Interreg
Danube Transnational Programme
SIMONA

QUESTIONNAIRE FOR EXISTING SAMPLING, LABORATORY AND EVALUATION METHODS

0.0. State your institution and country.
Jaroslav Černi Water Institute, Belgrade, Serbia

0.1. State institution(s) from which you got data to fill this questionnaire.

Ministry of Environmental Protection of the Republic of Serbia
Serbian Environmental Protection Agency.

I.LEGISLATIVE FRAMEWORK

I.1 Enumeration of national or European legislation (laws, governmental orders, emergency ordinances) that regulates the concentrations of dangerous substances posing a risk to the health of the population or aquatic life, in soils, surface waters, drinking water, river sediments, marine sediments, sewage, therapeutic sludge, air and biota.
[PLEASE, SUPPORT YOUR ANSWERS WITH REFERENCES (NATIONAL LEGISLATIVE DOCUMENTS AND/OR WEB LINKS)]

No.	Title (in national language)	Title (in English)	Link	Country
1	Pravilnik o preventivnim merama za bezbedan i zdrav rad pri izlaganju hemijskim materijama	Rulebook on preventative measures to ensure safe working conditions during exposure to chemical supstances	https://www.paragraf.rs/propisi/pravilnik_o_preventivnim_merama_za_bezbedan_i_zdrav_rad_pri_izlaganju_hemijskim_materijama.html	SERBIA
2	Uredba o merenjima emisija zagađujućih materija u vazduh iz stacionarnih izvora zagađivanja	Regulation on the measurement of emissions from stationary pollution sources into air	https://www.paragraf.rs/propisi/uredba_o_merenjima_emisija_zagadjujucih_materija_u_vazduh_iz_stacionarnih_izvora_zagadjivanja.html	SERBIA
3	Uredba o graničnim vrednostima emisija zagađujućih materija u vazduh iz postrojenja za sagorevanje	Regulation on the emission of pollutants into the air from combustion plants	http://www.pravno-informacioni-sistem.rs/SlGlasnikPortal/eli/rep/sgrs/vlada/uredba/2016/6/1/reg	SERBIA
4	Uredba o graničnim vrednostima emisija zagađujućih materija u vazduh iz stacionarnih izvora zagađivanja, osim	Regulation on the limit values of emissions from stationary pollution sources, other than combustion plants, into air.	http://www.pravno-informacioni-sistem.rs/SlGlasnikPortal/eli/rep/sgrs/vlada/uredba/2015/111/1/reg	SERBIA

	postrojenja za sagorevanje			
5	Uredba o graničnim vrednostima zagađujućih materija u površinskim i podzemnim vodama i sedimentu i rokovima za njihovo dostizanje	Regulation on limit values of polluting substances in surface and groundwaters and deadlines for their achievement	http://www.sepa.gov.rs/download/kvbg/uredba2.pdf	SERBIA
6	Uredba o graničnim vrednostima prioritetnih i prioritetnih hazardnih supstanci koje zagađuju površinske vode i rokovima za njihovo dostizanje	Regulation on limit values of priority and hazardous substances in surface waters and deadlines for their achievement	http://www.sepa.gov.rs/download/kvbg/uredba3.pdf	SERBIA
7	Pravilnik o parametrima ekološkog i hemijskog statusa površinskih voda i parametrima hemijskog i kvantitativnog statusa podzemnih voda	Rulebook on the parameters of ecological and chemical status of surface waters and parameters of chemical and quantitative status of groundwater	http://www.rdvode.gov.rs/doc/dokumenta/podzak/Pravilnik%20o%20parametrima%20ekoloskog%20i%20hemijskog%20statusa%20povrsinskih%20voda%20i%20parametrima%20hemijskog%20i%20kvantitativnog%20statusa%20podzemnih%20voda.pdf	SERBIA
8	Pravilnik o higijenskoj ispravnosti vode za piće	Rulebook on the quality of water intended for human consumption	http://www.zjz.org.rs/wp-content/uploads/2013/04/pravilnik-o-higijenskoj-ispravnosti-vode-za-pice.pdf	SERBIA
9	Uredba o graničnim vrednostima emisija zagađujućih materija u vode i rokovima za njihovo dostizanje	Regulation on the limit values for emissions of polluting substances into waters and the deadlines for their achievement	http://www.rdvode.gov.rs/doc/dokumenta/podzak/Uredba%20o%20granicnim%20vrednostima%20emisije%20zagadjujucih%20materija%20u%20vode%20i%20rokovima%20za%20njihovo%20dostizanje.pdf	SERBIA
10	Uredba o graničnim vrednostima zagađujućih, štetnih i opasnih materija u zemljištu	Regulation on limit values of polluting, harmful and dangerous substances in soil	http://www.pravno-informacioni-sistem.rs/SlGlasnikPortal/eli/rep/sgrs/vlada/uredba/2018/30/2/reg	SERBIA
11	Uredba o programu sistemskog praćenja kvaliteta zemljišta, indikatorima za ocenu rizika od degradacije zemljišta i metodologiji za izradu remedijacionih programa	Regulations on systematic monitoring of soil quality, indicators for land degradation risk assessment and methodology for the development of remediation programs	http://www.pravno-informacioni-sistem.rs/SlGlasnikPortal/eli/rep/sgrs/vlada/uredba/2010/88/2/reg	SERBIA

12	Uredba o listi industrijskih postrojenja i aktivnosti u kojima se kontroliše emisija isparljivih organskih jedinjenja, o vrednostima emisije isparljivih organskih jedinjenja pri određenoj potrošnji rastvarača i ukupnim dozvoljenim emisijama, kao i šemi za smanjenje emisija	Regulations on the list of industrial plants and activities during which the emission of volatile organic compunds is controlled, the emission limit values at different solvent consumption levels and total allowed emission levels as well as the scheme to lower emissions	http://www.pravno-informacioni-sistem.rs/SlGlasnikPortal/eli/rep/sgrs/vlada/uredba/2011/100/3/reg	SERBIA
The reader should be aware that the policy, institutional and legal framework in the Republic of Serbia is rapidly changing as a result of the ongoing EU alignment processes.				

I.2List of dangerous (hazardous) substances (metals, non-metals, PAHs, PCBs, other parameters) concentration levels, their significance (*definition of terms used for thresholds*) in waters, solids or biota, in accordance with the national legislative framework.

Each country, please deliver the definition of specific terms in the respective law.

SURFACE WATER

***Table 2**. Limit values of pollutants in surface waters*

Parameter	Unit	Limit values				
		Class I	Class II	Class III	Class IV	Class V
pH		6,5-8,5	6,5-8,5	6,5-8,5	6,5-8,5	<6,5 or <8,5
Total suspended solids	mg/l	25	25	-	-	-
Dissolved oxygen	mgO_2/l	7-8.5	7-8.5*	5	4	< 4
	%					
Saturation epilimnion (stratified water)		90-110	70-90	50-70	30-50	<30
Saturation hypolimnion (stratified water)		70-90	70-50	30-50	10-30	<10
unstratified water		70-90	50-70	30-50	10-30	<10
BOD	mgO2/l	*	*	7	25	>25
COD (bichromate method)	mgO2/l	10	15	30	125	>125
COD (permanganate method)	mgO2/l	5	10	20	50	>50
Total organic carbon (TOC)	mg/l	*	*	15	50	>50
Total nitrogen	mgN/l	1	2	8	15	>15
Nitrate	mgN/l	*	*	6	15	>15
Nitrite	mgN/l	0,01	0,03	0,12	0,3	>0,3

Ammonium ion	mg N/l	*	*	0,6	1,5	>1,5
Un-ionized ammonia	mg/lNH3	0,005	0,025	-	-	-
Total phosphorus	mg P/l	*	*	0,4	1	>1
Orthophosphate	mg P/l	*	*	0,2	0,5	>0,5
Chloride	mg/l	50	*	150	250	>250
Residual chlorine	mg/l HOCl	0,005	0,005	-	-	-
Sulphate	mg/l	50	100	200	300	>300
Total dissolved solids	mg/l	<1000	1000	1300	1500	>1500
Electrical conductivity 20^0C	S/cm	<1000	1000	1500	3000	>3000
Arsenic	µg/l	<5	10	50	100	>100
Boron	µg/l	300	1000	1000	2500	>2500
Copper	µg/l	5 (H=10) 22 (H=50) 40 (H=100) 112 (H=300)	5 (H=10) 22 (H=50) 40 (H=100) 112 (H=300)	500	1000	>1000
Zinc	µg/l	30 (H=10) 200 (H=50) 300(H=100) 500 (H=500)	300 (H=10) 700 (H=50) 1000(H=100) 2000 (H=500)	2000	5000	>5000
Chromium (total)	µg/l	25	50	100	250	>250
Iron (total)	µg/l	200	500	1000	2000	>2000
Manganese (total)	µg/l	50	100	300	1000	>1000
Phenols (as C_2H_5OH)	µg/l	<1	1	20	50	>50
Total petroleum hydrocarbons		must not form a visible layer on the water surface	must not form a visible layer on the water surface	-	-	-
Surface active substances (as Lauryl Sulphate)	µg/l	100	200	300	500	>500
AOX	µg/l	10	50	100	250	>250
Surface active substances (as Lauryl Sulphate)	µg/l	100	200	300	500	>500
Faecal coliform	cfu/100ml	100	1000	10000	100000	>100000
Total coliform	cfu/100ml	500	10000	100000	1000000	>1000000
Intestinal enterococci	cfu/100ml	200	400	4000	40000	>40000

* Appendix 1, Table 2 and Table 3, in which the limit values for contaminated subsidies for class I and II surface waters are given (http://www.sepa.gov.rs/download/kvbg/uredba2.pdf)

H– Hardness (mg/l $CaCO_3$)

Class I- excellent ecological status according to the classification given in the regulation that prescribes ecological and chemical status parameters for surface waters. Surface waters belonging to this class provide on the basis of the limit values of quality elements for the functioning of ecosystems, life and protection of fish (salmonids and cyprinids) and can be

used for the following purposes: supply of drinking water with prior treatment by filtration and disinfection, bathing and recreation, irrigation, industrial use.

Class II- good ecological status according to the classification given in the regulations prescribing ecological and chemical status parameters for surface waters. Surface waters belonging to this class provide on the basis of the limit values of quality elements for the functioning of ecosystems, life and protection of fish (cyprinids) and can be used for the same purposes and under the same conditions as surface waters belonging to class I.

Class III- moderate ecological status according to the classification given in the regulation that prescribes environmental and chemical status parameters for surface waters. Surface waters belonging to this class are provided on the basis of limit values of quality elements for life and protection of cyprinids and can be used for the following purposes: drinking water supply with prior treatment by coagulation, flocculation, filtration and disinfection, bathing and recreation, irrigation, industrial use.

Class IV- weak ecological status according to the classification given in the regulations that prescribe the ecological and chemical status parameters for surface waters. Surface waters belonging to this class based on the limit values of quality elements can be used for the following purposes: drinking water supply using combination of previously mentioned treatments and advanced methods of treatment, irrigation, industrial use.

Class V- poor ecological status according to the classification given in the regulation that prescribes the parameters of ecological and chemical status for surface waters. Surface waters belonging to this class cannot be used for any purpose.

Table 3. *Limit values for priority and priority hazard substances in surface water*

Substance	**Maximum allowed value (g/l)**
Alachlor	0,7
Anthracene	0,1
Atrazine	2,0
Cadmium and its compounds	≤ 0,45 class I (< 40 mg CaCO3/l) 0,45 class II (40 do < 50 mg CaCO3/l) 0,6 class III (50 do < 100 mg CaCO3/l) 0,9 class IV (100 do < 200 mg CaCO3/l) 1,5 class V (≥ 200 mg CaCO3/l)
Chlorfenvinphos	0.3
Chlorpyrifos (chlorpyrifos-ethyl)	0.1
Diuron	1.8
Endosulfan	0.01
Fluoranthene	0.12
Hexachlorobenzene	0.05
Hexachlorobutadiene	0.6
Hexachlorocyclohexane	0.04
I Izoproturon	1.0
Lead and its compounds	14
Naphthalene	130
Nickel and its compounds	34
Nonylphenols (4-(para) Nonylphenol)	2.0
Pentachlorophenol	1
Benzo(a)pyrene	0.27
Benzo(b)fluoranthene	0.017
Benzo(k)fluoranthene	0.017
Benzo(g, h, i)perylene	8.2x10-3
Simazine	4
Terbutryn	0.34
Mercury and its compounds	0.07

Substance	Maximum allowed value (g/l)
Benzene	50
Brominateddiphenyl ethers	0.14
Chloro-alkanes (C10-13)	1.4
Tributyltin compounds	0.0015
Perfluorooctane sulfonic acid and its derivatives (PFOS)	36
Quinoxyfen	2.7
Aclonifen	0.12
Bifenox	0.04
Cibutrin	0.016
Cipermetrin	6x10-4
Dichlorvos	7x10-4
Heptachlor heptachlor epoxide	3x10-4
Hexabromocyclododecane (HBCDD)	0.5

GROUNDWATER

***Table 10**. Remediation values of concentrations of dangerous and harmful materials in groundwater*

Substance	Remediation value µg/l
Cadmium (Cd)	6
Chromium (Cr)	30
Copper (Cu)	75
Nickel (Ni)	75
Lead (Pb)	75
Zinc (Zn)	800
Mercury (Hg)	0.3
Arsenic (As)	60
Barium (Ba)	625
Cobalt (Co)	100
Molybden (Mo)	300
Antimony (Sb)	20
Beryllium (Be)	15
Selenium (Se)	160
Tellurium (Te)	70
Thallium (Th)	7
Tin (Sn)	50
Vanadium (V)	70
Silver (Ag)	40
Fee cyanides	1500
Complex cyanides (pH < 5)	1500
Complex cyanides (pH ≥ 5)	1500
Thiocyanates (total)	1500
Benzene	30
Ethylbenzene	150
toluene	1000
Xylene	70
Styrene (vinylbenzene)	300
Phenol	2000
Cresols (total)	200
Catechol (o-dihydroxybenzene)	1250
Resorcinol (m-dihydroxybenzene)	600
Hydroquinone (p-dihydroxybenzene)	800
Dodecylbenzene	0.02
PAH (total)	-

Substance	Remediation value µg/l
Naphthalene	70
Anthracene	5
Fenantrene	5
Fluoranthene	1
Benz(a)anthracene	0.5
Krizen	0.2
Benzo(a)pyrene	0.05
Benzo(g,h,i)perylene	0.05
Benzo(k)fluorantene	0.05
Indeno(1,2,3,-c,d)pyrene	0.05
Vinyl chloride	5
Dichloromethane	1000
1,1-dichloroethane	900
1,2-dichloroethane	400
1,1-dichloroethene	10
1,2-dichloroethene (cis, trans)	20
Dichloropropane	80
Trichloromethane (Chlorophorm)	400
1,1,1- trichloroethane	300
1,1,2-- trichloroethane	130
Trichloroethene	500
Tetrachloromethane	10
Tetrachloroethene	40
Monochlorobenzene	180
Dichlorobenzene	50
Trichlorobenzene	10
Tetrachlorobenzene	2.5
Pentachlorobenzene	1
Xexachlorobenzene	0.5
Monochlorophenol (total)	100
Dichlorophenol (total)	30
Trichlorophenol (total)	10
Tetrachlorophenol (total)	10
Pentachlorophenol	3
Chloronaphthalene	6
Monochloraniline	30
PCB= PCB 28+PCB 52+PCB 101+PCB 118+PCB 138+PCB 153+PCB 180	0.01
Dichloroaniline	100
Trihaloraniline	10
Tetrachloroaniline	10
Pentachloroaniline	1
4- chloromethylphenol	350
Dioxin	0.001 mg/l
DDT/ DDD/ DDE (total)	0.01
Drini (total concentration= aldrines+dieldrines+endrines)	0.1
HCH= α-HCH + β-HCH + γ-HCH + δ-HCH	1
Atrazine	150
Carbaryl	50
Carbofuran	100
Chlordane	0.2
Endosulfan	5
Heptachlor	0.3
Heptachlor Epoxide	3
Maneb	0.1

Substance	Remediation value µg/l
MCPA (C9H9ClO3)	50
Organic tin compounds	0.7
Azinphos-Methyl	2
Cyclohexanone	15000
Phthalate (total)	5
Mineral oils	600
Pyridine	30
Tetrahydrofuran	300
Tetrahydrothiophene	5000
Tribromomethane	630
Acrylonitril	5
Butanol	5600
1,2 Butyl acetate	6300
Ethyl acetate	15000
Diethylene glycol	13000
Ethylene glycol	5500
Formaldehyde	50
Isopropanol	31000
Methanol	24000
Methyl-tertiary-butyl-ether (MTBE)	9200
Methyl ethyl ketone (MEK)	6000

DRINKING WATER

Table 4. Maximum allowed concentration of inorganic materials in drinking water (mg / l)

Substance	Maxumum allowed value (mg / l)
Ammonia (NH_3)	0.1
Antimony (Sb)	0.003
Arsenic (As)	0.01
Copper (Cu)	2.0
Barium (Ba)	0.7
Boron (B)	0.3
Cyanides (CN)	0.05
Zinc (Zn)	3.0
Fluorides (F)	1.2
Chromium total	0.05
Chloride (Cl)	200
Cadmium (Cd)	0.003
Calcium (Ca)	200.0
Potassium (K)	12.0
Magnesium (Mg)	50.0
Manganese (Mn)	0.05**
Molybdenum (Mo)	0.07
Sodium (Na)	150.0
Nickel (Ni)	0.02
Nitrates (NO_3)	50.0
Nitrites (NO_2)	0.03
Lead (Pb)	0.01
Selenium (Se)	0.01
Mercury (Hg)	0.001

Table 5. Maximum allowed concentration of organic materials in drinking water (mg / l)

Substance	**Maximum allowed value (mg / l)**
Aromatic hydrocarbons	
Benzol	0.001
Ethylbenzene	0.002
Xylol	0.05
Styrene	0.2
Toluene	0.7
Polycyclic aromatic hydrocarbons (PAH) - Total	0.0002
Benzo (a) pyrene	0.00001
Chlorinated alkanes:	
1,1 - dichloroethane	-
1,2 - dichloroethane	0.003
Dichloromethane	0.02
1,1,1-trichloroethane	2
Carbon tetrachloride	0.005
Chlorinated benzol:	
Monochlorbenzol	0.3
1,2 - dichlorbenzol	1
1,3 - dichlorbenzol	-
1,4 - dichlorbenzol	0.3
Trichlorbenzol	0.02
Chlorinated ethene:	
1,1 - dichlorethene	0.03
1,2 - dichlorethene	0.05
tetrachlorethene	0.04
trichlorethene	0.07
Vinyl chloride	0.0005
Dialkyl tins	-
di (2-ethylhexyl) adipiate	0.08
di (2-ethylhexyl) phthalate	0.008
Epichlorohydrin	0.0004
Ethylenediamino-tetraacetic acid (EDTA)	0.2
Hexachlorbutadiene	0.0006
Nitrilotriacetic acid	0.2
tributylinosin	0.002
Mineral oil	0.01
Oils and fats	0.1
PCB	0.0005
Phenols	0.001
Detergents (anionic)	0.1
Orthophosphates	0.15

Table 5. Permissible concentration of pesticide in drinking water

Substance	Maximum allowed value (mg / l)
TOTAL	0.5
Alachlor	0.1
Atrazine	0.1
Bentazone	0.1
DDT	0.1
2,4-D	0.1
Hexachlorobenzene	0.01
Heptachlor and heptachlor epoxide	0.03
Chlorotoluron	0.1
Isoproturon	0.1
Carbofuran	0.1
Lindan	0.2
MCPA	0.1
Metolachlor	0.1
Molinate	0.1
Pendimentalin	0.1
Pentahlorfenol	0.1
Permethrin	0.1
Pyridate	0.1
Simazine	0.1
Trifluralin	0.1
Chlorfenoxin herbicides differ from 2,3-D and MCPA 2,4-D	0.1
Dichlorprop	0.1

Table 6. Radiological properties of drinking water, permitted level of total alpha activity and total beta-activity

Parameter	(Bq)
Total alpha activity	0,1
Total beta-activity	1,0

Table 7. Physical and physico-chemical properties of natural bottled waters

Parameter	Maxumum allowed value
Temperature - R	281, 16-185, 16
Odour	without
Taste	without
Turbidity caused by silicate soil in 1 liter of distilled water, mg	up to 2,5
Turbidity in Nephelometric Units (NTU)	up to 0,6
Color, ^{o}Pt-Co	10
water containing humic substances (up to 20 mg / l $KMn0_4$)	
pH in water from the public system supplies	
pH in other waters	6,8-8,5
Total dissolved solids on 378,16 K mg/l	up to 500
Total suspended solids on 378,16 K, mg/l	without
Consumption $KMnO_4$, mg/l	up to 5
Chemical Oxygen Consumption $K_2Cr_20_7$,	up to 1

Parameter	Maxumum allowed value
mgO:/l	
Electrolytic conductivity (μS.cm) at 293,16 K	up to 500

Table 8. Maximum allowed concentrations of chemical substances in natural bottled waters

Parameter	Maxumum allowed value (mg/l)
Aluminum Al	0.05
Ammonia 1 as N	0.01
Antimony Sb	0.01
Arsen As	0.05
Asbestos. number of fibers / 1	without (+)
Nitrogen from Kjeldahl without N from NO_2 and NO_3	0.02
Copper Cu	0.1
Barium Ba	0.1
Berillium Be	0.0002
Bor B	1.0
Cyanides CN	without
Zinc Zn	0.1
Detergents-Anionic TBS	without
- non-ionic triton X-100	without
Phenolic chlorinated water	without
- non-chlorinated water	without
- 2,4 dinitrophenol	without
Fluorides F	1.0
Phosphates-ortho, as P	0.03
- poly-like	0.0
Iron Fe	0.05
Chlorine, residual free.Cl	without
Chlorides Cl	25.0
Chromium (VI) Cr	0.05
- Chromium (III) Cr	0.10
Cadmium Cd	0.005
Calcium Ca	100.0
Potassium K	10.0
Cobalt Co	-
Magnesium Mg	30.0
Manganese Mn	0.02
Mineral oils (6)	without
Molybdenum Mo	-
Sodium Na	20.0
Nickel Ni	0.01
Nitrates, as NO2	5.0
Nitrites NO	without
Lead Pb	0.05
Organohlor compounds other than pesticides, PCBs and RSTs	without
Magnesium Mg	30.0
Manganese Mn	0.02
Polyacrylamide	without
Polycyclic aromatic hydrocarbons (PAH)	without

Parameter	Maxumum allowed value (mg/l)
PCB and RST	without
Selenium Se	0.01
Silicate SiO_2	-
Silver Ag	0.01
Strontium Sc	-
Sulphates SO_4	25.0
Substances dissolved in chloroform	0.1
Trihalomethanes (THM)	without
Total organic carbon (TOC)	-
Total oils and fats (after extraction in carbon tetrachloride or 1,1,2-trichlorothane)	without
Uran U	0.05
Vanadium V	0.001
Hydrogen sulfide	without
Mercury Hg	0.001

SEDIMENT

Table 1. Threshold limit values for the assessment of sediment quality

Parameter	Unit	Target value	Maximum allowed value	Remediation value
Arsenic (As)	mg/kg	29	42	55
Cadmium (Cd)	mg/kg	0.8	6.4	12
Chromium (Cr)	mg/kg	100	240	380
Copper (Cu)	mg/kg	36	110	190
Mercury (Hg)	mg/kg	0.3	1.6	10
Lead (Pb)	mg/kg	85	310	530
Nickel (Ni)	mg/kg	35	44	210
Zinc (Zn)	mg/kg	140	430	720
Mineral oils	mg/kg	50	3000	5000
Polycyclic aromatic hydrocarbons (PAH)	mg/kg	1	10	40
PAH= Naphthalene+ Anthracene+ Fenantrene+ Fluoranthene+ Benz(a)anthracene+ Krizen+ Benzo(k)fluorantene+ Benzo(a)pyrene+ Benzo(g,h,i)perylene+ Indeno(1,2,3,-c,d)pyrene				
Naphthalene	mg/kg	0.001	0.1	
Anthracene	mg/kg	0.001	0.1	
Phenanthrene	mg/kg	0.005	0.5	
Fluoranthene	mg/kg	0.03	3	
Benz(a)anthracene	mg/kg	0.003	0.4	
Chrysene	mg/kg	0.1	11	
Benzo(k)fluoranthene	mg/kg	0.02	2	
Benzo(a)pyrene	mg/kg	0.003	3	
Benzo(g,h,i)perylene	mg/kg	0.08	8	
Indeno(1,2,3,-c,d)pyrene	mg/kg	0.06	6	
Polychlorinated biphenyl (PCB)	µg/kg	20	200	1
DDD	µg/kg	0.02	2	

Parameter	Unit	Target value	Maximum allowed value	Remediation value
DDE	µg/kg	0.01	1	
DDT	µg/kg	0.09	9	
DDT total**	µg/kg	10	-	4000
Aldrin	µg/kg	0.06	6	
Dieldrin	µg/kg	0.5	450	
Endrin	µg/kg	0.04	40	
Cyclodiene pesticides***[4]	µg/kg	5	-	4000
-HCH	µg/kg	3	20	
-HCH	µg/kg	9	20	
-HCH (lindane)	µg/kg	0.05	20	
HCH total****	µg/kg	10	-	2000
Alpha-endosulfan	µg/kg	0.01	1	4000
Heptachlor	µg/kg	0.7	68	4000
Heptachlor-epoxide	µg/kg	0.0002	0.002	4000

***** PCB= PCB 28+PCB 52+PCB 101+PCB 118+PCB 138+PCB 153+PCB 180

** DDT total= DDT+DDD+DDE

***Cyclodiene pesticides= aldrines+dieldrines+endrines

****HCH total= alphaHCH+betaHCH+gammaHCH+deltaHCH)

SOIL

Table 9. Limit values of pollutants in soil

Parameter	Limit value mg/kg	Remediation value mg/kg
Cadmium (Cd)	0.8	12
Chromium (Cr)	100	380
Copper (Cu)	36	190
Nickel (Ni)	35	210
Lead (Pb)	85	530
Zinc (Zn)	140	720
Mercury (Hg)	0.3	10
Arsenic (As)	29	55
Barium (Ba)	160	625
Cobalt (Co)	9	240
Molybden (Mo)	3	200
Antimony (Sb)	3	15
Beryllium (Be)	1.1	30
Selenium (Se)	0.7	100
Tellurium (Te)	-	600
Thallium (Th)	1	15
Tin (Sn)	-	900
Vanadium (V)	42	250
Silver (Ag)	-	15
Fee cyanides	1	20
Complex cyanides (pH < 5)[1*]	5	650
Complex cyanides (pH ≥ 5)	5	50

Parameter	Limit value mg/kg	Remediation value mg/kg
Thiocyanates (total)	1	20
Bromide (mgBr/l)	20	-
Fluoride (mgF/l)	500*	-
Benzene	0.01	1
Ethylbenzene	0.03	50
toluene	0.01	130
Xylene	0.1	25
Styrene (vinylbenzene)	0.3	100
Phenol	0.05	40
Cresols (total)	0.05	5
Catechol (o-dihydroxybenzene)	0.05	20
Resorcinol (m-dihydroxybenzene)	0.05	10
Hydroquinone (p-dihydroxybenzene)	0.05	10
Dodecylbenzene	-	1000
PAH (total)	1	40
Vinyl chloride	0.01	0.1
Dichloromethane	0.4	10
1,1-dichloroethane	0.02	15
1,2-dichloroethane	0.02	4
1,1-dichloroethene	0.1	0.3
1,2-dichloroethene (cis, trans)	0.2	1
Dichloropropane	0.002	2
Trichloromethane (Chlorophorm)	0.02	10
1,1,1- trichloroethane	0.07	15
1,1,2- trichloroethane	0.4	10
Trichloroethene	0.1	60
Tetrachloromethane	0.4	1
Tetrachloroethene	0.002	4
Chlorobenzene (mono- ,+ di- + tri-+ tetra- + penta- + hexa- chlorobenzene	0.03	30
Chlorophenols (mono- ,+ di- + tri-+ tetra- + pentachlorphenol)	0.01	10
Chloronaphthalene	-	10
Monochloraniline	0.005	50
PCB= PCB 28+PCB 52+PCB 101+PCB 118+PCB 138+PCB 153+PCB 180	0.02	1
Extractable organic halogens (EOX)	0.3	-
Dichloroaniline	0.005	50
Trihaloraniline	-	10
Tetrachloroaniline	-	30
Pentachloroaniline	-	10
4- chloromethylphenol	-	15
Dioxin	-	0.001
DDT/ DDD/ DDE (total)	0.01	4
Cyclodiene pesticides (total = aldrines+dieldrines+endrines)	0.005	4
aldrines	0.00006	-
dieldrines	0.0005	-
endrines	0.00004	-

Parameter	Limit value mg/kg	Remediation value mg/kg
HCH	0.01	2
α-HCH	0.003	-
β-HCH	0.009	-
γ-HCH	0.00005	-
Atrazine	0.0002	6
Carbaryl	0.00003	5
Carbofuran	0.00002	2
Chlordane	0.00003	4
Endosulfan	0.00001	4
Heptachlor	0.0007	4
Heptachlor Epoxide	0.0000002	4
Maneb	0.002	35
MCPA ($C_9H_9ClO_3$)	0.00005	4
Organic tin compounds	0.001	2.5
Azinphos-Methyl	0.000005	2
Cyclohexanone	0.1	45
Phthalate (total)	0.1	60
Mineral oils	50	5000
Pyridine	0.1	0.5
Tetrahydrofuran	0.1	2
Tetrahydrothiophene	0.1	90
Tribromomethane	-	75
Akrylonitril	0.000007	0.1
Butanol	-	30
1,2 Butyl acetate	-	200
Ethyl acetate	-	75
Diethylene glycol	-	270
Ethylene glycol	-	100
Formaldehyde	-	0.1
Isopropanol	-	220
Methanol	-	30
Methyl-tertiary-butyl-ether (MTBE)	-	100
methyl ethyl ketone (MEK)	-	35

I.3Quality objectives for hazardous substances (please complete the tables of HSs according to national documents)

Table 9. Quality objectives of HS's in sediment

Parameter	Unit	Quality objective
Arsenic (As)	mg/kg	29
Cadmium(Cd)	mg/kg	0.8
Chrome (Cr)	mg/kg	100
Copper(Cu)	mg/kg	36
Mercury (Hg)	mg/kg	0.3
Lead (Pb)	mg/kg	85
Nickel (Ni)	mg/kg	35
Zinc(Zn)	mg/kg	140
Mineral oils	mg/kg	50
Polycyclic aromatic hydrocarbons (PAH)(1)	mg/kg	1

Parameter	Unit	Quality objective
Naphtalene	mg/kg	0.001
Anthracene	mg/kg	0.001
Phenantrene	mg/kg	0.005
Fluoranthene	mg/kg	0.03
Benzo(a)anthracene	mg/kg	0.003
Chrysene	mg/kg	0.1
Benzo(κ)fluorantene	mg/kg	0.02
Benzo(a)pyrene	mg/kg	0.003
Benzo(g,h,i)perylene	mg/kg	0.08
Benzo(a)pyrene	mg/kg	0.06
Polychlorinated biphenyls (PCB)(2)	µg/kg	20
DDD	µg/kg	0.02
DDE	µg/kg	0.01
DDT	µg/kg	0.09
DDT total(3)	µg/kg	10
Aldrene	µg/kg	0.06
Dieldrin	µg/kg	0.5
Endrin	µg/kg	0.04
Cyclodiene pesticides***((4)	µg/kg	5
a-HCH	µg/kg	3
b-HCH	µg/kg	9
g-HCH	µg/kg	0.05
HCH total(5)	µg/kg	10
Alpha-endosulfan	µg/kg	0.01
Heptachlor	µg/kg	0.7
Heptachlor-epoxide	µg/kg	0.0002

I.4Listing of analytical standards (national analytics and international e.g. USEPA, ASTM, etc.) recommended in documents for chemical, physical, microbiological analyzes of samples

Table. Analytical methods

Element	National analytical standards	International analytical standards	"in-house" developed methods"
Biological parameters			
Cyanobacteria representation		Schwoerbel, J. (1970): Methods of hydrobiology (freshwater biology). First English edition. Pergamon Press Ltd. Sournia, A. (1978): Phytoplankton manual. Museum National d'Histoire Naturelle. Paris. 337 pp. SRPS EN 15204:2008 Enumeration of phytoplankton using inverted microscopy (Utermöhl technique)	
Chrysophyta representation			
Bacillariophyta representation			
Xanthophyta representation			
Pyrrhophyta representation			
Euglenophyta representation			
Chlorophyta representation			
Abundance			
Phytoplankton biomass, Chlorophyl A		ISO 10260:2001 Measurement of biochemical parameters -- Spectrometric determination of the chlorophyll-a concentration	

Saprobic index (Zelinka & Marvan)		SRPS EN 27828:2009 Water quality - Methods of biological sampling - Guidance on handnet sampling of aquatic benthic macro-invertebrates and use of AQEM software	
BMWP score			
ASPT score			
Diversity index (Shannon-Weaver)			
Oligochaeta-Tubificidae representation		SRPS EN 27828:2009 Water quality - Methods of biological sampling - Guidance on handnet sampling of aquatic benthic macro-invertebrates and use of AQEM software	
EPT index			
Number of sensitive taxons			
Total number of taxons			
Total number of families			
Number of shell types			
Number of Gastropoda			
TSI-trophic index		Carlson, E. R. (1977): A trophic state index for lakes, Limnological Research Center, University of Minnesota, Minneapolis	
Physico-chemical parameters			
Water temperature		SRPS H.Z1.106: 1970	
Air temperature		UP 1.3/PC 12 *	
Visible matter		UP 1.2/PC 12 *	
Odour		UP 1.85/P C12 *	
Color		UP 1.63/PC 12, UP 1.86/PC 12 *	
Turbidity		UP 1.66/PC 12 *, UP 1.88/PC 12	
Total suspended solids		SRPS H.Z1.160 : 1987 *, APHA AWWA& WEF, part 2540 D : 2005	
Dissolved oxygen		SEV : 1977, UP 1.89/PC 12 *	
Oxygen saturation %		UP 1.90/PC 12 *, UP 3.14/PC 12	
Alkalinity		SRPS EN ISO 9963-1:2007	
Total hardness		ISO 6059:1984 *, SEV : 1977	
Dissolved (CO2)		APHA AWWA WEF 4500 *, UP 1.93 /PC 12 *,	
Carbonate (CO3--)		SRPS EN ISO 9963-1 : 2007	
Bicarbonate (HCO3-)		SRPS EN ISO 9963-1 : 2007	
Total alkalinity (CaCO3)		SRPS EN ISO 9963-1: 2007	
pH		SRPS H.Z1.111: 1987	
Electrical conductivity		US EPA 120.1 : 1982, UP 1.95/PC 12	
Total dissolved solids		EPA 160.1 *, UP 1.130/PC 12*	
Ammonium (NH4-N)		SRPS ISO 7150-1: 1992, UP 1.96/PC 12	
Nitrites (NO2-N)		SEV : 1977, UP 1.97/PC 12	
Nitrates (NO3-N)		SEV : 1973, UP 1.98/PC 12	
Organic nitrogen		UP 1.27/PC 12	
Total nitrogen(N)		UP 1.27/PC 12	
Orthophosphates (PO4-P)		SEV : 1977, UP 1.102/PC 12	

Total Phosphorus(P)		APHA AWWA WEF 4500 (A, B, E), SEV : 1977	
Dissolved silicates (SiO2)		APHA AWWA WEF 4500 (C)	
Sodium (Na+)		APHA AWWA WEF 3111 B	
Potassium(K+)		APHA AWWA WEF 3111 B	
Calcium (Ca++)		ISO 6058:1984, SEV: 1973	
Magnesium (Mg++)		ISO 6059: 1984, SEV: 1973	
Chlorides (Cl-)		SRPS ISO 9297:1997	
Sulphates (SO4--)		Devaj.I.at all : 1974 *, UP 1.101/PC 12	
COD (Mn)		UP 1.100/PC 12, UP 3.12/PC 12	
COD (Cr)		US EPA Method 410.2 : 1978	
BOD		UP 1.4/PC 12, SEV : 1977	
TOC		SRPS ISO 8245 : 2007	
UV – Extinction (254nm)		APHA AWWA WEF 5910 (A. B)	
Anion active substance		SEV : 1977 *	
Petroleum hydrocarbons		MSz 12750/23-76 *	
Phenolic index		SRPS ISO 6439 : 1997, SEV : 1977	
Chlorophyll A		ISO 10260 : 2001	
Microbiological parameters			
Total coliform		SRPS EN ISO 9308-1:2010 Water quality - Detection and enumeration of Escherichia coli and coliform bacteria - Part 1: Membrane filtration method Drinking water, standard methods for the analysis of the hygenic standards of drinking water, Belgrade 1990, method 6.1.1.	
Faecal coliform		SRPS EN ISO 9308-1:2010 Water quality - Detection and enumeration of Escherichia coli and coliform bacteria - Part 1: Membrane filtration method MPN techniques- Guidance, Method 2.2 – Drinking water, standard methods for the analysis of the hygenic standards of drinking water, Belgrade 1990	
Faecal enterococci		SRPS EN ISO 7899-1: 2009 Water quality - Detection and enumeration of intestinal enterococci in surface and wastewater - Part 1: Miniaturized method (Most Probable Number) by inoculation in liquid medium SRPS EN ISO 7899-2: 2010 Water quality - Detection and enumeration of intestinal	

		enterococci - Part 2: Membrane filtration method	
Ratio of oligotrophic and heterotrophic bacteria OB/HB		SRPS EN ISO 6222: 2010 Water quality - Enumeration of culturable micro-organisms - Colony count by inoculation in a nutrient agar culture medium. Microbiological analysis of surface water quality, Institute for biology, Novi Sad, 1998.	
Number of aerobic heterotrophic bacteria (method Kohl)		SRPS EN ISO 6222: 2010 Water quality - Enumeration of culturable micro-organisms - Colony count by inoculation in a nutrient agar culture medium. KOHL. W. (1975): Über die Bedeutung bakteriologischer Untersuchungen für die Beurteilung von Fließgewässern, dargestellt am Beispiel der österreichischen Donau, Arch, Hydrobiol,/Suppl.44, 4, 392-461.	
Priority substances			
Alahlor		Modified standard method- EPA Method 8270 D: 2014 - Semivolatile organic compounds by Gas Chromatography/ Mass Spectrometry	
Anthracene		Modified standard method- EPA Method 8270 D: 2014 - Semivolatile organic compounds by Gas Chromatography/ Mass Spectrometry	
Atrazine		Modified standard method- EPA Method 8270 D: 2014 - Semivolatile organic compounds by Gas Chromatography/ Mass Spectrometry	
Cadmium (Cd) -dissolved		EPA 213.2: 1978, Inductively coupled plasma – mass spectrometry, according to standard EPA 6020 A, Determination of metals by flame atomic absorption spectrometry	
Chlorfenvinphos		Modified standard method- EPA Method 8270 D: 2014 - Semivolatile organic compounds by Gas Chromatography/ Mass Spectrometry	

Chlorpyrifos		Modified standard method- EPA Method 8270 D: 2014 - Semivolatile organic compounds by Gas Chromatography/ Mass Spectrometry	
Aldrin		Modified standard method- EPA Method 8270 D: 2014 - Semivolatile organic compounds by Gas Chromatography/ Mass Spectrometry	
Dielridine		Modified standard method- EPA Method 8270 D: 2014 - Semivolatile organic compounds by Gas Chromatography/ Mass Spectrometry	
Endrin		Modified standard method- EPA Method 8270 D: 2014 - Semivolatile organic compounds by Gas Chromatography/ Mass Spectrometry	
Isodrine		Modified standard method- EPA Method 8270 D: 2014 - Semivolatile organic compounds by Gas Chromatography/ Mass Spectrometry	
p,p'-DDT		Modified standard method- EPA Method 8270 D: 2014 - Semivolatile organic compounds by Gas Chromatography/ Mass Spectrometry	
o,p'-DDT		Modified standard method- EPA Method 8270 D: 2014 - Semivolatile organic compounds by Gas Chromatography/ Mass Spectrometry	
p,p'-DDD		Modified standard method- EPA Method 8270 D: 2014 - Semivolatile organic compounds by Gas Chromatography/ Mass Spectrometry	
p,p'-DDE		Modified standard method- EPA Method 8270 D: 2014 - Semivolatile organic compounds by Gas Chromatography/ Mass Spectrometry	
Diuron		Modified standard method- EPA Method 8270 D: 2014 - Semivolatile organic compounds by Gas Chromatography/ Mass Spectrometry	

Endosulfan-alpha		Modified standard method- EPA Method 8270 D: 2014 - Semivolatile organic compounds by Gas Chromatography/ Mass Spectrometry	
Endosulfan-beta		Modified standard method- EPA Method 8270 D: 2014 - Semivolatile organic compounds by Gas Chromatography/ Mass Spectrometry	
Fluoranthene		Modified standard method- EPA Method 8270 D: 2014 - Semivolatile organic compounds by Gas Chromatography/ Mass Spectrometry	
Hexachlorobenzene		Modified standard method- EPA Method 8270 D: 2014 - Semivolatile organic compounds by Gas Chromatography/ Mass Spectrometry	
Hexachloro-1,3-butadiene		Modified standard method- EPA Method 8270 D: 2014 - Semivolatile organic compounds by Gas Chromatography/ Mass Spectrometry	
alpha -HCH		Modified standard method- EPA Method 8270 D: 2014 - Semivolatile organic compounds by Gas Chromatography/ Mass Spectrometry	
beta-HCH		Modified standard method- EPA Method 8270 D: 2014 - Semivolatile organic compounds by Gas Chromatography/ Mass Spectrometry	
gamma-HCH (lindane)		Modified standard method- EPA Method 8270 D: 2014 - Semivolatile organic compounds by Gas Chromatography/ Mass Spectrometry	
Isoproturon		Modified standard method метода - EPA Method 8270 D: 2014 - Semivolatile organic compounds by Gas Chromatography/ Mass Spectrometry	
para-terc-Octylphenol		Modified standard method - EPA Method 8270 D: 2014 - Semivolatile organic compounds by Gas	

		Chromatography/ Mass Spectrometry	
Lead (Pb) -dissolved		EPA 239.2: 1978 Determination of metals by flame atomic absorption spectrometry	
Naphthalene		Modified standard method - EPA Method 8270 D: 2014 - Semivolatile organic compounds by Gas Chromatography/ Mass Spectrometry	
Nickel (Ni) -dissolved		EPA 249.2: 1978	
4-n-Nonylphenol		Modified standard method - EPA Method 8270 D: 2014 - Semivolatile organic compounds by Gas Chromatography/ Mass Spectrometry	
Pentachlorobenzene		Modified standard method - EPA Method 8270 D: 2014 - Semivolatile organic compounds by Gas Chromatography/ Mass Spectrometry	
Pentachlorophenol		Modified standard method - EPA Method 8270 D: 2014 - Semivolatile organic compounds by Gas Chromatography/ Mass Spectrometry	
Benzo(a)pyrene		Modified standard method - EPA Method 8270 D: 2014 - Semivolatile organic compounds by Gas Chromatography/ Mass Spectrometry	
Benzo(b)fluoranthene		Modified standard method - EPA Method 8270 D: 2014 - Semivolatile organic compounds by Gas Chromatography/ Mass Spectrometry	
Benzo(k)fluoranthene		Modified standard method - EPA Method 8270 D: 2014 - Semivolatile organic compounds by Gas Chromatography/ Mass Spectrometry	
Benzo(g, h, i)perylene		Modified standard method - EPA Method 8270 D: 2014 - Semivolatile organic compounds by Gas Chromatography/ Mass Spectrometry	
Indeno(1,2,3,-c,d)pyrene		Modified standard method - EPA Method 8270 D: 2014 - Semivolatile organic compounds by Gas	

		Chromatography/ Mass Spectrometry	
Simazine		Modified standard method - EPA Method 8270 D: 2014 - Semivolatile organic compounds by Gas Chromatography/ Mass Spectrometry	
Trifluraline		Modified standard method - EPA Method 8270 D: 2014 - Semivolatile organic compounds by Gas Chromatography/ Mass Spectrometry	
Terbutryn		Modified standard method - EPA Method 8270 D: 2014 - Semivolatile organic compounds by Gas Chromatography/ Mass Spectrometry	
Mercury (Hg) -dissolved		EPA 245.7:feb 2005, rev2. Mercury in Water by Cold Vapor Atomic Fluorescence Spectrometry	
Heptachlor epoxide (Isomer B)		Modified standard method - EPA Method 8270 D: 2014 - Semivolatile organic compounds by Gas Chromatography/ Mass Spectrometry	
Heptachlor		Modified standard method - EPA Method 8270 D: 2014 - Semivolatile organic compounds by Gas Chromatography/ Mass Spectrometry	
Polluting substances			
Iron (Fe)		UP 1.37/PC 12, Modified standard method - EPA 6020 A :2007 - Inductively coupled plasma - mass spectrometry	
Iron (Fe)		APHA AWWA WEF 3111B 2005e, Determination of metals by flame atomic absorption spectrometry)	
Manganese (Mn)		UP 1.37/PC 12, Modified standard method - EPA 6020 A :2007 - Inductively coupled plasma - mass spectrometry	
Manganese (Mn)		APHA AWWA WEF 3111B 2005e, Determination of metals by flame atomic absorption spectrometry)	
Iron (Fe)-dissolved		UP 1.37/PC 12, Modified standard method - EPA 6020 A :2007 -	

		Inductively coupled plasma - mass spectrometry	
Iron (Fe)-dissolved		APHA AWWA WEF 3111B 2005e, Determination of metals by flame atomic absorption spectrometry)	
Manganese (Mn)- dissolved		UP 1.37/PC 12, Inductively coupled plasma - mass spectrometry, in accordance with standard EPA 6020 A : 2007	
Manganese (Mn)- dissolved		APHA AWWA WEF 3111B 2005e, Determination of metals by flame atomic absorption spectrometry	
Zinc (Zn)		APHA AWWA WEF 3111B 2005e, *Determination of metals by flame atomic absorption spectrometry)	
Zinc (Zn)		UP 1.37/PC 12, Inductively coupled plasma - mass spectrometry, in accordance with standard EPA 6020 A : 2007	
Copper (Cu)		UP 1.37/PC 12, Inductively coupled plasma - mass spectrometry, in accordance with standard EPA 6020 A : 2007	
Copper (Cu)		EPA 220.2 1978, Determination of metals by flame atomic absorption spectrometry)	
Chromium (Cr)-total		UP 1.37/PC 12, Inductively coupled plasma - mass spectrometry, in accordance with standard EPA 6020 A : 2007	
Chromium (Cr)- total		EPA 218.2: 1978, Determination of metals by flame atomic absorption spectrometry)	
Lead (Pb)		UP 1.37/PC 12, Inductively coupled plasma - mass spectrometry, in accordance with standard EPA 6020 A : 2007	
Lead (Pb)		EPA 239.2: 1978 Graphite furnace atomic absorption spectrophotometry	
Cadmium (Cd)		UP 1.37/PC 12, Inductively coupled plasma - mass spectrometry, in accordance with standard EPA 6020 A : 2007	
Cadmium (Cd)		EPA 213.2 1978, Determination of metals by flame atomic absorption spectrometry)	

Mercury (Hg)		UP 1.39/PC 12: 2017, EPA 245.7:feb 2005, rev2. Mercury in Water by Cold Vapor Atomic Fluorescence Spectrometry	
Nickel (Ni)		UP 1.37/PC 12, Inductively coupled plasma - mass spectrometry, in accordance with standard EPA 6020 A : 2007	
Nickel (Ni)		EPA 249.2: 1978, Determination of metals by flame atomic absorption spectrometry)	
Alluminium (Al)		UP 1.37/PC 12, Inductively coupled plasma - mass spectrometry, in accordance with standard EPA 6020 A : 2007	
Cobalt (Co)		UP 1.37/PC 12, Inductively coupled plasma - mass spectrometry, in accordance with standard EPA 6020 A : 2007	
Antimony (Sb)		UP 1.37/PC 12, Inductively coupled plasma - mass spectrometry, in accordance with standard EPA 6020 A : 2007	
Zinc (Zn)-dissolved		UP 1.37/PC 12, Inductively coupled plasma - mass spectrometry, in accordance with standard EPA 6020 A : 2007	
Zinc (Zn)-dissolved		APHA AWWA WEF 3111B 2005e , *Одређивање садржаја цинка	
Copper (Cu)-dissolved		UP 1.37/PC 12, Inductively coupled plasma - mass spectrometry, in accordance with standard EPA 6020 A : 2007	
Copper (Cu)-dissolved		EPA 220.2 1978, Determination of metals by flame atomic absorption spectrometry)	
Chromium (Cr)-total dissolved		UP 1.37/PC 12, Inductively coupled plasma - mass spectrometry, in accordance with standard EPA 6020 A : 2007	
Chromium (Cr)-total dissolved		EPA 218.2: 1978, Determination of metals by flame atomic absorption spectrometry)	
Alluminium (Al) - dissolved		UP 1.37/PC 12Inductively coupled plasma - mass spectrometry, in accordance with standard EPA 6020 A : 2007	

Cobalt (Co)- dissolved		UP 1.37/PC 12, Inductively coupled plasma - mass spectrometry, in accordance with standard EPA 6020 A : 2007	
Antimony (Sb)- dissolved		UP 1.37/PC 12, Inductively coupled plasma - mass spectrometry, in accordance with standard EPA 6020 A : 2007	
Arsenic (As)		UP 1.37/PC 12, Inductively coupled plasma - mass spectrometry, in accordance with standard EPA 6020 A : 2007	
Arsenic (As)		EPA 206.2: 1978Determination of metals by flame atomic absorption spectrometry)	
Arsenic (As)-dissolved		UP 1.37/PC 12, Inductively coupled plasma - mass spectrometry, in accordance with standard EPA 6020 A : 2007	
Arsenic (As)- dissolved		EPA 206.2: 1978, Determination of metals by flame atomic absorption spectrometry)	
Boron (B)		UP 1.37/PC 12Inductively coupled plasma - mass spectrometry, in accordance with standard EPA 6020 A : 2007	
Boron (B)-dissolved		UP 1.37/PC 12, Inductively coupled plasma - mass spectrometry, in accordance with standard EPA 6020 A : 2007	
Prometrin		UP 1.124/PC 12, Modified standard method - EPA Method 8270 D: 2014 - Semivolatile organic compounds by Gas Chromatography/ Mass Spectrometry	
Desethylatrazine		UP 1.124/PC 12 : 2016, Modified standard method - EPA Method 8270 D: 2014 - Semivolatile organic compounds by Gas Chromatography/ Mass Spectrometry	
Propassin		UP 1.124/PC 12 : 2016, Modified standard method - EPA Method 8270 D: 2014 - Semivolatile organic compounds by Gas Chromatography/ Mass Spectrometry	

Desethyl Terbutilazine		UP 1.124/PC 12 : 2016, Modified standard method - EPA Method 8270 D: 2014 - Semivolatile organic compounds by Gas Chromatography/ Mass Spectrometry	
Terbutilazine		UP 1.124/PC 12 : 2016, Modified standard method - EPA Method 8270 D: 2014 - Semivolatile organic compounds by Gas Chromatography/ Mass Spectrometry	
Desizopropylatrazine		UP 1.124/PC 12 : 2016, Modified standard method - EPA Method 8270 D: 2014 - Semivolatile organic compounds by Gas Chromatography/ Mass Spectrometry	
Acetochlor		UP 1.124/PC 12 : 2016, Modified standard method - EPA Method 8270 D: 2014 - Semivolatile organic compounds by Gas Chromatography/ Mass Spectrometry	
Metolachlor		UP 1.124/PC 12 : 2016, Modified standard method - EPA Method 8270 D: 2014 - Semivolatile organic compounds by Gas Chromatography/ Mass Spectrometry	
Linuron		UP 1.124/PC 12 : 2016, Modified standard method - EPA Method 8270 D: 2014 - Semivolatile organic compounds by Gas Chromatography/ Mass Spectrometry	
Chlordane (cis + trans)		UP 1.42/PC 12 : 2016, Modified standard method - EPA Method 8270 D: 2014 - Semivolatile organic compounds by Gas Chromatography/ Mass Spectrometry	
Methoxychlor		UP 1.42/PC 12 : 2016, Modified standard method - EPA Method 8270 D: 2014 - Semivolatile organic compounds by Gas Chromatography/ Mass Spectrometry	
Bisphenol A		UP 1.125/PC 12 : 2016, Modified standard method - EPA Method 8270 D: 2014 - Semivolatile organic	

		compounds by Gas Chromatography/ Mass Spectrometry	
Total beta radioactivity			

I.5. List of chronic or acute toxicity tests and determination of bioaccumulation or persistence in biota according to the specificity of the dangerous substance in the trophic chain (Ex: Microtox test - The potential ecological impacts of anaerobic degradation of vegetable oil on freshwater sediments; Hyalella Azteca etc).

No data available

I.6List of national, and international guides of techniques on the design of sampling, transport, storage, samples preparation (sieving, fraction extraction, separation, etc.) recommended in documents

No.		Sediment	Soil	Water	Biota
1	**SAMPLING**	SRPS ISO 5667-1:2008 Water quality - Sampling - Part 1: Guidance on the design of sampling programmes and sampling techniques	ISO 10381-1:2002 Soil quality -- Sampling -- Part 1: Guidance on the design of sampling programmes	SRPS EN ISO 5667-1:1999 Guidance on the design of sampling programmes and sampling techniques	
2		SRPS ISO 5667-12:2005 Water quality -- Sampling Guidance on sampling of bottom sediments	ISO 18400-101 Soil quality -- Sampling -- Part 101: Framework for the preparation and application of a sampling plan	SRPS EN ISO 5667-3:2012 Preservation and handling of water samples	
3				SRPS EN ISO 5667-6 Water quality - Sampling - Part 6: Guidance on sampling of rivers and streams	
				SRPS EN 13946:2015 Water quality - Guidance for the routine sampling and preparation of benthic diatoms from rivers and lakes	

No.		Sediment	Soil	Water	Biota
				SRPS EN 27828:2009 Water quality - Methods of biological sampling - Guidance on handnet sampling of aquatic benthic macro-invertebrates	
12	**TRANSPORT, STORAGE**	EN ISO 5667-15:2013 Water quality - Sampling - Part 15: Guidance on the preservation and handling of sludge and sediment samples	ISO 10381-1 Soil quality -- Sampling -- Part 1: Guidance on the design of sampling programmes	SRPS EN ISO 5667-6 Water quality - Sampling - Part 6: Guidance on sampling of rivers and streams	
13	**SAMPLE PREPARATION**	ISO 11466 (Soil quality- Extraction of trace elements soluble in aqua regia)	JUS ISO 11464:2004 Pretreatment of samples for physicochemical analyses		

I.7 Specify the recommended remedy measures associated with the contents of hazardous substances (alert threshold, intervention threshold)

These actions are defined according to the situation. The recommended remedy measures are defined by the Water Act as well as the Draft Water Protection Plan which defines the measures for the control, prevention, ceasation and lowering of the amount of pollutuing and hazardous substances entering surface and groundwaters; measures for the prevention of storage and and depositing of waste materials in areas where this waste could have a negative influence on the quality of surface and groundwaters; measures for the treatment of wastewaters; measures for the prevention of non-point source pollution; measures for the protection of aquatic ecosystems and other ecosystems which directly depend on aquatic ecosystems, measures for the protection of aquatic ecosystems from hazardous polluting supstances; the manner in which interventions are carried out in specific cases of pollution, the responsible parties which must ensure that these measures and interventions are carried out.

Serbia is also part of the International Commission for the Protection of the Danube River (ICPDR). International Organisation consists of 14 cooperating states and the European Union. The commission has a manual for the accident warning system which also applies for Serbia. AEWS - International Operations Manual for Principal International Alert Centres of the Danube Accident Emergency Warning System.

https://www.icpdr.org/main/icpdr

https://www.icpdr.org/main/activities-projects/aews-accident-emergency-warning-system

II PRACTICES, EXPERIENCES

II.1. Significant national, European, finalized or ongoing projects related to geochemistry of waters, soils, sediments in the Danube basin

No.	Project title (national language, if available)	Project Title (EN)	Year	Country	Project coordinators, Partners
1	Operativni monitoring površinskih i podzemnih voda u RS	Operational monitoring of surface and groundwaters in the Republic of Serbia	2017-2019	Serbia	University of Belgrade, University of Novi Sad
2		Sustainable management of sediment resources (SedNet)	2002-2004	Europe	SedNetwork (https://sednet.org/)
3		FOREGS Geochemical mapping of Europe	1998-2005	Europe	European Geological Surveys (EGS)
4		Sava River Basin: Sustainable Use, Management and Protection of Resources	2004-2007	Slovenia, Croatia, B&H, Serbia	Jožef Stefan Institute (Slovenia), Ljubljana University, Faculty of Civil and Geodetic Engineering (Slovenia), Rudjer Bošković Institute (Croatia), Zagreb University, Faculty of Food Technology and Biotechnology (Croatia), Hydro-Engineering Institute (B&H), Mihailo Pupin Institute (SRB), University of Banja Luka, Faculty of Agriculture (B&H), International Centre for Science and High Technology (Italy), University of Natural Resources and Applied Life Sciences Vienna, Agrobiotechnology Institute (Austria), Norwegian Institute for Water Research (Norway), Imos Geateh, Planners and Engineers (Slovenia)
5		Geochemical Mapping of Agriculture and	2008-2014	Europe	European Geological Surveys (EGS)

		Grazing Land Soil in Europe (GEMA)			
9		Reinforcing S&T Capacities of Two Emerging Research Centers for Natural and Industrial Pollutant Materials in Serbia and Slovenia (RESTCA-TERCE-NIPMSS)	2008-2011	Slovenia, Serbia	Geological Survey of Slovenia (Slovenia), Faculty of Mining and Geology (Serbia), Johann Wolfgang Goethe University of Frankfurt (Germany)

II.2. Significant scientific papers, books, related to geochemistry of waters, soils, sediments in the Danube basin

No.	Paper title (national language, if available)	Title (EN)	Year	Country	Authors
1		FOREGS Geochemical Mapping Field manual	1998	Europe	Salminen, R. et al.
2		Geochemical Atlas of Europe-Part 1	2005	Europe	Salminen, R. et al.
3		Geochemical Atlas of Europe-Part 2	2006	Europe	De Vos, W. et al.
4		EuroGeoSurveys Geochemical mapping of agricultural and grazing land soil of Europe (GEMAS) - Field manual	2008	Euope	EuroGeoSurveys Geochemistry Working Group
5		Sediment quality and impact assessment of pollutants	2007	Europe	Barcelo, D, & Petrovic, M.
6		Chemistry of Europe's Agricultural Soils-Part A	2014	Europe	Reimann, C. et al.
7		Chemistry of Europe's Agricultural Soils-Part B	2014	Europe	Reimann, C. et al.
8		EuroGeoSurveys Geochemical mapping of agricultural and grazing land soil of	2008	Europe	EuroGeoSurveys Geochemistry Working Group

		Europe (GEMAS) - Field manual			
9		Emerging contaminants in sediment core from the Iron Gate I Reservoir on the Danube River	2019	Serbia, Austria	Ivana Matić Bujagić, Svetlana Grujić, Mila Laušević, Thilo Hofmann, Vesna Micić
10		Identification of conservation and restoration priority areas in the Danube River based on the multi-functionality of river-floodplain systems	2019	Europe	Andrea Funk, Javier Martínez-López, Florian Borgwardt, Daniel Trauner, Thomas Hein
11		Sediment regime of the Danube River in Serbia	2013	Serbia	Marina Babic Mladenovic, Vasiljka Kolarov, Vanja Damjanovic

II.3 Existent waterbodies and sampling sites (Ramsar, Natura2000 etc.) and current quality monitoring stations of the Danube River

Water quality monitoring stations along the Danube river

Monitoring station	River	Waterbody ID according to national legislation	Supervisory monitoring	Operational monitoring	Coordinates (Gauss Kruger Zone 7)	
Bezdan	Danube	D10	x	x	5082198	7333407
Bogojevo	Danube	D9		x	5044540	7350350
Novi Sad	Danube	D8	x	x	5009538	7409075
Slankamen	Danube	D7		x	4999912	7442238
Zemun	Danube	D6	x	x	4967310	7453939
Smederevo	Danube	D5	x	x	4949900	7497200
Banatska Palanka	Danube	D4	x	x	4964675	7527300
Tekija	Danube	D3	x	x	4951600	7612850
Brza Palanka	Danube	D2	x	x	4925622	7615714
Radujevac	Danube	D1	x	x	4903400	7634600

Table 1. Other surface water quality monitoring stations along rivers in the Republic of Serbia

Monitoring station	River	Waterbody ID according to national legislation	Supervisory monitoring	Operational monitoring	Coordinates (Gauss Kruger Zone 7)	
Bratinac	Mlava	ML_2	x	x	4944596	751789

Monitoring station	River	Waterbody ID according to national legislation	Supervisory monitoring	Operational monitoring	Coordinates (Gauss Kruger Zone 7)	
Martonoš	Tisa	TIS_2	x	x	5108175	742942
Novi Bečej	Tisa	TIS_2		x	5049400	743290
Titel	Tisa	TIS_1	x	x	5006900	744660
Jaša Tomić	Tamiš	TAM_2	x	x	5031950	748915
Vrbica	Zlatica	ZLA	x	x	5095162	744985
Hetin	Stari Begej	STBEG	x	x	5056488	748473
Srpski Itebej(GV)	Plovni Begej	PLBEG	x	x	5048275	748140
Markovićevo	Brzava	BRZ	x	x	5019732	750156
Vatin	Moravica	MORBAN	x	x	5009714	752028
Dobričevo	Karaš	KAR	x	x	4983350	752808
Kusić	Nera	NER_2	x	x	4969712	753781
Sombor	DTD_Kanal Vrbas-Bezdan	CAN_VR-BEZ	x	x	5073582	7347246
Bač	DTD_Kanal Bački Petrovac-Karavukovo	CAN_BP-KAR		x	5028554	7362001
Bačko Gradište	DTD_Kanal Bečej-Bogojevo	CAN_BEC-BOG		x	5047950	7424125
Doroslovo	DTD_Kanal Odžaci-Sombor	CAN_OD-SO		x	5052669	7358076
Novi Sad_1(GV)	DTD_Kanal Novi Sad-Savino Selo	CAN_NS-SS		x	5016000	7407550
Novo Miloševo	DTD_Kanal Kikindski kanal	CAN_KIK		x	5069562	7451150
Melenci	DTD_Kanal Banatska Palanka-Novi Bečej	CAN_BP-NB		x	5044463	7448738
Bački Breg_1	Bajski kanal	CAN_BAJ	x	x	5081403	733755
Bački Breg_2	Plazović sa Bačbokodskim Plazovićem	PLAZ	x	x	5088511	7344004
Jamena	Sava	SA_3	x	x	4972174	734906
Šabac	Sava	SA_2	x	x	4959250	739745
Ostružnica	Sava	SA_1	x	x	4954350	744592
Badovinci	Drina	DR_1	x	x	4961334	736989
Bajina Bašta	Drina	DR_3	x	x	4871092	738341
Prijepolje	Lim	LIM_4	x		4805142	739008
Lešnica	Jadar	JAD_1	x	x	4944644	736341
Mislođin	Kolubara	KOL_1	x	x	4945570	743830
Ljubičevski most	Velika Morava	VMOR_1	x	x	4938027	751098
Trnovče(vodozah	Velika Morava	VMOR_2		x	4917792	751016
Bagrdan	Velika Morava	VMOR_3	x	x	4880453	751628
Gugaljski most	Zapadna Morava	ZMOR_4	x	x	4858613	742857
Kraljevo	Zapadna Morava	ZMOR_2	x	x	4842882	747905
Maskare	Zapadna Morava	ZMOR_1		x	4836475	753240
Batrage	Ibar	IB_6	x	x	4754527	745184
Raška	Ibar	IB_3	x	x	4794846	746912
Kraljevo	Ibar	IB_1	x	x	4841600	7475363
Mojsinje	Južna Morava	JMOR_1	x	x	4831920	7539600

Monitoring station	River	Waterbody ID according to national legislation	Supervisory monitoring	Operational monitoring	Coordinates (Gauss Kruger Zone 7)	
Korvingrad	Južna Morava	JMOR_3	x	x	4786333	7568544
Ristovac	Južna Morava	JMOR_6	x	x	4703512	7569362
Bujanovac	Binačka Morava	-	x	x	4700871	7563512
Dimitrovgrad	Nišava	NIS_3	x	x	4764200	7648113
Niš	Nišava	NIS_1	x	x	4798447	7573657
Mrtvine	Gaberska reka	GAB	x	x	4762975	7644975
Trnski Odorovci	Jerma	JER_2	x		4755095	7633174
Kusići	Pek	PEK_1	x		4952604	7542909
Mosna (vodozahvat)	Porečka reka	POR_1	x	x	4920500	7593838
Srbovo	Veliki Timok	TIM_1	x	x	4891230	7630553
Ribnica (most)	Ribnica	RIBN		x	4840678	7475962
Brvenik	Brvenica	BRV		x	4801012	7471202
Rti	Rčanska reka (Vučkovica)	RCVU		x	4845002	7440413
Međurečje	Nošnica	NOS_1		x	4820810	7436900
Bedina Varoš (most)	Moravica	MOR_4		x	4823815	7440245
Mala Kopašnica	Južna Morava	JMOR_5		x	4751989	7586130
Prosek	Nišava	NIS_2		x	4796961	7585807
Nikola Tesla	Kutinska reka	KUT		x	4796334	7580285
Svođe	Vlasina	VL_3		x	4759693	7603607
Tegošnica	Tegošnica	TEG_1		x	4756929	7607008
Veliko Selo	Mlava	ML_3		x	4927881	7524916
Šetonje	Mlava	ML_4		x	4904331	7541077
Gornja Trešnjica	Trešnjica	TRES_1		x	4887138	7379882
Pašna Ravan	Trešnjica	TRES_3		x	4889188	7393517

II.4. Data and metadata availability (including information on ambient or natural concentrations of HSs for establishing intervention measures)

The list of past or current economic polluters referring to the direct effect on the quality of sediment in the Danube (the HSs whose possible concentrations are likely to be exceeded), information on the HSs biological effects, evidence of impact of anthropogenic activities.

http://www.sepa.gov.rs/index.php?menu=320&id=2015&akcija=showExternal

II.5. Problems of current monitoring procedures in DRB

Currently surface water quality monitoring is institutionally located in the Environmental Protection Agency (SEPA) and annual monitoring programs are adopted by the national government, based on the proposal from the Ministries responsible for Water resources and Environmental protection.

Since the passage of the Water Act in 2010 activities have been initiated to introduce the requirements of the EU Water Framework Directive into the monitoring program but this process has not been completed as yet. The changes introduced during this process relate only to the list of parameters that are being monitored whilst the number of stations at which surface water quality is monitored has been under permanent decline since 2011. Part of the

reason for the decline of the number of stations at which surface water quality is carried out is the lack of capacity (human resources, technical equipment and similar) at the responsible institution but the determining factor in this decline have been significant cuts in budget allocation for this important activity due to difficult economic times in Serbia.
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III. INVENTORY OF SAMPLING METHODOLOGIES

Serbia is currently monitoring water, sediment and biota quality. Serbia is currently working on the transposition of the EU WFD Directive and its accompanying Guidance Documents which defines some of the methodology which should be used for sampling purposes.

III.1. Water

III.1.1. Sampling design strategy. How do you choose sampling locations, number of sites, sampling position within the national Danube sector, distance from confluence points, distance from point industry/agriculture polluters, distance from big cities, sampling depth, distance from the water course/bodies banks? How do you decide about temporal frequency of collecting samples?

Sampling locations, the number of sites, the sampling position, temporal frequency and such are chosen in accordance with the Annual monitoring program as well as the Regulation on limit values of polluting substances in surface and groundwaters and deadlines for their achievement.

III.1.2. Which parameters of water **quality**/**quantity** are measured ***in situ***?

Table 1. Water quality parameters which are determined in-situ by the Serbian Environmental Protection Agency

Type of analysis	Range	Reference document
Water temperature	(0-40) ^{o}C	SRPS H.Z1.106:1970
Water transparency (Secchi disk)	> 10 cm	UP 1.87/PC12
Total and composite alkalinity (titrimetric)	≥ 5,0 mg/l	SRPS EN ISO 9963-1:2007
pH	(2,00-10,00)	SRPS H. Z1.111:1987
Electrolytic conductivity	(1-2000) μS/cm	UP 1.95/PC12
Ammonium nitrogen (spectrophotometric)	(0,01-0,50) mgN- NH_3/l	UP 1.96/PC12
Nitrite nitrogen (spectrophotometric)	(0,002-0,300) mgN- $N0_2$/l	UP 1.97/PC12
Nitrate nitrogen (spectrophotometric)	(0,1-10,0) mgN-$N0_3$/l	UP 1.98/PC12
Sulphate (spectrophotometric)	(2-70) mg$S0_4^{2-}$/l	UP 1.101/PC12
Ortophosphate (spectrophotometric)	(0,02-2,50) mg$P0_4^{3-}$/l	UP 1.102/PC12

Type of analysis	Range	Reference document
Potassium permanganate consumption (Kubel- Teman titrimetric)	(0,5-10,0) mg/l	UP 1.100/PC12
Turbidity (nephelometric method)	≤ (0,1 – 800) NTU	UP 1.88/PC12

III.1.3. Which **instruments** are used for ***in situ*** measurements (include manufacturer and type)?

Portable Spectrophotometer Instrument DR/2800, Hach

III.1.4. Please, describe **methodology** for ***in situ*** measurements.

The methodology for in-situ **temperature** measurements is described in SRPS H.Z1.106:1970.

Transparency is determined using a Secchi disk. A Secchi disk is a black and white disk that is lowered by hand into the water to the depth at which it vanishes from sight. The distance to vanishing is then recorded. The clearer the water, the greater the distance. The line attached to the Secchi disk must be marked according to units designated by the volunteer program, in waterproof ink. Many programs require volunteers to measure to the nearest 1/10 meter. Meter intervals can be tagged (e.g., with duct tape) for ease of use. To measure water clarity with a Secchi disk:

- Check to make sure that the Secchi disk is securely attached to the measured line.
- Lean over the side of the boat and lower the Secchi disk into the water, keeping your back toward the sun to block glare.
- Lower the disk until it disappears from view. Lower it one third of a meter and then slowly raise the disk until it just reappears. Move the disk up and down until the exact vanishing point is found.
- Attach a clothespin to the line at the point where the line enters the water. Record the measurement on your data sheet. Repeating the measurement will provide you with a quality control check.

Total and composite alkalinity is determined in accordance with the methodology defined in SRPS EN ISO 9963-1:2007.

pH is determined in accordance with the methodology defined in SRPS H. Z1.111:1987.

Ammonium nitrogen, nitrite nitrogen, nitrate nitrogen, sulphates and orthophosphate concentrations are determined in accordance with the methods defined within the DR 2800 Spectrophotometer PROCEDURES MANUAL.

III.1.5. Which **tools** are used for collecting samples for **laboratory** measurements (include manufacturer and type)?

This information is not available.

III.1.6 Sample preservation (samples chemical preservation according to their type and used analysis method).

Sample container materials can introduce either positive or negative errors in measurement, particularly at low or ultra-trace levels, by contributing contaminants through leaching or surface desorption, or by depleting concentrations through adsorption. Additionally, the sample containers should be compatible with the reagents used for sample preservation. Thus, the collection and containment of the sample prior to analysis requires particular attention. Sample contamination introduced through field collection activities including sample containment and shipment can be assessed from the analysis of equipment rinsates.

Parameter	**Method**	**Sample preservation**
TN	Application method Analytik jena multi N/C 3100	
TP	APHA Method 4500-P: Standard Methods for the Examination of Water	
Metals	EPA 6020A:2007 - Inductively coupled plasma mass spectrometry	4mL of HCl (1:1) in 1L sample volume

III.1.7 Please, describe a **methodology** for collecting samples

	Methodology
Sampling from still and running waters for the purpose of qualitative phytoplankton analysis.	Schwoerbel J. Methods of hydrobiology (freshwater biology). First English Edition. Pergamon Press Ltd. (1970). SRPS ISO 5667-1:2008 SRPS ISO 5667-3:2007 SRPS ISO 6107-2:198
Routine sampling and pretreatment of benthic diatoms from rivers	SRPS EN 13946:2008
Sampling of aquatic benthic macro-invertebrates using a handnet	SRPS EN 27828:2009
Sampling of rivers and streams for chemical analyses	SRPS ISO 5667-1:2008 SRPS ISO 5667-3:2007 SRPS ISO 5667-6-1997 other than 4.2.5
Sampling from lakes, natural and man-made	SRPS ISO 5667-1:2008 SRPS ISO 5667-3:2007 SRPS ISO 5667-4-1997

III.2 Sediment

III.2.1. Which type(s) of sediment do you sample/measure **bottom**, **suspended**, **floodplain**?

The Serbian Environmental protection Agency samples bottom sediment.

III.2.2. Sampling design strategy. How do you choose sampling locations?

How do you decide about temporal frequency of collecting samples?

The sampling design, frequency and sampling locations are determined in accordance with the requirements defined in the Guidance on the design of sampling programmes and sampling techniques (ISO 5667-1:2006) as well as the annual monitoring program defined by the Ministry of agriculture, forestry and water management.

III.2.3. Which parameters of sediment **quality**/**quantity** are measured ***in situ***?

None.

III.2.4. Which appropriate sampling devices (e.g. GRAIFER, CAROTIER etc.) and instruments are used for ***in situ*** measurements (include manufacturer and type)?

Van Veen grab sampler/ Graifer/ Core sampler

III.2.5. Please, describe **methodology** for ***in situ*** measurements.

Not applicable.

III.2.6. Which **tools** are used for collecting samples for **laboratory** measurements (include manufacturer and type)?

UWITEC core sampler (in reservoirs and slow flowing waters)/ Van Veen grab sampler/ Graifer/PVC spoons.

III.2.7. Please, describe a **methodology** for collecting samples for **laboratory** measurements.

The sampling methodology is described in the standards listed below.

Sediment	**Methodology**
Bottom sediment	
Sampling of bottom sediments	SRPS ISO 5667-1:2008 SRPS ISO 5667-3:2007 SRPS ISO 6107-2:2005

III.2.8. Please, describe a **transport** methodology for samples intended for laboratory measurements.

Transport of the samples is done in handheld refrigarators at a temperature up to 8°C.

III.2.9. Do you **archive** samples? If yes, please describe how.

No.

III.3 . **Biota**

III.3.1. Which type(s) of **biota** do you sample/measure: **flora**, **fauna** (name species)?

Biota is not monitored by the Serbian Environmental Protection Agency within it's Danube river monitoring program.

III.3.2. Sampling design strategy. How do you choose sampling locations? How do you decide about temporal frequency of collecting samples?

Not applicable.

III.3.3. Which parameters of biota **quality/quantity** are measured ***in situ***?

Not applicable.

III.3.4. Which **instruments** are used for ***in situ*** measurements (include manufacturer and type)?

Not applicable.

III.3.5. Please, describe **methodology** for ***in situ*** measurements.

Not applicable.

III.3.6. Which **tools** are used for collecting samples for **laboratory** measurements (include manufacturer and type)?

Not applicable.

III.3.7. Please, describe a **methodology** for collecting samples for **laboratory** measurements.

Not applicable.

III.3.8. Please, describe a **transport** methodology for samples intended for laboratory measurements.

Not applicable.

III.3.9. Do you **archive** samples? If yes, please describe how.

Not applicable.

[PLEASE, SUPPORT YOUR ANSWERS WITH REFERENCES (NATIONAL LEGISLATIVE DOCUMENTS AND/OR WEB LINKS)]

IV.INVENTORY OF LABORATORY METHODOLOGIES

IV.1. How do you **mechanically prepare samples** for measurement (drying, sieving, grinding, homogenization, etc.)?

a) water - filtration
b) sediment – drying, sieving, homogenization

IV.2 Chemicals.
Granulometric analysis (information on the correlation of particle sizes and the absorption of toxic metals or metal compounds in sediments).
Analytical methods (including sample preparation: e.g. acid digestion, etc.) for the hazardous substance analyzed in agreement with the matrix in which it is being analyzed (water, sediment, sludge).
Type of analytical equipments.
Description of internal procedures

IV.2.1. Organic matter. What is the **procedure** for **organic matter** content determination in water and sediment?

IV.2.2. ICP-MS, ICP-AES systems
IV.2.2.1. Which system of analysis do you use (ICP-MS, ICP-AES, etc.)? Please, include manufacturer and type.

ICP-MS, Perkin Elmer and FAAS, AAS-ETA, ICP-OES, GC/MSD Perkin Elmer:Recomended Analytical Conditions and General Information for Flow Injection Mercury/Hydride Analyses Using Perkin Elmer FIAS-100
IV.2.2.2. Which **elements (HSs)** do you measure by this system? Please, state **detection limits** for measured elements (HSs).
The values for the limits of detection are not available so the limits of quantification are listed.

Priority substances		**LIMIT of Quantification**
Alahlor	Modified standard method- EPA Method 8270 D: 2014 - Semivolatile organic compounds by Gas Chromatography/ Mass Spectrometry	0.002
Anthracene	Modified standard method- EPA Method 8270 D: 2014 - Semivolatile organic compounds by Gas Chromatography/ Mass Spectrometry	0.0005
Atrazine	Modified standard method- EPA Method 8270 D: 2014 - Semivolatile organic compounds by Gas Chromatography/ Mass Spectrometry	0.0001
Cadmium (Cd) - dissolved	EPA 213.2: 1978, Inductively coupled plasma – mass spectrometry, according to standard EPA 6020 A, Determination of metals by flame atomic absorption spectrometry	0.02 0.03
Chlorfenvinphos	Modified standard method- EPA Method 8270 D: 2014 - Semivolatile organic compounds by Gas Chromatography/ Mass Spectrometry	0.01
Chlorpyrifos	Modified standard method- EPA Method 8270 D: 2014 - Semivolatile organic compounds by Gas Chromatography/ Mass Spectrometry	0.01
Aldrin	Modified standard method- EPA Method 8270 D: 2014 - Semivolatile organic compounds by Gas Chromatography/ Mass Spectrometry	0.05
Dielridine	Modified standard method- EPA Method 8270 D: 2014 - Semivolatile organic compounds by Gas Chromatography/ Mass Spectrometry	0.01

Endrin	Modified standard method- EPA Method 8270 D: 2014 - Semivolatile organic compounds by Gas Chromatography/ Mass Spectrometry	0.002
Isodrine	Modified standard method- EPA Method 8270 D: 2014 - Semivolatile organic compounds by Gas Chromatography/ Mass Spectrometry	0.005
p,p'-DDT	Modified standard method- EPA Method 8270 D: 2014 - Semivolatile organic compounds by Gas Chromatography/ Mass Spectrometry	0.002
o,p'-DDT	Modified standard method- EPA Method 8270 D: 2014 - Semivolatile organic compounds by Gas Chromatography/ Mass Spectrometry	0.001
p,p'-DDD	Modified standard method- EPA Method 8270 D: 2014 - Semivolatile organic compounds by Gas Chromatography/ Mass Spectrometry	0.001
p,p'-DDE	Modified standard method- EPA Method 8270 D: 2014 - Semivolatile organic compounds by Gas Chromatography/ Mass Spectrometry	0.001
Diuron	Modified standard method- EPA Method 8270 D: 2014 - Semivolatile organic compounds by Gas Chromatography/ Mass Spectrometry	0.001
Endosulfan-alpha	Modified standard method- EPA Method 8270 D: 2014 - Semivolatile organic compounds by Gas Chromatography/ Mass Spectrometry	0.005
Endosulfan-beta	Modified standard method- EPA Method 8270 D: 2014 - Semivolatile organic compounds by Gas Chromatography/ Mass Spectrometry	0.005
Fluoranthene	Modified standard method- EPA Method 8270 D: 2014 - Semivolatile organic compounds by Gas Chromatography/ Mass Spectrometry	0.0005
Hexachlorobenzene	Modified standard method- EPA Method 8270 D: 2014 - Semivolatile organic compounds by Gas Chromatography/ Mass Spectrometry	0.001
Hexachloro-1,3-butadiene	Modified standard method- EPA Method 8270 D: 2014 - Semivolatile organic compounds by Gas Chromatography/ Mass Spectrometry	0.001
alpha -HCH	Modified standard method- EPA Method 8270 D: 2014 - Semivolatile organic compounds by Gas Chromatography/ Mass Spectrometry	0.001
beta-HCH	Modified standard method- EPA Method 8270 D: 2014 - Semivolatile organic compounds by Gas Chromatography/ Mass Spectrometry	0.001
gamma-HCH (lindane)	Modified standard method- EPA Method 8270 D: 2014 - Semivolatile organic compounds by Gas Chromatography/ Mass Spectrometry	0.001
Isoproturon	Modified standard method метода - EPA Method 8270 D: 2014 - Semivolatile organic compounds by Gas Chromatography/ Mass Spectrometry	0.001
para-terc-Octylphenol	Modified standard method - EPA Method 8270 D: 2014 - Semivolatile organic compounds by Gas Chromatography/ Mass Spectrometry	0.001
Lead (Pb) -dissolved	EPA 239.2: 1978 Determination of metals by flame atomic absorption spectrometry	0.5 1.0
Naphthalene	Modified standard method - EPA Method 8270 D: 2014 - Semivolatile organic compounds by Gas Chromatography/ Mass Spectrometry	0.0005
Nickel (Ni) -dissolved	EPA 249.2: 1978	2.0

	EPA 6020 A:2007	20.5
4-n-Nonylphenol	Modified standard method - EPA Method 8270 D: 2014 - Semivolatile organic compounds by Gas Chromatography/ Mass Spectrometry	0.01
Pentachlorobenzene	Modified standard method - EPA Method 8270 D: 2014 - Semivolatile organic compounds by Gas Chromatography/ Mass Spectrometry	0.001
Pentachlorophenol	Modified standard method - EPA Method 8270 D: 2014 - Semivolatile organic compounds by Gas Chromatography/ Mass Spectrometry	0.01
Benzo(a)pyrene	Modified standard method - EPA Method 8270 D: 2014 - Semivolatile organic compounds by Gas Chromatography/ Mass Spectrometry	0.0005
Benzo(b)fluoranthene	Modified standard method - EPA Method 8270 D: 2014 - Semivolatile organic compounds by Gas Chromatography/ Mass Spectrometry	0.0005
Benzo(k)fluoranthene	Modified standard method - EPA Method 8270 D: 2014 - Semivolatile organic compounds by Gas Chromatography/ Mass Spectrometry	0.0005
Benzo(g, h, i)perylene	Modified standard method - EPA Method 8270 D: 2014 - Semivolatile organic compounds by Gas Chromatography/ Mass Spectrometry	0.0005
Indeno(1,2,3,-c,d)pyrene	Modified standard method - EPA Method 8270 D: 2014 - Semivolatile organic compounds by Gas Chromatography/ Mass Spectrometry	0.0005
Simazine	Modified standard method - EPA Method 8270 D: 2014 - Semivolatile organic compounds by Gas Chromatography/ Mass Spectrometry	0.001
Trifluraline	Modified standard method - EPA Method 8270 D: 2014 - Semivolatile organic compounds by Gas Chromatography/ Mass Spectrometry	0.001
Terbutryn	Modified standard method - EPA Method 8270 D: 2014 - Semivolatile organic compounds by Gas Chromatography/ Mass Spectrometry	0.001
Mercury (Hg) - dissolved	EPA 245.7:feb 2005, rev2. Mercury in Water by Cold Vapor Atomic Fluorescence Spectrometry	0.07
Heptachlor epoxide (Isomer B)	Modified standard method - EPA Method 8270 D: 2014 - Semivolatile organic compounds by Gas Chromatography/ Mass Spectrometry	0.001
Heptachlor	Modified standard method - EPA Method 8270 D: 2014 - Semivolatile organic compounds by Gas Chromatography/ Mass Spectrometry	0.001
Polluting substances		
Iron (Fe)	UP 1.37/PC 12, Modified standard method - EPA 6020 A :2007 - Inductively coupled plasma - mass spectrometry	10
Iron (Fe)	APHA AWWA WEF 3111B 2005e, Determination of metals by flame atomic absorption spectrometry	20
Manganese (Mn)	UP 1.37/PC 12, Modified standard method - EPA 6020 A :2007 - Inductively coupled plasma - mass spectrometry	10
Manganese (Mn)	APHA AWWA WEF 3111B 2005e, Determination of metals by flame atomic absorption spectrometry	10
Iron (Fe)-dissolved	UP 1.37/PC 12, Modified standard method - EPA 6020 A :2007 - Inductively coupled plasma - mass spectrometry	10

Iron (Fe)-dissolved	APHA AWWA WEF 3111B 2005e, Determination of metals by flame atomic absorption spectrometry	20
Manganese (Mn)-dissolved	UP 1.37/PC 12, Inductively coupled plasma - mass spectrometry, in accordance with standard EPA 6020 A : 2007	10
Manganese (Mn)-dissolved	APHA AWWA WEF 3111B 2005e, Одређивање метала пламеном техником атомске апсорпције(AA,plamena tehnika)	10
Zinc (Zn)	APHA AWWA WEF 3111B 2005e, *Determination of metals by flame atomic absorption spectrometry	10
Zinc (Zn)	UP 1.37/PC 12, Inductively coupled plasma - mass spectrometry, in accordance with standard EPA 6020 A : 2007	1
Copper (Cu)	UP 1.37/PC 12, Inductively coupled plasma - mass spectrometry, in accordance with standard EPA 6020 A : 2007	1
Copper (Cu)	EPA 220.2 1978, Determination of metals by flame atomic absorption spectrometry	1
Chromium (Cr)-total	UP 1.37/PC 12, Inductively coupled plasma - mass spectrometry, in accordance with standard EPA 6020 A : 2007	0.5
Chromium (Cr)- total	EPA 218.2: 1978, Determination of metals by flame atomic absorption spectrometry)	0.6
Lead (Pb)	UP 1.37/PC 12, Inductively coupled plasma - mass spectrometry, in accordance with standard EPA 6020 A : 2007	0.5
Lead (Pb)	EPA 239.2: 1978Одређивање метала графитном пеци техником атомске апсорпције	1.0
Cadmium (Cd)	UP 1.37/PC 12, Inductively coupled plasma - mass spectrometry, in accordance with standard EPA 6020 A : 2007	0.02
Cadmium (Cd)	EPA 213.2 1978, Determination of metals by flame atomic absorption spectrometry)	0.03
Mercury (Hg)	UP 1.39/PC 12: 2017, EPA 245.7:feb 2005, rev2. Mercury in Water by Cold Vapor Atomic Fluorescence Spectrometry	0.07
Nickel (Ni)	UP 1.37/PC 12, Inductively coupled plasma - mass spectrometry, in accordance with standard EPA 6020 A : 2007	0.5
Nickel (Ni)	EPA 249.2: 1978, Determination of metals by flame atomic absorption spectrometry)	2.0
Alluminium (Al)	UP 1.37/PC 12, Inductively coupled plasma - mass spectrometry, in accordance with standard EPA 6020 A : 2007	10.0
Cobalt (Co)	UP 1.37/PC 12, Inductively coupled plasma - mass spectrometry, in accordance with standard EPA 6020 A : 2007	0.5
Antimony (Sb)	UP 1.37/PC 12, Inductively coupled plasma - mass spectrometry, in accordance with standard EPA 6020 A : 2007	0.5
Zinc (Zn)-dissolved	UP 1.37/PC 12, Inductively coupled plasma - mass spectrometry, in accordance with standard EPA 6020 A : 2007	1.0
Zinc (Zn)-dissolved	APHA AWWA WEF 3111B 2005e , *Одређивање садржаја цинка	10
Copper (Cu)-dissolved	UP 1.37/PC 12, Inductively coupled plasma - mass spectrometry, in accordance with standard EPA 6020 A : 2007	1

Copper (Cu)-dissolved	EPA 220.2 1978, Determination of metals by flame atomic absorption spectrometry)	1
Chromium (Cr)-total dissolved	UP 1.37/PC 12, Inductively coupled plasma - mass spectrometry, in accordance with standard EPA 6020 A : 2007	0.5
Chromium (Cr)-total dissolved	EPA 218.2: 1978, Одређивање метала пламеном техником атомске апсорпције(AA,plamena tehnika)	0.6
Alluminium (Al) - dissolved	UP 1.37/PC 12Inductively coupled plasma - mass spectrometry, in accordance with standard EPA 6020 A : 2007	10
Cobalt (Co)-dissolved	UP 1.37/PC 12, Inductively coupled plasma - mass spectrometry, in accordance with standard EPA 6020 A : 2007	0.5
Antimony (Sb)-dissolved	UP 1.37/PC 12, Inductively coupled plasma - mass spectrometry, in accordance with standard EPA 6020 A : 2007	0.5
Arsenic (As)	UP 1.37/PC 12, Inductively coupled plasma - mass spectrometry, in accordance with standard EPA 6020 A : 2007	0.5
Arsenic (As)	EPA 206.2: 1978Determination of metals by flame atomic absorption spectrometry)	1.0
Arsenic (As)-dissolved	UP 1.37/PC 12, Inductively coupled plasma - mass spectrometry, in accordance with standard EPA 6020 A : 2007	0.5
Arsenic (As)-dissolved	EPA 206.2: 1978, Determination of metals by flame atomic absorption spectrometry)	1.0
Boron (B)	UP 1.37/PC 12Inductively coupled plasma - mass spectrometry, in accordance with standard EPA 6020 A : 2007	10
Boron (B)-dissolved	UP 1.37/PC 12, Inductively coupled plasma - mass spectrometry, in accordance with standard EPA 6020 A : 2007	10
Prometrin	UP 1.124/PC 12, Modified standard method - EPA Method 8270 D: 2014 - Semivolatile organic compounds by Gas Chromatography/ Mass Spectrometry	0.001
Desethylatrazine	UP 1.124/PC 12 : 2016, Modified standard method - EPA Method 8270 D: 2014 - Semivolatile organic compounds by Gas Chromatography/ Mass Spectrometry	0.001
Propassin	UP 1.124/PC 12 : 2016, Modified standard method - EPA Method 8270 D: 2014 - Semivolatile organic compounds by Gas Chromatography/ Mass Spectrometry	0.001
Desethyl Terbutilazine	UP 1.124/PC 12 : 2016, Modified standard method - EPA Method 8270 D: 2014 - Semivolatile organic compounds by Gas Chromatography/ Mass Spectrometry	0.001
Terbutilazine	UP 1.124/PC 12 : 2016, Modified standard method - EPA Method 8270 D: 2014 - Semivolatile organic compounds by Gas Chromatography/ Mass Spectrometry	0.001
Desizopropylatrazine	UP 1.124/PC 12 : 2016, Modified standard method - EPA Method 8270 D: 2014 - Semivolatile organic compounds by Gas Chromatography/ Mass Spectrometry	0.001

Acetochlor	UP 1.124/PC 12 : 2016, Modified standard method - EPA Method 8270 D: 2014 - Semivolatile organic compounds by Gas Chromatography/ Mass Spectrometry	0.001
Metolachlor	UP 1.124/PC 12 : 2016, Modified standard method - EPA Method 8270 D: 2014 - Semivolatile organic compounds by Gas Chromatography/ Mass Spectrometry	0.001
Linuron	UP 1.124/PC 12 : 2016, Modified standard method - EPA Method 8270 D: 2014 - Semivolatile organic compounds by Gas Chromatography/ Mass Spectrometry	0.05
Chlordane (cis + trans)	UP 1.42/PC 12 : 2016, Modified standard method - EPA Method 8270 D: 2014 - Semivolatile organic compounds by Gas Chromatography/ Mass Spectrometry	0.001
Methoxychlor	UP 1.42/PC 12 : 2016, Modified standard method - EPA Method 8270 D: 2014 - Semivolatile organic compounds by Gas Chromatography/ Mass Spectrometry	0.005

IV.2.2.3. Please, describe **sample preparation and procedure** for these measurements (microwave acid digestion, another disintegration procedure, gas velocity, temperature of atomization, mirrors position, nebulizer type, excitation power, wavelengths etc.).

no data avaliable

IV.2.2.4. How do you calculate **accuracy and precision** (references)?

no data avaliable

IV.2.3. AAS systems

IV.2.3.1. Please, state manufacturer and type of AAS(F-AAS,GF-AAS) instrument you use.

no data avaliable

IV.2.3.2. Which **elements (HSs)** do you measure by AAS? Please, state **detection limits** for measured elements (HSs).

Please see tables above

IV.2.3.3. Please, describe **sample preparation and procedure** for AAS measurements (dissolution, radiation source, source temperature, wavelengths, etc.).

Please see tables above

IV.2.3.4. How do you calculate **accuracy and precision** (references)?

IV.2.4. XRF

IV.2.4.1. Please, state manufacturer and type of XRF(EDXRF,WDXRF) instrument you use.

no data avaliable

IV.2.4.2. Which **elements and/or compounds** (HSs) do you measure by **XRF**? Please, state **detection limits** for measured elements and/or compounds (HSs).
no data avaliable
IV.2.4.3. Please, describe **preparation of the sample and procedure** for XRF measurements.

no data avaliable

IV.2.4.4. How do you calculate **accuracy and precision** (references)?

no data avaliable

IV.2.5 DC-arc –AES
IV.2.5.1. Please, state manufacturer and type of instrument you use (type of detectors etc.).
no data avaliable

IV.2.5.2. Which **elements and/or compounds** (HSs) do you measure by **DC-arc-AES**? Please, state **detection limits** for measured elements and/or compounds (HSs).

no data avaliable

IV.2.5.3. Please, describe **preparation of the sample and procedure** for DC-arc-AES measurements.

no data avaliable

IV.2.5.4. How do you calculate **accuracy and precision** (references)?

no data avaliable

IV.2.6. Radionuclides

Responsible institution for radionuclide monitoring in the environment, is the National Directorate for Radiation and Nuclear Safety and Security.
http://monradrs.srbatom.gov.rs/
IV.2.6.1. **Which instrumental method(s)** you use to detect radionuclides in water, sediment and/or biota? Please, state manufacturer and type of radionuclide detection instrument you use.
The Annual Monitoring program does not include the monitoring of specific radionucleides but rather total beta radioactivity is monitored. However, radionucleide concentrations are monitored through projects and specific requests.

Water	
Analysis of radionucleide content (Gamaspectrometric analysis)	TRS 295:19891
Analysis of radionucleide content (Gamaspectrometric analysis)	ISO 9696:1992
Measuring of total alfa and beta radioactivity	ISO 9697:1992
Determination of Sr-90 activity by β radiation measurements	ВДМ 02:19723
Sediment	
Analysis of radionucleide content (Gamaspectrometric analysis)	ISO 18589-3:2011
Measuring of total alfa and beta radioactivity	MARLAP:2004
Determination of Sr-90 activity by β radiation measurements	ВДМ 02:1972

IV.2.6.2. **Which radionuclides** do you measure? Please, state **detection limits** for measured radionuclides.

Total β radioactivity is measured (Bq/l).No data about detection limits is available.

IV.2.6.3. How do you calculate **accuracy and precision** (references)?

No data available.

IV.2.7. Organic compounds (HSs)

IV.2.7.1. **Which instrumental method(s)** you use to detect organic compounds (HSs) in water, sediment and/or biota?

Water and sediment: GC-MS,

IV.2.7.2. **Which organic compounds (HSs)** do you measure?
Please, state **detection limits** for measured organic compounds (HSs)

Please see tables above.

IV.2.7.3. How do you calculate **accuracy and precision** (references)?

No data available.

IV.2.8. XRD
IV.2.8.1. Please, state manufacturer and type of XRD instrument you use.
IV.2.8.2. Do you use **XRD for sediment analysis**?
IV.2.8.3. Please, describe **preparation of the sample and procedure** for XRD measurements

XRD is not being performed.

IV.3 Inventory of national laboratories where dangerous substances are analyzed, specifying whether they have accreditations on the quality of analyzes (certificate issued by the national body attesting the quality of the analyzes), price and time of analyses.

IV.4 Description of "good practices" in laboratory and “in situ” analysis. For example, ways to convert analytical data obtained from sediment analysis to water quality assessments (taking into account the high cost of water analysis compared to the sediment).

IV.5 Description of protocols for intercomparison and intercalibration between laboratories. List of national and internationals projects which had developed the Protocols.

V .INVENTORY OF EVALUATION METHODS

V.1. How **threshold values** for HSs are set in each type of media (sediment, water, biota)? (e.g. average of the last measured values, average with the treatment of outliers, average of the values measured in areas without anthropogenic influence, enrichment factor, conservative **elements** for normalization, etc.).
V.2. Are **threshold values fixed or variable** and do they depend on the sample form, drainage basin lithology, time of the year, etc.?

Threshold values for inorganic compounds are set according to WFD, some of these values should be revised.

V.3. Do you use **corrections for threshold values**? (amount of **quartz**, **organic matter** etc.).

Yes in the case of sediment where organic matter content and and particle size fractions are taken into account during the determination of threshold values.

V.4 The environmental quality objectives are based on measuring the total metal concentration and / or some dangerous compounds of that metal in different valence states?

Total metal concentration.

V.5 How the legislation reflects the phenomenon of “bioaccumulation”? Is the type of biota correlated with the ecosystem?
V.6. Does your national legislative find **categories of environment quality** based on deviations from threshold values?
Yes, waterbody status is determined based on the deviations from the limit values. The limit values themselves are determined according to typology.
In addition to that, 5 different water classes exist (based on which purposes the water can be used for) depending on the deviation from the limit values.

V.7. Can these categories be **defined by quality of more than one medium?**

There are no multivariate indicators.

V.8. Please, describe **algorithm** for **defining** these **categories**? (e.g. weight coefficients).

No data.

V.9. How does your legislative framework define **difference** between **contamination** and **pollution**?

Whilst the terms contamination and pollution are defined within the legislative framework, they are not defined clearly and precisely and the two terms seem to be used interchangeably.
A clear difference between the two terms cannot be drawn from the definitions given within the legislative framework.

V.10. Do you **relate specific HSs** with **sources of contamination and pollution** and how?

No.

V.11. Please, describe **actions** in case of contamination and pollution.

These specific actions to be undertaken are defined in relation to the case in question. Seeing that there is no clear distinction between contamination and pollution within the legislative framework, there is also no difference between the actions undertaken in case of contamination or pollution. The steps which are undertaken in cases of contamination/pollution are defined in the specific plans created by organizations in accordance with the requirements of national legislation. These plans include remediation programs and specific measures tailored to the industry in question.

The Draft Water Protection Plan contains a set of measures which can be undertaken to contain and remove certain pollutants from waters.

In cases where contaminated site has been identified, further research is conducted to establish the level of pollution. This is followed by the creation of remediation programs.

V.12. How do you **present results** in your **reports**, e.g. do you use complex representation for scientific community or simple representation for target groups? Does the report include methodology, full results, QA/QC, models? Are these results public or can be obtained by request?

Data is published in annual reports released by Environmental agency which contained the data in tabular form along with the analytical methodology. The reports are available to the public:

http://www.sepa.gov.rs/index.php?menu=5000&id=13&akcija=showExternal

V.13. Do you have a method for **space-time risk assessment** after determination of contamination and/or pollution?

VI. SELECTED REFERENCES:

Stuart L Simpson, Graeme E Batley, Anthony A Chariton, Jenny L Stauber, Catherine K King, John C Chapman, Ross V Hyne, Sharyn A Gale, Anthony C Roach, William A Maher ***Handbook for Sediment Quality Assessment,*** CSIRO, 2005

Williamn, R.B., Mills, G.N. (20090 sediment Quality Guidelines for the Regional Discharges Project. Prepared by Diffuse Sources Ltd. For Auckland Regional Council. Auckland Regional Council Technical Report 2009/050

Watch Your Danube Joint Danube Survey Fact Shhet 1 ICPDR IKSD. JDS3 Scientific Scope

Method Implementation Document for EN 14385. BS EN 14385:2004. Stationary source emissions – Determination of the total emission of As, Cd, Cr, Co, Cu, Mn, Ni, Pb, Sb, Tl and V. Measurement of metals including an option to measure mercury. Environment Agency, Version 4, December 2013.

Limnology (2002) 3:65–75 © The Japanese Society of Limnology 2002

G. Allen Burton, Jr. Sediment quality criteria in use around the world**.** Received: December 26, 2000 / Accepted: December 28, 2001

Canadian Sediment Quality Guidelines for the Protection of Aquatic Life. Protocol for the Derivation of Canadian Sediment Quality Guidelines for the Protection of Aquatic Life. Canadian Council of Ministers of the Environment 1995. CCME EPC-98E.

Canadian Sediment Quality Guidelines for the Protection of Aquatic Life. Summary Tables. Canadian Council of Ministers of the Environment. Updated 1999, Winnipeg.

Environment Canada and Ministère du Développement durable, de l'Environnement et des Parcs du Québec. 2007. Criteria for the Assessment of Sediment Quality in Quebec and Application Frameworks: Prevention, Dredging and Remediation. 39 pages.

Review of Sediment Quality Data for the Similkameen River Department of Ecology. Publications Distributions Office. Address: PO Box 47600, Olympia WA 98504-7600 E-mail: ecypub@ecy.wa.gov

Sediment Quality Gibraltar Doc No: 048 Issue: 1 Rev: 0 Date: 30 July 2007 Maritime\PROJECTS\Coastal\DCSBGA\3.Disciplines\f.Environmental\ES Submission July 2007\Final ES