directive listed in Annex VI Part A)</b>	<b>Measures implemented to address ... (tick if yes)</b>		<b>Explanatory Keywords:</b> for non EU-Member States - add information on corresponding national legislation
	<b>poor status/risk for Quality</b>	<b>poor status/risk for Quantity</b>	
Drinking Water Directive (80/778/EEC) as amended by Directive (98/83/EC)			
Urban Waste-water Treatment Directive (91/271/EEC)	x		
Plant Protection Products Directive (91/414/EEC)			
Nitrates Directive (91/676/EC)	x		
Habitats Directive (92/43/EEC)			
Integrated Pollution Prevention Control Directive (96/61/EC)			
<b>Other basic measures as required by Article 11(3)(b-I)</b>	<b>Measures implemented to address ... (tick if yes)</b>		<b>Explanatory Keywords:</b> for non EU-Member States - add information on corresponding national legislation
	<b>poor status/risk for Quality</b>	<b>poor status/risk for Quantity</b>	
Measures for the protection of water abstracted for drinking water (Article 7) including those to reduce the level of purification required for the production of drinking water (note: these basic measures may not apply to the whole territory)			
	x		

Controls over the abstraction of fresh surface water and groundwater and impoundment of fresh surface waters including a register or registers of water abstractions and a requirement for prior authorisation of abstraction and impoundment			
Controls, including a requirement for prior authorisation of artificial recharge or augmentation of gw bodies		x	It is no case of the artificial recharges in Romania, so this type of measure is not applicable.
Requirement for prior regulation of point source discharges liable to cause pollution	x		
Prohibition of direct discharge of pollutants into groundwater	x		
Any measures required to prevent significant losses of pollutants from technical installations and to prevent and/or reduce the impact of accidental pollution incidents	x		
<b>Need for Supplementary/Additional Measures WFD Article 11(4) and 11(5)</b>			
Will the basic measures identified above be sufficient to address the significant Pressures		Yes, No	

<b>Name of the Groundwater Body</b>	Locally used name of the Gwbody		<b>Conul Aluvial Mures (Pleistocen mediu si superior)</b>
<b>EuropeantransboundaryGWBCode</b>	Internationally agreed code for a transboundary GW body e.g. 5 (Mures / Maros) if the concerning GWB is a member of them		<b>5</b>

<b>EuropeanGWBCode</b>	European code of the GW body e.g. HU_SP.2.16.1		<b>RO5 - ROMU22</b>
<b>Measures (Basic and other basic measures)</b>			
<b>Basic measures (Directive listed in Annex VI Part A)</b>	<b>Measures implemented to adress ... (tick if yes)</b>		<b>Explanatory Keywords:</b> for non EU-Member States - add information on corresponding national legislation
	<b>poor status/risk for Quality</b>	<b>poor status/risk for Quantity</b>	
Drinking Water Directive (80/778/EEC) as amended by Directive (98/83/EC)			
Urban Waste-water Treatment Directive (91/271/EEC)	x		
Plant Protection Products Directive (91/414/EEC)			
Nitrates Directive (91/676/EC)	x		
Habitats Directive (92/43/EEC)			
Integrated Pollution Prevention Control Directive (96/61/EC)			
<b>Other basic measures as required by Article 11(3)(b-I)</b>	<b>Measures implemented to adress ... (tick if yes)</b>		<b>Explanatory Keywords:</b> for non EU-Member States - add information on corresponding national legislation
	<b>poor status/risk for Quality</b>	<b>poor status/risk for Quantity</b>	
Measures for the protection of water abstracted for drinking water (Article 7) including those to reduce the level of purification required for the production of drinking water (note: these basic measures may not apply to the whole territory)			
	x		

Controls over the abstraction of fresh surface water and groundwater and impoundment of fresh surface waters including a register or registers of water abstractions and a requirement for prior authorisation of abstraction and impoundment			
Controls, including a requirement for prior authorisation of artificial recharge or augmentation of gw bodies		x	It is no case of the artificial recharges in Romania, so this type of measure is not applicable.
Requirement for prior regulation of point source discharges liable to cause pollution	x		
Prohibition of direct discharge of pollutants into groundwater	x		
Any measures required to prevent significant losses of pollutants from technical installations and to prevent and/or reduce the impact of accidental pollution incidents	x		
<b>Need for Supplementary/Additional Measures WFD Article 11(4) and 11(5)</b>			
Will the basic measures identified above be sufficient to address the significant Pressures		Yes, No	

<b>Name of the Groundwater Body</b>	Locally used name of the Gwbody		<b>Depresiunea Transilvaniei</b>
<b>EuropeantransboundaryGWBCode</b>	Internationally agreed code for a transboundary GW body e.g. 5 (Mures / Maros) if the concerning GWB is a member of them		<b>ROMU24</b>

<b>EuropeanGWBCode</b>	European code of the GW body e.g. HU_SP.2.16.1		<b>ROMU24</b>
<b>Measures (Basic and other basic measures)</b>			
<b>Basic measures (Directive listed in Annex VI Part A)</b>	<b>Measures implemented to adress ... (tick if yes)</b>		<b>Explanatory Keywords:</b> for non EU-Member States - add information on corresponding national legislation
	<b>poor status/risk for Quality</b>	<b>poor status/risk for Quantity</b>	
Drinking Water Directive (80/778/EEC) as amended by Directive (98/83/EC)			
Urban Waste-water Treatment Directive (91/271/EEC)	x		
Plant Protection Products Directive (91/414/EEC)			
Nitrates Directive (91/676/EC)	x		
Habitats Directive (92/43/EEC)			
Integrated Pollution Prevention Control Directive (96/61/EC)			
<b>Other basic measures as required by Article 11(3)(b-I)</b>	<b>Measures implemented to adress ... (tick if yes)</b>		<b>Explanatory Keywords:</b> for non EU-Member States - add information on corresponding national legislation
	<b>poor status/risk for Quality</b>	<b>poor status/risk for Quantity</b>	
Measures for the protection of water abstracted for drinking water (Article 7) including those to reduce the level of purification required for the production of drinking water (note: these basic measures may not apply to the whole territory)			
	x		

Controls over the abstraction of fresh surface water and groundwater and impoundment of fresh surface waters including a register or registers of water abstractions and a requirement for prior authorisation of abstraction and impoundment			
Controls, including a requirement for prior authorisation of artificial recharge or augmentation of gwbodyes		x	It is no case of the artificial recharges in Romania, so this type of measure is not applicable.
Requirement for prior regulation of point source discharges liable to cause pollution	x		
Prohibition of direct discharge of pollutants into groundwater	x		
Any measures required to prevent significant losses of pollutants from technical installations and to prevent and/or reduce the impact of accidental pollution incidents	x		
<b>Need for Supplementary/Additional Measures WFD Article 11(4) and 11(5)</b>			
Will the basic measures identified above be sufficient to address the significant Pressures		Yes, No	

<b>Name of the Groundwater Body</b>	Locally used name of the Gwbody		<b>Conul Somesului, Holocen si Pleistocen superior</b>
<b>EuropeantransboundaryGWBCode</b>	Internationally agreed code for a transboundary GW body e.g. 5 (Mures / Maros) if the concerning GWB is a member of them		<b>6</b>

EuropeanGWBCode	European code of the GW body e.g. HU_SP.2.16.1		<b>RO6 - ROS001</b>
<b>Measures (Basic and other basic measures)</b>			
<b>Basic measures (Directive listed in Annex VI Part A)</b>	<b>Measures implemented to adress ... (tick if yes)</b>  <b>poor status/risk for Quality</b> <b>poor status/risk for Quantity</b>		<b>Explanatory Keywords:</b> for non EU-Member States - add information on corresponding national legislation
Drinking Water Directive (80/778/EEC) as amended by Directive (98/83/EC) Urban Waste-water Treatment Directive (91/271/EEC) Plant Protection Products Directive (91/414/EEC)  Nitrates Directive (91/676/EC) Habitats Directive (92/43/EEC) Integrated Pollution Prevention Control Directive (96/61/EC)	x    x		
<b>Other basic measures as required by Article 11(3)(b-I)</b>	<b>Measures implemented to adress ... (tick if yes)</b>  <b>poor status/risk for Quality</b> <b>poor status/risk for Quantity</b>		<b>Explanatory Keywords:</b> for non EU-Member States - add information on corresponding national legislation
Measures for the protection of water abstracted for drinking water (Article 7) including those to reduce the level of purification required for the production of drinking water (note: these basic measures may not apply to the whole territory)	x		



Controls over the abstraction of fresh surface water and groundwater and impoundment of fresh surface waters including a register or registers of water abstractions and a requirement for prior authorisation of abstraction and impoundment			
Controls, including a requirement for prior authorisation of artificial recharge or augmentation of gwbodyes		x	It is no case of the artificial recharges in Romania, so this type of measure is not applicable.
Requirement for prior regulation of point source discharges liable to cause pollution	x		
Prohibition of direct discharge of pollutants into groundwater	x		
Any measures required to prevent significant losses of pollutants from technical installations and to prevent and/or reduce the impact of accidental pollution incidents	x		
<b>Need for Supplementary/Additional Measures WFD Article 11(4) and 11(5)</b>			
Will the basic measures identified above be sufficient to address the significant Pressures		Yes, No	

Name of the Groundwater Body	Locally used name of the Gwbody		Conul Somesului, Pleistocen inf.
EuropeantransboundaryGWBCode	Internationally agreed code for a transboundary GW body e.g. 5 (Mures / Maros) if the concerning GWB is a member of them		6

<b>EuropeanGWBCode</b>	European code of the GW body e.g. HU_SP.2.16.1		<b>RO06 (ROSO13)</b>
<b>Measures (Basic and other basic measures)</b>			
<b>Basic measures (Directive listed in Annex VI Part A)</b>	<b>Measures implemented to address ... (tick if yes)</b>		<b>Explanatory Keywords:</b> for non EU-Member States - add information on corresponding national legislation
	<b>poor status/risk for Quality</b>	<b>poor status/risk for Quantity</b>	
Drinking Water Directive (80/778/EEC) as amended by Directive (98/83/EC)			
Urban Waste-water Treatment Directive (91/271/EEC)	x		
Plant Protection Products Directive (91/414/EEC)			
Nitrates Directive (91/676/EC)	x		
Habitats Directive (92/43/EEC)			
Integrated Pollution Prevention Control Directive (96/61/EC)			
<b>Other basic measures as required by Article 11(3)(b-I)</b>	<b>Measures implemented to address ... (tick if yes)</b>		<b>Explanatory Keywords:</b> for non EU-Member States - add information on corresponding national legislation
	<b>poor status/risk for Quality</b>	<b>poor status/risk for Quantity</b>	
Measures for the protection of water abstracted for drinking water (Article 7) including those to reduce the level of purification required for the production of drinking water (note: these basic measures may not apply to the whole territory)			
	x		

Controls over the abstraction of fresh surface water and groundwater and impoundment of fresh surface waters including a register or registers of water abstractions and a requirement for prior authorisation of abstraction and impoundment			
Controls, including a requirement for prior authorisation of artificial recharge or augmentation of gw bodies			x
Requirement for prior regulation of point source discharges liable to cause pollution			x
Prohibition of direct discharge of pollutants into groundwater			x
Any measures required to prevent significant losses of pollutants from technical installations and to prevent and/or reduce the impact of accidental pollution incidents			x
<b>Need for Supplementary/Additional Measures WFD Article 11(4) and 11(5)</b>			
Will the basic measures identified above be sufficient to address the significant Pressures			Yes, No
<b>Name of the Groundwater Body</b>	Locally used name of the Gwbody		<b>Krasovo-puklinové podzemné vody Slovenského Rudohoria</b>
<b>EuropeantransboundaryGWBCode</b>	Internationally agreed code for a transboundary GW body e.g. 5 (Mures / Maros) if the concerning GWB is a member of them		

<b>EuropeanGWBCode</b>	European code of the GW body e.g. HU_SP.2.16.1		<b>SK200500FK</b>
<b>Measures (Basic and other basic measures)</b>			
<b>Basic measures (Directive listed in Annex VI Part A)</b>	<b>Measures implemented to adress ... (tick if yes)</b>		<b>Explanatory Keywords:</b> for non EU-Member States - add information on corresponding national legislation
	<b>poor status/risk for Quality</b>	<b>poor status/risk for Quantity</b>	
Drinking Water Directive (80/778/EEC) as amended by Directive (98/83/EC)	no	no	
Urban Waste-water Treatment Directive (91/271/EEC)	no	no	
Plant Protection Products Directive (91/414/EEC)	no	no	
Nitrates Directive (91/676/EC)	no	no	
Habitats Directive (92/43/EEC)	no	no	
Integrated Pollution Prevention Control Directive (96/61/EC)	no	no	
<b>Other basic measures as required by Article 11(3)(b-I)</b>	<b>Measures implemented to adress ... (tick if yes)</b>		<b>Explanatory Keywords:</b> for non EU-Member States - add information on corresponding national legislation
	<b>poor status/risk for Quality</b>	<b>poor status/risk for Quantity</b>	
Measures for the protection of water abstracted for drinking water (Article 7) including those to reduce the level of purification required for the production of drinking water (note: these basic measures may not apply to the whole territory)	no	no	

Controls over the abstraction of fresh surface water and groundwater and impoundment of fresh surface waters including a register or registers of water abstractions and a requirement for prior authorisation of abstraction and impoundment	no	no
Controls, including a requirement for prior authorisation of artificial recharge or augmentation of gwbodyes	no	no
Requirement for prior regulation of point source discharges liable to cause pollution	no	no
Prohibition of direct discharge of pollutants into groundwater	no	no
Any measures required to prevent significant losses of pollutants from technical installations and to prevent and/or reduce the impact of accidental pollution incidents	no	no
<b>Need for Supplementary/Additional Measures WFD Article 11(4) and 11(5)</b>		
Will the basic measures identified above be sufficient to address the significant Pressures	Yes	

<b>Name of the Groundwater Body</b>	Locally used name of the Gwbody		<b>Puklinove a krasovo - puklinove podzemne vody Nizkych Tatier a Slovenskeho rudohoria oblasti povodia Hron</b>
<b>EuropeantransboundaryGWBCode</b>	Internationally agreed code for a transboundary GW body e.g. 5 (Mures / Maros) if the concerning		

	GWB is a member of them		
<b>EuropeanGWBCode</b>	European code of the GW body e.g. HU_SP.2.16.1		<b>SK200280FK</b>
<b>Measures (Basic and other basic measures)</b>			
<b>Basic measures (Directive listed in Annex VI Part A)</b>	<b>Measures implemented to adress ... (tick if yes)</b>		<b>Explanatory Keywords:</b> for non EU-Member States - add information on corresponding national legislation
	<b>poor status/risk for Quality</b>	<b>poor status/risk for Quantity</b>	
Drinking Water Directive (80/778/EEC) as amended by Directive (98/83/EC)	no	no	
Urban Waste-water Treatment Directive (91/271/EEC)	no	no	
Plant Protection Products Directive (91/414/EEC)	no	no	
Nitrates Directive (91/676/EC)	no	no	
Habitats Directive (92/43/EEC)	no	no	
Integrated Pollution Prevention Control Directive (96/61/EC)	no	no	
<b>Other basic measures as required by Article 11(3)(b-l)</b>	<b>Measures implemented to adress ... (tick if yes)</b>		<b>Explanatory Keywords:</b> for non EU-Member States - add information on corresponding national legislation
	<b>poor status/risk for Quality</b>	<b>poor status/risk for Quantity</b>	
Measures for the protection of water abstracted for drinking water (Article 7) including those to reduce the level of purification required for the production of drinking water (note: these basic measures may not apply to the whole territory)	no	no	

Controls over the abstraction of fresh surface water and groundwater and impoundment of fresh surface waters including a register or registers of water abstractions and a requirement for prior authorisation of abstraction and impoundment	no	no
Controls, including a requirement for prior authorisation of artificial recharge or augmentation of gwbodyes	no	no
Requirement for prior regulation of point source discharges liable to cause pollution	no	no
Prohibition of direct discharge of pollutants into groundwater	no	no
Any measures required to prevent significant losses of pollutants from technical installations and to prevent and/or reduce the impact of accidental pollution incidents	no	no
<b>Need for Supplementary/Additional Measures WFD Article 11(4) and 11(5)</b>		
Will the basic measures identified above be sufficient to address the significant Pressures	Yes	

<b>Name of the Groundwater Body</b>	Locally used name of the Gwbody		<b>Puklinové podzemné vody Podtatranskej skupiny a flyšového pásma</b>
<b>EuropeantransboundaryGWBCode</b>	Internationally agreed code for a transboundary GW body e.g. 5 (Mures / Maros) if the concerning GWB is a member of them		

<b>EuropeanGWBCode</b>	European code of the GW body e.g. HU_SP.2.16.1		<b>SK2004900F</b>
<b>Measures (Basic and other basic measures)</b>			
<b>Basic measures (Directive listed in Annex VI Part A)</b>	<b>Measures implemented to address ... (tick if yes)</b>		<b>Explanatory Keywords:</b> for non EU-Member States - add information on corresponding national legislation
	<b>poor status/risk for Quality</b>	<b>poor status/risk for Quantity</b>	
Drinking Water Directive (80/778/EEC) as amended by Directive (98/83/EC)	no	no	
Urban Waste-water Treatment Directive (91/271/EEC)	no	no	
Plant Protection Products Directive (91/414/EEC)	no	no	
Nitrates Directive (91/676/EC)	no	no	
Habitats Directive (92/43/EEC)	no	no	
Integrated Pollution Prevention Control Directive (96/61/EC)	no	no	
<b>Other basic measures as required by Article 11(3)(b-I)</b>	<b>Measures implemented to address ... (tick if yes)</b>		<b>Explanatory Keywords:</b> for non EU-Member States - add information on corresponding national legislation
	<b>poor status/risk for Quality</b>	<b>poor status/risk for Quantity</b>	
Measures for the protection of water abstracted for drinking water (Article 7) including those to reduce the level of purification required for the production of drinking water (note: these basic measures may not apply to the whole territory)	no	no	



Controls over the abstraction of fresh surface water and groundwater and impoundment of fresh surface waters including a register or registers of water abstractions and a requirement for prior authorisation of abstraction and impoundment	no	no
Controls, including a requirement for prior authorisation of artificial recharge or augmentation of gwbodyes	no	no
Requirement for prior regulation of point source discharges liable to cause pollution	no	no
Prohibition of direct discharge of pollutants into groundwater	no	no
Any measures required to prevent significant losses of pollutants from technical installations and to prevent and/or reduce the impact of accidental pollution incidents	no	no
<b>Need for Supplementary/Additional Measures WFD Article 11(4) and 11(5)</b>		
Will the basic measures identified above be sufficient to address the significant Pressures	Yes	

Name of the Groundwater Body	Locally used name of the Gwbody		Medzirezne podzemne vody Kosickej kotliny
EuropeantransboundaryGWBCode	Internationally agreed code for a transboundary GW body e.g. 5 (Mures / Maros) if the concerning GWB is a member of them		

<b>EuropeanGWBCode</b>	European code of the GW body e.g. HU_SP.2.16.1		<b>SK2005300P</b>
<b>Measures (Basic and other basic measures)</b>			
<b>Basic measures (Directive listed in Annex VI Part A)</b>	<b>Measures implemented to adress ... (tick if yes)</b>		<b>Explanatory Keywords:</b> for non EU-Member States - add information on corresponding national legislation
	<b>poor status/risk for Quality</b>	<b>poor status/risk for Quantity</b>	
Drinking Water Directive (80/778/EEC) as amended by Directive (98/83/EC)	no	no	
Urban Waste-water Treatment Directive (91/271/EEC)	no	no	
Plant Protection Products Directive (91/414/EEC)	no	no	
Nitrates Directive (91/676/EC)	no	no	
Habitats Directive (92/43/EEC)	no	no	
Integrated Pollution Prevention Control Directive (96/61/EC)	no	no	
<b>Other basic measures as required by Article 11(3)(b-I)</b>	<b>Measures implemented to adress ... (tick if yes)</b>		<b>Explanatory Keywords:</b> for non EU-Member States - add information on corresponding national legislation
	<b>poor status/risk for Quality</b>	<b>poor status/risk for Quantity</b>	
Measures for the protection of water abstracted for drinking water (Article 7) including those to reduce the level of purification required for the production of drinking water (note: these basic measures may not apply to the whole territory)	no	no	

Controls over the abstraction of fresh surface water and groundwater and impoundment of fresh surface waters including a register or registers of water abstractions and a requirement for prior authorisation of abstraction and impoundment	no	no
Controls, including a requirement for prior authorisation of artificial recharge or augmentation of gwbodyes	no	no
Requirement for prior regulation of point source discharges liable to cause pollution	no	no
Prohibition of direct discharge of pollutants into groundwater	no	no
Any measures required to prevent significant losses of pollutants from technical installations and to prevent and/or reduce the impact of accidental pollution incidents	no	no
<b>Need for Supplementary/Additional Measures WFD Article 11(4) and 11(5)</b>		
Will the basic measures identified above be sufficient to address the significant Pressures	Yes	

<b>Name of the Groundwater Body</b>	Locally used name of the Gwbody		<b>Puklinové podzemné vody flyšového pásma a Podtatranskej skupiny</b>
<b>EuropeantransboundaryGWBCode</b>	Internationally agreed code for a transboundary GW body e.g. 5 (Mures / Maros) if the concerning GWB is a member of them		

<b>EuropeanGWBCode</b>	European code of the GW body e.g. HU_SP.2.16.1		<b>SK2005700P</b>
<b>Measures (Basic and other basic measures)</b>			
<b>Basic measures (Directive listed in Annex VI Part A)</b>	<b>Measures implemented to adress ... (tick if yes)</b>		<b>Explanatory Keywords:</b> for non EU-Member States - add information on corresponding national legislation
	<b>poor status/risk for Quality</b>	<b>poor status/risk for Quantity</b>	
Drinking Water Directive (80/778/EEC) as amended by Directive (98/83/EC)	no	no	
Urban Waste-water Treatment Directive (91/271/EEC)	no	no	
Plant Protection Products Directive (91/414/EEC)	no	no	
Nitrates Directive (91/676/EC)	no	no	
Habitats Directive (92/43/EEC)	no	no	
Integrated Pollution Prevention Control Directive (96/61/EC)	no	no	
<b>Other basic measures as required by Article 11(3)(b-I)</b>	<b>Measures implemented to adress ... (tick if yes)</b>		<b>Explanatory Keywords:</b> for non EU-Member States - add information on corresponding national legislation
	<b>poor status/risk for Quality</b>	<b>poor status/risk for Quantity</b>	
Measures for the protection of water abstracted for drinking water (Article 7) including those to reduce the level of purification required for the production of drinking water (note: these basic measures may not apply to the whole territory)	no	no	

Controls over the abstraction of fresh surface water and groundwater and impoundment of fresh surface waters including a register or registers of water abstractions and a requirement for prior authorisation of abstraction and impoundment	no	no
Controls, including a requirement for prior authorisation of artificial recharge or augmentation of gwbodyes	no	no
Requirement for prior regulation of point source discharges liable to cause pollution	no	no
Prohibition of direct discharge of pollutants into groundwater	no	no
Any measures required to prevent significant losses of pollutants from technical installations and to prevent and/or reduce the impact of accidental pollution incidents	no	no
<b>Need for Supplementary/Additional Measures WFD Article 11(4) and 11(5)</b>		
Will the basic measures identified above be sufficient to address the significant Pressures	Yes	

Name of the Groundwater Body	Locally used name of the Gwbody		Medzizrnné podzemné vody Východoslovenskej panvy
EuropeantransboundaryGWBCode	Internationally agreed code for a transboundary GW body e.g. 5 (Mures / Maros) if the concerning GWB is a member of them		

<b>EuropeanGWBCode</b>	European code of the GW body e.g. HU_SP.2.16.1		<b>SK2005800P</b>
<b>Measures (Basic and other basic measures)</b>			
<b>Basic measures (Directive listed in Annex VI Part A)</b>	<b>Measures implemented to address ... (tick if yes)</b>		<b>Explanatory Keywords:</b> for non EU-Member States - add information on corresponding national legislation
	<b>poor status/risk for Quality</b>	<b>poor status/risk for Quantity</b>	
Drinking Water Directive (80/778/EEC) as amended by Directive (98/83/EC)	no	no	
Urban Waste-water Treatment Directive (91/271/EEC)	no	no	
Plant Protection Products Directive (91/414/EEC)	no	no	
Nitrates Directive (91/676/EC)	no	no	
Habitats Directive (92/43/EEC)	no	no	
Integrated Pollution Prevention Control Directive (96/61/EC)	no	no	
<b>Other basic measures as required by Article 11(3)(b-I)</b>	<b>Measures implemented to address ... (tick if yes)</b>		<b>Explanatory Keywords:</b> for non EU-Member States - add information on corresponding national legislation
	<b>poor status/risk for Quality</b>	<b>poor status/risk for Quantity</b>	
Measures for the protection of water abstracted for drinking water (Article 7) including those to reduce the level of purification required for the production of drinking water (note: these basic measures may not apply to the whole territory)	no	no	

Controls over the abstraction of fresh surface water and groundwater and impoundment of fresh surface waters including a register or registers of water abstractions and a requirement for prior authorisation of abstraction and impoundment	no	no
Controls, including a requirement for prior authorisation of artificial recharge or augmentation of gw bodies	no	no
Requirement for prior regulation of point source discharges liable to cause pollution	no	no
Prohibition of direct discharge of pollutants into groundwater	no	no
Any measures required to prevent significant losses of pollutants from technical installations and to prevent and/or reduce the impact of accidental pollution incidents	no	no
<b>Need for Supplementary/Additional Measures WFD Article 11(4) and 11(5)</b>		
Will the basic measures identified above be sufficient to address the significant Pressures	Yes	

Name of the Groundwater Body	Locally used name of the Gwbody		Slovenský kras/Aggtelek hgs.
EuropeantransboundaryGWBCode	Internationally agreed code for a transboundary GW body e.g. 5 (Mures / Maros) if the concerning GWB is a member of them		10

<b>EuropeanGWBCode</b>	European code of the GW body e.g. HU_SP.2.16.1		<b>SK200480KF</b>
<b>Measures (Basic and other basic measures)</b>			
<b>Basic measures (Directive listed in Annex VI Part A)</b>	<b>Measures implemented to address ... (tick if yes)</b>		<b>Explanatory Keywords:</b> for non EU-Member States - add information on corresponding national legislation
	<b>poor status/risk for Quality</b>	<b>poor status/risk for Quantity</b>	
Drinking Water Directive (80/778/EEC) as amended by Directive (98/83/EC)	no	no	
Urban Waste-water Treatment Directive (91/271/EEC)	no	no	
Plant Protection Products Directive (91/414/EEC)	no	no	
Nitrates Directive (91/676/EC)	no	no	
Habitats Directive (92/43/EEC)	no	no	
Integrated Pollution Prevention Control Directive (96/61/EC)	no	no	
<b>Other basic measures as required by Article 11(3)(b-I)</b>	<b>Measures implemented to address ... (tick if yes)</b>		<b>Explanatory Keywords:</b> for non EU-Member States - add information on corresponding national legislation
	<b>poor status/risk for Quality</b>	<b>poor status/risk for Quantity</b>	
Measures for the protection of water abstracted for drinking water (Article 7) including those to reduce the level of purification required for the production of drinking water (note: these basic measures may not apply to the whole territory)	no	no	



Controls over the abstraction of fresh surface water and groundwater and impoundment of fresh surface waters including a register or registers of water abstractions and a requirement for prior authorisation of abstraction and impoundment	no	no
Controls, including a requirement for prior authorisation of artificial recharge or augmentation of gwbodyes	no	no
Requirement for prior regulation of point source discharges liable to cause pollution	no	no
Prohibition of direct discharge of pollutants into groundwater	no	no
Any measures required to prevent significant losses of pollutants from technical installations and to prevent and/or reduce the impact of accidental pollution incidents	no	no
<b>Need for Supplementary/Additional Measures WFD Article 11(4) and 11(5)</b>		
Will the basic measures identified above be sufficient to address the significant Pressures	Yes	

Name of the Groundwater Body	Locally used name of the Gwbody		Medzizrnné podzemné vody kvartérnych náplavov Bodrogu
EuropeantransboundaryGWBCode	Internationally agreed code for a transboundary GW body e.g. 5 (Mures / Maros) if the concerning GWB is a member of them		9

<b>EuropeanGWBCode</b>	European code of the GW body e.g. HU_SP.2.16.1		<b>SK1001500P</b>
<b>Measures (Basic and other basic measures)</b>			
<b>Basic measures (Directive listed in Annex VI Part A)</b>	<b>Measures implemented to address ... (tick if yes)</b>		<b>Explanatory Keywords:</b> for non EU-Member States - add information on corresponding national legislation
	<b>poor status/risk for Quality</b>	<b>poor status/risk for Quantity</b>	
Drinking Water Directive (80/778/EEC) as amended by Directive (98/83/EC)	no	no	
Urban Waste-water Treatment Directive (91/271/EEC)	no	no	
Plant Protection Products Directive (91/414/EEC)	no	no	
Nitrates Directive (91/676/EC)	no	no	
Habitats Directive (92/43/EEC)	no	no	
Integrated Pollution Prevention Control Directive (96/61/EC)	no	no	
<b>Other basic measures as required by Article 11(3)(b-I)</b>	<b>Measures implemented to address ... (tick if yes)</b>		<b>Explanatory Keywords:</b> for non EU-Member States - add information on corresponding national legislation
	<b>poor status/risk for Quality</b>	<b>poor status/risk for Quantity</b>	
Measures for the protection of water abstracted for drinking water (Article 7) including those to reduce the level of purification required for the production of drinking water (note: these basic measures may not apply to the whole territory)	no	no	

Controls over the abstraction of fresh surface water and groundwater and impoundment of fresh surface waters including a register or registers of water abstractions and a requirement for prior authorisation of abstraction and impoundment	no	no
Controls, including a requirement for prior authorisation of artificial recharge or augmentation of gwbodyes	no	no
Requirement for prior regulation of point source discharges liable to cause pollution	no	no
Prohibition of direct discharge of pollutants into groundwater	no	no
Any measures required to prevent significant losses of pollutants from technical installations and to prevent and/or reduce the impact of accidental pollution incidents	no	no
<b>Need for Supplementary/Additional Measures WFD Article 11(4) and 11(5)</b>		
Will the basic measures identified above be sufficient to address the significant Pressures	Yes	
<b>Name of the Groundwater Body</b>	Locally used name of the Gwbody	<b>Aggtelek Mts</b>
<b>EuropeantransboundaryGWBCode</b>	Internationally agreed code for a transboundary GW body e.g. 5 (Mures / Maros) if the concerning GWB is a member of them	<b>10</b>

EuropeanGWBCode	European code of the GW body e.g. HU_SP.2.16.1		<b>HU_K.2.2</b>
<b>Measures (Basic and other basic measures)</b>			
<b>Basic measures (Directive listed in Annex VI Part A)</b>	<b>Measures implemented to adress ... (tick if yes)</b>  <b>poor status/risk for Quality</b> <b>poor status/risk for Quantity</b>		<b>Explanatory Keywords:</b> for non EU-Member States - add information on corresponding national legislation
Drinking Water Directive (80/778/EEC) as amended by Directive (98/83/EC) Urban Waste-water Treatment Directive (91/271/EEC) Plant Protection Products Directive (91/414/EEC)  Nitrates Directive (91/676/EC) Habitats Directive (92/43/EEC) Integrated Pollution Prevention Control Directive (96/61/EC)			
<b>Other basic measures as required by Article 11(3)(b-I)</b>	<b>Measures implemented to adress ... (tick if yes)</b>  <b>poor status/risk for Quality</b> <b>poor status/risk for Quantity</b>		<b>Explanatory Keywords:</b> for non EU-Member States - add information on corresponding national legislation
Measures for the protection of water abstracted for drinking water (Article 7) including those to reduce the level of purification required for the production of drinking water (note: these basic measures may not apply to the whole territory)			

Controls over the abstraction of fresh surface water and groundwater and impoundment of fresh surface waters including a register or registers of water abstractions and a requirement for prior authorisation of abstraction and impoundment

Controls, including a requirement for prior authorisation of artificial recharge or augmentation of gwbodyes

Requirement for prior regulation of point source discharges liable to cause pollution

Prohibition of direct discharge of pollutants into groundwater

Any measures required to prevent significant losses of pollutants from technical installations and to prevent and/or reduce the impact of accidental pollution incidents

**Need for Supplementary/Additional Measures  
WFD Article 11(4) and 11(5)**

Will the basic measures identified above be sufficient to address the significant Pressures Yes, No

<b>Name of the Groundwater Body</b>	Locally used name of the Gwbody		<b>Szatmár-lowland</b>
<b>EuropeantransboundaryGWBCode</b>	Internationally agreed code for a transboundary GW body e.g. 5 (Mures / Maros) if the concerning GWB is a member of them		<b>6</b>

EuropeanGWBCode	European code of the GW body e.g. HU_SP.2.16.1	<b>HU_P.2.1.2</b>	
<b>Measures (Basic and other basic measures)</b>			
<b>Basic measures (Directive listed in Annex VI Part A)</b>	<b>Measures implemented to adress ... (tick if yes)</b>  poor status/risk for Quality      poor status/risk for Quantity		<b>Explanatory Keywords:</b> for non EU-Member States - add information on corresponding national legislation
<p>Drinking Water Directive (80/778/EEC) as amended by Directive (98/83/EC)      <b>x</b></p> <p>Urban Waste-water Treatment Directive (91/271/EEC)</p> <p>Plant Protection Products Directive (91/414/EEC)</p> <p>Nitrates Directive (91/676/EC)</p> <p>Habitats Directive (92/43/EEC)</p> <p>Integrated Pollution Prevention Control Directive (96/61/EC)</p>			
<b>Other basic measures as required by Article 11(3)(b-l)</b>	<b>Measures implemented to adress ... (tick if yes)</b>  poor status/risk for Quality      poor status/risk for Quantity		<b>Explanatory Keywords:</b> for non EU-Member States - add information on corresponding national legislation
Measures for the protection of water abstracted for drinking water (Article 7) including those to reduce the level of purification required for the production of drinking water (note: these basic measures may not apply to the whole territory)			

**NBL>DWS**

Controls over the abstraction of fresh surface water and groundwater and impoundment of fresh surface waters including a register or registers of water abstractions and a requirement for prior authorisation of abstraction and impoundment

Controls, including a requirement for prior authorisation of artificial recharge or augmentation of gwbodyes

Requirement for prior regulation of point source discharges liable to cause pollution

Prohibition of direct discharge of pollutants into groundwater

Any measures required to prevent significant losses of pollutants from technical installations and to prevent and/or reduce the impact of accidental pollution incidents

**Need for Supplementary/Additional Measures  
WFD Article 11(4) and 11(5)**

Will the basic measures identified above be sufficient to address the significant Pressures Yes

<b>Name of the Groundwater Body</b>	Locally used name of the Gwbody		<b>Beregi-lowland</b>
<b>EuropeantransboundaryGWBCode</b>	Internationally agreed code for a transboundary GW body e.g. 5 (Mures / Maros) if the concerning GWB is a member of them		

EuropeanGWBCode	European code of the GW body e.g. HU_SP.2.16.1		<b>HU_P.2.2.2.</b>
<b>Measures (Basic and other basic measures)</b>			
<b>Basic measures (Directive listed in Annex VI Part A)</b>	<b>Measures implemented to adress ... (tick if yes)</b>  poor status/risk for Quality      poor status/risk for Quantity		<b>Explanatory Keywords:</b> for non EU-Member States - add information on corresponding national legislation
<p>Drinking Water Directive (80/778/EEC) as amended by Directive (98/83/EC)      <b>x</b></p> <p>Urban Waste-water Treatment Directive (91/271/EEC)</p> <p>Plant Protection Products Directive (91/414/EEC)</p> <p>Nitrates Directive (91/676/EC)</p> <p>Habitats Directive (92/43/EEC)</p> <p>Integrated Pollution Prevention Control Directive (96/61/EC)</p>			
<b>Other basic measures as required by Article 11(3)(b-I)</b>	<b>Measures implemented to adress ... (tick if yes)</b>  poor status/risk for Quality      poor status/risk for Quantity		<b>Explanatory Keywords:</b> for non EU-Member States - add information on corresponding national legislation
Measures for the protection of water abstracted for drinking water (Article 7) including those to reduce the level of purification required for the production of drinking water (note: these basic measures may not apply to the whole territory)			

**NBL>DWS**



<p>Controls over the abstraction of fresh surface water and groundwater and impoundment of fresh surface waters including a register or registers of water abstractions and a requirement for prior authorisation of abstraction and impoundment</p> <p>Controls, including a requirement for prior authorisation of artificial recharge or augmentation of gwbodyes</p> <p>Requirement for prior regulation of point source discharges liable to cause pollution</p> <p>Prohibition of direct discharge of pollutants into groundwater</p> <p>Any measures required to prevent significant losses of pollutants from technical installations and to prevent and/or reduce the impact of accidental pollution incidents</p>
<p><b>Need for Supplementary/Additional Measures WFD Article 11(4) and 11(5)</b></p>
<p>Will the basic measures identified above be sufficient to address the significant Pressures</p> <p style="text-align: center;">No</p> <p style="text-align: right;"><b>Quantity</b></p>

<b>Name of the Groundwater Body</b>	Locally used name of the Gwbody		<b>Nyírség, east margin</b>
<b>EuropeantransboundaryGWBCode</b>	Internationally agreed code for a transboundary GW body e.g. 5 (Mures / Maros) if the concerning GWB is a member of them		

EuropeanGWBCode	European code of the GW body e.g. HU_SP.2.16.1		<b>HU_P.2.3.1.</b>
<b>Measures (Basic and other basic measures)</b>			
<b>Basic measures (Directive listed in Annex VI Part A)</b>	<b>Measures implemented to adress ... (tick if yes)</b>  poor status/risk for Quality      poor status/risk for Quantity		<b>Explanatory Keywords:</b> for non EU-Member States - add information on corresponding national legislation
<p>Drinking Water Directive (80/778/EEC) as amended by Directive (98/83/EC)      <b>x</b></p> <p>Urban Waste-water Treatment Directive (91/271/EEC)</p> <p>Plant Protection Products Directive (91/414/EEC)</p> <p>Nitrates Directive (91/676/EC)</p> <p>Habitats Directive (92/43/EEC)</p> <p>Integrated Pollution Prevention Control Directive (96/61/EC)</p>			
<b>Other basic measures as required by Article 11(3)(b-I)</b>	<b>Measures implemented to adress ... (tick if yes)</b>  poor status/risk for Quality      poor status/risk for Quantity		<b>Explanatory Keywords:</b> for non EU-Member States - add information on corresponding national legislation
Measures for the protection of water abstracted for drinking water (Article 7) including those to reduce the level of purification required for the production of drinking water (note: these basic measures may not apply to the whole territory)			

<p>Controls over the abstraction of fresh surface water and groundwater and impoundment of fresh surface waters including a register or registers of water abstractions and a requirement for prior authorisation of abstraction and impoundment</p> <p>Controls, including a requirement for prior authorisation of artificial recharge or augmentation of gwbodyes</p> <p>Requirement for prior regulation of point source discharges liable to cause pollution</p> <p>Prohibition of direct discharge of pollutants into groundwater</p> <p>Any measures required to prevent significant losses of pollutants from technical installations and to prevent and/or reduce the impact of accidental pollution incidents</p>
<p><b>Need for Supplementary/Additional Measures WFD Article 11(4) and 11(5)</b></p>
<p>Will the basic measures identified above be sufficient to address the significant Pressures</p> <p style="text-align: right;">Yes</p>

<b>Name of the Groundwater Body</b>	Locally used name of the Gwbody		<b>Kraszna-valley, Szamos-valley,</b>
<b>EuropeantransboundaryGWBCode</b>	Internationally agreed code for a transboundary GW body e.g. 5 (Mures / Maros) if the concerning GWB is a member of them		<b>6</b>

EuropeanGWBCode	European code of the GW body e.g. HU_SP.2.16.1		<b>HU_P.2.3.2.</b>
<b>Measures (Basic and other basic measures)</b>			
<b>Basic measures (Directive listed in Annex VI Part A)</b>	<b>Measures implemented to adress ... (tick if yes)</b>  poor status/risk for Quality      poor status/risk for Quantity		<b>Explanatory Keywords:</b> for non EU-Member States - add information on corresponding national legislation
<p>Drinking Water Directive (80/778/EEC) as amended by Directive (98/83/EC)      <b>x</b></p> <p>Urban Waste-water Treatment Directive (91/271/EEC)</p> <p>Plant Protection Products Directive (91/414/EEC)</p> <p>Nitrates Directive (91/676/EC)</p> <p>Habitats Directive (92/43/EEC)</p> <p>Integrated Pollution Prevention Control Directive (96/61/EC)</p>			
<b>Other basic measures as required by Article 11(3)(b-I)</b>	<b>Measures implemented to adress ... (tick if yes)</b>  poor status/risk for Quality      poor status/risk for Quantity		<b>Explanatory Keywords:</b> for non EU-Member States - add information on corresponding national legislation
Measures for the protection of water abstracted for drinking water (Article 7) including those to reduce the level of purification required for the production of drinking water (note: these basic measures may not apply to the whole territory)			

**NBL>DWS**

<p>Controls over the abstraction of fresh surface water and groundwater and impoundment of fresh surface waters including a register or registers of water abstractions and a requirement for prior authorisation of abstraction and impoundment</p> <p>Controls, including a requirement for prior authorisation of artificial recharge or augmentation of gwbodyes</p> <p>Requirement for prior regulation of point source discharges liable to cause pollution</p> <p>Prohibition of direct discharge of pollutants into groundwater</p> <p>Any measures required to prevent significant losses of pollutants from technical installations and to prevent and/or reduce the impact of accidental pollution incidents</p>
<p><b>Need for Supplementary/Additional Measures WFD Article 11(4) and 11(5)</b></p>
<p>Will the basic measures identified above be sufficient to address the significant Pressures</p> <p style="text-align: right;">Yes</p>

<b>Name of the Groundwater Body</b>	Locally used name of the Gwbody		<b>Nyírség - Lónyay-main-canal catchment</b>
<b>EuropeantransboundaryGWBCode</b>	Internationally agreed code for a transboundary GW body e.g. 5 (Mures / Maros) if the concerning GWB is a member of them		

EuropeanGWBCode	European code of the GW body e.g. HU_SP.2.16.1		<b>HU_P.2.4.1</b>
<b>Measures (Basic and other basic measures)</b>			
<b>Basic measures (Directive listed in Annex VI Part A)</b>	<b>Measures implemented to adress ... (tick if yes)</b>  poor status/risk for Quality      poor status/risk for Quantity		<b>Explanatory Keywords:</b> for non EU-Member States - add information on corresponding national legislation
Drinking Water Directive (80/778/EEC) as amended by Directive (98/83/EC) <b>x</b> Urban Waste-water Treatment Directive (91/271/EEC) Plant Protection Products Directive (91/414/EEC)  Nitrates Directive (91/676/EC) Habitats Directive (92/43/EEC) Integrated Pollution Prevention Control Directive (96/61/EC)			
<b>Other basic measures as required by Article 11(3)(b-l)</b>	<b>Measures implemented to adress ... (tick if yes)</b>  poor status/risk for Quality      poor status/risk for Quantity		<b>Explanatory Keywords:</b> for non EU-Member States - add information on corresponding national legislation
Measures for the protection of water abstracted for drinking water (Article 7) including those to reduce the level of purification required for the production of drinking water (note: these basic measures may not apply to the whole territory)			

<p>Controls over the abstraction of fresh surface water and groundwater and impoundment of fresh surface waters including a register or registers of water abstractions and a requirement for prior authorisation of abstraction and impoundment</p> <p>Controls, including a requirement for prior authorisation of artificial recharge or augmentation of gwbodyes</p> <p>Requirement for prior regulation of point source discharges liable to cause pollution</p> <p>Prohibition of direct discharge of pollutants into groundwater</p> <p>Any measures required to prevent significant losses of pollutants from technical installations and to prevent and/or reduce the impact of accidental pollution incidents</p>
<p><b>Need for Supplementary/Additional Measures WFD Article 11(4) and 11(5)</b></p>
<p>Will the basic measures identified above be sufficient to address the significant Pressures</p> <p style="text-align: right;">Yes</p>

<b>Name of the Groundwater Body</b>	Locally used name of the Gwbody		<b>Rétköz</b>
<b>EuropeantransboundaryGWBCode</b>	Internationally agreed code for a transboundary GW body e.g. 5 (Mures / Maros) if the concerning GWB is a member of them		

EuropeanGWBCode	European code of the GW body e.g. HU_SP.2.16.1		<b>HU_P.2.4.2</b>
<b>Measures (Basic and other basic measures)</b>			
<b>Basic measures (Directive listed in Annex VI Part A)</b>	<b>Measures implemented to adress ... (tick if yes)</b>  poor status/risk for Quality      poor status/risk for Quantity		<b>Explanatory Keywords:</b> for non EU-Member States - add information on corresponding national legislation
<p>Drinking Water Directive (80/778/EEC) as amended by Directive (98/83/EC)      <b>x</b></p> <p>Urban Waste-water Treatment Directive (91/271/EEC)</p> <p>Plant Protection Products Directive (91/414/EEC)</p> <p>Nitrates Directive (91/676/EC)</p> <p>Habitats Directive (92/43/EEC)</p> <p>Integrated Pollution Prevention Control Directive (96/61/EC)</p>			
<b>Other basic measures as required by Article 11(3)(b-l)</b>	<b>Measures implemented to adress ... (tick if yes)</b>  poor status/risk for Quality      poor status/risk for Quantity		<b>Explanatory Keywords:</b> for non EU-Member States - add information on corresponding national legislation
Measures for the protection of water abstracted for drinking water (Article 7) including those to reduce the level of purification required for the production of drinking water (note: these basic measures may not apply to the whole territory)			



<p>Controls over the abstraction of fresh surface water and groundwater and impoundment of fresh surface waters including a register or registers of water abstractions and a requirement for prior authorisation of abstraction and impoundment</p> <p>Controls, including a requirement for prior authorisation of artificial recharge or augmentation of gwbodyes</p> <p>Requirement for prior regulation of point source discharges liable to cause pollution</p> <p>Prohibition of direct discharge of pollutants into groundwater</p> <p>Any measures required to prevent significant losses of pollutants from technical installations and to prevent and/or reduce the impact of accidental pollution incidents</p>
<p><b>Need for Supplementary/Additional Measures WFD Article 11(4) and 11(5)</b></p>
<p>Will the basic measures identified above be sufficient to address the significant Pressures</p> <p style="text-align: center;">No</p> <p style="text-align: right;"><b>Quantity</b></p>

<b>Name of the Groundwater Body</b>	Locally used name of the Gwbody		<b>Bodrogköz</b>
<b>EuropeantransboundaryGWBCode</b>	Internationally agreed code for a transboundary GW body e.g. 5 (Mures / Maros) if the concerning GWB is a member of them		<b>9</b>

EuropeanGWBCode	European code of the GW body e.g. HU_SP.2.16.1		<b>HU_P.2.5.2</b>
<b>Measures (Basic and other basic measures)</b>			
<b>Basic measures (Directive listed in Annex VI Part A)</b>	<b>Measures implemented to adress ... (tick if yes)</b>  poor status/risk for Quality      poor status/risk for Quantity		<b>Explanatory Keywords:</b> for non EU-Member States - add information on corresponding national legislation
<p>Drinking Water Directive (80/778/EEC) as amended by Directive (98/83/EC)      <b>x</b></p> <p>Urban Waste-water Treatment Directive (91/271/EEC)</p> <p>Plant Protection Products Directive (91/414/EEC)</p> <p>Nitrates Directive (91/676/EC)</p> <p>Habitats Directive (92/43/EEC)</p> <p>Integrated Pollution Prevention Control Directive (96/61/EC)</p>			
<b>Other basic measures as required by Article 11(3)(b-I)</b>	<b>Measures implemented to adress ... (tick if yes)</b>  poor status/risk for Quality      poor status/risk for Quantity		<b>Explanatory Keywords:</b> for non EU-Member States - add information on corresponding national legislation
Measures for the protection of water abstracted for drinking water (Article 7) including those to reduce the level of purification required for the production of drinking water (note: these basic measures may not apply to the whole territory)			

Controls over the abstraction of fresh surface water and groundwater and impoundment of fresh surface waters including a register or registers of water abstractions and a requirement for prior authorisation of abstraction and impoundment

Controls, including a requirement for prior authorisation of artificial recharge or augmentation of gwbodyes

Requirement for prior regulation of point source discharges liable to cause pollution

Prohibition of direct discharge of pollutants into groundwater

Any measures required to prevent significant losses of pollutants from technical installations and to prevent and/or reduce the impact of accidental pollution incidents

**Need for Supplementary/Additional Measures  
WFD Article 11(4) and 11(5)**

Will the basic measures identified above be sufficient to address the significant Pressures Yes, No

<b>Name of the Groundwater Body</b>	Locally used name of the Gwbody	<b>Nyírség southern part, Hajdúság</b>
<b>EuropeantransboundaryGWBCode</b>	Internationally agreed code for a transboundary GW body e.g. 5 (Mures / Maros) if the concerning GWB is a member of them	

EuropeanGWBCode	European code of the GW body e.g. HU_SP.2.16.1	<b>HU_P.2.6.1</b>	
<b>Measures (Basic and other basic measures)</b>			
<b>Basic measures (Directive listed in Annex VI Part A)</b>	<b>Measures implemented to adress ... (tick if yes)</b>  poor status/risk for Quality      poor status/risk for Quantity		<b>Explanatory Keywords:</b> for non EU-Member States - add information on corresponding national legislation
<p>Drinking Water Directive (80/778/EEC) as amended by Directive (98/83/EC)      <b>x</b></p> <p>Urban Waste-water Treatment Directive (91/271/EEC)</p> <p>Plant Protection Products Directive (91/414/EEC)</p> <p>Nitrates Directive (91/676/EC)</p> <p>Habitats Directive (92/43/EEC)</p> <p>Integrated Pollution Prevention Control Directive (96/61/EC)</p>			
<b>Other basic measures as required by Article 11(3)(b-l)</b>	<b>Measures implemented to adress ... (tick if yes)</b>  poor status/risk for Quality      poor status/risk for Quantity		<b>Explanatory Keywords:</b> for non EU-Member States - add information on corresponding national legislation
Measures for the protection of water abstracted for drinking water (Article 7) including those to reduce the level of purification required for the production of drinking water (note: these basic measures may not apply to the whole territory)			

**NBL>DWS**

Controls over the abstraction of fresh surface water and groundwater and impoundment of fresh surface waters including a register or registers of water abstractions and a requirement for prior authorisation of abstraction and impoundment

Controls, including a requirement for prior authorisation of artificial recharge or augmentation of gwbodyes

Requirement for prior regulation of point source discharges liable to cause pollution

Prohibition of direct discharge of pollutants into groundwater

Any measures required to prevent significant losses of pollutants from technical installations and to prevent and/or reduce the impact of accidental pollution incidents

**Need for Supplementary/Additional Measures  
WFD Article 11(4) and 11(5)**

Will the basic measures identified above be sufficient to address the significant Pressures **yes**

<b>Name of the Groundwater Body</b>	Locally used name of the Gwbody		<b>Hortobágy, Nagykunság, Bihar northern part</b>
<b>EuropeantransboundaryGWBCode</b>	Internationally agreed code for a transboundary GW body e.g. 5 (Mures / Maros) if the concerning GWB is a member of them		

EuropeanGWBCode	European code of the GW body e.g. HU_SP.2.16.1		<b>HU_P.2.6.2</b>
<b>Measures (Basic and other basic measures)</b>			
<b>Basic measures (Directive listed in Annex VI Part A)</b>	<b>Measures implemented to adress ... (tick if yes)</b>  poor status/risk for Quality      poor status/risk for Quantity		<b>Explanatory Keywords:</b> for non EU-Member States - add information on corresponding national legislation
<p>Drinking Water Directive (80/778/EEC) as amended by Directive (98/83/EC)      <b>x</b></p> <p>Urban Waste-water Treatment Directive (91/271/EEC)</p> <p>Plant Protection Products Directive (91/414/EEC)</p> <p>Nitrates Directive (91/676/EC)</p> <p>Habitats Directive (92/43/EEC)</p> <p>Integrated Pollution Prevention Control Directive (96/61/EC)</p>			
<b>Other basic measures as required by Article 11(3)(b-l)</b>	<b>Measures implemented to adress ... (tick if yes)</b>  poor status/risk for Quality      poor status/risk for Quantity		<b>Explanatory Keywords:</b> for non EU-Member States - add information on corresponding national legislation
Measures for the protection of water abstracted for drinking water (Article 7) including those to reduce the level of purification required for the production of drinking water (note: these basic measures may not apply to the whole territory)			

**NBL>DWS**

<p>Controls over the abstraction of fresh surface water and groundwater and impoundment of fresh surface waters including a register or registers of water abstractions and a requirement for prior authorisation of abstraction and impoundment</p>		
<p>Controls, including a requirement for prior authorisation of artificial recharge or augmentation of gwbodyes</p>		
<p>Requirement for prior regulation of point source discharges liable to cause pollution</p>		
<p>Prohibition of direct discharge of pollutants into groundwater</p>		
<p>Any measures required to prevent significant losses of pollutants from technical installations and to prevent and/or reduce the impact of accidental pollution incidents</p>		
<p><b>Need for Supplementary/Additional Measures WFD Article 11(4) and 11(5)</b></p>		
<p>Will the basic measures identified above be sufficient to address the significant Pressures</p>	<p><b>No</b></p>	<p><b>Quantity</b></p>

<b>Name of the Groundwater Body</b>	Locally used name of the Gwbody		<b>Sajó-Hernád-valley</b>
<b>EuropeantransboundaryGWBCode</b>	Internationally agreed code for a transboundary GW body e.g. 5 (Mures / Maros) if the concerning GWB is a member of them		

EuropeanGWBCode	European code of the GW body e.g. HU_SP.2.16.1		<b>HU_P.2.8.1</b>
<b>Measures (Basic and other basic measures)</b>			
<b>Basic measures (Directive listed in Annex VI Part A)</b>	<b>Measures implemented to adress ... (tick if yes)</b>  poor status/risk for Quality      poor status/risk for Quantity		<b>Explanatory Keywords:</b> for non EU-Member States - add information on corresponding national legislation
Drinking Water Directive (80/778/EEC) as amended by Directive (98/83/EC) <b>x</b> Urban Waste-water Treatment Directive (91/271/EEC) Plant Protection Products Directive (91/414/EEC)  Nitrates Directive (91/676/EC) Habitats Directive (92/43/EEC) Integrated Pollution Prevention Control Directive (96/61/EC)			
<b>Other basic measures as required by Article 11(3)(b-l)</b>	<b>Measures implemented to adress ... (tick if yes)</b>  poor status/risk for Quality      poor status/risk for Quantity		<b>Explanatory Keywords:</b> for non EU-Member States - add information on corresponding national legislation
Measures for the protection of water abstracted for drinking water (Article 7) including those to reduce the level of purification required for the production of drinking water (note: these basic measures may not apply to the whole territory)			



<p>Controls over the abstraction of fresh surface water and groundwater and impoundment of fresh surface waters including a register or registers of water abstractions and a requirement for prior authorisation of abstraction and impoundment</p>	
<p>Controls, including a requirement for prior authorisation of artificial recharge or augmentation of gwbodyes</p>	x
<p>Requirement for prior regulation of point source discharges liable to cause pollution</p>	
<p>Prohibition of direct discharge of pollutants into groundwater</p>	
<p>Any measures required to prevent significant losses of pollutants from technical installations and to prevent and/or reduce the impact of accidental pollution incidents</p>	
<p><b>Need for Supplementary/Additional Measures WFD Article 11(4) and 11(5)</b></p>	
<p>Will the basic measures identified above be sufficient to address the significant Pressures</p>	Yes

<b>Name of the Groundwater Body</b>	Locally used name of the Gwbody		<b>Sajó-Takta-valley, Hortobágy</b>
<b>EuropeantransboundaryGWBCode</b>	Internationally agreed code for a transboundary GW body e.g. 5 (Mures / Maros) if the concerning GWB is a member of them		

EuropeanGWBCode	European code of the GW body e.g. HU_SP.2.16.1		<b>HU_P.2.8.2</b>
<b>Measures (Basic and other basic measures)</b>			
<b>Basic measures (Directive listed in Annex VI Part A)</b>	<b>Measures implemented to adress ... (tick if yes)</b>  poor status/risk for Quality      poor status/risk for Quantity		<b>Explanatory Keywords:</b> for non EU-Member States - add information on corresponding national legislation
<p>Drinking Water Directive (80/778/EEC) as amended by Directive (98/83/EC)      <b>x</b></p> <p>Urban Waste-water Treatment Directive (91/271/EEC)</p> <p>Plant Protection Products Directive (91/414/EEC)</p> <p>Nitrates Directive (91/676/EC)</p> <p>Habitats Directive (92/43/EEC)</p> <p>Integrated Pollution Prevention Control Directive (96/61/EC)</p>			
<b>Other basic measures as required by Article 11(3)(b-l)</b>	<b>Measures implemented to adress ... (tick if yes)</b>  poor status/risk for Quality      poor status/risk for Quantity		<b>Explanatory Keywords:</b> for non EU-Member States - add information on corresponding national legislation
Measures for the protection of water abstracted for drinking water (Article 7) including those to reduce the level of purification required for the production of drinking water (note: these basic measures may not apply to the whole territory)			

<p>Controls over the abstraction of fresh surface water and groundwater and impoundment of fresh surface waters including a register or registers of water abstractions and a requirement for prior authorisation of abstraction and impoundment</p>		
<p>Controls, including a requirement for prior authorisation of artificial recharge or augmentation of gwbodyes</p>		
<p>Requirement for prior regulation of point source discharges liable to cause pollution</p>		
<p>Prohibition of direct discharge of pollutants into groundwater</p>		
<p>Any measures required to prevent significant losses of pollutants from technical installations and to prevent and/or reduce the impact of accidental pollution incidents</p>		
<p><b>Need for Supplementary/Additional Measures WFD Article 11(4) and 11(5)</b></p>		
<p>Will the basic measures identified above be sufficient to address the significant Pressures</p>	<p>No</p>	<p>Quantity</p>

Name of the Groundwater Body	Locally used name of the Gwbody		Északi-középhegység, margin
EuropeantransboundaryGWBCode	Internationally agreed code for a transboundary GW body e.g. 5 (Mures / Maros) if the concerning GWB is a member of them		

EuropeanGWBCode	European code of the GW body e.g. HU_SP.2.16.1		<b>HU_P.2.9.1</b>
<b>Measures (Basic and other basic measures)</b>			
<b>Basic measures (Directive listed in Annex VI Part A)</b>	<b>Measures implemented to adress ... (tick if yes)</b>  poor status/risk for Quality      poor status/risk for Quantity		<b>Explanatory Keywords:</b> for non EU-Member States - add information on corresponding national legislation
Drinking Water Directive (80/778/EEC) as amended by Directive (98/83/EC) <b>x</b> Urban Waste-water Treatment Directive (91/271/EEC) Plant Protection Products Directive (91/414/EEC)  Nitrates Directive (91/676/EC) Habitats Directive (92/43/EEC) Integrated Pollution Prevention Control Directive (96/61/EC)			
<b>Other basic measures as required by Article 11(3)(b-l)</b>	<b>Measures implemented to adress ... (tick if yes)</b>  poor status/risk for Quality      poor status/risk for Quantity		<b>Explanatory Keywords:</b> for non EU-Member States - add information on corresponding national legislation
Measures for the protection of water abstracted for drinking water (Article 7) including those to reduce the level of purification required for the production of drinking water (note: these basic measures may not apply to the whole territory)			

<p>Controls over the abstraction of fresh surface water and groundwater and impoundment of fresh surface waters including a register or registers of water abstractions and a requirement for prior authorisation of abstraction and impoundment</p>		
<p>Controls, including a requirement for prior authorisation of artificial recharge or augmentation of gwbodyes</p>		
<p>Requirement for prior regulation of point source discharges liable to cause pollution</p>		
<p>Prohibition of direct discharge of pollutants into groundwater</p>		
<p>Any measures required to prevent significant losses of pollutants from technical installations and to prevent and/or reduce the impact of accidental pollution incidents</p>		
<p><b>Need for Supplementary/Additional Measures WFD Article 11(4) and 11(5)</b></p>		
<p>Will the basic measures identified above be sufficient to address the significant Pressures</p>	<p>No</p>	<p>Quantity</p>

Name of the Groundwater Body	Locally used name of the Gwbody		Jászság, Nagyunság
EuropeantransboundaryGWBCode	Internationally agreed code for a transboundary GW body e.g. 5 (Mures / Maros) if the concerning GWB is a member of them		

EuropeanGWBCode	European code of the GW body e.g. HU_SP.2.16.1		<b>HU_P.2.9.2</b>
<b>Measures (Basic and other basic measures)</b>			
<b>Basic measures (Directive listed in Annex VI Part A)</b>	<b>Measures implemented to adress ... (tick if yes)</b>  <b>poor status/risk for Quality</b> <b>poor status/risk for Quantity</b>		<b>Explanatory Keywords:</b> for non EU-Member States - add information on corresponding national legislation
<p>Drinking Water Directive (80/778/EEC) as amended by Directive (98/83/EC)      <b>x</b></p> <p>Urban Waste-water Treatment Directive (91/271/EEC)</p> <p>Plant Protection Products Directive (91/414/EEC)</p> <p>Nitrates Directive (91/676/EC)</p> <p>Habitats Directive (92/43/EEC)</p> <p>Integrated Pollution Prevention Control Directive (96/61/EC)</p>			
<b>Other basic measures as required by Article 11(3)(b-I)</b>	<b>Measures implemented to adress ... (tick if yes)</b>  <b>poor status/risk for Quality</b> <b>poor status/risk for Quantity</b>		<b>Explanatory Keywords:</b> for non EU-Member States - add information on corresponding national legislation
Measures for the protection of water abstracted for drinking water (Article 7) including those to reduce the level of purification required for the production of drinking water (note: these basic measures may not apply to the whole territory)			

<p>Controls over the abstraction of fresh surface water and groundwater and impoundment of fresh surface waters including a register or registers of water abstractions and a requirement for prior authorisation of abstraction and impoundment</p>		
<p>Controls, including a requirement for prior authorisation of artificial recharge or augmentation of gwbodyes</p>		
<p>Requirement for prior regulation of point source discharges liable to cause pollution</p>		
<p>Prohibition of direct discharge of pollutants into groundwater</p>		
<p>Any measures required to prevent significant losses of pollutants from technical installations and to prevent and/or reduce the impact of accidental pollution incidents</p>		
<p><b>Need for Supplementary/Additional Measures WFD Article 11(4) and 11(5)</b></p>		
<p>Will the basic measures identified above be sufficient to address the significant Pressures</p>	<p>No</p>	<p>Quantity</p>

<p><b>Name of the Groundwater Body</b></p>	<p>Locally used name of the Gwbody</p>		<p><b>Danube-Tisza interfluve - Tisza-catchmnet, northern part</b></p>
<p><b>EuropeantransboundaryGWBCode</b></p>	<p>Internationally agreed code for a transboundary GW body e.g. 5 (Mures / Maros) if the concerning GWB is a member of them</p>		

EuropeanGWBCode	European code of the GW body e.g. HU_SP.2.16.1		<b>HU_P.2.10.1</b>
<b>Measures (Basic and other basic measures)</b>			
<b>Basic measures (Directive listed in Annex VI Part A)</b>	<b>Measures implemented to adress ... (tick if yes)</b>  poor status/risk for Quality      poor status/risk for Quantity		<b>Explanatory Keywords:</b> for non EU-Member States - add information on corresponding national legislation
<p>Drinking Water Directive (80/778/EEC) as amended by Directive (98/83/EC)      <b>x</b></p> <p>Urban Waste-water Treatment Directive (91/271/EEC)</p> <p>Plant Protection Products Directive (91/414/EEC)</p> <p>Nitrates Directive (91/676/EC)</p> <p>Habitats Directive (92/43/EEC)</p> <p>Integrated Pollution Prevention Control Directive (96/61/EC)</p>			
<b>Other basic measures as required by Article 11(3)(b-l)</b>	<b>Measures implemented to adress ... (tick if yes)</b>  poor status/risk for Quality      poor status/risk for Quantity		<b>Explanatory Keywords:</b> for non EU-Member States - add information on corresponding national legislation
Measures for the protection of water abstracted for drinking water (Article 7) including those to reduce the level of purification required for the production of drinking water (note: these basic measures may not apply to the whole territory)			



Controls over the abstraction of fresh surface water and groundwater and impoundment of fresh surface waters including a register or registers of water abstractions and a requirement for prior authorisation of abstraction and impoundment	
Controls, including a requirement for prior authorisation of artificial recharge or augmentation of gwbodyes	x
Requirement for prior regulation of point source discharges liable to cause pollution	
Prohibition of direct discharge of pollutants into groundwater	
Any measures required to prevent significant losses of pollutants from technical installations and to prevent and/or reduce the impact of accidental pollution incidents	
<b>Need for Supplementary/Additional Measures WFD Article 11(4) and 11(5)</b>	
Will the basic measures identified above be sufficient to address the significant Pressures	Yes

<b>Name of the Groundwater Body</b>	Locally used name of the Gwbody		<b>Danube-Tisza interfluve - Middle Tisza-valley</b>
<b>EuropeantransboundaryGWBCode</b>	Internationally agreed code for a transboundary GW body e.g. 5 (Mures / Maros) if the concerning GWB is a member of them		

EuropeanGWBCode	European code of the GW body e.g. HU_SP.2.16.1		<b>HU_P.2.10.2</b>
<b>Measures (Basic and other basic measures)</b>			
<b>Basic measures (Directive listed in Annex VI Part A)</b>	<b>Measures implemented to adress ... (tick if yes)</b>  poor status/risk for Quality      poor status/risk for Quantity		<b>Explanatory Keywords:</b> for non EU-Member States - add information on corresponding national legislation
<p>Drinking Water Directive (80/778/EEC) as amended by Directive (98/83/EC)      <b>x</b></p> <p>Urban Waste-water Treatment Directive (91/271/EEC)</p> <p>Plant Protection Products Directive (91/414/EEC)</p> <p>Nitrates Directive (91/676/EC)</p> <p>Habitats Directive (92/43/EEC)</p> <p>Integrated Pollution Prevention Control Directive (96/61/EC)</p>			
<b>Other basic measures as required by Article 11(3)(b-l)</b>	<b>Measures implemented to adress ... (tick if yes)</b>  poor status/risk for Quality      poor status/risk for Quantity		<b>Explanatory Keywords:</b> for non EU-Member States - add information on corresponding national legislation
Measures for the protection of water abstracted for drinking water (Article 7) including those to reduce the level of purification required for the production of drinking water (note: these basic measures may not apply to the whole territory)			

<p>Controls over the abstraction of fresh surface water and groundwater and impoundment of fresh surface waters including a register or registers of water abstractions and a requirement for prior authorisation of abstraction and impoundment</p>	
<p>Controls, including a requirement for prior authorisation of artificial recharge or augmentation of gwbodyes</p>	x
<p>Requirement for prior regulation of point source discharges liable to cause pollution</p>	
<p>Prohibition of direct discharge of pollutants into groundwater</p>	
<p>Any measures required to prevent significant losses of pollutants from technical installations and to prevent and/or reduce the impact of accidental pollution incidents</p>	
<p><b>Need for Supplementary/Additional Measures WFD Article 11(4) and 11(5)</b></p>	
<p>Will the basic measures identified above be sufficient to address the significant Pressures</p>	Yes

<b>Name of the Groundwater Body</b>	Locally used name of the Gwbody		<b>Danube-Tisza interfluve, southern part</b>
<b>EuropeantransboundaryGWBCode</b>	Internationally agreed code for a transboundary GW body e.g. 5 (Mures / Maros) if the concerning GWB is a member of them		<b>7</b>

EuropeanGWBCode	European code of the GW body e.g. HU_SP.2.16.1		<b>HU_P.2.11.1</b>
<b>Measures (Basic and other basic measures)</b>			
<b>Basic measures (Directive listed in Annex VI Part A)</b>	<b>Measures implemented to adress ... (tick if yes)</b>  poor status/risk for Quality      poor status/risk for Quantity		<b>Explanatory Keywords:</b> for non EU-Member States - add information on corresponding national legislation
<p>Drinking Water Directive (80/778/EEC) as amended by Directive (98/83/EC)      <b>x</b></p> <p>Urban Waste-water Treatment Directive (91/271/EEC)</p> <p>Plant Protection Products Directive (91/414/EEC)</p> <p>Nitrates Directive (91/676/EC)</p> <p>Habitats Directive (92/43/EEC)</p> <p>Integrated Pollution Prevention Control Directive (96/61/EC)</p>			
<b>Other basic measures as required by Article 11(3)(b-l)</b>	<b>Measures implemented to adress ... (tick if yes)</b>  poor status/risk for Quality      poor status/risk for Quantity		<b>Explanatory Keywords:</b> for non EU-Member States - add information on corresponding national legislation
Measures for the protection of water abstracted for drinking water (Article 7) including those to reduce the level of purification required for the production of drinking water (note: these basic measures may not apply to the whole territory)			

Controls over the abstraction of fresh surface water and groundwater and impoundment of fresh surface waters including a register or registers of water abstractions and a requirement for prior authorisation of abstraction and impoundment	
Controls, including a requirement for prior authorisation of artificial recharge or augmentation of gwbodyes	x
Requirement for prior regulation of point source discharges liable to cause pollution	
Prohibition of direct discharge of pollutants into groundwater	
Any measures required to prevent significant losses of pollutants from technical installations and to prevent and/or reduce the impact of accidental pollution incidents	
<b>Need for Supplementary/Additional Measures WFD Article 11(4) and 11(5)</b>	
Will the basic measures identified above be sufficient to address the significant Pressures	Yes

<b>Name of the Groundwater Body</b>	Locally used name of the Gwbody		<b>Danube-Tisza interfluve, Lower Tisza-valley</b>
<b>EuropeantransboundaryGWBCode</b>	Internationally agreed code for a transboundary GW body e.g. 5 (Mures / Maros) if the concerning GWB is a member of them		<b>7</b>

EuropeanGWBCode	European code of the GW body e.g. HU_SP.2.16.1		<b>HU_P.2.11.2</b>
<b>Measures (Basic and other basic measures)</b>			
<b>Basic measures (Directive listed in Annex VI Part A)</b>	<b>Measures implemented to adress ... (tick if yes)</b>  poor status/risk for Quality      poor status/risk for Quantity		<b>Explanatory Keywords:</b> for non EU-Member States - add information on corresponding national legislation
<p>Drinking Water Directive (80/778/EEC) as amended by Directive (98/83/EC)      <b>x</b></p> <p>Urban Waste-water Treatment Directive (91/271/EEC)</p> <p>Plant Protection Products Directive (91/414/EEC)</p> <p>Nitrates Directive (91/676/EC)</p> <p>Habitats Directive (92/43/EEC)</p> <p>Integrated Pollution Prevention Control Directive (96/61/EC)</p>			
<b>Other basic measures as required by Article 11(3)(b-l)</b>	<b>Measures implemented to adress ... (tick if yes)</b>  poor status/risk for Quality      poor status/risk for Quantity		<b>Explanatory Keywords:</b> for non EU-Member States - add information on corresponding national legislation
Measures for the protection of water abstracted for drinking water (Article 7) including those to reduce the level of purification required for the production of drinking water (note: these basic measures may not apply to the whole territory)			

Controls over the abstraction of fresh surface water and groundwater and impoundment of fresh surface waters including a register or registers of water abstractions and a requirement for prior authorisation of abstraction and impoundment		
Controls, including a requirement for prior authorisation of artificial recharge or augmentation of gwbodyes		
Requirement for prior regulation of point source discharges liable to cause pollution		
Prohibition of direct discharge of pollutants into groundwater		
Any measures required to prevent significant losses of pollutants from technical installations and to prevent and/or reduce the impact of accidental pollution incidents		
<b>Need for Supplementary/Additional Measures WFD Article 11(4) and 11(5)</b>		
Will the basic measures identified above be sufficient to address the significant Pressures	No	Quantity

<b>Name of the Groundwater Body</b>	Locally used name of the Gwbody		<b>Körös-valley, Sárrét</b>
<b>EuropeantransboundaryGWBCode</b>	Internationally agreed code for a transboundary GW body e.g. 5 (Mures / Maros) if the concerning GWB is a member of them		

EuropeanGWBCode	European code of the GW body e.g. HU_SP.2.16.1		<b>HU_P.2.12.2</b>
<b>Measures (Basic and other basic measures)</b>			
<b>Basic measures (Directive listed in Annex VI Part A)</b>	<b>Measures implemented to adress ... (tick if yes)</b>  poor status/risk for Quality      poor status/risk for Quantity		<b>Explanatory Keywords:</b> for non EU-Member States - add information on corresponding national legislation
<p>Drinking Water Directive (80/778/EEC) as amended by Directive (98/83/EC)      <b>x</b></p> <p>Urban Waste-water Treatment Directive (91/271/EEC)</p> <p>Plant Protection Products Directive (91/414/EEC)</p> <p>Nitrates Directive (91/676/EC)</p> <p>Habitats Directive (92/43/EEC)</p> <p>Integrated Pollution Prevention Control Directive (96/61/EC)</p>			
<b>Other basic measures as required by Article 11(3)(b-I)</b>	<b>Measures implemented to adress ... (tick if yes)</b>  poor status/risk for Quality      poor status/risk for Quantity		<b>Explanatory Keywords:</b> for non EU-Member States - add information on corresponding national legislation
Measures for the protection of water abstracted for drinking water (Article 7) including those to reduce the level of purification required for the production of drinking water (note: these basic measures may not apply to the whole territory)			

**NBL>DWS**



<p>Controls over the abstraction of fresh surface water and groundwater and impoundment of fresh surface waters including a register or registers of water abstractions and a requirement for prior authorisation of abstraction and impoundment</p>		
<p>Controls, including a requirement for prior authorisation of artificial recharge or augmentation of gwbodyes</p>		
<p>Requirement for prior regulation of point source discharges liable to cause pollution</p>		
<p>Prohibition of direct discharge of pollutants into groundwater</p>		
<p>Any measures required to prevent significant losses of pollutants from technical installations and to prevent and/or reduce the impact of accidental pollution incidents</p>		
<p><b>Need for Supplementary/Additional Measures WFD Article 11(4) and 11(5)</b></p>		
<p>Will the basic measures identified above be sufficient to address the significant Pressures</p>	<p>No</p>	<p>Quantity</p>

<b>Name of the Groundwater Body</b>	Locally used name of the Gwbody		<b>Maros alluvial fan</b>
<b>EuropeantransboundaryGWBCode</b>	Internationally agreed code for a transboundary GW body e.g. 5 (Mures / Maros) if the concerning GWB is a member of them		<b>5</b>

EuropeanGWBCode	European code of the GW body e.g. HU_SP.2.16.1		<b>HU_P.2.13.1</b>
<b>Measures (Basic and other basic measures)</b>			
<b>Basic measures (Directive listed in Annex VI Part A)</b>	<b>Measures implemented to adress ... (tick if yes)</b>  poor status/risk for Quality      poor status/risk for Quantity		<b>Explanatory Keywords:</b> for non EU-Member States - add information on corresponding national legislation
<p>Drinking Water Directive (80/778/EEC) as amended by Directive (98/83/EC)      <b>x</b></p> <p>Urban Waste-water Treatment Directive (91/271/EEC)</p> <p>Plant Protection Products Directive (91/414/EEC)</p> <p>Nitrates Directive (91/676/EC)</p> <p>Habitats Directive (92/43/EEC)</p> <p>Integrated Pollution Prevention Control Directive (96/61/EC)</p>			
<b>Other basic measures as required by Article 11(3)(b-l)</b>	<b>Measures implemented to adress ... (tick if yes)</b>  poor status/risk for Quality      poor status/risk for Quantity		<b>Explanatory Keywords:</b> for non EU-Member States - add information on corresponding national legislation
Measures for the protection of water abstracted for drinking water (Article 7) including those to reduce the level of purification required for the production of drinking water (note: these basic measures may not apply to the whole territory)			

<p>Controls over the abstraction of fresh surface water and groundwater and impoundment of fresh surface waters including a register or registers of water abstractions and a requirement for prior authorisation of abstraction and impoundment</p>	
<p>Controls, including a requirement for prior authorisation of artificial recharge or augmentation of gwbodyes</p>	x
<p>Requirement for prior regulation of point source discharges liable to cause pollution</p>	
<p>Prohibition of direct discharge of pollutants into groundwater</p>	
<p>Any measures required to prevent significant losses of pollutants from technical installations and to prevent and/or reduce the impact of accidental pollution incidents</p>	
<p><b>Need for Supplementary/Additional Measures WFD Article 11(4) and 11(5)</b></p>	
<p>Will the basic measures identified above be sufficient to address the significant Pressures</p>	Yes

<b>Name of the Groundwater Body</b>	Locally used name of the Gwbody		<b>Maros-Körös interfluve</b>
<b>EuropeantransboundaryGWBCode</b>	Internationally agreed code for a transboundary GW body e.g. 5 (Mures / Maros) if the concerning GWB is a member of them		<b>5</b>

EuropeanGWBCode	European code of the GW body e.g. HU_SP.2.16.1		<b>HU_P.2.13.2</b>
<b>Measures (Basic and other basic measures)</b>			
<b>Basic measures (Directive listed in Annex VI Part A)</b>	<b>Measures implemented to adress ... (tick if yes)</b>		<b>Explanatory Keywords: for non EU-Member States - add information on corresponding national legislation</b>
Drinking Water Directive (80/778/EEC) as amended by Directive (98/83/EC) Urban Waste-water Treatment Directive (91/271/EEC) Plant Protection Products Directive (91/414/EEC)  Nitrates Directive (91/676/EC) Habitats Directive (92/43/EEC) Integrated Pollution Prevention Control Directive (96/61/EC)	x	poor status/risk for Quality      poor status/risk for Quantity	
<b>Other basic measures as required by Article 11(3)(b-l)</b>	<b>Measures implemented to adress ... (tick if yes)</b>		<b>Explanatory Keywords: for non EU-Member States - add information on corresponding national legislation</b>
Measures for the protection of water abstracted for drinking water (Article 7) including those to reduce the level of purification required for the production of drinking water (note: these basic measures may not apply to the whole territory)		poor status/risk for Quality      poor status/risk for Quantity	

<p>Controls over the abstraction of fresh surface water and groundwater and impoundment of fresh surface waters including a register or registers of water abstractions and a requirement for prior authorisation of abstraction and impoundment</p>	
<p>Controls, including a requirement for prior authorisation of artificial recharge or augmentation of gwbodyes</p>	x
<p>Requirement for prior regulation of point source discharges liable to cause pollution</p>	
<p>Prohibition of direct discharge of pollutants into groundwater</p>	
<p>Any measures required to prevent significant losses of pollutants from technical installations and to prevent and/or reduce the impact of accidental pollution incidents</p>	
<p><b>Need for Supplementary/Additional Measures WFD Article 11(4) and 11(5)</b></p>	
<p>Will the basic measures identified above be sufficient to address the significant Pressures</p>	Yes

Name of the Groundwater Body	Locally used name of the Gwbody		Kígyós-catchment
EuropeantransboundaryGWBCode	Internationally agreed code for a transboundary GW body e.g. 5 (Mures / Maros) if the concerning GWB is a member of them		7

EuropeanGWBCode	European code of the GW body e.g. HU_SP.2.16.1		<b>HU_P.2.16.1</b>
<b>Measures (Basic and other basic measures)</b>			
<b>Basic measures (Directive listed in Annex VI Part A)</b>	<b>Measures implemented to adress ... (tick if yes)</b>  poor status/risk for Quality      poor status/risk for Quantity		<b>Explanatory Keywords:</b> for non EU-Member States - add information on corresponding national legislation
<p>Drinking Water Directive (80/778/EEC) as amended by Directive (98/83/EC)      <b>x</b></p> <p>Urban Waste-water Treatment Directive (91/271/EEC)</p> <p>Plant Protection Products Directive (91/414/EEC)</p> <p>Nitrates Directive (91/676/EC)</p> <p>Habitats Directive (92/43/EEC)</p> <p>Integrated Pollution Prevention Control Directive (96/61/EC)</p>			
<b>Other basic measures as required by Article 11(3)(b-l)</b>	<b>Measures implemented to adress ... (tick if yes)</b>  poor status/risk for Quality      poor status/risk for Quantity		<b>Explanatory Keywords:</b> for non EU-Member States - add information on corresponding national legislation
Measures for the protection of water abstracted for drinking water (Article 7) including those to reduce the level of purification required for the production of drinking water (note: these basic measures may not apply to the whole territory)			

**NBL>DWS**

<p>Controls over the abstraction of fresh surface water and groundwater and impoundment of fresh surface waters including a register or registers of water abstractions and a requirement for prior authorisation of abstraction and impoundment</p>	
<p>Controls, including a requirement for prior authorisation of artificial recharge or augmentation of gwbodyes</p>	x
<p>Requirement for prior regulation of point source discharges liable to cause pollution</p>	
<p>Prohibition of direct discharge of pollutants into groundwater</p>	
<p>Any measures required to prevent significant losses of pollutants from technical installations and to prevent and/or reduce the impact of accidental pollution incidents</p>	
<p><b>Need for Supplementary/Additional Measures WFD Article 11(4) and 11(5)</b></p>	
<p>Will the basic measures identified above be sufficient to address the significant Pressures</p>	Yes

<b>Name of the Groundwater Body</b>	Locally used name of the Gwbody		<b>Szatmár-lowland</b>
<b>EuropeantransboundaryGWBCode</b>	Internationally agreed code for a transboundary GW body e.g. 5 (Mures / Maros) if the concerning GWB is a member of them		<b>6</b>

EuropeanGWBCode	European code of the GW body e.g. HU_SP.2.16.1		<b>HU_SP.2.1.2</b>
<b>Measures (Basic and other basic measures)</b>			
<b>Basic measures (Directive listed in Annex VI Part A)</b>	<b>Measures implemented to adress ... (tick if yes)</b>  poor status/risk for Quality      poor status/risk for Quantity		<b>Explanatory Keywords:</b> for non EU-Member States - add information on corresponding national legislation
Drinking Water Directive (80/778/EEC) as amended by Directive (98/83/EC) Urban Waste-water Treatment Directive (91/271/EEC)      x Plant Protection Products Directive (91/414/EEC) Nitrates Directive (91/676/EC)      x Habitats Directive (92/43/EEC) Integrated Pollution Prevention Control Directive (96/61/EC)			
<b>Other basic measures as required by Article 11(3)(b-I)</b>	<b>Measures implemented to adress ... (tick if yes)</b>  poor status/risk for Quality      poor status/risk for Quantity		<b>Explanatory Keywords:</b> for non EU-Member States - add information on corresponding national legislation
Measures for the protection of water abstracted for drinking water (Article 7) including those to reduce the level of purification required for the production of drinking water (note: these basic measures may not apply to the whole territory)			



Controls over the abstraction of fresh surface water and groundwater and impoundment of fresh surface waters including a register or registers of water abstractions and a requirement for prior authorisation of abstraction and impoundment

Controls, including a requirement for prior authorisation of artificial recharge or augmentation of gwbodyes

Requirement for prior regulation of point source discharges liable to cause pollution

Prohibition of direct discharge of pollutants into groundwater

Any measures required to prevent significant losses of pollutants from technical installations and to prevent and/or reduce the impact of accidental pollution incidents

**Need for Supplementary/Additional Measures  
WFD Article 11(4) and 11(5)**

Will the basic measures identified above be sufficient to address the significant Pressures Yes

<b>Name of the Groundwater Body</b>	Locally used name of the Gwbody		<b>Beregi-lowland, shallow</b>
<b>EuropeantransboundaryGWBCode</b>	Internationally agreed code for a transboundary GW body e.g. 5 (Mures / Maros) if the concerning GWB is a member of them		

EuropeanGWBCode	European code of the GW body e.g. HU_SP.2.16.1		<b>HU_SP.2.2.2.</b>
<b>Measures (Basic and other basic measures)</b>			
<b>Basic measures (Directive listed in Annex VI Part A)</b>	<b>Measures implemented to adress ... (tick if yes)</b>  <b>poor status/risk for Quality</b> <b>poor status/risk for Quantity</b>		<b>Explanatory Keywords:</b> for non EU-Member States - add information on corresponding national legislation
Drinking Water Directive (80/778/EEC) as amended by Directive (98/83/EC) <span style="float: right;">x</span> Urban Waste-water Treatment Directive (91/271/EEC) <span style="float: right;">x</span> Plant Protection Products Directive (91/414/EEC)  Nitrates Directive (91/676/EC) <span style="float: right;">x</span> Habitats Directive (92/43/EEC) Integrated Pollution Prevention Control Directive (96/61/EC) <span style="float: right;">x</span>			<b>NBL&gt;DWS</b>
<b>Other basic measures as required by Article 11(3)(b-I)</b>	<b>Measures implemented to adress ... (tick if yes)</b>  <b>poor status/risk for Quality</b> <b>poor status/risk for Quantity</b>		<b>Explanatory Keywords:</b> for non EU-Member States - add information on corresponding national legislation
Measures for the protection of water abstracted for drinking water (Article 7) including those to reduce the level of purification required for the production of drinking water (note: these basic measures may not apply to the whole territory)			

Controls over the abstraction of fresh surface water and groundwater and impoundment of fresh surface waters including a register or registers of water abstractions and a requirement for prior authorisation of abstraction and impoundment			
			X
Controls, including a requirement for prior authorisation of artificial recharge or augmentation of gwbodyes			X
Requirement for prior regulation of point source discharges liable to cause pollution			
Prohibition of direct discharge of pollutants into groundwater			
Any measures required to prevent significant losses of pollutants from technical installations and to prevent and/or reduce the impact of accidental pollution incidents			
<b>Need for Supplementary/Additional Measures WFD Article 11(4) and 11(5)</b>			
Will the basic measures identified above be sufficient to address the significant Pressures		Yes	

<b>Name of the Groundwater Body</b>	Locally used name of the Gwbody		<b>Nyírség, east margin, shallow</b>
<b>EuropeantransboundaryGWBCode</b>	Internationally agreed code for a transboundary GW body e.g. 5 (Mures / Maros) if the concerning GWB is a member of them		

EuropeanGWBCode	European code of the GW body e.g. HU_SP.2.16.1		<b>HU_SP.2.3.1.</b>
<b>Measures (Basic and other basic measures)</b>			
<b>Basic measures (Directive listed in Annex VI Part A)</b>	<b>Measures implemented to address ... (tick if yes)</b>  <b>poor status/risk for Quality</b> <b>poor status/risk for Quantity</b>		<b>Explanatory Keywords:</b> for non EU-Member States - add information on corresponding national legislation
Drinking Water Directive (80/778/EEC) as amended by Directive (98/83/EC) Urban Waste-water Treatment Directive (91/271/EEC) Plant Protection Products Directive (91/414/EEC) Nitrates Directive (91/676/EC) Habitats Directive (92/43/EEC) Integrated Pollution Prevention Control Directive (96/61/EC)	        x    x   x   x		
<b>Other basic measures as required by Article 11(3)(b-I)</b>	<b>Measures implemented to address ... (tick if yes)</b>  <b>poor status/risk for Quality</b> <b>poor status/risk for Quantity</b>		<b>Explanatory Keywords:</b> for non EU-Member States - add information on corresponding national legislation
Measures for the protection of water abstracted for drinking water (Article 7) including those to reduce the level of purification required for the production of drinking water (note: these basic measures may not apply to the whole territory)			

Controls over the abstraction of fresh surface water and groundwater and impoundment of fresh surface waters including a register or registers of water abstractions and a requirement for prior authorisation of abstraction and impoundment			
			X
Controls, including a requirement for prior authorisation of artificial recharge or augmentation of gwbodyes			X
Requirement for prior regulation of point source discharges liable to cause pollution			
Prohibition of direct discharge of pollutants into groundwater			
Any measures required to prevent significant losses of pollutants from technical installations and to prevent and/or reduce the impact of accidental pollution incidents			
<b>Need for Supplementary/Additional Measures WFD Article 11(4) and 11(5)</b>			
Will the basic measures identified above be sufficient to address the significant Pressures		No	Both

<b>Name of the Groundwater Body</b>	Locally used name of the Gwbody		<b>Kraszna-valley, Szamos-valley, shallow</b>
<b>EuropeantransboundaryGWBCode</b>	Internationally agreed code for a transboundary GW body e.g. 5 (Mures / Maros) if the concerning GWB is a member of them		<b>6</b>

<b>EuropeanGWBCode</b>	European code of the GW body e.g. HU_SP.2.16.1		<b>HU_SP.2.3.2.</b>
<b>Measures (Basic and other basic measures)</b>			
<b>Basic measures (Directive listed in Annex VI Part A)</b>	<b>Measures implemented to adress ... (tick if yes)</b>		<b>Explanatory Keywords:</b> for non EU-Member States - add information on corresponding national legislation
	<b>poor status/risk for Quality</b>	<b>poor status/risk for Quantity</b>	
Drinking Water Directive (80/778/EEC) as amended by Directive (98/83/EC)			
Urban Waste-water Treatment Directive (91/271/EEC)	x		
Plant Protection Products Directive (91/414/EEC)			
Nitrates Directive (91/676/EC)	x		
Habitats Directive (92/43/EEC)			
Integrated Pollution Prevention Control Directive (96/61/EC)	x		
<b>Other basic measures as required by Article 11(3)(b-I)</b>	<b>Measures implemented to adress ... (tick if yes)</b>		<b>Explanatory Keywords:</b> for non EU-Member States - add information on corresponding national legislation
	<b>poor status/risk for Quality</b>	<b>poor status/risk for Quantity</b>	
Measures for the protection of water abstracted for drinking water (Article 7) including those to reduce the level of purification required for the production of drinking water (note: these basic measures may not apply to the whole territory)			

Controls over the abstraction of fresh surface water and groundwater and impoundment of fresh surface waters including a register or registers of water abstractions and a requirement for prior authorisation of abstraction and impoundment		
		x
Controls, including a requirement for prior authorisation of artificial recharge or augmentation of gwbodyes		x
Requirement for prior regulation of point source discharges liable to cause pollution		
Prohibition of direct discharge of pollutants into groundwater		
Any measures required to prevent significant losses of pollutants from technical installations and to prevent and/or reduce the impact of accidental pollution incidents		
<b>Need for Supplementary/Additional Measures WFD Article 11(4) and 11(5)</b>		
Will the basic measures identified above be sufficient to address the significant Pressures	No	Quantity

<b>Name of the Groundwater Body</b>	Locally used name of the Gwbody		<b>Nyírség - Lónyay-main-canal catchmnet, shallow</b>
<b>EuropeantransboundaryGWBCode</b>	Internationally agreed code for a transboundary GW body e.g. 5 (Mures / Maros) if the concerning GWB is a member of them		

<b>EuropeanGWBCode</b>	European code of the GW body e.g. HU_SP.2.16.1		<b>HU_SP.2.4.1</b>
<b>Measures (Basic and other basic measures)</b>			
<b>Basic measures (Directive listed in Annex VI Part A)</b>	<b>Measures implemented to adress ... (tick if yes)</b>		<b>Explanatory Keywords:</b> for non EU-Member States - add information on corresponding national legislation
	<b>poor status/risk for Quality</b>	<b>poor status/risk for Quantity</b>	
Drinking Water Directive (80/778/EEC) as amended by Directive (98/83/EC) Urban Waste-water Treatment Directive (91/271/EEC) Plant Protection Products Directive (91/414/EEC)  Nitrates Directive (91/676/EC) Habitats Directive (92/43/EEC) Integrated Pollution Prevention Control Directive (96/61/EC)	x      x		
<b>Other basic measures as required by Article 11(3)(b-l)</b>	<b>Measures implemented to adress ... (tick if yes)</b>		<b>Explanatory Keywords:</b> for non EU-Member States - add information on corresponding national legislation
	<b>poor status/risk for Quality</b>	<b>poor status/risk for Quantity</b>	
Measures for the protection of water abstracted for drinking water (Article 7) including those to reduce the level of purification required for the production of drinking water (note: these basic measures may not apply to the whole territory)			



Controls over the abstraction of fresh surface water and groundwater and impoundment of fresh surface waters including a register or registers of water abstractions and a requirement for prior authorisation of abstraction and impoundment

Controls, including a requirement for prior authorisation of artificial recharge or augmentation of gwbodyes

Requirement for prior regulation of point source discharges liable to cause pollution

Prohibition of direct discharge of pollutants into groundwater

Any measures required to prevent significant losses of pollutants from technical installations and to prevent and/or reduce the impact of accidental pollution incidents

**Need for Supplementary/Additional Measures  
WFD Article 11(4) and 11(5)**

Will the basic measures identified above be sufficient to address the significant Pressures

**No**

**Quantity**

<b>Name of the Groundwater Body</b>	Locally used name of the Gwbody		<b>Rétköz, shallow</b>
<b>EuropeantransboundaryGWBCode</b>	Internationally agreed code for a transboundary GW body e.g. 5 (Mures / Maros) if the concerning GWB is a member of them		

<b>EuropeanGWBCode</b>	European code of the GW body e.g. HU_SP.2.16.1		<b>HU_SP.2.4.2</b>
<b>Measures (Basic and other basic measures)</b>			
<b>Basic measures (Directive listed in Annex VI Part A)</b>	<b>Measures implemented to adress ... (tick if yes)</b>  poor status/risk for Quality      poor status/risk for Quantity		<b>Explanatory Keywords:</b> for non EU-Member States - add information on corresponding national legislation
<p>Drinking Water Directive (80/778/EEC) as amended by Directive (98/83/EC)</p> <p>Urban Waste-water Treatment Directive (91/271/EEC) <span style="float: right;">x</span></p> <p>Plant Protection Products Directive (91/414/EEC)</p> <p>Nitrates Directive (91/676/EC) <span style="float: right;">x</span></p> <p>Habitats Directive (92/43/EEC)</p> <p>Integrated Pollution Prevention Control Directive (96/61/EC) <span style="float: right;">x</span></p>			
<b>Other basic measures as required by Article 11(3)(b-l)</b>	<b>Measures implemented to adress ... (tick if yes)</b>  poor status/risk for Quality      poor status/risk for Quantity		<b>Explanatory Keywords:</b> for non EU-Member States - add information on corresponding national legislation
Measures for the protection of water abstracted for drinking water (Article 7) including those to reduce the level of purification required for the production of drinking water (note: these basic measures may not apply to the whole territory)			

Controls over the abstraction of fresh surface water and groundwater and impoundment of fresh surface waters including a register or registers of water abstractions and a requirement for prior authorisation of abstraction and impoundment

Controls, including a requirement for prior authorisation of artificial recharge or augmentation of gwbodyes

Requirement for prior regulation of point source discharges liable to cause pollution

Prohibition of direct discharge of pollutants into groundwater

Any measures required to prevent significant losses of pollutants from technical installations and to prevent and/or reduce the impact of accidental pollution incidents

**Need for Supplementary/Additional Measures  
WFD Article 11(4) and 11(5)**

Will the basic measures identified above be sufficient to address the significant Pressures

**No**

**Quantity**

<b>Name of the Groundwater Body</b>	Locally used name of the Gwbody		<b>Bodrogköz, shallow</b>
<b>EuropeantransboundaryGWBCode</b>	Internationally agreed code for a transboundary GW body e.g. 5 (Mures / Maros) if the concerning GWB is a member of them		<b>9</b>

EuropeanGWBCode	European code of the GW body e.g. HU_SP.2.16.1		<b>HU_SP.2.5.2</b>
<b>Measures (Basic and other basic measures)</b>			
<b>Basic measures (Directive listed in Annex VI Part A)</b>	<b>Measures implemented to adress ... (tick if yes)</b>  <b>poor status/risk for Quality</b> <b>poor status/risk for Quantity</b>		<b>Explanatory Keywords:</b> for non EU-Member States - add information on corresponding national legislation
Drinking Water Directive (80/778/EEC) as amended by Directive (98/83/EC) <span style="float: right;">x</span> Urban Waste-water Treatment Directive (91/271/EEC) <span style="float: right;">x</span> Plant Protection Products Directive (91/414/EEC) <span style="float: right;">x</span> Nitrates Directive (91/676/EC) <span style="float: right;">x</span> Habitats Directive (92/43/EEC) <span style="float: right;">x</span> Integrated Pollution Prevention Control Directive (96/61/EC) <span style="float: right;">x</span>			
<b>Other basic measures as required by Article 11(3)(b-I)</b>	<b>Measures implemented to adress ... (tick if yes)</b>  <b>poor status/risk for Quality</b> <b>poor status/risk for Quantity</b>		<b>Explanatory Keywords:</b> for non EU-Member States - add information on corresponding national legislation
Measures for the protection of water abstracted for drinking water (Article 7) including those to reduce the level of purification required for the production of drinking water (note: these basic measures may not apply to the whole territory)			

Controls over the abstraction of fresh surface water and groundwater and impoundment of fresh surface waters including a register or registers of water abstractions and a requirement for prior authorisation of abstraction and impoundment		
		x
Controls, including a requirement for prior authorisation of artificial recharge or augmentation of gwbodyes		x
Requirement for prior regulation of point source discharges liable to cause pollution		
Prohibition of direct discharge of pollutants into groundwater		
Any measures required to prevent significant losses of pollutants from technical installations and to prevent and/or reduce the impact of accidental pollution incidents		
<b>Need for Supplementary/Additional Measures WFD Article 11(4) and 11(5)</b>		
Will the basic measures identified above be sufficient to address the significant Pressures	No	Both

<b>Name of the Groundwater Body</b>	Locally used name of the Gwbody		<b>Nyírség southern part, Hajdúság, shallow</b>
<b>EuropeantransboundaryGWBCode</b>	Internationally agreed code for a transboundary GW body e.g. 5 (Mures / Maros) if the concerning GWB is a member of them		

EuropeanGWBCode	European code of the GW body e.g. HU_SP.2.16.1		<b>HU_SP.2.6.1.</b>
<b>Measures (Basic and other basic measures)</b>			
<b>Basic measures (Directive listed in Annex VI Part A)</b>	<b>Measures implemented to address ... (tick if yes)</b>  poor status/risk for Quality      poor status/risk for Quantity		<b>Explanatory Keywords:</b> for non EU-Member States - add information on corresponding national legislation
<p>Drinking Water Directive (80/778/EEC) as amended by Directive (98/83/EC)</p> <p>Urban Waste-water Treatment Directive (91/271/EEC) <span style="margin-left: 150px;">x</span></p> <p>Plant Protection Products Directive (91/414/EEC)</p> <p>Nitrates Directive (91/676/EC) <span style="margin-left: 150px;">x</span></p> <p>Habitats Directive (92/43/EEC)</p> <p>Integrated Pollution Prevention Control Directive (96/61/EC) <span style="margin-left: 150px;">x</span></p>			
<b>Other basic measures as required by Article 11(3)(b-I)</b>	<b>Measures implemented to address ... (tick if yes)</b>  poor status/risk for Quality      poor status/risk for Quantity		<b>Explanatory Keywords:</b> for non EU-Member States - add information on corresponding national legislation
Measures for the protection of water abstracted for drinking water (Article 7) including those to reduce the level of purification required for the production of drinking water (note: these basic measures may not apply to the whole territory)			

Controls over the abstraction of fresh surface water and groundwater and impoundment of fresh surface waters including a register or registers of water abstractions and a requirement for prior authorisation of abstraction and impoundment		
		x
Controls, including a requirement for prior authorisation of artificial recharge or augmentation of gwbodyes		x
Requirement for prior regulation of point source discharges liable to cause pollution		
Prohibition of direct discharge of pollutants into groundwater		
Any measures required to prevent significant losses of pollutants from technical installations and to prevent and/or reduce the impact of accidental pollution incidents		
<b>Need for Supplementary/Additional Measures WFD Article 11(4) and 11(5)</b>		
Will the basic measures identified above be sufficient to address the significant Pressures	<b>No</b>	<b>Quantity</b>

<b>Name of the Groundwater Body</b>	Locally used name of the Gwbody		<b>Hortobágy, Nagykunság, Bihar northern part, shallow</b>
<b>EuropeantransboundaryGWBCode</b>	Internationally agreed code for a transboundary GW body e.g. 5 (Mures / Maros) if the concerning GWB is a member of them		

<b>EuropeanGWBCode</b>	European code of the GW body e.g. HU_SP.2.16.1		<b>HU_SP.2.6.2</b>
<b>Measures (Basic and other basic measures)</b>			
<b>Basic measures (Directive listed in Annex VI Part A)</b>	<b>Measures implemented to adress ... (tick if yes)</b>	<b>poor status/risk for Quality</b>	<b>poor status/risk for Quantity</b>
Drinking Water Directive (80/778/EEC) as amended by Directive (98/83/EC)			<b>Explanatory Keywords:</b> for non EU-Member States - add information on corresponding national legislation
Urban Waste-water Treatment Directive (91/271/EEC)	x		
Plant Protection Products Directive (91/414/EEC)			
Nitrates Directive (91/676/EC)	x		
Habitats Directive (92/43/EEC)			
Integrated Pollution Prevention Control Directive (96/61/EC)			
<b>Other basic measures as required by Article 11(3)(b-l)</b>	<b>Measures implemented to adress ... (tick if yes)</b>	<b>poor status/risk for Quality</b>	<b>poor status/risk for Quantity</b>
Measures for the protection of water abstracted for drinking water (Article 7) including those to reduce the level of purification required for the production of drinking water (note: these basic measures may not apply to the whole territory)			<b>Explanatory Keywords:</b> for non EU-Member States - add information on corresponding national legislation



Controls over the abstraction of fresh surface water and groundwater and impoundment of fresh surface waters including a register or registers of water abstractions and a requirement for prior authorisation of abstraction and impoundment		
		x
Controls, including a requirement for prior authorisation of artificial recharge or augmentation of gwbodyes		x
Requirement for prior regulation of point source discharges liable to cause pollution		
Prohibition of direct discharge of pollutants into groundwater		
Any measures required to prevent significant losses of pollutants from technical installations and to prevent and/or reduce the impact of accidental pollution incidents		
<b>Need for Supplementary/Additional Measures WFD Article 11(4) and 11(5)</b>		
Will the basic measures identified above be sufficient to address the significant Pressures	<b>No</b>	<b>both</b>

<b>Name of the Groundwater Body</b>	Locally used name of the Gwbody		<b>Cserehát</b>
<b>EuropeantransboundaryGWBCode</b>	Internationally agreed code for a transboundary GW body e.g. 5 (Mures / Maros) if the concerning GWB is a member of them		

<b>EuropeanGWBCode</b>	European code of the GW body e.g. HU_SP.2.16.1		<b>HU_SP.2.7.1</b>
<b>Measures (Basic and other basic measures)</b>			
<b>Basic measures (Directive listed in Annex VI Part A)</b>	<b>Measures implemented to adress ... (tick if yes)</b>		<b>Explanatory Keywords:</b> for non EU-Member States - add information on corresponding national legislation
	<b>poor status/risk for Quality</b>	<b>poor status/risk for Quantity</b>	
Drinking Water Directive (80/778/EEC) as amended by Directive (98/83/EC)	x		
Urban Waste-water Treatment Directive (91/271/EEC)			
Plant Protection Products Directive (91/414/EEC)			
Nitrates Directive (91/676/EC)	x		
Habitats Directive (92/43/EEC)			
Integrated Pollution Prevention Control Directive (96/61/EC)	x	x	
<b>Other basic measures as required by Article 11(3)(b-I)</b>	<b>Measures implemented to adress ... (tick if yes)</b>		<b>Explanatory Keywords:</b> for non EU-Member States - add information on corresponding national legislation
	<b>poor status/risk for Quality</b>	<b>poor status/risk for Quantity</b>	
Measures for the protection of water abstracted for drinking water (Article 7) including those to reduce the level of purification required for the production of drinking water (note: these basic measures may not apply to the whole territory)			

<p>Controls over the abstraction of fresh surface water and groundwater and impoundment of fresh surface waters including a register or registers of water abstractions and a requirement for prior authorisation of abstraction and impoundment</p>	
<p>Controls, including a requirement for prior authorisation of artificial recharge or augmentation of gwbodyes</p>	x
<p>Requirement for prior regulation of point source discharges liable to cause pollution</p>	
<p>Prohibition of direct discharge of pollutants into groundwater</p>	
<p>Any measures required to prevent significant losses of pollutants from technical installations and to prevent and/or reduce the impact of accidental pollution incidents</p>	
<p><b>Need for Supplementary/Additional Measures WFD Article 11(4) and 11(5)</b></p>	
<p>Will the basic measures identified above be sufficient to address the significant Pressures</p>	Yes

<b>Name of the Groundwater Body</b>	Locally used name of the Gwbody		<b>Sajó-Hernád-valley, shallow</b>
<b>EuropeantransboundaryGWBCode</b>	Internationally agreed code for a transboundary GW body e.g. 5 (Mures / Maros) if the concerning GWB is a member of them		

<b>EuropeanGWBCode</b>	European code of the GW body e.g. HU_SP.2.16.1		<b>HU_SP.2.8.1</b>
<b>Measures (Basic and other basic measures)</b>			
<b>Basic measures (Directive listed in Annex VI Part A)</b>	<b>Measures implemented to adress ... (tick if yes)</b>		<b>Explanatory Keywords:</b> for non EU-Member States - add information on corresponding national legislation
	<b>poor status/risk for Quality</b>	<b>poor status/risk for Quantity</b>	
Drinking Water Directive (80/778/EEC) as amended by Directive (98/83/EC)	x		<b>NBL&gt;DWS</b>
Urban Waste-water Treatment Directive (91/271/EEC)	x		
Plant Protection Products Directive (91/414/EEC)			
Nitrates Directive (91/676/EC)	x		
Habitats Directive (92/43/EEC)			
Integrated Pollution Prevention Control Directive (96/61/EC)	x	x	
<b>Other basic measures as required by Article 11(3)(b-l)</b>	<b>Measures implemented to adress ... (tick if yes)</b>		<b>Explanatory Keywords:</b> for non EU-Member States - add information on corresponding national legislation
	<b>poor status/risk for Quality</b>	<b>poor status/risk for Quantity</b>	
Measures for the protection of water abstracted for drinking water (Article 7) including those to reduce the level of purification required for the production of drinking water (note: these basic measures may not apply to the whole territory)			

Controls over the abstraction of fresh surface water and groundwater and impoundment of fresh surface waters including a register or registers of water abstractions and a requirement for prior authorisation of abstraction and impoundment		
		x
Controls, including a requirement for prior authorisation of artificial recharge or augmentation of gwbodyes		x
Requirement for prior regulation of point source discharges liable to cause pollution		
Prohibition of direct discharge of pollutants into groundwater		
Any measures required to prevent significant losses of pollutants from technical installations and to prevent and/or reduce the impact of accidental pollution incidents		
<b>Need for Supplementary/Additional Measures WFD Article 11(4) and 11(5)</b>		
Will the basic measures identified above be sufficient to address the significant Pressures	<b>No</b>	<b>Quality</b>

<b>Name of the Groundwater Body</b>	Locally used name of the Gwbody		<b>Sajó-Takta-valley, Hortobágy, shallow</b>
<b>EuropeantransboundaryGWBCode</b>	Internationally agreed code for a transboundary GW body e.g. 5 (Mures / Maros) if the concerning GWB is a member of them		

EuropeanGWBCode	European code of the GW body e.g. HU_SP.2.16.1		<b>HU_SP.2.8.2</b>
<b>Measures (Basic and other basic measures)</b>			
<b>Basic measures (Directive listed in Annex VI Part A)</b>	<b>Measures implemented to adress ... (tick if yes)</b>  poor status/risk for Quality      poor status/risk for Quantity		<b>Explanatory Keywords:</b> for non EU-Member States - add information on corresponding national legislation
Drinking Water Directive (80/778/EEC) as amended by Directive (98/83/EC)	x		
Urban Waste-water Treatment Directive (91/271/EEC)	x		
Plant Protection Products Directive (91/414/EEC)			
Nitrates Directive (91/676/EC)	x		
Habitats Directive (92/43/EEC)			
Integrated Pollution Prevention Control Directive (96/61/EC)	x	x	<b>Explanatory Keywords:</b> for non EU-Member States - add information on corresponding national legislation
<b>Other basic measures as required by Article 11(3)(b-l)</b>	<b>Measures implemented to adress ... (tick if yes)</b>  poor status/risk for Quality      poor status/risk for Quantity		
Measures for the protection of water abstracted for drinking water (Article 7) including those to reduce the level of purification required for the production of drinking water (note: these basic measures may not apply to the whole territory)			

Controls over the abstraction of fresh surface water and groundwater and impoundment of fresh surface waters including a register or registers of water abstractions and a requirement for prior authorisation of abstraction and impoundment		
		x
Controls, including a requirement for prior authorisation of artificial recharge or augmentation of gwbodyes		x
Requirement for prior regulation of point source discharges liable to cause pollution		
Prohibition of direct discharge of pollutants into groundwater		
Any measures required to prevent significant losses of pollutants from technical installations and to prevent and/or reduce the impact of accidental pollution incidents		
<b>Need for Supplementary/Additional Measures WFD Article 11(4) and 11(5)</b>		
Will the basic measures identified above be sufficient to address the significant Pressures	Yes	Quantity

Name of the Groundwater Body	Locally used name of the Gwbody		Északi-középhegység, margin, shallow
EuropeantransboundaryGWBCode	Internationally agreed code for a transboundary GW body e.g. 5 (Mures / Maros) if the concerning GWB is a member of them		

EuropeanGWBCode	European code of the GW body e.g. HU_SP.2.16.1		<b>HU_SP.2.9.1</b>
<b>Measures (Basic and other basic measures)</b>			
<b>Basic measures (Directive listed in Annex VI Part A)</b>	<b>Measures implemented to adress ... (tick if yes)</b>  poor status/risk for Quality      poor status/risk for Quantity		<b>Explanatory Keywords:</b> for non EU-Member States - add information on corresponding national legislation
Drinking Water Directive (80/778/EEC) as amended by Directive (98/83/EC) Urban Waste-water Treatment Directive (91/271/EEC) Plant Protection Products Directive (91/414/EEC)  Nitrates Directive (91/676/EC) Habitats Directive (92/43/EEC) Integrated Pollution Prevention Control Directive (96/61/EC)	x    x   x	       x	
<b>Other basic measures as required by Article 11(3)(b-l)</b>	<b>Measures implemented to adress ... (tick if yes)</b>  poor status/risk for Quality      poor status/risk for Quantity		<b>Explanatory Keywords:</b> for non EU-Member States - add information on corresponding national legislation
Measures for the protection of water abstracted for drinking water (Article 7) including those to reduce the level of purification required for the production of drinking water (note: these basic measures may not apply to the whole territory)			



Controls over the abstraction of fresh surface water and groundwater and impoundment of fresh surface waters including a register or registers of water abstractions and a requirement for prior authorisation of abstraction and impoundment		
		x
Controls, including a requirement for prior authorisation of artificial recharge or augmentation of gwbodyes		x
Requirement for prior regulation of point source discharges liable to cause pollution		
Prohibition of direct discharge of pollutants into groundwater		
Any measures required to prevent significant losses of pollutants from technical installations and to prevent and/or reduce the impact of accidental pollution incidents		
<b>Need for Supplementary/Additional Measures WFD Article 11(4) and 11(5)</b>		
Will the basic measures identified above be sufficient to address the significant Pressures	No	both

Name of the Groundwater Body	Locally used name of the Gwbody		Jászág, Nagykunság, shallow
EuropeantransboundaryGWBCode	Internationally agreed code for a transboundary GW body e.g. 5 (Mures / Maros) if the concerning GWB is a member of them		

EuropeanGWBCode	European code of the GW body e.g. HU_SP.2.16.1		<b>HU_SP.2.9.2</b>
<b>Measures (Basic and other basic measures)</b>			
<b>Basic measures (Directive listed in Annex VI Part A)</b>	<b>Measures implemented to adress ... (tick if yes)</b>  poor status/risk for Quality      poor status/risk for Quantity		<b>Explanatory Keywords:</b> for non EU-Member States - add information on corresponding national legislation
Drinking Water Directive (80/778/EEC) as amended by Directive (98/83/EC)      x Urban Waste-water Treatment Directive (91/271/EEC) Plant Protection Products Directive (91/414/EEC)  Nitrates Directive (91/676/EC) Habitats Directive (92/43/EEC) Integrated Pollution Prevention Control Directive (96/61/EC)			
<b>Other basic measures as required by Article 11(3)(b-I)</b>	<b>Measures implemented to adress ... (tick if yes)</b>  poor status/risk for Quality      poor status/risk for Quantity		<b>Explanatory Keywords:</b> for non EU-Member States - add information on corresponding national legislation
Measures for the protection of water abstracted for drinking water (Article 7) including those to reduce the level of purification required for the production of drinking water (note: these basic measures may not apply to the whole territory)			

Controls over the abstraction of fresh surface water and groundwater and impoundment of fresh surface waters including a register or registers of water abstractions and a requirement for prior authorisation of abstraction and impoundment		
Controls, including a requirement for prior authorisation of artificial recharge or augmentation of gwbodyes		
Requirement for prior regulation of point source discharges liable to cause pollution		
Prohibition of direct discharge of pollutants into groundwater		
Any measures required to prevent significant losses of pollutants from technical installations and to prevent and/or reduce the impact of accidental pollution incidents		
<b>Need for Supplementary/Additional Measures WFD Article 11(4) and 11(5)</b>		
Will the basic measures identified above be sufficient to address the significant Pressures	No	both

<b>Name of the Groundwater Body</b>	Locally used name of the Gwbody		<b>Danube-Tisza interfluve - Tisza-catchmnet, northern part, shallow</b>
<b>EuropeantransboundaryGWBCode</b>	Internationally agreed code for a transboundary GW body e.g. 5 (Mures / Maros) if the concerning GWB is a member of them		



Controls over the abstraction of fresh surface water and groundwater and impoundment of fresh surface waters including a register or registers of water abstractions and a requirement for prior authorisation of abstraction and impoundment			
			x
Controls, including a requirement for prior authorisation of artificial recharge or augmentation of gwbodyes			x
Requirement for prior regulation of point source discharges liable to cause pollution			
Prohibition of direct discharge of pollutants into groundwater			
Any measures required to prevent significant losses of pollutants from technical installations and to prevent and/or reduce the impact of accidental pollution incidents			
<b>Need for Supplementary/Additional Measures WFD Article 11(4) and 11(5)</b>			
Will the basic measures identified above be sufficient to address the significant Pressures	<b>No</b>		<b>Quality</b>

<b>Name of the Groundwater Body</b>	Locally used name of the Gwbody		<b>Danube-Tisza interfluve - Middle Tisza-valley, shallow</b>
<b>EuropeantransboundaryGWBCode</b>	Internationally agreed code for a transboundary GW body e.g. 5 (Mures / Maros) if the concerning GWB is a member of them		



Controls over the abstraction of fresh surface water and groundwater and impoundment of fresh surface waters including a register or registers of water abstractions and a requirement for prior authorisation of abstraction and impoundment		
		x
Controls, including a requirement for prior authorisation of artificial recharge or augmentation of gwbodyes		x
Requirement for prior regulation of point source discharges liable to cause pollution		
Prohibition of direct discharge of pollutants into groundwater		
Any measures required to prevent significant losses of pollutants from technical installations and to prevent and/or reduce the impact of accidental pollution incidents		
<b>Need for Supplementary/Additional Measures WFD Article 11(4) and 11(5)</b>		
Will the basic measures identified above be sufficient to address the significant Pressures	No	Quantity

<b>Name of the Groundwater Body</b>	Locally used name of the Gwbody		<b>Danube-Tisza interfluve, southern part, shallow</b>
<b>EuropeantransboundaryGWBCode</b>	Internationally agreed code for a transboundary GW body e.g. 5 (Mures / Maros) if the concerning GWB is a member of them		7





Controls over the abstraction of fresh surface water and groundwater and impoundment of fresh surface waters including a register or registers of water abstractions and a requirement for prior authorisation of abstraction and impoundment			
			x
Controls, including a requirement for prior authorisation of artificial recharge or augmentation of gwbodyes			x
Requirement for prior regulation of point source discharges liable to cause pollution			
Prohibition of direct discharge of pollutants into groundwater			
Any measures required to prevent significant losses of pollutants from technical installations and to prevent and/or reduce the impact of accidental pollution incidents			
<b>Need for Supplementary/Additional Measures WFD Article 11(4) and 11(5)</b>			
Will the basic measures identified above be sufficient to address the significant Pressures	<b>No</b>		<b>Quantity</b>

<b>Name of the Groundwater Body</b>	Locally used name of the Gwbody		<b>Danube-Tisza interfluve, Lower Tisza-valley, shallow</b>
<b>EuropeantransboundaryGWBCode</b>	Internationally agreed code for a transboundary GW body e.g. 5 (Mures / Maros) if the concerning GWB is a member of them		<b>7</b>



Controls over the abstraction of fresh surface water and groundwater and impoundment of fresh surface waters including a register or registers of water abstractions and a requirement for prior authorisation of abstraction and impoundment		
		x
Controls, including a requirement for prior authorisation of artificial recharge or augmentation of gwbodyes		x
Requirement for prior regulation of point source discharges liable to cause pollution		
Prohibition of direct discharge of pollutants into groundwater		
Any measures required to prevent significant losses of pollutants from technical installations and to prevent and/or reduce the impact of accidental pollution incidents		
<b>Need for Supplementary/Additional Measures WFD Article 11(4) and 11(5)</b>		
Will the basic measures identified above be sufficient to address the significant Pressures	<b>No</b>	<b>Quantity</b>

<b>Name of the Groundwater Body</b>	Locally used name of the Gwbody		<b>Körös-valley, Sárrét, shallow</b>
<b>EuropeantransboundaryGWBCode</b>	Internationally agreed code for a transboundary GW body e.g. 5 (Mures / Maros) if the concerning GWB is a member of them		



Controls over the abstraction of fresh surface water and groundwater and impoundment of fresh surface waters including a register or registers of water abstractions and a requirement for prior authorisation of abstraction and impoundment			
			X
Controls, including a requirement for prior authorisation of artificial recharge or augmentation of gwbodyes			X
Requirement for prior regulation of point source discharges liable to cause pollution			
Prohibition of direct discharge of pollutants into groundwater			
Any measures required to prevent significant losses of pollutants from technical installations and to prevent and/or reduce the impact of accidental pollution incidents			
<b>Need for Supplementary/Additional Measures WFD Article 11(4) and 11(5)</b>			
Will the basic measures identified above be sufficient to address the significant Pressures	No		Quantity

<b>Name of the Groundwater Body</b>	Locally used name of the Gwbody		<b>Maros alluvial fan, shallow</b>
<b>EuropeantransboundaryGWBCode</b>	Internationally agreed code for a transboundary GW body e.g. 5 (Mures / Maros) if the concerning GWB is a member of them		<b>5</b>

<b>EuropeanGWBCode</b>	European code of the GW body e.g. HU_SP.2.16.1		<b>HU_SP.2.13.1</b>
<b>Measures (Basic and other basic measures)</b>			
<b>Basic measures (Directive listed in Annex VI Part A)</b>	<b>Measures implemented to adress ... (tick if yes)</b>	<b>poor status/risk for Quality</b>	<b>poor status/risk for Quantity</b>
Drinking Water Directive (80/778/EEC) as amended by Directive (98/83/EC)	x		
Urban Waste-water Treatment Directive (91/271/EEC)	x		
Plant Protection Products Directive (91/414/EEC)			
Nitrates Directive (91/676/EC)	x		
Habitats Directive (92/43/EEC)			
Integrated Pollution Prevention Control Directive (96/61/EC)	x		x
<b>Other basic measures as required by Article 11(3)(b-l)</b>	<b>Measures implemented to adress ... (tick if yes)</b>	<b>poor status/risk for Quality</b>	<b>poor status/risk for Quantity</b>
Measures for the protection of water abstracted for drinking water (Article 7) including those to reduce the level of purification required for the production of drinking water (note: these basic measures may not apply to the whole territory)			

Controls over the abstraction of fresh surface water and groundwater and impoundment of fresh surface waters including a register or registers of water abstractions and a requirement for prior authorisation of abstraction and impoundment			
			x
Controls, including a requirement for prior authorisation of artificial recharge or augmentation of gwbodyes			x
Requirement for prior regulation of point source discharges liable to cause pollution			
Prohibition of direct discharge of pollutants into groundwater			
Any measures required to prevent significant losses of pollutants from technical installations and to prevent and/or reduce the impact of accidental pollution incidents			
<b>Need for Supplementary/Additional Measures WFD Article 11(4) and 11(5)</b>			
Will the basic measures identified above be sufficient to address the significant Pressures	No		Quality

<b>Name of the Groundwater Body</b>	Locally used name of the Gwbody		<b>Maros-Körös interfluve, shallow</b>
<b>EuropeantransboundaryGWBCode</b>	Internationally agreed code for a transboundary GW body e.g. 5 (Mures / Maros) if the concerning GWB is a member of them		<b>5</b>





Controls over the abstraction of fresh surface water and groundwater and impoundment of fresh surface waters including a register or registers of water abstractions and a requirement for prior authorisation of abstraction and impoundment			
			x
Controls, including a requirement for prior authorisation of artificial recharge or augmentation of gwbodyes			x
Requirement for prior regulation of point source discharges liable to cause pollution			
Prohibition of direct discharge of pollutants into groundwater			
Any measures required to prevent significant losses of pollutants from technical installations and to prevent and/or reduce the impact of accidental pollution incidents			
<b>Need for Supplementary/Additional Measures WFD Article 11(4) and 11(5)</b>			
Will the basic measures identified above be sufficient to address the significant Pressures	No		both

<b>Name of the Groundwater Body</b>	Locally used name of the Gwbody		<b>Kigyós-catchment, shallow</b>
<b>EuropeantransboundaryGWBCode</b>	Internationally agreed code for a transboundary GW body e.g. 5 (Mures / Maros) if the concerning GWB is a member of them		7



Controls over the abstraction of fresh surface water and groundwater and impoundment of fresh surface waters including a register or registers of water abstractions and a requirement for prior authorisation of abstraction and impoundment			
			x
Controls, including a requirement for prior authorisation of artificial recharge or augmentation of gwbodyes			x
Requirement for prior regulation of point source discharges liable to cause pollution			
Prohibition of direct discharge of pollutants into groundwater			
Any measures required to prevent significant losses of pollutants from technical installations and to prevent and/or reduce the impact of accidental pollution incidents			
<b>Need for Supplementary/Additional Measures WFD Article 11(4) and 11(5)</b>			
Will the basic measures identified above be sufficient to address the significant Pressures	No		Quality

<b>Name of the Groundwater Body</b>	Locally used name of the Gwbody		<b>Southern Great Plain</b>
<b>EuropeantransboundaryGWBCode</b>	Internationally agreed code for a transboundary GW body e.g. 5 (Mures / Maros) if the concerning GWB is a member of them		

EuropeanGWBCode	European code of the GW body e.g. HU_SP.2.16.1		<b>HU_PT.2.1</b>
<b>Measures (Basic and other basic measures)</b>			
<b>Basic measures (Directive listed in Annex VI Part A)</b>	<b>Measures implemented to adress ... (tick if yes)</b>  poor status/risk for Quality      poor status/risk for Quantity		<b>Explanatory Keywords:</b> for non EU-Member States - add information on corresponding national legislation
Drinking Water Directive (80/778/EEC) as amended by Directive (98/83/EC)      x Urban Waste-water Treatment Directive (91/271/EEC) Plant Protection Products Directive (91/414/EEC)  Nitrates Directive (91/676/EC) Habitats Directive (92/43/EEC) Integrated Pollution Prevention Control Directive (96/61/EC)			
<b>Other basic measures as required by Article 11(3)(b-l)</b>	<b>Measures implemented to adress ... (tick if yes)</b>  poor status/risk for Quality      poor status/risk for Quantity		<b>Explanatory Keywords:</b> for non EU-Member States - add information on corresponding national legislation
Measures for the protection of water abstracted for drinking water (Article 7) including those to reduce the level of purification required for the production of drinking water (note: these basic measures may not apply to the whole territory)			

Controls over the abstraction of fresh surface water and groundwater and impoundment of fresh surface waters including a register or registers of water abstractions and a requirement for prior authorisation of abstraction and impoundment	
Controls, including a requirement for prior authorisation of artificial recharge or augmentation of gwbodyes	x
Requirement for prior regulation of point source discharges liable to cause pollution	
Prohibition of direct discharge of pollutants into groundwater	
Any measures required to prevent significant losses of pollutants from technical installations and to prevent and/or reduce the impact of accidental pollution incidents	x
<b>Need for Supplementary/Additional Measures WFD Article 11(4) and 11(5)</b>	
Will the basic measures identified above be sufficient to address the significant Pressures	<b>Yes</b>

<b>Name of the Groundwater Body</b>	Locally used name of the Gwbody		<b>Northern Great Plain</b>
<b>EuropeantransboundaryGWBCode</b>	Internationally agreed code for a transboundary GW body e.g. 5 (Mures / Maros) if the concerning GWB is a member of them		

EuropeanGWBCode	European code of the GW body e.g. HU_SP.2.16.1		<b>HU_PT.2.2</b>
<b>Measures (Basic and other basic measures)</b>			
<b>Basic measures (Directive listed in Annex VI Part A)</b>	<b>Measures implemented to adress ... (tick if yes)</b>  poor status/risk for Quality      poor status/risk for Quantity		<b>Explanatory Keywords:</b> for non EU-Member States - add information on corresponding national legislation
Drinking Water Directive (80/778/EEC) as amended by Directive (98/83/EC) Urban Waste-water Treatment Directive (91/271/EEC) Plant Protection Products Directive (91/414/EEC)  Nitrates Directive (91/676/EC) Habitats Directive (92/43/EEC) Integrated Pollution Prevention Control Directive (96/61/EC)			
<b>Other basic measures as required by Article 11(3)(b-l)</b>	<b>Measures implemented to adress ... (tick if yes)</b>  poor status/risk for Quality      poor status/risk for Quantity		<b>Explanatory Keywords:</b> for non EU-Member States - add information on corresponding national legislation
Measures for the protection of water abstracted for drinking water (Article 7) including those to reduce the level of purification required for the production of drinking water (note: these basic measures may not apply to the whole territory)			

<p>Controls over the abstraction of fresh surface water and groundwater and impoundment of fresh surface waters including a register or registers of water abstractions and a requirement for prior authorisation of abstraction and impoundment</p>	
<p>Controls, including a requirement for prior authorisation of artificial recharge or augmentation of gwbodyes</p>	x
<p>Requirement for prior regulation of point source discharges liable to cause pollution</p>	
<p>Prohibition of direct discharge of pollutants into groundwater</p>	
<p>Any measures required to prevent significant losses of pollutants from technical installations and to prevent and/or reduce the impact of accidental pollution incidents</p>	
<p><b>Need for Supplementary/Additional Measures WFD Article 11(4) and 11(5)</b></p>	
<p>Will the basic measures identified above be sufficient to address the significant Pressures</p>	Yes

<b>Name of the Groundwater Body</b>	Locally used name of the Gwbody		<b>Southeastern Great Plain</b>
<b>EuropeantransboundaryGWBCode</b>	Internationally agreed code for a transboundary GW body e.g. 5 (Mures / Maros) if the concerning GWB is a member of them		

EuropeanGWBCode	European code of the GW body e.g. HU_SP.2.16.1		<b>HU_PT.2.3</b>
<b>Measures (Basic and other basic measures)</b>			
<b>Basic measures (Directive listed in Annex VI Part A)</b>	<b>Measures implemented to adress ... (tick if yes)</b>  poor status/risk for Quality      poor status/risk for Quantity		<b>Explanatory Keywords:</b> for non EU-Member States - add information on corresponding national legislation
<p>Drinking Water Directive (80/778/EEC) as amended by Directive (98/83/EC)      x</p> <p>Urban Waste-water Treatment Directive (91/271/EEC)</p> <p>Plant Protection Products Directive (91/414/EEC)</p> <p>Nitrates Directive (91/676/EC)</p> <p>Habitats Directive (92/43/EEC)</p> <p>Integrated Pollution Prevention Control Directive (96/61/EC)</p>			
<b>Other basic measures as required by Article 11(3)(b-l)</b>	<b>Measures implemented to adress ... (tick if yes)</b>  poor status/risk for Quality      poor status/risk for Quantity		<b>Explanatory Keywords:</b> for non EU-Member States - add information on corresponding national legislation
Measures for the protection of water abstracted for drinking water (Article 7) including those to reduce the level of purification required for the production of drinking water (note: these basic measures may not apply to the whole territory)			



Controls over the abstraction of fresh surface water and groundwater and impoundment of fresh surface waters including a register or registers of water abstractions and a requirement for prior authorisation of abstraction and impoundment	
Controls, including a requirement for prior authorisation of artificial recharge or augmentation of gwbodyes	x
Requirement for prior regulation of point source discharges liable to cause pollution	
Prohibition of direct discharge of pollutants into groundwater	
Any measures required to prevent significant losses of pollutants from technical installations and to prevent and/or reduce the impact of accidental pollution incidents	x
<b>Need for Supplementary/Additional Measures WFD Article 11(4) and 11(5)</b>	
Will the basic measures identified above be sufficient to address the significant Pressures	
	Yes

Name of the Groundwater Body	Locally used name of the Gwbody		Northeastern Great Plain
EuropeantransboundaryGWBCode	Internationally agreed code for a transboundary GW body e.g. 5 (Mures / Maros) if the concerning GWB is a member of them		

EuropeanGWBCode	European code of the GW body e.g. HU_SP.2.16.1		<b>HU_PT.2.4</b>
<b>Measures (Basic and other basic measures)</b>			
<b>Basic measures (Directive listed in Annex VI Part A)</b>	<b>Measures implemented to adress ... (tick if yes)</b>  poor status/risk for Quality      poor status/risk for Quantity		<b>Explanatory Keywords:</b> for non EU-Member States - add information on corresponding national legislation
Drinking Water Directive (80/778/EEC) as amended by Directive (98/83/EC) Urban Waste-water Treatment Directive (91/271/EEC) Plant Protection Products Directive (91/414/EEC)  Nitrates Directive (91/676/EC) Habitats Directive (92/43/EEC) Integrated Pollution Prevention Control Directive (96/61/EC)			
<b>Other basic measures as required by Article 11(3)(b-l)</b>	<b>Measures implemented to adress ... (tick if yes)</b>  poor status/risk for Quality      poor status/risk for Quantity		<b>Explanatory Keywords:</b> for non EU-Member States - add information on corresponding national legislation
Measures for the protection of water abstracted for drinking water (Article 7) including those to reduce the level of purification required for the production of drinking water (note: these basic measures may not apply to the whole territory)			

Controls over the abstraction of fresh surface water and groundwater and impoundment of fresh surface waters including a register or registers of water abstractions and a requirement for prior authorisation of abstraction and impoundment	
Controls, including a requirement for prior authorisation of artificial recharge or augmentation of gwbodyes	x
Requirement for prior regulation of point source discharges liable to cause pollution	
Prohibition of direct discharge of pollutants into groundwater	
Any measures required to prevent significant losses of pollutants from technical installations and to prevent and/or reduce the impact of accidental pollution incidents	x
<b>Need for Supplementary/Additional Measures WFD Article 11(4) and 11(5)</b>	
Will the basic measures identified above be sufficient to address the significant Pressures	Yes

<b>Name of the Groundwater Body</b>	Locally used name of the Gwbody		<b>Northern Hills basins</b>
<b>EuropeantransboundaryGWBCode</b>	Internationally agreed code for a transboundary GW body e.g. 5 (Mures / Maros) if the concerning GWB is a member of them		

EuropeanGWBCode	European code of the GW body e.g. HU_SP.2.16.1		<b>HU_PT.2.5</b>
<b>Measures (Basic and other basic measures)</b>			
<b>Basic measures (Directive listed in Annex VI Part A)</b>	<b>Measures implemented to adress ... (tick if yes)</b>  poor status/risk for Quality      poor status/risk for Quantity		<b>Explanatory Keywords:</b> for non EU-Member States - add information on corresponding national legislation
Drinking Water Directive (80/778/EEC) as amended by Directive (98/83/EC) Urban Waste-water Treatment Directive (91/271/EEC) Plant Protection Products Directive (91/414/EEC)  Nitrates Directive (91/676/EC) Habitats Directive (92/43/EEC) Integrated Pollution Prevention Control Directive (96/61/EC)			
<b>Other basic measures as required by Article 11(3)(b-l)</b>	<b>Measures implemented to adress ... (tick if yes)</b>  poor status/risk for Quality      poor status/risk for Quantity		<b>Explanatory Keywords:</b> for non EU-Member States - add information on corresponding national legislation
Measures for the protection of water abstracted for drinking water (Article 7) including those to reduce the level of purification required for the production of drinking water (note: these basic measures may not apply to the whole territory)			

Controls over the abstraction of fresh surface water and groundwater and impoundment of fresh surface waters including a register or registers of water abstractions and a requirement for prior authorisation of abstraction and impoundment	
Controls, including a requirement for prior authorisation of artificial recharge or augmentation of gwbodyes	x
Requirement for prior regulation of point source discharges liable to cause pollution	
Prohibition of direct discharge of pollutants into groundwater	
Any measures required to prevent significant losses of pollutants from technical installations and to prevent and/or reduce the impact of accidental pollution incidents	
<b>Need for Supplementary/Additional Measures WFD Article 11(4) and 11(5)</b>	
Will the basic measures identified above be sufficient to address the significant Pressures	Yes

<b>Name of the Groundwater Body</b>	Locally used name of the Gwbody		<b>Bükk, Borsod Hills - Sajó-, Hernád River Basin</b>
<b>EuropeantransboundaryGWBCode</b>	Internationally agreed code for a transboundary GW body e.g. 5 (Mures / Maros) if the concerning GWB is a member of them		



<p>Controls over the abstraction of fresh surface water and groundwater and impoundment of fresh surface waters including a register or registers of water abstractions and a requirement for prior authorisation of abstraction and impoundment</p>		
<p>Controls, including a requirement for prior authorisation of artificial recharge or augmentation of gwbodyes</p>	x	
<p>Requirement for prior regulation of point source discharges liable to cause pollution</p>		
<p>Prohibition of direct discharge of pollutants into groundwater</p>		
<p>Any measures required to prevent significant losses of pollutants from technical installations and to prevent and/or reduce the impact of accidental pollution incidents</p>		
<p><b>Need for Supplementary/Additional Measures WFD Article 11(4) and 11(5)</b></p>		
<p>Will the basic measures identified above be sufficient to address the significant Pressures</p>		
<p>Will the basic measures identified above be sufficient to address the significant Pressures</p>	No	Quality

<b>Name of the Groundwater Body</b>	Locally used name of the Gwbody		<b>Bükk, Borsod Hills - Sajó River Basin</b>
<b>EuropeantransboundaryGWBCode</b>	Internationally agreed code for a transboundary GW body e.g. 5 (Mures /		

	Maros) if the concerning GWB is a member of them		
<b>EuropeanGWBCode</b>	European code of the GW body e.g. HU_SP.2.16.1		<b>HU_SH.2.5</b>
<b>Measures (Basic and other basic measures)</b>			
<b>Basic measures (Directive listed in Annex VI Part A)</b>	<b>Measures implemented to adress ... (tick if yes)</b>		<b>Explanatory Keywords:</b> for non EU-Member States - add information on corresponding national legislation
	<b>poor status/risk for Quality</b>	<b>poor status/risk for Quantity</b>	
Drinking Water Directive (80/778/EEC) as amended by Directive (98/83/EC)	x		
Urban Waste-water Treatment Directive (91/271/EEC)	x		
Plant Protection Products Directive (91/414/EEC)			
Nitrates Directive (91/676/EC)	x		
Habitats Directive (92/43/EEC)			
Integrated Pollution Prevention Control Directive (96/61/EC)	x	x	
<b>Other basic measures as required by Article 11(3)(b-l)</b>	<b>Measures implemented to adress ... (tick if yes)</b>		<b>Explanatory Keywords:</b> for non EU-Member States - add information on corresponding national legislation
	<b>poor status/risk for Quality</b>	<b>poor status/risk for Quantity</b>	
Measures for the protection of water abstracted for drinking water (Article 7) including those to reduce the level of purification required for the production of drinking water (note: these basic measures may not apply to the whole territory)			



<p>Controls over the abstraction of fresh surface water and groundwater and impoundment of fresh surface waters including a register or registers of water abstractions and a requirement for prior authorisation of abstraction and impoundment</p>			
<p>x</p>			
<p>Controls, including a requirement for prior authorisation of artificial recharge or augmentation of gwbodyes</p>			
<p>Requirement for prior regulation of point source discharges liable to cause pollution</p>			
<p>Prohibition of direct discharge of pollutants into groundwater</p>			
<p>Any measures required to prevent significant losses of pollutants from technical installations and to prevent and/or reduce the impact of accidental pollution incidents</p>			
<p><b>Need for Supplementary/Additional Measures WFD Article 11(4) and 11(5)</b></p>			
<p>Will the basic measures identified above be sufficient to address the significant Pressures</p>			
<p>yes</p>			
<b>Name of the Groundwater Body</b>	Locally used name of the Gwbody e.g. Maros		NW BACKA - deep
<b>EuropeantransboundaryGWBCode</b>	Internationally agreed code for a transboundary GW body e.g. 5 (Mures / Maros) if the concerning GWB is a member of them		7

EuropeanGWBCode	European code of the GW body e.g. HU_SP.2.16.1		<b>RSTIS_GW_I_1</b>
<b>Measures (Basic and other basic measures)</b>			
<b>Basic measures (Directive listed in Annex VI Part A)</b>	<b>Measures implemented to adress ... (tick if yes)</b>  poor status/risk for Quality      poor status/risk for Quantity		<b>Explanatory Keywords:</b> for non EU-Member States - add information on corresponding national legislation
Drinking Water Directive (80/778/EEC) as amended by Directive (98/83/EC)  Urban Waste-water Treatment Directive (91/271/EEC)  Plant Protection Products Directive (91/414/EEC)  Nitrates Directive (91/676/EC) Habitats Directive (92/43/EEC) Integrated Pollution Prevention Control Directive (96/61/EC)		x	No corresponding national legislation covers measures that should be implemented to address quantity risk.
<b>Other basic measures as required by Article 11(3)(b-I)</b>	<b>Measures implemented to adress ... (tick if yes)</b>  poor status/risk for Quality      poor status/risk for Quantity		<b>Explanatory Keywords:</b> for non EU-Member States - add information on corresponding national legislation
Measures for the protection of water abstracted for drinking water (Article 7) including those to reduce the level of purification required for the production of drinking water (note: these basic measures may not apply to the whole territory)			

Controls over the abstraction of fresh surface water and groundwater and impoundment of fresh surface waters including a register or registers of water abstractions and a requirement for prior authorisation of abstraction and impoundment

Controls, including a requirement for prior authorisation of artificial recharge or augmentation of gwbodyes

Requirement for prior regulation of point source discharges liable to cause pollution

Prohibition of direct discharge of pollutants into groundwater

Any measures required to prevent significant losses of pollutants from technical installations and to prevent and/or reduce the impact of accidental pollution incidents

**Need for Supplementary/Additional Measures  
WFD Article 11(4) and 11(5)**

Will the basic measures identified above be sufficient to address the significant Pressures

No

Additional measures needed, (WFD Annex VI, part B), including investigation, development and construction projects. Measures include further activities on construction of regional water supply systems, based on water sources in Danube aluvium.

<b>Name of the Groundwater Body</b>	Locally used name of the Gwbody e.g. Maros		<b>TELECKA - deep</b>
<b>EuropeantransboundaryGWBCode</b>	Internationally agreed code for a transboundary		<b>7</b>

	GW body e.g. 5 (Mures / Maros) if the concerning GWB is a member of them		
<b>EuropeanGWBCode</b>	European code of the GW body e.g. HU_SP.2.16.1		<b>RSTIS_GW_I_2</b>
<b>Measures (Basic and other basic measures)</b>			
<b>Basic measures (Directive listed in Annex VI Part A)</b>	<b>Measures implemented to address ... (tick if yes)</b>		<b>Explanatory Keywords:</b> for non EU-Member States - add information on corresponding national legislation
	<b>poor status/risk for Quality</b>	<b>poor status/risk for Quantity</b>	
Drinking Water Directive (80/778/EEC) as amended by Directive (98/83/EC)		x	No corresponding national legislation covers measures that should be implemented to address quantity risk.
Urban Waste-water Treatment Directive (91/271/EEC)			
Plant Protection Products Directive (91/414/EEC)			
Nitrates Directive (91/676/EC)			
Habitats Directive (92/43/EEC)			
Integrated Pollution Prevention Control Directive (96/61/EC)			
<b>Other basic measures as required by Article 11(3)(b-l)</b>	<b>Measures implemented to address ... (tick if yes)</b>		<b>Explanatory Keywords:</b> for non EU-Member States - add information on corresponding national legislation
	<b>poor status/risk for Quality</b>	<b>poor status/risk for Quantity</b>	
Measures for the protection of water abstracted for drinking water (Article 7) including those to reduce the level of purification required for the production of drinking water (note: these basic measures may not apply to the whole territory)			

Controls over the abstraction of fresh surface water and groundwater and impoundment of fresh surface waters including a register or registers of water abstractions and a requirement for prior authorisation of abstraction and impoundment

Controls, including a requirement for prior authorisation of artificial recharge or augmentation of gwbodyes

Requirement for prior regulation of point source discharges liable to cause pollution

Prohibition of direct discharge of pollutants into groundwater

Any measures required to prevent significant losses of pollutants from technical installations and to prevent and/or reduce the impact of accidental pollution incidents

**Need for Supplementary/Additional Measures  
WFD Article 11(4) and 11(5)**

Will the basic measures identified above be sufficient to address the significant Pressures

No

Additional measures needed, (WFD Annex VI, part B), including investigation, development and construction projects. Measures include further activities on construction of regional water supply systems, based on water sources in Danube aluvium.

<b>Name of the Groundwater Body</b>	Locally used name of the Gwbody e.g. Maros		<b>UPPER TISZA - deep</b>
<b>EuropeantransboundaryGWBCode</b>	Internationally agreed code for a transboundary		<b>7</b>

	GW body e.g. 5 (Mures / Maros) if the concerning GWB is a member of them		
<b>EuropeanGWBCode</b>	European code of the GW body e.g. HU_SP.2.16.1		<b>RSTIS_GW_I_3</b>
<b>Measures (Basic and other basic measures)</b>			
<b>Basic measures (Directive listed in Annex VI Part A)</b>	<b>Measures implemented to address ... (tick if yes)</b>		<b>Explanatory Keywords:</b> for non EU-Member States - add information on corresponding national legislation
	<b>poor status/risk for Quality</b>	<b>poor status/risk for Quantity</b>	
Drinking Water Directive (80/778/EEC) as amended by Directive (98/83/EC)		x	No corresponding national legislation covers measures that should be implemented to address quantity risk.
Urban Waste-water Treatment Directive (91/271/EEC)			
Plant Protection Products Directive (91/414/EEC)			
Nitrates Directive (91/676/EC)			
Habitats Directive (92/43/EEC)			
Integrated Pollution Prevention Control Directive (96/61/EC)			
<b>Other basic measures as required by Article 11(3)(b-l)</b>	<b>Measures implemented to address ... (tick if yes)</b>		<b>Explanatory Keywords:</b> for non EU-Member States - add information on corresponding national legislation
	<b>poor status/risk for Quality</b>	<b>poor status/risk for Quantity</b>	
Measures for the protection of water abstracted for drinking water (Article 7) including those to reduce the level of purification required for the production of drinking water (note: these basic measures may not apply to the whole territory)			

Controls over the abstraction of fresh surface water and groundwater and impoundment of fresh surface waters including a register or registers of water abstractions and a requirement for prior authorisation of abstraction and impoundment

Controls, including a requirement for prior authorisation of artificial recharge or augmentation of gwbodyes

Requirement for prior regulation of point source discharges liable to cause pollution

Prohibition of direct discharge of pollutants into groundwater

Any measures required to prevent significant losses of pollutants from technical installations and to prevent and/or reduce the impact of accidental pollution incidents

**Need for Supplementary/Additional Measures  
WFD Article 11(4) and 11(5)**

Will the basic measures identified above be sufficient to address the significant Pressures

No

Additional measures needed, (WFD Annex VI, part B), including investigation, development and construction projects. Measures include further activities on construction of regional water supply systems, based on water sources in Danube aluvium.

<b>Name of the Groundwater Body</b>	Locally used name of the Gwbody e.g. Maros		<b>NORTH BANAT - deep</b>
<b>EuropeantransboundaryGWBCode</b>	Internationally agreed code for a transboundary		<b>7</b>

	GW body e.g. 5 (Mures / Maros) if the concerning GWB is a member of them		
<b>EuropeanGWBCode</b>	European code of the GW body e.g. HU_SP.2.16.1		<b>RSTIS_GW_I_4</b>
<b>Measures (Basic and other basic measures)</b>			
<b>Basic measures (Directive listed in Annex VI Part A)</b>	<b>Measures implemented to adress ... (tick if yes)</b>		<b>Explanatory Keywords:</b> for non EU-Member States - add information on corresponding national legislation
	<b>poor status/risk for Quality</b>	<b>poor status/risk for Quantity</b>	
Drinking Water Directive (80/778/EEC) as amended by Directive (98/83/EC)		x	No corresponding national legislation covers measures that should be implemented to address quantity risk.
Urban Waste-water Treatment Directive (91/271/EEC)			
Plant Protection Products Directive (91/414/EEC)			
Nitrates Directive (91/676/EC)			
Habitats Directive (92/43/EEC)			
Integrated Pollution Prevention Control Directive (96/61/EC)			
<b>Other basic measures as required by Article 11(3)(b-l)</b>	<b>Measures implemented to adress ... (tick if yes)</b>		<b>Explanatory Keywords:</b> for non EU-Member States - add information on corresponding national legislation
	<b>poor status/risk for Quality</b>	<b>poor status/risk for Quantity</b>	
Measures for the protection of water abstracted for drinking water (Article 7) including those to reduce the level of purification required for the production of drinking water (note: these basic measures may not apply to the whole territory)			



Controls over the abstraction of fresh surface water and groundwater and impoundment of fresh surface waters including a register or registers of water abstractions and a requirement for prior authorisation of abstraction and impoundment

Controls, including a requirement for prior authorisation of artificial recharge or augmentation of gwbodyes

Requirement for prior regulation of point source discharges liable to cause pollution

Prohibition of direct discharge of pollutants into groundwater

Any measures required to prevent significant losses of pollutants from technical installations and to prevent and/or reduce the impact of accidental pollution incidents

**Need for Supplementary/Additional Measures  
WFD Article 11(4) and 11(5)**

Will the basic measures identified above be sufficient to address the significant Pressures

No

Additional measures needed, (WFD Annex VI, part B), including investigation, development and construction projects. Measures include further activities on construction of regional water supply systems, based on water sources in Danube aluvium.

<b>Name of the Groundwater Body</b>	Locally used name of the Gwbody e.g. Maros		<b>MID BACKA - deep</b>
<b>EuropeantransboundaryGWBCode</b>	Internationally agreed code for a transboundary		

	GW body e.g. 5 (Mures / Maros) if the concerning GWB is a member of them		
<b>EuropeanGWBCode</b>	European code of the GW body e.g. HU_SP.2.16.1		<b>RSTIS_GW_I_5</b>
<b>Measures (Basic and other basic measures)</b>			
<b>Basic measures (Directive listed in Annex VI Part A)</b>	<b>Measures implemented to adress ... (tick if yes)</b>		<b>Explanatory Keywords:</b> for non EU-Member States - add information on corresponding national legislation
	<b>poor status/risk for Quality</b>	<b>poor status/risk for Quantity</b>	
Drinking Water Directive (80/778/EEC) as amended by Directive (98/83/EC)		x	No corresponding national legislation covers measures that should be implemented to address quantity risk.
Urban Waste-water Treatment Directive (91/271/EEC)			
Plant Protection Products Directive (91/414/EEC)			
Nitrates Directive (91/676/EC)			
Habitats Directive (92/43/EEC)			
Integrated Pollution Prevention Control Directive (96/61/EC)			
<b>Other basic measures as required by Article 11(3)(b-l)</b>	<b>Measures implemented to adress ... (tick if yes)</b>		<b>Explanatory Keywords:</b> for non EU-Member States - add information on corresponding national legislation
	<b>poor status/risk for Quality</b>	<b>poor status/risk for Quantity</b>	
Measures for the protection of water abstracted for drinking water (Article 7) including those to reduce the level of purification required for the production of drinking water (note: these basic measures may not apply to the whole territory)			

Controls over the abstraction of fresh surface water and groundwater and impoundment of fresh surface waters including a register or registers of water abstractions and a requirement for prior authorisation of abstraction and impoundment

Controls, including a requirement for prior authorisation of artificial recharge or augmentation of gwbodyes

Requirement for prior regulation of point source discharges liable to cause pollution

Prohibition of direct discharge of pollutants into groundwater

Any measures required to prevent significant losses of pollutants from technical installations and to prevent and/or reduce the impact of accidental pollution incidents

**Need for Supplementary/Additional Measures  
WFD Article 11(4) and 11(5)**

Will the basic measures identified above be sufficient to address the significant Pressures

No

Additional measures needed, (WFD Annex VI, part B), including investigation, development and construction projects. Measures include further activities on construction of regional water supply systems, based on water sources in Danube aluvium.

<b>Name of the Groundwater Body</b>	Locally used name of the Gwbody e.g. Maros		<b>LOWER TISZA - deep</b>
<b>EuropeantransboundaryGWBCode</b>	Internationally agreed code for a transboundary		

	GW body e.g. 5 (Mures / Maros) if the concerning GWB is a member of them		
<b>EuropeanGWBCode</b>	European code of the GW body e.g. HU_SP.2.16.1		<b>RSTIS_GW_I_6</b>
<b>Measures (Basic and other basic measures)</b>			
<b>Basic measures (Directive listed in Annex VI Part A)</b>	<b>Measures implemented to adress ... (tick if yes)</b>		<b>Explanatory Keywords:</b> for non EU-Member States - add information on corresponding national legislation
	<b>poor status/risk for Quality</b>	<b>poor status/risk for Quantity</b>	
Drinking Water Directive (80/778/EEC) as amended by Directive (98/83/EC)		x	No corresponding national legislation covers measures that should be implemented to address quantity risk.
Urban Waste-water Treatment Directive (91/271/EEC)			
Plant Protection Products Directive (91/414/EEC)			
Nitrates Directive (91/676/EC)			
Habitats Directive (92/43/EEC)			
Integrated Pollution Prevention Control Directive (96/61/EC)			
<b>Other basic measures as required by Article 11(3)(b-l)</b>	<b>Measures implemented to adress ... (tick if yes)</b>		<b>Explanatory Keywords:</b> for non EU-Member States - add information on corresponding national legislation
	<b>poor status/risk for Quality</b>	<b>poor status/risk for Quantity</b>	
Measures for the protection of water abstracted for drinking water (Article 7) including those to reduce the level of purification required for the production of drinking water (note: these basic measures may not apply to the whole territory)			

Controls over the abstraction of fresh surface water and groundwater and impoundment of fresh surface waters including a register or registers of water abstractions and a requirement for prior authorisation of abstraction and impoundment

Controls, including a requirement for prior authorisation of artificial recharge or augmentation of gwbodyes

Requirement for prior regulation of point source discharges liable to cause pollution

Prohibition of direct discharge of pollutants into groundwater

Any measures required to prevent significant losses of pollutants from technical installations and to prevent and/or reduce the impact of accidental pollution incidents

**Need for Supplementary/Additional Measures  
WFD Article 11(4) and 11(5)**

Will the basic measures identified above be sufficient to address the significant Pressures

No

Additional measures needed, (WFD Annex VI, part B), including investigation, development and construction projects. Measures include further activities on construction of regional water supply systems, based on water sources in Danube aluvium.

<b>Name of the Groundwater Body</b>	Locally used name of the Gwbody e.g. Maros		<b>MID BANAT - deep</b>
<b>EuropeantransboundaryGWBCode</b>	Internationally agreed code for a transboundary		<b>7</b>

	GW body e.g. 5 (Mures / Maros) if the concerning GWB is a member of them		
<b>EuropeanGWBCode</b>	European code of the GW body e.g. HU_SP.2.16.1		<b>RSTIS_GW_I_7</b>
<b>Measures (Basic and other basic measures)</b>			
<b>Basic measures (Directive listed in Annex VI Part A)</b>	<b>Measures implemented to adress ... (tick if yes)</b>		<b>Explanatory Keywords:</b> for non EU-Member States - add information on corresponding national legislation
	<b>poor status/risk for Quality</b>	<b>poor status/risk for Quantity</b>	
Drinking Water Directive (80/778/EEC) as amended by Directive (98/83/EC)		x	No corresponding national legislation covers measures that should be implemented to address quantity risk.
Urban Waste-water Treatment Directive (91/271/EEC)			
Plant Protection Products Directive (91/414/EEC)			
Nitrates Directive (91/676/EC)			
Habitats Directive (92/43/EEC)			
Integrated Pollution Prevention Control Directive (96/61/EC)			
<b>Other basic measures as required by Article 11(3)(b-l)</b>	<b>Measures implemented to adress ... (tick if yes)</b>		<b>Explanatory Keywords:</b> for non EU-Member States - add information on corresponding national legislation
	<b>poor status/risk for Quality</b>	<b>poor status/risk for Quantity</b>	
Measures for the protection of water abstracted for drinking water (Article 7) including those to reduce the level of purification required for the production of drinking water (note: these basic measures may not apply to the whole territory)			

Controls over the abstraction of fresh surface water and groundwater and impoundment of fresh surface waters including a register or registers of water abstractions and a requirement for prior authorisation of abstraction and impoundment

Controls, including a requirement for prior authorisation of artificial recharge or augmentation of gwbodyes

Requirement for prior regulation of point source discharges liable to cause pollution

Prohibition of direct discharge of pollutants into groundwater

Any measures required to prevent significant losses of pollutants from technical installations and to prevent and/or reduce the impact of accidental pollution incidents

**Need for Supplementary/Additional Measures  
WFD Article 11(4) and 11(5)**

Will the basic measures identified above be sufficient to address the significant Pressures

No

Additional measures needed, (WFD Annex VI, part B), including investigation, development and construction projects. Measures include further activities on construction of regional water supply systems, based on water sources in Danube aluvium.

**Name of the Groundwater Body**

Locally used name of the Gwbody e.g. Maros

**NW BACKA - shallow**

<b>EuropeantransboundaryGWBCode</b>	Internationally agreed code for a transboundary GW body e.g. 5 (Mures / Maros) if the concerning GWB is a member of them		7
<b>EuropeanGWBCode</b>	European code of the GW body e.g. HU_SP.2.16.1		RSTIS_GW_SI_1
<b>Measures (Basic and other basic measures)</b>			
<b>Basic measures (Directive listed in Annex VI Part A)</b>	<b>Measures implemented to adress ... (tick if yes)</b>		<b>Explanatory Keywords:</b> for non EU-Member States - add information on corresponding national legislation
	<b>poor status/risk for Quality</b>	<b>poor status/risk for Quantity</b>	
<p>Drinking Water Directive (80/778/EEC) as amended by Directive (98/83/EC)</p> <p>Urban Waste-water Treatment Directive (91/271/EEC)</p> <p>Plant Protection Products Directive (91/414/EEC)</p> <p>Nitrates Directive (91/676/EC)</p> <p>Habitats Directive (92/43/EEC)</p> <p>Integrated Pollution Prevention Control Directive (96/61/EC)</p>			
<b>Other basic measures as required by Article 11(3)(b-l)</b>	<b>Measures implemented to adress ... (tick if yes)</b>		<b>Explanatory Keywords:</b> for non EU-Member States - add information on corresponding national legislation
	<b>poor status/risk for Quality</b>	<b>poor status/risk for Quantity</b>	
<p>Measures for the protection of water abstracted for drinking water (Article 7) including those to reduce the level of purification required for the production of drinking water (note: these basic measures may not apply to the whole territory)</p>			



Controls over the abstraction of fresh surface water and groundwater and impoundment of fresh surface waters including a register or registers of water abstractions and a requirement for prior authorisation of abstraction and impoundment

Controls, including a requirement for prior authorisation of artificial recharge or augmentation of gwbodyes

Requirement for prior regulation of point source discharges liable to cause pollution

Prohibition of direct discharge of pollutants into groundwater

Any measures required to prevent significant losses of pollutants from technical installations and to prevent and/or reduce the impact of accidental pollution incidents

**Need for Supplementary/Additional Measures  
WFD Article 11(4) and 11(5)**

Will the basic measures identified above be sufficient to address the significant Pressures

<b>Name of the Groundwater Body</b>	Locally used name of the Gwbody e.g. Maros		<b>TELECKA - shallow</b>
<b>EuropeantransboundaryGWBCode</b>	Internationally agreed code for a transboundary GW body e.g. 5 (Mures / Maros) if the concerning GWB is a member of them		<b>7</b>

EuropeanGWBCode	European code of the GW body e.g. HU_SP.2.16.1		<b>RSTIS_GW_SI_2</b>
<b>Measures (Basic and other basic measures)</b>			
<b>Basic measures (Directive listed in Annex VI Part A)</b>	<b>Measures implemented to adress ... (tick if yes)</b>  <b>poor status/risk for Quality</b> <b>poor status/risk for Quantity</b>		<b>Explanatory Keywords:</b> for non EU-Member States - add information on corresponding national legislation
Drinking Water Directive (80/778/EEC) as amended by Directive (98/83/EC) Urban Waste-water Treatment Directive (91/271/EEC) Plant Protection Products Directive (91/414/EEC) Nitrates Directive (91/676/EC) Habitats Directive (92/43/EEC) Integrated Pollution Prevention Control Directive (96/61/EC)			
<b>Other basic measures as required by Article 11(3)(b-l)</b>	<b>Measures implemented to adress ... (tick if yes)</b>  <b>poor status/risk for Quality</b> <b>poor status/risk for Quantity</b>		<b>Explanatory Keywords:</b> for non EU-Member States - add information on corresponding national legislation
Measures for the protection of water abstracted for drinking water (Article 7) including those to reduce the level of purification required for the production of drinking water (note: these basic measures may not apply to the whole territory)			

Controls over the abstraction of fresh surface water and groundwater and impoundment of fresh surface waters including a register or registers of water abstractions and a requirement for prior authorisation of abstraction and impoundment

Controls, including a requirement for prior authorisation of artificial recharge or augmentation of gwbodyes

Requirement for prior regulation of point source discharges liable to cause pollution

Prohibition of direct discharge of pollutants into groundwater

Any measures required to prevent significant losses of pollutants from technical installations and to prevent and/or reduce the impact of accidental pollution incidents

**Need for Supplementary/Additional Measures  
WFD Article 11(4) and 11(5)**

Will the basic measures identified above be sufficient to address the significant Pressures

<b>Name of the Groundwater Body</b>	Locally used name of the Gwbody e.g. Maros		<b>UPPER TISZA - shallow</b>
<b>EuropeantransboundaryGWBCode</b>	Internationally agreed code for a transboundary GW body e.g. 5 (Mures / Maros) if the concerning GWB is a member of them		<b>7</b>

EuropeanGWBCode	European code of the GW body e.g. HU_SP.2.16.1		<b>RSTIS_GW_SI_3</b>
<b>Measures (Basic and other basic measures)</b>			
<b>Basic measures (Directive listed in Annex VI Part A)</b>	<b>Measures implemented to adress ... (tick if yes)</b>  <b>poor status/risk for Quality</b> <b>poor status/risk for Quantity</b>		<b>Explanatory Keywords:</b> for non EU-Member States - add information on corresponding national legislation
Drinking Water Directive (80/778/EEC) as amended by Directive (98/83/EC) Urban Waste-water Treatment Directive (91/271/EEC) Plant Protection Products Directive (91/414/EEC) Nitrates Directive (91/676/EC) Habitats Directive (92/43/EEC) Integrated Pollution Prevention Control Directive (96/61/EC)			
<b>Other basic measures as required by Article 11(3)(b-l)</b>	<b>Measures implemented to adress ... (tick if yes)</b>  <b>poor status/risk for Quality</b> <b>poor status/risk for Quantity</b>		<b>Explanatory Keywords:</b> for non EU-Member States - add information on corresponding national legislation
Measures for the protection of water abstracted for drinking water (Article 7) including those to reduce the level of purification required for the production of drinking water (note: these basic measures may not apply to the whole territory)			

Controls over the abstraction of fresh surface water and groundwater and impoundment of fresh surface waters including a register or registers of water abstractions and a requirement for prior authorisation of abstraction and impoundment

Controls, including a requirement for prior authorisation of artificial recharge or augmentation of gwbodyes

Requirement for prior regulation of point source discharges liable to cause pollution

Prohibition of direct discharge of pollutants into groundwater

Any measures required to prevent significant losses of pollutants from technical installations and to prevent and/or reduce the impact of accidental pollution incidents

**Need for Supplementary/Additional Measures  
WFD Article 11(4) and 11(5)**

Will the basic measures identified above be sufficient to address the significant Pressures

<b>Name of the Groundwater Body</b>	Locally used name of the Gwbody e.g. Maros		<b>NORTH BANAT - shallow</b>
<b>EuropeantransboundaryGWBCode</b>	Internationally agreed code for a transboundary GW body e.g. 5 (Mures / Maros) if the concerning GWB is a member of them		<b>7</b>

EuropeanGWBCode	European code of the GW body e.g. HU_SP.2.16.1		<b>RSTIS_GW_SI_4</b>
<b>Measures (Basic and other basic measures)</b>			
<b>Basic measures (Directive listed in Annex VI Part A)</b>	<b>Measures implemented to address ... (tick if yes)</b>  <b>poor status/risk for Quality</b> <b>poor status/risk for Quantity</b>		<b>Explanatory Keywords:</b> for non EU-Member States - add information on corresponding national legislation
Drinking Water Directive (80/778/EEC) as amended by Directive (98/83/EC) Urban Waste-water Treatment Directive (91/271/EEC) Plant Protection Products Directive (91/414/EEC) Nitrates Directive (91/676/EC) Habitats Directive (92/43/EEC) Integrated Pollution Prevention Control Directive (96/61/EC)			
<b>Other basic measures as required by Article 11(3)(b-l)</b>	<b>Measures implemented to address ... (tick if yes)</b>  <b>poor status/risk for Quality</b> <b>poor status/risk for Quantity</b>		<b>Explanatory Keywords:</b> for non EU-Member States - add information on corresponding national legislation
Measures for the protection of water abstracted for drinking water (Article 7) including those to reduce the level of purification required for the production of drinking water (note: these basic measures may not apply to the whole territory)			

Controls over the abstraction of fresh surface water and groundwater and impoundment of fresh surface waters including a register or registers of water abstractions and a requirement for prior authorisation of abstraction and impoundment

Controls, including a requirement for prior authorisation of artificial recharge or augmentation of gwbodyes

Requirement for prior regulation of point source discharges liable to cause pollution

Prohibition of direct discharge of pollutants into groundwater

Any measures required to prevent significant losses of pollutants from technical installations and to prevent and/or reduce the impact of accidental pollution incidents

**Need for Supplementary/Additional Measures  
WFD Article 11(4) and 11(5)**

Will the basic measures identified above be sufficient to address the significant Pressures

<b>Name of the Groundwater Body</b>	Locally used name of the Gwbody e.g. Maros		<b>MID BACKA - shallow</b>
<b>EuropeantransboundaryGWBCode</b>	Internationally agreed code for a transboundary GW body e.g. 5 (Mures / Maros) if the concerning GWB is a member of them		

EuropeanGWBCode	European code of the GW body e.g. HU_SP.2.16.1		<b>RSTIS_GW_SI_5</b>
<b>Measures (Basic and other basic measures)</b>			
<b>Basic measures (Directive listed in Annex VI Part A)</b>	<b>Measures implemented to adress ... (tick if yes)</b>  <b>poor status/risk for Quality</b> <b>poor status/risk for Quantity</b>		<b>Explanatory Keywords:</b> for non EU-Member States - add information on corresponding national legislation
Drinking Water Directive (80/778/EEC) as amended by Directive (98/83/EC) Urban Waste-water Treatment Directive (91/271/EEC) Plant Protection Products Directive (91/414/EEC) Nitrates Directive (91/676/EC) Habitats Directive (92/43/EEC) Integrated Pollution Prevention Control Directive (96/61/EC)			
<b>Other basic measures as required by Article 11(3)(b-l)</b>	<b>Measures implemented to adress ... (tick if yes)</b>  <b>poor status/risk for Quality</b> <b>poor status/risk for Quantity</b>		<b>Explanatory Keywords:</b> for non EU-Member States - add information on corresponding national legislation
Measures for the protection of water abstracted for drinking water (Article 7) including those to reduce the level of purification required for the production of drinking water (note: these basic measures may not apply to the whole territory)			



Controls over the abstraction of fresh surface water and groundwater and impoundment of fresh surface waters including a register or registers of water abstractions and a requirement for prior authorisation of abstraction and impoundment

Controls, including a requirement for prior authorisation of artificial recharge or augmentation of gwbodyes

Requirement for prior regulation of point source discharges liable to cause pollution

Prohibition of direct discharge of pollutants into groundwater

Any measures required to prevent significant losses of pollutants from technical installations and to prevent and/or reduce the impact of accidental pollution incidents

**Need for Supplementary/Additional Measures  
WFD Article 11(4) and 11(5)**

Will the basic measures identified above be sufficient to address the significant Pressures

<b>Name of the Groundwater Body</b>	Locally used name of the Gwbody e.g. Maros		<b>LOWER TISZA - shallow</b>
<b>EuropeantransboundaryGWBCode</b>	Internationally agreed code for a transboundary GW body e.g. 5 (Mures / Maros) if the concerning GWB is a member of them		

EuropeanGWBCode	European code of the GW body e.g. HU_SP.2.16.1		<b>RSTIS_GW_SI_6</b>
<b>Measures (Basic and other basic measures)</b>			
<b>Basic measures (Directive listed in Annex VI Part A)</b>	<b>Measures implemented to adress ... (tick if yes)</b>  <b>poor status/risk for Quality</b> <b>poor status/risk for Quantity</b>		<b>Explanatory Keywords:</b> for non EU-Member States - add information on corresponding national legislation
Drinking Water Directive (80/778/EEC) as amended by Directive (98/83/EC) Urban Waste-water Treatment Directive (91/271/EEC) Plant Protection Products Directive (91/414/EEC) Nitrates Directive (91/676/EC) Habitats Directive (92/43/EEC) Integrated Pollution Prevention Control Directive (96/61/EC)			
<b>Other basic measures as required by Article 11(3)(b-l)</b>	<b>Measures implemented to adress ... (tick if yes)</b>  <b>poor status/risk for Quality</b> <b>poor status/risk for Quantity</b>		<b>Explanatory Keywords:</b> for non EU-Member States - add information on corresponding national legislation
Measures for the protection of water abstracted for drinking water (Article 7) including those to reduce the level of purification required for the production of drinking water (note: these basic measures may not apply to the whole territory)			

Controls over the abstraction of fresh surface water and groundwater and impoundment of fresh surface waters including a register or registers of water abstractions and a requirement for prior authorisation of abstraction and impoundment

Controls, including a requirement for prior authorisation of artificial recharge or augmentation of gwbodyes

Requirement for prior regulation of point source discharges liable to cause pollution

Prohibition of direct discharge of pollutants into groundwater

Any measures required to prevent significant losses of pollutants from technical installations and to prevent and/or reduce the impact of accidental pollution incidents

**Need for Supplementary/Additional Measures  
WFD Article 11(4) and 11(5)**

Will the basic measures identified above be sufficient to address the significant Pressures

<b>Name of the Groundwater Body</b>	Locally used name of the Gwbody e.g. Maros		<b>MID BANAT - shallow</b>
<b>EuropeantransboundaryGWBCode</b>	Internationally agreed code for a transboundary GW body e.g. 5 (Mures / Maros) if the concerning GWB is a member of them		<b>7</b>

EuropeanGWBCode	European code of the GW body e.g. HU_SP.2.16.1		<b>RSTIS_GW_SI_7</b>
<b>Measures (Basic and other basic measures)</b>			
<b>Basic measures (Directive listed in Annex VI Part A)</b>	<b>Measures implemented to adress ... (tick if yes)</b>  <b>poor status/risk for Quality</b> <b>poor status/risk for Quantity</b>		<b>Explanatory Keywords:</b> for non EU-Member States - add information on corresponding national legislation
<p>Drinking Water Directive (80/778/EEC) as amended by Directive (98/83/EC)</p> <p>Urban Waste-water Treatment Directive (91/271/EEC)</p> <p>Plant Protection Products Directive (91/414/EEC)</p> <p>Nitrates Directive (91/676/EC)</p> <p>Habitats Directive (92/43/EEC)</p> <p>Integrated Pollution Prevention Control Directive (96/61/EC)</p>			
<b>Other basic measures as required by Article 11(3)(b-l)</b>	<b>Measures implemented to adress ... (tick if yes)</b>  <b>poor status/risk for Quality</b> <b>poor status/risk for Quantity</b>		<b>Explanatory Keywords:</b> for non EU-Member States - add information on corresponding national legislation
<p>Measures for the protection of water abstracted for drinking water (Article 7) including those to reduce the level of purification required for the production of drinking water (note: these basic measures may not apply to the whole territory)</p>			

Controls over the abstraction of fresh surface water and groundwater and impoundment of fresh surface waters including a register or registers of water abstractions and a requirement for prior authorisation of abstraction and impoundment

Controls, including a requirement for prior authorisation of artificial recharge or augmentation of gw bodies

Requirement for prior regulation of point source discharges liable to cause pollution

Prohibition of direct discharge of pollutants into groundwater

Any measures required to prevent significant losses of pollutants from technical installations and to prevent and/or reduce the impact of accidental pollution incidents

**Need for Supplementary/Additional Measures  
WFD Article 11(4) and 11(5)**

Will the basic measures identified above be sufficient to address the significant Pressures

## Groundwater pressures

<b>Name of the Groundwater Body</b>	Locally used name of the Gwbody		<b>Medzirezóné podzemné vody Košickej kotliny</b>
<b>EuropeantransboundaryGWBCode</b>	Internationally agreed code for a transboundary GW body e.g. 5 (Mures / Maros) if the concerning GWB is a member of them		
<b>EuropeanGWBCode</b>	European code of the GW body e.g. HU_SP.2.16.1		<b>SK2005300P</b>
<b>Significant Pressures and Measures Checklist for Groundwater Quality and Quantity- incl. Supplementary Measures and Additional Measures</b>			
<b>Please select all relevant pressures and provide information on Supplementary and Additional Measures</b>			
<b>Significant Pressures for Groundwater</b>	<b>Posing Risk/poor status for Quality: Yes, No</b>	<b>Posing Risk/poor status for Quantity: Yes, No</b>	<b>Where relevant give details of supplementary measures (Art 11(4)) put in place (Type of measure from pick list of Annex VI part B and details) and additional measures (Art 11(5)) (Type of measure from pick list and details</b>

<b>Point sources</b>			
Leakages from contaminated sites	no	no	
Leakages from waste disposal sites (landfill and agricultural waste disposal)	no	no	
Leakages associated with oil industry infrastructure	no	no	
Mine water discharges	no	no	
Discharges to ground such as disposal of contaminated water to soakways	no	no	
Other relevant point sources (specify)	no	no	
<b>Diffuse Sources</b>			
due to agricultural activities	no	no	
due to non-sewered population	no	no	
Urban land use	no	no	
<b>Water abstractions</b>			
Abstractions for agriculture	no	no	
Abstractions for public water supply	no	no	
Abstractions by industry	no	no	
IPPC activities	no	no	
Non-IPPC activities	no	no	
Abstractions by quarries/open cast coal sites	no	no	
Other major abstractions (specify)	no	no	If yes, specify the abstractions
<b>Artificial recharge</b>			
Discharges to groundwater for artificial recharge purposes	no	no	
Returns of groundwater to GWB from which it was abstracted (e.g. for sand and gravel washing)	no	no	
Mine water rebound	no	no	
Other major recharges (specify)	no	no	If yes, specify the recharges
<b>Other significant pressures</b>			
Saltwater intrusion	no	no	
Other intrusion (specify)	no	no	If yes, specify the intrusion

<b>Name of the Groundwater Body</b>	Locally used name of the Gwbody		<b>Puklinové podzemné vody flyšového pásma a Podtatranskej skupiny</b>
<b>EuropeantransboundaryGWBCode</b>	Internationally agreed code for a transboundary GW body e.g. 5 (Mures / Maros) if the concerning GWB is a member of them		
<b>EuropeanGWBCode</b>	European code of the GW body e.g. HU_SP.2.16.1		<b>SK2005700P</b>
<b>Significant Pressures and Measures Checklist for Groundwater Quality and Quantity- incl. Supplementary Measures and Additional Measures</b>			
<b>Please select all relevant pressures and provide information on Supplementary and Additional Measures</b>			
<b>Significant Pressures for Groundwater</b>	<b>Posing Risk/poor status for Quality: Yes, No</b>	<b>Posing Risk/poor status for Quantity: Yes, No</b>	<b>Where relevant give details of supplementary measures (Art 11(4)) put in place (Type of measure from pick list of Annex VI part B and details) and additional measures (Art 11(5)) (Type of measure from pick list and details)</b>
<b>Point sources</b>			
Leakages from contaminated sites	no	no	
Leakages from waste disposal sites (landfill and agricultural waste disposal)	no	no	
Leakages associated with oil industry infrastructure	no	no	



Mine water discharges	no	no	
Discharges to ground such as disposal of contaminated water to soakways	no	no	
Other relevant point sources (specify)	no	no	
<b>Diffuse Sources</b>			
due to agricultural activities	no	no	
due to non-sewered population	no	no	
Urban land use	no	no	
<b>Water abstractions</b>			
Abstractions for agriculture	no	no	
Abstractions for public water supply	no	no	
Abstractions by industry	no	no	
IPPC activities	no	no	
Non-IPPC activities	no	no	
Abstractions by quarries/open cast coal sites	no	no	
Other major abstractions (specify)	no	no	If yes, specify the abstractions
<b>Artificial recharge</b>			
Discharges to groundwater for artificial recharge purposes	no	no	
Returns of groundwater to GWB from which it was abstracted (e.g. for sand and gravel washing)	no	no	
Mine water rebound	no	no	
Other major recharges (specify)	no	no	If yes, specify the recharges
<b>Other significant pressures</b>			
Saltwater intrusion	no	no	
Other intrusion (specify)	no	no	If yes, specify the intrusion

<b>Name of the Groundwater Body</b>	Locally used name of the Gwbody	<b>Medzirezonné podzemné vody Východoslovenskej panvy</b>
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<b>EuropeantransboundaryGWBCode</b>	Internationally agreed code for a transboundary GW body e.g. 5 (Mures / Maros) if the concerning GWB is a member of them		
<b>EuropeanGWBCode</b>	European code of the GW body e.g. HU_SP.2.16.1		<b>SK2005800P</b>
<b>Significant Pressures and Measures Checklist for Groundwater Quality and Quantity- incl. Supplementary Measures and Additional Measures</b>			
<b>Please select all relevant pressures and provide information on Supplementary and Additional Measures</b>			
<b>Significant Pressures for Groundwater</b>	<b>Posing Risk/poor status for Quality: Yes, No</b>	<b>Posing Risk/poor status for Quantity: Yes, No</b>	<b>Where relevant give details of supplementary measures (Art 11(4)) put in place (Type of measure from pick list of Annex VI part B and details) and additional measures (Art 11(5)) (Type of measure from pick list and details)</b>
<b>Point sources</b>			
Leakages from contaminated sites	no	no	
Leakages from waste disposal sites (landfill and agricultural waste disposal)	no	no	
Leakages associated with oil industry infrastructure	no	no	
Mine water discharges	no	no	
Discharges to ground such as disposal of contaminated water to soakways	no	no	

Other relevant point sources (specify)	no	no	
<b>Diffuse Sources</b>			
due to agricultural activities	no	no	
due to non-sewered population	no	no	
Urban land use	no	no	
<b>Water abstractions</b>			
Abstractions for agriculture	no	no	
Abstractions for public water supply	no	no	
Abstractions by industry	no	no	
IPPC activities	no	no	
Non-IPPC activities	no	no	
Abstractions by quarries/open cast coal sites	no	no	
Other major abstractions (specify)	no	no	If yes, specify the abstractions
<b>Artificial recharge</b>			
Discharges to groundwater for artificial recharge purposes	no	no	
Returns of groundwater to GWB from which it was abstracted (e.g. for sand and gravel washing)	no	no	
Mine water rebound	no	no	
Other major recharges (specify)	no	no	If yes, specify the recharges
<b>Other significant pressures</b>			
Saltwater intrusion	no	no	
Other intrusion (specify)	no	no	If yes, specify the intrusion

<b>Name of the Groundwater Body</b>	Locally used name of the Gwbody		<b>Slovenský kras/Aggtelek hgs.</b>
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<b>EuropeantransboundaryGWBCode</b>	Internationally agreed code for a transboundary GW body e.g. 5 (Mures / Maros) if the concerning GWB is a member of them		<b>10</b>
<b>EuropeanGWBCode</b>	European code of the GW body e.g. HU_SP.2.16.1		<b>SK200480KF</b>
<b>Significant Pressures and Measures Checklist for Groundwater Quality and Quantity- incl. Supplementary Measures and Additional Measures</b>			
<b>Please select all relevant pressures and provide information on Supplementary and Additional Measures</b>			
<b>Significant Pressures for Groundwater</b>	<b>Posing Risk/poor status for Quality: Yes, No</b>	<b>Posing Risk/poor status for Quantity: Yes, No</b>	<b>Where relevant give details of supplementary measures (Art 11(4)) put in place (Type of measure from pick list of Annex VI part B and details) and additional measures (Art 11(5)) (Type of measure from pick list and details)</b>
<b>Point sources</b>			
Leakages from contaminated sites	no	no	
Leakages from waste disposal sites (landfill and agricultural waste disposal)	no	no	
Leakages associated with oil industry infrastructure	no	no	
Mine water discharges	no	no	
Discharges to ground such as disposal of contaminated water to soakways	no	no	

Other relevant point sources (specify)	no	no	
<b>Diffuse Sources</b>			
due to agricultural activities	no	no	
due to non-sewered population	no	no	
Urban land use	no	no	
<b>Water abstractions</b>			
Abstractions for agriculture	no	no	
Abstractions for public water supply	no	no	
Abstractions by industry	no	no	
IPPC activities	no	no	
Non-IPPC activities	no	no	
Abstractions by quarries/open cast coal sites	no	no	
Other major abstractions (specify)	no	no	If yes, specify the abstractions
<b>Artificial recharge</b>			
Discharges to groundwater for artificial recharge purposes	no	no	
Returns of groundwater to GWB from which it was abstracted (e.g. for sand and gravel washing)	no	no	
Mine water rebound	no	no	
Other major recharges (specify)	no	no	If yes, specify the recharges
<b>Other significant pressures</b>			
Saltwater intrusion	no	no	
Other intrusion (specify)	no	no	If yes, specify the intrusion

<b>Name of the Groundwater Body</b>	Locally used name of the Gwbody		<b>Medzirezonné podzemné vody kvartérnych náplavov Bodrogu</b>
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<b>EuropeantransboundaryGWBCode</b>	Internationally agreed code for a transboundary GW body e.g. 5 (Mures / Maros) if the concerning GWB is a member of them		9
<b>EuropeanGWBCode</b>	European code of the GW body e.g. HU_SP.2.16.1		SK1001500P
<b>Significant Pressures and Measures Checklist for Groundwater Quality and Quantity- incl. Supplementary Measures and Additional Measures</b>			
Please select all relevant pressures and provide information on Supplementary and Additional Measures			
<b>Significant Pressures for Groundwater</b>	<b>Posing Risk/poor status for Quality: Yes, No</b>	<b>Posing Risk/poor status for Quantity: Yes, No</b>	<b>Where relevant give details of supplementary measures (Art 11(4)) put in place (Type of measure from pick list of Annex VI part B and details) and additional measures (Art 11(5)) (Type of measure from pick list and details)</b>
<b>Point sources</b>			
Leakages from contaminated sites	no	no	
Leakages from waste disposal sites (landfill and agricultural waste disposal)	no	no	
Leakages associated with oil industry infrastructure	no	no	
Mine water discharges	no	no	
Discharges to ground such as disposal of contaminated water to soakways	no	no	

Other relevant point sources (specify)	no	no	
<b>Diffuse Sources</b>			
due to agricultural activities	no	no	
due to non-sewered population	no	no	
Urban land use	no	no	
<b>Water abstractions</b>			
Abstractions for agriculture	no	no	
Abstractions for public water supply	no	no	
Abstractions by industry	no	no	
IPPC activities	no	no	
Non-IPPC activities	no	no	
Abstractions by quarries/open cast coal sites	no	no	
Other major abstractions (specify)	no	no	If yes, specify the abstractions
<b>Artificial recharge</b>			
Discharges to groundwater for artificial recharge purposes	no	no	
Returns of groundwater to GWB from which it was abstracted (e.g. for sand and gravel washing)	no	no	
Mine water rebound	no	no	
Other major recharges (specify)	no	no	If yes, specify the recharges
<b>Other significant pressures</b>			
Saltwater intrusion	no	no	
Other intrusion (specify)	no	no	If yes, specify the intrusion

<b>Name of the Groundwater Body</b>	Locally used name of the Gwbody		<b>Aggtelek Mts</b>
<b>EuropeantransboundaryGWBCode</b>	Internationally agreed code for a transboundary GW body e.g. 5 (Mures / Maros) if the		<b>10</b>

	concerning GWB is a member of them		
<b>EuropeanGWBCode</b>	European code of the GW body e.g. HU_SP.2.16.1		<b>HU_K.2.2</b>
<b>Significant Pressures and Measures Checklist for Groundwater Quality and Quantity- incl. Supplementary Measures and Additional Measures</b>			
<b>Please select all relevant pressures and provide information on Supplementary and Additional Measures</b>			
<b>Significant Pressures for Groundwater</b>	<b>Posing Risk/poor status for Quality: Yes, No</b>	<b>Posing Risk/poor status for Quantity: Yes, No</b>	<b>Where relevant give details of supplementary measures (Art 11(4)) put in place (Type of measure from pick list of Annex VI part B and details) and additional measures (Art 11(5)) (Type of measure from pick list and details</b>
<b>Point sources</b> Leakages from contaminated sites Leakages from waste disposal sites (landfill and agricultural waste disposal)  Leakages associated with oil industry infrastructure Mine water discharges Discharges to ground such as disposal of contaminated water to soakways Other relevant point sources (specify): <b>Diffuse Sources</b> due to agricultural activities due to non-sewered population Urban land use <b>Water abstractions</b> Abstractions for agriculture Abstractions for public water supply Abstractions by industry			



IPPC activities Non-IPPC activities  Abstractions by quarries/open cast coal sites Other major abstractions (specify): <b>Artificial recharge</b> Discharges to groundwater for artificial recharge purposes  Returns of groundwater to GWB from which it was abstracted (e.g. for sand and gravel washing) Mine water rebound Other major recharges (specify) <b>Other significant pressures</b> Saltwater intrusion Other intrusion (specify)		If yes, specify the intrusion
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<b>Name of the Groundwater Body</b>	Locally used name of the Gwbody		<b>Szatmár-lowland</b>
<b>EuropeantransboundaryGWBCode</b>	Internationally agreed code for a transboundary GW body e.g. 5 (Mures / Maros) if the concerning GWB is a member of them		<b>6</b>
<b>EuropeanGWBCode</b>	European code of the GW body e.g. HU_SP.2.16.1		<b>HU_P.2.1.2</b>
<b>Significant Pressures and Measures Checklist for Groundwater Quality and Quantity- incl. Supplementary Measures and Additional Measures</b>			
<b>Please select all relevant pressures and provide information on Supplementary and Additional Measures</b>			

Significant Pressures for Groundwater	Posing Risk/poor status for Quality: Yes, No	Posing Risk/poor status for Quantity: Yes, No	Where relevant give details of supplementary measures (Art 11(4)) put in place (Type of measure from pick list of Annex VI part B and details) and additional measures (Art 11(5)) (Type of measure from pick list and details)
<p><b>Point sources</b>  Leakages from contaminated sites  Leakages from waste disposal sites (landfill and agricultural waste disposal)</p> <p>Leakages associated with oil industry infrastructure  Mine water discharges  Discharges to ground such as disposal of contaminated water to soakways  Other relevant point sources (specify):</p> <p><b>Diffuse Sources</b>  due to agricultural activities  due to non-sewered population  Urban land use</p> <p><b>Water abstractions</b>  Abstractions for agriculture  Abstractions for public water supply  Abstractions by industry  IPPC activities  Non-IPPC activities</p> <p>Abstractions by quarries/open cast coal sites  Other major abstractions (specify):</p> <p><b>Artificial recharge</b>  Discharges to groundwater for artificial recharge purposes</p>			

Returns of groundwater to GWB from which it was abstracted (e.g. for sand and gravel washing) Mine water rebound Other major recharges (specify) <b>Other significant pressures</b> Saltwater intrusion Other intrusion (specify)		If yes, specify the intrusion
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<b>Name of the Groundwater Body</b>	Locally used name of the Gwbody		<b>Beregi-lowland</b>
<b>EuropeantransboundaryGWBCode</b>	Internationally agreed code for a transboundary GW body e.g. 5 (Mures / Maros) if the concerning GWB is a member of them		
<b>EuropeanGWBCode</b>	European code of the GW body e.g. HU_SP.2.16.1		<b>HU_P.2.2.2.</b>
<b>Significant Pressures and Measures Checklist for Groundwater Quality and Quantity- incl. Supplementary Measures and Additional Measures</b>			
<b>Please select all relevant pressures and provide information on Supplementary and Additional Measures</b>			
<b>Significant Pressures for Groundwater</b>	<b>Posing Risk/poor status for Quality: Yes, No</b>	<b>Posing Risk/poor status for Quantity: Yes, No</b>	<b>Where relevant give details of supplementary measures (Art 11(4)) put in place (Type of measure from pick list of Annex VI part B and details) and additional measures (Art 11(5)) (Type of measure from pick list and details)</b>
<b>Point sources</b>			

<p>Leakages from contaminated sites Leakages from waste disposal sites (landfill and agricultural waste disposal)</p> <p>Leakages associated with oil industry infrastructure Mine water discharges Discharges to ground such as disposal of contaminated water to soakways Other relevant point sources (specify): <b>Diffuse Sources</b> due to agricultural activities due to non-sewered population Urban land use <b>Water abstractions</b> Abstractions for agriculture Abstractions for public water supply Abstractions by industry IPPC activities Non-IPPC activities</p> <p>Abstractions by quarries/open cast coal sites</p> <p>Other major abstractions (specify): <b>Artificial recharge</b> Discharges to groundwater for artificial recharge purposes</p> <p>Returns of groundwater to GWB from which it was abstracted (e.g. for sand and gravel washing) Mine water rebound Other major recharges (specify) <b>Other significant pressures</b> Saltwater intrusion Other intrusion (specify)</p>	<p>yes - exceeding available groundwater resource</p>	<p>abstraction controls</p> <p>If yes, specify the intrusion</p>
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<b>Name of the Groundwater Body</b>	Locally used name of the Gwbody		<b>Nyírség, east margin</b>
<b>EuropeantransboundaryGWBCode</b>	Internationally agreed code for a transboundary GW body e.g. 5 (Mures / Maros) if the concerning GWB is a member of them		
<b>EuropeanGWBCode</b>	European code of the GW body e.g. HU_SP.2.16.1		<b>HU_P.2.3.1.</b>
<b>Significant Pressures and Measures Checklist for Groundwater Quality and Quantity- incl. Supplementary Measures and Additional Measures</b>			
<b>Please select all relevant pressures and provide information on Supplementary and Additional Measures</b>			
<b>Significant Pressures for Groundwater</b>	<b>Posing Risk/poor status for Quality: Yes, No</b>	<b>Posing Risk/poor status for Quantity: Yes, No</b>	<b>Where relevant give details of supplementary measures (Art 11(4)) put in place (Type of measure from pick list of Annex VI part B and details) and additional measures (Art 11(5)) (Type of measure from pick list and details</b>
<b>Point sources</b> Leakages from contaminated sites Leakages from waste disposal sites (landfill and agricultural waste disposal)  Leakages associated with oil industry infrastructure Mine water discharges Discharges to ground such as disposal of contaminated water to soakways			

<p>Other relevant point sources (specify):</p> <p><b>Diffuse Sources</b>          due to agricultural activities          due to non-sewered population          Urban land use</p> <p><b>Water abstractions</b>          Abstractions for agriculture          Abstractions for public water supply          Abstractions by industry          IPPC activities          Non-IPPC activities</p> <p>Abstractions by quarries/open cast coal sites          Other major abstractions (specify):</p> <p><b>Artificial recharge</b>          Discharges to groundwater for artificial recharge purposes</p> <p>Returns of groundwater to GWB from which it was abstracted (e.g. for sand and gravel washing)          Mine water rebound          Other major recharges (specify)</p> <p><b>Other significant pressures</b>          Saltwater intrusion          Other intrusion (specify)</p>		<p>If yes, specify the intrusion</p>
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<b>Name of the Groundwater Body</b>	Locally used name of the Gwbody	<b>Kraszna-valley, Szamos-valley,</b>
<b>EuropeantransboundaryGWBCode</b>	Internationally agreed code for a transboundary GW body e.g. 5 (Mures / Maros) if the concerning GWB is a member of them	<b>6</b>

EuropeanGWBCode	European code of the GW body e.g. HU_SP.2.16.1		<b>HU_P.2.3.2.</b>
<b>Significant Pressures and Measures Checklist for Groundwater Quality and Quantity- incl. Supplementary Measures and Additional Measures</b>			
<b>Please select all relevant pressures and provide information on Supplementary and Additional Measures</b>			
<b>Significant Pressures for Groundwater</b>	<b>Posing Risk/poor status for Quality: Yes, No</b>	<b>Posing Risk/poor status for Quantity: Yes, No</b>	<b>Where relevant give details of supplementary measures (Art 11(4)) put in place (Type of measure from pick list of Annex VI part B and details) and additional measures (Art 11(5)) (Type of measure from pick list and details)</b>
<p><b>Point sources</b>  Leakages from contaminated sites  Leakages from waste disposal sites (landfill and agricultural waste disposal)</p> <p>Leakages associated with oil industry infrastructure  Mine water discharges  Discharges to ground such as disposal of contaminated water to soakways  Other relevant point sources (specify):</p> <p><b>Diffuse Sources</b>  due to agricultural activities  due to non-sewered population  Urban land use</p> <p><b>Water abstractions</b>  Abstractions for agriculture  Abstractions for public water supply  Abstractions by industry  IPPC activities</p>			

<p>Non-IPPC activities</p> <p>Abstractions by quarries/open cast coal sites Other major abstractions (specify): <b>Artificial recharge</b> Discharges to groundwater for artificial recharge purposes</p> <p>Returns of groundwater to GWB from which it was abstracted (e.g. for sand and gravel washing) Mine water rebound Other major recharges (specify) <b>Other significant pressures</b> Saltwater intrusion Other intrusion (specify)</p>		
		If yes, specify the intrusion

<b>Name of the Groundwater Body</b>	Locally used name of the Gwbody		<b>Nyírség - Lónyay-main-canal catchmnet</b>
<b>EuropeantransboundaryGWBCode</b>	Internationally agreed code for a transboundary GW body e.g. 5 (Mures / Maros) if the concerning GWB is a member of them		
<b>EuropeanGWBCode</b>	European code of the GW body e.g. HU SP.2.16.1		<b>HU_P.2.4.1</b>
<b>Significant Pressures and Measures Checklist for Groundwater Quality and Quantity- incl. Supplementary Measures and Additional Measures</b>			
<b>Please select all relevant pressures and provide information on Supplementary and Additional Measures</b>			



Significant Pressures for Groundwater	Posing Risk/poor status for Quality: Yes, No	Posing Risk/poor status for Quantity: Yes, No	Where relevant give details of supplementary measures (Art 11(4)) put in place (Type of measure from pick list of Annex VI part B and details) and additional measures (Art 11(5)) (Type of measure from pick list and details)
<p><b>Point sources</b>  Leakages from contaminated sites  Leakages from waste disposal sites (landfill and agricultural waste disposal)</p> <p>Leakages associated with oil industry infrastructure  Mine water discharges  Discharges to ground such as disposal of contaminated water to soakways  Other relevant point sources (specify):</p> <p><b>Diffuse Sources</b>  due to agricultural activities  due to non-sewered population  Urban land use</p> <p><b>Water abstractions</b>  Abstractions for agriculture  Abstractions for public water supply  Abstractions by industry  IPPC activities  Non-IPPC activities</p> <p>Abstractions by quarries/open cast coal sites  Other major abstractions (specify):</p> <p><b>Artificial recharge</b>  Discharges to groundwater for artificial recharge purposes</p>			

Returns of groundwater to GWB from which it was abstracted (e.g. for sand and gravel washing) Mine water rebound Other major recharges (specify) <b>Other significant pressures</b> Saltwater intrusion Other intrusion (specify)		
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<b>Name of the Groundwater Body</b>	Locally used name of the Gwbody		<b>Rétköz</b>
<b>EuropeantransboundaryGWBCode</b>	Internationally agreed code for a transboundary GW body e.g. 5 (Mures / Maros) if the concerning GWB is a member of them		
<b>EuropeanGWBCode</b>	European code of the GW body e.g. HU_SP.2.16.1		<b>HU_P.2.4.2</b>
<b>Significant Pressures and Measures Checklist for Groundwater Quality and Quantity- incl. Supplementary Measures and Additional Measures</b>			
<b>Please select all relevant pressures and provide information on Supplementary and Additional Measures</b>			
<b>Significant Pressures for Groundwater</b>	<b>Posing Risk/poor status for Quality: Yes, No</b>	<b>Posing Risk/poor status for Quantity: Yes, No</b>	<b>Where relevant give details of supplementary measures (Art 11(4)) put in place (Type of measure from pick list of Annex VI part B and details) and additional measures (Art 11(5)) (Type of measure from pick list and details)</b>
<b>Point sources</b>			

<p>Leakages from contaminated sites Leakages from waste disposal sites (landfill and agricultural waste disposal)</p> <p>Leakages associated with oil industry infrastructure Mine water discharges Discharges to ground such as disposal of contaminated water to soakways Other relevant point sources (specify): <b>Diffuse Sources</b> due to agricultural activities due to non-sewered population Urban land use <b>Water abstractions</b> Abstractions for agriculture Abstractions for public water supply Abstractions by industry IPPC activities Non-IPPC activities</p> <p>Abstractions by quarries/open cast coal sites</p> <p>Other major abstractions (specify): <b>Artificial recharge</b> Discharges to groundwater for artificial recharge purposes</p> <p>Returns of groundwater to GWB from which it was abstracted (e.g. for sand and gravel washing) Mine water rebound Other major recharges (specify) <b>Other significant pressures</b> Saltwater intrusion Other intrusion (specify)</p>	<p>yes - exceeding available groundwater resource</p>	<p>abstraction controls</p>
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<b>Name of the Groundwater Body</b>	Locally used name of the Gwbody		<b>Bodrogköz</b>
<b>EuropeantransboundaryGWBCode</b>	Internationally agreed code for a transboundary GW body e.g. 5 (Mures / Maros) if the concerning GWB is a member of them		<b>9</b>
<b>EuropeanGWBCode</b>	European code of the GW body e.g. HU_SP.2.16.1		<b>HU_P.2.5.2</b>
<b>Significant Pressures and Measures Checklist for Groundwater Quality and Quantity- incl. Supplementary Measures and Additional Measures</b>			
<b>Please select all relevant pressures and provide information on Supplementary and Additional Measures</b>			
<b>Significant Pressures for Groundwater</b>	<b>Posing Risk/poor status for Quality: Yes, No</b>	<b>Posing Risk/poor status for Quantity: Yes, No</b>	<b>Where relevant give details of supplementary measures (Art 11(4)) put in place (Type of measure from pick list of Annex VI part B and details) and additional measures (Art 11(5)) (Type of measure from pick list and details</b>
<b>Point sources</b> Leakages from contaminated sites Leakages from waste disposal sites (landfill and agricultural waste disposal)  Leakages associated with oil industry infrastructure Mine water discharges Discharges to ground such as disposal of contaminated water to soakways			

<p>Other relevant point sources (specify):</p> <p><b>Diffuse Sources</b>          due to agricultural activities          due to non-sewered population          Urban land use</p> <p><b>Water abstractions</b>          Abstractions for agriculture          Abstractions for public water supply          Abstractions by industry          IPPC activities          Non-IPPC activities</p> <p>Abstractions by quarries/open cast coal sites          Other major abstractions (specify):</p> <p><b>Artificial recharge</b>          Discharges to groundwater for artificial recharge purposes</p> <p>Returns of groundwater to GWB from which it was abstracted (e.g. for sand and gravel washing)          Mine water rebound          Other major recharges (specify)</p> <p><b>Other significant pressures</b>          Saltwater intrusion          Other intrusion (specify)</p>		<p>If yes, specify the intrusion</p>
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<b>Name of the Groundwater Body</b>	Locally used name of the Gwbody	<b>Nyírség southern part, Hajdúság</b>
<b>EuropeantransboundaryGWBCode</b>	Internationally agreed code for a transboundary GW body e.g. 5 (Mures / Maros) if the concerning GWB is a member of them	

EuropeanGWBCode	European code of the GW body e.g. HU_SP.2.16.1		<b>HU_P.2.6.1</b>
<b>Significant Pressures and Measures Checklist for Groundwater Quality and Quantity- incl. Supplementary Measures and Additional Measures</b>			
<b>Please select all relevant pressures and provide information on Supplementary and Additional Measures</b>			
<b>Significant Pressures for Groundwater</b>	<b>Posing Risk/poor status for Quality: Yes, No</b>	<b>Posing Risk/poor status for Quantity: Yes, No</b>	<b>Where relevant give details of supplementary measures (Art 11(4)) put in place (Type of measure from pick list of Annex VI part B and details) and additional measures (Art 11(5)) (Type of measure from pick list and details</b>
<p><b>Point sources</b>  Leakages from contaminated sites  Leakages from waste disposal sites (landfill and agricultural waste disposal)</p> <p>Leakages associated with oil industry infrastructure  Mine water discharges  Discharges to ground such as disposal of contaminated water to soakways  Other relevant point sources (specify):</p> <p><b>Diffuse Sources</b>  due to agricultural activities  due to non-sewered population  Urban land use</p> <p><b>Water abstractions</b>  Abstractions for agriculture  Abstractions for public water supply  Abstractions by industry  IPPC activities</p>	-	-	

<p>Non-IPPC activities</p> <p>Abstractions by quarries/open cast coal sites</p> <p>Other major abstractions (specify):  <b>illegal water abstraction</b></p> <p><b>Artificial recharge</b></p> <p>Discharges to groundwater for artificial recharge purposes</p> <p>Returns of groundwater to GWB from which it was abstracted (e.g. for sand and gravel washing)</p> <p>Mine water rebound</p> <p>Other major recharges (specify)</p> <p><b>Other significant pressures</b></p> <p>Saltwater intrusion</p> <p>Other intrusion (specify)</p>	-	-
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<b>Name of the Groundwater Body</b>	Locally used name of the Gwbody		<b>Hortobágy, Nagykunság, Bihar northern part</b>
<b>EuropeantransboundaryGWBCode</b>	Internationally agreed code for a transboundary GW body e.g. 5 (Mures / Maros) if the concerning GWB is a member of them		
<b>EuropeanGWBCode</b>	European code of the GW body e.g. HU_SP.2.16.1		<b>HU_P.2.6.2</b>
<b>Significant Pressures and Measures Checklist for Groundwater Quality and Quantity- incl. Supplementary Measures and Additional Measures</b>			
Please select all relevant pressures and provide information on Supplementary and Additional Measures			

Significant Pressures for Groundwater	Posing Risk/poor status for Quality: Yes, No	Posing Risk/poor status for Quantity: Yes, No	Where relevant give details of supplementary measures (Art 11(4)) put in place (Type of measure from pick list of Annex VI part B and details) and additional measures (Art 11(5)) (Type of measure from pick list and details)
<p><b>Point sources</b>  Leakages from contaminated sites  Leakages from waste disposal sites (landfill and agricultural waste disposal)</p> <p>Leakages associated with oil industry infrastructure  Mine water discharges  Discharges to ground such as disposal of contaminated water to soakways  Other relevant point sources (specify):</p> <p><b>Diffuse Sources</b>  due to agricultural activities  due to non-sewered population  Urban land use</p>			



<b>Water abstractions</b> Abstractions for agriculture Abstractions for public water supply Abstractions by industry IPPC activities Non-IPPC activities  Abstractions by quarries/open cast coal sites	yes	<b>Demand management:</b> crops with low water demand, <b>Efficiency and reuse:</b> water-saving irrigation technology, practices and equipment, water retention measures on arable lands to increase infiltration and reduce runoff <b>Abstraction control:</b> use of alternative resources <b>Specific measures to improve the status of nature protected areas, including special regulation of abstractions, impoundments and water supply solutions to meet the needs of nature conservation</b>
Other major abstractions (specify): <b>Artificial recharge</b> Discharges to groundwater for artificial recharge purposes  Returns of groundwater to GWB from which it was abstracted (e.g. for sand and gravel washing) Mine water rebound Other major recharges (specify) <b>Other significant pressures</b>	-	-

Saltwater intrusion		
Other intrusion (specify)		

<b>Name of the Groundwater Body</b>	Locally used name of the Gwbody		<b>Sajó-Hernád-valley</b>
<b>EuropeantransboundaryGWBCode</b>	Internationally agreed code for a transboundary GW body e.g. 5 (Mures / Maros) if the concerning GWB is a member of them		
<b>EuropeanGWBCode</b>	European code of the GW body e.g. HU_SP.2.16.1		<b>HU_P.2.8.1</b>
<b>Significant Pressures and Measures Checklist for Groundwater Quality and Quantity- incl. Supplementary Measures and Additional Measures</b>			
<b>Please select all relevant pressures and provide information on Supplementary and Additional Measures</b>			
<b>Significant Pressures for Groundwater</b>	<b>Posing Risk/poor status for Quality: Yes, No</b>	<b>Posing Risk/poor status for Quantity: Yes, No</b>	<b>Where relevant give details of supplementary measures (Art 11(4)) put in place (Type of measure from pick list of Annex VI part B and details) and additional measures (Art 11(5)) (Type of measure from pick list and details)</b>
<b>Point sources</b> Leakages from contaminated sites Leakages from waste disposal sites (landfill and agricultural waste disposal)  Leakages associated with oil industry infrastructure Mine water discharges			

<p>Discharges to ground such as disposal of contaminated water to soakways Other relevant point sources (specify):</p> <p><b>Diffuse Sources</b> due to agricultural activities due to non-sewered population Urban land use</p> <p><b>Water abstractions</b> Abstractions for agriculture Abstractions for public water supply Abstractions by industry IPPC activities Non-IPPC activities</p> <p>Abstractions by quarries/open cast coal sites Other major abstractions (specify):</p> <p><b>Artificial recharge</b> Discharges to groundwater for artificial recharge purposes</p> <p>Returns of groundwater to GWB from which it was abstracted (e.g. for sand and gravel washing) Mine water rebound Other major recharges (specify)</p> <p><b>Other significant pressures</b> Saltwater intrusion Other intrusion (specify)</p>		
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<b>Name of the Groundwater Body</b>	Locally used name of the Gwbody		<b>Sajó-Takta-valley, Hortobágy</b>
<b>EuropeantransboundaryGWBCode</b>	Internationally agreed code for a transboundary GW body e.g. 5 (Mures / Maros) if the		

	concerning GWB is a member of them		
<b>EuropeanGWBCode</b>	European code of the GW body e.g. HU_SP.2.16.1		<b>HU_P.2.8.2</b>
<b>Significant Pressures and Measures Checklist for Groundwater Quality and Quantity- incl. Supplementary Measures and Additional Measures</b>			
<b>Please select all relevant pressures and provide information on Supplementary and Additional Measures</b>			
<b>Significant Pressures for Groundwater</b>	<b>Posing Risk/poor status for Quality: Yes, No</b>	<b>Posing Risk/poor status for Quantity: Yes, No</b>	<b>Where relevant give details of supplementary measures (Art 11(4)) put in place (Type of measure from pick list of Annex VI part B and details) and additional measures (Art 11(5)) (Type of measure from pick list and details</b>
<b>Point sources</b> Leakages from contaminated sites Leakages from waste disposal sites (landfill and agricultural waste disposal)  Leakages associated with oil industry infrastructure Mine water discharges Discharges to ground such as disposal of contaminated water to soakways Other relevant point sources (specify): <b>Diffuse Sources</b> due to agricultural activities due to non-sewered population Urban land use			

<p><b>Water abstractions</b>  Abstractions for agriculture  Abstractions for public water supply  Abstractions by industry  IPPC activities  Non-IPPC activities</p> <p>Abstractions by quarries/open cast coal sites  Other major abstractions (specify):</p> <p><b>Artificial recharge</b>  Discharges to groundwater for artificial recharge purposes</p> <p>Returns of groundwater to GWB from which it was abstracted (e.g. for sand and gravel washing)  Mine water rebound  Other major recharges (specify)</p> <p><b>Other significant pressures</b>  Saltwater intrusion  Other intrusion (specify)</p>	<p>yes</p>	<p><b>Demand management:</b>  crops with low water demand,  <b>Efficiency and reuse:</b>  water-saving irrigation technology, practices and equipment, reconstruction of drainage channels  <b>Abstraction control:</b> use of alternative resources  <b>Exploration of alternative groundwater resources:</b>  review of perspective drinking water resources</p>
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<p><b>Name of the Groundwater Body</b></p>	<p>Locally used name of the Gwbody</p>	<p><b>Északi-középhegység, margin</b></p>
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<b>EuropeantransboundaryGWBCode</b>	Internationally agreed code for a transboundary GW body e.g. 5 (Mures / Maros) if the concerning GWB is a member of them		
<b>EuropeanGWBCode</b>	European code of the GW body e.g. HU_SP.2.16.1		<b>HU_P.2.9.1</b>
<b>Significant Pressures and Measures Checklist for Groundwater Quality and Quantity- incl. Supplementary Measures and Additional Measures</b>			
<b>Please select all relevant pressures and provide information on Supplementary and Additional Measures</b>			
<b>Significant Pressures for Groundwater</b>	<b>Posing Risk/poor status for Quality:</b> Yes, No	<b>Posing Risk/poor status for Quantity:</b> Yes, No	<b>Where relevant give details of supplementary measures (Art 11(4)) put in place (Type of measure from pick list of Annex VI part B and details) and additional measures (Art 11(5)) (Type of measure from pick list and details</b>
<b>Point sources</b> Leakages from contaminated sites Leakages from waste disposal sites (landfill and agricultural waste disposal)  Leakages associated with oil industry infrastructure Mine water discharges Discharges to ground such as disposal of contaminated water to soakways Other relevant point sources (specify): <b>Diffuse Sources</b> due to agricultural activities due to non-sewered population			



	body e.g. 5 (Mures / Maros) if the concerning GWB is a member of them		
<b>EuropeanGWBCode</b>	European code of the GW body e.g. HU_SP.2.16.1		<b>HU_P.2.9.2</b>
<b>Significant Pressures and Measures Checklist for Groundwater Quality and Quantity- incl. Supplementary Measures and Additional Measures</b>			
<b>Please select all relevant pressures and provide information on Supplementary and Additional Measures</b>			
<b>Significant Pressures for Groundwater</b>	<b>Posing Risk/poor status for Quality: Yes, No</b>	<b>Posing Risk/poor status for Quantity: Yes, No</b>	<b>Where relevant give details of supplementary measures (Art 11(4)) put in place (Type of measure from pick list of Annex VI part B and details) and additional measures (Art 11(5)) (Type of measure from pick list and details)</b>
<b>Point sources</b> Leakages from contaminated sites Leakages from waste disposal sites (landfill and agricultural waste disposal)  Leakages associated with oil industry infrastructure Mine water discharges Discharges to ground such as disposal of contaminated water to soakways Other relevant point sources (specify): <b>Diffuse Sources</b> due to agricultural activities due to non-sewered population Urban land use			



<p><b>Water abstractions</b>  Abstractions for agriculture  Abstractions for public water supply  Abstractions by industry  IPPC activities  Non-IPPC activities</p> <p>Abstractions by quarries/open cast coal sites  Other major abstractions (specify):</p> <p><b>Artificial recharge</b>  Discharges to groundwater for artificial recharge purposes</p> <p>Returns of groundwater to GWB from which it was abstracted (e.g. for sand and gravel washing)  Mine water rebound  Other major recharges (specify)</p> <p><b>Other significant pressures</b>  Saltwater intrusion  Other intrusion (specify)</p>	<p>yes</p>	<p><b>Demand management:  crops with low water demand,  Reduction of technological and network losses</b></p> <p>If yes, specify the intrusion</p>
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<p><b>Name of the Groundwater Body</b></p>	<p>Locally used name of the Gwbody</p>		<p><b>Danube-Tisza interfluve - Tisza-catchmnet, northern part</b></p>
<p><b>EuropeantransboundaryGWBCode</b></p>	<p>Internationally agreed code for a transboundary GW body e.g. 5 (Mures / Maros) if the concerning GWB is a member of them</p>		

EuropeanGWBCode	European code of the GW body e.g. HU_SP.2.16.1		<b>HU_P.2.10.1</b>
<b>Significant Pressures and Measures Checklist for Groundwater Quality and Quantity- incl. Supplementary Measures and Additional Measures</b>			
<b>Please select all relevant pressures and provide information on Supplementary and Additional Measures</b>			
<b>Significant Pressures for Groundwater</b>	<b>Posing Risk/poor status for Quality: Yes, No</b>	<b>Posing Risk/poor status for Quantity: Yes, No</b>	<b>Where relevant give details of supplementary measures (Art 11(4)) put in place (Type of measure from pick list of Annex VI part B and details) and additional measures (Art 11(5)) (Type of measure from pick list and details)</b>
<p><b>Point sources</b>  Leakages from contaminated sites  Leakages from waste disposal sites (landfill and agricultural waste disposal)</p> <p>Leakages associated with oil industry infrastructure  Mine water discharges  Discharges to ground such as disposal of contaminated water to soakways  Other relevant point sources (specify):</p> <p><b>Diffuse Sources</b>  due to agricultural activities  due to non-sewered population  Urban land use</p> <p><b>Water abstractions</b>  Abstractions for agriculture  Abstractions for public water supply  Abstractions by industry  IPPC activities</p>			

<p>Non-IPPC activities</p> <p>Abstractions by quarries/open cast coal sites Other major abstractions (specify): <b>Artificial recharge</b> Discharges to groundwater for artificial recharge purposes</p> <p>Returns of groundwater to GWB from which it was abstracted (e.g. for sand and gravel washing) Mine water rebound Other major recharges (specify) <b>Other significant pressures</b> Saltwater intrusion Other intrusion (specify)</p>		
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<b>Name of the Groundwater Body</b>	Locally used name of the Gwbody		<b>Danube-Tisza interfluve - Middle Tisza-valley</b>
<b>EuropeantransboundaryGWBCode</b>	Internationally agreed code for a transboundary GW body e.g. 5 (Mures / Maros) if the concerning GWB is a member of them		
<b>EuropeanGWBCode</b>	European code of the GW body e.g. HU_SP.2.16.1		<b>HU_P.2.10.2</b>
<b>Significant Pressures and Measures Checklist for Groundwater Quality and Quantity- incl. Supplementary Measures and Additional Measures</b>			
<b>Please select all relevant pressures and provide information on Supplementary and Additional Measures</b>			

Significant Pressures for Groundwater	Posing Risk/poor status for Quality: Yes, No	Posing Risk/poor status for Quantity: Yes, No	Where relevant give details of supplementary measures (Art 11(4)) put in place (Type of measure from pick list of Annex VI part B and details) and additional measures (Art 11(5)) (Type of measure from pick list and details)
<p><b>Point sources</b>  Leakages from contaminated sites  Leakages from waste disposal sites (landfill and agricultural waste disposal)</p> <p>Leakages associated with oil industry infrastructure  Mine water discharges  Discharges to ground such as disposal of contaminated water to soakways  Other relevant point sources (specify):</p> <p><b>Diffuse Sources</b>  due to agricultural activities  due to non-sewered population  Urban land use</p> <p><b>Water abstractions</b>  Abstractions for agriculture  Abstractions for public water supply  Abstractions by industry  IPPC activities  Non-IPPC activities</p> <p>Abstractions by quarries/open cast coal sites  Other major abstractions (specify):</p> <p><b>Artificial recharge</b>  Discharges to groundwater for artificial recharge purposes</p>			

Returns of groundwater to GWB from which it was abstracted (e.g. for sand and gravel washing) Mine water rebound Other major recharges (specify) <b>Other significant pressures</b> Saltwater intrusion Other intrusion (specify)		
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<b>Name of the Groundwater Body</b>	Locally used name of the Gwbody		<b>Danube-Tisza interfluve, southern part</b>
<b>EuropeantransboundaryGWBCode</b>	Internationally agreed code for a transboundary GW body e.g. 5 (Mures / Maros) if the concerning GWB is a member of them		<b>7</b>
<b>EuropeanGWBCode</b>	European code of the GW body e.g. HU_SP.2.16.1		<b>HU_P.2.11.1</b>
<b>Significant Pressures and Measures Checklist for Groundwater Quality and Quantity- incl. Supplementary Measures and Additional Measures</b>			
<b>Please select all relevant pressures and provide information on Supplementary and Additional Measures</b>			
<b>Significant Pressures for Groundwater</b>	<b>Posing Risk/poor status for Quality: Yes, No</b>	<b>Posing Risk/poor status for Quantity: Yes, No</b>	<b>Where relevant give details of supplementary measures (Art 11(4)) put in place (Type of measure from pick list of Annex VI part B and details) and additional measures (Art 11(5)) (Type of measure from pick list and details)</b>
<b>Point sources</b>			

<p>Leakages from contaminated sites Leakages from waste disposal sites (landfill and agricultural waste disposal)</p> <p>Leakages associated with oil industry infrastructure Mine water discharges Discharges to ground such as disposal of contaminated water to soakways Other relevant point sources (specify): <b>Diffuse Sources</b> due to agricultural activities due to non-sewered population Urban land use <b>Water abstractions</b> Abstractions for agriculture Abstractions for public water supply Abstractions by industry IPPC activities Non-IPPC activities</p> <p>Abstractions by quarries/open cast coal sites Other major abstractions (specify): <b>Artificial recharge</b> Discharges to groundwater for artificial recharge purposes</p> <p>Returns of groundwater to GWB from which it was abstracted (e.g. for sand and gravel washing) Mine water rebound Other major recharges (specify) <b>Other significant pressures</b> Saltwater intrusion Other intrusion (specify)</p>		
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<b>Name of the Groundwater Body</b>	Locally used name of the Gwbody		<b>Danube-Tisza interfluve, Lower Tisza-valley</b>
<b>EuropeantransboundaryGWBCode</b>	Internationally agreed code for a transboundary GW body e.g. 5 (Mures / Maros) if the concerning GWB is a member of them		<b>7</b>
<b>EuropeanGWBCode</b>	European code of the GW body e.g. HU_SP.2.16.1		<b>HU_P.2.11.2</b>
<b>Significant Pressures and Measures Checklist for Groundwater Quality and Quantity- incl. Supplementary Measures and Additional Measures</b>			
<b>Please select all relevant pressures and provide information on Supplementary and Additional Measures</b>			
<b>Significant Pressures for Groundwater</b>	<b>Posing Risk/poor status for Quality: Yes, No</b>	<b>Posing Risk/poor status for Quantity: Yes, No</b>	<b>Where relevant give details of supplementary measures (Art 11(4)) put in place (Type of measure from pick list of Annex VI part B and details) and additional measures (Art 11(5)) (Type of measure from pick list and details</b>
<b>Point sources</b> Leakages from contaminated sites Leakages from waste disposal sites (landfill and agricultural waste disposal)  Leakages associated with oil industry infrastructure Mine water discharges Discharges to ground such as disposal of contaminated water to soakways Other relevant point sources (specify): <b>Diffuse Sources</b>			

<p>due to agricultural activities  due to non-sewered population  Urban land use</p> <p><b>Water abstractions</b>  Abstractions for agriculture  Abstractions for public water supply  Abstractions by industry  IPPC activities  Non-IPPC activities</p> <p>Abstractions by quarries/open cast coal sites</p> <p>Other major abstractions (specify):  <b>Artificial recharge</b>  Discharges to groundwater for artificial recharge purposes</p> <p>Returns of groundwater to GWB from which it was abstracted (e.g. for sand and gravel washing)  Mine water rebound  Other major recharges (specify)  <b>Other significant pressures</b>  Saltwater intrusion  Other intrusion (specify)</p>	<p>yes</p>	<p><b>Demand management:</b>  crops with low water demand,  Reduction of technological and network losses  Water-saving solutions for industrial water supply</p>
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<p><b>Name of the Groundwater Body</b></p>	<p>Locally used name of the Gwbody</p>		<p><b>Körös-valley, Sárrét</b></p>
<p><b>EuropeantransboundaryGWBCode</b></p>	<p>Internationally agreed code for a transboundary GW body e.g. 5 (Mures /</p>		



	Maros) if the concerning GWB is a member of them		
EuropeanGWBCode	European code of the GW body e.g. HU SP.2.16.1		HU_P.2.12.2
<b>Significant Pressures and Measures Checklist for Groundwater Quality and Quantity- incl. Supplementary Measures and Additional Measures</b>			
<b>Please select all relevant pressures and provide information on Supplementary and Additional Measures</b>			
<b>Significant Pressures for Groundwater</b>	<b>Posing Risk/poor status for Quality: Yes, No</b>	<b>Posing Risk/poor status for Quantity: Yes, No</b>	<b>Where relevant give details of supplementary measures (Art 11(4)) put in place (Type of measure from pick list of Annex VI part B and details) and additional measures (Art 11(5)) (Type of measure from pick list and details)</b>
<b>Point sources</b> Leakages from contaminated sites Leakages from waste disposal sites (landfill and agricultural waste disposal)  Leakages associated with oil industry infrastructure Mine water discharges Discharges to ground such as disposal of contaminated water to soakways Other relevant point sources (specify): <b>Diffuse Sources</b> due to agricultural activities due to non-sewered population Urban land use			

<p><b>Water abstractions</b>  Abstractions for agriculture  Abstractions for public water supply  Abstractions by industry  IPPC activities  Non-IPPC activities</p> <p>Abstractions by quarries/open cast coal sites  Other major abstractions (specify):</p> <p><b>Artificial recharge</b>  Discharges to groundwater for artificial recharge purposes</p> <p>Returns of groundwater to GWB from which it was abstracted (e.g. for sand and gravel washing)  Mine water rebound  Other major recharges (specify)</p> <p><b>Other significant pressures</b>  Saltwater intrusion  Other intrusion (specify)</p>	<p>yes</p>	<p><b>Demand management:</b>  <b>crops with low water demand,</b>  <b>Reduction of technological and network losses</b>  <b>Water-saving solutions for industrial water supply</b></p> <p>If yes, specify the intrusion</p>
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<b>Name of the Groundwater Body</b>	Locally used name of the Gwbody		<b>Maros alluvial fan</b>
<b>EuropeantransboundaryGWBCode</b>	Internationally agreed code for a transboundary GW body e.g. 5 (Mures / Maros) if the concerning GWB is a member of them		<b>5</b>

EuropeanGWBCode	European code of the GW body e.g. HU_SP.2.16.1		<b>HU_P.2.13.1</b>
<b>Significant Pressures and Measures Checklist for Groundwater Quality and Quantity- incl. Supplementary Measures and Additional Measures</b>			
<b>Please select all relevant pressures and provide information on Supplementary and Additional Measures</b>			
Significant Pressures for Groundwater	Posing Risk/poor status for Quality: Yes, No	Posing Risk/poor status for Quantity: Yes, No	Where relevant give details of supplementary measures (Art 11(4)) put in place (Type of measure from pick list of Annex VI part B and details) and additional measures (Art 11(5)) (Type of measure from pick list and details)
<p><b>Point sources</b>  Leakages from contaminated sites  Leakages from waste disposal sites (landfill and agricultural waste disposal)</p> <p>Leakages associated with oil industry infrastructure  Mine water discharges  Discharges to ground such as disposal of contaminated water to soakways  Other relevant point sources (specify):</p> <p><b>Diffuse Sources</b>  due to agricultural activities  due to non-sewered population  Urban land use</p> <p><b>Water abstractions</b>  Abstractions for agriculture  Abstractions for public water supply  Abstractions by industry  IPPC activities</p>			

<p>Non-IPPC activities</p> <p>Abstractions by quarries/open cast coal sites Other major abstractions (specify): <b>Artificial recharge</b> Discharges to groundwater for artificial recharge purposes</p> <p>Returns of groundwater to GWB from which it was abstracted (e.g. for sand and gravel washing) Mine water rebound Other major recharges (specify) <b>Other significant pressures</b> Saltwater intrusion Other intrusion (specify)</p>		
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<b>Name of the Groundwater Body</b>	Locally used name of the Gwbody		<b>Maros-Körös interfluve</b>
<b>EuropeantransboundaryGWBCode</b>	Internationally agreed code for a transboundary GW body e.g. 5 (Mures / Maros) if the concerning GWB is a member of them		<b>5</b>
<b>EuropeanGWBCode</b>	European code of the GW body e.g. HU_SP.2.16.1		<b>HU_P.2.13.2</b>
<b>Significant Pressures and Measures Checklist for Groundwater Quality and Quantity- incl. Supplementary Measures and Additional Measures</b>			
Please select all relevant pressures and provide information on Supplementary and Additional Measures			

Significant Pressures for Groundwater	Posing Risk/poor status for Quality: Yes, No	Posing Risk/poor status for Quantity: Yes, No	Where relevant give details of supplementary measures (Art 11(4)) put in place (Type of measure from pick list of Annex VI part B and details) and additional measures (Art 11(5)) (Type of measure from pick list and details)
<p><b>Point sources</b>  Leakages from contaminated sites  Leakages from waste disposal sites (landfill and agricultural waste disposal)</p> <p>Leakages associated with oil industry infrastructure  Mine water discharges  Discharges to ground such as disposal of contaminated water to soakways  Other relevant point sources (specify):</p> <p><b>Diffuse Sources</b>  due to agricultural activities  due to non-sewered population  Urban land use</p> <p><b>Water abstractions</b>  Abstractions for agriculture  Abstractions for public water supply  Abstractions by industry  IPPC activities  Non-IPPC activities</p> <p>Abstractions by quarries/open cast coal sites  Other major abstractions (specify):</p> <p><b>Artificial recharge</b>  Discharges to groundwater for artificial recharge purposes</p>			

Returns of groundwater to GWB from which it was abstracted (e.g. for sand and gravel washing) Mine water rebound Other major recharges (specify) <b>Other significant pressures</b> Saltwater intrusion Other intrusion (specify)		
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<b>Name of the Groundwater Body</b>	Locally used name of the Gwbody		<b>Kígyós-catchment</b>
<b>EuropeantransboundaryGWBCode</b>	Internationally agreed code for a transboundary GW body e.g. 5 (Mures / Maros) if the concerning GWB is a member of them		<b>7</b>
<b>EuropeanGWBCode</b>	European code of the GW body e.g. HU_SP.2.16.1		<b>HU_P.2.16.1</b>
<b>Significant Pressures and Measures Checklist for Groundwater Quality and Quantity- incl. Supplementary Measures and Additional Measures</b>			
<b>Please select all relevant pressures and provide information on Supplementary and Additional Measures</b>			
<b>Significant Pressures for Groundwater</b>	<b>Posing Risk/poor status for Quality: Yes, No</b>	<b>Posing Risk/poor status for Quantity: Yes, No</b>	<b>Where relevant give details of supplementary measures (Art 11(4)) put in place (Type of measure from pick list of Annex VI part B and details) and additional measures (Art 11(5)) (Type of measure from pick list and details)</b>
<b>Point sources</b>			

<p>Leakages from contaminated sites Leakages from waste disposal sites (landfill and agricultural waste disposal)</p> <p>Leakages associated with oil industry infrastructure Mine water discharges Discharges to ground such as disposal of contaminated water to soakways Other relevant point sources (specify): <b>Diffuse Sources</b> due to agricultural activities due to non-sewered population Urban land use <b>Water abstractions</b> Abstractions for agriculture Abstractions for public water supply Abstractions by industry IPPC activities Non-IPPC activities</p> <p>Abstractions by quarries/open cast coal sites Other major abstractions (specify): <b>Artificial recharge</b> Discharges to groundwater for artificial recharge purposes</p> <p>Returns of groundwater to GWB from which it was abstracted (e.g. for sand and gravel washing) Mine water rebound Other major recharges (specify) <b>Other significant pressures</b> Saltwater intrusion Other intrusion (specify)</p>	<p>-</p>	<p>-</p>
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<b>Name of the Groundwater Body</b>	Locally used name of the Gwbody		<b>Szatmár-lowland</b>
<b>EuropeantransboundaryGWBCode</b>	Internationally agreed code for a transboundary GW body e.g. 5 (Mures / Maros) if the concerning GWB is a member of them		<b>6</b>
<b>EuropeanGWBCode</b>	European code of the GW body e.g. HU_SP.2.16.1		<b>HU_SP.2.1.2</b>
<b>Significant Pressures and Measures Checklist for Groundwater Quality and Quantity- incl. Supplementary Measures and Additional Measures</b>			
<b>Please select all relevant pressures and provide information on Supplementary and Additional Measures</b>			
<b>Significant Pressures for Groundwater</b>	<b>Posing Risk/poor status for Quality: Yes, No</b>	<b>Posing Risk/poor status for Quantity: Yes, No</b>	<b>Where relevant give details of supplementary measures (Art 11(4)) put in place (Type of measure from pick list of Annex VI part B and details) and additional measures (Art 11(5)) (Type of measure from pick list and details</b>
<b>Point sources</b> Leakages from contaminated sites Leakages from waste disposal sites (landfill and agricultural waste disposal)  Leakages associated with oil industry infrastructure Mine water discharges Discharges to ground such as disposal of contaminated water to soakways Other relevant point sources (specify): <b>Diffuse Sources</b>			



<p>due to agricultural activities  due to non-sewered population  Urban land use  <b>Water abstractions</b>  Abstractions for agriculture  Abstractions for public water supply  Abstractions by industry  IPPC activities  Non-IPPC activities</p> <p>Abstractions by quarries/open cast coal sites  Other major abstractions (specify):  <b>Artificial recharge</b>  Discharges to groundwater for artificial recharge purposes</p> <p>Returns of groundwater to GWB from which it was abstracted (e.g. for sand and gravel washing)  Mine water rebound  Other major recharges (specify)  <b>Other significant pressures</b>  Saltwater intrusion  Other intrusion (specify)</p>		<p>If yes, specify the intrusion</p>
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<b>Name of the Groundwater Body</b>	Locally used name of the Gwbody		<b>Beregi-lowland, shallow</b>
<b>EuropeantransboundaryGWBCode</b>	Internationally agreed code for a transboundary GW body e.g. 5 (Mures / Maros) if the concerning GWB is a member of them		
<b>EuropeanGWBCode</b>	European code of the GW body e.g. HU_SP.2.16.1		<b>HU_SP.2.2.2.</b>

<b>Significant Pressures and Measures Checklist for Groundwater Quality and Quantity- incl. Supplementary Measures and Additional Measures</b>			
<b>Please select all relevant pressures and provide information on Supplementary and Additional Measures</b>			
<b>Significant Pressures for Groundwater</b>	<b>Posing Risk/poor status for Quality: Yes, No</b>	<b>Posing Risk/poor status for Quantity: Yes, No</b>	<b>Where relevant give details of supplementary measures (Art 11(4)) put in place (Type of measure from pick list of Annex VI part B and details) and additional measures (Art 11(5)) (Type of measure from pick list and details</b>
<b>Point sources</b> Leakages from contaminated sites Leakages from waste disposal sites (landfill and agricultural waste disposal)  Leakages associated with oil industry infrastructure Mine water discharges Discharges to ground such as disposal of contaminated water to soakways Other relevant point sources (specify): <b>Diffuse Sources</b> due to agricultural activities due to non-sewered population Urban land use			

<p><b>Water abstractions</b>  Abstractions for agriculture  Abstractions for public water supply  Abstractions by industry  IPPC activities  Non-IPPC activities</p> <p>Abstractions by quarries/open cast coal sites  Other major abstractions (specify):</p> <p><b>Artificial recharge</b>  Discharges to groundwater for artificial recharge purposes</p> <p>Returns of groundwater to GWB from which it was abstracted (e.g. for sand and gravel washing)  Mine water rebound  Other major recharges (specify)</p> <p><b>Other significant pressures</b>  Saltwater intrusion  Other intrusion (specify)</p>	<p>yes</p>	<p>Demand management: crops with low water demand,  Efficiency and reuse: water-saving irrigation technology, practices and equipment, reconstruction of drainage channels  Abstraction control: use of alternative resources  Exploration of alternative groundwater resources:  review of perspective drinking water resources</p> <p>If yes, specify the intrusion</p>
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<b>Name of the Groundwater Body</b>	Locally used name of the Gwbody		<b>Nyírség, east margin, shallow</b>
<b>EuropeantransboundaryGWBCode</b>	Internationally agreed code for a		

	transboundary GW body e.g. 5 (Mures / Maros) if the concerning GWB is a member of them		
EuropeanGWBCode	European code of the GW body e.g. HU_SP.2.16.1		<b>HU_SP.2.3.1.</b>
<b>Significant Pressures and Measures Checklist for Groundwater Quality and Quantity- incl. Supplementary Measures and Additional Measures</b>			
<b>Please select all relevant pressures and provide information on Supplementary and Additional Measures</b>			
<b>Significant Pressures for Groundwater</b>	<b>Posing Risk/poor status for Quality: Yes, No</b>	<b>Posing Risk/poor status for Quantity: Yes, No</b>	<b>Where relevant give details of supplementary measures (Art 11(4)) put in place (Type of measure from pick list of Annex VI part B and details) and additional measures (Art 11(5)) (Type of measure from pick list and details</b>
<b>Point sources</b> Leakages from contaminated sites Leakages from waste disposal sites (landfill and agricultural waste disposal)  Leakages associated with oil industry infrastructure Mine water discharges Discharges to ground such as disposal of contaminated water to soakways Other relevant point sources (specify): <b>Diffuse Sources</b> due to agricultural activities	<b>yes</b>		<b>Emission control: change in landuse</b>

<p>due to non-sewered population Urban land use</p>	<p>yes</p>	<p><b>Emission control:</b> reconstruction of sewage network, implement additional connections</p>
<p><b>Water abstractions</b> Abstractions for agriculture Abstractions for public water supply Abstractions by industry IPPC activities Non-IPPC activities</p> <p>Abstractions by quarries/open cast coal sites Other major abstractions (specify):</p> <p><b>Artificial recharge</b> Discharges to groundwater for artificial recharge purposes</p> <p>Returns of groundwater to GWB from which it was abstracted (e.g. for sand and gravel washing) Mine water rebound Other major recharges (specify)</p> <p><b>Other significant pressures</b> Saltwater intrusion Other intrusion (specify)</p>	<p>yes</p>	<p><b>Demand management:</b> crops with low water demand, <b>Efficiency and reuse:</b> water-saving irrigation technology, practices and equipment, <b>Recreation and restoration of wetlands:</b> changes in water use, <b>Research and development:</b> assessment of available gw. resource</p> <p>If yes, specify the intrusion</p>

<b>Name of the Groundwater Body</b>	Locally used name of the Gwbody		<b>Kraszna-valley, Szamos-valley, shallow</b>
<b>EuropeantransboundaryGWBCode</b>	Internationally agreed code for a transboundary GW body e.g. 5 (Mures / Maros) if the concerning GWB is a member of them		<b>6</b>
<b>EuropeanGWBCode</b>	European code of the GW body e.g. HU_SP.2.16.1		<b>HU_SP.2.3.2.</b>
<b>Significant Pressures and Measures Checklist for Groundwater Quality and Quantity- incl. Supplementary Measures and Additional Measures</b>			
<b>Please select all relevant pressures and provide information on Supplementary and Additional Measures</b>			
<b>Significant Pressures for Groundwater</b>	<b>Posing Risk/poor status for Quality: Yes, No</b>	<b>Posing Risk/poor status for Quantity: Yes, No</b>	<b>Where relevant give details of supplementary measures (Art 11(4)) put in place (Type of measure from pick list of Annex VI part B and details) and additional measures (Art 11(5)) (Type of measure from pick list and details</b>
<b>Point sources</b> Leakages from contaminated sites Leakages from waste disposal sites (landfill and agricultural waste disposal)  Leakages associated with oil industry infrastructure Mine water discharges Discharges to ground such as disposal of contaminated water to soakways Other relevant point sources (specify):			

<p><b>Diffuse Sources</b>  due to agricultural activities  due to non-sewered population  Urban land use</p> <p><b>Water abstractions</b>  Abstractions for agriculture  Abstractions for public water supply  Abstractions by industry  IPPC activities  Non-IPPC activities</p> <p>Abstractions by quarries/open cast coal sites  Other major abstractions (specify):</p> <p><b>Artificial recharge</b>  Discharges to groundwater for artificial recharge purposes</p> <p>Returns of groundwater to GWB from which it was abstracted (e.g. for sand and gravel washing)  Mine water rebound  Other major recharges (specify)</p> <p><b>Other significant pressures</b>  Saltwater intrusion  Other intrusion (specify)</p>		<p>If yes, specify the intrusion</p>
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<b>Name of the Groundwater Body</b>	Locally used name of the Gwbody		<b>Nyírség - Lónyay-main-canal catchmnet, shallow</b>
<b>EuropeantransboundaryGWBCode</b>	Internationally agreed code for a transboundary GW body e.g. 5 (Mures / Maros) if the concerning GWB is a member of them		

EuropeanGWBCode	European code of the GW body e.g. HU_SP.2.16.1		<b>HU_SP.2.4.1</b>
<b>Significant Pressures and Measures Checklist for Groundwater Quality and Quantity- incl. Supplementary Measures and Additional Measures</b>			
<b>Please select all relevant pressures and provide information on Supplementary and Additional Measures</b>			
Significant Pressures for Groundwater	Posing Risk/poor status for Quality: Yes, No	Posing Risk/poor status for Quantity: Yes, No	Where relevant give details of supplementary measures (Art 11(4)) put in place (Type of measure from pick list of Annex VI part B and details) and additional measures (Art 11(5)) (Type of measure from pick list and details)
<p><b>Point sources</b>  Leakages from contaminated sites  Leakages from waste disposal sites (landfill and agricultural waste disposal)</p> <p>Leakages associated with oil industry infrastructure  Mine water discharges  Discharges to ground such as disposal of contaminated water to soakways  Other relevant point sources (specify):</p> <p><b>Diffuse Sources</b>  due to agricultural activities  due to non-sewered population  Urban land use</p>			



<p><b>Water abstractions</b>  Abstractions for agriculture  Abstractions for public water supply  Abstractions by industry  IPPC activities  Non-IPPC activities</p> <p>Abstractions by quarries/open cast coal sites</p> <p>Other major abstractions (specify):  <b>indirect abstraction by drainage</b></p> <p><b>Artificial recharge</b>  Discharges to groundwater for artificial recharge purposes</p> <p>Returns of groundwater to GWB from which it was abstracted (e.g. for sand and gravel washing)  Mine water rebound  Other major recharges (specify)</p> <p><b>Other significant pressures</b>  Saltwater intrusion  Other intrusion (specify)</p>	<p>yes</p> <p>yes</p>	<p><b>Demand management:</b>  crops with low water demand,  <b>Efficiency and reuse:</b>  water-saving irrigation technology, practices and equipment,  <b>Recreation and restoration of wetlands:</b> changes in water use,  <b>Research and development:</b>  assessment of available gw. resource</p> <p><b>Recreation and restoration of wetlands (2):</b> changes in drainage system</p>
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<b>Name of the Groundwater Body</b>	Locally used name of the Gwbody		<b>Rétköz, shallow</b>
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<b>EuropeantransboundaryGWBCode</b>	Internationally agreed code for a transboundary GW body e.g. 5 (Mures / Maros) if the concerning GWB is a member of them		
<b>EuropeanGWBCode</b>	European code of the GW body e.g. HU_SP.2.16.1		<b>HU_SP.2.4.2</b>
<b>Significant Pressures and Measures Checklist for Groundwater Quality and Quantity- incl. Supplementary Measures and Additional Measures</b>			
<b>Please select all relevant pressures and provide information on Supplementary and Additional Measures</b>			
<b>Significant Pressures for Groundwater</b>	<b>Posing Risk/poor status for Quality: Yes, No</b>	<b>Posing Risk/poor status for Quantity: Yes, No</b>	<b>Where relevant give details of supplementary measures (Art 11(4)) put in place (Type of measure from pick list of Annex VI part B and details) and additional measures (Art 11(5)) (Type of measure from pick list and details</b>
<b>Point sources</b> Leakages from contaminated sites Leakages from waste disposal sites (landfill and agricultural waste disposal)  Leakages associated with oil industry infrastructure Mine water discharges Discharges to ground such as disposal of contaminated water to soakways Other relevant point sources (specify): <b>Diffuse Sources</b> due to agricultural activities due to non-sewered population			



EuropeantransboundaryGWBCode	Internationally agreed code for a transboundary GW body e.g. 5 (Mures / Maros) if the concerning GWB is a member of them		9
EuropeanGWBCode	European code of the GW body e.g. HU_SP.2.16.1		HU_SP.2.5.2
<b>Significant Pressures and Measures Checklist for Groundwater Quality and Quantity- incl. Supplementary Measures and Additional Measures</b>			
<b>Please select all relevant pressures and provide information on Supplementary and Additional Measures</b>			
Significant Pressures for Groundwater	Posing Risk/poor status for Quality: Yes, No	Posing Risk/poor status for Quantity: Yes, No	Where relevant give details of supplementary measures (Art 11(4)) put in place (Type of measure from pick list of Annex VI part B and details) and additional measures (Art 11(5)) (Type of measure from pick list and details)
<b>Point sources</b> Leakages from contaminated sites Leakages from waste disposal sites (landfill and agricultural waste disposal)  Leakages associated with oil industry infrastructure Mine water discharges Discharges to ground such as disposal of contaminated water to soakways Other relevant point sources (specify): <b>Diffuse Sources</b> due to agricultural activities due to non-sewered population			

<p>Urban land use</p> <p><b>Water abstractions</b></p> <p>Abstractions for agriculture</p> <p>Abstractions for public water supply</p> <p>Abstractions by industry</p> <p>IPPC activities</p> <p>Non-IPPC activities</p> <p>Abstractions by quarries/open cast coal sites</p> <p>Other major abstractions (specify):</p> <p><b>Artificial recharge</b></p> <p>Discharges to groundwater for artificial recharge purposes</p> <p>Returns of groundwater to GWB from which it was abstracted (e.g. for sand and gravel washing)</p> <p>Mine water rebound</p> <p>Other major recharges (specify)</p> <p><b>Other significant pressures</b></p> <p>Saltwater intrusion</p> <p>Other intrusion (specify)</p>		<p>If yes, specify the intrusion</p>
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<b>Name of the Groundwater Body</b>	Locally used name of the Gwbody		<b>Nyírség southern part, Hajdúság, shallow</b>
<b>EuropeantransboundaryGWBCode</b>	Internationally agreed code for a transboundary GW body e.g. 5 (Mures / Maros) if the concerning GWB is a member of them		
<b>EuropeanGWBCode</b>	European code of the GW body e.g. HU_SP.2.16.1		<b>HU_SP.2.6.1.</b>
<b>Significant Pressures and Measures Checklist for Groundwater Quality and Quantity- incl.</b>			

<b>Supplementary Measures and Additional Measures</b>			
<b>Please select all relevant pressures and provide information on Supplementary and Additional Measures</b>			
<b>Significant Pressures for Groundwater</b>	<b>Posing Risk/poor status for Quality: Yes, No</b>	<b>Posing Risk/poor status for Quantity: Yes, No</b>	<b>Where relevant give details of supplementary measures (Art 11(4)) put in place (Type of measure from pick list of Annex VI part B and details) and additional measures (Art 11(5)) (Type of measure from pick list and details)</b>
<b>Point sources</b> Leakages from contaminated sites Leakages from waste disposal sites (landfill and agricultural waste disposal)  Leakages associated with oil industry infrastructure Mine water discharges Discharges to ground such as disposal of contaminated water to soakways Other relevant point sources (specify):  non appropriate well construction	-		
<b>Diffuse Sources</b> due to agricultural activities due to non-sewered population Urban land use	- - -		- - -

<p><b>Water abstractions</b>  Abstractions for agriculture  Abstractions for public water supply  Abstractions by industry  IPPC activities  Non-IPPC activities</p> <p>Abstractions by quarries/open cast coal sites</p> <p>Other major abstractions (specify):</p> <p><b>Artificial recharge</b>  Discharges to groundwater for artificial recharge purposes</p> <p>Returns of groundwater to GWB from which it was abstracted (e.g. for sand and gravel washing)  Mine water rebound  Other major recharges (specify)</p> <p><b>Other significant pressures</b>  Saltwater intrusion  Other intrusion (specify)</p>	<p>yes</p>	<p><b>Demand management:</b>  crops with low water demand,  <b>Efficiency and reuse:</b>  water-saving irrigation technology, practices and equipment  water-saving irrigation technology, practices and equipment,  <b>Recreation and restoration of wetlands:</b> changes in water use,  <b>Research and development:</b>  assessment of available gw. resource</p> <p>-</p>
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<b>Name of the Groundwater Body</b>	Locally used name of the Gwbody		<b>Hortobágy, Nagykunság, Bihar northern part, shallow</b>
<b>EuropeantransboundaryGWBCode</b>	Internationally agreed code for a transboundary GW body e.g. 5 (Mures / Maros) if the concerning GWB is a member of them		
<b>EuropeanGWBCode</b>	European code of the GW body e.g. HU_SP.2.16.1		<b>HU_SP.2.6.2</b>
<b>Significant Pressures and Measures Checklist for Groundwater Quality and Quantity- incl. Supplementary Measures and Additional Measures</b>			
<b>Please select all relevant pressures and provide information on Supplementary and Additional Measures</b>			
<b>Significant Pressures for Groundwater</b>	<b>Posing Risk/poor status for Quality: Yes, No</b>	<b>Posing Risk/poor status for Quantity: Yes, No</b>	<b>Where relevant give details of supplementary measures (Art 11(4)) put in place (Type of measure from pick list of Annex VI part B and details) and additional measures (Art 11(5)) (Type of measure from pick list and details</b>
<b>Point sources</b> Leakages from contaminated sites Leakages from waste disposal sites (landfill and agricultural waste disposal)  Leakages associated with oil industry infrastructure Mine water discharges Discharges to ground such as disposal of contaminated water to soakways Other relevant point sources (specify):  non appropriate well construction			



<p><b>Diffuse Sources</b>  due to agricultural activities  due to non-sewered population  Urban land use</p>	<p>- - -</p>		<p>- - -</p>
			<p><b>Demand management:</b>  crops with low water demand,  <b>Efficiency and reuse:</b>  water-saving irrigation technology, practices and equipment  water-saving irrigation technology, practices and equipment,  <b>Recreation and restoration of wetlands:</b> changes in water use,  <b>Research and development:</b> assessment of available gw. resource</p>
<p><b>Water abstractions</b>  Abstractions for agriculture  Abstractions for public water supply  Abstractions by industry  IPPC activities  Non-IPPC activities</p>	<p>-</p>	<p>yes</p>	
<p>Abstractions by quarries/open cast coal sites</p>			
<p>Other major abstractions (specify):</p>			<p>-</p>
<p><b>Artificial recharge</b>  Discharges to groundwater for artificial recharge purposes</p>			
<p>Returns of groundwater to GWB from which it was abstracted (e.g. for sand and gravel washing)  Mine water rebound  Other major recharges (specify)</p>			
<p><b>Other significant pressures</b></p>			

Saltwater intrusion		
Other intrusion (specify)		

<b>Name of the Groundwater Body</b>	Locally used name of the Gwbody		<b>Cserehát</b>
<b>EuropeantransboundaryGWBCode</b>	Internationally agreed code for a transboundary GW body e.g. 5 (Mures / Maros) if the concerning GWB is a member of them		
<b>EuropeanGWBCode</b>	European code of the GW body e.g. HU_SP.2.16.1		<b>HU_SP.2.7.1</b>
<b>Significant Pressures and Measures Checklist for Groundwater Quality and Quantity- incl. Supplementary Measures and Additional Measures</b>			
<b>Please select all relevant pressures and provide information on Supplementary and Additional Measures</b>			
<b>Significant Pressures for Groundwater</b>	<b>Posing Risk/poor status for Quality: Yes, No</b>	<b>Posing Risk/poor status for Quantity: Yes, No</b>	<b>Where relevant give details of supplementary measures (Art 11(4)) put in place (Type of measure from pick list of Annex VI part B and details) and additional measures (Art 11(5)) (Type of measure from pick list and details)</b>
<b>Point sources</b> Leakages from contaminated sites Leakages from waste disposal sites (landfill and agricultural waste disposal)  Leakages associated with oil industry infrastructure Mine water discharges			

<p>Discharges to ground such as disposal of contaminated water to soakways Other relevant point sources (specify):</p> <p><b>Diffuse Sources</b> due to agricultural activities due to non-sewered population Urban land use</p> <p><b>Water abstractions</b> Abstractions for agriculture Abstractions for public water supply Abstractions by industry IPPC activities Non-IPPC activities</p> <p>Abstractions by quarries/open cast coal sites Other major abstractions (specify):</p> <p><b>Artificial recharge</b> Discharges to groundwater for artificial recharge purposes</p> <p>Returns of groundwater to GWB from which it was abstracted (e.g. for sand and gravel washing) Mine water rebound Other major recharges (specify)</p> <p><b>Other significant pressures</b> Saltwater intrusion Other intrusion (specify)</p>		<p>If yes, specify the intrusion</p>
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<b>Name of the Groundwater Body</b>	Locally used name of the Gwbody	<b>Sajó-Hernád-valley, shallow</b>
<b>EuropeantransboundaryGWBCode</b>	Internationally agreed code for a transboundary GW body e.g. 5 (Mures / Maros) if the	





EuropeanGWBCode	European code of the GW body e.g. HU_SP.2.16.1		<b>HU_SP.2.8.2</b>
<b>Significant Pressures and Measures Checklist for Groundwater Quality and Quantity- incl. Supplementary Measures and Additional Measures</b>			
<b>Please select all relevant pressures and provide information on Supplementary and Additional Measures</b>			
Significant Pressures for Groundwater	Posing Risk/poor status for Quality: Yes, No	Posing Risk/poor status for Quantity: Yes, No	Where relevant give details of supplementary measures (Art 11(4)) put in place (Type of measure from pick list of Annex VI part B and details) and additional measures (Art 11(5)) (Type of measure from pick list and details)
<p><b>Point sources</b>  Leakages from contaminated sites  Leakages from waste disposal sites (landfill and agricultural waste disposal)</p> <p>Leakages associated with oil industry infrastructure  Mine water discharges  Discharges to ground such as disposal of contaminated water to soakways  Other relevant point sources (specify):</p> <p><b>Diffuse Sources</b>  due to agricultural activities  due to non-sewered population  Urban land use</p>			

<p><b>Water abstractions</b>  Abstractions for agriculture  Abstractions for public water supply  Abstractions by industry  IPPC activities  Non-IPPC activities</p> <p>Abstractions by quarries/open cast coal sites  Other major abstractions (specify):</p> <p><b>Artificial recharge</b>  Discharges to groundwater for artificial recharge purposes</p> <p>Returns of groundwater to GWB from which it was abstracted (e.g. for sand and gravel washing)  Mine water rebound  Other major recharges (specify)</p> <p><b>Other significant pressures</b>  Saltwater intrusion  Other intrusion (specify)</p>	<p>yes</p>	<p><b>Demand management:</b>  crops with low water demand,  <b>Efficiency and reuse:</b>  water-saving irrigation technology, practices and equipment  water-saving irrigation technology, practices and equipment,  <b>Recreation and restoration of wetlands:</b> changes in water use,  <b>Research and development:</b>  assessment of available gw. resource</p>
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<b>Name of the Groundwater Body</b>	Locally used name of the Gwbody		<b>Északi-középhegység, margin, shallow</b>
<b>EuropeantransboundaryGWBCode</b>	Internationally agreed code for a transboundary GW body e.g. 5 (Mures / Maros) if the concerning GWB is a member of them		
<b>EuropeanGWBCode</b>	European code of the GW body e.g. HU_SP.2.16.1		<b>HU_SP.2.9.1</b>
<b>Significant Pressures and Measures Checklist for Groundwater Quality and Quantity- incl. Supplementary Measures and Additional Measures</b>			
<b>Please select all relevant pressures and provide information on Supplementary and Additional Measures</b>			
<b>Significant Pressures for Groundwater</b>	<b>Posing Risk/poor status for Quality: Yes, No</b>	<b>Posing Risk/poor status for Quantity: Yes, No</b>	<b>Where relevant give details of supplementary measures (Art 11(4)) put in place (Type of measure from pick list of Annex VI part B and details) and additional measures (Art 11(5)) (Type of measure from pick list and details</b>
<b>Point sources</b> Leakages from contaminated sites Leakages from waste disposal sites (landfill and agricultural waste disposal)  Leakages associated with oil industry infrastructure Mine water discharges Discharges to ground such as disposal of contaminated water to soakways Other relevant point sources (specify): <b>Diffuse Sources</b>			



due to agricultural activities due to non-sewered population	yes		<b>Emission control (2): change in landuse</b>
Urban land use	yes		<b>Code of good practices (2): management of run-off in urban area, Code of good practices (3): control of diffuse pollution in urban area Demand management: crops with low water demand, Efficiency and reuse: water-saving irrigation technology, practices and equipment water-saving irrigation technology, practices and equipment, Recreation and restoration of wetlands: changes in water use,</b>
<b>Water abstractions</b>		yes	
Abstractions for agriculture			
Abstractions for public water supply			
Abstractions by industry			
IPPC activities			
Non-IPPC activities			
Abstractions by quarries/open cast coal sites		yes	
Other major abstractions (specify):		-	-
<b>Artificial recharge</b>			
Discharges to groundwater for artificial recharge purposes			
Returns of groundwater to GWB from which it was abstracted (e.g. for sand and gravel washing)			
Mine water rebound			
Other major recharges (specify)			

<b>Other significant pressures</b> Saltwater intrusion Other intrusion (specify)		
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<b>Name of the Groundwater Body</b>	Locally used name of the Gwbody		<b>Jászság, Nagykunság, shallow</b>
<b>EuropeantransboundaryGWBCode</b>	Internationally agreed code for a transboundary GW body e.g. 5 (Mures / Maros) if the concerning GWB is a member of them		
<b>EuropeanGWBCode</b>	European code of the GW body e.g. HU_SP.2.16.1		<b>HU_SP.2.9.2</b>
<b>Significant Pressures and Measures Checklist for Groundwater Quality and Quantity- incl. Supplementary Measures and Additional Measures</b>			
<b>Please select all relevant pressures and provide information on Supplementary and Additional Measures</b>			
<b>Significant Pressures for Groundwater</b>	<b>Posing Risk/poor status for Quality: Yes, No</b>	<b>Posing Risk/poor status for Quantity: Yes, No</b>	<b>Where relevant give details of supplementary measures (Art 11(4)) put in place (Type of measure from pick list of Annex VI part B and details) and additional measures (Art 11(5)) (Type of measure from pick list and details)</b>
<b>Point sources</b> Leakages from contaminated sites Leakages from waste disposal sites (landfill and agricultural waste disposal)  Leakages associated with oil industry infrastructure			

<p>Mine water discharges Discharges to ground such as disposal of contaminated water to soakways Other relevant point sources (specify):</p>		
<p><b>Diffuse Sources</b> due to agricultural activities due to non-sewered population</p>	<p>yes</p>	<p><b>Emission control (2): change in landuse</b></p>
<p>Urban land use</p>	<p>yes</p>	<p><b>Code of good practices (2): management of run-off in urban area, Code of good practices (3): control of diffuse pollution in urban area Demand management: crops with low water demand, Efficiency and reuse: water-saving irrigation technology, practices and equipment water-saving irrigation technology, practices and equipment, Recreation and restoration of wetlands: changes in water use,</b></p>
<p><b>Water abstractions</b> Abstractions for agriculture Abstractions for public water supply Abstractions by industry IPPC activities Non-IPPC activities</p> <p>Abstractions by quarries/open cast coal sites Other major abstractions (specify):</p> <p><b>Artificial recharge</b> Discharges to groundwater for artificial recharge purposes</p>	<p>yes</p>	

Returns of groundwater to GWB from which it was abstracted (e.g. for sand and gravel washing) Mine water rebound Other major recharges (specify) <b>Other significant pressures</b> Saltwater intrusion Other intrusion (specify)		If yes, specify the intrusion
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<b>Name of the Groundwater Body</b>	Locally used name of the Gwbody		<b>Danube-Tisza interfluve - Tisza-catchment, northern part, shallow</b>
<b>EuropeantransboundaryGWBCode</b>	Internationally agreed code for a transboundary GW body e.g. 5 (Mures / Maros) if the concerning GWB is a member of them		
<b>EuropeanGWBCode</b>	European code of the GW body e.g. HU_SP.2.16.1		<b>HU_SP.2.10.1</b>
<b>Significant Pressures and Measures Checklist for Groundwater Quality and Quantity- incl. Supplementary Measures and Additional Measures</b>			
<b>Please select all relevant pressures and provide information on Supplementary and Additional Measures</b>			
<b>Significant Pressures for Groundwater</b>	<b>Posing Risk/poor status for Quality: Yes, No</b>	<b>Posing Risk/poor status for Quantity: Yes, No</b>	<b>Where relevant give details of supplementary measures (Art 11(4)) put in place (Type of measure from pick list of Annex VI part B and details) and additional measures (Art 11(5)) (Type of measure from pick list and details</b>

<p><b>Point sources</b></p> <p>Leakages from contaminated sites</p> <p>Leakages from waste disposal sites (landfill and agricultural waste disposal)</p> <p>Leakages associated with oil industry infrastructure</p> <p>Mine water discharges</p> <p>Discharges to ground such as disposal of contaminated water to soakways</p> <p>Other relevant point sources (specify):</p>		
<p><b>Diffuse Sources</b></p> <p>due to agricultural activities</p> <p>due to non-sewered population</p>	<p>yes</p>	<p><b>Emission control (2):</b> <b>change in landuse</b></p> <p><b>Code of good practices (2):</b> <b>management of run-off in urban area,</b> <b>Code of good practices (3):</b> <b>control of diffuse pollution in urban area</b></p>
<p>Urban land use</p>	<p>yes</p>	
<p><b>Water abstractions</b></p>		
<p>Abstractions for agriculture</p>		
<p>Abstractions for public water supply</p>		
<p>Abstractions by industry</p>		
<p>IPPC activities</p>		
<p>Non-IPPC activities</p>		
<p>Abstractions by quarries/open cast coal sites</p>		
<p>Other major abstractions (specify):</p>		
<p><b>Artificial recharge</b></p>		
<p>Discharges to groundwater for artificial recharge purposes</p>		
<p>Returns of groundwater to GWB from which it was abstracted (e.g. for sand and gravel washing)</p>		
<p>Mine water rebound</p>		

Other major recharges (specify)		
<b>Other significant pressures</b>		
Saltwater intrusion		
Other intrusion (specify)		

<b>Name of the Groundwater Body</b>	Locally used name of the Gwbody		<b>Danube-Tisza interfluve - Middle Tisza-valley, shallow</b>
<b>EuropeantransboundaryGWBCode</b>	Internationally agreed code for a transboundary GW body e.g. 5 (Mures / Maros) if the concerning GWB is a member of them		
<b>EuropeanGWBCode</b>	European code of the GW body e.g. HU_SP.2.16.1		<b>HU_SP.2.10.2</b>
<b>Significant Pressures and Measures Checklist for Groundwater Quality and Quantity- incl. Supplementary Measures and Additional Measures</b>			
Please select all relevant pressures and provide information on Supplementary and Additional Measures			
<b>Significant Pressures for Groundwater</b>	<b>Posing Risk/poor status for Quality: Yes, No</b>	<b>Posing Risk/poor status for Quantity: Yes, No</b>	<b>Where relevant give details of supplementary measures (Art 11(4)) put in place (Type of measure from pick list of Annex VI part B and details) and additional measures (Art 11(5)) (Type of measure from pick list and details)</b>
<b>Point sources</b> Leakages from contaminated sites Leakages from waste disposal sites (landfill and agricultural waste disposal)			

<p>Leakages associated with oil industry infrastructure  Mine water discharges  Discharges to ground such as disposal of contaminated water to soakways  Other relevant point sources (specify):  <b>Diffuse Sources</b>  due to agricultural activities  due to non-sewered population  Urban land use</p> <p><b>Water abstractions</b>  Abstractions for agriculture  Abstractions for public water supply  Abstractions by industry  IPPC activities  Non-IPPC activities</p> <p>Abstractions by quarries/open cast coal sites  Other major abstractions (specify):  <b>Artificial recharge</b>  Discharges to groundwater for artificial recharge purposes</p> <p>Returns of groundwater to GWB from which it was abstracted (e.g. for sand and gravel washing)  Mine water rebound</p>	<p>yes</p>	<p><b>Demand management: crops with low water demand,</b>  <b>Efficiency and reuse: water-saving irrigation technology, practices and equipment</b>  <b>water-saving irrigation technology, practices and equipment,</b>  <b>Recreation and restoration of wetlands: changes in water use,</b></p>
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Other major recharges (specify) <b>Other significant pressures</b> Saltwater intrusion Other intrusion (specify)		
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<b>Name of the Groundwater Body</b>	Locally used name of the Gwbody		<b>Danube-Tisza interfluve, southern part, shallow</b>
<b>EuropeantransboundaryGWBCode</b>	Internationally agreed code for a transboundary GW body e.g. 5 (Mures / Maros) if the concerning GWB is a member of them		<b>7</b>
<b>EuropeanGWBCode</b>	European code of the GW body e.g. HU_SP.2.16.1		<b>HU_SP.2.11.1</b>
<b>Significant Pressures and Measures Checklist for Groundwater Quality and Quantity- incl. Supplementary Measures and Additional Measures</b>			
<b>Please select all relevant pressures and provide information on Supplementary and Additional Measures</b>			
<b>Significant Pressures for Groundwater</b>	<b>Posing Risk/poor status for Quality: Yes, No</b>	<b>Posing Risk/poor status for Quantity: Yes, No</b>	<b>Where relevant give details of supplementary measures (Art 11(4)) put in place (Type of measure from pick list of Annex VI part B and details) and additional measures (Art 11(5)) (Type of measure from pick list and details)</b>
<b>Point sources</b> Leakages from contaminated sites Leakages from waste disposal sites (landfill and agricultural waste disposal)			



Leakages associated with oil industry infrastructure			
Mine water discharges			
Discharges to ground such as disposal of contaminated water to soakways			
Other relevant point sources (specify):			
<b>Diffuse Sources</b>			
due to agricultural activities	-	-	-
due to non-sewered population			
Urban land use			
<b>Water abstractions</b>		yes	
Abstractions for agriculture			
Abstractions for public water supply			
Abstractions by industry			
IPPC activities			
Non-IPPC activities			
Abstractions by quarries/open cast coal sites			
Other major abstractions (specify):		-	-
<b>Artificial recharge</b>			
Discharges to groundwater for artificial recharge purposes			
Returns of groundwater to GWB from which it was abstracted (e.g. for sand and gravel washing)			
Mine water rebound			

**Demand management: crops with low water demand,**  
**Efficiency and reuse: water-saving irrigation technology, practices and equipment,**  
**Recreation and restoration of wetlands: changes in water use,**  
**Abstraction control: use of alternative resources**

Other major recharges (specify) <b>Other significant pressures</b> Saltwater intrusion Other intrusion (specify)		
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<b>Name of the Groundwater Body</b>	Locally used name of the Gwbody		<b>Danube-Tisza interfluve, Lower Tisza-valley, shallow</b>
<b>EuropeantransboundaryGWBCode</b>	Internationally agreed code for a transboundary GW body e.g. 5 (Mures / Maros) if the concerning GWB is a member of them		<b>7</b>
<b>EuropeanGWBCode</b>	European code of the GW body e.g. HU_SP.2.16.1		<b>HU_SP.2.11.2</b>
<b>Significant Pressures and Measures Checklist for Groundwater Quality and Quantity- incl. Supplementary Measures and Additional Measures</b>			
<b>Please select all relevant pressures and provide information on Supplementary and Additional Measures</b>			
<b>Significant Pressures for Groundwater</b>	<b>Posing Risk/poor status for Quality: Yes, No</b>	<b>Posing Risk/poor status for Quantity: Yes, No</b>	<b>Where relevant give details of supplementary measures (Art 11(4)) put in place (Type of measure from pick list of Annex VI part B and details) and additional measures (Art 11(5)) (Type of measure from pick list and details)</b>
<b>Point sources</b> Leakages from contaminated sites Leakages from waste disposal sites (landfill and agricultural waste disposal)			

<p>Leakages associated with oil industry infrastructure  Mine water discharges  Discharges to ground such as disposal of contaminated water to soakways  Other relevant point sources (specify):  <b>Diffuse Sources</b>  due to agricultural activities  due to non-sewered population  Urban land use</p> <p><b>Water abstractions</b>  Abstractions for agriculture  Abstractions for public water supply  Abstractions by industry  IPPC activities  Non-IPPC activities</p> <p>Abstractions by quarries/open cast coal sites  Other major abstractions (specify):  <b>Artificial recharge</b>  Discharges to groundwater for artificial recharge purposes</p> <p>Returns of groundwater to GWB from which it was abstracted (e.g. for sand and gravel washing)  Mine water rebound  Other major recharges (specify)  <b>Other significant pressures</b>  Saltwater intrusion</p>	<p>-</p> <p>-</p> <p>-</p> <p>yes</p>	<p>-</p> <p>-</p> <p>-</p> <p>Demand management: crops with low water demand,  Efficiency and reuse: water-saving irrigation technology, practices and equipment,  Recreation and restoration of wetlands: changes in water use,</p>
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Other intrusion (specify)		
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<b>Name of the Groundwater Body</b>	Locally used name of the Gwbody		<b>Körös-valley, Sárrét, shallow</b>
<b>EuropeantransboundaryGWBCode</b>	Internationally agreed code for a transboundary GW body e.g. 5 (Mures / Maros) if the concerning GWB is a member of them		
<b>EuropeanGWBCode</b>	European code of the GW body e.g. HU_SP.2.16.1		<b>HU_SP.2.12.2</b>
<b>Significant Pressures and Measures Checklist for Groundwater Quality and Quantity- incl. Supplementary Measures and Additional Measures</b>			
<b>Please select all relevant pressures and provide information on Supplementary and Additional Measures</b>			
<b>Significant Pressures for Groundwater</b>	<b>Posing Risk/poor status for Quality: Yes, No</b>	<b>Posing Risk/poor status for Quantity: Yes, No</b>	<b>Where relevant give details of supplementary measures (Art 11(4)) put in place (Type of measure from pick list of Annex VI part B and details) and additional measures (Art 11(5)) (Type of measure from pick list and details</b>
<b>Point sources</b> Leakages from contaminated sites Leakages from waste disposal sites (landfill and agricultural waste disposal) Leakages associated with oil industry infrastructure Mine water discharges			

<p>Discharges to ground such as disposal of contaminated water to soakways Other relevant point sources (specify):</p> <p><b>Diffuse Sources</b> due to agricultural activities due to non-sewered population Urban land use</p> <p><b>Water abstractions</b> Abstractions for agriculture Abstractions for public water supply Abstractions by industry IPPC activities Non-IPPC activities</p> <p>Abstractions by quarries/open cast coal sites Other major abstractions (specify):</p> <p><b>Artificial recharge</b> Discharges to groundwater for artificial recharge purposes</p> <p>Returns of groundwater to GWB from which it was abstracted (e.g. for sand and gravel washing) Mine water rebound Other major recharges (specify)</p> <p><b>Other significant pressures</b> Saltwater intrusion Other intrusion (specify)</p>	<p>yes</p>	<p><b>Demand management:</b> crops with low water demand, <b>Efficiency and reuse:</b> water-saving irrigation technology, practices and equipment, <b>Recreation and restoration of wetlands:</b> changes in water use, <b>Water-saving solutions for industrial water supply</b></p> <p>If yes, specify the intrusion</p>
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<b>Name of the Groundwater Body</b>	Locally used name of the Gwbody		<b>Maros alluvial fan, shallow</b>
<b>EuropeantransboundaryGWBCode</b>	Internationally agreed code for a transboundary GW body e.g. 5 (Mures / Maros) if the concerning GWB is a member of them		<b>5</b>
<b>EuropeanGWBCode</b>	European code of the GW body e.g. HU_SP.2.16.1		<b>HU_SP.2.13.1</b>
<b>Significant Pressures and Measures Checklist for Groundwater Quality and Quantity- incl. Supplementary Measures and Additional Measures</b>			
<b>Please select all relevant pressures and provide information on Supplementary and Additional Measures</b>			
<b>Significant Pressures for Groundwater</b>	<b>Posing Risk/poor status for Quality: Yes, No</b>	<b>Posing Risk/poor status for Quantity: Yes, No</b>	<b>Where relevant give details of supplementary measures (Art 11(4)) put in place (Type of measure from pick list of Annex VI part B and details) and additional measures (Art 11(5)) (Type of measure from pick list and details</b>
<b>Point sources</b> Leakages from contaminated sites Leakages from waste disposal sites (landfill and agricultural waste disposal)  Leakages associated with oil industry infrastructure Mine water discharges Discharges to ground such as disposal of contaminated water to soakways			

<p>Other relevant point sources (specify):</p> <p><b>Diffuse Sources</b>  due to agricultural activities  due to non-sewered population  Urban land use</p> <p><b>Water abstractions</b>  Abstractions for agriculture  Abstractions for public water supply  Abstractions by industry  IPPC activities  Non-IPPC activities</p> <p>Abstractions by quarries/open cast coal sites  Other major abstractions (specify):</p> <p><b>Artificial recharge</b>  Discharges to groundwater for artificial recharge purposes</p> <p>Returns of groundwater to GWB from which it was abstracted (e.g. for sand and gravel washing)  Mine water rebound  Other major recharges (specify)</p> <p><b>Other significant pressures</b>  Saltwater intrusion  Other intrusion (specify)</p>		
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<b>Name of the Groundwater Body</b>	Locally used name of the Gwbody		<b>Maros-Körös interfluve, shallow</b>
<b>EuropeantransboundaryGWBCode</b>	Internationally agreed code for a transboundary GW body e.g. 5 (Mures / Maros) if the concerning GWB is a member of them		<b>5</b>





<p><b>Water abstractions</b>  Abstractions for agriculture  Abstractions for public water supply  Abstractions by industry  IPPC activities  Non-IPPC activities</p> <p>Abstractions by quarries/open cast coal sites  Other major abstractions (specify):</p> <p><b>Artificial recharge</b>  Discharges to groundwater for artificial recharge purposes</p> <p>Returns of groundwater to GWB from which it was abstracted (e.g. for sand and gravel washing)  Mine water rebound  Other major recharges (specify)</p> <p><b>Other significant pressures</b>  Saltwater intrusion  Other intrusion (specify)</p>	<p>yes</p>	<p><b>Demand management:</b>  crops with low water demand,  <b>Efficiency and reuse:</b>  water-saving irrigation technology, practices and equipment,  <b>Recreation and restoration of wetlands:</b> changes in water use,  <b>Water-saving solutions for industrial water supply</b></p>
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<p><b>Name of the Groundwater Body</b></p>	<p>Locally used name of the Gwbody</p>		<p><b>Kigyós-catchment, shallow</b></p>
<p><b>EuropeantransboundaryGWBCode</b></p>	<p>Internationally agreed code for a transboundary GW</p>		<p>7</p>





EuropeanGWBCode	European code of the GW body e.g. HU_SP.2.16.1		<b>HU_PT.2.1</b>
<b>Significant Pressures and Measures Checklist for Groundwater Quality and Quantity- incl. Supplementary Measures and Additional Measures</b>			
<b>Please select all relevant pressures and provide information on Supplementary and Additional Measures</b>			
<b>Significant Pressures for Groundwater</b>	<b>Posing Risk/poor status for Quality: Yes, No</b>	<b>Posing Risk/poor status for Quantity: Yes, No</b>	<b>Where relevant give details of supplementary measures (Art 11(4)) put in place (Type of measure from pick list of Annex VI part B and details) and additional measures (Art 11(5)) (Type of measure from pick list and details)</b>
<p><b>Point sources</b>  Leakages from contaminated sites  Leakages from waste disposal sites (landfill and agricultural waste disposal)</p> <p>Leakages associated with oil industry infrastructure  Mine water discharges  Discharges to ground such as disposal of contaminated water to soakways  Other relevant point sources (specify):</p> <p><b>Diffuse Sources</b>  due to agricultural activities  due to non-sewered population  Urban land use</p> <p><b>Water abstractions</b>  Abstractions for agriculture  Abstractions for public water supply  Abstractions by industry  IPPC activities</p>			

<p>Non-IPPC activities</p> <p>Abstractions by quarries/open cast coal sites Other major abstractions (specify): <b>Artificial recharge</b> Discharges to groundwater for artificial recharge purposes</p> <p>Returns of groundwater to GWB from which it was abstracted (e.g. for sand and gravel washing) Mine water rebound Other major recharges (specify) <b>Other significant pressures</b> Saltwater intrusion Other intrusion (specify)</p>		
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<b>Name of the Groundwater Body</b>	Locally used name of the Gwbody		<b>Northern Great Plain</b>
<b>EuropeantransboundaryGWBCode</b>	Internationally agreed code for a transboundary GW body e.g. 5 (Mures / Maros) if the concerning GWB is a member of them		
<b>EuropeanGWBCode</b>	European code of the GW body e.g. HU_SP.2.16.1		<b>HU_PT.2.2</b>
<b>Significant Pressures and Measures Checklist for Groundwater Quality and Quantity- incl. Supplementary Measures and Additional Measures</b>			
Please select all relevant pressures and provide information on Supplementary and Additional Measures			

Significant Pressures for Groundwater	Posing Risk/poor status for Quality: Yes, No	Posing Risk/poor status for Quantity: Yes, No	Where relevant give details of supplementary measures (Art 11(4)) put in place (Type of measure from pick list of Annex VI part B and details) and additional measures (Art 11(5)) (Type of measure from pick list and details)
<p><b>Point sources</b>  Leakages from contaminated sites  Leakages from waste disposal sites (landfill and agricultural waste disposal)</p> <p>Leakages associated with oil industry infrastructure  Mine water discharges  Discharges to ground such as disposal of contaminated water to soakways  Other relevant point sources (specify):</p> <p><b>Diffuse Sources</b>  due to agricultural activities  due to non-sewered population  Urban land use</p> <p><b>Water abstractions</b>  Abstractions for agriculture  Abstractions for public water supply  Abstractions by industry  IPPC activities  Non-IPPC activities</p> <p>Abstractions by quarries/open cast coal sites  Other major abstractions (specify):</p> <p><b>Artificial recharge</b>  Discharges to groundwater for artificial recharge purposes</p>			

Returns of groundwater to GWB from which it was abstracted (e.g. for sand and gravel washing) Mine water rebound Other major recharges (specify) <b>Other significant pressures</b> Saltwater intrusion Other intrusion (specify)		
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<b>Name of the Groundwater Body</b>	Locally used name of the Gwbody		<b>Southeastern Great Plain</b>
<b>EuropeantransboundaryGWBCode</b>	Internationally agreed code for a transboundary GW body e.g. 5 (Mures / Maros) if the concerning GWB is a member of them		
<b>EuropeanGWBCode</b>	European code of the GW body e.g. HU_SP.2.16.1		<b>HU_PT.2.3</b>
<b>Significant Pressures and Measures Checklist for Groundwater Quality and Quantity- incl. Supplementary Measures and Additional Measures</b>			
<b>Please select all relevant pressures and provide information on Supplementary and Additional Measures</b>			
<b>Significant Pressures for Groundwater</b>	<b>Posing Risk/poor status for Quality: Yes, No</b>	<b>Posing Risk/poor status for Quantity: Yes, No</b>	<b>Where relevant give details of supplementary measures (Art 11(4)) put in place (Type of measure from pick list of Annex VI part B and details) and additional measures (Art 11(5)) (Type of measure from pick list and details)</b>
<b>Point sources</b>			

<p>Leakages from contaminated sites Leakages from waste disposal sites (landfill and agricultural waste disposal)</p> <p>Leakages associated with oil industry infrastructure Mine water discharges Discharges to ground such as disposal of contaminated water to soakways Other relevant point sources (specify): <b>Diffuse Sources</b> due to agricultural activities due to non-sewered population Urban land use <b>Water abstractions</b> Abstractions for agriculture Abstractions for public water supply Abstractions by industry IPPC activities Non-IPPC activities</p> <p>Abstractions by quarries/open cast coal sites Other major abstractions (specify): <b>Artificial recharge</b> Discharges to groundwater for artificial recharge purposes</p> <p>Returns of groundwater to GWB from which it was abstracted (e.g. for sand and gravel washing) Mine water rebound Other major recharges (specify) <b>Other significant pressures</b> Saltwater intrusion Other intrusion (specify)</p>		
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<b>Name of the Groundwater Body</b>	Locally used name of the Gwbody		<b>Northeastern Great Plain</b>
<b>EuropeantransboundaryGWBCode</b>	Internationally agreed code for a transboundary GW body e.g. 5 (Mures / Maros) if the concerning GWB is a member of them		
<b>EuropeanGWBCode</b>	European code of the GW body e.g. HU_SP.2.16.1		<b>HU_PT.2.4</b>
<b>Significant Pressures and Measures Checklist for Groundwater Quality and Quantity- incl. Supplementary Measures and Additional Measures</b>			
<b>Please select all relevant pressures and provide information on Supplementary and Additional Measures</b>			
<b>Significant Pressures for Groundwater</b>	<b>Posing Risk/poor status for Quality: Yes, No</b>	<b>Posing Risk/poor status for Quantity: Yes, No</b>	<b>Where relevant give details of supplementary measures (Art 11(4)) put in place (Type of measure from pick list of Annex VI part B and details) and additional measures (Art 11(5)) (Type of measure from pick list and details</b>
<b>Point sources</b> Leakages from contaminated sites Leakages from waste disposal sites (landfill and agricultural waste disposal)  Leakages associated with oil industry infrastructure Mine water discharges Discharges to ground such as disposal of contaminated water to soakways Other relevant point sources (specify): <b>Diffuse Sources</b>			

<p>due to agricultural activities  due to non-sewered population  Urban land use  <b>Water abstractions</b>  Abstractions for agriculture  Abstractions for public water supply  Abstractions by industry  IPPC activities  Non-IPPC activities</p> <p>Abstractions by quarries/open cast coal sites  Other major abstractions (specify):  <b>Artificial recharge</b>  Discharges to groundwater for artificial recharge purposes</p> <p>Returns of groundwater to GWB from which it was abstracted (e.g. for sand and gravel washing)  Mine water rebound  Other major recharges (specify)  <b>Other significant pressures</b>  Saltwater intrusion  Other intrusion (specify)</p>		
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<b>Name of the Groundwater Body</b>	Locally used name of the Gwbody		<b>Northern Hills basins</b>
<b>EuropeantransboundaryGWBCode</b>	Internationally agreed code for a transboundary GW body e.g. 5 (Mures / Maros) if the concerning GWB is a member of them		
<b>EuropeanGWBCode</b>	European code of the GW body e.g. HU_SP.2.16.1		<b>HU_PT.2.5</b>

<b>Significant Pressures and Measures Checklist for Groundwater Quality and Quantity- incl. Supplementary Measures and Additional Measures</b>			
<b>Please select all relevant pressures and provide information on Supplementary and Additional Measures</b>			
<b>Significant Pressures for Groundwater</b>	<b>Posing Risk/poor status for Quality: Yes, No</b>	<b>Posing Risk/poor status for Quantity: Yes, No</b>	<b>Where relevant give details of supplementary measures (Art 11(4)) put in place (Type of measure from pick list of Annex VI part B and details) and additional measures (Art 11(5)) (Type of measure from pick list and details</b>
<b>Point sources</b> Leakages from contaminated sites Leakages from waste disposal sites (landfill and agricultural waste disposal)  Leakages associated with oil industry infrastructure Mine water discharges Discharges to ground such as disposal of contaminated water to soakways Other relevant point sources (specify): <b>Diffuse Sources</b> due to agricultural activities due to non-sewered population Urban land use <b>Water abstractions</b> Abstractions for agriculture Abstractions for public water supply Abstractions by industry IPPC activities Non-IPPC activities  Abstractions by quarries/open cast coal sites			

<p>Other major abstractions (specify):</p> <p><b>Artificial recharge</b></p> <p>Discharges to groundwater for artificial recharge purposes</p> <p>Returns of groundwater to GWB from which it was abstracted (e.g. for sand and gravel washing)</p> <p>Mine water rebound</p> <p>Other major recharges (specify)</p> <p><b>Other significant pressures</b></p> <p>Saltwater intrusion</p> <p>Other intrusion (specify)</p>		
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<b>Name of the Groundwater Body</b>	Locally used name of the Gwbody		<b>Bükk, Borsod Hills - Sajó-, Hernád River Basin</b>
<b>EuropeantransboundaryGWBCode</b>	Internationally agreed code for a transboundary GW body e.g. 5 (Mures / Maros) if the concerning GWB is a member of them		
<b>EuropeanGWBCode</b>	European code of the GW body e.g. HU_SP.2.16.1		<b>HU_H.2.5</b>
<b>Significant Pressures and Measures Checklist for Groundwater Quality and Quantity- incl. Supplementary Measures and Additional Measures</b>			
Please select all relevant pressures and provide information on Supplementary and Additional Measures			

Significant Pressures for Groundwater	Posing Risk/poor status for Quality: Yes, No	Posing Risk/poor status for Quantity: Yes, No	Where relevant give details of supplementary measures (Art 11(4)) put in place (Type of measure from pick list of Annex VI part B and details) and additional measures (Art 11(5)) (Type of measure from pick list and details)
<p><b>Point sources</b>  Leakages from contaminated sites  Leakages from waste disposal sites (landfill and agricultural waste disposal)</p> <p>Leakages associated with oil industry infrastructure  Mine water discharges  Discharges to ground such as disposal of contaminated water to soakways  Other relevant point sources (specify):</p> <p><b>Diffuse Sources</b></p> <p>due to agricultural activities  due to non-sewered population  Urban land use</p> <p><b>Water abstractions</b>  Abstractions for agriculture  Abstractions for public water supply  Abstractions by industry  IPPC activities  Non-IPPC activities</p> <p>Abstractions by quarries/open cast coal sites  Other major abstractions (specify):</p> <p><b>Artificial recharge</b></p>	<p>yes</p> <p>yes</p>		<p><b>Emission control: change in landuse</b>  <b>Emission control: reconstruction of sewage network, implement additional connections</b></p>

Discharges to groundwater for artificial recharge purposes		
Returns of groundwater to GWB from which it was abstracted (e.g. for sand and gravel washing)		
Mine water rebound		
Other major recharges (specify)		
<b>Other significant pressures</b>		
Saltwater intrusion		
Other intrusion (specify)		

<b>Name of the Groundwater Body</b>	Locally used name of the Gwbody		<b>Bükk, Borsod Hills - Sajó River Basin</b>
<b>EuropeantransboundaryGWBCode</b>	Internationally agreed code for a transboundary GW body e.g. 5 (Mures / Maros) if the concerning GWB is a member of them		
<b>EuropeanGWBCode</b>	European code of the GW body e.g. HU_SP.2.16.1		<b>HU_SH.2.5</b>
<b>Significant Pressures and Measures Checklist for Groundwater Quality and Quantity- incl. Supplementary Measures and Additional Measures</b>			
<b>Please select all relevant pressures and provide information on Supplementary and Additional Measures</b>			
<b>Significant Pressures for Groundwater</b>	<b>Posing Risk/poor status for Quality: Yes, No</b>	<b>Posing Risk/poor status for Quantity: Yes, No</b>	<b>Where relevant give details of supplementary measures (Art 11(4)) put in place (Type of measure from pick list of Annex VI part B and details) and additional measures (Art 11(5)) (Type</b>

		of measure from pick list and details
<p><b>Point sources</b>  Leakages from contaminated sites  Leakages from waste disposal sites (landfill and agricultural waste disposal)</p> <p>Leakages associated with oil industry infrastructure  Mine water discharges  Discharges to ground such as disposal of contaminated water to soakways  Other relevant point sources (specify):</p> <p><b>Diffuse Sources</b>  due to agricultural activities  due to non-sewered population  Urban land use</p> <p><b>Water abstractions</b>  Abstractions for agriculture  Abstractions for public water supply  Abstractions by industry  IPPC activities  Non-IPPC activities</p> <p>Abstractions by quarries/open cast coal sites  Other major abstractions (specify):</p> <p><b>Artificial recharge</b>  Discharges to groundwater for artificial recharge purposes</p> <p>Returns of groundwater to GWB from which it was abstracted (e.g. for sand and gravel washing)</p>		

Mine water rebound Other major recharges (specify) <b>Other significant pressures</b> Saltwater intrusion Other intrusion (specify)			
<b>Name of the Groundwater Body</b>	Locally used name of the Gwbody e.g. Maros		<b>NW BACKA - deep</b>
<b>EuropeantransboundaryGWBCode</b>	Internationally agreed code for a transboundary GW body e.g. 5 (Mures / Maros) if the concerning GWB is a member of them		<b>7</b>
<b>EuropeanGWBCode</b>	European code of the GW body e.g. HU_SP.2.16.1		<b>RSTIS_GW_I_1</b>
<b>Significant Pressures and Measures Checklist for Groundwater Quality and Quantity- incl. Supplementary Measures and Additional Measures</b>			
<b>Please select all relevant pressures and provide information on Supplementary and Additional Measures</b>			
<b>Significant Pressures for Groundwater</b>	<b>Posing Risk/poor status for Quality:</b> Yes, No	<b>Posing Risk/poor status for Quantity:</b> Yes, No	<b>Where relevant give details of supplementary measures (Art 11(4)) put in place (Type of measure from pick list of Annex VI part B and details) and additional measures (Art 11(5)) (Type of measure from pick list and details</b>
<b>Point sources</b> Leakages from contaminated sites			



Leakages from waste disposal sites (landfill and agricultural waste disposal)		
Leakages associated with oil industry infrastructure		
Mine water discharges		
Discharges to ground such as disposal of contaminated water to soakways		
Other relevant point sources (specify)		
<b>Diffuse Sources</b>		
due to agricultural activities		
due to non-sewered population		
Urban land use		
<b>Water abstractions</b>		
Abstractions for agriculture	yes	

<p>Abstractions for public water supply</p>	<p>yes</p>	<p>Measures include further activities on construction of regional water supply system of Bačka, based on groundwater sources in the Danube alluvion. These sources will not only solve the problem of providing an adequate supply of quality drinking water, but will also improve the quantitative status of the RSTIS_GW_I_1 GWB, since they will reduce the current rate of abstraction from deep aquifers by more than 3 m<sup>3</sup>/s. According to the WFD, these measures can be classified as »supplementary« measures (Annex VI, Part B), which include: research, development and demonstration projects and construction designs for new gw sources. Based on Serbia's investment potential, it is expected that project documentation can be completed by 2015, but the timeframe for the construction of these systems is still uncertain.</p>
<p>Abstractions by industry  IPPC activities  Non-IPPC activities  Abstractions by quarries/open cast coal sites  Other major abstractions (specify)  <b>Artificial recharge</b>  Discharges to groundwater for artificial recharge purposes</p>	<p>yes</p>	

Returns of groundwater to GWB from which it was abstracted (e.g. for sand and gravel washing)  Mine water rebound Other major recharges (specify) <b>Other significant pressures</b> Saltwater intrusion Other intrusion (specify)		
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<b>Name of the Groundwater Body</b>	Locally used name of the Gwbody e.g. Maros		<b>TELECKA - deep</b>
<b>EuropeantransboundaryGWBCode</b>	Internationally agreed code for a transboundary GW body e.g. 5 (Mures / Maros) if the concerning GWB is a member of them		<b>7</b>
<b>EuropeanGWBCode</b>	European code of the GW body e.g. HU_SP.2.16.1		<b>RSTIS_GW_I_2</b>
<b>Significant Pressures and Measures Checklist for Groundwater Quality and Quantity- incl. Supplementary Measures and Additional Measures</b>			
<b>Please select all relevant pressures and provide information on Supplementary and Additional Measures</b>			
<b>Significant Pressures for Groundwater</b>	<b>Posing Risk/poor status for Quality: Yes, No</b>	<b>Posing Risk/poor status for Quantity: Yes, No</b>	<b>Where relevant give details of supplementary measures (Art 11(4)) put in place (Type of measure from pick list of Annex VI part B and details) and additional measures (Art 11(5)) (Type of measure from pick list and details</b>

<p><b>Point sources</b></p> <p>Leakages from contaminated sites</p> <p>Leakages from waste disposal sites (landfill and agricultural waste disposal)</p> <p>Leakages associated with oil industry infrastructure</p> <p>Mine water discharges</p> <p>Discharges to ground such as disposal of contaminated water to soakways</p> <p>Other relevant point sources (specify)</p> <p><b>Diffuse Sources</b></p> <p>due to agricultural activities</p> <p>due to non-sewered population</p> <p>Urban land use</p> <p><b>Water abstractions</b></p> <p>Abstractions for agriculture</p>		
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yes

<p>Abstractions for public water supply</p>	<p>yes</p>	<p>Measures include further activities on construction of regional water supply system of Bačka, based on groundwater sources in the Danube alluvion. These sources will not only solve the problem of providing an adequate supply of quality drinking water, but will also improve the quantitative status of the RSTIS_GW_I_2 GWB, since they will reduce the current rate of abstraction from deep aquifers by more than 3 m<sup>3</sup>/s. According to the WFD, these measures can be classified as »supplementary« measures (Annex VI, Part B), which include: research, development and demonstration projects and construction designs for new gw sources. Based on Serbia's investment potential, it is expected that project documentation can be completed by 2015, but the timeframe for the construction of these systems is still uncertain.</p>
<p>Abstractions by industry  IPPC activities  Non-IPPC activities  Abstractions by quarries/open cast coal sites  Other major abstractions (specify)  <b>Artificial recharge</b>  Discharges to groundwater for artificial recharge purposes</p>	<p>yes</p>	

Returns of groundwater to GWB from which it was abstracted (e.g. for sand and gravel washing)  Mine water rebound Other major recharges (specify) <b>Other significant pressures</b> Saltwater intrusion Other intrusion (specify)		
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<b>Name of the Groundwater Body</b>	Locally used name of the Gwbody e.g. Maros		<b>UPPER TISZA - deep</b>
<b>EuropeantransboundaryGWBCode</b>	Internationally agreed code for a transboundary GW body e.g. 5 (Mures / Maros) if the concerning GWB is a member of them		<b>7</b>
<b>EuropeanGWBCode</b>	European code of the GW body e.g. HU_SP.2.16.1		<b>RSTIS_GW_I_3</b>
<b>Significant Pressures and Measures Checklist for Groundwater Quality and Quantity- incl. Supplementary Measures and Additional Measures</b>			
<b>Please select all relevant pressures and provide information on Supplementary and Additional Measures</b>			
<b>Significant Pressures for Groundwater</b>	<b>Posing Risk/poor status for Quality: Yes, No</b>	<b>Posing Risk/poor status for Quantity: Yes, No</b>	<b>Where relevant give details of supplementary measures (Art 11(4)) put in place (Type of measure from pick list of Annex VI part B and details) and additional measures (Art 11(5)) (Type of measure from pick list and details</b>

<p><b>Point sources</b></p> <p>Leakages from contaminated sites</p> <p>Leakages from waste disposal sites (landfill and agricultural waste disposal)</p> <p>Leakages associated with oil industry infrastructure</p> <p>Mine water discharges</p> <p>Discharges to ground such as disposal of contaminated water to soakways</p> <p>Other relevant point sources (specify)</p> <p><b>Diffuse Sources</b></p> <p>due to agricultural activities</p> <p>due to non-sewered population</p> <p>Urban land use</p> <p><b>Water abstractions</b></p> <p>Abstractions for agriculture</p>			
		yes	

<p>Abstractions for public water supply</p>	<p>yes</p>	<p>Measures include further activities on construction of regional water supply system of Bačka, based on groundwater sources in the Danube alluvion. These sources will not only solve the problem of providing an adequate supply of quality drinking water, but will also improve the quantitative status of the RSTIS_GW_I_3 GWB, since they will reduce the current rate of abstraction from deep aquifers by more than 3 m<sup>3</sup>/s. According to the WFD, these measures can be classified as »supplementary« measures (Annex VI, Part B), which include: research, development and demonstration projects and construction designs for new gw sources. Based on Serbia's investment potential, it is expected that project documentation can be completed by 2015, but the timeframe for the construction of these systems is still uncertain.</p>
<p>Abstractions by industry  IPPC activities  Non-IPPC activities  Abstractions by quarries/open cast coal sites  Other major abstractions (specify)  <b>Artificial recharge</b>  Discharges to groundwater for artificial recharge purposes</p>	<p>yes</p>	



Returns of groundwater to GWB from which it was abstracted (e.g. for sand and gravel washing)  Mine water rebound Other major recharges (specify) <b>Other significant pressures</b> Saltwater intrusion Other intrusion (specify)		
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<b>Name of the Groundwater Body</b>	Locally used name of the Gwbody e.g. Maros		<b>NORTH BANAT - deep</b>
<b>EuropeantransboundaryGWBCode</b>	Internationally agreed code for a transboundary GW body e.g. 5 (Mures / Maros) if the concerning GWB is a member of them		<b>7</b>
<b>EuropeanGWBCode</b>	European code of the GW body e.g. HU_SP.2.16.1		<b>RSTIS_GW_I_4</b>
<b>Significant Pressures and Measures Checklist for Groundwater Quality and Quantity- incl. Supplementary Measures and Additional Measures</b>			
<b>Please select all relevant pressures and provide information on Supplementary and Additional Measures</b>			
<b>Significant Pressures for Groundwater</b>	<b>Posing Risk/poor status for Quality: Yes, No</b>	<b>Posing Risk/poor status for Quantity: Yes, No</b>	<b>Where relevant give details of supplementary measures (Art 11(4)) put in place (Type of measure from pick list of Annex VI part B and details) and additional measures (Art 11(5)) (Type of measure from pick list and details</b>

<p><b>Point sources</b></p> <p>Leakages from contaminated sites</p> <p>Leakages from waste disposal sites (landfill and agricultural waste disposal)</p> <p>Leakages associated with oil industry infrastructure</p> <p>Mine water discharges</p> <p>Discharges to ground such as disposal of contaminated water to soakways</p> <p>Other relevant point sources (specify)</p> <p><b>Diffuse Sources</b></p> <p>due to agricultural activities</p> <p>due to non-sewered population</p> <p>Urban land use</p> <p><b>Water abstractions</b></p> <p>Abstractions for agriculture</p>			
		yes	

<p>Abstractions for public water supply</p>	<p>yes</p>	<p>Measures include further activities on construction of regional water supply system of Banat, based on groundwater sources in the Danube alluvion. These sources will not only solve the problem of providing an adequate supply of quality drinking water, but will also improve the quantitative status of the RSTIS_GW_I_4 GWB, since they will reduce the current rate of abstraction from deep aquifers by more than 3 m<sup>3</sup>/s. According to the WFD, these measures can be classified as »supplementary« measures (Annex VI, Part B), which include: research, development and demonstration projects and construction designs for new gw sources. Based on Serbia's investment potential, it is expected that project documentation can be completed by 2015, but the timeframe for the construction of these systems is still uncertain.</p>
<p>Abstractions by industry  IPPC activities  Non-IPPC activities  Abstractions by quarries/open cast coal sites  Other major abstractions (specify)  <b>Artificial recharge</b>  Discharges to groundwater for artificial recharge purposes</p>	<p>yes</p>	

Returns of groundwater to GWB from which it was abstracted (e.g. for sand and gravel washing)  Mine water rebound Other major recharges (specify) <b>Other significant pressures</b> Saltwater intrusion Other intrusion (specify)		
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<b>Name of the Groundwater Body</b>	Locally used name of the Gwbody e.g. Maros		<b>MID BACKA - deep</b>
<b>EuropeantransboundaryGWBCode</b>	Internationally agreed code for a transboundary GW body e.g. 5 (Mures / Maros) if the concerning GWB is a member of them		
<b>EuropeanGWBCode</b>	European code of the GW body e.g. HU_SP.2.16.1		<b>RSTIS_GW_I_5</b>
<b>Significant Pressures and Measures Checklist for Groundwater Quality and Quantity- incl. Supplementary Measures and Additional Measures</b>			
<b>Please select all relevant pressures and provide information on Supplementary and Additional Measures</b>			
<b>Significant Pressures for Groundwater</b>	<b>Posing Risk/poor status for Quality: Yes, No</b>	<b>Posing Risk/poor status for Quantity: Yes, No</b>	<b>Where relevant give details of supplementary measures (Art 11(4)) put in place (Type of measure from pick list of Annex VI part B and details) and additional measures (Art 11(5)) (Type</b>

		of measure from pick list and details
<p><b>Point sources</b>  Leakages from contaminated sites  Leakages from waste disposal sites (landfill and agricultural waste disposal)  Leakages associated with oil industry infrastructure  Mine water discharges  Discharges to ground such as disposal of contaminated water to soakways  other relevant point sources (specify)</p> <p><b>Diffuse Sources</b>  due to agricultural activities  due to non-sewered population  Urban land use</p> <p><b>Water abstractions</b>  Abstractions for agriculture</p>		<p style="text-align: center; color: blue;">yes</p>

<p>Abstractions for public water supply</p>	<p>yes</p>	<p>Measures include further activities on construction of regional water supply system of Bačka, based on groundwater sources in the Danube alluvion. These sources will not only solve the problem of providing an adequate supply of quality drinking water, but will also improve the quantitative status of the RSTIS_GW_I_5 GWB, since they will reduce the current rate of abstraction from deep aquifers by more than 3 m<sup>3</sup>/s. According to the WFD, these measures can be classified as »supplementary« measures (Annex VI, Part B), which include: research, development and demonstration projects and construction designs for new gw sources. Based on Serbia's investment potential, it is expected that project documentation can be completed by 2015, but the timeframe for the construction of these systems is still uncertain.</p>
<p>Abstractions by industry  IPPC activities  Non-IPPC activities  Abstractions by quarries/open cast coal sites  Other major abstractions (specify)  <b>Artificial recharge</b>  Discharges to groundwater for artificial recharge purposes</p>	<p>yes</p>	

Returns of groundwater to GWB from which it was abstracted (e.g. for sand and gravel washing)  Mine water rebound Other major recharges (specify) <b>Other significant pressures</b> Saltwater intrusion Other intrusion (specify)		
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<b>Name of the Groundwater Body</b>	Locally used name of the Gwbody e.g. Maros		<b>LOWER TISZA - deep</b>
<b>EuropeantransboundaryGWBCode</b>	Internationally agreed code for a transboundary GW body e.g. 5 (Mures / Maros) if the concerning GWB is a member of them		
<b>EuropeanGWBCode</b>	European code of the GW body e.g. HU_SP.2.16.1		<b>RSTIS_GW_I_6</b>
<b>Significant Pressures and Measures Checklist for Groundwater Quality and Quantity- incl. Supplementary Measures and Additional Measures</b>			
<b>Please select all relevant pressures and provide information on Supplementary and Additional Measures</b>			
<b>Significant Pressures for Groundwater</b>	<b>Posing Risk/poor status for Quality: Yes, No</b>	<b>Posing Risk/poor status for Quantity: Yes, No</b>	<b>Where relevant give details of supplementary measures (Art 11(4)) put in place (Type of measure from pick list of Annex VI part B and details) and additional measures (Art 11(5)) (Type of measure from pick list and details</b>

<p><b>Point sources</b></p> <p>Leakages from contaminated sites</p> <p>Leakages from waste disposal sites (landfill and agricultural waste disposal)</p> <p>Leakages associated with oil industry infrastructure</p> <p>Mine water discharges</p> <p>Discharges to ground such as disposal of contaminated water to soakways</p> <p>Other relevant point sources (specify)</p> <p><b>Diffuse Sources</b></p> <p>due to agricultural activities</p> <p>due to non-sewered population</p> <p>Urban land use</p> <p><b>Water abstractions</b></p> <p>Abstractions for agriculture</p>			
			yes



<p>Abstractions for public water supply</p>	<p>yes</p>	<p>Measures include further activities on construction of regional water supply system of Banat, based on groundwater sources in the Danube alluvion. These sources will not only solve the problem of providing an adequate supply of quality drinking water, but will also improve the quantitative status of the RSTIS_GW_I_6 GWB, since they will reduce the current rate of abstraction from deep aquifers by more than 3 m<sup>3</sup>/s. According to the WFD, these measures can be classified as »supplementary« measures (Annex VI, Part B), which include: research, development and demonstration projects and construction designs for new gw sources. Based on Serbia's investment potential, it is expected that project documentation can be completed by 2015, but the timeframe for the construction of these systems is still uncertain.</p>
<p>Abstractions by industry  IPPC activities  Non-IPPC activities  Abstractions by quarries/open cast coal sites  Other major abstractions (specify)  <b>Artificial recharge</b>  Discharges to groundwater for artificial recharge purposes</p>	<p>yes</p>	

Returns of groundwater to GWB from which it was abstracted (e.g. for sand and gravel washing)  Mine water rebound Other major recharges (specify) <b>Other significant pressures</b> Saltwater intrusion Other intrusion (specify)		
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<b>Name of the Groundwater Body</b>	Locally used name of the Gwbody e.g. Maros		<b>MID BANAT - deep</b>
<b>EuropeantransboundaryGWBCode</b>	Internationally agreed code for a transboundary GW body e.g. 5 (Mures / Maros) if the concerning GWB is a member of them		<b>7</b>
<b>EuropeanGWBCode</b>	European code of the GW body e.g. HU_SP.2.16.1		<b>RSTIS_GW_I_7</b>
<b>Significant Pressures and Measures Checklist for Groundwater Quality and Quantity- incl. Supplementary Measures and Additional Measures</b>			
<b>Please select all relevant pressures and provide information on Supplementary and Additional Measures</b>			
<b>Significant Pressures for Groundwater</b>	<b>Posing Risk/poor status for Quality: Yes, No</b>	<b>Posing Risk/poor status for Quantity: Yes, No</b>	<b>Where relevant give details of supplementary measures (Art 11(4)) put in place (Type of measure from pick list of Annex VI part B and details) and additional measures (Art 11(5)) (Type of measure from pick list and details</b>

<p><b>Point sources</b></p> <p>Leakages from contaminated sites</p> <p>Leakages from waste disposal sites (landfill and agricultural waste disposal)</p> <p>Leakages associated with oil industry infrastructure</p> <p>Mine water discharges</p> <p>Discharges to ground such as disposal of contaminated water to soakways</p> <p>Other relevant point sources (specify)</p> <p><b>Diffuse Sources</b></p> <p>due to agricultural activities</p> <p>due to non-sewered population</p> <p>Urban land use</p> <p><b>Water abstractions</b></p> <p>Abstractions for agriculture</p>			
			yes

<p>Abstractions for public water supply</p>	<p>yes</p>	<p>Measures include further activities on construction of regional water supply system of Banat, based on groundwater sources in the Danube alluvion. These sources will not only solve the problem of providing an adequate supply of quality drinking water, but will also improve the quantitative status of the RSTIS_GW_I_7 GWB, since they will reduce the current rate of abstraction from deep aquifers by more than 3 m<sup>3</sup>/s. According to the WFD, these measures can be classified as »supplementary« measures (Annex VI, Part B), which include: research, development and demonstration projects and construction designs for new gw sources. Based on Serbia's investment potential, it is expected that project documentation can be completed by 2015, but the timeframe for the construction of these systems is still uncertain.</p>
<p>Abstractions by industry  IPPC activities  Non-IPPC activities  Abstractions by quarries/open cast coal sites  Other major abstractions (specify)  <b>Artificial recharge</b>  Discharges to groundwater for artificial recharge purposes</p>	<p>yes</p>	

Returns of groundwater to GWB from which it was abstracted (e.g. for sand and gravel washing)  Mine water rebound Other major recharges (specify) <b>Other significant pressures</b> Saltwater intrusion Other intrusion (specify)		
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<b>Name of the Groundwater Body</b>	Locally used name of the Gwbody e.g. Maros		<b>NW BACKA - shallow</b>
<b>EuropeantransboundaryGWBCode</b>	Internationally agreed code for a transboundary GW body e.g. 5 (Mures / Maros) if the concerning GWB is a member of them		<b>7</b>
<b>EuropeanGWBCode</b>	European code of the GW body e.g. HU_SP.2.16.1		<b>RSTIS_GW_SI_1</b>
<b>Significant Pressures and Measures Checklist for Groundwater Quality and Quantity- incl. Supplementary Measures and Additional Measures</b>			
<b>Please select all relevant pressures and provide information on Supplementary and Additional Measures</b>			
<b>Significant Pressures for Groundwater</b>	<b>Posing Risk/poor status for Quality: Yes, No</b>	<b>Posing Risk/poor status for Quantity: Yes, No</b>	<b>Where relevant give details of supplementary measures (Art 11(4)) put in place (Type of measure from pick list of Annex VI part B and details) and additional measures (Art 11(5)) (Type of measure from pick list and details</b>

<p><b>Point sources</b>  Leakages from contaminated sites  Leakages from waste disposal sites (landfill and agricultural waste disposal)    Leakages associated with oil industry infrastructure    Mine water discharges  Discharges to ground such as disposal of contaminated water to soakways  other relevant point sources (specify)  <b>Diffuse Sources</b>  due to agricultural activities  due to non-sewered population  Urban land use  <b>Water abstractions</b>  Abstractions for agriculture  Abstractions for public water supply  Abstractions by industry  IPPC activities  Non-IPPC activities    Abstractions by quarries/open cast coal sites    Other major abstractions (specify)  <b>Artificial recharge</b>  Discharges to groundwater for artificial recharge purposes    Returns of groundwater to GWB from which it was abstracted (e.g. for sand and gravel washing)    Mine water rebound  Other major recharges (specify)  <b>Other significant pressures</b>  Saltwater intrusion  Other intrusion (specify)</p>		
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<b>Name of the Groundwater Body</b>	Locally used name of the Gwbody e.g. Maros		<b>TELECKA - shallow</b>
<b>EuropeantransboundaryGWBCode</b>	Internationally agreed code for a transboundary GW body e.g. 5 (Mures / Maros) if the concerning GWB is a member of them		<b>7</b>
<b>EuropeanGWBCode</b>	European code of the GW body e.g. HU_SP.2.16.1		<b>RSTIS_GW_SI_2</b>
<b>Significant Pressures and Measures Checklist for Groundwater Quality and Quantity- incl. Supplementary Measures and Additional Measures</b>			
<b>Please select all relevant pressures and provide information on Supplementary and Additional Measures</b>			
<b>Significant Pressures for Groundwater</b>	<b>Posing Risk/poor status for Quality: Yes, No</b>	<b>Posing Risk/poor status for Quantity: Yes, No</b>	<b>Where relevant give details of supplementary measures (Art 11(4)) put in place (Type of measure from pick list of Annex VI part B and details) and additional measures (Art 11(5)) (Type of measure from pick list and details</b>
<b>Point sources</b> Leakages from contaminated sites Leakages from waste disposal sites (landfill and agricultural waste disposal) Leakages associated with oil industry infrastructure Mine water discharges Discharges to ground such as disposal of contaminated water to soakways other relevant point sources (specify) <b>Diffuse Sources</b>			

<p>due to agricultural activities  due to non-sewered population  Urban land use</p> <p><b>Water abstractions</b>  Abstractions for agriculture  Abstractions for public water supply  Abstractions by industry  IPPC activities  Non-IPPC activities</p> <p>Abstractions by quarries/open cast coal sites</p> <p>Other major abstractions (specify)</p> <p><b>Artificial recharge</b>  Discharges to groundwater for artificial recharge purposes</p> <p>Returns of groundwater to GWB from which it was abstracted (e.g. for sand and gravel washing)</p> <p>Mine water rebound  Other major recharges (specify)</p> <p><b>Other significant pressures</b>  Saltwater intrusion  Other intrusion (specify)</p>		
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<b>Name of the Groundwater Body</b>	Locally used name of the Gwbody e.g. Maros		<b>UPPER TISZA - shallow</b>
<b>EuropeantransboundaryGWBCode</b>	Internationally agreed code for a transboundary GW body e.g. 5 (Mures / Maros) if the concerning GWB is a member of them		<b>7</b>
<b>EuropeanGWBCode</b>	European code of the GW body e.g. HU_SP.2.16.1		<b>RSTIS_GW_SI_3</b>



<b>Significant Pressures and Measures Checklist for Groundwater Quality and Quantity- incl. Supplementary Measures and Additional Measures</b>			
<b>Please select all relevant pressures and provide information on Supplementary and Additional Measures</b>			
<b>Significant Pressures for Groundwater</b>	<b>Posing Risk/poor status for Quality: Yes, No</b>	<b>Posing Risk/poor status for Quantity: Yes, No</b>	<b>Where relevant give details of supplementary measures (Art 11(4)) put in place (Type of measure from pick list of Annex VI part B and details) and additional measures (Art 11(5)) (Type of measure from pick list and details</b>
<b>Point sources</b> Leakages from contaminated sites Leakages from waste disposal sites (landfill and agricultural waste disposal) Leakages associated with oil industry infrastructure Mine water discharges Discharges to ground such as disposal of contaminated water to soakways other relevant point sources (specify) <b>Diffuse Sources</b> due to agricultural activities due to non-sewered population Urban land use <b>Water abstractions</b> Abstractions for agriculture Abstractions for public water supply Abstractions by industry IPPC activities Non-IPPC activities Abstractions by quarries/open cast coal sites			

<p>Other major abstractions (specify)</p> <p><b>Artificial recharge</b></p> <p>Discharges to groundwater for artificial recharge purposes</p> <p>Returns of groundwater to GWB from which it was abstracted (e.g. for sand and gravel washing)</p> <p>Mine water rebound</p> <p>Other major recharges (specify)</p> <p><b>Other significant pressures</b></p> <p>Saltwater intrusion</p> <p>Other intrusion (specify)</p>		
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<b>Name of the Groundwater Body</b>	Locally used name of the Gwbody e.g. Maros		<b>NORTH BANAT - shallow</b>
<b>EuropeantransboundaryGWBCode</b>	Internationally agreed code for a transboundary GW body e.g. 5 (Mures / Maros) if the concerning GWB is a member of them		<b>7</b>
<b>EuropeanGWBCode</b>	European code of the GW body e.g. HU_SP.2.16.1		<b>RSTIS_GW_SI_4</b>
<b>Significant Pressures and Measures Checklist for Groundwater Quality and Quantity- incl. Supplementary Measures and Additional Measures</b>			
Please select all relevant pressures and provide information on Supplementary and Additional Measures			

Significant Pressures for Groundwater	Posing Risk/poor status for Quality: Yes, No	Posing Risk/poor status for Quantity: Yes, No	Where relevant give details of supplementary measures (Art 11(4)) put in place (Type of measure from pick list of Annex VI part B and details) and additional measures (Art 11(5)) (Type of measure from pick list and details)
<p><b>Point sources</b></p> <p>Leakages from contaminated sites</p> <p>Leakages from waste disposal sites (landfill and agricultural waste disposal)</p> <p>Leakages associated with oil industry infrastructure</p> <p>Mine water discharges</p> <p>Discharges to ground such as disposal of contaminated water to soakways</p> <p>Other relevant point sources (specify)</p> <p><b>Diffuse Sources</b></p> <p>due to agricultural activities</p> <p>due to non-sewered population</p> <p>Urban land use</p> <p><b>Water abstractions</b></p> <p>Abstractions for agriculture</p> <p>Abstractions for public water supply</p> <p>Abstractions by industry</p> <p>IPPC activities</p> <p>Non-IPPC activities</p> <p>Abstractions by quarries/open cast coal sites</p> <p>Other major abstractions (specify)</p> <p><b>Artificial recharge</b></p> <p>Discharges to groundwater for artificial recharge purposes</p>			

Returns of groundwater to GWB from which it was abstracted (e.g. for sand and gravel washing)  Mine water rebound Other major recharges (specify) <b>Other significant pressures</b> Saltwater intrusion Other intrusion (specify)		
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<b>Name of the Groundwater Body</b>	Locally used name of the Gwbody e.g. Maros		<b>MID BACKA - shallow</b>
<b>EuropeantransboundaryGWBCode</b>	Internationally agreed code for a transboundary GW body e.g. 5 (Mures / Maros) if the concerning GWB is a member of them		
<b>EuropeanGWBCode</b>	European code of the GW body e.g. HU_SP.2.16.1		<b>RSTIS_GW_SI_5</b>
<b>Significant Pressures and Measures Checklist for Groundwater Quality and Quantity- incl. Supplementary Measures and Additional Measures</b>			
<b>Please select all relevant pressures and provide information on Supplementary and Additional Measures</b>			
<b>Significant Pressures for Groundwater</b>	<b>Posing Risk/poor status for Quality: Yes, No</b>	<b>Posing Risk/poor status for Quantity: Yes, No</b>	<b>Where relevant give details of supplementary measures (Art 11(4)) put in place (Type of measure from pick list of Annex VI part B and details) and additional measures (Art 11(5)) (Type</b>

		of measure from pick list and details
<p><b>Point sources</b>  Leakages from contaminated sites  Leakages from waste disposal sites (landfill and agricultural waste disposal)  Leakages associated with oil industry infrastructure  Mine water discharges  Discharges to ground such as disposal of contaminated water to soakways  Other relevant point sources (specify)</p> <p><b>Diffuse Sources</b>  due to agricultural activities  due to non-sewered population  Urban land use</p> <p><b>Water abstractions</b>  Abstractions for agriculture  Abstractions for public water supply  Abstractions by industry  IPPC activities  Non-IPPC activities  Abstractions by quarries/open cast coal sites  Other major abstractions (specify)</p> <p><b>Artificial recharge</b>  Discharges to groundwater for artificial recharge purposes  Returns of groundwater to GWB from which it was abstracted (e.g. for sand and gravel washing)</p>		

Mine water rebound Other major recharges (specify) <b>Other significant pressures</b> Saltwater intrusion Other intrusion (specify)		
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<b>Name of the Groundwater Body</b>	Locally used name of the Gwbody e.g. Maros		<b>LOWER TISZA - shallow</b>
<b>EuropeantransboundaryGWBCode</b>	Internationally agreed code for a transboundary GW body e.g. 5 (Mures / Maros) if the concerning GWB is a member of them		
<b>EuropeanGWBCode</b>	European code of the GW body e.g. HU_SP.2.16.1		<b>RSTIS_GW_SI_6</b>
<b>Significant Pressures and Measures Checklist for Groundwater Quality and Quantity- incl. Supplementary Measures and Additional Measures</b>			
<b>Please select all relevant pressures and provide information on Supplementary and Additional Measures</b>			
<b>Significant Pressures for Groundwater</b>	<b>Posing Risk/poor status for Quality: Yes, No</b>	<b>Posing Risk/poor status for Quantity: Yes, No</b>	<b>Where relevant give details of supplementary measures (Art 11(4)) put in place (Type of measure from pick list of Annex VI part B and details) and additional measures (Art 11(5)) (Type of measure from pick list and details)</b>
<b>Point sources</b> Leakages from contaminated sites			

<p>Leakages from waste disposal sites (landfill and agricultural waste disposal)</p> <p>Leakages associated with oil industry infrastructure</p> <p>Mine water discharges</p> <p>Discharges to ground such as disposal of contaminated water to soakways</p> <p>Other relevant point sources (specify)</p> <p><b>Diffuse Sources</b></p> <p>due to agricultural activities</p> <p>due to non-sewered population</p> <p>Urban land use</p> <p><b>Water abstractions</b></p> <p>Abstractions for agriculture</p> <p>Abstractions for public water supply</p> <p>Abstractions by industry</p> <p>IPPC activities</p> <p>Non-IPPC activities</p> <p>Abstractions by quarries/open cast coal sites</p> <p>Other major abstractions (specify)</p> <p><b>Artificial recharge</b></p> <p>Discharges to groundwater for artificial recharge purposes</p> <p>Returns of groundwater to GWB from which it was abstracted (e.g. for sand and gravel washing)</p> <p>Mine water rebound</p> <p>Other major recharges (specify)</p> <p><b>Other significant pressures</b></p> <p>Saltwater intrusion</p> <p>Other intrusion (specify)</p>		
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<b>Name of the Groundwater Body</b>	Locally used name of the Gwbody e.g. Maros		<b>MID BANAT - shallow</b>
<b>EuropeantransboundaryGWBCode</b>	Internationally agreed code for a transboundary GW body e.g. 5 (Mures / Maros) if the concerning GWB is a member of them		<b>7</b>
<b>EuropeanGWBCode</b>	European code of the GW body e.g. HU_SP.2.16.1		<b>RSTIS_GW_SI_7</b>
<b>Significant Pressures and Measures Checklist for Groundwater Quality and Quantity- incl. Supplementary Measures and Additional Measures</b>			
<b>Please select all relevant pressures and provide information on Supplementary and Additional Measures</b>			
<b>Significant Pressures for Groundwater</b>	<b>Posing Risk/poor status for Quality: Yes, No</b>	<b>Posing Risk/poor status for Quantity: Yes, No</b>	<b>Where relevant give details of supplementary measures (Art 11(4)) put in place (Type of measure from pick list of Annex VI part B and details) and additional measures (Art 11(5)) (Type of measure from pick list and details</b>
<b>Point sources</b> Leakages from contaminated sites Leakages from waste disposal sites (landfill and agricultural waste disposal) Leakages associated with oil industry infrastructure Mine water discharges Discharges to ground such as disposal of contaminated water to soakways other relevant point sources (specify) <b>Diffuse Sources</b>			



<p>due to agricultural activities</p> <p>due to non-sewered population</p> <p>Urban land use</p> <p><b>Water abstractions</b></p> <p>Abstractions for agriculture</p> <p>Abstractions for public water supply</p> <p>Abstractions by industry</p> <p>IPPC activities</p> <p>Non-IPPC activities</p> <p>Abstractions by quarries/open cast coal sites</p> <p>Other major abstractions (specify)</p> <p><b>Artificial recharge</b></p> <p>Discharges to groundwater for artificial recharge purposes</p> <p>Returns of groundwater to GWB from which it was abstracted (e.g. for sand and gravel washing)</p> <p>Mine water rebound</p> <p>Other major recharges (specify)</p> <p><b>Other significant pressures</b></p> <p>Saltwater intrusion</p> <p>Other intrusion (specify)</p>		
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Project co-funded by the European Union (ERDF, IPA funds)

Partners: General Directorate of Water Management, Hungary | Global Water Partnership Central and Eastern Europe, Slovakia | International Commission for the Protection of the Danube River, Austria | Ministry of Water and Forest, Romania | Ministry of Foreign Affairs and Trade, Hungary | National Administration "Romanian Waters", Romania | National Institute of Hydrology and Water Management, Romania | Public Water Management Company "Vode Vojvodine", Serbia | Regional Environmental Center for Central and Eastern Europe, Hungary | The Jaroslav Černi Institute for the Development of Water Resources, Serbia | Water Research Institute, Slovakia | World Wide Fund for Nature Hungary

Associated Partners: Interior Ministry, Hungary | Ministry of Agriculture and Environmental Protection Water, Serbia | Secretariat of the Carpathian Convention (SCC), Austria | State Agency of Water Resources of Ukraine | Tisza River Basin Water Resources Directorate, Ukraine





# Draft Updated Integrated Tisza River Basin Management Plan

Annex 6. List of protected areas designated  
according to the Directive 92/43/EEC (Habitat  
Directive)



Project co-funded by the European Union (ERDF, IPA funds)

## List of protected areas

Protected areas designated according to the Directive 92/43/EEC (Habitat Directive):

COUNTRY	EU CODE OF PROTECTED AREA	NAME OF PROTECTED AREA	SIZE OF PROTECTED AREA [km <sup>2</sup> ]
Hungary	HUAN20001	Aggteleki-karszt és peremterületei	230.55
Hungary	HUAN20002	Rakaca-völgy és oldalvölgyei	20.81
Hungary	HUAN20003	Bódva-völgy és Sas-patak-völgye	26.94
Hungary	HUAN20004	Hernád-völgy és Sajóládi-erdő	50.26
Hungary	HUAN20005	Szuha-völgy	10.39
Hungary	HUAN20006	Sajó-völgy	20.73
Hungary	HUAN21007	Bózsza-patak	8.32
Hungary	HUBN20001	Bükk-fennsík és Lök-völgy	143.81
Hungary	HUBN20002	Hór-völgy és Déli-Bükk	55.20
Hungary	HUBN20004	Szarvaskő	6.32
Hungary	HUBN20005	Kisgyőri Ásottfa-tető–Csókás-völgy	24.24
Hungary	HUBN20006	Miskolctapolcai Tatár-árok–Vörös-bérc	5.37
Hungary	HUBN20007	Kisgyőri Halom-vár–Csincse-völgy–Cseh-völgy	10.01
Hungary	HUBN20008	Vár-hegy–Nagyeged	20.36
Hungary	HUBN20009	Tard környéki erdőssztyepp	4.62
Hungary	HUBN20012	Egerbakta-Bátor környéki erdők	26.30
Hungary	HUBN20013	Hevesaranyosi-Fedémesi dombvidék	12.38
Hungary	HUBN20014	Gyepes-völgy	30.12
Hungary	HUBN20015	Izra-völgy és Arlói-tó	13.49
Hungary	HUBN20017	Borsodbótai Kotyindó-tető	2.97
Hungary	HUBN20018	Upponyi-szoros	12.89
Hungary	HUBN20019	Csernely-patak völgye	1.72
Hungary	HUBN20020	Sátai Tőkés-völgy	1.14
Hungary	HUBN20021	Domaházi Hangony-patak völgye	11.62
Hungary	HUBN20025	Nagybarcai Liget-hegy és sajóvelezdi Égett-hegy	12.02
Hungary	HUBN20029	Girincsi Nagy-erdő	1.12
Hungary	HUBN20030	Hejő mente	4.58
Hungary	HUBN20032	Tiszakeszi-morotva	3.06
Hungary	HUBN20034	Borsodi-Mezőség	148.50
Hungary	HUBN20035	Poroszlói szikések	9.18
Hungary	HUBN20036	Kétútközi-legelő	1.83
Hungary	HUBN20037	Nagy-Hanyi	1.68
Hungary	HUBN20038	Kerecsendi Berek-erdő és Lógó-part	1.43
Hungary	HUBN20039	Pusztafogacs	3.20
Hungary	HUBN20040	Nagy-fertő–Gulya-gyep–Hamvajárás szikes pusztái	18.17
Hungary	HUBN20041	Pélyi szikések	27.70

COUNTRY	EU CODE OF PROTECTED AREA	NAME OF PROTECTED AREA	SIZE OF PROTECTED AREA [km <sup>2</sup> ]
Hungary	HUBN20042	Boldogi Vajda-rét	1.23
Hungary	HUBN20044	Recski Hegyes-hegy	1.61
Hungary	HUBN20046	Gyöngyösi Sár-hegy	3.53
Hungary	HUBN20047	Mátra északi letörése	7.80
Hungary	HUBN20048	Gyöngyöstarjáni Világos-hegy és Rossz-rétek	3.27
Hungary	HUBN20049	Mátrabérc–Fallóskúti-rétek	15,07
Hungary	HUBN20050	Gyöngyöspatai Havas	3,25
Hungary	HUBN20051	Nyugat-Mátra	14.98
Hungary	HUBN20055	Szentkúti Meszes-tető	8.93
Hungary	HUBN20056	Tepke	24.23
Hungary	HUBN20057	Bézma	8.32
Hungary	HUBN20058	Bujáki Csirke-hegy és Kántor-rét	1.71
Hungary	HUBN20063	Karancs	1.04
Hungary	HUBN20065	Gortva-völgy	1.54
Hungary	HUBN20067	Szilvássváradi Aszaló és Szilvás-patak mente	1.84
Hungary	HUBN20068	Sajómercsei Körtvélyes-dűlő	1.97
Hungary	HUBN20069	Kesznyéteni Sajó-öböl	47.29
Hungary	HUBN20071	Bodrogzug és Bodrog hullámtere	73.70
Hungary	HUBN20072	Tokaji Kopasz-hegy	3.51
Hungary	HUBN20074	Tályai Patócs-hegy-Sátor-hegy	6.75
Hungary	HUBN20078	Páncsi Mosonna-erdő	2.18
Hungary	HUBN20079	Révleányvári erdők	3.53
Hungary	HUBN20081	Long-erdő	31.53
Hungary	HUBN20082	Felsőregmeci Ronyva	1.64
Hungary	HUBN20084	Központi-Zempléni-hegység	86.62
Hungary	HUBN20085	Északi-Zempléni-hegység	18.28
Hungary	HUBN20087	Baskói-rétek	5.86
Hungary	HUBN20088	Regéci Várhegy	2.46
Hungary	HUBN20089	Füzéri Pál-hegy	7.29
Hungary	HUBN20090	Komlóskai Mogorós-tető és Zsidó-rét	3.58
Hungary	HUBN20092	Telkibányai Király-hegy	1.82
Hungary	HUBN22096	Tiszaújvárosi ártéri erdők	1.88
Hungary	HUDI20019	Felső-Tápió	20.48
Hungary	HUDI20021	Gerje mente	33.44
Hungary	HUDI20022	Gógány- és Kőrös-ér mente	8.18
Hungary	HUDI20023	Gödöllői-dombság	61.79
Hungary	HUDI20024	Tápiógyörgye-Újszilvási szikések	17.44
Hungary	HUDI20025	Hajta mente	57.95
Hungary	HUDI20035	Nagykőrösi pusztai tölgyesek	33.02
Hungary	HUDI20038	Nyugat-Cserhát és Naszály	48.48

COUNTRY	EU CODE OF PROTECTED AREA	NAME OF PROTECTED AREA	SIZE OF PROTECTED AREA [km <sup>2</sup> ]
Hungary	HUDI20043	Rekettyés	3.06
Hungary	HUDI20046	Szécek	36.17
Hungary	HUDI20050	Alsó-Tápió és patak völgyek	18.02
Hungary	HUDI21056	Jászkarajenői puszták	69.69
Hungary	HUHN20001	Felső-Tisza	285.66
Hungary	HUHN20002	Hortobágy	1,051.76
Hungary	HUHN20003	Tisza-tó	178.31
Hungary	HUHN20004	Felső-Sebes-Körös	5.18
Hungary	HUHN20005	Nagy-széksós–Rakottyas	2.49
Hungary	HUHN20006	Pocsaji csordalegelő	1.69
Hungary	HUHN20007	Szentpéterszeg-Hencidai gyepek	10.19
Hungary	HUHN20008	Kismarj-pocsaj-esztári gyepek	24.23
Hungary	HUHN20009	Derecske-konyári gyepek	37.88
Hungary	HUHN20010	Pocsaji-kapu	2.81
Hungary	HUHN20011	Hencidai Csere-erdő	1.21
Hungary	HUHN20012	Sándorosi-tavak	4.74
Hungary	HUHN20013	Közép-Bihar	120.47
Hungary	HUHN20014	Kismarjai Nagy-szik	8.48
Hungary	HUHN20015	Közép-Tisza	142.37
Hungary	HUHN20016	Kék-Kálló-völgye	15.04
Hungary	HUHN20017	Hajdúbagosi-legelő	3.08
Hungary	HUHN20018	Mikepércsi Nyárfáshegyi-legelő	2.29
Hungary	HUHN20019	Bánki-erdő	3.69
Hungary	HUHN20020	Monostorpályi-legelő	1.51
Hungary	HUHN20021	Halápi Álló-hegy	1.76
Hungary	HUHN20022	Rauchbauer-erdő	2.06
Hungary	HUHN20023	Hármashegyi-tölgyesek	5.01
Hungary	HUHN20024	Martinkai-legelő	3.68
Hungary	HUHN20025	Kőrises-Jónás-rész	3.24
Hungary	HUHN20027	Nyírábrányi Kis-Mogyorós	1.69
Hungary	HUHN20028	Csohos-tó	1.92
Hungary	HUHN20032	Gúti-erdő	56.83
Hungary	HUHN20033	Debrecen-hajdúböszörményi tölgyesek	56.35
Hungary	HUHN20035	Önbölyi-erdő és Fényi-erdő	14.32
Hungary	HUHN20036	Bátorligeti Nagy-legelő	4.51
Hungary	HUHN20037	Bátorligeti láp	3.30
Hungary	HUHN20038	Újtanyai lápok	3.34
Hungary	HUHN20042	Napkori-legelő	1.61
Hungary	HUHN20045	Kaszonyi-hegy–Dédai-erdő	13.19
Hungary	HUHN20046	Gelénes–Beregdaróc	11.59

COUNTRY	EU CODE OF PROTECTED AREA	NAME OF PROTECTED AREA	SIZE OF PROTECTED AREA [km <sup>2</sup> ]
Hungary	HUHN20047	Vámosatya-Csaroda	20.08
Hungary	HUHN20048	Tarpa-Tákos	63.47
Hungary	HUHN20049	Lónya-Tizzaszalka	41.12
Hungary	HUHN20050	Kömörő-Fülesd	19.43
Hungary	HUHN20051	Eret-hegy	1.42
Hungary	HUHN20053	Magosligeti-erdő és gyepek	5.60
Hungary	HUHN20054	Csaholc–Garbolc	40.40
Hungary	HUHN20055	Rozsály–Csengersima	9.84
Hungary	HUHN20056	Jánki-erdő	3.98
Hungary	HUHN20057	Grófi-erdő	2.29
Hungary	HUHN20058	Teremi-erdő	9.11
Hungary	HUHN20060	Nyíregyházi lőtér	1.89
Hungary	HUHN20062	Ófehértói lőtér	1.59
Hungary	HUHN20063	Baktai-erdő	9.70
Hungary	HUHN20069	Hajdúszoboszlói szikes gyepek	5.54
Hungary	HUHN20070	Darvasi Csiff-pusztá	4.72
Hungary	HUHN20073	Jászárokszállási szikesek	2.90
Hungary	HUHN20076	Borsóhalmi-legelő	15.56
Hungary	HUHN20078	Jászsági Zagyva-ártér	4.87
Hungary	HUHN20081	Újszász–jászboldogházi gyepek	19.64
Hungary	HUHN20085	Jászapáti–jászkiséri szikesek	17.81
Hungary	HUHN20089	Alsó-Zagyva hullámtere	4.51
Hungary	HUHN20092	Hajdúszováti gyepek	3.45
Hungary	HUHN20093	Kaba-földesi gyepek	50.80
Hungary	HUHN20095	Lányi-legelő	4.11
Hungary	HUHN20098	Dél-ásványi gyepek	14.83
Hungary	HUHN20100	Gatály	7.14
Hungary	HUHN20101	Bihari-legelő	26.44
Hungary	HUHN20103	Berekbőszörmény–körmösdpusztai-legelők	13.71
Hungary	HUHN20105	Csökmői gyepek	6.08
Hungary	HUHN20106	Újfehértói gyepek	4.97
Hungary	HUHN20107	Nagy-Vadas	1.86
Hungary	HUHN20109	Sóstói-erdő	2.80
Hungary	HUHN20113	Kisvárdai gyepek	6.87
Hungary	HUHN20114	Tiszalöki szikesek	15.87
Hungary	HUHN20116	Tiszavasvári szikesek	3.33
Hungary	HUHN20121	Czakó-tó	1.78
Hungary	HUHN20122	Tóció-völgy	1.26
Hungary	HUHN20124	Daru-rét	1.18
Hungary	HUHN20125	Nyírgyulaji Kis-rét	1.57

COUNTRY	EU CODE OF PROTECTED AREA	NAME OF PROTECTED AREA	SIZE OF PROTECTED AREA [km <sup>2</sup> ]
Hungary	HUHN20127	Kraszna menti rétek	3.75
Hungary	HUHN20128	Nyírség-peremi égeresek	2.17
Hungary	HUHN20131	Orosi gyepek	1.93
Hungary	HUHN20133	Balkányi Libegős	1.39
Hungary	HUHN20138	Aranyosi-legelő	1.79
Hungary	HUHN20139	Szalóki Nagy-fertő	2.18
Hungary	HUHN20140	Úrbéri-legelő	2.80
Hungary	HUHN20141	Tiszaigar–tizzaörsi Körtvélyes	6,12
Hungary	HUHN20144	Kenderesi-legelő	5.26
Hungary	HUHN20145	Kecskeri-pusztá és környéke	15.39
Hungary	HUHN20146	Hegyesbor	13.70
Hungary	HUHN20148	Pásztói-legelő	3.82
Hungary	HUHN20149	Mezőtúri Szandazugi-legelő	3.87
Hungary	HUHN20152	Kunszentmártoni Bábockai-legelő	1.81
Hungary	HUHN20153	Szelevényi Tó-köz	1.66
Hungary	HUHN20154	Csépa-szelevényi gyepek	2.14
Hungary	HUHN20155	Cserkei Nagy-fertő	2.00
Hungary	HUHN20156	Tiszasasi Láp-legelő	1.55
Hungary	HUHN20157	Tiszaugi Körtvélyes és Bokros	4.17
Hungary	HUHN20158	Tizsakürt-tiszainokai gyepek	4.72
Hungary	HUHN20159	Tunyogmatolcsi Holt-Szamos	3.03
Hungary	HUHN20161	Sámsoni-úti bellegelő	2.41
Hungary	HUHN21163	Biri Nagy-rét	2.76
Hungary	HUHN21164	Liget-legelő	22.07
Hungary	HUHN21165	Penészleki gyepek	4.68
Hungary	HUKM20001	Hódmezővásárhely környéki és csanádi-háti puszták	164.19
Hungary	HUKM20002	Hódmezővásárhelyi Kék-tó	39.10
Hungary	HUKM20003	T-erdő	1.37
Hungary	HUKM20004	Száraz-ér	15.20
Hungary	HUKM20005	Deszki gyepek	5.37
Hungary	HUKM20006	Mágocs-ér	1.26
Hungary	HUKM20008	Maros	59.33
Hungary	HUKM20010	Gyula-szabadkigyósi gyepek	106.29
Hungary	HUKM20011	Körösközi erdők	56.36
Hungary	HUKM20012	Fekete-, Fehér- és Kettős-Körös	19.76
Hungary	HUKM20013	Bélmegyeri Fás-pusztá	6.53
Hungary	HUKM20014	Déaványa környéki gyepek	140.29
Hungary	HUKM20015	Hortobágy-Berettyó	30.80
Hungary	HUKM20016	Sebes-Körös	14.55
Hungary	HUKM20017	Hármas-Körös	78.19



COUNTRY	EU CODE OF PROTECTED AREA	NAME OF PROTECTED AREA	SIZE OF PROTECTED AREA [km <sup>2</sup> ]
Hungary	HUKM20018	Holt-Sebes-Körös	2.85
Hungary	HUKM20019	Dél-bihari szikések	65.16
Hungary	HUKM20020	Gyepes-csatorna	1.69
Hungary	HUKM20021	Sarkadi Fási-erdő	1.18
Hungary	HUKM20025	Gyantéi erdők	2.22
Hungary	HUKM20026	Tóniszállás-szarvasi gyepek	5.87
Hungary	HUKM20027	Cserebökény	100.01
Hungary	HUKM20028	Tőkei gyepek	29.86
Hungary	HUKM20029	Szentesi gyepek	6.06
Hungary	HUKM20030	Lapistó-Fertő	19.03
Hungary	HUKM20031	Kurca	1.99
Hungary	HUKN20004	Dél-Bácska	4.64
Hungary	HUKN20006	Nagynyíri-erdő	4.30
Hungary	HUKN20008	Déli-Homokhátság	23.83
Hungary	HUKN20012	Szegedi ürgés gyep	1.88
Hungary	HUKN20016	Matkópusztai ürgés gyep	1.56
Hungary	HUKN20017	Közép-csongrádi szikések	11.43
Hungary	HUKN20018	Jánoshalma-kunfehértói erdők	12.29
Hungary	HUKN20019	Baksi-puszta	48.75
Hungary	HUKN20020	Harkai-tó	6.62
Hungary	HUKN20023	Tázlár–kiskunhalasi homokbuckák	10.62
Hungary	HUKN20024	Bócsa-bugaci homokpuszta	82.07
Hungary	HUKN20026	Móricgáti lápok	7.67
Hungary	HUKN20027	Péteri-tó	7.82
Hungary	HUKN20028	Tisza Alpár-Bokrosi ártéri öblözet	32.89
Hungary	HUKN20029	Csongrádi Kónya-szék	4.56
Hungary	HUKN20031	Alsó-Tisza hullámtér	79.30
Hungary	HUKN20034	Nyárlőrinci-erdő	2.07
Hungary	HUKN20035	Harkakötöny–kiskunmajsai homokbuckák	7.14
Hungary	HUKN20036	Imre-hegy–pirtó–kiskunhalasi homokbuckák	6.95
Hungary	HUKN30001	Csongrád-Bokrosi Sóstó	7.14
Hungary	HUKN30002	Gátéri Fehér-tó	8.53
Romania	ROSCI0002	Apuseni	759.49
Romania	ROSCI0004	Bagau	31.30
Romania	ROSCI0008	Betfia	17.47
Romania	ROSCI0016	Buteasa	3.96
Romania	ROSCI0019	Calimani - Gurghiu	1,247.95
Romania	ROSCI0020	Campia Careiului	222.83
Romania	ROSCI0021	Campia Ierului	212.75
Romania	ROSCI0025	Cefa	51.07

COUNTRY	EU CODE OF PROTECTED AREA	NAME OF PROTECTED AREA	SIZE OF PROTECTED AREA [km <sup>2</sup> ]
Romania	ROSCI0027	Cheile Bicazului - Hasmás	0.03
Romania	ROSCI0028	Cheile Cernei	5.77
Romania	ROSCI0029	Cheile Glodului, Cibului și Mazii	7.35
Romania	ROSCI0030	Cheile Lapusului	16.60
Romania	ROSCI0034	Cheile Turenilor	1.34
Romania	ROSCI0035	Cheile Turzii	3.26
Romania	ROSCI0040	Coasta Lunii	6.94
Romania	ROSCI0042	Codru Moma	246.48
Romania	ROSCI0048	Crisul Alb	8.90
Romania	ROSCI0049	Crisul Negru	17.73
Romania	ROSCI0050	Crisul Repede amonte de Oradea	18.58
Romania	ROSCI0051	Cusma	440.24
Romania	ROSCI0054	Dealul Cetatii Deva	1.09
Romania	ROSCI0061	Defileul Crisului Negru	22.02
Romania	ROSCI0062	Defileul Crisului Repede - Padurea Craiului	394.07
Romania	ROSCI0064	Defileul Muresului	341.32
Romania	ROSCI0068	Diosig	3.68
Romania	ROSCI0069	Domogled - Valea Cernei	1.48
Romania	ROSCI0070	Drocea	261.05
Romania	ROSCI0074	Fagetul Clujului - Valea Morii	16.68
Romania	ROSCI0079	Fanatele de pe Dealul Corhan - Sabed	4.64
Romania	ROSCI0084	Ferice - Plai	19.97
Romania	ROSCI0085	Frumoasa	581.98
Romania	ROSCI0087	Gradistea Muncelului - Ciclovina	357.32
Romania	ROSCI0089	Gutai - Creasta Cocosului	6.84
Romania	ROSCI0090	Harghita Madaras	80.84
Romania	ROSCI0092	Ignis	195.95
Romania	ROSCI0099	Lacul Stiucilor - Sic - Puini - Bontida	37.99
Romania	ROSCI0100	Lacurile Faragau - Glodeni	2.30
Romania	ROSCI0101	Larion	17.03
Romania	ROSCI0104	Lunca Inferioara a Crisului Repede	6.41
Romania	ROSCI0108	Lunca Muresului Inferior	172.98
Romania	ROSCI0110	Magurile Baitei	2.74
Romania	ROSCI0113	Mlastina dupa Lunca	3.09
Romania	ROSCI0115	Mlastina Satchinez	22.89
Romania	ROSCI0116	Molhasurile Capatanei	8.16
Romania	ROSCI0119	Muntele Mare	16.54
Romania	ROSCI0121	Muntele Vulcan	1.00
Romania	ROSCI0124	Muntii Maramuresului	989.08
Romania	ROSCI0125	Muntii Rodnei	399.20

COUNTRY	EU CODE OF PROTECTED AREA	NAME OF PROTECTED AREA	SIZE OF PROTECTED AREA [km <sup>2</sup> ]
Romania	ROSCI0126	Muntii Tarcu	0.64
Romania	ROSCI0136	Padurea Bejan	1.02
Romania	ROSCI0145	Padurea de la Alparea	4.59
Romania	ROSCI0154	Padurea Glodeni	10.42
Romania	ROSCI0155	Padurea Goroniste	9.51
Romania	ROSCI0186	Padurile de Stejar Pufos de pe Tarnava Mare	2.40
Romania	ROSCI0187	Pajistile lui Suci	160.11
Romania	ROSCI0193	Pestera Tausoare	1.02
Romania	ROSCI0200	Platoul Vascau	49.83
Romania	ROSCI0210	Rapa Lechinta	2.83
Romania	ROSCI0211	Podisul Secaselor	70.17
Romania	ROSCI0214	Raul Tur	204.63
Romania	ROSCI0217	Retezat	367.90
Romania	ROSCI0218	Dealul Mocrei - Rovina - Ineu	37.30
Romania	ROSCI0219	Rusca Montana	0.11
Romania	ROSCI0220	Sacueni	7.32
Romania	ROSCI0223	Saraturile Ocna Veche	1.33
Romania	ROSCI0227	Sighisoara – Tarnava Mare	747.05
Romania	ROSCI0231	Nadab - Socodor - Varsad	66.15
Romania	ROSCI0232	Somesul Mare Superior	1.49
Romania	ROSCI0233	Somesul Rece	85.31
Romania	ROSCI0236	Strei - Hateg	240.62
Romania	ROSCI0238	Suatu -Cojocna - Crairat	41.48
Romania	ROSCI0240	Tasad	15.57
Romania	ROSCI0250	Tinutul Padurenilor	67.62
Romania	ROSCI0251	Tisa Superioara	61.68
Romania	ROSCI0252	Toplita - Scaunul Rotund Borsec	41.34
Romania	ROSCI0253	Trascau	500.78
Romania	ROSCI0260	Valea Cepelor	7.96
Romania	ROSCI0262	Valea Iadei	29.46
Romania	ROSCI0263	Valea Ierii	63.03
Romania	ROSCI0264	Valea Izei si Dealul Solovan	468.74
Romania	ROSCI0267	Valea Rosie	8.19
Romania	ROSCI0277	Becicherecu Mic	20.65
Romania	ROSCI0279	Borzont	2.65
Romania	ROSCI0289	Coridorul Drocea - Codru Moma	32.29
Romania	ROSCI0291	Coridorul Muntii Bihorului - Codru Moma	75.91
Romania	ROSCI0292	Coridorul Rusca Montana - Tarcu - Retezat	158.35
Romania	ROSCI0294	Crisul Alb intre Gurahont si Ineu	12.28
Romania	ROSCI0297	Dealurile Tarnavei Mici - Biches	370.98

COUNTRY	EU CODE OF PROTECTED AREA	NAME OF PROTECTED AREA	SIZE OF PROTECTED AREA [km <sup>2</sup> ]
Romania	ROSCI0298	Defileul Crisului Alb	165.58
Romania	ROSCI0300	Fanatele Pietroasa - Podeni	1.05
Romania	ROSCI0314	Lozna	102.50
Romania	ROSCI0320	Mociar	40.18
Romania	ROSCI0322	Muntele Ses	348.76
Romania	ROSCI0324	Muntii Bihor	208.86
Romania	ROSCI0325	Muntii Metaliferi	143.03
Romania	ROSCI0331	Pajistile Balda - Frata - Miheșu de Câmpie	2.00
Romania	ROSCI0333	Pajistile Sarmasel - Milas - Urmenis	11.36
Romania	ROSCI0337	Padurea Neudorfului	45.01
Romania	ROSCI0339	Padurea Povernii - Valea Cernita	8.70
Romania	ROSCI0342	Padurea Targu Mures	5.74
Romania	ROSCI0345	Pajistea Cenad	60.26
Romania	ROSCI0347	Pajistea Fegernic	2.80
Romania	ROSCI0350	Lunca Teuzului	52.37
Romania	ROSCI0355	Podisul Lipovei - Poiana Rusca	340.90
Romania	ROSCI0357	Porumbeni	70.55
Romania	ROSCI0367	Raul Mures intre Moresti si Ogra	5.27
Romania	ROSCI0368	Raul Mures intre Deda si Reghin	3.94
Romania	ROSCI0369	Raul Mures intre Iernuteni si Peris	2.57
Romania	ROSCI0370	Raul Mures	6.18
Romania	ROSCI0373	Raul Mures intre Branisca si Ilia	18.84
Romania	ROSCI0382	Raul Tarnava Mare intre Copsa Mica si Mihalt	9.30
Romania	ROSCI0383	Raul Tarnava Mare intre Odorheiu Secuiesc si Vanatori	4.62
Romania	ROSCI0384	Raul Tarnava Mica	3.31
Romania	ROSCI0387	Salonta	31.79
Romania	ROSCI0390	Saraturile Dinias	0.01
Romania	ROSCI0393	Somesul Mare	5.57
Romania	ROSCI0394	Somesul Mic	1.17
Romania	ROSCI0400	Sieu - Budac	8.89
Romania	ROSCI0401	Turnu - Variasu	2.60
Romania	ROSCI0406	Zarandul de Est	203.15
Romania	ROSCI0407	Zarandul de Vest	88.86
Slovakia	SKUEV0006	Latorica	75.02
Slovakia	SKUEV0019	Tarbuska	1.72
Slovakia	SKUEV0048	Dukla	63.09
Slovakia	SKUEV0105	Spišskopodhradské travertíny	2.31
Slovakia	SKUEV0106	Muráň	1.79
Slovakia	SKUEV0108	Ordzovianska dubina	2.16
Slovakia	SKUEV0109	Rajtopíky	2.56

COUNTRY	EU CODE OF PROTECTED AREA	NAME OF PROTECTED AREA	SIZE OF PROTECTED AREA [km <sup>2</sup> ]
Slovakia	SKUEV0110	Levočská dubina	6.00
Slovakia	SKUEV0112	Slovenský raj	168.64
Slovakia	SKUEV0203	Stolica	26.79
Slovakia	SKUEV0205	Hubková	27.93
Slovakia	SKUEV0207	Kamenná Baba	3.43
Slovakia	SKUEV0208	Senianske rybníky	2.09
Slovakia	SKUEV0209	Morské oko	159.68
Slovakia	SKUEV0210	Stinská	14.89
Slovakia	SKUEV0211	Daňová	8.41
Slovakia	SKUEV0225	Muránska planina	113.58
Slovakia	SKUEV0229	Bukovské vrchy	286.15
Slovakia	SKUEV0234	Ulička	1.03
Slovakia	SKUEV0236	Bodrog	1.07
Slovakia	SKUEV0282	Tisovský kras	14.70
Slovakia	SKUEV0285	Alúvium Muráňa	2.26
Slovakia	SKUEV0287	Galmus	32.01
Slovakia	SKUEV0290	Horný tok Hornádu	3.49
Slovakia	SKUEV0318	Pod Bukovou	5.38
Slovakia	SKUEV0326	Strahuľka	11.70
Slovakia	SKUEV0327	Milič	50.37
Slovakia	SKUEV0328	Stredné Pohornádie	70.94
Slovakia	SKUEV0329	Kováčske lúky	1.46
Slovakia	SKUEV0331	Čergovský Minčol	40.15
Slovakia	SKUEV0332	Čergov	60.29
Slovakia	SKUEV0344	Starovodské jedliny	4.69
Slovakia	SKUEV0356	Horný vrch	60.29
Slovakia	SKUEV0357	Cerová vrchovina	11.62
Slovakia	SKUEV0366	Drienčanský kras	16.09
Slovakia	SKUEV0387	Beskyd	51.45
Slovakia	SKUEV0401	Dubnícke bane	2.42
Slovakia	SKUEV1357	Cerová vrchovina	3.20

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# Draft Updated Integrated Tisza River Basin Management Plan

## Annex 7. Status classification of surface water bodies



Project co-funded by the European Union (ERDF, IPA funds)

# Tisza River Basin: Status classification of surface water bodies

## Explanations

	Labels in the table	Description	Possible values
	Water body code with country code		
	Name of river		
	Name of water body		
BIOLOGICAL QUALITY ELEMENTS	Phytoplankton	Class of water body	1 - High 2 - Good 3 - Moderate 4 - Poor 5 - Bad NA-not applicable 0 - no data available
	Phytobenthos and Macrophytes	Class of water body	
	Benthic invertebrates	Class of water body	
	Fish	Class of water body	
	Overall biological status	Status class for water body – worst case of the status classes of all biological quality elements	
HYDROMORPHOLOGY	Hydromorphology - high status	Only if biological quality elements are in high status hydromorphology must be also in high status	Y=yes N=no U- unknown
GENERAL PHYSICAL AND CHEMICAL CONDITIONS	General physical and chemical conditions	Status class of water body which express supportive physical and chemical conditions	1 - High 2 - Good 3 - Moderate 4 - Poor 5 - Bad
SPECIFIC POLLUTANTS	Specific pollutants	Status class for the water body for specific pollutants based on national quality standards; relevant for the assessment of ecological status. Specific pollutants are those pollutants that are regulated at the national level.	G - good F - failing
OVERALL ECOLOGICAL STATUS	Overall ecological status	Worst case of the biological quality class and specific pollutants status Class. For high ecological status additionally, the general physical and chemical parameters and the hydromorphology have to be in high status.	1 - High 2 - Good 3 - Moderate 4 - Poor 5 - Bad
	Confidence of overall ecological status	Confidence level of assessment (as agreed by WP3 partners)	H - high M - medium L - low
Artificial and heavily modified water body	AWB	Is the water body artificial?	Y - Yes N - No
	HMWB	Is the water body heavily modified?	Y - Yes N - No Y*- provisionally Yes



	Labels in the table	Description	Possible values
	Ecological potential class	If the water body is artificial or heavily modified - please give the information of the ecological potential class	2 - good and above 3 - moderate 4 - poor 5 - bad
	Confidence of ecological potential	Confidence level of ecological potential assessment (as agreed by WP3 partners)	H - high M - medium L - low
CHEMICAL STATUS	Chemical status	Chemical Status Class for priority substances in water, regulated by the EU	G - good F - failing
	Confidence of chemical status	Confidence level of the assessment of priority substances in water (as agreed by WP3 partners)	H - high M - medium L - low
	Chemical status of mercury in biota	Chemical status class for mercury in biota, regulated by the EU	G - good F - failing
	Confidence of chemical status for Hg in biota	Confidence level of the assessment of mercury in biota (as agreed by WP3 partners)	H - high M - medium L - low
EXEMPTIONS	Exemptions Art. 4(4)		Y - yes N - no NA - not applicable
	Exemptions Art. 4(5)		Y - yes N - no NA - not applicable

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Associated Partners: Interior Ministry, Hungary | Ministry of Agriculture and Environmental Protection Water, Serbia | Secretariat of the Carpathian Convention (SCC), Austria | State Agency of Water Resources of Ukraine | Tisza River Basin Water Resources Directorate, Ukraine



# Draft Updated Integrated Tisza River Basin Management Plan

Annex 8. Groundwater bodies status  
assessment methodologies in Tisza countries



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# 1 Background

## Introduction

Data presented in this report summarize relevant information for Tisza River Basin (TRB) for groundwater bodies. Tisza countries reported templates that follow approach applied for development of the First Integrated Tisza River Basin Management Plan (1<sup>st</sup> ITRBMP) and other studies and background documents relevant for Tisza River Basin within the scope of International Commission for the Protection of the Danube River (ICPDR) Tisza Group and other ICPDR expert groups. Within this Annex Tisza river countries reported national methodologies for groundwater status assessment.

Annex X Groundwater Status Assessment Methodology presents one of the base documents for developing part of Second Integrated Tisza River Basin Management Plan (2<sup>nd</sup> ITRBMP) concerning groundwater issues. In order to successfully develop 2<sup>nd</sup> ITRBMP some basic documents had to be taken into account. As roof document WFD has been considered, as well as daughter Directive – Groundwater Directive. As main starting point the 1<sup>st</sup> ITRBMP plan was used. Brief description of mentioned documents will be given in following chapters.

## Water Framework Directive

Water Framework Directive (Directive 2000/60/EC), as roof document, has purpose to establish a framework for the protection of inland surface waters, transitional waters, coastal waters and groundwater, and prevent their further deterioration.

Monitoring of surface water status, groundwater status and protected areas is defined within Article 8 of WFD. In Article 8 is defined, inter alia, that:

Member states shall ensure the establishment of programmes for the monitoring of water status in order to establish a coherent and comprehensive overview of water status within each river basin district:

- For groundwater such programmes shall cover monitoring of chemical and quantitative status

Based on the monitoring results, groundwater status will be defined. Total groundwater status is defined thru quantitative and chemical status. Groundwater body has a good status only if a quantitative and chemical status are rated as *good*. In case that chemical and/or quantitative status are rated as poor, total status of GWB is poor. Annex V of WFD detailed description of groundwater monitoring, as a starting point for status assessment, is provided. Groundwater monitoring is divided to monitoring of quantitative status and monitoring of chemical status. Chemical monitoring is further divided to surveillance and operational monitoring. Within this annex detailed instruction for performing of mentioned types of groundwater monitoring has been given. Based on monitoring results, quantitative and chemical status is defined and therefore overall status of GWB can be determined.

## Groundwater Directive

In order to further institutionalize and organize protection of groundwater, Groundwater Directive has been adopted in 2006 (Directive 2006/118/EC). This Directive defines detailed procedures for assessing groundwater chemical status, identification of significant and sustained upward trends and definition of starting points for trend reversal and measures to prevent or limit inputs of pollutants into groundwater. All mentioned activities cannot be performed without results of groundwater monitoring, so that monitoring represents the basic „tool“ for all further activities on protection of groundwater.

## Introduction – 1<sup>st</sup> TRBM, and other background studies

The 1<sup>st</sup> Integrated Tisza River Basin (TRB) Management Plan was adopted in 2011. Plan was based on data provided by Tisza countries (Ukraine, Slovakia, Romania, Hungary and Serbia for the reference year 2007 (The first Tisza Analyses Report was developed).

In comparison with the DRBM Plan, the ITRBM Plan took into account rivers with catchment size larger than 1000 km<sup>2</sup> instead 4000 km<sup>2</sup>, natural lakes >10 km<sup>2</sup> instead 100 km<sup>2</sup>, main canals and groundwater bodies >1000 km<sup>2</sup> and of basin-wide importance.

This means that in compared to the 11 identified transboundary groundwater bodies or groups of groundwater bodies of the Danube Basin-wide importance (so called “Roof level”, presented in the DRBMPs), the Tisza countries have collected and evaluated information related to:

- 85 national and transboundary groundwater bodies of importance to the Tisza River Basin, according to agreed criteria for importance (all GW bodies >1,000 km<sup>2</sup> and those TB GW bodies <1,000 km<sup>2</sup> considered to be of basin-wide importance);
- The assessment of pressures on the quantity of the groundwater bodies of basin-wide importance showed:
  - That over-abstraction prevents the achievement of good quantitative status for twelve groundwater bodies;
  - For ten groundwater bodies, the most significant pressure on quantity is illegal abstractions and indirect abstractions, by drainage or gravel pits (in Hungary);
  - Other significant pressures include abstraction for agriculture, public water supply and industry.

## 2- Groundwater status assessment methodologies applied by Tisza countries

Ukraine, Slovakia, Romania, Hungary and Serbia are countries within Tisza river basin. Hungary, Romania and Slovakia as EU members had obligation to develop and implement groundwater status assessment methodology. On the other hand, Ukraine and Serbia are not EU members and still did not develop groundwater status assessment methodology.

### Ukraine

#### Chemical Risk Assessment

In Ukraine, risk assessment of failing good chemical status in 2021 was performed based on following criteria:

- Previous risk and chemical status assessments;

One GWB UA\_TIS\_GW\_4 7 was identified “at risk” of failing good chemical status in 2021.

#### Quantitative Risk Assessment

All groundwater bodies according to risk assessment of failing good quantitative status in 2021 were classified “at no risk”.

## Romania

### Chemical Status Assessment

The methodology for the *chemical status* assessment followed the requirements of the Groundwater Directive (2006/118/EC) as well as the recommendations of the CIS Guidance Document no. 18 – Guidance on Groundwater status and trend assessment. The first step was to check any exceedances of TVs which were established taken into consideration the NBL values. If no exceedances of the TVs have been recorded, the groundwater body has been considered as being in good chemical status. If exceedances of TVs were recorded the following relevant tests were carried out:

- **General assessment of the *chemical status*:** Data aggregation was performed and it was checked whether the total area of exceedance was greater than 20% of the total area of the GWB. The test showed a *good status* for the water body if no exceeding occurs.
- **Saline or other intrusion:** not relevant.
- **Significant diminution of associated surface water chemistry and ecology due to transfer of pollutants from the GWB:** The location of the exceedance of the relevant TVs was not found in areas where pollutants might be transferred to surface waters. A comparison of the pollutant load transferred from the GWB to the surface water body with the total load in the surface water body did not exceed 50%. The test showed a *good status* for the water body.
- **Significant damage to GWDEs due to transfer of pollutants from the GWB:** No GWDE was found to be damaged. The test showed a *good status* for the water body;
- **Meets the requirements of WFD Article 7(3) – Drinking Water Protected Areas:** there is no evidence of increased treatment due to changes in water quality. The test showed a *good status* for the water body.

The methodology for TV establishment in Romania has been developed according to CIS Guidance No. 18. NBL are the key elements in the process of TV setting. As described above, during the TV establishment, the NBL have been compared with the drinking water standards.

The maximum allowable concentrations (MAC) provided by the Law no.458/2002 as amended, were chosen as TV where NBL are smaller than MAC. Where NBL are higher than MAC, a small addition of 0.2 NBL was used, in order to avoid misclassification of the respective GWB ( $TV = NBL + 0.2 NBL = 1.2 NBL$ ).

The updated list of TVs established for each GWB was published in the new Order of the Minister no. 621/2014 approving TV for GWBs from Romania.

To assess the chemical status of the groundwater bodies, the following steps are considered:

- The annual average concentrations for each monitoring point and for each indicator were calculated;
- For each monitoring point the annual average concentration of each parameters was compared to the threshold values (determined for each GWB) or standards value (nitrates and pesticides).
- The GWB is in good chemical status when EQS or TVs are not exceeded at any monitoring point.
- The GWB is in poor chemical status when EQS or TV are exceeded at monitoring points representing more than 20% of the GWB surface.

The trend assessment was also performed based on 2000-2013 time series.

The methodology for identifying significant upper trends consists in adjustment and aggregation of the data from each monitoring points on groundwater bodies. The trend analysis was done using the GWSTAT program.

The steps used for trend assessment were:

- Identifying the monitoring points and the number of analysis and assessment of data series, for each year of reference period (2000–2013)
- Identifying of the baseline concentration for each parameter as the average concentration registered during the year 2000
- Calculation of annual average for the available data in each monitoring point
- Significant upward trends have been identified by GWSTAT software, based on ANOVA Test.

Trend reversal assessment methodology consists also in the use of GWSTAT software, which, based on the 2 sections model, and processing the introduced data series, can indicate an inversion in the trend slope, thus a trend reversal.

## Quantitative Status Assessment

The quantitative status of the groundwater bodies has been assessed taking into account the CIS Guidance no.18. The following criteria have been used:

- water balance
- the connection with surface waters
- the influence on the terrestrial ecosystems which depend directly on the GWB
- the effects of saline or other intrusions

The quantitative status analysis has been done for each phreatic groundwater body by comparing the average of the hydrostatic level from 2013 with the multiannual average levels during the whole observation period.

## Slovakia

### Chemical Risk Assessment

In Slovakia, risk assessment of failing good chemical status in 2021 was performed based on following criteria:

- Previous risk and chemical status assessments;
- Environmental load;
- Vulnerability;
- Active substances in pesticides and fertilizers,
- Drainage protection;
- Safeguard zones and protected areas;
- Climate, population and land use changes;
- Interaction with surface water.

The chemical status assessment for the 2nd planning cycle was based on the chemical status evaluation for the 1st planning cycle, elaborated in the Slovak Waters Plan (MoE SR, 2009). The chemical status was assessed in accordance with Annex III. of Directive 2006/118 / EC (on the protection of the Pollution and deterioration of quality) and was based on an overall assessment of the quaternary chemical status and pre-quaternary bodies of groundwater classified in 2009 in the Slovak Waters Plan<sup>1</sup> in bad chemical status (MoE, 2017).

SK8 have a good chemical status, but according to risk assessment of failing good chemical status in 2021 groundwater body SK1000200P was classified “at risk” because of several reasons. The groundwater body is highly vulnerable. There is expected continued frequent use of plant protection products on the farms and relatively high number of point sources of pollution is located in the groundwater body. Up to 6 indicators of the previous chemical assessment exceeded the limit in Unit SK1001200P (10.0b). The reason is especially high vulnerability (10.0b) and insufficient drainage (7.0b). Other factors do not reach high values, the department is however, at risk (5,6b) (HORVÁT O., PATSCHOVÁ A.).

To assess chemical status, the proposed methodology stems from the feasibility of the input information, conceptual model and the hydrogeochemical and hydrogeological interpretation of conditions in the Slovak Republic. Article 3.2 of the Groundwater Directive offers the possibility to establish TVs at: the national level; the river basin district level; the level of the area of the international river basin district falling within the territory of a Member State; or at the level of a GWB or group of GWBs. In the Slovak Republic, the NBL and TVs were established at the level of the GWB.

Determination of natural background levels:

The input data consists of the database from the Geochemical Atlas of the Slovak Republic (spatial factor, 16 359 samples) and the results of national monitoring of groundwater quality (time factor, 16 475 samples) in Slovakia. The next step was to eliminate each sample with anthropogenic impacts (pre-selection method with



half the DWS for each compound). Sample elimination was also done in cases where just one compound failed to satisfy this principle. For determination of the NBL, a statistical method was used ( $NBL = \text{median} + 2 * \text{median absolute deviation}$ ). For the treatment of less than LOQ (limit of quantification), measurements were applied according to the following system: simple substitution ( $LOQ * 0.5$ , when <40% values are below LOQ), 40-60% - Kaplan-Meier's analysis was used and over 60%  $NBL = LOQ$ ). NBL were estimated for:  $NO_3$ , As, Cd, Pb, Hg,  $NH_4$ , Cl,  $SO_4$ , Na, K, Ca, Mg, Sr,  $PO_4$ ,  $HCO_3$ , Fe, Mn, Cr, Cu, Se and Al. For synthetic organic compounds (not originating in a natural way) the NBL was "zero concentration" and this is practically the value of the LOQ of a single organic compound.

Threshold values:

The TV is a half the interval between the determined NBL and the reference (drinking water standard). As the TV can be below the geogenic concentration in groundwater, for example in the case of heavy metals, the TV will be assessed on the basis of the natural background level ( $TV = NBL$ ).

Chemical status:

For chemical status assessment, general assessment of the chemical status of the GWB as a whole was applied. Input data results from the quality monitoring network from 2010 (surveillance monitoring) and 2011 (operational monitoring) were used. Criteria for assessing the groundwater chemical status for this test were drinking water standards and TVs. The annual arithmetic mean concentration of the relevant pollutant at each monitoring point was the basis for aggregation on the level of a GWB. In the case of non-exceedances, the GWB is recommended to be of good chemical status for the relevant parameters. Also trend analysis were performed in each monitoring site in order to identify significant and sustained upward trend in concentration of pollutants.

The next step was to calculate the extent of exceedance of mean values by using the Kriging method - in the case of quaternary GWB (porous permeability and over five monitoring points). An acceptable extent of exceedance would not exceed 20% of the total GWB. In the case of pre-quaternary GWBs with fissure, karst, karst-fissure permeability, annual average concentrations with 20% confidence intervals were used. The final assessment of the chemical status of the GWB and its verification was performed using a GIS technique via comparison with maps of land use, point sources of pollution, hydrogeological and hydrogeochemical conditions in the GWB.

## Quantitative Risk Assessment

GWBs quantitative status is based on the essential requirement of Directive 2000/60 / EC, which sets out as the basic indicator quantitative status steady state of groundwater level, respectively, extends the springs (table 2.1.2 of Annex V directive) and spreads them assessment process with further test criteria. The following criteria were used for this evaluation: (a) an assessment of the quantities of groundwater based on the water balance approach (using the published data from 141 hydrogeological units), (b) assessment of changes to the groundwater regime (use of the results of the groundwater monitoring program from the state monitoring network of SHMI), (c) evaluation of the river flow rate in the relation of groundwater abstraction located above the surface water balance profile, (d) assessing the impact of groundwater abstraction on dependent terrestrial ecosystems from underground water. Quantitative status evaluation was elaborated in accordance with the approved National quantitative status evaluation methodology of the bodies of groundwater in Slovakia prepared in 2008.

This methodology and the results of GWB quantitative status and risk assessment were published in I. and II. Water plan of Slovakia (2009, 2015). In the II. Water plan groundwater data from period 2004 to 2012 were used for the assessment process and according to the risk assessment of failing good groundwater quantitative status in 2021 we do not have any transboundary groundwater body at risk.

Quantitative status for GWBs was determined by applying 3 tests:

1. Water balance test:

National methodology determined that long-term annual abstraction from the GWB must not exceed 80% of available groundwater resources defined in WFD. Quantification of available groundwater resources was

based on national quantification and categorization of available groundwater amounts in hydrogeological units transposed to Quaternary and Prequaternary groundwater bodies (8 categories with different accuracies for determined available groundwater amounts were used). The accuracy of determined available groundwater amounts on the national level varying from 100% (water balance evaluation, long term stable abstraction) to 30% (less than one year monitoring, short term pumping test etc.). Available groundwater resources for GWB (according with WFD) is the sum of available groundwater amount in the individual categories multiplied by the coefficient of accuracy - from 1 to 0.3).

#### 2. Groundwater level and discharge test:

Identifying the presence of sustained long-term declines of groundwater level in wells or groundwater discharge in springs caused by long-term groundwater abstraction was based on the statistical evaluation of long-term groundwater monitoring data from the national groundwater monitoring network. Non-parametric Mann – Kendall test (95% and 99% probability) and parametric test SLOPE (gradient of linear regression test) were used for the evaluation of the significance decreasing of groundwater regime.

#### 3. Surface water flow test:

Evaluation of surface water discharge in surface water balance profiles linked to the groundwater abstraction (inside of surface water bodies). The sum of the long-term average groundwater abstraction in the balance area above the surface water balance profile (failing determined environmental flow limits) must not exceed 50% from Q180 (2011) or 100% from Q355 (whole monitoring period).

#### 4. Terrestrial ecosystems dependent on groundwater test:

Evaluation of terrestrial ecosystems was not applied.

## Hungary

### Chemical Status Assessment

Assessment of the chemical status of GWBs was conducted as follows: Analysis of the chemical data of individual monitoring points within each of the GWBs; Identification of the pressures - sources of pollution; The Natural Background Levels (NBL) were calculated and used to determine threshold values (TV). TVs have been determined according to CIS Guidance No. 18. Contamination limits have been determined for all indicators listed in Annex II Part B of Directive 2006/118/EC and indicators of the report under Art. 5 of Directive 2006/118/EC.

The following parameters were investigated:

- a) NBL was determined for the following components: nitrate, ammonium, specific conductivity, sulphate, chloride, arsenic, cadmium, lead, mercury,
- b) For each monitoring point the median concentration of each parameters of the studied period was compared to the TVs (determined for each GWB) or standards values (in the case of nitrates, metals and pesticides).
- c) Different tests were conducted to assess GWB status: Diffuse pollution test (nitrate, ammonium), Drinking water supply tests for numerous elements or components in both drinking water wells and monitoring wells and trend analysis based on the data of the surveillance monitoring system. Studied components of these tests are: nitrate, ammonium, chloride, sulphate, specific conductivity, mercury, lead, cadmium, pesticides and organics, furthermore in the trend analysis pH and dissolved oxygen.
- d) Based on these tests, GWB was evaluated.

## Quantitative Status Assessment

To determine the overall quantitative status for a GWB, a series of tests were applied that consider the impacts of anthropogenically induced long-term alterations in groundwater level and/or flow. Each test was assessed whether the GWB meets the relevant environmental objectives. The quantitative status has been assessed taking into account CIS Guidance No.18. The following criteria have been used:

- GW alteration (Drawdown) test
- Water Balance test
- Surface Water Flow test
- Groundwater Dependent Terrestrial Ecosystems (GWDTE)
- Saline or other Intrusion test

For GWBs no **Risk assessment** was performed in the 2<sup>nd</sup> RBMP HU.

## Serbia

### Chemical Risk Assessment

Since Serbia is not an EU member, still didn't create and adopt methodology for groundwater status assessment. Instead of that in following text, methodology for chemical risk assessment will be given.

In order to successfully perceive potential risks for groundwater quality, it is necessary to overview natural and anthropogenic factors which may affect groundwater quality in some area.

As stated previously, potential risk for groundwater quality includes natural as well as anthropogenic factors. In order to perceive those factors potential groundwater risk map should be produced. Producing of this map meant „overlapping“ of maps with natural terrain characteristics with maps with anthropogenic influence.

Anthropogenic influences on groundwater quality were examined using following maps:

- Map 1 - number of inhabitants without sewerage systems,
- Map 2 - number of inhabitants with septic tanks,
- Map 3 – number of cattle by hectare of arable land,
- Map 4 – land use – CORINE Land cover

For all mentioned maps, content was sorted into 5 categories with different weight factors for each category in order to be compatible for „overlapping“.

Natural characteristic, which may affect groundwater quality in Republic of Serbia have been analyzed based on groundwater vulnerability map. Vulnerability map has been created using several base maps in order to produce as much as possible accurate map of groundwater vulnerability in Republic of Serbia.

For producing vulnerability map following base maps have been used:

- Map I – influence of terrain inclination on infiltration,
- Map Z – influence of soil type and vegetation (pedology map),
- Map D – overlying strata thickness,
- Map A – aquifer geological and hydrogeological characteristics and
- Map N – groundwater level – depth to groundwater level

By compiling of presented parameters, with different weight factors, vulnerability map is produced. Based on obtained results, vulnerability index in categorized into 7 categories.

For the needs of further analyses starting 7 categories has been reduced to 6 by grouping.

By analyzing of mentioned parameters and maps thru iterative process of calibration and by comparison with actual data for certain locations final vulnerability index formula was obtained. This map combines natural and anthropogenic factors.

By presented methodology groundwater vulnerability index range has been obtained. By further analysis limit for vulnerability index was established. Further groundwater bodies map was overlapped with produced map. In this manner zones where vulnerability index is below defined limit, groundwater bodies are not at risk, and vice versa.

### Quantity Risk Assessment

Since Serbia is not an EU member, still didn't create and adopt methodology for groundwater status assessment.

The assessment of the quantitative risk was based on the existing monitoring data on the groundwater exploitation and its influence on groundwater level. Data on exploitation of groundwater have been collected through a group of strategic projects in the period 2006-2011, as well as through an overview of the existing documentation - elaborate on reserves and other available technical documentation and studies.

In the past decades, monitoring of the groundwater level has been carried out. These data are significant from the perspective of the trends in the groundwater level regime. For deeper aquifers in Tisza basin (basic water bearing complex), it can be concluded that there is no adequate observation network that can with sufficient certainty determine the effects of exploitation groundwater level.

Since lack of adequate data sets and monitoring network, especially for deeper aquifers, overall risk assessment for groundwater in Tisza river basin was carried out based on expert judgement.

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Partners: General Directorate of Water Management, Hungary | Global Water Partnership Central and Eastern Europe, Slovakia | International Commission for the Protection of the Danube River, Austria | Ministry of Water and Forest, Romania | Ministry of Foreign Affairs and Trade, Hungary | National Administration “Romanian Waters”, Romania | National Institute of Hydrology and Water Management, Romania | Public Water Management Company “Vode Vojvodine”, Serbia | Regional Environmental Center for Central and Eastern Europe, Hungary | The Jaroslav Černi Institute for the Development of Water Resources, Serbia | Water Research Institute, Slovakia | World Wide Fund for Nature Hungary

Associated Partners: Interior Ministry, Hungary | Ministry of Agriculture and Environmental Protection Water, Serbia | Secretariat of the Carpathian Convention (SCC), Austria | State Agency of Water Resources of Ukraine | Tisza River Basin Water Resources Directorate, Ukraine



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## Annex 9. Progress in urban wastewater and industrial sectors by 2015



Project co-funded by the European Union (ERDF, IPA funds)

## Questionnaire No. 1

Country	Basic / supplementary measures								Remarks
	UWWTD implementation					IED and BAT	P-free Detergents Applied (% plants)	Others measures	
	Agglomerations >10,000 PE (and year)	Sensitive areas %	Estimated total costs (mil. Euro)	Funding sources (mil. Euro)					
				EU	National				
<b>Ukraine (2010)</b>	Uzhgorod Mukacheve Khust Vynogradiv Beregovo Svalyava Rakhiv Mizhgirrya								UWWTD implementation didn't start yet
<b>Romania</b>	2015 (2018 for agglomerations between 2000 - 10,000 PE)	Whole territory Art 5 (2) Art 5 (8)	1283.410	826.16 mil. Euro of which: - 531.42 mil. Euro Cohesion Funds in the frame of the Sectoral Operational Program for Environment 2009-2013; - 116.44 mil. Euro Structural Funds in the Frame of European Funds for Agriculture;	457.25 mil. Euro of which: - 224.1 mil. Euro National co-finance for EU Funds; - 41.56 mil. Euro Loans from different International Finance Institutions for the period 2006-2015; - 161.05 mil. Euro National funds from	200 (94%) IED units with implemented measures relevant for waters (of a total of 212 IED units)	The accelerated decrease in trend of P in AWM detergents is continuing in period 2006-2015 [study GfK and PwC]. The EU Regulation No 259/2012 as regards the use of phosphates and other phosphorus compounds in consumer laundry	Measures are proposed in the framework of the RBM Plans	In progress

Country	Basic / supplementary measures								Remarks
	UWWTD implementation					IED and BAT	P-free Detergents Applied (% plants)	Others measures	
	Agglomerations >10,000 PE (and year)	Sensitive areas %	Estimated total costs (mil. Euro)	Funding sources (mil. Euro)		Status of implementation (% plants)			
				EU	National				
				- 1 mil. Euro Structural Funds in the Frame of European Funds for Regional Development; -177.3 mil. Euro pre-accession funds (ISPA, PHARE, SAMTID, etc.):	governmental budget and local budget; - 30.34 mil. Euro wastewater operators sources; - 0.2 mil. Euro Private Public Partnership		detergents and consumer automatic dishwasher detergents is continuously implemented since Romania should comply with the EU Regulations.		
<b>Slovakia</b>	18 (2010*)	100	328	236	92	In implementation, continuous improvement corresponding to updating BAT	REGULATION (EU) No 259/2012 amending Regulation (EC) No 648/2004 as regards the use of phosphates and other phosphorus compounds in consumer laundry detergents and consumer	According RBMPs	*SK transition period for implementation of Art. 5.2 UWWTD



Country	Basic / supplementary measures						Remarks		
	UWWTD implementation				IED and BAT			P-free Detergents Applied (% plants)	Others measures
	Agglomerations >10,000 PE (and year)	Sensitive areas %	Estimated total costs (mil. Euro)	Funding sources (mil. Euro)		Status of implementation (% plants)			
				EU	National				
							automatic dishwasher detergents is binding in its entirety and directly applicable in all EU Member States. It establishes limitations on the content of phosphates and other phosphorus compounds in consumer laundry detergents from 30.6.2013 and in consumer automatic dishwasher detergents from 1.1.2017.		

Country	Basic / supplementary measures								Remarks	
	UWWTD implementation					IED and BAT	P-free Detergents Applied (% plants)	Others measures		
	Agglomerations >10,000 PE (and year)	Sensitive areas %	Estimated total costs (mil. Euro)	Funding sources (mil. Euro)		Status of implementation (% plants)				
				EU	National					
Hungary	78 (in 2016)	5,4	no data	no data	no data	100	100	-	Rate of P-free detergents refers to the implementation of EU Regulation No 259/2012, by the end of 2016 every IED facilities with pollutant emissions directly discharged into surface water have applied BAT	
Serbia	two agglomerations: Vrbas (with Kula) 50,000PE, Subotica 110,000 PE	To be identified till 2021.	Unknown	Unknown	Unknown	in TRB only two installations have IPPC permission, very slow progress	Legislation harmonized with the Regulation on detergents has been in force since 2010. P-free detergents are partially in use. No data on plants number.		UWWTD and IED are not fully transposed in national legislation	

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Partners: General Directorate of Water Management, Hungary | Global Water Partnership Central and Eastern Europe, Slovakia | International Commission for the Protection of the Danube River, Austria | Ministry of Water and Forest, Romania | Ministry of Foreign Affairs and Trade, Hungary | National Administration "Romanian Waters", Romania | National Institute of Hydrology and Water Management, Romania | Public Water Management Company "Vode Vojvodine", Serbia | Regional Environmental Center for Central and Eastern Europe, Hungary | The Jaroslav Černi Institute for the Development of Water Resources, Serbia | Water Research Institute, Slovakia | World Wide Fund for Nature Hungary

Associated Partners: Interior Ministry, Hungary | Ministry of Agriculture and Environmental Protection Water, Serbia | Secretariat of the Carpathian Convention (SCC), Austria | State Agency of Water Resources of Ukraine | Tisza River Basin Water Resources Directorate, Ukraine



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Annex 10. Progress in measures addressing  
hydromorphological alterations



Project co-funded by the European Union (ERDF, IPA funds)

## Questionnaire No. 1 Measures on restoration of river continuity for fish migration

Country	NUMBER OF MEASURES TO BE IMPLEMENTED BY 2015		IMPLEMENTATION STATUS (reference to measures as agreed on the national level)							
	As indicated in the 1st TRBM Plan	Updated information as agreed on the national level	Not started		Planning on-going		Construction on-going		Completed	
			[No.]	[%]	[No.]	[%]	[No.]	[%]	[No.]	[%]
Ukraine	2	It was planned to reconstruct bottom outlet of Tereblya-Rikiska HPP. It was reconstructed and open in 2017. To ensure fish pass availability of newly constructed HPPs.	N/A		N/A		N/A		2	100
Romania	1	6	1	16.7	4	66.6	0	0	1	16.7
<i>Crisuri</i>	0	1	0		1	0	0	0	0	0
<i>Banat</i>	0	2			1				1	
<i>Mures</i>	0	0	0	0	0	0	0	0	0	0
<i>Tisa</i>	1	3	1		2					
Slovakia <i>Information not provided</i>										
Hungary*	44	10			1				3	
Serbia <i>Information not provided</i>										

Hungary\*

In the first TRBP 44 longitudinal interruptions were indicated for HU.

In the first HU RBMP for 10 water bodies were measures indicated (without taking into account the number of the interruptions of the pro WB). 3 fish passes were built until 2015.

In the second HU RBMP until 2021 seven measures are indicated for TRB interruptions

## Questionnaire No. 2 Measures on disconnected adjacent floodplains / wetlands - NUMBER

Country	NUMBER OF AGREED MEASURES TO BE IMPLEMENTED BY 2015		IMPLEMENTATION STATUS (reference to measures as agreed on the national level)									
	As indicated in the 1 <sup>st</sup> TRBM Plan	Updated information as agreed on the national level	Not started		Planning ongoing		Construction on-going		Completed			
									Partially reconnected		Totally reconnected	
	[No.]		[No.]	[%]	[No.]	[%]	[No.]	[%]	[No.]	[%]	[No.]	[%]
Ukraine	Construction of polders	Did not started	1	100%	1	100%						
	Development of new wetlands	Provision of the status of Ramsar site (wetlands of international importance) to Upper Reaches of Uzh river (Berelykoberezniansky rayon)										
Romania	0	0	0		0	0	0	0	0	0	0	0
Slovakia <i>Information not provided</i>												
Hungary	0	0										
Serbia <i>Information not provided</i>												

### Questionnaire No. 3 Measures on disconnected adjacent floodplains / wetlands - AREA

Country	AREA OF FLOODPLAINS / WETLANDS TO BE ADDRESSED BY MEASURES UNTIL 2015		IMPLEMENTATION STATUS (reference to measures as agreed on the national level)									
	As indicated in the 1 <sup>st</sup> TRBM Plan	Updated information as agreed on the national level	Not started		Planning on-going		Construction on-going		Completed			
			partially reconnected	totally reconnected								
	[ha]	[ha]	[ha]	%	[ha]	%	[ha]	%	[ha]	%	[ha]	%
Ukraine	0	0										
Romania	0	0	0	0	0	0	0	0	0	0	0	0
Slovakia <i>Information not provided</i>												
Hungary	0	0										
Serbia <i>Information not provided</i>												

## Questionnaire No. 4 Measures on impoundments

Country	NUMBER OF IMPOUNDMENTS TO BE IMPROVED BY 2015		IMPLEMENTATION STATUS (reference to measures as agreed on national level)							
	As indicated in the JPM of the 1st TRBM Plan	Updated information as agreed on the national level	Not started		Planning on-going		Construction on-going		Completed	
			[No.]	[%]	[No.]	[%]	[No.]	[%]	[No.]	[%]
Ukraine	0	0								
Romania	0	1	0	0	1	100	0	0	0	0
Slovakia <i>Information not provided</i>										
Hungary*	38	0								
Serbia <i>Information not provided</i>										

Hungary\*: Most of the impoundments serve water retention purposes on lowland. As the technical solution of flood protection is mainly built on the dyke system, the lowland is supplied with water through the existing canal system. The water supply system of the Hungarian lowland makes possible to direct water (e.g. of Tisza, Körös) for mainly ecological, irrigational and recreational purposes. Remaining impoundments suffer from legal problems (Hernád) or are essential to satisfy human needs (e.g. flood protection, recreation, hydropower).



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Partners: General Directorate of Water Management, Hungary | Global Water Partnership Central and Eastern Europe, Slovakia | International Commission for the Protection of the Danube River, Austria | Ministry of Water and Forest, Romania | Ministry of Foreign Affairs and Trade, Hungary | National Administration "Romanian Waters", Romania | National Institute of Hydrology and Water Management, Romania | Public Water Management Company "Vode Vojvodine", Serbia | Regional Environmental Center for Central and Eastern Europe, Hungary | The Jaroslav Černi Institute for the Development of Water Resources, Serbia | Water Research Institute, Slovakia | World Wide Fund for Nature Hungary

Associated Partners: Interior Ministry, Hungary | Ministry of Agriculture and Environmental Protection Water, Serbia | Secretariat of the Carpathian Convention (SCC), Austria | State Agency of Water Resources of Ukraine | Tisza River Basin Water Resources Directorate, Ukraine



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## Annex 11. List of future infrastructure projects



Project co-funded by the European Union (ERDF, IPA funds)

Country	River	Project cde	Project name	Project status	Start implementation	Main purpose	Description	Expected deterioration of water body	Trans-boundary impact	SEA	EIA	Exemption WFD Art. 4(7)	WB code
Hungary	Tisza	HUKEHOP-1.4.0-15-2015-00005	Tivadari bridge and its vicinity	Implementation of project	2017	Flood protection	Flood protection developments, elevation of dyke heights and strengthening of river sections	No	No	No	Already done	No	HUAEQ054
Hungary	Tisza	HUKEHOP-1.4.0-15-2016-00014	Floodplain regulation in the Middle Tisza (VTT)	Planning under preparation	2018	Flood protection	Removal of summer dikes, land-use changes on floodplain; development of flood reducing channels.	No	No	Already done	Intended	Yes	HUAEQ060
Hungary	Tisza	HUKEHOP-1.4.0-15-2016-00017	Tisza Floodplain Project: Improving the flood conveyance capacity between Szolnok and Kisköre	Implementation of project	2016	Flood protection	Removal of natural and artificial structures obstructing the course of flood on floodplains. Floodplain forest regulations.	No	No	Already done	Already done	No	HUAEQ060
Romania	Tur	ROFP01.1.1.11.0.0.0	Tur River development - downstream Negresti-Oas locality, including tributaries, Satu Mare County	Planning under preparation	2018	Flood protection	Rehabilitation of upstream protection mask, maneuver tower, discharge opening and bottom discharge; Execution of beam burst wave and ballasting the downstream parament; Replacement and rehabilitation of hydro - electro - mechanical equipment; etc.	No	No	No	Intended	No	RORW1.1.11_B3
Romania	Crisul Repede	ROFP01.3.1.44.0.0.0	Crisul Repede development in order to protect against floods of Oradea	Planning under preparation	2018	Flood protection	Safety of the Lesu Dam. Protection of the banks for the Iad River, downstream of the	No	No	No	Intended	No	RORW3.1.44_B3

Country	River	Project cde	Project name	Project status	Start implementation	Main purpose	Description	Expected deterioration of water body	Trans-boundary impact	SEA	EIA	Exemption WFD Art. 4(7)	WB code
			city and the downstream				dam. Rehabilitation of hydromechanical equipment from water intake and rehabilitation for other hydro-mechanical, electrical and automation equipment etc.						
Romania	Mures	ROFP01.4.1.0.0.0.0.0	Increase the level of flood protection in the Mures basin river	Planning under preparation	2018	Flood protection	Aggradation dykes on a length of 39.24 km and aggradation of protection wall on a length of 2.63 km	No	No	No	Intended	No	RORW4.1_B7
Romania	Tarna Mare	ROFP01.4.1.96.0.0.0.0	Increase the level of flood protection in the Mures basin river	Planning under preparation	2018	Flood Protection	Aggradation dykes on a length of 12.16 km and aggradation the backwater dykes on the Tiur River and the Veza River	No	No	No	Intended	No	RORW4.1.96_B7

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Partners: General Directorate of Water Management, Hungary | Global Water Partnership Central and Eastern Europe, Slovakia | International Commission for the Protection of the Danube River, Austria | Ministry of Water and Forest, Romania | Ministry of Foreign Affairs and Trade, Hungary | National Administration "Romanian Waters", Romania | National Institute of Hydrology and Water Management, Romania | Public Water Management Company "Vode Vojvodine", Serbia | Regional Environmental Center for Central and Eastern Europe, Hungary | The Jaroslav Černi Institute for the Development of Water Resources, Serbia | Water Research Institute, Slovakia | World Wide Fund for Nature Hungary

Associated Partners: Interior Ministry, Hungary | Ministry of Agriculture and Environmental Protection Water, Serbia | Secretariat of the Carpathian Convention (SCC), Austria | State Agency of Water Resources of Ukraine | Tisza River Basin Water Resources Directorate, Ukraine



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Annex 12. Measures supporting WFD and FD  
objectives



Project co-funded by the European Union (ERDF, IPA funds)

## Measures supporting WFD and FD objectives

Field of action	Measure category	Type of measure	Measure
Prevention	Organizational measures (legislative, institutional)	The definition of a legislative, organizational and technical framework for Floods Directive implementation	Preparation of flood hazard and flood risk maps
		Reviewing and updating plans for flood risk management	Update/preparation of documentation for fluvial flood, excess inland water and ice defence
			Update/preparation of documentation for the use and management of the regime of reservoir operation (including the flood water evacuation regime)
			Update/preparation of technical documentation for the legalization of structures for flood protection, erosion and torrents control and for drainage
			Update/preparation of the cadaster of hydraulic structures
			Maintenance and improvement of the Water Information System by establishing connection with other information systems
			Preparation of the erosion map
			Coordination of territorial planning strategies (plans for development of planning at national, county and regional) and urban plans (Regional/Urban/Zonal/Plans) with plans for flood risk management
		Optimization of floodplains zoning with respect to existing infrastructure	
		Entering the boundaries of real and potential flood areas into spatial plans when defining the rules for constructing objects and using floodplains	
		Delineation of water land	
		Flood river bed management plans (the action plans in the riverbed management plans are implemented after the law enforcement, which action is not depending on the water sector)	
		Registering water land in the land register	
		Entering boundaries of water land into spatial plans	
Protection	Natural water retention measures - associated to watercourses, wetlands, natural lakes, in accordance with Directive 2000/60/EC	Measures to restore retention areas (flood plains, wetlands etc.)	Creating new wetlands
			Floodplain reconnection and restoration
			Renaturation of river banks (vegetation protection)
			-Measures to reduce (decelerate) run-off from river basin into the water courses, to increase retention capability of river basin or to support natural accumulation of water in the suitable areas – measures at agricultural soils, in forests and urban areas -operational erosion control measures (organization of land with respect to erosion control, agro-technical erosion control measures, biological erosion control measures),
			-technical erosion control measures (erosion

Field of action	Measure category	Type of measure	Measure
			<p>control trenches, terraces at hillslopes), technical forestry measures to influence interception and transpiration of forest vegetation, improvement of infiltration properties of forest soils,</p> <p>-measures to decrease storm water runoff, measures to control runoff and decrease water pollution (trenches and ditches, detention and retention ponds and reservoirs, retention soil filters, underground retention reservoirs)</p>
			Natural rehabilitation of Takta channel between Kesznyéten and Tiszalúc
			Planning and application of measures for erosion control and natural water retention
	Change or adapt land use practices (partial recovery of ecosystem functions or structures modified by changing or adapting land use practices) in urban areas	Natural water retention measures in urban areas	Develop the water management in urban areas for reduce flood risk e.g. flash floods
	Change or adapt land use practices (partial recovery of ecosystem functions or structures modified by changing or adapting land use practices) for forest management	Natural water retention measures by changing or adapting land use practices in forest management	Improving forest management in floodplains
Maintaining the forests area in catchments of A.P.S.F.R.			
Maintaining and expanding forests in perimeter zones of the reservoirs			
Expanding the forests in the receiving basins of A.P.S.F.R. (Afforestation outside of the forest area)			
Other water retention measures			Construction of new and reconstruction of existing hydraulic structures for protection from fluvial floods
			Dykes relocation
			Rehabilitation works on flood protection structures; river training works and high-water channel
			Restoration/Increasing of the retention volumes of existing reservoirs (permanent/temporary)
			Improving the conveyance capacity of the riverbed in Middle-Tisza between Kisköre and Csongrád in connection with WFD. *
			Measures to improve retention capacity at the level



Field of action	Measure category	Type of measure	Measure
		of river basin by creating polders and small retention reservoirs (made in the upper part of the river basin)	<ul style="list-style-type: none"> <li>- dams and reservoirs,</li> <li>- dry or semi-dry reservoirs, polders,</li> <li>- bypass canals.</li> </ul> Optimization of operational rules with respect to flood control and other purposes of reservoirs utilization
			Planning to preserve and expand existing and establish new retention areas
			Construction of 39 mountain reservoirs with total volume in conditions of 0,5 % probability 296 mln. m <sup>3</sup> , Upper Tisza
			Construction of 4 retention polders with total volume in condition of 0,5 % probability 70 mln. m <sup>3</sup> , Upper Tisza
		Measures to improve retention capacity at the level river basin by increasing the safety of existing large dams / increasing the attenuation capacity of reservoirs towards projected capacity	
		Structural protection measures (planning and accomplishing)	
	Measures for increasing population resilience	Measures for increasing resilience of population (Implementation and adaptation of protection measures at multiple objectives - buildings, constructions)	<ul style="list-style-type: none"> <li>Mobile flood protection barriers</li> <li>Measures which protect land from inundated „inner waters“ – installations (equipment) for pumping the „inner waters“</li> </ul>
	Inspection measures and maintenance of watercourses and of the hydraulic flood protection infrastructure	Surveillance, behaviour monitoring, expertise, strengthening interventions, rehabilitation and maintenance of watercourses and hydraulic flood defence infrastructure	<ul style="list-style-type: none"> <li>Vásárhelyi Plan: Reconstruction of hydraulic structures*</li> <li>Measures which protect land from inundated water of water courses – technical river training works, flood protection dykes, walls, embankments, other linear flood protection structures.</li> <li>Measures to ensure adequate flow capacity of the channels of watercourses – maintenance of river channels and their vegetation, removal of deposits.</li> <li>Reconstruction or maintenance of bridges to enhance their capacity during floods</li> </ul>
	Adapting of the existing protection structures at climate change conditions	Adapting of the construction, infrastructure and existing defence structures in terms of climate change	
	Public awareness	Measures to increase community awareness	Activities regarding adequate public information and promotion of the public participation

Field of action	Measure category	Type of measure	Measure
			protection measures, general public input into increasing flood protection at local level
		Education / training activities of the population	Presentation of flood hazard and flood risk maps, flood management plans. Raising public awareness. Training campaigns focused at flood preparedness among municipalities
			Introduction of flood related issues into schools
			Education of population on protection of watercourses from pollution
Preparedness	Preparedness measures /Improvement preparedness to reduce the adverse effects of floods	Measures for monitoring, forecasting and flood warning	Upgrade and enhancement of national flood forecasting and warning services by building new monitoring system (radar and precipitation stations) and new forecasting models for more water gauge stations. Strengthening cooperation in the field of flood forecasting and warning – Danube basin-wide, international and bilateral agreements and systems
			Information about flood event and warning between neighbouring countries based on bilateral commissions. Using the outputs of EFAS - flood warning system among Danube’s countries
		Development / reviewing of the flood protection plans in correlation with other emergency situation management plans (GIES- General Inspectorate for Emergency Situations)	
		Simulation exercises activities involving interinstitutional parties	Emergency flood equipment response measures – strengthening flood response capacities, improvement of cooperation between different sectors, institutions and professionals involved in flood management
			Strengthening of operational cooperation among the emergency response authorities in the international Danube basin, improvement of interoperability
		Providing the human, financial and materials needed in emergency situation and stimulating the voluntary actions	
Preparation of the General Flood Defence Plan			
Preparation of the annual Flood Defence Action Plan			
Response and Recovery/ Reconstruction	Post event recovery measures	Response actions in case of emergency situations	
		Damage assessment and restoration	
		Documentation and Analysis	
			Bilateral cooperation
			Regional cooperation

Note: \* Downstream cumulative effects of retentions along the Tisza in Hungary should be evaluated in the frame of bilateral cooperation between Hungary and Serbia.

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Partners: General Directorate of Water Management, Hungary | Global Water Partnership Central and Eastern Europe, Slovakia | International Commission for the Protection of the Danube River, Austria | Ministry of Water and Forest, Romania | Ministry of Foreign Affairs and Trade, Hungary | National Administration “Romanian Waters”, Romania | National Institute of Hydrology and Water Management, Romania | Public Water Management Company “Vode Vojvodine”, Serbia | Regional Environmental Center for Central and Eastern Europe, Hungary | The Jaroslav Černi Institute for the Development of Water Resources, Serbia | Water Research Institute, Slovakia | World Wide Fund for Nature Hungary

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# Draft Updated Integrated Tisza River Basin Management Plan

Annex 13. Report on Tisza River Basin reservoirs,  
discharge, water use and demand



Project co-funded by the European Union (ERDF, IPA funds)

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# 1 Background and introduction

The water resources of the Tisza River Basin are mainly used for public water supply, irrigation and industrial purposes, but also for other uses, such as agriculture, fishing, hydropower production, and recreation. The largest tributaries of the Danube River by catchment area are the Tisza River (157 186 km<sup>2</sup>) and Sava River (97 713 km<sup>2</sup>). Additionally, the population is higher in the Tisza River Basin (14 Million) than in the Sava River Basin (8.5 Million). In comparison with average discharge of the Sava River (1 559 m<sup>3</sup>/s) Tisza River has only half of it (825 m<sup>3</sup>/s). As a result, demand in water is higher in the Tisza River Basin, which raises concerns about the need to ensure a harmonised and sustainable water resource management in the Tisza River Basin. Although the reserves of water are sufficient for the current users, expected increase in water use accompanied with fluctuating climate may have adverse effects on water quantity.

Data and information presented in this Annex are reported by Tisza countries based on template that follow approach applied for development of the First Tisza Analysis Report (TAR 2007) and other studies and background documents relevant for Tisza River Basin water quantity (present use and demand by the 2021) within the scope of International Commission for the Protection of the Danube River (ICPDR) Tisza Group and other ICPDR expert groups. With respect to Climate Change effects on water quantity management, in this Annex only relevant projects and studies TRB wide significant and Tisza countries specific are included. Relevant Climate Change TRB (countries specific) adaptation measures are elaborated in the ITRBMP Update Annex 14.

## General info & approach used for data collection and evaluation

*In this Annex data and information presented in chapters 3-8 water use - PRESENT & DEMAND are based on following criteria:*

- *The last 3 years refer to period 2013-2015 (present water use) and*
- *Total demand and consumption by 2021*

*Data and information reported for Hydropower, navigation and irrigation are included in ITRBMP Update chapters 1 and 7.*

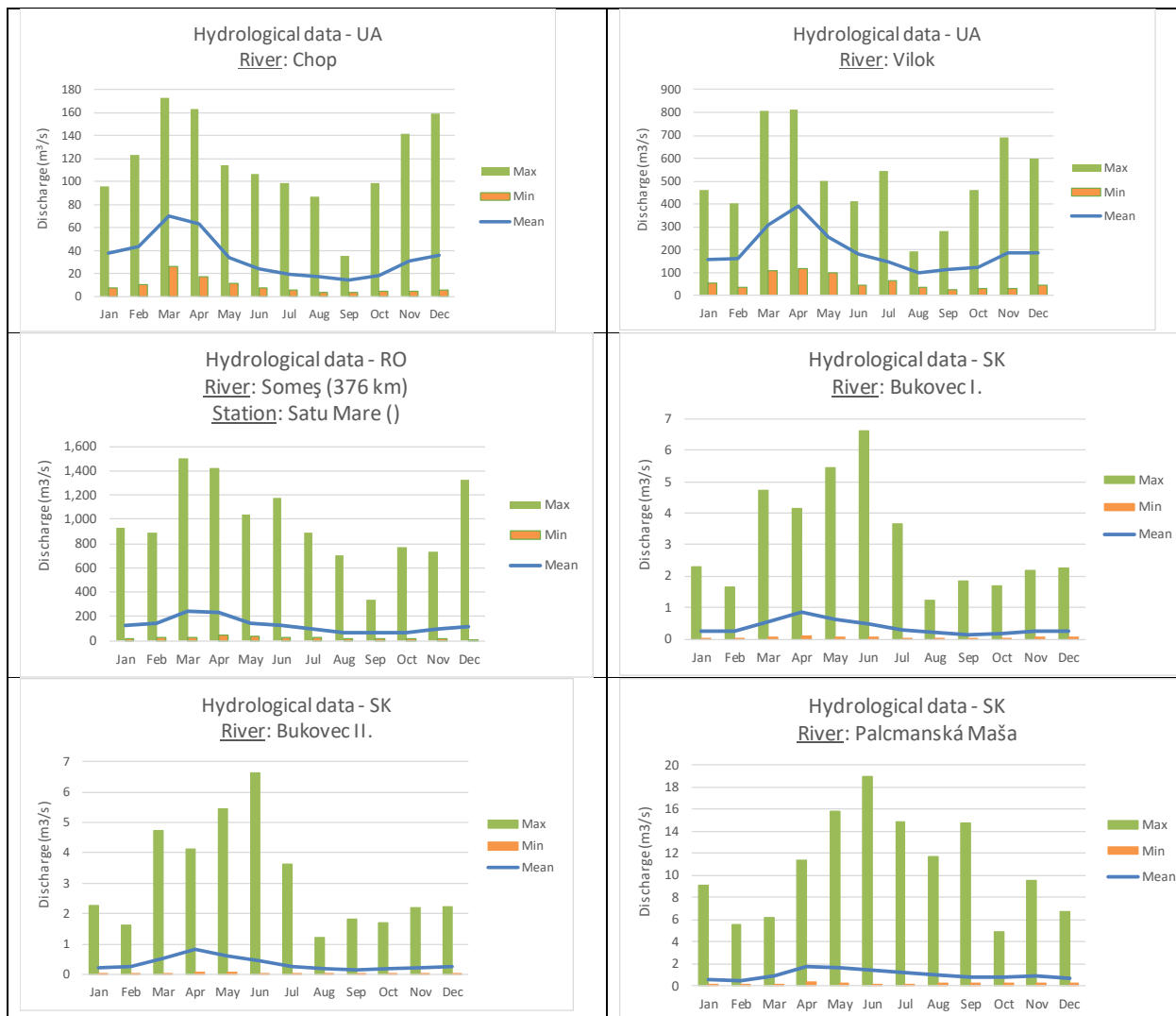
### Consumptive use:

Water abstracted which is no longer available for use because it has evaporated, transpired, been incorporated into products and crops, or consumed by man or livestock. Water losses due to leakages during the transport of water between the point or points of abstraction and the point or points of use are excluded. Definition source: Joint OECD/Eurostat questionnaire 2002 on the state of the environment, section on inland waters.

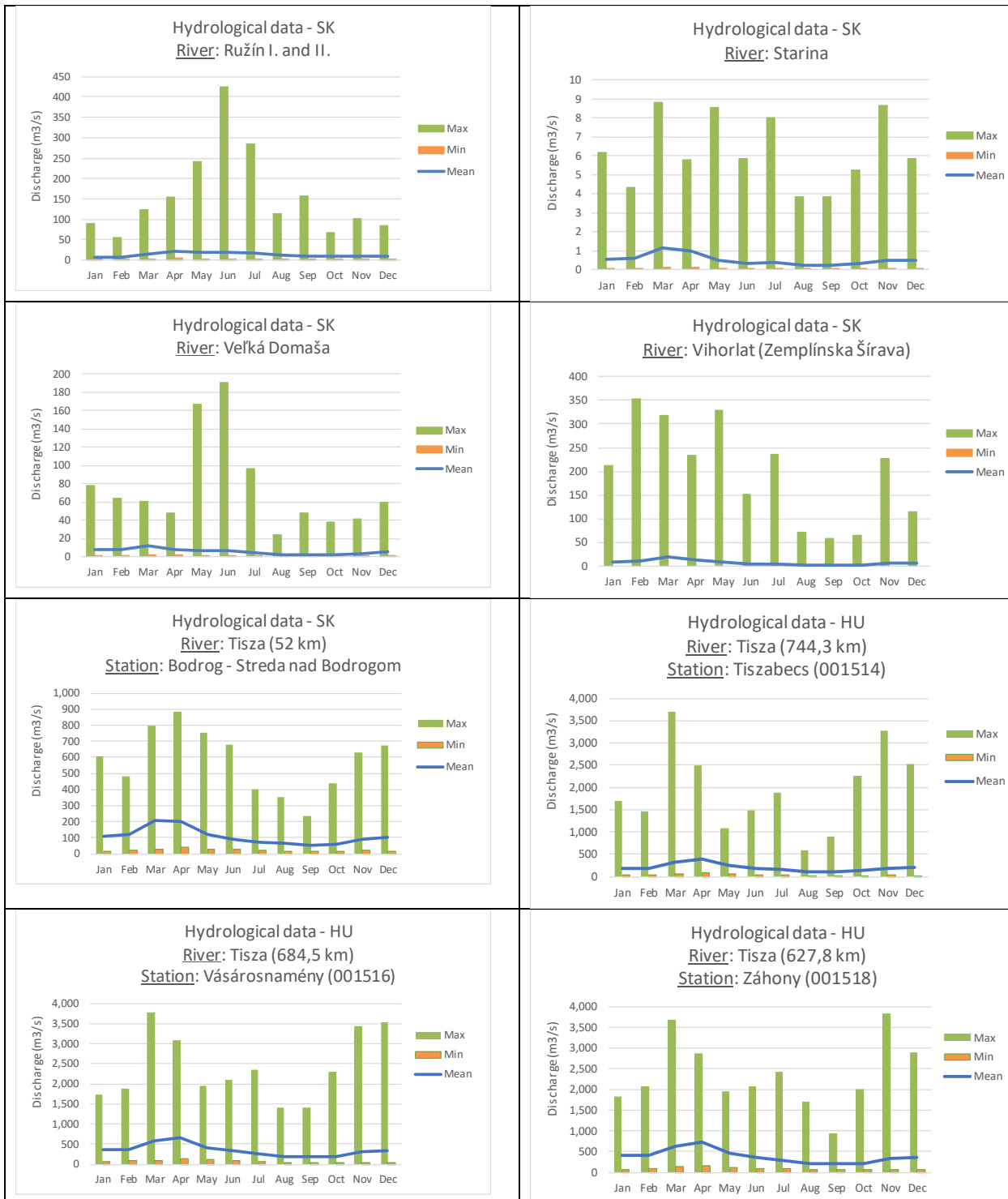
## 2 TRB Water Resources – Surface Water: Discharge Data and Water Storage

### TRB Interannual Discharge data

Figures below summarized interannual discharge data (mean, maximum and minimum values) based on data and information provided by Tisza countries.

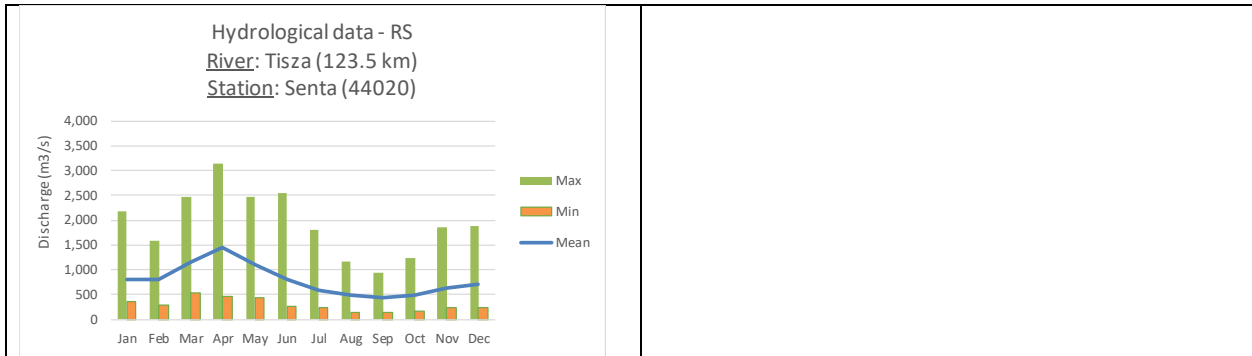












Figures II.1. TRB hydrological stations spatial distribution reported by Tisza countries for annual (mean, maximum and minimum) and inter-annual discharge.

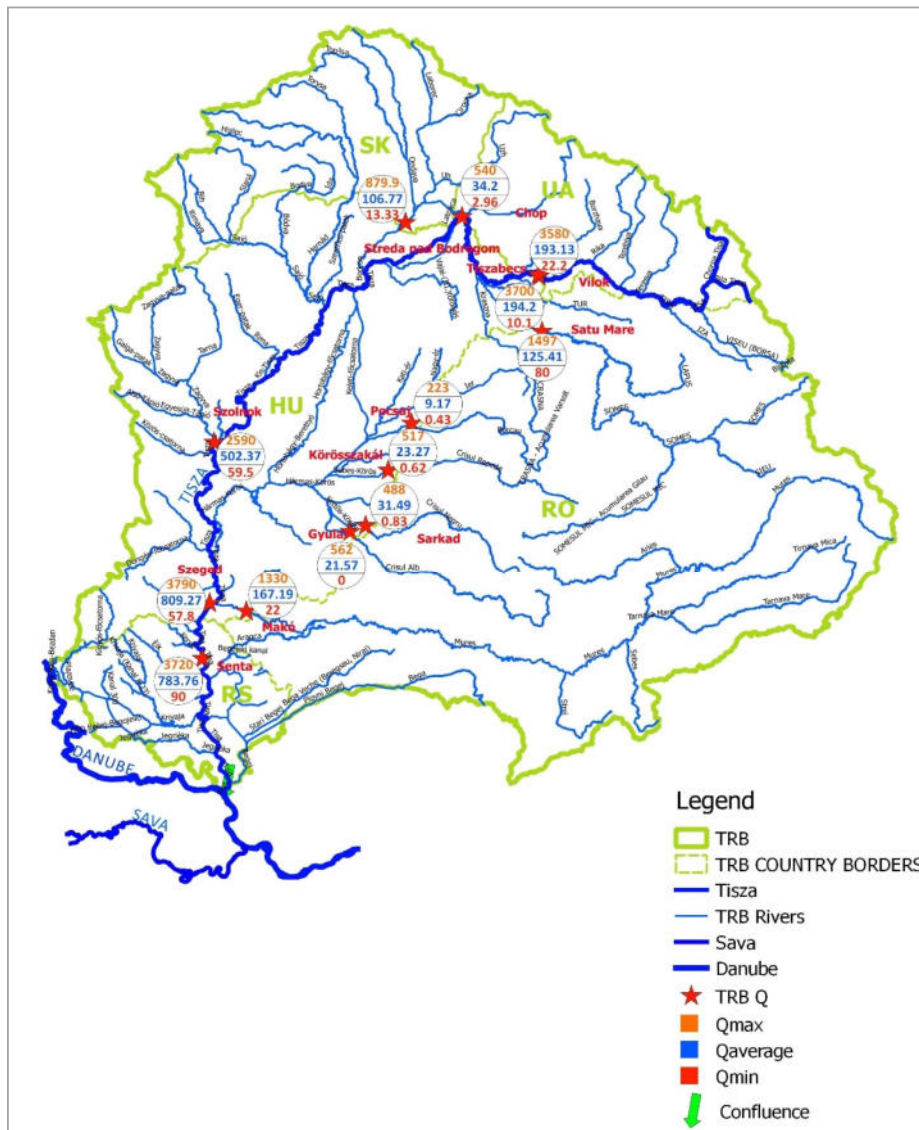


Figure II.2. TRB spatial distribution of Hydrological Stations reported for annual discharge

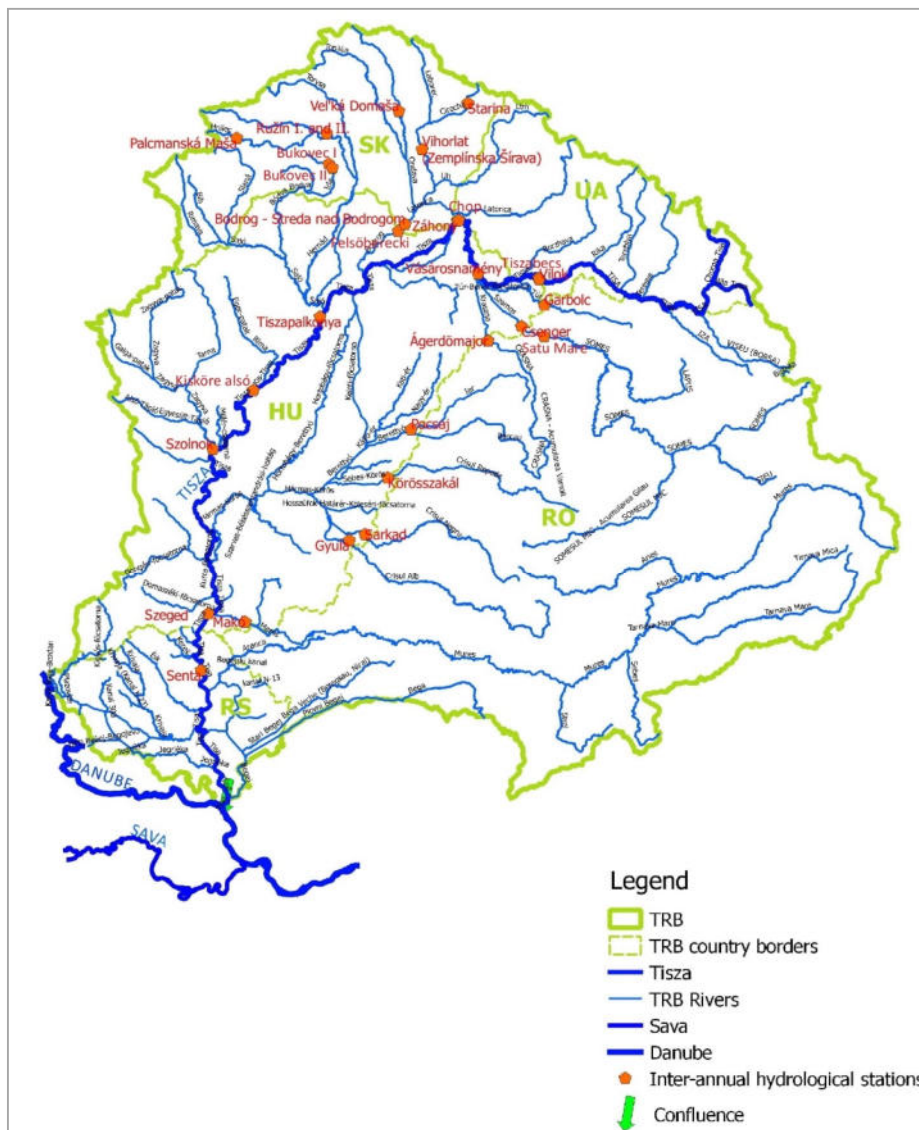


Figure II.3. TRB spatial distribution of Hydrological Stations reported for inter annual discharge

## TRB water storage – reservoirs data and information

Total number of reservoirs within the TRB is 125 scattered over the basin. The greatest number is located in Romania 77, followed by 23 in Hungarian share of TRB, 9 in Ukraine and Serbia and 7 in Slovakia.

With respect to volume there are 91 reservoirs with water storage  $\leq 10$  million cubic meters ( $Mm^3$ ) with total volume of  $241.57 Mm^3$ . The Table II.1 and Figure II.4 outline synthesis with respect to this volume.

Table II.1. Outline of TRB reservoirs with volume  $\leq 10 Mm^3$  per Country

Tisza Countries	UA	RO	SK	HU	RS
Number of reservoirs	9	48	1	24	9
Percentage of reservoirs per country	10.0	53.33	1.11	26.67	9.89
Volume per country $Mm^3$	17.703	132.465	2.19	72.665	23.45

As presented in Figure II.5 45 (approximately 50%) reservoirs with volume  $\leq 10 \text{ Mm}^3$  are multipurpose. With respect to reservoirs with single purpose, all 26 reservoirs that serve only for flood protection are located in Romanian share of TRB, and 2 with flood retention purpose only are in Hungary. Nine reservoirs for irrigation are within Serbian share of TRB and 1 is in Hungary. Reservoirs for hydropower generation are located in Romania (5), and those for WS are located in Romania and Hungary, 1 and 2, respectively.

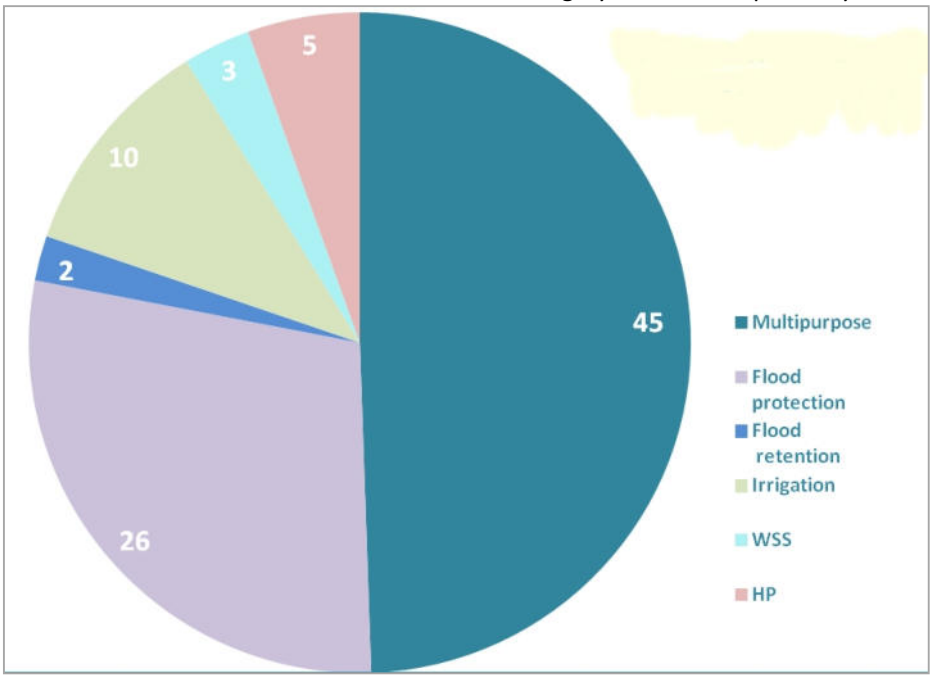


Figure II.4. Number of reservoirs with volume  $\leq 10 \text{ Mm}^3$  within the TRB

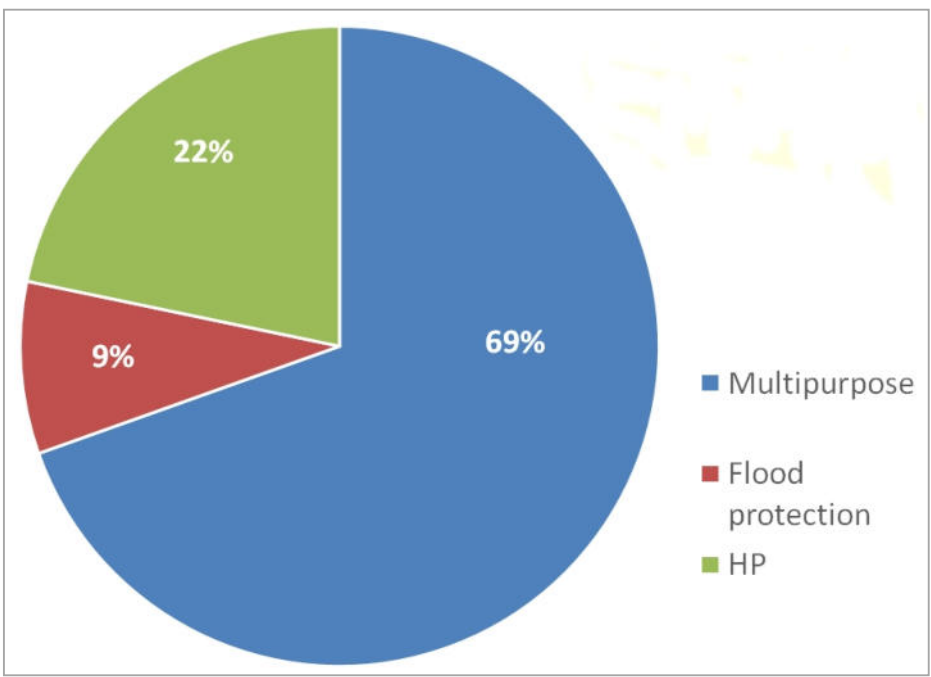


Figure II.5. Percentage of reservoirs with volume  $> 10 \text{ Mm}^3$  within the TRB

Remarks regarding the reservoirs provide by Ukraine are following:

- All water reservoirs in Tisza basin (Ukraine) were built in 1950-1960s and are very silted (silting covers around 30-40%)
- Volume and area of water reservoir are mentioned for operational regime (normal banked-up water level).
- Water reservoirs “Gorbok”, “Zaluzh”, “Mochilo” and “Fornosh” belong to one irrigation system “Chorny Mochar”.
- All water reservoirs in Tisza basin have complex use, except Tereblya-Rikska HPP, which is used only for hydropower.
- Water reservoir of Tereblya-Rikska HPP belong to sub-basins of two rivers: Tereblya (water intake) and Rika (discharge from water reservoir).

Spatial distribution of TRB reservoirs with respect to purpose and volume are exhibited in Figures II.6 and II.7 respectively.

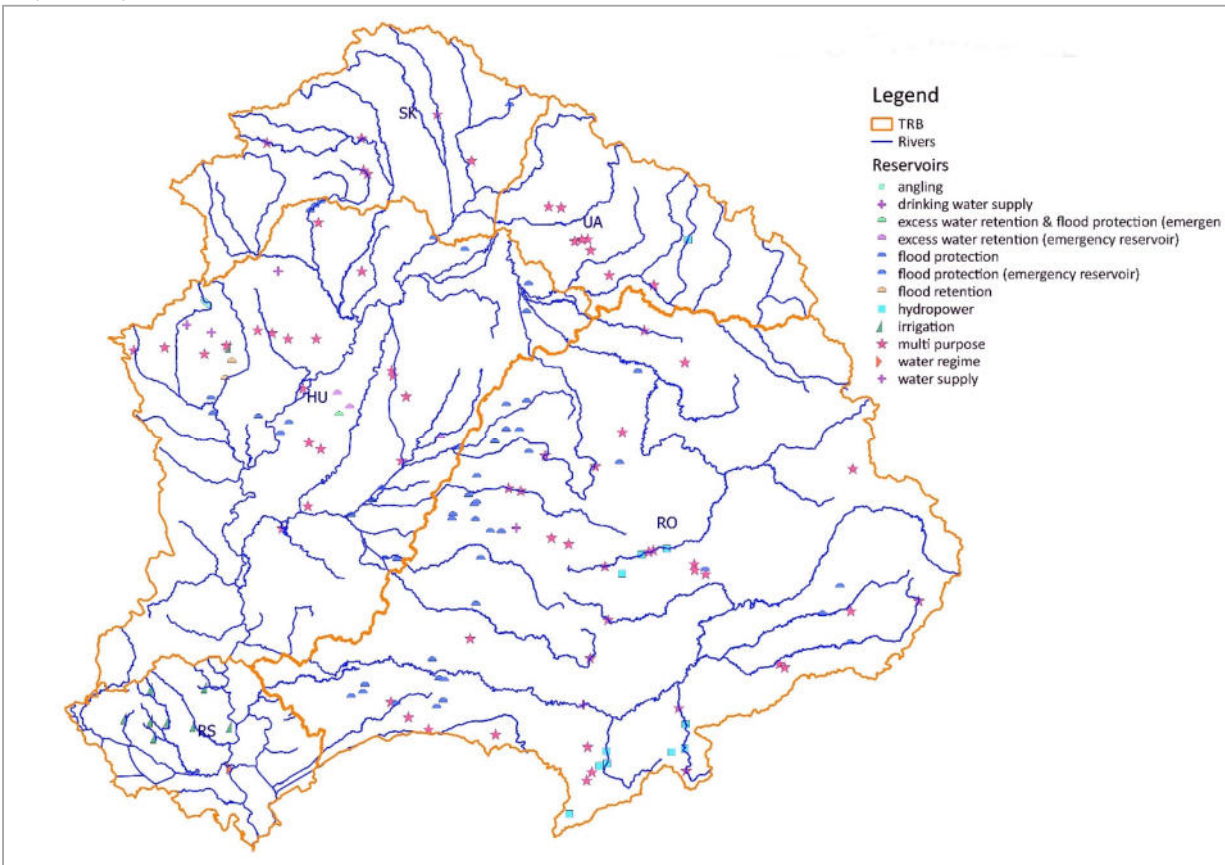


Figure II.6. TRB reservoirs spatial distribution with respect to purpose

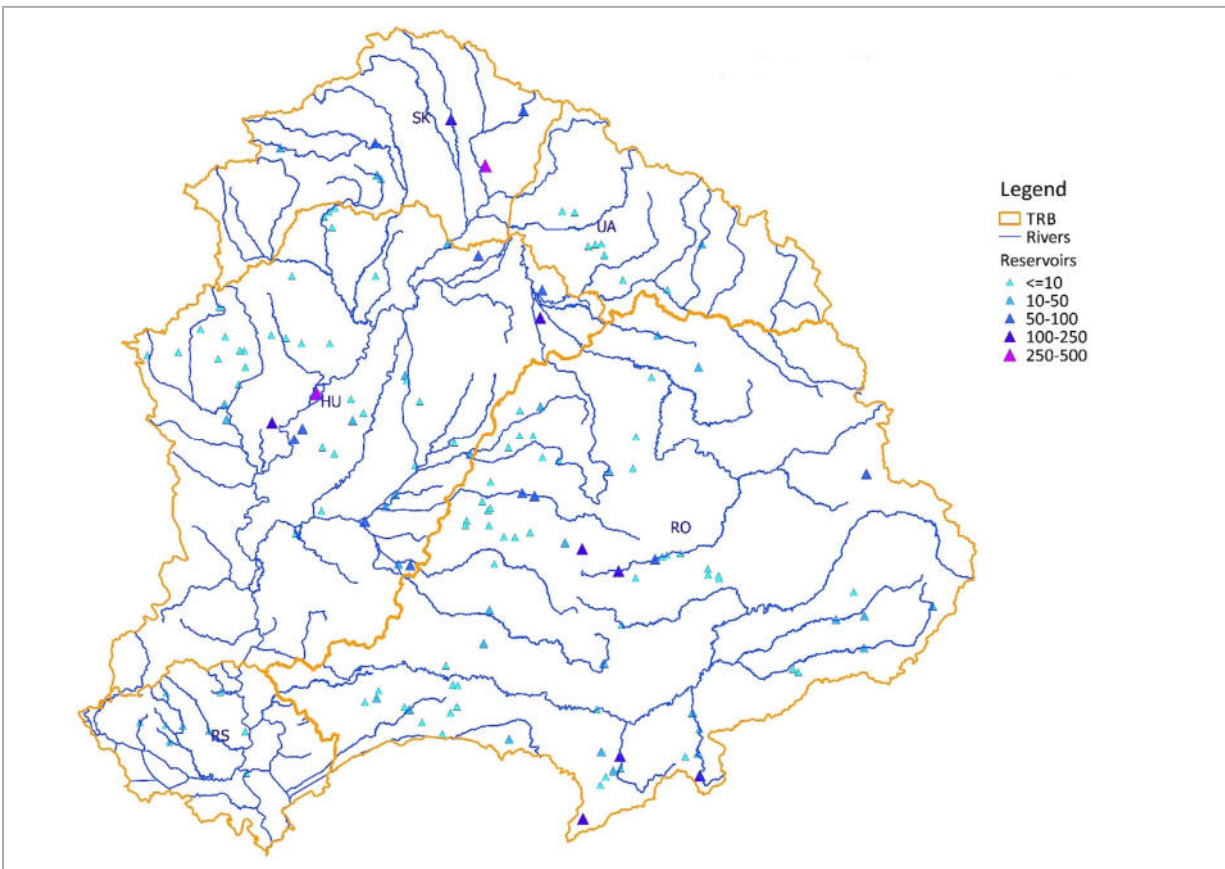
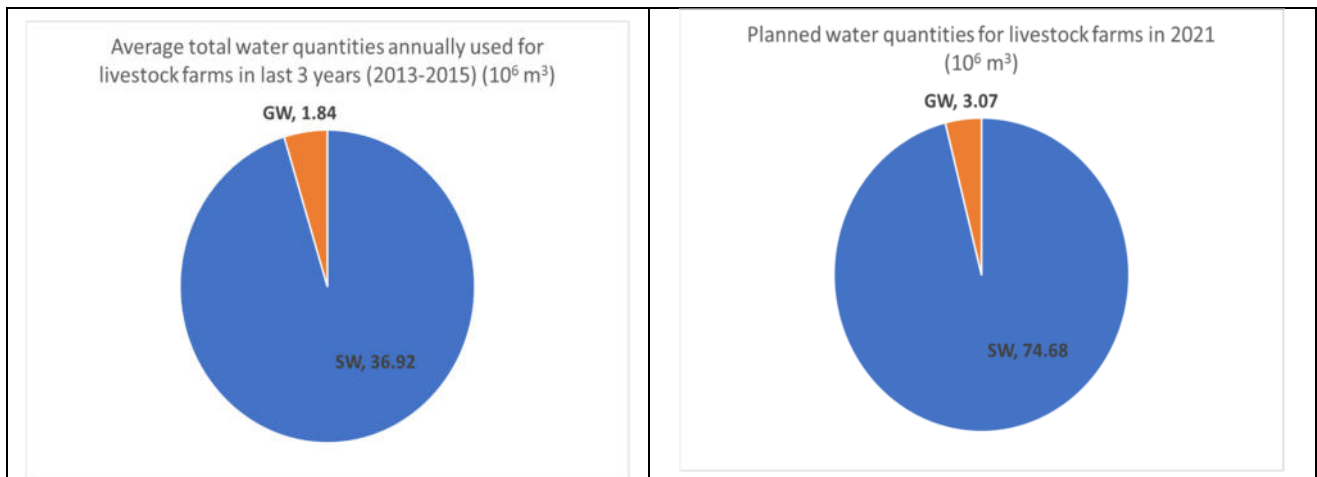


Figure II.7. TRB reservoirs spatial distribution with respect to volume

### 3 TRB water use and demand: Other agricultural use (livestock farms, fish production, etc.)





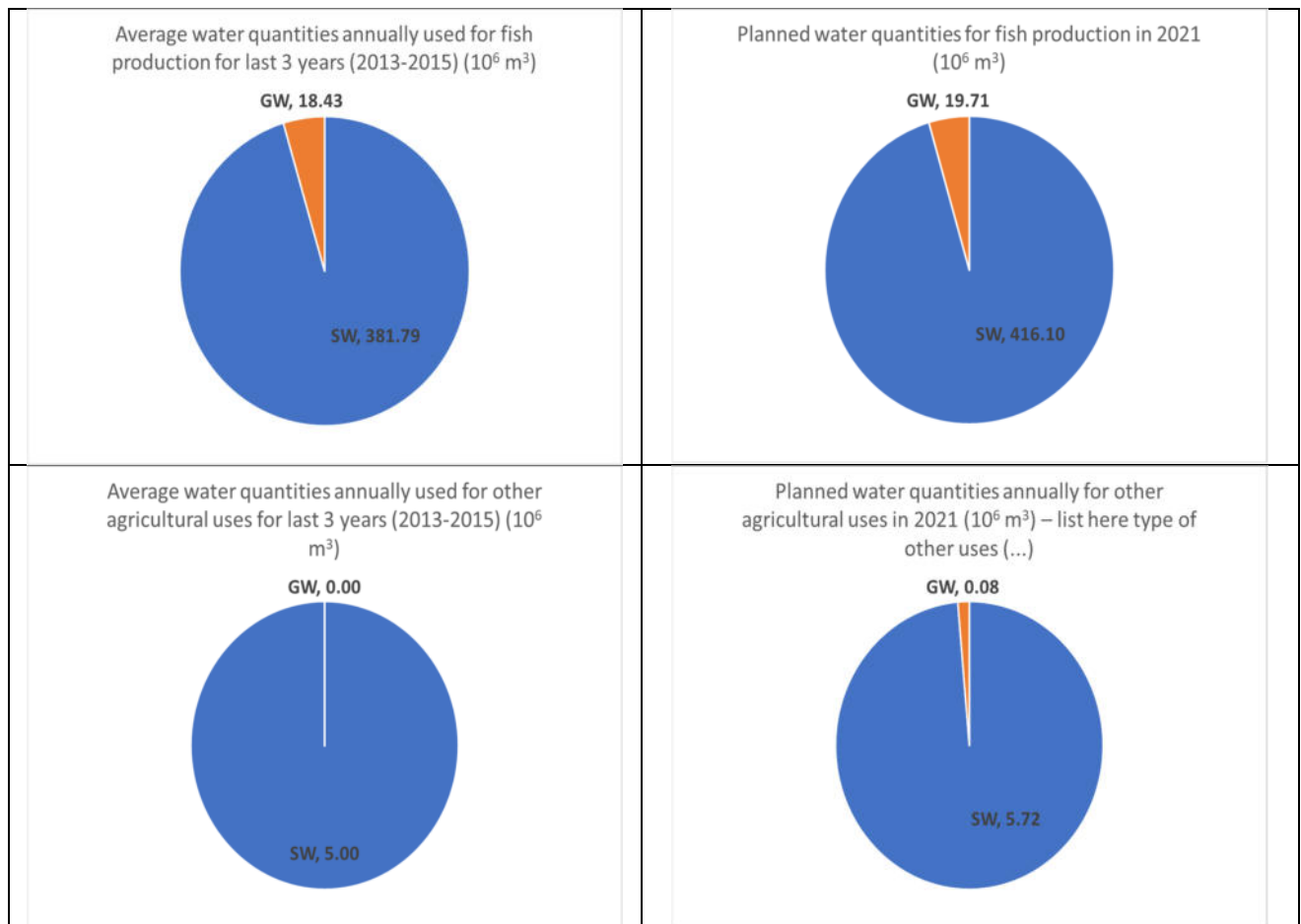


Figure III.1. TRB other agricultural use comparison between present water use and future water demand

Table III.1. TRB other agricultural water use comparison between present water use and future water demand

JOINTISZA	UA	RO	SK	HU	RS	Summary
Average water quantities annually used for livestock farms for last 3 years (10 <sup>6</sup> m <sup>3</sup> )	0.9	3.63	1.23	13	20	38.76
Average water quantities annually used for fish production for last 3 years (10 <sup>6</sup> m <sup>3</sup> )	9.8	153.78	0.89	165	70.75	400.22
Average water quantities annually used for other agricultural uses for last 3 years (10 <sup>6</sup> m <sup>3</sup> )	-	NA	NA	-	5	5
Planned water quantities for livestock farms in 2021 (10 <sup>6</sup> m <sup>3</sup> )	0.5	36.02	1.23	15	25	77.75
Planned water quantities for fish production in 2021 (10 <sup>6</sup> m <sup>3</sup> )	10	169.92	0.89	175	80	435.81
Planned water quantities annually for other agricultural uses in 2021 (10 <sup>6</sup> m <sup>3</sup> )	0.8	NA	NA	-	5	5.8

## 4 TRB water use and demand: Public water supply

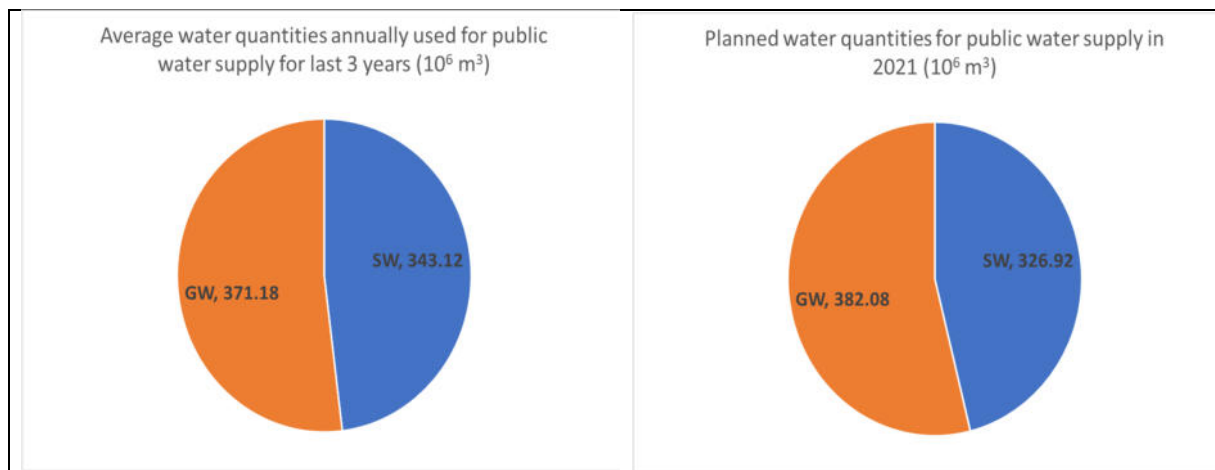


Figure IV.1. TRB public water supply comparison between present water use and future water demand with respect to source

Table IV.1. TRB public water supply comparison between present water use and future water demand

JOINTISZA	UA	RO	SK	HU	RS	Summary
Total capacity of public water supply systems (m <sup>3</sup> /s)	0.7	93.78	5.5	9	1.7	110.68
Average water quantities annually used for public water supply for last 3 years (10 <sup>6</sup> m <sup>3</sup> )	22.1	362.91	58.97	218	52.32	714.3
Planned capacity of public water supply systems in 2021 (m <sup>3</sup> /s)	0.5	NA	5.5	9.1	1.8	16.9
Planned water quantities for public water supply in 2021 (10 <sup>6</sup> m <sup>3</sup> )	17	347	60	225	60	709

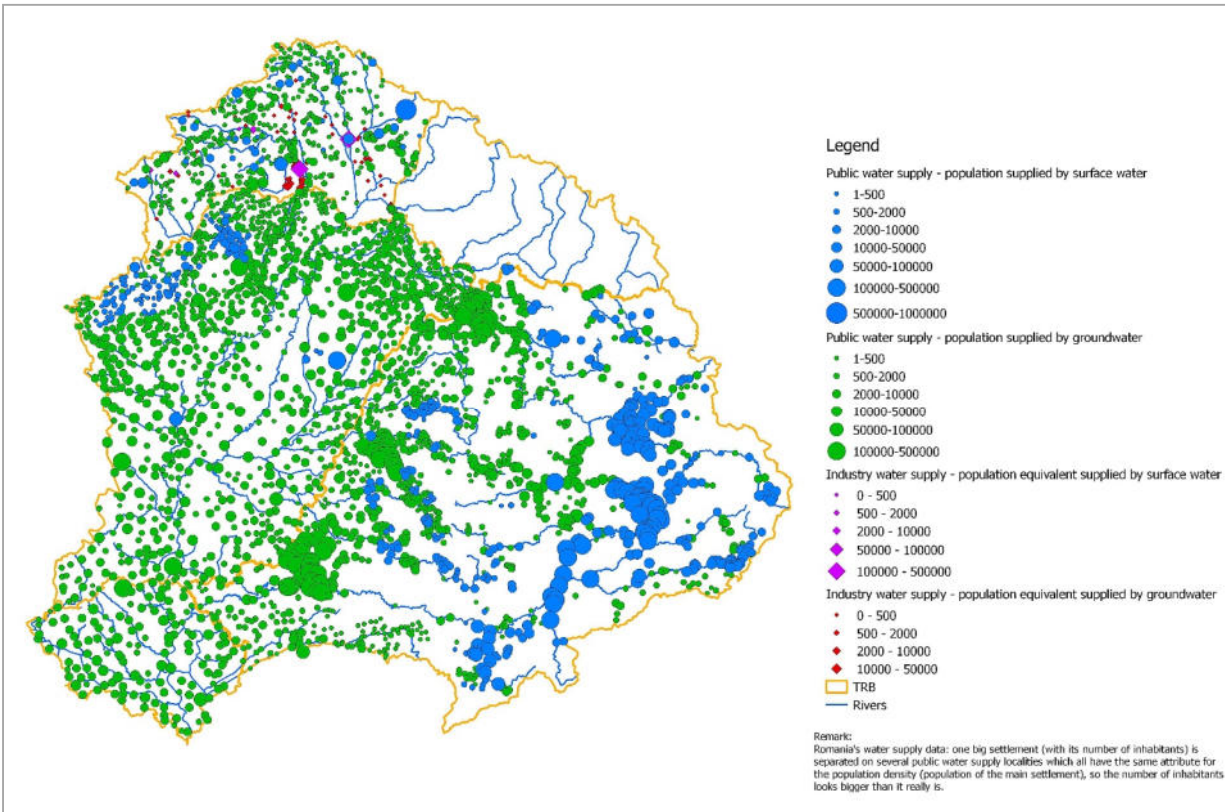


Figure IV.2. TRB water source spatial distribution– public water supply

## 5 TRB water use and demand: Water supply of industry - including thermal power plant cooling

### Water supply for industry

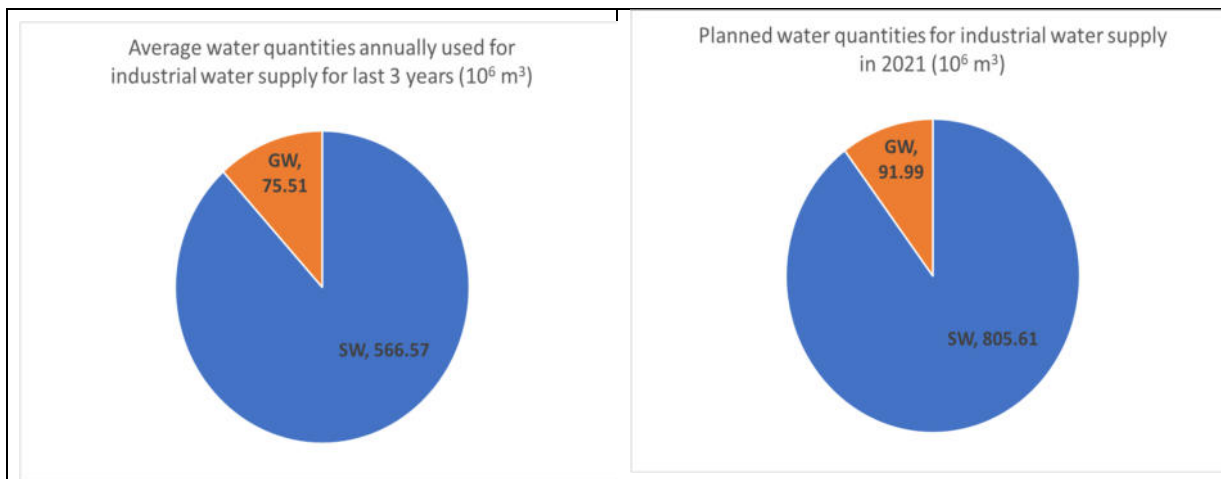


Figure V 1. TRB water supply of industry (including thermal power plant cooling) comparison between present water use and future water demand with respect to source

Table V.1. TRB water supply comparison between present water use and future water demand for industry (including thermal power plant cooling)

JOINTISZA	UA	RO	SK	HU	RS	Summary
Total capacity of industrial water supply systems (m <sup>3</sup> /s)	0.03	NA	21.3	6.5	2.96	30.79
Average water quantities annually used for industrial water supply for last 3 years (10 <sup>6</sup> m <sup>3</sup> )	1.1	505.92	39.41	86.3	9.35	642.08
Planned capacity of industrial water supply systems in 2021 (m <sup>3</sup> /s)	0.03	NA	21.3	6.5	3.2	31.03
Planned water quantities for industrial water supply in 2021 (10 <sup>6</sup> m <sup>3</sup> )	1.1	756	40	90	10.5	897.6

## 6 TRB water use and demand: Hydrological requirement for good water status

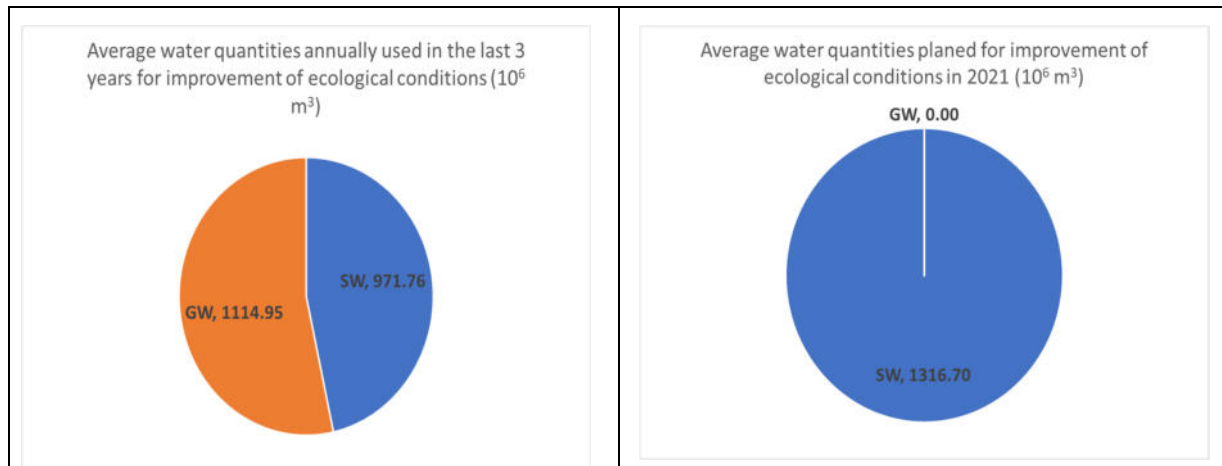


Figure VI 1. TRB hydrological requirement for good water status - comparison between present water use and future water demand with respect to source

Table VI 1. TRB hydrological requirement for good water status - comparison between present water use and future water demand

JOINTISZA	UA	RO	SK	HU	RS	Summary
Average water quantities annually used in the last 3 years for improvement of ecological conditions (10 <sup>6</sup> m <sup>3</sup> )	*	498.26	1 321.03	15.3	252.12	2 086.71
Average water quantities planned for improvement of ecological conditions in 2021 (10 <sup>6</sup> m <sup>3</sup> )		998.7	NA	18	300	1 316.7

## 7 TRB water use and demand: Other uses

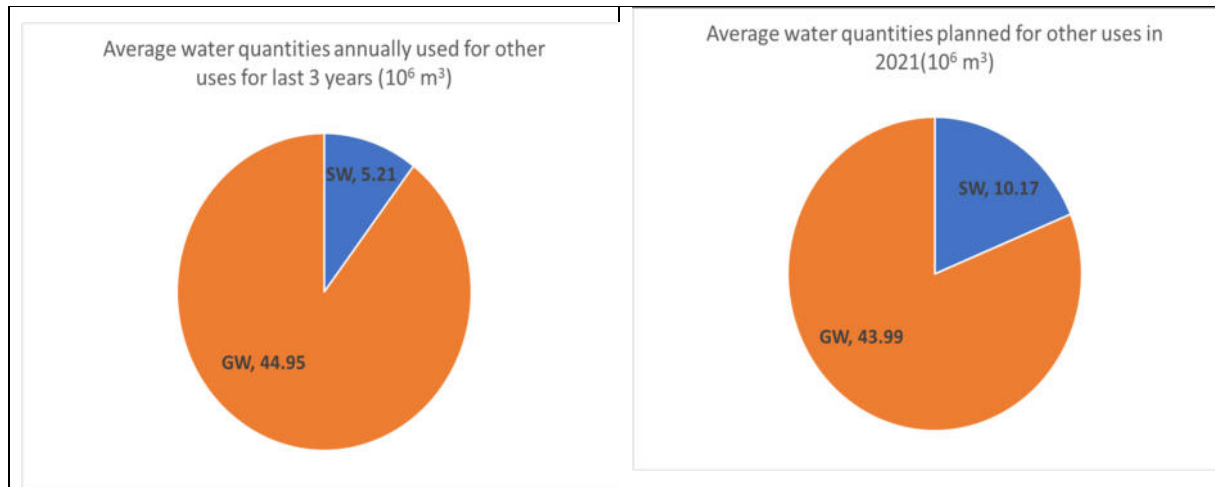


Figure VII 1. TRB other water uses - comparison between present water use and future water demand with respect to source

Table VII 1. TRB other water uses - comparison between present water use and future water demand

JOINTISZA	UA	RO	SK	HU	RS	Summary
Average water quantities annually used for improvement of ecological conditions for last 3 years (10 <sup>6</sup> m <sup>3</sup> )	1.4	RO	0.16	48.6	0	50.16
Average water quantities annually used for improvement of ecological conditions in 2021 (10 <sup>6</sup> m <sup>3</sup> )	2	NA	0.16	47	5	54.16

## 8 TRB water use and demand: Preservation of hydraulic regimes and ecological conditions in canal network

Table VIII.1. TRB water use – preservation of hydraulic regimes and ecological conditions in canal network

MONTH	COUNTRY/ Location/other				
	UA	HU		RS	
	Channel Verke	Keleti-főcsatorna, intake from Tisza	Nagykunsági-főcsatorna, intake from Tisza at Abádszalók	PS Bezdán	Slu. Bezdán
	-	48.022963 21.321919	47.475547 20.561640	45.3074934 18.3124176	45.306111 18.3087486
10 <sup>6</sup> m <sup>3</sup>					
I	0	21.4	0	0	0
II	0	21.4	0	0	0
III	0	21.4	8	0	0
IV	0	12.9	12.3	4	4
V	3.8	12.9	12.3	4	6.3
VI	3.8	12.9	12.3	8	23.5
VII	3.8	12.9	12.3	12	39.8
VIII	3.8	12.9	12.3	8	43.8
IX	3.8	12.9	12.3	8	43.8
X	3.8	24.1	12.3	4	27.1
XI	-	24.1	2.7	0	15.8
XII	-	24.1	2.7	0	0
<b>TOTAL</b>	<b>22.8*</b>	<b>213.7</b>	<b>99.6</b>	<b>48</b>	<b>204.1</b>

\* Only 1,5 m<sup>3</sup> / sec is provided from Borzhava to Verke (more is not possible because of the channel overflowing).

Table VIII.2. TRB water demand (2021) – preservation of hydraulic regimes and ecological conditions in canal network

MONTH	COUNTRY/ Location/other				
	UA	HU		RS	
	Channel Verke	Keleti-főcsatorna, intake from Tisza	Nagykunsági-főcsatorna, intake from Tisza at Abádszalók	PS Bezdán	Slu. Bezdán
	-	48.022963 21.321919	47.475547 20.561640	45.3074934 18.3124176	45.306111 18.3087486
10 <sup>6</sup> m <sup>3</sup>					
I	0	21.4	0	0	0
II	0	21.4	0	0	0
III	0	21.4	8	0	0
IV	0	12.9	12.3	4	4
V	7.6	12.9	12.3	4	6.3
VI	7.6	12.9	12.3	16	28
VII	7.6	12.9	12.3	20	45
VIII	7.6	12.9	12.3	20	45
IX	7.6	12.9	12.3	16	45
X	7.6	24.1	12.3	4	27.1
XI	-	24.1	2.7	0	15.6
XII	-	24.1	2.7	0	0
<b>TOTAL</b>	<b>45.6 *</b>	<b>213.7</b>	<b>99.6</b>	<b>84</b>	<b>216</b>

\* Channel Verke will be partly cleaned and water supply from Borzhava will increase up to 3 m<sup>3</sup>/sec. The water supply should be conducted only during May-November (in other months it is prohibited because of fish spawning in Borzhava).

## 9 Other Projects and Studies Relevant for Water Quantity Issues (Country Specific)

As presented during the JOINTISZA project meetings, following projects and studies are relevant for water quantity issues:

- ICPDR Tisza EG studies and projects;
- EU JRC water- food- energy – environment nexus;
- ICPDR strategy on adaptation to climate change (2012, 2018);
- *CARPATCLIM* - Climate of the Carpathian Region, the regional project financed by the Joint Research Center of the European Commission – JRC;
- *CCWaterS* – *Climate Change and Impacts on Water Supply*, the transboundary project funded by European Regional Development Fund (ERDF) and IPA;
- *WATCAP* - Water and Climate Adaptation Plan for the Sava River Basin funded by World Bank;
- *CC-WARE* - Integrated transnational strategy for water protection and mitigating water resources vulnerability, the transboundary project funded by European Regional Development Fund (ERDF) and IPA;
- *ClimWatAdapt* - Climate Adaptation–modeling water scenarios and sectoral impacts, funded by the European Commission - DG Environment;
- *SEERISK* -Joint Disaster Management Risk Assessment and Preparedness in the Danube macro-region;
- *OrientGate* A network for the integration of climate knowledge into policy and planning;
- *PROMITHEAS-4K* - knowledge transfer and research needs for preparing mitigation/adaptation policy portfolios;
- South East European Forum on Climate Change Adaptation - SEE Forum on CCA (*CCAFORUM*);
- Weather extremes and climate change in Serbia financed by the Ministry of Education, Science and Technological Development;
- Studying climate change and its influence on the environment: impacts, adaptation and mitigation (CLENIAM - III43007), funded by the Ministry of Education and Science of the Republic of Serbia;

### Romania country specific projects

Within the Action Plan of National Climate Change Strategy there are foreseen action related to researches for achieving risk reduction of water scarcity objective. National Institute of Hydrology and Water Management is involved in research related to impact of climate change on water.

In the last years, for various river basins in Romania, a series of complex studies have been carried out on the estimation of the impact of climate change on water resources and on the maximum flow in the analyzed basins. *The used methodology was based on the following stages: Hydrological model selection; Hydrological model calibration; Establishment of the climate change scenario; Long-term flow simulation using the hydrological model; Analysis of the study results.*

The study of the effect of climate change on water resources and on maximum discharges in a river basin was based on two long-term hydrological simulations, each for a period of 30 years, the first simulation being carried out for the reference period 1971÷2000 and the second for the next period 2021÷2050.

The input data in the hydrological model were the precipitation and temperature series resulting from the processing of data obtained from climatic simulations using the REMO regional model (simulations that are available in National Institute of Hydrology and Water Management (as a result of the FP6 CLAVIER Project collaboration). To estimate the effect of climate change on water resources, the flow simulation at monthly time step was done using the WatBal hydrological model. This model consists of two main components. The first is the water balance component, which uses continuous functions to describe water movement in a

conceptualized river basin and the second one is the component that allows computing of the potential evapotranspiration using the Thornthwaite method.

*The methodology used was applied to 20 river basins in Romania: Vișeu, Iza, Tur, Someș, Mureș, Timiș-Bega, Bega-Veche, Bârzava, Moravița, Caraș, Nera, Radimna, Berzasca, Cerna, Jiu, Olt, Vedea, Argeș, Ialomița and Siret, the surface of which represents 71.63% of the of the Romanian territory. Some of them are located within the TRB (Vișeu, Iza, Tur, Someș, Mureș, Bega, Bega-Veche).*

Discharge series, with a monthly time step, resulting from the two long-term simulations, were analyzed comparatively in order to identifying the changes in the monthly, seasonal and annual discharge regime.

To estimate the effect of climate change on maximum discharges, the flow simulation at 6-hour time step was done using the CONSUL hydrological model. This deterministic mathematical model allows simulation of flow in both small and large complex river basins, which are divided into homogeneous units (sub-basins). The model allows the calculation of flow hydrographs on sub-basins, their routing and composition on the main river and tributaries.

*The methodology used was applied to 8 river basins in Romania: Crișul Repede, Crișul Negru, Crișul Alb, Mureș, Jiu, Olt, Ialomița and Siret, the surface of which represents 53.0% of the Romanian territory. Four river basins (Crișul Repede, Crișul Negru, Crișul Alb and Mureș) are located with the RO part of the TRB. Discharge series, with a 6 hours' time step, resulting from the two long-term simulations, were analyzed comparatively in order to identifying the changes in the maximum monthly, maximum multiannual and maximum with different probabilities of exceeding, as well as the distribution of annual maximum discharges over the year. Another research study mentioned in the Action Plan of National Climate Change Strategy and performed with the National Institute of Hydrology and Water Management is "Identification for national main potential of water scarcity areas in the current regime and the perspective of climate change". Some details are presented in Romanian Country report on measures: Chapter 5 – Drought and water scarcity measures (by 2021) - Maps with water scarce areas identified for the Tisza Basin.*

## Serbia country specific projects

In addition to projects and studies in Republic of Serbia the following list includes legal and other frameworks relevant for Climate Change and Water Quantity issues:

- The Water Management Strategy of the territory of the Republic of Serbia (Official Gazette of the Republic of Serbia no. 3/2017);
- The Second National Communication of the Republic of Serbia under the UNFCCC (Submitted on the ICPDR Danubius, December 2016);
- South East European Climate Change Framework Action Plan for Adaptation- SEE/CCFAP-A (2008);
- Jaroslav Černi Institute for the Development of Water Resources (JCI), 2010-2012, Climate Change Impacts on River Hydrology in Serbia – National Study in Serbian (financially supported by Water Directorate – Ministry of agriculture, forestry and water management of Serbia);
- Jaroslav Černi Institute for the Development of Water Resources (JCI), 2012-2016, Climate Change Impacts on Water Resources in Serbia – National Study in Serbian (project is financed by the Ministry of education, science and technological development);
- Weather extremes and climate change in Serbia financed by the Ministry of Education, Science and Technological Development;
- Studying climate change and its influence on the environment: impacts, adaptation and mitigation (CLENIAM - III43007), funded by the Ministry of Education and Science of the Republic of Serbia.



## 10 Results and Conclusions

The purpose of reservoirs within the TRB is over 50% for multipurpose reservoirs. Based on map TRB reservoirs spatial distribution with respect to volume, there are two reservoirs with volume 250 -500 Mm<sup>3</sup> one in Slovakia and one in Hungary. Reservoirs with volume range between 10 and 250 Mm<sup>3</sup> exists in Romania, Slovakia and Hungary. Reservoirs with volume equal to or smaller than 10 Mm<sup>3</sup> exists in all Tisza Countries.

With respect to water use and demand within the TRB and relevance of the interlinkage between water quantity and quality increase in water demand in comparison to present use is evident.

In summary, according to data reported by Tisza countries total water quantity for present uses (irrigation, other agricultural use, public water supply, industrial water supply, other uses) is 1,409.84 Mm<sup>3</sup>, regardless the source of water is significantly smaller than planned water demand by the end of the next planning period 2 585.67 Mm<sup>3</sup>, e.g., approximately 54%. The most significant water demand increase within the TRB is planned for irrigation – 67%, and according to provided data with respect to water source the majority of water intake increase is planned from surface water.

For other agricultural use, water intake increase is planned both for surface and groundwater sources. Although the quantity of water for public water supply is higher at the present than future demand, there is planned increase of intake from groundwater. Based on data and information reported by Tisza countries, it is obvious that planned increase in water demand refer both to surface and ground water sources, from 566.57 to 805.61 Mm<sup>3</sup> and from 75.51 to 91.99 Mm<sup>3</sup>, respectively. Since for some water uses elaborated with TRB water quantity issues data are not reported by all countries, these water uses are not included in water quantity summary comparison between present water use and planned water demand.

Instead of conclusion, all proposed measures that are relevant for water quantity and quality integration should be carefully and comprehensively elaborated at the TRB, and any issue or constrain that have or might have adverse impacts on the Integrated River Basin Management Planning within the TRB and with respect to transboundary level should be carefully re-evaluated and win - win upstream – downstream approach should be applied.

## Abbreviations

TRB	Tisza River Basin
ICPDR	International Commission for the protection of the Danube River
ITRBMP	Integrated Tisza River Basin Management Plan
UNFCC	The United Nations Framework Convention on Climate Change
RBMP	River Basin Management Plan

## References

Tisza Analyses Report (2007)

The First Integrated Tisza River Basin Management Plan

EU Water Framework Directive

The ICPDR CC adaptation strategy

ICPDR DanubeGIS

Data and information reported by Tisza countries:

***Ukraine:***

JOINTISZA Template (Report) for water quantity data collection –country report,

***Slovakia:***

JOINTISZA Template (Report) for water quantity data collection –country report

***Romania***

JOINTISZA Template (Report) for water quantity data collection –country report

***Hungary***

JOINTISZA Template (Report) for water quantity data collection –country report

***Serbia***

JOINTISZA Template (Report) for water quantity data collection –country report

Project co-funded by the European Union (ERDF, IPA funds)

Partners: General Directorate of Water Management, Hungary | Global Water Partnership Central and Eastern Europe, Slovakia | International Commission for the Protection of the Danube River, Austria | Ministry of Water and Forest, Romania | Ministry of Foreign Affairs and Trade, Hungary | National Administration “Romanian Waters”, Romania | National Institute of Hydrology and Water Management, Romania | Public Water Management Company “Vode Vojvodine”, Serbia | Regional Environmental Center for Central and Eastern Europe, Hungary | The Jaroslav Černi Institute for the Development of Water Resources, Serbia | Water Research Institute, Slovakia | World Wide Fund for Nature Hungary

Associated Partners: Interior Ministry, Hungary | Ministry of Agriculture and Environmental Protection Water, Serbia | Secretariat of the Carpathian Convention (SCC), Austria | State Agency of Water Resources of Ukraine | Tisza River Basin Water Resources Directorate, Ukraine





# Updated Integrated Tisza River Basin Management Plan

Annex 14. Catalogue of groundwater and  
integration measures evaluation – additional  
data and information



Project co-funded by the European Union (ERDF, IPA funds)

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# 1 Introduction

Data and information presented in this Annex provide additional data and information to those included in Chapter 6 for groundwater measures and Chapter 7 for horizontal, drought and water scarcity, plastic waste and climate change measures. Tisza countries reported measures based on templates that follow approach applied for development of the First Integrated Tisza River Basin Management Plan (1<sup>st</sup> ITRBMP) and other studies and background documents relevant for Tisza River Basin within the scope of International Commission for the Protection of the Danube River (ICPDR) Tisza Group and other ICPDR expert groups.

In the 1<sup>st</sup> ITRBMP measures are addressed with respect to Significant Water Management Issues within the TRB and in line with EU Water Framework Directive (Directive 2000/60/EC of the European Parliament and of the Council establishing a framework for the Community action in the field of water policy). The Article 4 of the EU WFD addresses environmental objectives and underline significance of measures implementation, and Article 8 elaborate water bodies monitoring. According to article 11, paragraph 1 each Member State shall ensure the establishment for each river basin district, or for the part of an international river basin district within its territory, of a programme of measures, taking account of the results of the analyses required under Article 5, in order to achieve the objectives established under Article 4. Such programmes of measures may make reference to measures following from legislation adopted at national level and covering the whole of the territory of a Member State. Where appropriate, a Member State may adopt measures applicable to all river basin districts and/or the portions of international river basin districts falling within its territory.

## GWB's measures

Data and information summarized in this Annex for groundwater bodies (GWB's) measures are provided by Tisza countries based on template for data collection and datasets uploaded and verified on the ICPDR DanubeGIS relevant for GWB's quantitative and qualitative status in line with pressures. Comprehensive description of these measures for each country is provided in Chapter 2 of this document.

## Integration measures

In addition to the Danube River Basin wide agreed significant water management issues the ICPDR Tisza Group identified that integration of water quality and quantity issues are relevant for Tisza River Basin (TRB) and has to be considered during the preparation of the Integrated Tisza River Basin Management Plan. Recognising the importance of water quantity issues and its significant impacts on water quality, the ICPDR Tisza Group has developed an integrated approach taking into account water quality, water quantity-related issues and their interactions. As a result, the Tisza Group outlined visions and management objectives relevant for the agreed interlinked issues and identified measures which will have positive impacts on water quality and quantity and on aquatic ecosystems. These measures, visions and recommendations are based on data and information provided by Tisza countries and are elaborated in the first Integrated Tisza River Basin Management Plan– Chapter 8.5 (2011). *In summary, the TRB wide measures are firmly based on and were coordinated with the national programme of measures and with Danube River Basin wide measures.*

During the 2012 the ICPDR Tisza Group developed Template for TRB Integration measures and data and information on integration measures within the scope of JOINTISZA project are collected in line with this template. The integration measures reported by TRB countries within the scope of JOINTISZA project are summarized in Chapters 3, 4, 5 and 6 of this Annex.

## 2 TRB measures relevant for GWBs

This chapter summarises the measures that are planned for the 86(2010)/86 (2017) groundwater bodies of basin-wide importance. Detailed information on the relevant measures for each groundwater body will be provided in Annex 11. As stated in the Water Framework Directive (ANNEX VI, Part A and Part B) measures to be included within the programmes of measures for the groundwater are listed as:

**BM** - Basic measures - measures required under the following Directives:

- Bathing Water Directive 2006/7/EC, replaced the former Directive 76/160/EC.
- Birds Directive 79/409/EEC
- The Drinking Water Directive (80/778/EEC) as amended by Directive (98/83/EC)
- The Major Accidents Seveso-III-Directive (2012/18/EU)
- The Environmental Impact Assessment Directive (85/337/EEC)
- The Sewage Sludge Directive (86/278/EEC)
- The Urban Waste-water Treatment Directive (91/271/EEC)
- The Plant Protection Products Directive (91/414/EEC)
- The Nitrates Directive (91/676/EEC)
- The Habitats Directive (92/43/EEC)
- The Integrated Pollution Prevention Control Directive (96/61/EC)

**SM** - The following is a non-exclusive list of supplementary measures which Member States within each river basin district may choose to adopt as part of the programme of measures required under Article 11(4):

- Legislative, administrative, economic or fiscal instruments
- Negotiated environmental programmes
- Emission controls
- Codes of good practice
- Recreation and restoration of wetland areas
- Abstraction controls
- Demand management measures, inter alia, promotion of adapted agricultural production such as low water requiring crops in areas affected by drought
- Efficiency and reuse measures, inter alia, promotion of water-efficient technologies in industry and water-saving irrigation techniques
- Construction projects
- Desalination plants
- Rehabilitation projects
- Artificial recharge of aquifers
- Educational projects
- research, development and demonstration projects
- other relevant measures.

**OBM** - Other basic measures must be defined at the country level by local laws.

The need to ensure the proper integration of the various legal instruments is illustrated in the Figure II.1.



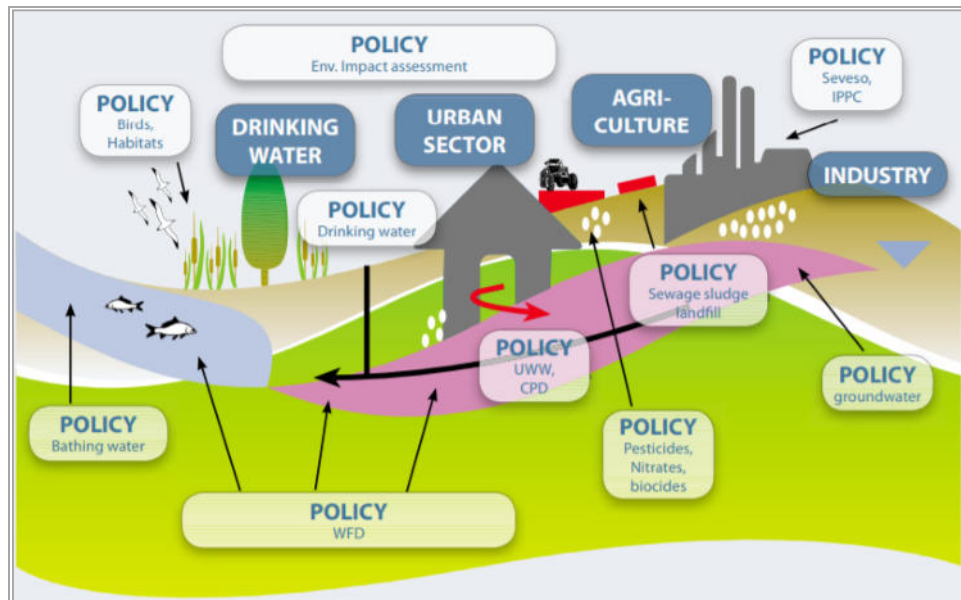


Figure II.1: Sectors covered by EU legal instruments that are directly or indirectly relevant to groundwater protection (UWW: urban wastewater – CPD: construction products directive – IPPC: integrated pollution prevention control). This list is not exhaustive, (Source: Groundwater Protection in Europe - The New GW Directive – Consolidating the EU Regulatory Framework

## GWBs programme of measures by TRB countries

### Ukraine

As stated in Ukrainian JOINTISZA Report for GWB's data collection Country Report the programme of measures for the water bodies at risk (like UA\_TIS\_GW\_4) and sensitive water bodies for pollution like alluviums will be included in the future River Basin Management Plans to be developed by 2024 based on the improved monitoring data.

### Romania

Romania updated information about measures for 11 GWB's. Data submitted in 2010 for measures followed poor quality status assessment for 2 GBW's, in 2017 there is one more GWB in the poor quality status. For these 3 GBW's following measures are reported in 2017:

- Reduce nutrient pollution from agriculture;
- Construction or upgrades of sewerage network in human agglomerations with less than 2,000 equivalent inhabitants,
- The measures in order to prevent failing of the good status were taken for all GWB's.

Statistics overview of submitted data is shown in the following Table II.1 and Figure II.2 and Figure II.3.

Table II.1: TRB Groundwater quality and quantity status assessment/measures in Romania 2010/2017

GWB Status/Measures	RO 2010		RO 2017	
	GWBs	measures	GWBs	measures
Quality Status	good	9	-	8
	poor	2	2	3
Quantitative Status	good	11	-	11
	poor	-	-	-

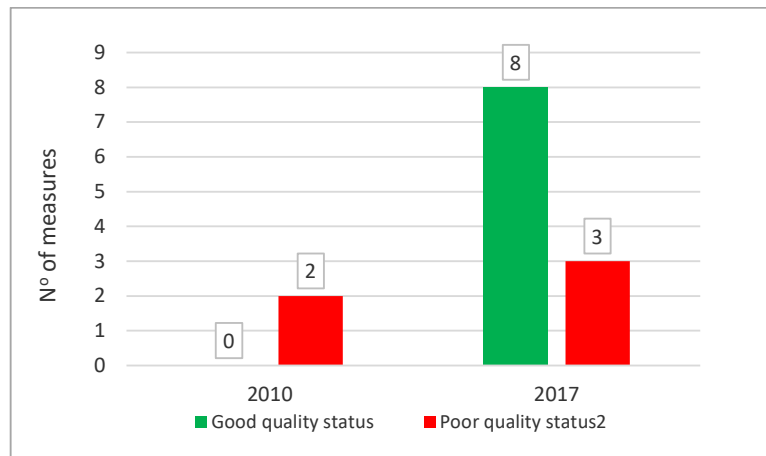


Figure II.2: Number of measures per GWBs quality status assessment changing from 1st ITRBMP (2010) to draft updated ITRBMP (2017) in Romania

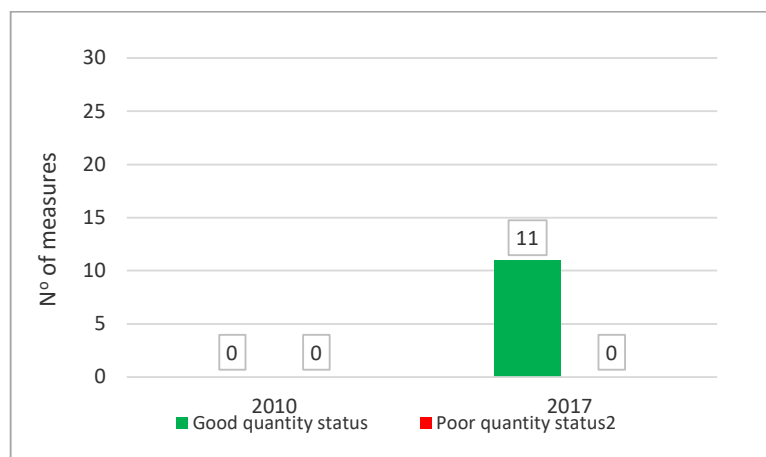


Figure II.3 Number of measures per GWBs quantity status assessment changing from 1st ITRBMP (2010) to draft updated ITRBMP (2017) in Romania

The Updated Danube River Basin Management Plan (2015) summarizes the measures for the groundwater bodies of basin-wide importance in the DRB and showing both the progress in implementation of the first DRBM Plan as well as the measures planned for the period 2015–2021.

Also, in the Updated National Management Plan and in the updated RBMPs of the 4 RO sub-units located in the TRB, the measures planned to be implemented for reaching and maintaining the good status of the GWBs are part of the program of measures. Basic measures are applied to all water bodies, while additional measures are applied to water bodies at risk of not achieving environmental objectives.

The applied basic measures (under Article 11(3)(a)) are those required by the EU Directives, especially: Groundwater Directive (2006/118/EC); Urban Waste Water Treatment Directive – UWWTD (91/271/EEC); Plant Protection Products Directive (91/414/EEC); Nitrates Directive (91/676/EC); Sustainable Use of Pesticides (2009/128/EC); Biocide Directive (98/8/EC); Integrated Pollution Prevention Control Directive (96/61/EC) and Industrial Emissions Directive (2010/75/EU). In this respect, the basic measures are grouped as following:

- Measures for human agglomerations - building the drinking water and waste water infrastructures (especially the collection and treatment systems), as required by Drinking Water Directive, UWWTD and Sludge Directive, and increase of the wastewater collection and treatment efficiency and level thereafter
- Measures for industrial activities for reduction of industrial pollution, according to the IED permits and water management licenses requirements and application of BAT (IPPC and SEVESO installations)
- Measures for agricultural activities:
  - implementation of the provisions of Good Agriculture Practices Code and Action Programs - all territory approach under Nitrate Directive
  - construction of manure storage and wastewater storage facilities
  - farm advisory services
  - implementation of BAT
  - reduction of pesticide emissions – implementation of the National Action Plan for pesticides.

Other categories of measures are related to:

- Measures for the protection of water abstracted for drinking water (Article 7)
- Requirement for prior regulation of point source discharges liable to cause pollution
- Prohibition of direct discharge of pollutants into groundwater
- Any measures required to prevent significant losses of pollutants from technical installations and to prevent any significant and sustained upward trends in the concentrations of pollutants in groundwater
- Controls the abstractions of groundwater.

Taking into account that the main sources of groundwater pollution in Romania are human agglomerations without wastewater collection and treatment systems and agricultural activities (sources of diffuse pollution), it is essential to take all measures to eliminate or reduce the amount of pollutants reaching groundwater. The prevention of groundwater quality deterioration as well as the prevention of any increasing and significant upward trend in pollutant concentrations in groundwater must be achieved firstly by implementing the above measures. Also, the Water Law no. 107 of 1996, as subsequently amended and completed, prohibits direct discharges of pollutants into groundwater.

The implementation of basic and additional measures for human agglomerations, industrial and agricultural activities, part of the updated program of measures is on-going, continuing the application of measures which will lead to achieving and maintaining the good chemical status and maintaining the good quantitative status of GWBs (In Romania, all GWBs have achieved the good quantitative status).

Another important action relates to the potentially contaminated sites, in order to reduce the negative effects on groundwater resources, the National Environmental Protection Agency updated in November 2013 a national inventory of potentially contaminated sites based on data obtained from local public authorities. The Government approved (through a Governmental Decision) the National Strategy and the National Action Plan for the Management of Contaminated Sites in Romania, the application of which aims at diminishing the problems caused by soil and groundwater contamination, as well as the risks to human health and the environment. In the short term, by the end of 2015, the goal of the strategy was to set out the principles of managing contaminated sites; in the medium term, by 2020, the strategy aims to solve the problem of contaminated sites requiring urgent action and, in the long term, by 2050, the completion of the action.

### **GWBs quality**

From the analysis of pressures and impacts on groundwater bodies resulted that, due to the natural flow conditions and historical load with pollutants, 2 groundwater bodies (ROMU03 and ROMU20) from the Mureş Basin and groundwater body (ROBA01 Lovrin-Vinga) are at risk of not achieving good chemical status by 2021.

Contamination with nitrates was a key factor against achieving good chemical status of the 3 national GWBs of Tisza River Basin: ROBA01, ROMU03, ROMU20. According with the environmental objectives, it is essential to eliminate or reduce the amount of nitrates entering groundwater bodies. The programme of measures applied in order to reduce the effects of the agriculture activities is mandatory. In Romania, whole territory approach is applied for the protection of waters against pollution caused by nitrates from agricultural sources.

Prevention of deterioration of groundwater quality and of any significant and sustained upward trend in concentrations of nitrates in groundwater was planned to be achieved primarily through basic measures like the implementation of the requirements of the EU Nitrates Directive and the EU UWWTD (e.g. construction of collecting systems and improvement of the waste water treatment plant performance).

Nevertheless, it should be taken into account that due to the slow dynamics of the groundwater and the longer time needed for an efficient management of diffuse nutrient pollution (longer residence time of groundwater) the water quality impacts of any changes in agriculture induced by the implementation of the ND or BAP recommendations will not be instantly visible but after several years or even decades only.

Considering that the main use of groundwater is for drinking water, an essential measure is to ensure the protection areas for the drinking water abstraction through establish of safeguard zones and buffer zones according to the water legislation in force (Water Law 107/1996 modified and completed, GD 930/2005 and Order 1278/2011).

To prevent pollution of GWBs by hazardous substances from point source discharges liable to cause pollution, the following measures are applied:

- An effective regulatory framework ensuring prohibition of direct discharge of pollutants into groundwater;
- Setting of all necessary measures required to prevent significant losses of pollutants from technical installations;
- The prevention and/or reduction of the impact of accidental pollution incidents.

The measures addressing pollution of surface water bodies by nutrients and hazardous substances have a positive effect on the improvement of the chemical status of groundwater.

The principles and assessment of surface water pollution sources provide background information relevant to groundwater, due to the interconnection between the two water categories.

Other additional measures are related to the realization of research projects to assess the nature and quantity of pollutants in the soil and subsoil as well as the mechanisms of transfer and degradation through the underground environment. Mathematical models will be developed to track the time and space evolution of the pollutant concentration, estimating its natural degradation rate in groundwater.

The results of the research projects will allow the assessment of the time needed to achieve the environmental objectives through the implementation of the basic measures and / or the possibility of applying additional measures.

### **GWBs quantity**

All 11 national groundwater bodies included in the TRB are in good quantitative status. In this case, only measures to prevent the deterioration of the quantitative status are needed.

Over-abstraction of the water from the aquifers is avoided by sustainable groundwater management. According with the Water Framework Directive requirements it must be ensured that the available groundwater resource is not exceeded by the long-term annual average rate of abstraction. In this respect, in Romania all abstractions of groundwater for all kind of water uses are authorized and controlled from the water management point of view, except abstractions less than 2 l/s used for individual drinking water purpose.

In order to protect the groundwater resource from quantitative point of view additional measures are foreseen to identify the areas where some phreatic aquifers are or may be affected by drought, by developing research studies and applying patterns to track aquifer levels in time and space.

## **Slovakia**

Slovakia submitted one more GWB (GWB code: SK200280FK\*) in 2017. GWB code: SK200280FK\* has area of approximately 3.049,8 km<sup>2</sup> but only one half of this groundwater body is situated in Tisza river catchment.

All 8 GWBs are in good quality and quantitative status. They don't have any measures planed. Based on data and information reported by Slovakia there are no changes in GWB's status assessment. All 8 GWB's are in good quality and quantitative status so they don't have any measures planed. Statistical overview is given in the following Table II.4 and Figures II.4 and II.5.

*Table II.2: TRB Groundwater quality and quantity status assessment/measures in Slovakia 2010/2017*

GWB Status/Measures		SK 2010		SK 2017	
		GWBs	measures	GWBs	measures
Quality status	good	7	-	8	-
	poor	-	-	-	-
Quantitative status	good	7	-	8	-
	poor	-	-	-	-

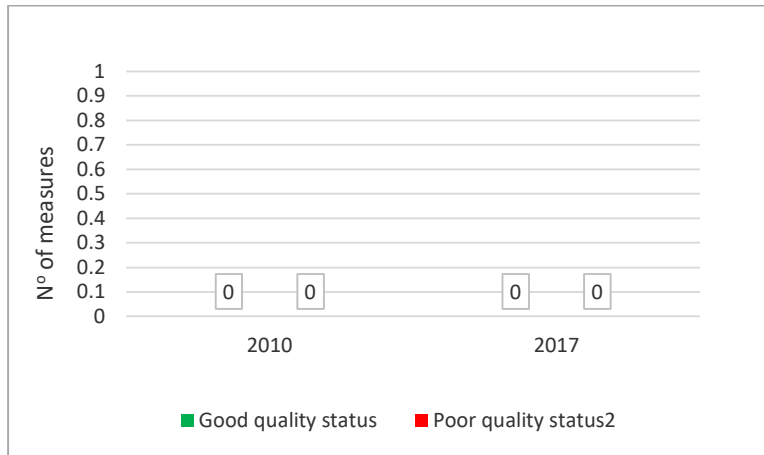


Figure II.4 Number of measures per GBWs quality status assessment changes from 1st ITRBMP (2010) to draft updated ITRBMP (2017) in Slovakia

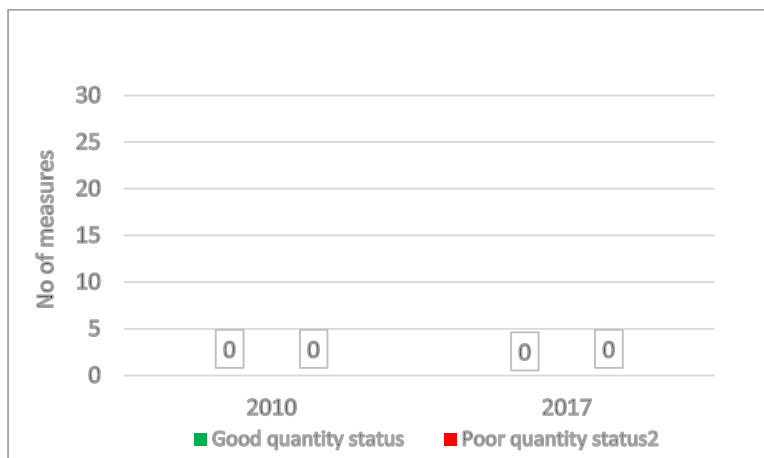


Figure II.5 Number of measures per GBWs quantity status assessment changing from 1st ITRBMP (2010) to draft updated ITRBMP (2017) in Slovakia

## Hungary

In 2017 Hungary reported 51 GWBs. Based on summary table (II.3) it is clear that measures are applied not just for GWBs with poor chemical/quantitative status, but also for those GWBs with good status.

Table II.3: TRB Groundwater quality and quantity status assessment/measures in Hungary 2010/2017

GWB Status/Measures	HU 2010		HU 2017		
	GWBs	measures	GWBs	measures	
Quality Status	good	38	1	43	43
	poor	6	6	8	8
Quantitative Status	good	32	-	29	27
	poor	12	12	22	20

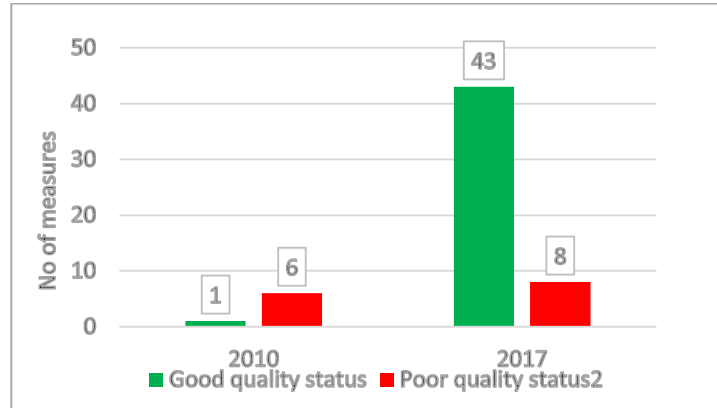


Figure II.6: Number of measures per GBWs quality status assessment changes from the 1st ITRBMP (2010) to draft updated ITRBMP (2017) in Hungary

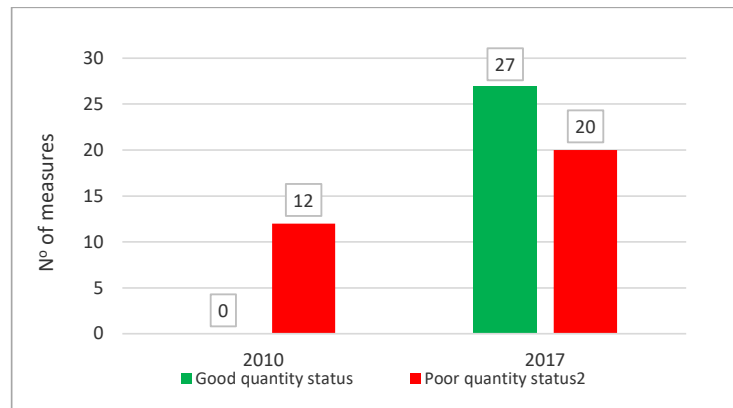


Figure II.7: Number of measures per GBWs quantity status assessment changes from 1st ITRBMP (2010) to draft updated ITRBMP (2017) in Hungary

Table II.3 and Figures II.6 and II.7 indicate increase in number of measures reported in 2017 in comparison to the 1<sup>st</sup> ITRBMP:

- For GBWs in poor status assessment either quality or quantity only 1 GWB has no measures planed;
- For GBWs in good status assessment either quality or quantity only 4 GWB has no planed measures.

Also, Hungary reported (Act4\_3\_Measures\_GWB\_Quality HU) in detail list of measures improving the chemical status of GWBs:

- Completed in 2015 and the impact of which is expected by 2021 and
- Measures completed in 2021 and continuously.

### GWBs quality

#### Measures to reduce diffuse pollution

##### Measures to reduce groundwater contamination by nutrients from agricultural sources

These measures are mainly related to the Nitrates Directive and to the Regulation on the Common Agricultural Policy of vulnerable zones: specifically, on arable lands and orchards on WBs at poor status due to diffuse nitrate pollution. In Hungary Government Regulation

123/1997 (VII.18.) sets rules on the application and control of nutrient use in the protection zones of water resources.

### **Measures to reduce the pesticide pollution from agricultural sources**

Restrictions on the use of pesticides in the existing Hungarian legislation are appropriate, and it must be enforced especially on the drinking water resources protective zones.

### **Implementation of the Waste Water Treatment Program**

- Development of sewerage and sewage treatment as implementation of the Waste Water Treatment Program will continue using the financing mechanism of the Environmental and Energy Efficiency Operational Program (KEHOP-2.2),
- Establishing sewage network or individual wastewater treatment for agglomerations not currently included in the Waste Water Treatment Program.
- Improvement of the connection rate to the sewage network, especially on the drinking water resources protection zones.
- Reconstruction of sewage networks, especially on the drinking water resources protection zones.

### ***Measures to reduce of point source pollutions***

- Reduction of connections of rainwaters to the sewerage system, particularly in sensitive areas of surface and groundwater. This measure is particularly important on open karstic groundwater bodies, especially in the drinking water resources protection zones.
- Remediation of contaminated sites - According to authorities' data, in the TRB 24 contaminated areas effect drinking water hydrogeological protective zones, out of which the remediation of 23 is already completed, or is ongoing. In the area of endangered water resources the remediation of contaminated sites will be completed until 2021.
- Controlling and reducing disposal and emissions of pollutants related to mining activities – the review of explosion methods of limestone quarries.
- Establishment, maintenance and monitoring of new landfills of communal waste with appropriate technical protection, especially on hydrogeological protection zones of groundwater resources. The existing Hungarian legislation is appropriate; its enforcement has to be carried out.
- Elimination of illegal rubbish dumps, control and fining of dumping on the water resources protective zones. The existing Hungarian legislation is appropriate; its enforcement has to be carried out.
- Modernization of livestock holdings according to the EU Nitrate Directive. The farmers had to provide proper storage for the liquid and solid livestock manure on nitrate sensitive areas, until 22 December 2015. Measures: construction of appropriate manure storages, control of the implementation, and monitoring of sites. Financing mechanism: Rural Development Program resources.
- Measures to control, reconstruct or eliminate improperly constructed wells - inventory of unauthorized wells, modification of legislation.

### **GWBs quantity**

#### **Controls (register, review, modification and authorisation) of groundwater abstraction**

- Detailed modelling to determine quantitative limits on groundwater extraction
- Review of water abstractions

**Exploration of alternative groundwater resources-** Review of perspective drinking water resources



**Modification of the excess water drainage system, restoration of the base flow ecological flow, modification of the drainage system.** Modification of the drainage systems over shallow porous water bodies of the TRB is necessary. Development of multi-purpose water management systems, halting the decline of groundwater levels. Financing mechanism: Environmental and Energy Efficiency Operational Program (KEHOP-1.3.0).

**Water retention measures on arable lands to increase infiltration and reduce runoff.** It is particularly important in settlements located on karstic water bodies.

**Regulation of recharge augmentation of groundwaters**

**Regulation of abstractions due to mining and use of water** – Utilising a higher proportion of mine water extracted for dewatering two lignite mines: as drinking water, as ecological flow, or for other water supply purposes.

**Specific measures to improve the status of nature protection areas, including special regulation of abstractions, impoundments and water supply systems to meet the needs of nature conservation.**

**Serbia**

According to data and information reported by Serbia there are no changes in GWBs status assessment for all 14 GWBs, so the programme of measures for this planning period remains the same. For the 7 deep GWBs that are in risk of exceeding good quantitative status still the same measures are in place. Statistical overview is presented in the Table II.4 and Figure II.8 and Figure II.9.

*Table II.4: Groundwater quality and quantity status assessment/measures in Serbia 2010/2017*

GWB Status/Measures		RS 2010		RS 2017	
		GWBs	measures	GWBs	measures
Quality Status	good	14	-	14	-
	poor	-	-	-	-
Quantitative Status	good	7	-	7	-
	poor	7	7	7	7



*Figure II.8 Number of measures per GBW's quality status assessment changes from 1st ITRBMP (2010) to draft updated ITRBMP (2017) in Serbia*

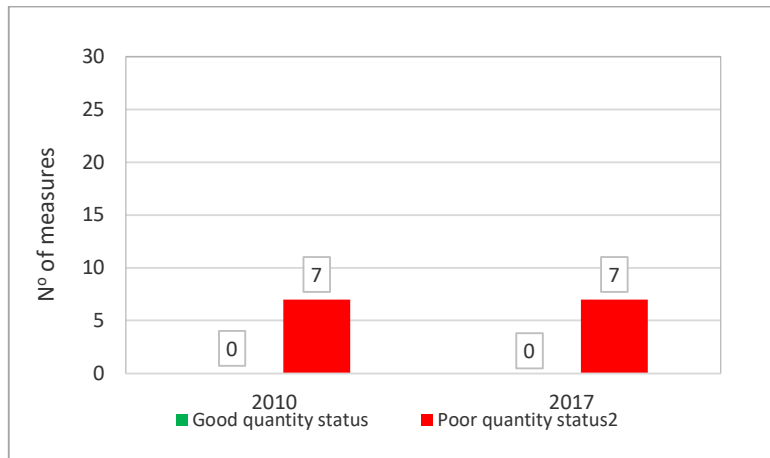


Figure II.9 Number of measures per GBWs quantity status assessment changes from 1st ITRBMP (2010) to draft updated ITRBMP (2017) in Serbia

## 3 TRB integration - horizontal measures reported (by 2021)

In addition to horizontal measures included in Updated ITRBMP Table VII.3 The horizontal measures relevant for TRB reported by TRB countries are presented. TRB countries additional information

### Ukraine

**International coordination** implementation is on-going at the level of the Plenipotentiaries with neighbouring Tisza countries as well as in frame of ICPDR. The list of agreements is as follows:

- Agreement between government of Ukraine and government of Slovak Republic on issues of water management in boundary waters – June 15, 1994
- Agreement between the Government of the Republic of Hungary and the Government of Ukraine on water management issues related to frontier waters – November 11, 1997
- Agreement between the Government of Ukraine and the Government of Romania on co-operation in the field of water management on transboundary waters – September 30, 1997.

With respect to **incentives** Ukrainian part of the Tisza is by two-thirds is mountainous, so existing land plots which could be used for agriculture are highly valuable. However, at present, there is no legal scheme of long-term compensation to land users. At present, there are three potential projects on dry polders, which can be implemented if long-term compensation schemes become operational:

- Planned dry polder in Borzhava valley in village Bereznyky (Svalyava rayon). It was not implemented because of the denial of land owners to provide land for the polder.
- Planned dry polder at Irshavka in village Zagattya (Irshavsky rayon). It was not implemented because of the denial of land owners to provide land for the polder.
- Planned dry polder at Chetfolvo-Vary. It was not implemented because of the denial of land owners to provide land for the polder.

**Communication and consultation:** In 2017, the Ministry of Ecology and Natural Resources of Ukraine adopted the order “On Approval of the Standard Regulation on the Basin Councils”. Now it is planned to establish the basin councils and to start conduct relevant consultations.

## Romania

**International coordination:** Participation of Romania to the works of the International Commission for the Protection of the Danube River (ICPDR) mainly is achieved through permanent Expert Groups (EG) and task groups in place, that are respectively coordinated by a technical expert from the ICPDR Secretariat. Under ICPDR umbrella, it is facilitated cooperation between the Romania and the Danube countries on issues requiring transboundary coordination, cooperation with other international organizations where appropriate, coordination platform for the basin-wide implementation of the EU Directives (mainly WFD, Flood Directive). Also, in 2004 the representatives of the five Tisza countries (Ukraine, Romania, Slovakia, Hungary and Serbia) signed the Memorandum of Understanding to develop a River Basin Management Plan for the Tisza River. This plan supports sustainable development of the region. The Tisza countries agreed to prepare a sub-basin plan called Integrated Tisza River Basin Management Plan (ITRBM). This plan has been approved in April 2011 and integrates issues on water quality and water quantity, land and water management, floods and droughts. Romania has **signed bilateral agreements** with neighboring countries, both before and after the Water Framework Directive (WFD) publication. The EU WFD requires more intensive international cooperation and concrete improvements in terms of water status. There are in place bilateral agreements addressing water management with the neighboring countries (HU, BG, RS, UK and MD) with bilateral Commissions and sub-commissions and groups on specific issues, mainly related to water quality, flood and ice defense, water resources management and hydrometeorology, and river basin management. The collaboration with Republic of Serbia is based on the “Agreement between Popular Republic of Romania and the Federative Republic of Yugoslavia regarding the hydraulic problems on hydraulic systems and rivers on the border or crossed the by state border” signed in Bucharest on April 7, 1955. Presently, there is under negotiation the new agreement text between the Government of Romania and Government of Republic of Serbia regarding cooperation in the transboundary waters sustainable management field. In 1997 the Government of Romania has signed a “Bilateral agreement with the Government of Ukraine on cooperation in transboundary waters management field”. This agreement has signed in Galati and was ratified in 1999. In 2003, the “Agreement between the Government of Romania and the Government of the Republic of Hungary on cooperation for the protection and sustainable use of the border waters” was signed. This agreement promotes cooperation between the two countries for the protection and sustainable use of transboundary rivers and groundwater bodies and also for aquatic ecosystems protection. The transboundary waters agreements developed by Romania with its neighbors are based on integrated water management principles promoted by the WFD and its daughter directives. Therefore, besides the achieving of environmental objectives required by the WFD, the bilateral agreements contain important aspects related to: information and data exchange for the integrated water resources management, water resources management during floods and droughts, development of bilateral projects which are equally implemented by the states, coordinated development and operation of water management infrastructure both for ensuring the necessary water resources and for the floods protection.

**Incentives:** Regarding the development of appropriate long-term compensation schemes, financial compensation is granted from the state budget in case of flood control breaches through a Governmental Decision.

**Communication and consultation:** Public participation and consultation activity (generally defined as public involvement in decision-making in the planning process) is based on methodological guidance

developed at national level through the adaptation of the "Public Participation" Guide developed within the Joint Implementation Strategy of the WFD and the Public Participation Strategy for the Danube River Basin District, a strategy endorsed by the ICPDR in June 2003. The main pillar for consulting and informing the public at the basin and local level is represented by the River Basin Committee, which operates on the basis of a Governmental Decision (Government Decision No 270/2012) and which includes all stakeholders, water users and NGOs, relevant at river basin level.

## Slovakia

**International coordination:** Continuation of this measure is based on Memorandum of Understanding signed by all ministers during ministerial meeting held in Ukraine on April 11, 2011. In the MoU the relevant ministers expressed wish to continue in cooperation towards the implementation of the Integrated Tisza River Basin Management Plan supporting the sustainable development of the region.

**Incentives:** Compensation schemes for land owners in the event that their land is used for wider water management purposes, such as flood protection, improving natural values, water retention are not in place. Proceed according to current legislation

**Communication and consultation:** The cross-sectorial working group for definition of NiD vulnerable zones was established.

## Hungary

International coordination: - Continuation of this measure is based on Memorandum of Understanding signed by all ministers during ministerial meeting held in Ukraine on April 11, 2011. In the MoU the relevant ministers expressed wish to continue in cooperation towards the implementation of the Integrated Tisza River Basin Management Plan supporting the sustainable development of the region.

### **Incentives**

**Planning ongoing:** Compensation schemes for agricultural land owners implementing WFD related measures (e.g. buffer zones, reduction of fertilizer use, water retention, etc.)

**Implementation is ongoing:** Horizontal measures/incentives are in the HU RBMP 2015 as follows:  
Technical measures (land use changes, NWR):

- Restoration and/or enlargement of floodplains by land-use changes
- Water supply to oxbow lakes, sidearm or wetlands on the floodplain
- Change of the cropping pattern (conversion of arable land into grassland, forest or wetland)
- Drinking water protection measures beyond the regulation (alternative solutions, land-use change, encourage good practice, arrangement with land-users)
- To reduce sediment and contaminant leaching with grassing, planting trees, terrace for sloping areas, infiltration surfaces, constructed wetlands, isolation
- Modification of the excess water drainage system
- Modification of the irrigation system
- Control of water discharges from valley dammed reservoirs
- Modification of water allocation to ensure ecological flow
- Water retention measures on arable lands to increase infiltration and reduce runoff
- Water retention with reservoirs in hilly areas (storm water reservoirs on creeks or in permanent reservoirs)
- Water retention with reservoirs in plain areas or in the excess water drainage system by impoundments at bay-like widened sections
- Measures to improve quantitative status of waters in line with the EU Natura 2000 Directives

- Specific hydro-morphological measures to improve the status of nature protected areas, including special regulation of abstractions, impoundments and water supply solutions to meet the needs of nature conservation.

*Administrational measures:*

- Controls (register, review, modification and authorisation) of fresh surface water abstraction and impoundment
- Supplementary regulation of water uses (e.g. termination, legalization of illegal water abstractions).

*Technical efficiency measures:*

- Water efficient methods of crop production (type of crops, irrigation technology, energy efficiency)
- Reduction of technological and network losses
- Use of water-saving devices
- Water-saving solutions for industrial water supply
- Measures for time shared allocation of surface water resources - committed resource shared in time
- Measures for new allocation of surface water resources - institutional development to establish trading market for water resource quotas.

*Economic measures:*

- Measures to implement the cost recovery principle for water services from households
- Development of reconstruction financing strategy for Water Utility Services
- Development of the institutional and financial (fee regulation) framework for rainwater harvesting in urban areas
- Review of regulation on water resources fee (VKJ) to provide adequate incentives for users in all sectors to use water resources efficiently
- Institutional reform of the water allocation system to ensure resource costs recovery
- Measures to implement the cost recovery principle for water services in agriculture - regulation on fees of water allocation for agriculture
- Development of incentives pricing for stormwater management (drainage system).

*Measures on advisory possibilities, research:*

- Advisory services on water-saving cultivation methods, irrigation
- Research, development, innovation.

*Monitoring measures:*

- Improvement and operation of monitoring and water information systems
- Review of plans for self-monitoring, enforcing self-monitoring.

The above listed measures are taken into account by projects generated on the Tisza catchment. All measure types are ongoing at the end of 2021.

**Completed** Compensation schemes for agricultural land owners - implementing protection measures in Natura 2000 areas (many of the water related)- operating within the area of emergency reservoirs.

**Communication and consultation:** Horizontal measures are consulted in cross-sectoral working groups with agriculture, and nature protection.

## Serbia

Regarding **international coordination** Republic of Serbia is involved in all activities within the ICPDR Tisza Group and all other ICPDR expert groups. Bilateral cooperation between Republic of Serbia and neighboring countries in the TRB (Hungary and Romania) exists more than 60 years:

- **Bilateral cooperation between RS and Hungary** is based on the Agreement between the Government of the People's Republic of Hungary and the Government of Federal People's Republic of Yugoslavia on water management issues, signed in Belgrade in 1955. The Agreement binds the parties thereto to review and jointly resolve all issues, measures, and activities related to flood and ice control; obligates coordinated management and operation of structures and equipment; requires the Committee, set up pursuant to the Agreement, to generate joint flood and ice control rules. In 1998, the Committee adopted new Rules for external and internal flood and ice control related to border or cross-border watercourses and hydro-technical systems in sectors of joint interest to RS and HU, as well as rules on hydrologic cooperation, which also has an important function in the domain of flood control. The new bilateral agreement based on fruitful past cooperation and EU legislation is in preparation.
- **Bilateral cooperation between RS and Romania** is based on the Agreement between the Government of Romania and the Government of the Federal Republic of Yugoslavia on hydro-technical issues from the hydro-technical systems and watercourses on the boundary or crossing the state boundary, signed in Bucharest in 1955. The parties agreed to review and jointly resolve all issues, measures, and activities related to flood and ice control; each party on its territory and the parties jointly along the border should adequately maintain riverbeds, hydro-technical systems, structures, and installations etc. The Joint Flood Control Rules for border or cross-border watercourses and hydro-technical systems were approved in 1971. Timely dissemination of hydro-meteorological information of significance for flood and ice control, as well as information on flood control phases and any accidents, is also an obligation under the Joint Flood Control Rules. The new bilateral agreement based on fruitful past cooperation and EU legislation is in preparation.

## 4 TRB Integration measures: solid plastic waste TRB countries additional information

### Ukraine

#### *Education and awareness raising measures*

Such measures are conducted permanently, also with the Danube Day.

#### **River clean-up actions to installing collection and recycling facilities**

Zakarpattya has **Strategy of Waste Management** developed: which envisages separate collection, sorting and waste recycling. The strategy proposes that the 13 rayons in the Oblast are divided into four distinct sub-regions (Uzhgorod, Mukachevo, Vinogradiv, and Tiachiv) because the sharing of waste management facilities is the most efficient approach. The technological basis for the strategy can be summarised as:

- Organised municipal waste collection on the territory of the whole region;
- Construction of four regional landfills in Uzhgorod, Mukachevo, Vinogradiv, and Tiachiv rayons;
- Construction of two transfer stations in Mijgirya and Rahiv rayons;
- Separate collection of recyclable waste will be organised in all main settlements in all main settlements of the districts, and in settlements with population exceeding 3000 residents;

- Four sorting facilities will be established in Uzhgorod, Mukachevo, Vinogradiv, and Tiachiv which will receive the separately collected waste. An additional glass sorting line is envisaged at the sorting facility in Uzhgorod where separately collected glass waste will be treated according to the demands of glass recycling plants; and
- The progressive establishment of centralised composting sites in every district.

**The strategy proposes that an inter-municipal association is formed at the regional level for managing the new waste management system and, indeed, for coordinating waste management activities throughout Zakarpattya Oblast.** The total investment cost of the proposed waste management options over a 14-year investment period (2013-2026) is UAH 1,261 million. This is equivalent to UAH 255/tonne of the total waste generated over this period. The operational costs rise from UAH 26 million in 2014 to 104 million in 2026. The operational cost cash flow is equivalent to UAH 262/tonne of waste generated over the assessment period. At present, there are 44 centres of separate collection of recyclables (paper, PET, glass and metal), but they do not cover the whole territory of the Oblast. Also there are no centres of hazardous waste collection (batteries, lamps etc.). In Yanoshi (Beregivsky rayon), at present the plant on sorting and mechanical processing of solid communal waste with the capacity 20 thousand per year, which makes 70% from the total amount of waste, generated in the rayon. Planned actions:

- At present, a new scheme of planning of Beregivsky rayon is planned, where new zones of landfills will be planned.
- In 2018-2019 it is planned to construct waste processing plant in Pistryalovo village (Mukachevo rayon).
- There are also discussions to construct a plant to conserve, sort and recycle (without right to burn) in Tyachiv.
- There is a feasibility study on construction of waste sorting plant with the capacity up to 100 tons per year.

However, at present no funding is envisaged for it. Moreover, a new national waste management strategy is being approved and most probably, Zakarpattya Waste Management Strategy should be revised and amended according to the new national Strategy.

## Romania

- Under the umbrella of public participation, the ICPDR pursues a range of activities. These include also environmental education, awareness raising and outreach. Also at national, basin and local level there many projects, campaigns and activities done by the authorities and NGOs addressing people, especially children having as main objective the education and awareness on waste (including plastics) and the value of the clean water for environment and human health. For example, **national and local events are organized under the umbrella ICPDR slogan “Get active for a cleaner Danube!”** which symbolizes the importance of the public involvement in the Danube River basin protection and conservation, at different locations, in all Romanian river basins. Through the River Basin Committees, there are organized special dedicated meetings for Danube Day and Water Day celebrations. Another important campaign is “Let’s do it!”, where yearly the NARW its River Basins Authorities together with other local authorities and NGOs organise clean up actions along the water courses.
- Within the activities carried out by the National Administration “Apele Romane” (NARW), the activity of maintenance of water courses is periodically carried out in the minor river beds, in the established perimeters of the river and reservoirs and those related protected zones. This activity includes a set of measures and engineering works in order to ensure the stability of the river beds, **but also to ensure the sanitation of the water stretches by cleaning the solid – plastic waste. In case of reservoirs, according to the regulation provisions and operational**

***rules of the reservoir, approved by NARW, the administrator of the reservoir has the responsibility for the management of the wastes that has reached the surface of the lakes, thus having the obligation to take all measures for their collection and disposal.***

- In Romania there is in force specific national legislation related to implementation of the preventive measures for reduction of the generated waste quantities, such as: Law no. 211/2011 on wastes regime with further amendments, Law no. 249/2015 concerning the management of the packages and waste packages, Ministerial Order no. 1281/ 2005 regarding the establishment of the ways to identify the containers for different types of wastes in order to apply the selective wastes collecting. According to national legislation the measures for selective wastes collecting, including the solid plastic wastes, and compliant disposal and recycling of the wastes can contribute to reduction and limitation of water pollution with solid plastic wastes and micro-plastics. Also the National Strategy for Waste Management, the National Plan for Waste Management and regional and local Plans for Waste Management are the basis planning for the implementation of the EU waste management policy in Romania. There are included action plans with specific activities and measures planned for the 2018 – 2025 period such as: increasing the national selective collection level to 52% until 2020, building compliant waste disposal facilities and closing the non-compliant ones, increasing the number and capacities of the waste sorting and treatment facilities etc.

## Hungary

After joining the EU in 2004, Hungary made significant efforts and developed good practices for the protection against solid waste pollution. The country established waste collection facilities and initiated campaigns and rallies for manually collecting plastic bottles and other solid waste.

Regional waste management systems were composed to manage the waste collection facilities in the areas of small settlements and selective waste collection was introduced in towns and villages along the Tisza River.

***Education and awareness raising measures*** Education and awareness raising process is ongoing on multiple channels. State supported actions like “TeSzedd!” (‘Collect Yourself!’ <http://szelektalok.hu/teszedd/>) and civil actions like PET Kupa (PET Cup - <https://petkupa.hu/eng/>) as best practices contribute to a better ecological status of rivers and their environments.

As an example, 190 000 participants collected 2 857 tons in the 4 days-long ‘TeSzedd!’ action in 2016, and the PET Cup of 2018 resulted in 10 tons of solid (plastic) waste collected on the Tisza floodplain. The Hungarian Ministry of Foreign Affairs and Trade as EU Strategy for the Danube Region Priority Area 4 (Water quality) and 5 (Environmental risks) coordinator organized an international roundtable discussion during the Danube Day in 2018. On the 6<sup>th</sup> PET Cup in 2018 the Ministry also financed the participation of the JOINTISZA international boat, which won the plastic waste collection race. The success of the crew (composed by experts from 8 countries of 4 continents) not only made the PET Cup international, but it was reported among others by the United Nations Environment Program on its [webpage](#). EUSDR PA4 experts also participated the Danube Day 2018 event in the Transcarpathian Region to raise awareness.

The National Federation of Hungarian Anglers (MOHOSZ) as a key-actor pays a great attention to fight against littering in the riverbanks’ area.

### ***River clean-up actions to installing collection and recycling facilities***

***In the Upper-Tisza region several hundred waste dumps and illegal landfills are mapped containing several million tons of waste that poses a risk on downstream countries like Hungary. In Hungary no solution, but only symptomatic treatment can be done with the collection of the waste transported through the border following heavy rainfalls. After floods, solid plastic waste is***



accumulating on the floodplain area (deteriorating the environment of Ramsar sites and National Park areas) and at dams. Regional water management directorates, as territorial state agencies are responsible for collecting the waste from rivers, from riverbanks' areas and from floodplains of their operational areas. Nevertheless, their human capacities and financial resources are limited to tackle the present amount of waste transported by the Tisza River. 69 of such harmful events were reported between 2004 and 2017. Since 2004 the 50 bottle/min pollution intensity was exceeded 35 times along the Tisza, 12 times along the Szamos and 1 time along the Kraszna rivers.

In the Hungarian Upper and Middle Tisza Region thousands of working hours were spent to collect the waste arriving mostly from the upstream countries. The amount of the collected waste in 2017 was more than 3000 m<sup>3</sup>. After a selective way of waste collection, the greatest part of the waste was transferred by different technologies of recycling.

Because the Hungarian government did not expect short-term changes in transboundary solid waste pollution the plastic waste issue has recently been addressed by a government decision of 2117/2017. (XII 28.). The Government Decision is focusing on the management of municipal waste arriving from the Upper Tisza and ensures the funds to the related investment planning.

The first Hungarian microplastic monitoring campaign was carried out in 2017 along the Tisza river providing baseline data on the related pollution.

In 2018 it is planned to establish a complex waste treatment system for PET bottles removal. The system consists of monitoring stations in Ukraine; on board thermo camera; waste introduction technique with ships; temporary storage and disposal. Based on a consent of the Hungarian and Ukrainian Governments the establishment of 4 stations would come true by end of 2019. The development costs around 4 million €.

## Serbia

- **Implementation is ongoing** - Waste management law (Official Gazette of the RoS 88/10), National Strategy for waste management for the planning period 2010 – 2019, Environmental protection Law, relevant bylaws and polices, regional and local plans for waste management development, etc.
- **Completed** – "Let's Clean Serbia", initiated by the Ministry of Environment and Spatial Planning (started in 2009 and terminated in 2012). Among the other activities, clean up of the rivers and streams banks and installing of the containers for the plastic waste collection, particularly in rural areas along the rivers and streams, were accomplished within the Serbia. In addition, the intensive awareness campaign was run at the national level.

## 5 TRB integration measures: draught and water scarcity TRB countries additional information

### Ukraine

**Collection of more precise information on irrigation and groundwater depletion is needed on the future uses:** because of permanent reorganization of the geological service in Zakarpattya Oblast, reforms in agricultural sector and lack of coordination and reporting of the groundwater users, there is no system of the monitoring of groundwater depletion. In the past, each user needed to fill a special reporting form on groundwater use 7 GP, but it was cancelled. The reporting of the water used for irrigation is provided only by water users, who applied for the special water use permit, whereas the majority of individual farmers do not provide any reporting.

***With respect to Changes in agricultural practices the following have been started:***

- Shift to drop irrigation;
- Scientific approach to land use (analysis of soils, introducing organic fertilizers, surveys of groundwater levels);
- Installation of automatic hydrometeorological warning stations to protect the harvest against unfavourable weather conditions (significant precipitation, hails), in frame of bilateral agreement on transboundary water management and cooperation with HU regional water administration (FETIVIZIG);
- Restoration of gardening and vineyards;
- Early vegetables growing;
- Agricultural tourism;
- Growing of exotic animals (ostriches, deer, quails), exotic fruits kiwi (Storozhnitsya); persimmons (Kholmovets) and restoring of traditional animal husbandry (water buffalo and sheep breeding); and
- Organic agriculture.

***Reduction of leakage rates***

The current leakage rates are high because of outdated infrastructure. The worst situation is with Mukachevo WWTP, where water losses are up to 70%. The Ukrainian standards adopted during Soviet Union were as follows: 30% of leakage is acceptable.

At present, with new policy of the water pricing (significant increase) the measures are being developed to reduce leakages and relevant financial losses. To solve these problems the EUSDR Priority Area 4 (To restore and maintain the quality of waters) has worked on it since 2015.

***Improving irrigation efficiency***

The efficiency is increased due to the fact, that more and more farmers use drop irrigation.

**Romania**

- Related to ***Establishment of common indices to define droughts***, at the national level, NIHWM's research into drought phenomena consists of documenting, analyzing and interpreting hydrological data on low flows, reviewing and establishing of certain indicators for the assessment of the severity degree of hydrological drought. Studies emphasize the adoption of indicators most appropriate to the areas surveyed, as well as to the fact that drought indicators are not an end in themselves but a means of identifying, analyzing and evaluating drought.
- Studies about the knowledge of the ***low flow parameters*** and, implicitly, the study of hydrological drought events have always existed within the NIHWM, however, in the case of ***multi-scalar drought indices approach***, research studies have been carried out since 2011. Until now, the methodology for assessing hydrological drought events based on multi-scalar indices and the methodology regarding low flow indicators have been applied on several river basins (sub-units) located in Romania. In the TRB, the methodologies have been applied at Crisul Alb river sub-basin. Becoming a basic requirement for many issues in hydrology, ecohydrology and water resources management in the context of climate change, a preliminary assessment of the hydrologic drought phenomenon based on a multi-scalar drought index and low flow indices was made in 2017 for the 57 hydrometric stations on Romanian rivers (national level) over the period 1970 - 2015. Both of the drought indices and low flow may constitute a starting point to elaborate good quality studies for low flow management and drought prevention, e.g. guidelines for the management of low flow and drought prevention.
- ***Related to the water scarce areas identified for the Tisza Basin***, within the National Institute of Hydrology and Water Management a research study (Identification for national main potential of water scarcity areas in the current regime and the perspective of climate change)

was done in 2015. Based on the analysis of the multi-annual average water volume and the water surface evaporation it was concluded that for the RO part of the TRB, the water scarcity is not a major issue.

■ **Regarding the precise information on irrigation, groundwater depletion and Improving irrigation efficiency:**

- Within its activity NARW pursues the water demand, abstraction and discharge at the level of each river basin. Yearly the water balance is carried out at the level of each river basin and structured based on population, industry, agriculture (including irrigation) and energy. Water abstraction and discharge is monthly assessed and registered at the level of each water user from each river basin. According to the economic and financial mechanism in water management field a contribution for using the water resource is applied for each water user (including irrigation) based on abstracted water volume.
- According to the "National Program for the Rehabilitation of the Main Irrigation Infrastructure in Romania", rehabilitation of the main irrigation infrastructure is being pursued, which will lead to an increase of the efficiency of the pumping stations, elimination of the losses of water through infiltration from the irrigation channels. Investments in secondary irrigation infrastructure in line with the *Irrigation Investment Strategy* are envisaged. The provisions of the National Irrigation Infrastructure Rehabilitation Program of Romania, are included in River Basin Management Plan, contributing in this way to water saving and lowering the costs associated with water consumption
- The water policy in terms of irrigation from groundwater is to not authorize for this purpose abstraction from deep aquifers due to the strategic character of this resource. Regarding the depletion of groundwater, the impact on the quantitative status of the related WB is assessed each time when a new user requires a permit in this way.

■ **The changes in agricultural practices** applied at the national level are included in the national „Guideline on good agricultural practices for mitigation of the climate changes effects on agriculture” approved by Ministerial Order no. 1170/2008 with further amendments ([http://www.icpa.ro/documente/ADER%20511\\_ghid.pdf](http://www.icpa.ro/documente/ADER%20511_ghid.pdf)). The guideline contents measures to mitigate the climate changes effects on agriculture related to land uses, crops, water uses in agricultures, soil fertilization, animal breeding, and uses of renewable green energy in agriculture. Also as results of the World Bank project “Romania Climate Change and Low Carbon Green Growth Program” (co-financed by the European Regional Development Fund, [www.opera-clima.ro](http://www.opera-clima.ro) ) there were planned certain measures on adequate climate-resilient policies and adaptation measures taken for agriculture sector based on diagnosis analysis and modelling of the measures effects. Most of the measures will be implemented until 2021 and these refer to: rehabilitation and modernization of irrigation systems, encourage windbreaks and soil management to reduce soil erosion, promoting renewable energy sources, promoting crop rotation and organic farming, improving good farming practices, improving awareness of climate change and the need for adaptation and strengthening policy and institutional capacity to support the implementation of the measures.

■ **Reduction of leakage rates** consist in supporting the implementation and assuring the necessary investments in the public water services sector in order to reduce the water leakages by transport and distribution of drinking water. In present the rate is around 50% (maximum) and until 2025 is planned to be reduced to 20-25%. Also the irrigation systems need rehabilitation for reduction of the water leakages having in view the protection and non-deterioration of the quantitative status of the water bodies. For the next European financial period (2014-2020) it will be financed the investments in irrigations according to requirements of art. 46 of the Regulation 1303/2013 on support for rural development by the European

Agricultural Fund for Rural Development (EAFRD) and repealing Council Regulation (EC) No 1698/2005).

■ **Regarding Coordinated approach to water allocation and the application of economic incentives or tools such as water pricing:**

The economic and financial mechanism in water resource management field includes various incentive tools for:

- Ensuring rational consumption and sustainable water resource management;
- Reducing emissions of the pollutants in the water resources.

Legislative requirements regarding the allocation of the water resource for different users are based on:

- Calculation of water balance in characteristic sections in order to meet the water demand for all users (households, industry, energy production, irrigation, aquaculture) within the river basin, including the downstream users ;
- NARW applies a system of penalties and bonuses as specific incentives tools in the field of water use and quality protection of the water resource

Penalties are applied for:

- Exceeding the abstracted flow or volume provided in the regulations acts
- Exceeding in the restriction period of the abstracted flow or volume provided in the Water Restriction Action Plan
- Using the water resource in other purpose than it is provided in the Regulation act;
- Exceeding the maximum concentrations provided in the regulation.

■ **Regarding the methodologies used to establish national minimum ecological flows**

- Methodology for “Assessment of ecological flow” has been established based on CIS Guidance 31 Ecological flows in the implementation of the Water Framework Directive.

The Methodology is based on the following principles: defining the ecological flow according to the typology (mountain, hill, plain); the habitat need of the dominant fish species corresponding to each typology; natural dynamics of the hydrological regime taken it will be applied for natural WBs and HMWB. The application of the ecological flow rates established on the basis of the methodology will take into account both the technical feasibility and the socio-economic effect of the measure. In this context, the establishment and implementation of the measures will be based on a technical and economic analysis, taking into account the technical feasibility of the measures, as well as the analysis of the disproportionality of the costs related to the measures as part of the cost-benefit analysis.

- **Comparable national approaches to monitor and report groundwater abstraction to ensure the better management and regulation of groundwater resources:** in Romania all abstractions of groundwater for all kind of water uses are authorized and controlled from water management point of view, except abstractions less than 2 l/s used for individual drinking water purpose. **Also, within its activity NARW pursues the groundwater demand and abstraction at the level of each river basin. Yearly the water balance is carried out** at the level of each river basin and structured based on population, industry and agriculture.

## Slovakia

- Globally, Slovakia is taking part in DRIDANUBE project, which contributes to implementing Integrated Drought Management Programme (IDMP) in Central and Eastern Europe. In 2015 Slovakia joined Czech project Intersucho, which is aimed on monitoring different types of droughts. Slovak Hydrometeorological Institute developing our own system for monitoring

droughts, which uses three worldwide recommended indexes (SPEI, SPI and CMI). The surface water quantity in Slovakia is annually evaluated in balance profiles and results are published in the yearbook “Water balance of surface e water quantity”, which enables to get insight into water scarcity in some regions in concrete year. This also applies to groundwater.

- **Water balance** of surface water quantity in the network of balance profiles is evaluated (in average per year and also in monthly step) and published every year. In Slovak territory of the Tisza river basin there exist 52 balance profiles. The results are published in a yearly report “Water balance of surface water quantity”, which includes also a map. This also applies to groundwater.
- **Future water demand for irrigation** was estimated in the frame of Tisza Case Study on Agriculture and Water Management – Slovak Republic carried out in July 2012.
- Recently, in harmony with EC requirements, farming in **NiD vulnerable** zones in Slovakia was modified in national Fertilizer Act No. 136/2000 Coll. in wording of Act No. 394/2015 Coll. Additionally, in 2017 were revised also vulnerable zones (Governmental regulation No. 174/2017 Coll.).
- **Specific measure was not proposed.** This activity is carried out by water supply company and is ongoing based on available finances
- The Reconstruction of irrigation systems is/will be supported via RDP SR 2014-2020. Detail real situation is unknown. **Improving efficiency of irrigation system** depends on economic situation of the irrigators, price of irrigated water and available water. Improvement of irrigation efficiency is actual especially at orchards and vegetable production.
- **Allocation of water resources** is strictly coordinated at the national level in Slovakia. The water pricing policy has a long history and fulfils the role of economic tools as an incentive to use the water effectively in compliance with requirements of the Article 9 of the WFD.
- Respecting criteria of **minimum flow is obligatory** at permitting process for new constructions.
- No measures in respect to **minimum ecological flow** were proposed in national river basin sub-units situated in Tisza river basin.
- The national approach to **monitor and report groundwater abstraction** is regulated by the Water Act No. 364/2004 Coll.as amended. Abstraction of groundwater is paid above the stipulated limit 15 000 m<sup>3</sup> a year or 1250 m<sup>3</sup> a month.

## Hungary

- **Establishment of common indices to define droughts and to get a better insight of water scarcity across the Tisza Basin** Szeged University developed drought indices which are applied in the water management sector during growing season. Indices were developed to identify the water lack (HDIO index) (based on soil moisture and stress factor), the meteorological water lack (relevant for the given day), water stress index (that takes into account the effects on plants of extreme lack of precipitation and warm periods. The indices are calculated for predefined areas;
  - **Maps with water scarce areas identified for the Tisza Basin** based on the predefined areas actual maps can be prepared during drought. Long term maps are available;
  - **Collection of more precise information on irrigation and groundwater depletion is needed on the future uses:**
- IG: The study of 2014 is under revision. Results are expected for 2018.
- CO: Future irrigation water demand was assessed during 2014 with the aim to assess irrigation needs. Also, assessment of realization was done in a study, based on technical and water quantity aspects.
- **Changes in agricultural practices:** refer to horizontal technical measures in Chapter 3 Hungary
  - **Reduction of leakage rates:** refer to horizontal technical measures in Chapter 3 Hungary

- **Improving irrigation efficiency:** refer to horizontal technical measures in Chapter 3 Hungary, the reconstruction of irrigation systems is supported via RDP 2014-2020.
- **Coordinated approach to water allocation and the application of economic incentives or tools such as water pricing:** refer to economic measures in Chapter 3 Hungary, See economic measures above. Process is ongoing on multiple channels regarding agriculture sector.
- **Overview of the methodologies used to establish national minimum ecological flows to be prepared (to lead to agreement on comparable limits and approaches to managing low-flow situations):** Ecological minimum flows (e-flows) are established for all Hungarian RWBs. These e-flows are relevant only during extreme low flow periods. A series of e-flow values are to be established, depending on hydrological and biological conditions. for each month of the year.
- **Establishment of comparable national approaches to monitor and report groundwater abstraction to ensure the better management and regulation of groundwater resources:** the national approach to monitor and report groundwater abstraction is regulated by the law about water management 1995 LVII.

## Serbia

- **Establishment of common indices** to define droughts and to get a better insight of water scarcity across the Tisza Basin: included in the Serbian Water Management Strategy (2017)
- **Other relevant:** Study- Water resources balance in soil to analyse total water budget and define measures to combat droughts at the national level, for the whole territory of Serbia, and TRB share in country is included
- Collection of **more precise information on irrigation and groundwater depletion** is ongoing at the country level.

## 6 TRB integration measures: climate change

Based on ICPDR Climate Change Adaptation Strategy (2012), Climate change is scientifically confirmed worldwide, *inter alia*, by the Fourth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC)<sup>1</sup>. Despite ambitious international climate protection objectives and activities, adaptation to climate change impacts is urgently needed. Water, together with temperature, is in the centre of the expected changes. Due to the fact that water is a cross-cutting issue with major relevance for different sectors, water is the key for taking the required adaptation steps. In the Danube River Basin, climate change is likely to cause significant impacts on water resources and can develop into a significant threat if the reduction of greenhouse gas emissions is not complemented by climate adaptation measures.

Framework for CC adaptation integration in the Danube River Basin Management Plans and Integrated Tisza River Basin Management Plans, are EU WFD (and its daughter directives) and EU Floods Directive (2007/60/EC). However, other policies such as the Water Scarcity and Droughts EU Policy and the EC's White Paper on Adaptation are important building blocks for adaptation. In this chapter, short overview of the TRB countries activities that relevant for CC adaptation and water management are provided. In the updated ITRBMP measures presented here will be blended with other measures reported in JOINTISZA technical work packages (3,4,5,6) that are relevant for CC adaptation and integration measures within the TRB.

## Ukraine

The concept of implementation of the state policy in the field of climate change for the period till 2030 was adopted by the Cabinet of Ministers of Ukraine in 2017. According to this document, climate change adaptation strategy should be developed by 2020 and cover period from 2021 to 2030.

## Romania

Having in view the provisions of the EU Strategy on Adaptation to Climate Change, Romania elaborated the **National Strategy on Climate Change 2013-2020** (<http://www.mmediu.ro/categorie/schimbari-climatice/1>) which was approved by Governmental Decision no. 539/2013.

In 2015 there was finalized the **National Action Plan to implement the national strategy on climate change and economic growth based on low-carbon economy for the period 2016-2020** (<http://www.mmediu.ro/articol/mmap-pune-la-dispozitia-publicului-planul-de-actiune-2016-2020-privind-schimbarile-climatice/1126>), as result of project co-financed by European Fund for Regional Development and Operational Programme for Technical Assistance 2007-2013.

The strategies and action plan include adaptation orientation and type of measures on water sector at national, regional and local level, such as:

- Re-assessment of the water resources for all river basins and sub-basins under the context of climate changes:
  - Increasing the multi-annual regulating capacity of the river basins;
  - Limitation of the groundwater uses to water supply for households in the zones where the over-exploitations of the groundwaters can lead to an high drying up of the aquifers;
  - Increasing the water use efficiency in agriculture and implementation of technological measures for crop adaptation to drought and water scarcity;
  - Optimizing the land use management;
  - Extending the national forests fund (including forest buffers) and afforestation of the versants against propagation of the floods;
  - Reduction of the leakages on drinking water distribution network and on sewage network (from 50% to 20% in 2025) by developing and regionalizing the drinking water supply and sewerage systems, rehabilitation and re-design of the water and waste-water infrastructures;
  - Planning the activities at local and regional activities in order to cope with the periods with heat waves, etc;
  - Promoting the integrate informational system on climate change adaptation
  - Development specific researches on climate change adaptation as technical support for planning decision.

In the National Action Plan to implement the national strategy on climate change 2016-2020, the prioritization of the adaptation and mitigation measures included in the National Strategy of Climate Change were done according to the analyze of the benefits, costs and associated risks.

Thus, the priority mitigation actions are focusing on planning and implementation of the measures to reduce the greenhouse gases from the water and wastewaters sectors and increasing the energetic efficiency of the systems. Also the priority adaptation actions are oriented to the reduction of the flood risk and water scarcity.

A part of above actions and measures already started and it were included in the process of elaboration of the updated River Basins Management Plans. In the planning cycle these will be developed and integrated having in view the level of priority and availability of the data and information.

Within the Action Plan of National Climate Change Strategy there are foreseen action related to researches for achieving risk reduction of water scarcity objective. National Institute of Hydrology and Water Management is involved in research related to impact of climate change on water.

The studies reported by Romania that address CC adaptation included in the Romanian report on integration measures are included in JOINTISZA deliverable 4.2.1: TRB Report on water quantity.

Within the Action Plan of National Climate Change Strategy there are foreseen action related to researches for achieving risk reduction of water scarcity objective. National Institute of Hydrology and Water Management is involved in research related to impact of climate change on water.

In the last years, for various river basins in Romania, **a series of complex studies have been carried out on the estimation of the impact of climate change on water resources and on the maximum flow in the analyzed basins. The used methodology was based on the following stages: Hydrological model selection; Hydrological model calibration; Establishment of the climate change scenario; Long-term flow simulation using the hydrological model; Analysis of the study results.**

The study of the effect of climate change on water resources and on maximum discharges in a river basin was based on two long-term hydrological simulations, each for a period of 30 years, the first simulation being carried out for the reference period 1971÷2000 and the second for the next period 2021÷2050.

The input data in the hydrological model were the precipitation and temperature series resulting from the processing of data obtained from climatic simulations using the REMO regional model (simulations that are available in National Institute of Hydrology and Water Management (as a result of the FP6 CLAVIER Project collaboration). To estimate the effect of climate change on water resources, the flow simulation at monthly time step was done using the WatBal hydrological model. This model consists of two main components. The first is the water balance component, which uses continuous functions to describe water movement in a conceptualized river basin and the second one is the component that allows computing of the potential evapotranspiration using the Thornthwaite method.

**The methodology used was applied to 20 river basins in Romania: Vișeu, Iza, Tur, Someș, Mureș, Timiș-Bega, Bega-Veche, Bârzava, Moravița, Caraș, Nera, Radimna, Berzasca, Cerna, Jiu, Olt, Vedea, Argeș, Ialomița and Siret, the surface of which represents 71.63 % of the of the Romanian territory. Some of them are located within the TRB (Vișeu, Iza, Tur, Someș, Mureș, Bega, Bega-Veche).**

Discharge series, with a monthly time step, resulting from the two long-term simulations, were analyzed comparatively in order to identifying the changes in the monthly, seasonal and annual discharge regime.

To estimate the effect of climate change on maximum discharges, the flow simulation at 6-hour time step was done using the CONSUL hydrological model. This deterministic mathematical model allows simulation of flow in both small and large complex river basins, which are divided into homogeneous units (sub-basins). The model allows the calculation of flow hydrographs on sub-basins, their routing and composition on the main river and tributaries.

**The methodology used was applied to 8 river basins in Romania: Crișul Repede, Crișul Negru, Crișul Alb, Mureș, Jiu, Olt, Ialomița and Siret, the surface of which represents 53.0 % of the Romanian territory. Four river basins (Crișul Repede, Crișul Negru, Crișul Alb and Mureș) are located with the RO part of the TRB.** Discharge series, with a 6 hours' time step, resulting from the two long-term simulations, were analyzed comparatively in order to identifying the changes in the maximum monthly, maximum multiannual and maximum with different probabilities of exceeding, as well as the distribution of annual maximum discharges over the year. Another research study mentioned in the Action Plan of National Climate Change Strategy and performed with the National Institute of Hydrology and Water Management is "Identification for national main potential of water scarcity areas in the current regime and the perspective of climate change". Some details are presented Chapter 5 – Drought and water scarcity measures (by 2021) - Maps with water scarce areas identified for the Tisza Basin.



## Slovakia

In Slovakia an ad-hoc inter-ministerial working group has been established with the aim to develop – National adaptation strategy on climate change. The ad-hoc WG coordinates Ministry of the Environment of SR. Last update 2014. Next planned update 2018.

The measure : **STATUS OF CLIMATE CHANGE ADAPTATION STRATEGIES AND GUIDELINES AT NATIONAL LEVEL** (status of the adaptation process) includes the analysis and assessment of possible climate change impacts on different sectors in Slovakia was dealt within the project "Climate Change Impacts and Possible Adaptation Measures in Different Sectors" (Dôsledky klimatickej zmeny a možné adaptačné opatrenia v jednotlivých sektoroch), implemented in 2009 - 2011. The output of the project is the final report that contains the analysis and the proposal of appropriate adaptation measures including economic analyses of potential impacts on GDP and employment. The Slovak Republic also has a wide range of sectoral strategies and action plans addressing the adaptation issues, but they do not take sufficiently into account the mutual synergies and cross-sectoral aspects. The first more comprehensive document in this field, which attempts to link the scenarios and possible climate change impacts with the proposals of appropriate proactive adaptation measures in the widest possible range of fields and sectors, is **THE STRATEGY ON ADAPTATION OF THE SLOVAK REPUBLIC TO THE ADVERSE EFFECTS OF CLIMATE CHANGE" (STRATÉGIA ADAPTÁCIE SR NA NEPRIAZNIVÉ DÔSLIEDKY ZMENY KLÍMY) APPROVED IN 2014 THE SLOVAK GOVERNMENT RESOLUTION NO. 148/2014. THIS DOCUMENT WAS UPDATED IN 2018.** The strategy considers the following to be a priority:

- dissemination of information and knowledge on adaptation issues at all levels of governance as well as for the general public;
- strengthening the institutional framework for adaptation processes in the Slovak Republic;
- preparation and development of comprehensive risk assessment methodologies regarding the climate change from the national to local level; development and application of methodologies for economic assessment of adaptation measures of macroeconomic impacts;
- development and implementation of a tool for the selection of investment priorities based on the assessment of the cross-sectoral aspects of adaptation measures.

Adaptation planned in the field of water management includes the following:

- for floods - measures to: reduce runoff from the river basin, reduce the maximum flood discharge, risk assessment;
- for droughts - measures for reasonable use of water resources;
- monitoring.

## Hungary

***Status of climate change adaptation strategies and guidelines at national level (status of the adaptation process):***

As a result of the review of the first Strategy (2008) in 2013 the draft second National Climate Change Strategy for 2014-2025 with a vision for 2050 was developed. It is currently still under the approval process of the Government. Based on the Paris Agreement necessary revision and amendment was carried out on the document.

***The second National Climate Change Strategy*** contains among others the National Adaptation Strategy which aims to reduce risks related to climate change and climate security, to mitigate damages and to present potential awareness raising activities concerning climate change preparation and adaptation.

**Water-related action lines in the Strategy:**

- Short-term: water retention measures, actions resulted from WFD, review of land use, water-saving irrigation and water uses, reduction of flash flood risk, in-depth analyses of changing water regime and hydrology, risk mapping of flooding, wastewater management, development of adaptation measures, indicator systems;
- Mid-term: water retention in water management, flood plain landscape management, navigation under changing climate, prediction of water demands, developing monitoring systems, reaching good qualitative and quantitative status of waters by 202;
- Long-term: full integration of CC adjusted water management in international cooperation and foreign policy.

## Serbia

Serbia *is involved in development of the strategies and guidelines under the ICPDR auspices.*

Climate change adaptation programme was developed under the Initial Nation Communication of the Republic of Serbia (submitted to the UNFCCC in 2010).

In addition, South East European climate change framework action plan for adaptation was adopted in November 14, 2008. through Joint Statement signed by the Ministries responsible for environment of the Republic of Albania, Bosnia and Herzegovina, the FYR of Macedonia, Montenegro and the Republic of Serbia. In the Republic Hydrometeorological Service of the Republic of Serbia Virtual Regional Climate Change Center for adaptation was established by the Join Statement.

UNESCO Category 2 Centre: "Water for Sustainable Development and Adaptation to Climate Change", located at the "Jaroslav Cerni" Institute for the Development of Water Resources, Belgrade, Serbia.

Institutions from Serbia participate in great number of implemented and ongoing projects that address Climate and Global changes (land use, socio-economic) and in some of them adaptation measures are addressed. The full list of projects is provided in the JOINTISZA deliverable 4.2.1 TRB report on water quantity.

*In the Second national communication*, underlined vulnerability assessment and adaptation in hydrology and water resources, agriculture and forestry, based on the fact that these sectors were identified as the most vulnerable and important in the Initial National Communication.

In line with vulnerability assessment the adaptation measures for water and other sectors are proposed.

*Climate change measures relevant for water sector included in the Second national communication*, Table 6.8 (Submitted on the ICPDR Danubius, December 2016) are based on vulnerability assessment. The proposed measures are divided in 4 main categories:

- **Risk reduction** - the more specific groups of adaptation measures that address water use measures (e.g., Application of best available techniques in irrigation and cooperation with upstream countries -bilateral commissions, ICPDR, etc. with respect to water quantity), water quality (e.g., best available techniques applied for diffuse sources of pollution that mainly originate from the agriculture), protection against the adverse effects of water (e.g., development of flood protection plans for international rivers and large river basins – Danube, Tisza, etc ), and multipurpose measures (e.g., increase in water storage capacity);
- **Policy and legal framework** (e.g., water management strategy, RBMPs, other planning documents);
- **Monitoring and research** (e.g., improving monitoring and other non-structural measures to combat droughts, etc.); and

- **Capacity building and public awareness** (e.g., improvement of coordination/ harmonized activities of institutions and organizations in charge at local, regional and national level, etc).

*For all proposed adaptation measures the classes are assigned in the following way:*

- No regrets - NR;
- Low regrets - LR; and
- Techno-economic analyses required – TEAR.

*In relation to the time required for implementing the measure they are classified based on following criteria:*

- Short term-ST;
- Medium term-MT;
- Long term-LT; and
- Continuous long term – CLT.

## 7 Conclusions

This Annex provides additional data and information relevant for following measures within the TRB:

- GWBs programme of measures;
- TRB Integration measures - Horizontal;
- TRB Integration measures - Solid Plastic Waste;
- TRB Integration measures - Draught and Water Scarcity;
- TRB Integration measures - Climate Change.

### GWb's measures

In Ukraine, there are no status assessment and resulting measures. Although Slovakia reported additional GWB in comparison with the First ITRBMP all GWBs are in good chemical and quantitative status. With respect to quantitative status, Romania reported no change for all 11 TRB GWBs in comparison to the First ITRBMP, namely all of them are in a good status. On the other hand, number of measures for GWBs chemical status increased in this reporting period from 8 to 9. Hungary reported additional 7 GWBs relevant for TRB. Based on country data, there are measures for both GWBs with good and poor chemical status. With respect to quantitative status, there is evidence that number with GWBs with good status decreased that generate increase in number of measures. There are 2 more GWBs in poor chemical status and associated measures in comparison with the former reporting period and 10 more GWBs with poor quantitative status in comparison with the first planning period, while number of measures increased from 12 to 20. The number of GWBs in Serbia are the same as it was reported in the First ITRBMP, 7 for poor quantitative status.

In summary, there is increase in number of TRB GWBs measures in later period, from 8 to 61, and from 8 to 54, for qualitative and quantitative status within the TRB, respectively.

### TRB integration measures

As presented in Chapters 3- 6, all Tisza countries reported on integration measures. For each category of integration measures, i.e., horizontal, solid plastic waste, draught and water scarcity and climate change implementation criteria are assigned, and additional information are provided at the country level.

- Majority of horizontal measures are identified as PG (planning ongoing) and IG (implementation ongoing), only Romania characterized them as on going, while Ukraine and Serbia assigned not started (NS) criterion for incentives (ITRBMP Update Table VII.3);
- Solid plastic waste measures are mainly characterized IG, only Romania reported completed for all measures (ITRBMP Update Table VII.5);
- Measures that address drought and water scarcity within TRB (ITRBMP Update Table VII.5) include 10 subcategories and for majority of them criteria IG or CO are assigned in Romania, Slovakia and Hungary. In Ukraine and Serbia, 50% and 30% of subcategories are identified as not started, in a given order. For measure relevant for development of GW model to assess depletion criterion NA are assigned for Romania, Slovakia and Hungary.
- Climate Change measures are not reported based on criteria assigned for other horizontal measures. In *Ukraine*, Climate Change adaptation strategy is planned to be developed by 2020 and cover period 2021- 2030 and in *Slovakia* the National adaptation strategy on CC was updated in 2014, and next update is planned for 2018. *Romania* developed National Strategy on Climate Change 2012-2020 and National Action Plan for the implementation of strategy. The full list of relevant measures is included in chapter 6 of this document. In addition, the National Institute of Hydrology and Water Management is involved in research that address CC impact on water. In the last years, for various river basins in Romania, a series of complex studies have been carried out on the estimation of the impact of climate change on water resources and on the maximum flow in the analysed basins. The used methodology was based on the following stages:
  - Hydrological model selection;
  - Hydrological model calibration;
  - Establishment of the climate change scenario;
  - Long-term flow simulation using the hydrological model;
  - Analysis of the study results.

In **Hungary** the Second National CC strategy (Draft) for period 2017-2020 with vision for 2050, and approval process by the Government is ongoing. This document includes National adaptation strategy. The measures proposed with respect to time horizon are short -term, mid-term and long term. Adaptation measures are from river basin multi-annual regulation capacity increasing, GW use limitation by households in zones where over -exploitation is observed to land use management optimization and extension of the national forest fund. **Serbia** developed the Second national communication to UNFCCC and based on vulnerability assessment proposed measures that contribute o water sector adaptation to CC are divided in 4 main categories (Risk reduction, policy and legal framework, monitoring and research, and capacity building and public awareness). For all proposed measures following classes are assigned: No regrets, Low regrets and techno-economic analyses required, and with respect to time horizon required for implementation the adaptation measures are categorized in the following way: short-term, medium term, long term and continuous long term.

## Abbreviations

TRB	Tisza River Basin
ICPDR	International Commission for the Protection of the Danube River
UNFCCC	The United Nations Framework Convention on Climate Change
RBMP	River Basin Management Plan
ITRBMP	Integrated Tisza River Basin Management Plan

## References

The First Integrated Tisza River Basin Management Plan

EU Water Framework Directive

The ICPDR CC adaptation strategy

ICPDR DanubeGIS

Data and information reported by Tisza countries:

### Ukraine:

Datasets available on the ICPDR DanubeGIS

Ukraine\_JoinTisza template for GWB data collection\_Act.4.1.xls

JOINTISZA Report for GWBs data Ukraine.doc

Country report on measures\_Act.4.3

### Romania:

Datasets available on the ICPDR DanubeGIS

Romanian\_JoinTisza template for GWB data collection\_Act.4.1.xls

JOINTISZA Report for GWBs data Romania.doc

Country report on measures\_Act.4.3

### Slovakia:

Datasets available on the ICPDR DanubeGIS

Slovak\_JoinTisza template for GWB data collection\_Act.4.1.xls

JOINTISZA Report for GWBs data Slovakia.doc

Country report on measures\_Act.4.3

### Hungary:

Datasets available on the ICPDR DanubeGIS

Hungarian\_JoinTisza template for GWB data collection\_Act.4.1.xls

JOINTISZA Report for GWBs data Hungary.doc

Country report on measures\_Act.4.3

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Datasets available on the ICPDR DanubeGIS

Serbian\_JoinTisza template for GWB data collection\_Act.4.1.xls

JOINTISZA Report for GWBs data Serbia.doc

Country report on measures\_Act.4.3



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