Common protocol for water (re)sources monitoring activities in the Adriatic region

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DRINK ADRIA

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Table of content

1 Introduction

In DRINKADRIA project WP4 activity 4.3. Water (re)sources monitoring activities in Adriatic region are analysed through EU and national legislative acts.

In this report first the EU legislation regarding water (re)sources monitoring activities is shortly presented and then national legislation from each country involved in DRINKADRIA project (Italy, Slovenia, Croatia, Bosnia and Herzegovina, Montenegro, Serbia, Albania and Greece).

The emphasis regarding water (re)sources quality monitoring is the quality of water delivered by water supply systems to consumers but also the quality of water (re)sources abstracted for human consumption.

On DRINKADRIA web platform an application for searching water (re)sources monitoring legislative acts in Adriatic region is created (http://drinkadria.fgg.uni-lj.si/water-resources/legislation-water-sources-monitoring/). It is possible to find legislative acts from EU and from each country and access the act/decree/regulation in the original language and if available in English language. For national acts/decrees/regulations there is a short description of the content in English language.

National reports regarding water sources monitoring legislation (summary of national legislation) prepared by FBs are also available on the web platform and as annexes to this Report.

The goal of this report is to analyse national legislation in order to define common guidelines for preparation of protocol for monitoring of water resources (used for human consumption) in the Adriatic region.

Note that the collection of reports regarding national legislation for water (re)sources monitoring from FBs has been finished before the latest amendments to the Drinking water directive from 6 October 2015 have been done.

2. Overview of legislation regarding water (re)sources monitoring in the Adriatic region

2.1. EU legislation regarding water (re)sources monitoring

The legal framework for water resources monitoring activities in EU is provided in Water Framework Directive (WFD) [1]. Drinking Water Directive (DWD), the Directive 98/93/EC on the quality of water intended for human consumption [2] addresses the quality of water for human consumption. Groundwater Directive (GWD) establishes a regime which sets groundwater quality standards and introduces measures to prevent or limit inputs of pollutants into groundwater [3].

2.2. National legislations regarding water (re)sources monitoring in Adriatic region

The most important national legislation regarding water (re)sources monitoring in Adriatic region in all partner countries is based on reports submitted by FBs'.

Italy

The Italian legislation concerning the quality of surface and groundwater intended for human consumption basically derives from the application of EU Drinking Water Directive [2] according to the following steps:

- Legislative Decree no. 31 of 2 February 2001, Implementation of EU Drinking Water Directive 98/83/EC on the quality of water intended for human consumption (Ordinary Supplement to Official Gazzete of the Italian Republic no. 52 on 03.03.2001., orig. *Attuazione della Direttiva 98/83/CE relativa alla qualità delle acque destinate al consumo umano*) [4]
- Legislative Decree no. 27 of 2 February 2002, An integration/modification of the previous Legislative Decree, no. 31/2001 (Official Gazzete of the Italian Republic no.58 on 9.3.2002. orig. *Modifiche ed integrazioni al D.Lgs. 2 febbraio 2001, no. 31, recante attuazione della direttiva 98/83/CE relativa alla qualità delle acque destinate al consumo umano*) [5]
- Legislative Decree no. 152 of 3 April 2006, Environmental Code (Ordinary Supplement to Official Gazzete of the Italian Republic no. 88 del 14.04.2006. and further modifications, orig. *Norme in Materia Ambientale*; A unified text of law that takes into account several aspects connected to Environmental quality and actions; among other aspects: Environmental Impact Assessment (EIA), Water management and pollution prevention, Waste management and Contaminated soils remediation, Air protection and pollution prevention, Compensation claims against environmental damages) [6]

Slovenia

Slovenian legislation dealing with monitoring drinking water, the surface and groundwater quality monitoring is presented in several regulations:

- Waters Act (Official gazette of Republic of Slovenia No. 67/02, 2/04, 41/04, 57/08, 57/12, 40/14, orig. *Zakon o vodah*) [7]
- Regulations on drinking water (Official gazette of Republic of Slovenia No. 19/04, 35/04, 26/06, 92/06, 25/09, orig. *Pravilnik o pitni vodi*) [8]
- Decree on groundwater status (Official gazette of Republic of Slovenia No. 25/09, 68/12, *orig. Uredba o stanju podzemnih voda*) [9]
- Regulations on groundwater monitoring (Official gazette of Republic of Slovenia No. 31/09, *orig. Pravilnik o monitoringu podzemnih voda*) [10]
- Decree on surface water status (Official gazette of Republic of Slovenia No. 14/09, 98/10, 96/13, *orig. Uredba o stanju površinskih voda*) [11]
- Regulations on surface water status monitoring (Official gazette of Republic of Slovenia No. 10/09, 81/11, *orig. Pravilnik o monitoringu stanja površinskih voda*) [12]

Croatia

Water legislation in the Republic of Croatia functions within a legal framework comprised of several regulations. Those are:

- *Water Act* (Official gazette of Republic of Croatia No. 153/09, 130/11, 56/13, 14/14**,** *orig. Zakon o vodama*) [13] and *The Water Management Financing Act* (Official gazette of Republic of Croatia No. 153/09, 90/11,056/13 *orig. Zakon o financiranju vodnoga gospodarstva*) [14]
- *Act on water intended for human consumption* (Official gazette of Republic of Croatia No. 056/2013, *orig. Zakon o vodi za ljudsku potrošnju*) [15]
- *Regulations on parameters compliance and analysis methods for water intended for human consumption* (Official gazette of Republic of Croatia No. 125/2013, *orig. Pravilnik o parametrima sukladnosti i metodama analize vode za ljudsku potrošnju*) [16]
- *Decree on water quality standard* (Official gazette of Republic of Croatia No. 073/2013, *orig. Uredba o standardu kakvoće voda*) [17]
- *Regulations on protection measures and conditions for determination of sanitary protection zones of the drinking water source* (Official gazette of Republic of Croatia No. 066/2011, *orig. Pravilnik o uvjetima za utvrđivanje zona sanitarne zaštite izvorišta*) [18]

Bosnia and Herzegovina

Surface and ground water quality requirements are regulated differently on the national and entity level in the Bosnia and Herzegovina.

Quality of the ground water that is aimed for drinking is under the authority of the Bosnia and Herzegovina, and is regulated according to:

- Regulations on Drinking Water Safety (Official Gazette of BiH no. 40/10 and 30/12, *orig. Pravilnik o zdravstvenoj ispravnosti vode za piće*) [19]
- Regulations on Natural Mineral and Natural Spring Water (Official Gazette of BiH no. 26/10, *orig. Pravilnik o prirodnim mineralnim i prirodnim izvorskim vodama*) [20]

Additionally, in the Federation of B&H there is also Decision on Characterization of Surface and Ground Waters, Reference Requirements, and Parameters for the Assessment of Water Status and Water Monitoring (Official Gazette of FBiH no. 1/14; *orig. Odluka o karakterizaciji površinskih i podzemnih voda, referentnim uslovima i parametrima za ocjenu stanja voda i monitoringu voda* [21]) that deal with the quality of ground water but only in the terms of determination of the water quality status (good, bad, moderate), pollution pressures, quantity and similar parameters necessary for the issuing management plan for river basins. However, threshold limits regulated by this decision are not relevant for the drinking water quality, but more to evaluation of the pollution pressure on the groundwater aquifer.

Quality of the surface water for the rivers under the authority of the FB&H is regulated according to:

- Water law (Official Gazette of FBiH no. 70/06; *orig. Zakon o vodama*) [22]
- Regulations on Dangerous and Harmful Substances in Water (Official Gazette of FBiH no. 43/07, *orig. Uredba o opasnim štetnim materijama u vodama*) [23]
- Regulations on Classification of Waters and Coastal Sea Waters within the Borders of Former Socialist Republic of Bosnia and Herzegovina (Official Gazette of SR BiH no. 18/80, *orig. Uredba o klasifikaciji voda i voda obalnog mora Jugoslavije u granicama Socijalističke Republike Bosne i Hercegovine*) [24]
- Regulations on Watercourse Categorization (Official Gazette of SR BiH no. 43/67; *orig. Uredba o kategorizaciji vodotoka*) [25]
- Decision on Characterization of Surface and Ground Waters, Reference Requirements, and Parameters for the Assessment of Water Status and Water Monitoring (Official Gazette of FBiH no. 1/14; *orig. Odluka o karakterizaciji površinskih i podzemnih voda, referentnim uslovima i parametrima za ocjenu stanja voda i monitoringu voda*) [21]

Similar as for the groundwater, Decision 1/14 [21] is dealing with the detection of the quality status, which is in line with the recommendation that comes from the Directive 2000/60/EC of the European Parliament and the European Council dating from October 23rd 2000, and aiming to establish a Community Action Framework within the field of water policy. Currently, all aforementioned regulations are in force, but it is likely to expect that Decision 1/14 [21] will be transformed to the other legal act (regulation or rulebook), since it is harmonised with the related European directives, while Regulation 43/07 [23] and Regulation 18/80 [24] will be withdrawn or transformed.

Quality of the surface water for the rivers under the authority of the Republic of Srpska is regulated according to:

- Low on water (Official Gazette RS, no. 50/06, *orig. Zakon o vodama*) [26]
- Regulations on classification and categorization of watercourses (Official Gazette RS, no. 42/01; *orig. Uredba o klasifikaciji voda i kategorizaciji vodotoka*) [27]

Montenegro

The following regulations refer to the field of drinking water in Montenegro:

- Water Law (Official Gazette of Republic of Montenegro no. 27/2007, 32/2011 & 47/2011, orig. *Закон о водама/Zakon o vodama*) [28]
- Regulations on the hygienic quality of drinking water (Official Gazette of Republic of Montenegro no. *24/2012-42,* orig. *Правилник о хигијенској исправности воде за пиће/Pravilnik o higijenskoj ispravnosti vode za piće*) [29]
- Regulations on methods for determining and maintaining sanitary protection zones for drinking-water sources and restrictions in the related zones (Official Gazette of Republic of Montenegro no. 66/2009, orig. *Правилник о одређивању и одржавању зона и појасева санитарне заштите изворишта и ограничењима у тим зонама/Pravilnik o određivanju i održavanju zova i pojaseva sanitarne zaštite izvorišta i ograničenjima u tim zonama*) [30]
- Law on communal activities (Official Gazette of Republic of Montenegro no. 12/95, orig. *Закон о комуналним дјелатностима/Zakon o komunalnim djelatnostima*) [31]

Serbia

In Republic of Serbia drinking water and water resources quality monitoring legal framework includes number of acts and by-laws. The following are considered to be the most significant:

- Water Act (Official gazette of Republic of Serbia 30/2010 and 93/2012), orig. *Закон о водама/Zakon o vodama*) [32],
- Act on Sanitary Observation (Official Gazette of Republic of Serbia, no. 125/2004, orig. Закон о санитарном надзору/*Zakon o sanitarnom nadzoru*) [33];
- Drinking water supply sources management and protection Act (Official Gazette of Republic of Serbia, no. 27/77, 24/85, 29/88, 49/89 and 46/91, orig. Закон о искоришћавању и заштити изворишта водоснабдевања/*Zakon o iskorišćavanju i zaštiti izvorišta vodosnabdevanja*) [34];
- Environmental protection Act and Act on amendments and additions to the Act on environmental protection (Official Gazette RS, no. 135/04, 36/09 and 72/09 –43/11-constitutional court, orig. Закон о заштити животне средине Закон о заштити животне средине /*Zakon o zaštiti životne sredine*) [35];
- Act on Public Health (Official Gazette RS“, no. 72/2009, orig. Закон о јавном здрављу/*Zakon o javnom zdravlju*) [36];

- Regulations on drinking water sanitary standards (Official Gazette RS, no. 42/98 and 44/99, orig. *Правилник о хигијенској исправности воде за пиће/Pravilnik o higijenskoj ispravnosti vode za piće*) [37];
- Regulations on Establishment and management of drinking water source protection zones (Official Gazette RS, no. 92/08, orig. *Правилник о начину одређивања и одржавања зона санитарне заштите изворишта водоснабдевања/Pravilnik o načinu određivanja i održavanja zona sanitarne zaštite izvorišta vodosnabdevanja*) [38];
- Regulations on surface water ecological and chemical status parameters and groundwaterchemical and quantitative status parameters (Official Gazette of Republic of Serbia, no 74/2011, orig. *Правилник о параметрима еколошког и хемијског статуса површинских вода и параттертима хемијског и квантитативног статуса подземних вода/Pravilnik o parametrima ekološkog i hemijskog statusa površinskih voda i parametrima hemijskog i kvantitativnog statusa podzemnih voda*) [39].

Albania

Water Framework Directive is not operative in Albania, but the Law on "Integrated Management of Water Resources" and some other DCM updated this years are written in compliance with this directive. Albania legislation dealing with the surface water, groundwater and drinking water quality monitoring is presented in several laws and regulations:

- Law No. 1. 111/2012, date 15.12.2012 "Integrated Management of Water Resources" (Official Gazette of Republic of Albania no. 157/2012, orig. *Për menaxhimin e integruar të burimeve ujore*) [40]
- DCM no 1189, dated 18.11.2009 "to the rules and procedures for the drafting and implementation of a national program of environmental monitoring" (Official Gazette of Republic of Albania no. 200/2009, orig. *Për rregullat dhe procedurat për hartimin dhe zbatimin e programit kombetar të monitorimit të mjedisit*) [41]
- DCM. 246, dated 04.30.2014 "for determination of the environmental quality standards for surface waters" (Official Gazette of Republic of Albania no. 65/2014, orig. *Vendim i KM nr. 246, datë 30.4.2014 "Për përcaktimin e normave të cilësisë së mjedisit për ujërat sipërfaqësore"*) [42]
- DCM nr.797, dated 29.09.2010 "On approving of hygiene and sanitation regulations for the management of bathing water quality" (Official Gazette of Republic of Albania no. 150/2010, orig. *Për miratimin e rregullores higjieno-sanitare "Për administrimin e cilësisë së ujërave të larjes*") [43]
- DCM no 1304, dated 11.12.2009 "The Approval of the Regulation" On the Water Supply and Sewage services in the service area of the water-joint stock Supply and Sewage Utilities" (orig. *Kodi i Furnizimit me Ujë dhe Kanalizime*) [44]

- DCM no 145, dated 26.02.1998 for the approval of the "hygiene and health regulation for the control of drinking water quality, the design, construction and supervision of systems of drinking water supply." (orig. *Rregullore higijeno-sanitarie per kontrollin e cilesise se ujit te pijshem projektimin ndertimin shfrytezimin dhe mbikqyrjen e sistemeve te furnizimit me uje te pijshem*) [45]

Greece

The Greek and European legislation dealing with the surface and groundwater quality, monitoring and drinking water is presented in several regulations:

- National Law 3199/2003 for the "Protection and Management of Water" in compliance with the Water Framework Directive 2000/60/EC (Official Gazette of the Greek Republic 280/9-12-2003, orig. *Προστασία και Διαχείριση των υδάτων - Εναρμόνιση με την Οδηγία 2000/60/ΕΚ του Ευρωπαικού Κοινοβουλίου και του Συμβουλίου της 23ης Οκτωβρίου 2000*) [46]

- Joint Ministerial Decision Y2/2600/01 regarding the water quality for human consumption according the European Directive 98/83/EC and its amendment ΔΥΓ2/Γ.Π. οικ 38295 (Official Gazette of the Greek Republic 892/11-7-01, orig. *«Ποιότητα νερού ανθρώπινης κατανάλωσης", σε συμμόρφωση προς την οδηγία 98/83/ΕΚ του Συμβουλίου της Ευρωπαικής Ένωσης της 3ης Νοεμβρίου 1998. (Κοινή Υπουργική Απόφαση Υ2/2600/2001*) [47]

- Ministerial Decree 1811 for the determination of the maximum allowable concentrations of pollutants in groundwater in implementation of the paragraph 2 of Article 3 of the JMD 39626/2208/E130/2009 (Official Gazette of the Greek Republic 3322/30-12-2011, orig. *Αριθμ. οικ. 1811, Ορισμός ανώτερων αποδεκτών τιμών για τη συγκέντρωση συγκεκριμένων ρύπων, ομάδων ρύπων ή δεικτών ρύπανσης σε υπόγεια ύδατα, σε εφαρμογή της παραγράφου 2 του Άρθρου 3 της υπ' αριθμ.: 39626/2208/Ε130/2009 κοινής υπουργικής απόφασης (Β΄ 2075)*) [48]

- Joint Ministerial Decree 140384. Determination of the national stations network for monitoring the quality and quantity of the water systems (Official Gazette of the Greek Republic 2017B/9-9-2011, orig. *Αριθμ. οικ. 140384. Ορισμός Εθνικού Δικτύου Παρακολούθησης της ποιότητας και της ποσότητας των υδάτων με καθορισμό των θέσεων (σταθμών) μετρήσεων και των φορέων που υποχρεούνται στην λειτουργία τους, κατά το άρθρο 4, παράγραφος 4 του Ν. 3199/2003 (Α΄ 280)*) [49]

- Joint Ministerial Decree 51354/2641/E103/2010 for the determination of the Environmental Quality Standards for the concentrations of pollutants in surface waters (according to the Directive 2008/105/EC) (Official Gazette of the Greek Republic 1909B/8-12-2010, orig. *Αριθμ. Η.Π. 51354/2641/Ε103 Καθορισμός Προτύπων Ποιότητας Περιβάλλοντος (ΠΠΠ) για τις συγκεντρώσεις ορισμένων ρύπων*

και ουσιών προτεραιότητας στα επιφανειακά ύδατα, σε συμμόρφωση προς τις διατάξεις της οδηγίας 2008/105/ΕΚ του Ευρωπαϊκού Κοινοβουλίου και του Συμβουλίου της 16ης Δεκεμβρίου 2008 «σχετικά με Πρότυπα Ποιότητας Περιβάλλοντος (ΠΠΠ) στον τομέα της πολιτικής των υδάτων και σχετικά με την τροποποίηση και μετέπειτα κατάργηση των οδηγιών του Συμβουλίου 2/176/ΕΟΚ, 83/513/ΕΟΚ, 84/156/ΕΟΚ, 84/491/ΕΟΚ και 86/280/ΕΟΚ και την τροποποίηση της οδηγίας 2000/60/ΕΚ του Ευρωπαϊκού Κοινοβουλίου και του Συμβουλίου», καθώς και για τις συγκεντρώσεις ειδικών ρύπων στα εσωτερικά επιφανειακά ύδατα και άλλες διατάξεις) [50]

3. Drinking water quality monitoring in Adriatic region – analyses of national legislation

Monitoring drinking water quality in ADRIATIC region is regulated by following national legislation:

Italy:

- Legislative Decree no. 31 of 2 February 2001, Implementation of EU Drinking Water Directive 98/83/EC on the quality of water intended for human consumption (Ordinary Supplement to Official Gazzete of the Italian Republic no. 52 on 03.03.2001., orig. *Attuazione della Direttiva 98/83/CE relativa alla qualità delle acque destinate al consumo umano*) [4]
- Legislative Decree no. 27 of 2 February 2002, An integration/modification of the previous Legislative Decree, no. 31/2001 (Official Gazzete of the Italian Republic no.58 on 9.3.2002. orig. *Modifiche ed integrazioni al D.Lgs. 2 febbraio 2001, no. 31, recante attuazione della direttiva 98/83/CE relativa alla qualità delle acque destinate al consumo umano*) [5]

Slovenia:

- Regulation on drinking water (Official gazette of Republic of Slovenia No. 19/04, 35/04, 26/06, 92/06, 25/09, *orig. Pravilnik o pitni vodi*) [8]

Croatia:

- Act on water intended for human consumption (Official gazette of Republic of Croatia No. 056/2013, orig. *Zakon o vodi za ljudsku potrošnju*) [14]
- Regulations on parameters compliance and analysis methods for water intended for human consumption (Official gazette of Republic of Croatia No. 125/2013, orig. *Pravilnik o parametrima sukladnosti i metodama analize vode za ljudsku potrošnju*) [15]

Bosnia and Herzegovina:

- Regulation on Drinking Water Safety (Official Gazette of BiH no. 40/10 and 30/12) [18]

Montenegro:

- Regulations on the hygienic quality of drinking water (Official Gazette of Republic of Montenegro no. *24/2012-42,* orig. *Правилник о хигијенској исправности воде за пиће/Pravilnik o higijenskoj ispravnosti vode za piće*) [29]

Serbia:

- Regulations on drinking water sanitary standards (Official Gazette RS, no. 42/98 and 44/99, orig. *Правилник о хигијенској исправности воде за пиће/Pravilnik o higijenskoj ispravnosti vode za piće*) [37]

Albania:

- DCM no 1304, dated 11.12.2009 "The Approval of the Regulation" On the Water Supply and Sewage services in the service area of the water-joint stock Supply and Sewage Utilities" (orig. *Kodi i Furnizimit me Ujë dhe Kanalizime*) [44]
- DCM no 145, dated 26.02.1998 for the approval of the "hygiene and health regulation for the control of drinking water quality, the design, construction and supervision of systems of drinking water supply." (orig. *Rregullore higijeno-sanitarie per kontrollin e cilesise se ujit te pijshem projektimin ndertimin shfrytezimin dhe mbikqyrjen e sistemeve te furnizimit me uje te pijshem*) [45]

Greece:

- Joint Ministerial Decision Y2/2600/01 regarding the water quality for human consumption according the European Directive 98/83/EC and its amendment ΔΥΓ2/Γ.Π. οικ 38295 (Official Gazette of the Greek Republic 892/11-7-01, orig. *«Ποιότητα νερού ανθρώπινης κατανάλωσης", σε συμμόρφωση προς την οδηγία 98/83/ΕΚ του Συμβουλίου της Ευρωπαικής Ένωσης της 3ης Νοεμβρίου 1998. (Κοινή Υπουργική Απόφαση Υ2/2600/2001*) [47]

Italian, Slovenian, Croatian and Greek legislation regarding monitoring the quality of water for human consumption is in accordance with Drinking water directive since they are EU member countries. Bosnia and Herzegovina legislation regarding monitoring the quality of water for human consumption is also in accordance with Drinking water directive although BiH is not member of EU. Croatia has 2 regulations that cover jointly the DWD. Montenegro, Serbia and Albania have their own legislation regarding the quality of water for human consumption monitoring.

Monitoring of bottled water or water in containers is not analysed in this report.

3.1. Quality standards – parameters and parametric values

Microbiological parameters according to DWD [2] are shown in table 1.

Table 1: Microbiological parameters - DWD [2]

Parameter	Parametric value (number/100ml)
Escherichia coli (E. coli)	0
Enterococci	0

In microbiological parameters there is no difference regarding DWD for Italy, Slovenia, Greece and BiH. In Croatian legislation Clostridium perfringens (including spores), Pseudomonas aeruginosa and Enteroviruses are added parameters.

Chemical parameters according to DWD [2] are shown in table 2.

In chemical parameters there are no differences for Slovenia, Greece and BiH.

Differences are in Italian and Croatian legislation:

- in Italian legislation for Trihalomethanes (THM) – sum the maximum value of the parameter is 30 instead of 100 µg/l defined by DWD, parameters Chlorite (max 200 µg/l) and Vanadium (max 50 µg/l) are added to the list form DWD

- in Croatian legislation parameters Chlorite (max 400 µg/l), Chlorate (max 400 µg/l) and Dissolved ozone (50 µg/l) are added to the list form DWD.

In indicator parameters there are small differences from DWD:

- In Italian and BiH legislation the colony count also on 37℃ and residual chlorine is added
- In Slovenian legislation the colony count is done also on 37℃ (max. less than 100 number/ml)
- In Croatian legislation the colour maximum value is 20 mg/PtCo scale, colony count 22℃ max value is 100 number/1 ml and for turbidity 4 NTU, also are added as indicator parameters: Baruim, Beryllium, Calcium, Cobalt, Detergents, Free Chlorine, Hydrocarbons, Hydrogen sulphide, Magnesium, Number of colonies at 37℃, Phenols (total), Phosphates, Potassium, Silicates, Silver, Temperature, Total hardness, Total suspended soils, use of KMnO4, Vanadium and Zinc.
- In Greek legislation residual chlorine is added.

Indicator parameters according to DWD [2] are shown in table 3.

Table 2: Chemical parameters – DWD [2]

Parameter	Parametric value	*Unit*
Acrylamide	0.10	µg/l
Antimony	5.0	µg/l
Arsenic	10	µg/l
Benzene	1.0	µg/l
Benzo(a)pyrene	0.010	µg/l
Boron	1.0	mg/l
Bromate	10	µg/l
Cadmium	5.0	mg/l
Chromium	50	µg/l
Cooper	2.0	mg/l
Cyanide	50	µg/l
1,2-dichloroethane	3.0	µg/l
Epichlorohydrin	0.10	µg/l
Fluoride	1,5	mg/l
Lead	10	µg/l
Mercury	1.0	µg/l
Nickel	20	µg/l
Nitrate	50	mg/l
Nitrite	0.50	mg/l
Pesticides	0.10	µg/l
Pesticides - sum	0.50	µg/l
Polycyclic aromatic hydrocarbons (PAH)	0.10	µg/l
Selenium	10	µg/l
Tetrachlorethylene and Trichlorethylene	10	µg/l
Trihalomethanes (THM) – sum	100	µg/l
Vinyl chloride	0.50	ug/l

Table 3: Indicator parameters-DWD [2]

Parameter	Parametric value	Unit
Aluminium	200	µg/l
Ammonium	0.50	mg/l
Chloride	250	mg/l
Clostridium perfringens (including spores)	0	number / 100 ml
Colour	Acceptable to consumers and no abnormal change	
Conductivity	2500	µS cm-1 at 20 ℃
Hydrogen ion concentration (pH)	≥6.5 and ≤9.5	units pH
Iron	200	µg/l
Manganese	50	µg/l
Odor	Acceptable to consumers and no abnormal change	
Oxidisability	5.0	mg O_2/l
Sodium	200	mg/l
Sulphate	250	mg/l
Taste	Acceptable to consumers and no abnormal change	
Colony count 22°	No abnormal change	
Coliform bacteria	0	number/100 ml
Total organic carbon (TOC)	No abnormal changes	
Turbidity	Acceptable to consumers and no abnormal change	

For radioactivity of drinking water parameters, parametric values and units are the same for all countries EU members and BiH as in DWD (Table 4) [2].

Table 4: Radioactivity-DWD [2]

Parameter	Parametric value	Unit
Tritium	100	Bq/l
Total indicative dose	0.1	mSv/year

In comparison to EU legislation it should be underlined that Serbian by – laws comprise of 12 tables that define standards for drinking water and bottled water. Serbian and Montenegrin legislation regarding drinking water is similar (table 6 and Table 7).

In Serbia WFD requirements are transposed into Water Act and by-laws, existing and those that are under development.

Table 5: Microbiological parameters for drinking water-Montenegro [29]

Ord. No.	Types of microorganisms	Treated and disinfected water and bottled water at source	Natural water	
			Closed sources	Open sources
1	Bacteria of Salmonella species,, Shigella species, *Vibrio cholerae* and other pathogens, coliforms and faecal streptococci, Proteus-species, Pseudomonas aeruginosa	Must not contain		
2	Intestinal protozoa, helminths and their forms			
3	Vibrio			
4	Bacteriophage			
5	Algae and other organisms that can change the appearance, odour and taste of water			
6	Aerobic mesophilic bacteria on agar after incubation for 48 hours at 310.16 K (37 °C) in 1 ml of water up to	10*	100	300
7	Total coliforms determined as the most probable number per 100 ml of water (MPN) up to	0	10	100
	Total coliforms determined by a membrane- filter method in 100 ml up to	0	5	10
8	Sulphate- reducing clostridia in 100 ml of water up to	0	1	10
9	The number of infectious units of enteroviruses in 10 litres of water	None	One	One

*In bottled natural water that is in circulation more than 12 hours after it has been filled in, 50 aerobic mesophilic bacteria are allowed.

The physical and chemical indexes of drinking water in Albania are defined in table 7.

Table 6: Physical, physical-chemical and chemical parameters for drinking water- (regular situations, treated water)-Montenegro [29]

Ord. No.	Parameters	Maximum allowable concentrations
1.	Colour	5 degrees of platinum cobalt scale
2.	Odor and taste	Without
3.	Turbidity	Up to 1 NTU*
4.	Hydrogen-ion concentration (pH)	6.8 – 8.5
5.	Oxidability (mg KMnO4/l)	Up to 8**
6.	Conductivity (m Scm, at 20 ℃)	Up to 1000
7.	Temperature	The temperature of the source or lower
8.	Dissolved oxygen (% saturation)	50***
9.	Sulphates	250****
10.	Hydrogen sulphide	Without*****
11.	Total organic carbon	-

** For water supply systems with 5,000 inhabitants, turbidity of up to 5 NTU (nephelometric Turbidity Units) is permitted*
*** It is believed that water is good in the event that in about 20% of the measurements, which are not consecutive in a year, the value of the parameters reaches 12 mgKMnO4 / l; frequency of measurements according to the current regulations.*
Water whose consumption of KMnO4 is above 8 mg/l must not be chlorinated and other ways of disinfection must be used.
**** It does not refer to ground water*
***** Odor must not be felt.*
****** Compulsory parameter for the plants where ozonation is done; in other plants it is necessary to introduce this parameter as a control for the following 5 years*

Table 7: The physical and chemical indexes of drinking water – Albania [44]

Indexes	Measuring Unit	Norm	Maximum allowed value	Notes	Methods of definitions
Color	mg/l	1,00	20		STASH 2639/14:1989
Turbulence	mG/l SiO2 NTU	1,00 0,40	10 4		STASH 2639/14:1989
Odor	Number of dilution	0,00	2 in 12 degree C 3 in 25 degree C		STASH 2639/14:1989
Taste	Number of dilution		2 in 12 degree C 3 in 25 degree C		STASH 2639/14:1989
Temperature	C degree	8-15	20		STASH
Concentration of H +	ph	6.5:8.5	9,5		STASH 2639/14:1989
Electric Transmutability	µS Cm-1 në 20 g degrees	400,00		According to water mineralization	STASH 2639/14:1989
General Rigidity	German degrees	10-15	20		STASH
Nitrates	mg/l (NO3)	25,00	50		STASH
Nitrites	mg/l (NO2)	0,00	0,05		STASH
Ammoniac	mg/l (NH4)	0,00	0,05		STASH
Free Chlorium	mg/l	0,30	0,5		STASH
Total Coliforms	N/100 ml	0,00			STASH
Fecal Coliforms	N/100 ml	0,00			STASH
Streptococci	N/100 ml	0,00			STASH
Fecal Streptococci	N/100 ml	0,00			STASH
Total Value	N/100 ml	0,00			STASH

3.2. Monitoring - Parameters to be analysed

Parameters for check monitoring of in DWD [2] are:

- Aluminium
- Ammonium
- Colour
- Conductivity
- *Clostridium perfringens* (including spores)
- *Escherichia coli*
- Hydrogen ion concentration (pH)
- Iron
- Nitrite
- Odor
- Taste
- Coliform bacteria
- Turbidity

Differences are:

- In Italian legislation coliform bacteria are analysed at 37℃ and also residual desinfectant (if used) is added,
- In Slovenian legislation Pseudomonas aeruginosa and number of colonies at 20℃ and 37℃ are added,
- In Croatian legislation residual desinfectant (if used), Cloride, Nitrate, Use of KMnO4, Temperature, Enterococci are added,
- In BiH legislation Nitrate, Temperature, use of KMnO4 are added
- In Greek legislation Residual chloride is added.

In Greek legislative there are specified other microbiological and chemical parameters for additional monitoring in case of emergencies. Additional monitoring in emergencies (extraordinary events) includes the following pathogenic bacteria: Salmonella; pathogenic staphylococci; bacteriofages; viruses; E.coli O:157; campylobacter; and the following organisms: Parasitic organisms (e.g. *Giardia lamblia*, cryptosporidium); algae; others. For the above mentioned bacteria and organisms the parametric value is zero. The chemical parameters listed in Table 8 are monitored in emergency cases.

Table 8: Chemical parameters for additional monitoring in case of emergencies – Greece [47]

Parameter	Parametric value	Unit
PCB's – PCT's acrylamide	0.50 / 0.10	µg/l
Argentum	10	µg/l
Phenolic compounds (except of pentachlorophenol)	0.50	µg/l
Dissolved or in emulsion Hydrocarbons – Mineral oils	10	µg/l
Surfactants	200	µg/l
Phosphorus (P_2O_5)	5	mg/l
Dry residue	1500	mg/l
Potassium	12	mg/l
Sulphide	undetectable	

In Italian legislation [4] it is indicated that Local Health Unit (ASUR) shall ensure, that additional monitoring is carried out, on a case-by-case basis, of substances and micro-organisms for which no parametric value has been set, if there is reason to suspect that they may be present in amounts or numbers which constitute a potential danger to human health. As an example, ASUR Local Department could research the following additional parameters: Algae, Bacteriophages anti E. coli, Helmints, Pathogenic Enterobacteria, Enteroviruses, Fungi, Protozoa, *Pseudomonas aeruginosa,* Pathogenic staphylococci. These parameters must be analyzed according the methods given by Italian National Institute for Health ("Istituto Superiore di Sanità", ISS). Enteroviruses, Bacteriophages anti E. coli, Pathogenic Enterobacteria, and Pathogenic staphylococci must be constantly absent in drinking water.

3.3. Monitoring - Frequency of sampling and analyses

Minimum frequency sampling and testing drinking water regarding amount of water distributed in the supply area is defined in DWD by Table 9.

In Italian legislation for V ≤100 the Check monitoring and Audit monitoring number of samples per year is decided by Local health unit.

In Slovenian legislative the minimum annual frequency of sampling and testing drinking water regarding number of habitants and amount of water distributed in the supply area –is given in table 10.

In Croatian legislation for V ≤100 the Check monitoring number of samples per year is 2 and Audit monitoring number is 1 per year, for 100 < V ≤ 1.000 the number of samples defined in DWD is multiplied by 2, for 1.000 < V ≤ 10.000 by 3, and for 10.000 < V ≤ 100.000 and V > 100.000 by 4.

Table 9: Minimum frequency of sampling and analyses for water intended for human consumption supplied from distribution network – DWD [2]

Volume of water distributed or produced each day within a supply zone m^3	Check monitoring number of samples per year	Audit monitoring number of samples per year
V ≤100	The frequency is to be decided by Member State concerned.	The frequency is to be decided by Member State concerned.
100 < V ≤ 1.000	4	1
1.000 < V ≤ 10.000	4 + 3 for each 1.000 m^3/d and part thereof of the total volume	1 + 1 for each 3.300 m^3/d and part thereof of the total volume
10.000 < V ≤ 100.000		3 + 1 for each 10.000 m^3/d and part thereof of the total volume
V > 100.000		10 + 1 for each 25.000 m^3/d and part thereof of the total volume

Table 10: Minimum annual frequency of sampling and testing drinking water regarding number of habitants and amount of water distributed in the supply area – Slovenia [8]

Number of inhabitants on the supply area	*The amount of water distributed in the supply area m^3 / day*	*Number of samples for regular testing*	*Number of samples for periodic testing*
≤500	≤100	6	Determined in the annual monitoring program
501 – 5,000	101 – 1,000	12	1
5,001 – 20,000	1,001 – 4,000	24	3
20,001 – 50,000	4,001 – 10,000	36	4
50,001 – 100,000	50,001 – 20,000	72	6
> 100,000	> 20,000	120	8

In Greek legislative Frequency of sampling and testing drinking water regarding amount of water distributed in the supply area is given in table 11.

Table 11: Frequency of sampling and testing drinking water regarding amount of water distributed in the supply area – Greece [47]

Water Volume distributed or produced per day within a supply zone m^3/day	Check monitoring number of samples per year	Audit monitoring number of samples per year
≤100	1	
101-500	4	1
501-1000	6	1
1001-2000	9	1
2001-3000	12	1
3001-4000	15	1
4001-5000	18	2
5001-6000	21	2
6001-7000	24	2 + 1 for every 3300 m^3 / day
7001-8000	27	3
8001-9000	30	3
9001-10000	33	3
……	+ 3 for every 1000 m^3 / day	
19001-20000	63	4
……	+ 3 for every 1000 m^3 / day	+ 1 for every 10000 m^3 / day
29001-30000	93	5
……		
99001-100000	303	12
100001-200000	603	16
……	+ 3 for every 1000 m^3 / day	+ 1 for every 25000 m^3 / day
900001-1000000	3000	52

The sampling frequency in both Serbian and Montenegrian legislation is given in table 12.

Table 12: Number of sampling frequencies with respect to in line P.E [29,37]

(P.E)	Monthly	Annually	Regular/ Yearly	Total. period.	Total
to 5000	1	1	11	1	12
5001-10000	2	1	23	1	24
10001-50000	3	1	35	1	36
50001-100000	6	2	70	2	72
100001-200000	10	4	116	4	120
200001-400000	15	6	174	6	180
more than 400000	30	12	348	12	360

In the new proposal for the Regulation on “Drinking Water Quality” in Albania, which is still in approval process, is integrated the DWD norms and regulation. In the second annex of this new regulation, the minimum number of sampling points for the analysis of drinking water based on the number of inhabitants water supply (table 13). Minimal frequency of sampling of drinking water analysis supplied form public network, reservoir, wells or water used by food enterprises is given by the same table 8 from DWD.

Table 13: Minimum number of sampling points – Albania

Population connected to the water supply network	**The minimum number of sampling**
to 15 000 residents	5
from 15 000 to 30 000 residents	10
from 30 000 to 60 000 residents	15
from 60 000 to 90 000 residents	20
90 000 more	25

4. Monitoring water (re)sources in Adriatic region – analyses of national legislation

Monitoring water (re)sources in ADRIATIC region is regulated by following national legislation:

Italy:

- Legislative Decree no. 152 of 3 April 2006, Environmental Code (Ordinary Supplement to Official Gazzete of the Italian Republic no. 88 del 14.04.2006. and further modifications, orig. Norme in Materia Ambientale; A unified text of law that takes into account several aspects connected to Environmental quality and actions; among other aspects: Environmental Impact Assessment (EIA), Water management and pollution prevention, Waste management and Contaminated soils remediation, Air protection and pollution prevention, Compensation claims against environmental damages)

Slovenia:

- Groundwater:
  - Decree on groundwater status (Official gazette of Republic of Slovenia No. 25/09, 68/12, *orig. Uredba o stanju podzemnih voda*)
  - Regulations on groundwater monitoring (Official gazette of Republic of Slovenia No. 31/09, *orig. Pravilnik o monitoringu podzemnih voda*)
- Surface water:
  - Decree on surface water status (Official gazette of Republic of Slovenia No. 14/09, 98/10, 96/13, *orig. Uredba o stanju površinskih voda*)
  - Regulations on surface water status monitoring (Official gazette of Republic of Slovenia No. 10/09, 81/11, *orig. Pravilnik o monitoringu stanja površinskih voda*)

Croatia:

- Decree on water quality standard (Official gazette of Republic of Croatia No. 073/2013, orig. *Uredba o standardu kakvoće voda*)

Bosnia and Herzegovina:

- Water resources under the authority of the FB&H:
  - Regulations on Dangerous and Harmful Substances in Water (Official Gazette of FBiH no. 43/07, orig. *Uredba o opasnim štetnim materijama u vodama*);
  - Regulations on Classification of Waters and Coastal Sea Waters within the Borders of Former Socialist Republic of Bosnia and Herzegovina (Official Gazette of SR BiH no. 18/80, orig. *Uredba o klasifikaciji voda i voda obalnog mora Jugoslavije u granicama Socijalističke Republike Bosne i Hercegovine*);

- Regulations on Watercourse Categorization (Official Gazette of SR BiH no. 43/67; orig. *Uredba o kategorizaciji vodotoka*);
- Decision on Characterization of Surface and Ground Waters, Reference Requirements, and Parameters for the Assessment of Water Status and Water Monitoring (Official Gazette of FBiH no. 1/14; orig. *Odluka o karakterizaciji površinskih i podzemnih voda, referentnim uslovima i parametrima za ocjenu stanja voda i monitoringu voda*);

- Surface water under the authority of the Republic of Srpska:
  - Regulations on classification and categorization of watercourses (Official Gazette RS, no. 42/01; orig. *Uredba o klasifikaciji voda i kategorizaciji vodotoka*).

Serbia:

- Drinking water supply sources management and protection Act (Official Gazette of Republic of Serbia, no. 27/77, 24/85, 29/88, 49/89 and 46/91, orig. Закон о искоришћавању и заштити изворишта водоснабдевања/*Zakon o iskorišćavanju i zaštiti izvorišta vodosnabdevanja*) [3];
- Regulations on surface water ecological and chemical status parameters and groundwater chemical and quantitative status parameters (Official Gazette of Republic of Serbia, no 74/2011, orig. *Правилник о параметрима еколошког и хемијског статуса површинских вода и параттертима хемијског и квантитативног статуса подземних вода/Pravilnik o parametrima ekološkog i hemijskog statusa površinskih voda i parametrima hemijskog i kvantitativnog statusa podzemnih voda*) [8].

Albania:

- DCM no 1189, dated 18.11.2009 "to the rules and procedures for the drafting and implementation of a national program of environmental monitoring" (Official Gazette of Republic of Albania no. 200/2009, orig. *Për rregullat dhe procedurat për hartimin dhe zbatimin e programit kombetar të monitorimit të mjedisit*)
- DCM. 246, dated 04.30.2014 "for determination of the environmental quality standards for surface waters" (Official Gazette of Republic of Albania no. 65/2014, orig. *Vendim i KM nr. 246, datë 30.4.2014 "Për përcaktimin e normave të cilësisë së mjedisit për ujërat sipërfaqësore"*)

Greece:

- Ministerial Decree 1811 for the determination of the maximum allowable concentrations of pollutants in groundwater in implementation of the paragraph 2 of Article 3 of the JMD 39626/2208/E130/2009 (Official Gazette of the Greek Republic 3322/30-12-2011, orig. *Αριθμ. οικ. 1811, Ορισμός ανώτερων αποδεκτών τιμών για τη συγκέντρωση συγκεκριμένων ρύπων, ομάδων ρύπων ή δεικτών ρύπανσης σε υπόγεια ύδατα, σε εφαρμογή της παραγράφου 2 του Άρθρου 3 της υπ' αριθμ.: 39626/2208/Ε130/2009 κοινής υπουργικής απόφασης (Β΄ 2075)*)

- Joint Ministerial Decree 140384. Determination of the national stations network for monitoring the quality and quantity of the water systems (Official Gazette of the Greek Republic 2017B/9-9-2011, orig. *Αριθμ. οικ. 140384. Ορισμός Εθνικού Δικτύου Παρακολούθησης της ποιότητας και της ποσότητας των υδάτων με καθορισμό των θέσεων (σταθμών) μετρήσεων και των φορέων που υποχρεούνται στην λειτουργία τους, κατά το άρθρο 4, παράγραφος 4 του Ν. 3199/2003 (Α΄ 280)*)
- Joint Ministerial Decree 51354/2641/E103/2010 for the determination of the Environmental Quality Standards for the concentrations of pollutants in surface waters (according to the Directive 2008/105/EC) (Official Gazette of the Greek Republic 1909B/8-12-2010, orig. *Αριθμ. Η.Π. 51354/2641/Ε103 Καθορισμός Προτύπων Ποιότητας Περιβάλλοντος (ΠΠΠ) για τις συγκεντρώσεις ορισμένων ρύπων και ουσιών προτεραιότητας στα επιφανειακά ύδατα, σε συμμόρφωση προς τις διατάξεις της οδηγίας 2008/105/ΕΚ του Ευρωπαϊκού Κοινοβουλίου και του Συμβουλίου της 16ης Δεκεμβρίου 2008 «σχετικά με Πρότυπα Ποιότητας Περιβάλλοντος (ΠΠΠ) στον τομέα της πολιτικής των υδάτων και σχετικά με την τροποποίηση και μετέπειτα κατάργηση των οδηγιών του Συμβουλίου 2/176/ΕΟΚ, 83/513/ΕΟΚ, 84/156/ΕΟΚ, 84/491/ΕΟΚ και 86/280/ΕΟΚ και την τροποποίηση της οδηγίας 2000/60/ΕΚ του Ευρωπαϊκού Κοινοβουλίου και του Συμβουλίου», καθώς και για τις συγκεντρώσεις ειδικών ρύπων στα εσωτερικά επιφανειακά ύδατα και άλλες διατάξεις*)

A more detailed presentation of national legislation extracted from FBs reports is given in the following text.

Italy

Though the main purpose of Italian Legislative Decree no. 152/2006 [6] is to reach good environmental standards in terms of quality and management, it also establishes the treatment approach according to the characteristics of the source, particularly referring to surface water intended for human consumption.

Surface water intended for human consumption

Three different level of treatment are prescribed (A1, A2 and A3, see Table 14) with respect to raw water characteristics: two values (I: Imperative; G: Guidance), relating 46 parameters are given for water bodies classification. Table 15, summarizes some of these values, as an example.

Table 14: Treatment level for surface water intended for human consumption [6]

Category	treatment
A1	Physical Treatment and disinfection
A2	Physical and Chemical Treatment and disinfection
A3	Advanced Physical and Chemical Treatment, refining, disinfection

Table 15: Characteristics of surface water intended for human consumption

N.	Parameter	Unit	A1 G	A1 I	A2 G	A2 I	A3 G	A3 I
1	pH	pH units	6,5-8,5	-	5,5-9,0	-	5,5-9,0	-
10	dissolved Fe	mg/l Fe	0,1	0,3	1,0	2,0	1,0	-
13	Zn	mg/l Zn	0,5	2,0	1,0	5,0	1,0	5,0
43	Total Coliforms	N / 100 ml	50	-	5.000	-	50.000	-
44	Faecal Coliforms	N / 100 ml	20	-	2.000	-	20.000	-
45	Faecal Streptococci	N / 100 ml	20	-	1.000	-	10.000	-
46	*Salmonella*	-	Absent in 5.000 ml	-	Absent in 5.000 ml	-	-	-

Groundwater quality

Specific concentration limits for contaminants in groundwater bodies are detailed in the same Legislative Decree no. 152/2006 [6] and further modifications and integrations.
In some Countries (e.g. Greece) limits for Nitrates and Pesticides in groundwater intended for human consumption (Table 16) are set by specific Regulations.

Table 16: Quality standards and limits for pollutants in groundwater

Pollutant	**Quality Standards**
Nitrates	50 mg/l
Active substances in pesticides	0.1 µg/l 0.5 µg/l (total)

Italian Legislative Decree no. 152/2006 [6] gives the Maximum Allowable Concentrations of natural and anthropogenic contaminants, taking into account 92 parameters (metals, inorganic, chlorinated hydrocarbons, nitrobenzenes, etc.). Italian Legislation is probably the more restrictive in Europe with very low limits for a wide set of contaminants: if only one of these contaminants is above the limit, the site is considered contaminated and a remediation procedure has to be undertaken in order to clean it up.
It is important to stress that while for contaminated soils Risk Analysis can be applied, possibly resulting in less restrictive concentration limits for some of the contaminants in the list, this is not possible for groundwater intended for human consumption, thus meaning that prescription given by Legislative Decree no. 31/2001 [4] cannot be derogated, unless

specified in the same Decree. Table 17 reports the limit values for some of the most important contaminant.

Table 17: Maximum allowable concentrations (µg/l) for some parameters

N°	Parameter	MAC (µg/l)
1	Aluminum	200
2	Antimonium	5
4	Arsenic (As)	10
6	Cadmium (Cd)	5
22	Nitrites	500
23	Sulfates	250 **mg/l**
24	Benzene	1
29	Benzo (a) antracene	0,1
41	Vinyl chloride	0,5
53	1,1,2,2 tetrachloroethane	0,05
58	Nitrobenzene	3,5
62	Monochlorobenzene	40
69	2-chlorophenol	180
88	PCB	0,01

The implementation of Water Framework Directive 2000/60/EC [1] and following Directive 2006/118/EC [3], through Italian Legislative Decree 30/2009, required a review and adjustment of the monitoring plans for water protection. With particular regard to groundwater the aim of the new legislation is to allow the development of a conceptual model that represents the knowledge base for the design of monitoring programs and risk assessment. The main points of the Decree 30/2009 can be summarized as follow:

- Identification of hydrogeological complex and aquifers;
- Identification and characterization of groundwater bodies;
- Analysis of pressures and impacts;
- Groundwater bodies Vulnerability assessment in relation to identified pressures;
- Monitoring of groundwater bodies, including chemical status evaluation, identification of significant quality trends and durable changes; quantitative status definition and groundwater quality status presentation;
- Definition of the conceptual model

Slovenia

Groundwater status and monitoring

The Decree on groundwater status (Official gazette of Republic of Slovenia No. 25/09, 68/12) [9] defines the procedure for determination of the threshold values for groundwater

quality, parameters for chemical and quantitative state, groundwater quality standards, threshold values for groundwater quality, conditions for good quality and quantity state, criteria for the identification of significant and sustained upward trends of pollution and criterions to determine the groundwater body pollution load.

Groundwater status is determined on the basis of monitoring results of the chemical and quantitative status of groundwater. The chemical status of groundwater is determined on the basis of the following criteria:

- exceeding of the quality standards and threshold values,
- the effects of saltwater intrusion or other intrusions into the groundwater body,
- concentrations of pollutants that cause deterioration of the ecological and chemical status of surface waters that are connected with the groundwater bodies and adversely effect on aquatic and terrestrial ecosystems, which are directly dependent on them.

The parameters of the chemical status, quality standards and threshold values on the basis of which chemical status of the groundwater body are noted, are part of this regulation.

In the table 18 the parameters from which quality standards are defined and in table 19 the parameters from which the threshold value are specified.

Table 18: Parameters with quality standards [9]

Parameter	*Unit*	*Quality standard*
Nitrates	mg NO_3/L	50
Individual pesticide and its relevant degradation products	µg/l	0.1
Sum of all measured pesticides and their relevant degradation produktov	µg/l	0.5

Table 19: Parameters and threshold standards [9]

Parameter	*Unit*	*Threshold standard*
Dichloromethane	µg/l	2
Tetrachloromethane	µg/l	2
1,2-Dichloroethane	µg/l	3
1,1-Dichloroethene	µg/l	2
Trichloroethene	µg/l	2
Tetrachloroethene	µg/l	2
The sum of volatile aliphatic halogenated hydrocarbons	µg/l	10

Rules on groundwater monitoring (Official gazette of Republic of Slovenia No. 31/09) [10] sets out the method and the extent of groundwater monitoring, sampling frequency, analyses or measurements and requirements for groundwater monitoring.

The groundwater monitoring includes monitoring of groundwater chemical status and monitoring of groundwater quantity. The monitoring sites have to be selected in the way that the chemical status in each catchment area is noted and the long term trends of rising pollutants concentration are detected. The Rules define the range of chemical parameters, the monitoring sites, the frequency of monitoring, sampling and analysis methods. The purpose of groundwater quantity monitoring is to control the groundwater level oscillation regime and to define the quantative status of groundwater bodies.

Surface water status and monitoring

The Decree on surface water status (Official gazette of Republic of Slovenia No. 14/09, 98/10, 96/13) [11] defines the criterion for surface water quality status, environmental quality standards for determining the chemical status and criteria and environmental quality standards for the determination of the ecological status of surface water and types of surface water monitoring. The decree includes the provisions to define chemical and ecological status of surface water body.

This Decree provides for surface water chemical status:

- chemical parameters for determining the chemical status of surface waters,
- environmental quality standards for parameters of the chemical status of surface water,
- criteria for determining the chemical status of surface waters and classification of surface water bodies in the classes of chemical status.

This Decree provides for ecological status of surface waters:

- quality elements for the determination of ecological status and ecological potential of surface waters,
- methods for the evaluation of individual biological elements of ecological status,
- parameters for evaluating the quality of individual chemical elements supporting the biological elements of ecological status,
- parameters for the evaluation of individual general physico-chemical quality elements supporting the biological elements of ecological status,
- parameters for the evaluation of individual hydrological quality elements supporting the biological elements of ecological status,
- classes and attribute definitions of ecological status of surface water bodies and classes of ecological potential of artificial and heavily modified water bodies,
- thresholds for individual classes of ecological status for the evaluation of the biological elements of ecological status,

- thresholds for individual classes of ecological status for a specific pollutant,
- thresholds for individual classes of ecological status for general physical-chemical parameters,
- criteria for the evaluation of individual elements of ecological status,
- criteria for determining ecological status of surface water bodies and their grading ecological status.

Regulation on surface water status monitoring (Official gazette of republic of Slovenia No. 10/09, 81/11) [12] defines the methods, extend and requirements monitoring the status of surface water as well as the way and form to prepare the report about surface water state monitoring. Monitoring of surface water includes also monitoring of hydrological phenomena related to the chemical and ecological status of surface water bodies
The frequency of monitoring in respect of the ecological status of surface water varies for types of surface waters and the elements of quality. The maximum allowable intervals for monitoring of ecological status are given this document and presented in table 20. The frequency of monitoring of surface water bodies using for drinking water supply are presented in table 21.

Table 20: The maximum allowable intervals for monitoring of ecological status

	Rivers	*Lakes*	*Brackish*	*Coastal waters*
Biological quality elements				
Phytoplankton	6 months	6 months	6 months	6 months
Other aquatic flora	3 years	3 years	3 years	3 years
Benthic invertebrates	3 years	3 years	3 years	3 years
Fish	3 years	3 years	3 years	
Hydromorphological quality elements				
Continuity of flow	6 years	not relevant	not relevant	not relevant
Hidrology	permanent	1 month	not relevant	not relevant
Morphology	6 years	6 years	6 years	6 years
General physico-chemical quality elements				
Thermal conditions	3 months	3 months	3 months	3 months
Oxygenation conditions	3 months	3 months	3 months	3 months
Salinity	3 months	3 months	3 months	
Nutrient status	3 months	3 months	3 months	3 months
Acidity	3 months	3 months		
Total organic carbon (TOC)	3 months	3 months		
Suspended solids after drying	3 months			
Transparency		3 months	3 months	
Specific pollutants				
Synthetic and non-synthetic pollutants and other specific pollutants	3 months	3 months	3 months	3 months

Table 21: The frequency of monitoring of surface water bodies where water abstraction for drinking water supply

Serviced population	*Frequency*
< 10.000	4 times a year
10.000 to 30.000	8 times a year
> 30.000	12 times a year (monthly)

Croatia

The *Decree on water quality standard* [16] defines the water quality standards for surface waters, including coastal waters and territorial sea waters and groundwater, specific goals for water protection criteria establishes the objectives, the protection of water, the conditions for the extension of deadlines for achieving the objectives of protection water elements for the assessment of water status, the monitoring of water status and reporting of water.

Surface water

State of surface water is determined on the basis of ecological and chemical status of the water body or group of water bodies.

The ecological state of surface water is assessed in relation to biological, hydro-morphological and basic physic-chemical and chemical elements that accompany biological elements listed in this Decree:

- standards for determination of ecological status of surface waters,
  - quality elements of ecological status,
  - indicators and indices of ecological status,
  - permitted values for categories of ecological status.

The chemical state of surface water is assessed based on indicators of chemical status listed in this Decree:

- quality standards for determining the chemical status of surface waters,
  - list of priority substances,
  - quality standards for assessing the chemical status,
  - substances subject to review to determine if they are priority substances or priority hazardous substances.

For artificial and significantly altered surface water bodies elements for assessment of the state of those natural surface water bodies which are most similar to them are used.

Condition of artificial and significantly altered surface water bodies is determined on the basis of ecological potential and chemical status of bodies or groups of bodies.

This policy also defines the methods, extend and requirements monitoring the status of surface waters as well as the way and form to prepare the report about surface water state monitoring.

The frequency of surveillance monitoring in respect of the ecological status of surface water varies for types of surface waters and the elements of quality. The maximum allowable intervals for monitoring of ecological status are given in ANNEX VII of this Decree and presented in table 22.

Groundwater

In *Decree on water quality standard* [4] methods and the extent of groundwater monitoring, sampling frequency, analyses or measurements and requirements for groundwater monitoring are given also.

Groundwater status is determined on the basis of quantitative and chemical status of the groundwater.

Elements for evaluating quantitative and chemical status of groundwater bodies are:

1. For quantitative status:
   - Groundwater level,
   - Abundance;
2. For chemical status:
   - In general - electric conductivity, dissolved oxygen, pH,
   - Pollutants - nitrates, ammonium, specific pollutants.

The chemical status of groundwater bodies is assessed on the basis of:

1. Groundwater quality standards set out in this Regulation and,

2. Permitted values of specific pollutants given also in this Decree, accordance to the procedure established in this Decree for the pollutants for which the analysis of the characteristics of the river basin district from Article 45 of the *Water Act* is established that the groundwater body is in the state of risk. To estimate the risk of failing to achieve a good status are taken into consider at least the indicators set out in this Decree for which are established the standards for quality groundwater.

For the assessment of the chemical status of groundwater bodies is applied the average annual concentration. The average annual concentration is calculated on the basis of all measurement results for indicators of chemical status, measured at the monitoring stations of the groundwater body at different times during the calendar year.

In the table 23 the parameters from which quality standards are defined.

Table 22: The maximum allowable intervals for monitoring of ecological status

	Rivers	*Lakes*	*Brackish*	*Coastal waters*
Biological quality elements				
Phytoplankton	6 months	6 months	6 months	6 months
Other aquatic flora	1 year	1 year	1 year	1 year
Benthic invertebrates	1 year	1 year	1 year	1 year
Fish	1 year	1 year	1 year	
Hydro-morphological quality elements				
Continuity of flow	1 year			
Hydrology	permanent	1 month		
Morphology	1 year	1 year	1 year	1 year
General physic-chemical quality elements				
Thermal conditions	3 months	3 months	3 months	3 months
Oxygenation conditions	3 months	3 months	3 months	3 months
Salinity	3 months	3 months	3 months	3 months
Nutrient status	3 months	3 months	3 months	3 months
pH	3 months	3 months		
Specific pollutants	3 months	3 months	3 months	3 months
Priority pollutants	1 month	1 month	1 month	1 month

Table 23: Parameters with quality standards

Parameter	*Unit*	*Average annual concentration*
Nitrates	mg NO_3/L	50
Individual pesticide	µg/l	0.1
Sum of all measured pesticides and their relevant degradation product	µg/l	0.5

The groundwater monitoring includes monitoring of groundwater chemical status and monitoring of groundwater quantity. The monitoring sites have to be selected in the way that the chemical status in each catchment area is noted and the long term trends of rising pollutants concentration are detected. The Decree defines the range of chemical parameters, the monitoring sites, and the frequency of monitoring, sampling and analysis methods. The purpose of groundwater quantity monitoring is to control the groundwater level oscillation regime and to define the quantitative status of groundwater bodies.

Bosnia and Herzegovina

Groundwater status

Decision on Characterization of Surface and Ground Waters, Reference Requirements, and Parameters for the Assessment of Water Status and Water Monitoring (Official Gazette of FBiH no. 1/14) defines the procedure for determination of the threshold values for groundwater quality, parameters for chemical and quantitative state, groundwater quality standards, threshold values for groundwater quality, conditions for good quality and quantity state, criteria for the identification of significant and sustained upward trends of pollution and criterions to determine the groundwater body pollution load.

Decision mentioned above will be active soon on territory of Federation BiH for now, and it is used for evaluation of groundwater status only. Rulebook on Drinking Water Safety (Official Gazette of BiH no. 40/10 and 30/12) and Rulebook on Natural Mineral and Natural Spring Water (Official Gazette of BiH no. 26/10) are main Drinking water legislations on the level of entire Bosnia and Herzegovina.

Groundwater status is determined on the basis of monitoring results of the chemical and quantitative status of groundwater. The chemical status of groundwater is determined on the basis of the following criteria:

- sustainable long term trend of average exploitation of ground water which do not exceed usable amount of ground water reserves,
- changes caused by anthropogenic activities in ground water level are not jeopardise achieving of “Water Frame Directive” goals,
- there is not significant degradation of ecosystem which depends on ground water or presence of pollution caused by change of ground water flow direction.

If requested parameters values described above are not achieved, the ground water status has to be classified as bad.

Monitoring and frequency of ground water analysis depends of all of this parameters, geological and hydrological characteristics, as well as evaluated risks of anthropogenic pollution with special attention of not impact on ecosystem.

In the table 24 the inorganic parameters from which quality standards are defined, in table 25 other parameters and in table 26 organic parameters from which the threshold value are specified.

Table 24: Inorganic parameters and threshold standards

Parameter	*Unit*	*Threshold standard*
Arsenic (As)	A	10.0
Lead (Pb)	µg/l	7.0
Cadmium (Cd)	µg/l	0.5
Mercury (Hg)	µg/l	0.2
Ammonia (NH_4^+)	mg/l	0.5
Chlorides (Cl^-)	mg/l	250.0
Cyanides (CN)	µg/l	5.0 (50.0 if no presence of free cyanides)
Sulphates (SO_4^{2-})	mg/l	240.0

Table 25: Other parameters with quality standards

Parameter	*Unit*	*Quality standard*
Nitrates	mg NO_3/L	50.0
Individual pesticide and its relevant degradation products	µg/l	0.1
Sum of all measured pesticides and their relevant degradation products	µg/l	0.5

Table 26: Other parameters with quality standards

Parameter	*Unit*	*Quality standard*
Tri- and tetra-chloroethylene total	µg/l	10.0

Surface water status and monitoring

Class of the watercourse has been determined based on the values of physical-chemical water quality parameters and calculated saprobe indexes obtained by the performed water quality measurements. The physical-chemical parameters for which limit values have been established by the Regulation for Hazardous and Harmful Substances in Water (Official Gazette No. 43/07) were taken as relevant for the assessment of chemical quality of water in the Federation BiH. The final class for each group of parameters (basic parameters, nutrients, priority substances and biological parameters), for each measurement profile have been defined on the basis of the worst analysis result. Categorization of the watercourse has been defined based on relevant regulation in force ("Regulation on Categorization of

Watercourses in the SR BiH", no. 42/67). This regulation is still active on the territory of FBiH.

On the territory of Republic of Srpska entity, monitoring plan was created according to recommendations from the Directive 2000/60/EC, and supporting EC directives. For rivers with catchment area >1,000 km2, the monitoring network consists of the following elements:

- Surveillance monitoring I: Monitoring of surface water status-rivers (SM 1);
- Surveillance monitoring II: Monitoring of specific pressures; (TNMN monitoring stations, SM 2,
- Operational monitoring (OM).

For the Federation of BiH entity, it is expected to start with implementation of “Decision on Characterization of Surface and Ground Waters, Reference Requirements, and Parameters for the Assessment of Water Status and Water Monitoring” (Official Gazette of FBiH no. 1/14) defines the criteria for surface water quality status, environmental quality standards for determining the chemical status and criteria and environmental quality standards for the determination of the ecological status of surface water and types of surface water monitoring. This legislative includes the provisions to define chemical and ecological status of surface water body. However, this legislative is still at decision level in Federation BiH, so legislation 42/67 is still main law regulation for evaluation of surface water class.

Decision mentioned above provides for surface water chemical status:
- chemical parameters for determining the chemical status of surface waters,
- environmental quality standards for parameters of the chemical status of surface water,
- criteria for determining the chemical status of surface waters and classification of surface water bodies in the classes of chemical status.

This Decision provides for ecological status of surface waters:
- quality elements for the determination of ecological status and ecological potential of surface waters,
- methods for the evaluation of individual biological elements of ecological status,
- parameters for evaluating the quality of individual chemical elements supporting the biological elements of ecological status,
- parameters for the evaluation of individual general physical-chemical quality elements supporting the biological elements of ecological status,
- parameters for the evaluation of individual hydrological quality elements supporting the biological elements of ecological status,
- classes and attribute definitions of ecological status of surface water bodies and classes of ecological potential of artificial and heavily modified water bodies,
- thresholds for individual classes of ecological status for the evaluation of the biological elements of ecological status,
- thresholds for individual classes of ecological status for a specific pollutant,
- thresholds for individual classes of ecological status for general physical-chemical parameters,

- criteria for the evaluation of individual elements of ecological status,
- criteria for determining ecological status of surface water bodies and their grading ecological status.

Decision on Characterization of Surface and Ground Waters, Reference Requirements, and Parameters for the Assessment of Water Status and Water Monitoring (Official Gazette of FBiH no. 1/14) defines methods, extent and requirements for monitoring the status of surface water, as well as the way and form to prepare the report about surface water state monitoring. Monitoring of surface water includes also monitoring of hydrological phenomena related to the chemical and ecological status of surface water bodies.

The frequency of monitoring in respect of the ecological status of surface water varies for types of surface waters and the elements of quality. The maximum allowable intervals for monitoring of ecological status are given in Annex I of this document and presented in table 27.

Table 27: The maximum allowable intervals for supervising monitoring of ecological status

	Rivers	*Lakes*	*Coastal waters*
Biological quality elements			
Phytoplankton	6 months	6 months	6 months
Other aquatic flora	3 years	3 years	3 years
Benthic invertebrates	3 years	3 years	3 years
Fish	3 years	3 years	
Hydromorphological quality elements			
Continuity of flow	6 years		
Hidrology	permanent	1 month	
Morphology	6 years	6 years	6 years
General physico-chemical quality elements			
Thermal conditions	3 months	3 months	3 months
Oxygenation conditions	3 months	3 months	3 months
Salinity	3 months	3 months	
Nutrient status	3 months	3 months	3 months
Acidity	3 months	3 months	
Other polluters	3 months	3 months	3 months
Suspended solids after drying			
Specific pollutants			
Synthetic and non-synthetic pollutants and other specific pollutants	1 month	1 month	1 month

Serbia

Surface and Ground Water Monitoring

In order to ensure a coordinated and comprehensive overview of the surface and ground water statuses, all in accordance with Article 107 of the Water Act, quantitative and qualitative characteristics of the surface and ground water need to be determined through monitoring the relevant parameters. The monitoring results are also used for defining the levels in water courses which are needed for the regulation of the said water courses and the protection from water's harmful impact, including forecasts necessary for flood prevention.

For several decades, the Republic Hydrometeorological Service of Serbia has been performing the monitoring of the parameters of surface water and the ground water from water table aquifers, all in accordance with the annual programme prescribed by law. From 2011 onwards, this programme has been implemented by the Serbian Environment Agency, which has taken over the charge of the Environment Sector from the Republic Hydrometeorological Service. Monitoring is also performed by other legal entities authorised for this type of work.

For the purpose of the monitoring of quantitive parameters, there is a developed network (Primary Network) of hydrological stations placed near every significant water course on the Republic of Serbia's territory, comprising 184 such stations (not taking into account the territory of Kosovo and Metohija), out of which 69 are reporting stations. Water level is monitored at all stations, water temperature at 74 of them, whereas hydrometrical measurements of water discharge are performed at 148 stations. Occurrence of ice is monitored at 172 stations, while 29 stations belong to the system for identification of suspended debris transport. Processed data are published in the Republic Hydrometeorological Service's almanacs, and are available to the public.

In Serbia, surface water quality monitoring is performed in rivers, certain canals and accumulations, and, lately, for the ground water from water table aquifers as well. Both the gauge stations positions and the number and frequency of measurements performed, are not always adequate, whereas the monitoring of small and middle-sized water courses are not frequent enough, all of which has a negative impact on the reliability of the surface and ground water state assessment. Moreover, deep aquifers are not monitored at all, an omission that needs to be corrected in the near future.

National And Local Registers of Pollution Sources

National (or Local) Register of Pollution Sources is a register of legal entities and entrepreneurs under obligation to produce annual reports on their emissions into air, water and soil, as well as on their generated waste management. The list of activities and the minimal limit values that require producing reports for the National/Local Registers of Pollution Sources, are both prescribed by the Rule Book on Methodology for Development

of National and Local Registers of Pollution Sources, along with the methodology which is to be used in data collection (˝Official Gazette RS˝ No. 91/2010).

In accordance with the Law on Environmental Protection (˝Official Gazette RS˝ No. 135/04, 36/09, 36/09), National Register of Pollution Sources is managed by the Serbian Environment Agency, whereas the Local Register of Pollution Sources is managed by the local governemnt's authorised body.

Cadaster of Point Sources of Pollution

In accordance with the Serbian Water Act, the Cadaster of Point Sources of Pollution (KIZ) is a part of the Serbian Water Management Information System. The Cadaster is still in the development phase, and it is not fully functional yet. The idea is that the KIZ application should be able to provide all the relevant information on pollution sources in the surface water originating from built-up areas and industry. However, data entry is not performed promptly, nor is the entered data complete, meaning that the cadaster data cannot be considered reliable and does not cover the entire territory the cadaster should cover. An equivalent of this cadaster has been developed in Vojvodina. The two cadasters are not connected even though the original project requires them to be so.

Public water management companies are in charge of ensuring that the cadaster is functional and up-to-date. The data they collect for this purposes are neither methodologically nor qualitatively in accordance with the requirements stated in the cadaster's design documentation. Still, the cadaster data concerning some parts of the covered territory is periodically updated. The data concerning the Sava river area is updated regularly, as well as the data concerning certain parts of the Belgrade water area, while other areas do not follow this update dynamics.

Albania

LAW NO. 1. 111/2012, DATE 15.12.2012 "ON INTEGRATED MANAGEMENT OF WATER SOURCES" aims to:

a) protection and improvement of the aquatic environment, surface water, either temporary or permanent, internal sea waters, territorial waters, exclusive economic zones, continental shelf, transboundary waters, groundwater's, and the status of them;

b) the provision, protection, development and rational utilization of water resources, essential for the life and for the social and economic development of the country;

c) the distribution of water resources according the intention of use and direction of their effective administration;

d) protection of water resources from pollution, overuse and consumption on actual needs;

e) defining the institutional framework, national and local level, for the implementation of a national policy for the administration and management of water resources for the good of the community and the social and economic interests of the country.

DCM NO 1189, DATED 18.11.2009 (IS IN THE APPROVAL PROCESS WITH ANOTHER DCM TO ENTER THE OFFICIAL JOURNAL OF REVERSES THIS DECISION) decision aims to:

1- Establishing the rules and procedures for the draft national monitoring program
2- Organization and Functioning of the National Monitoring Network

According to this decision environmental indicators that monitor the state of the environment in terms of water resources are:

For surface waters (rivers, lakes):
a) alkalinity;
b) specific conductivity;
c) acidity;
d) chemical oxygen demand, COD;
d) biochemical oxygen demand, BOD;
f) content of nitrates and nitrogen;
e) the content of phosphorus, P;
h) ammoniac content, NH3;
f) the pH value;
g) the value of natural radioactive stock and water radioactivity;
k) the sustainability of river beds;
h) bacterial indicators;
i) the river flow

For sea and coast
a) biochemical oxygen demand for marine waters, BOD;
b) chemical oxygen demand for marine waters, COD;
c) microbiological parameters in marine waters and beaches;
d) the amount of phyto and zooplankton;
d) the content of chlorophyll and primary production;
f) water content in marine mussels heavy metals, organic pollutants sustainable, and radioactivity;
e) water radioactivity;
h) communication between the sea and the lagoon;
f) the dynamics of estuaries of rivers;
g) morphology and topography of the sea shelf;
k) the morphology of the coast.

For groundwater:
a) pH;
b) hardness

c) alkalinity;
d) acidity;
d) content of nitrates;
f) saltiness.

For surface waters, groundwater and marine, the potential sources of industrial and agricultural pollution:
a) heavy metal content;
b) the content of pesticides;
c) the content of hydro carbon compounds.

Currently a revised DMC is written and after its publication in the official gazette the DMC no 1189, dated 18.11.2009, will be invalid.

The aim of DCM. 246, DATED 04.30.2014 "FOR THE DETERMINATION OF THE ENVIRONMENTAL QUALITY STANDARDS FOR SURFACE WATERS" decision is to establish environmental quality standards of surface water bodies, for priority substances and other pollutants, in order to achieve good chemical status of surface waters and in accordance with environmental objectives under Article 25 of Law no. 111/2012, "For integrated water resources management"

In Annex I of the decision are provided normal environmental quality of water bodies for certain substances.

No	Name	Number(1) CAS (Chemical Abstract Service)	EQN(2) annual average Internal surface waters	EQN (2) annual average Other surface waters	MAC-EQN (4) Internal surface waters	MAC-EQN (4) Other surface waters
1	Alachlor	15972-60-8	0,3	0,3	0,7	0,7
2	Anthracene	120-12-7	0,1	0,1	0,4	0,4
3	Atrazina	1912-24-9	0,6	0,6	2,0	2,0
4	Benzene	71-43-2	10	8	50	50
5	Bromine Difenil Eter	32534-81-9	0,0005	0,0002	Non applicable	Non applicable
6	Cadmium and its compounds (depending on water rigidit categories)	7440-43-9	≤ 0,08 (Category	0,2	≤ 0,45 (Category	≤ 0,45 (Category 1)
			0,08 (Category 2)		0,45 (Category 2)	0,45 (Category 2)
			0,09 (Category 3)		0,6 (Category 3)	0,6 (Category 3)
			0,15 (Category 4)		0,9 (Category 4)	0,9 (Category 4)
			0,25 (Category 5)		1,5 (Category 5)	1,5 (Category 5)
6a	Carbon Tetrachloride	56-23-5	12	12	Non applicable	Non applicable
7	C10-13 Chloroalkane	85535-84-8	0,4	0,4	1,4	1,4
8	Chlorfenvinphos	470-90-6	0,1	0,1	0,3	0,3
9	Chlorpyrifos (Ethyl Chlorpyrifos)	2921-88-2	0,03	0,03	0,1	0,1
9	Cyclodiene Pesticides		Σ = 0,01	Σ = 0,005	Non applicable	Non applicable
	Aldrin(7)	309-00-2				
9	Dieldrin(7)	60-57-1	Σ = 0,01	Σ = 0,005	Non applicable	Non applicable
	Endrin	72-20-8				
	Azodrini(7)	465-73-6				
9b	Total DDT (7)(8)	Non applicable	0,025	0,025	Non applicable	Non applicable
	Pre-DDT(7)	50-29-3	0,01	0,01	Non applicable	Non applicable
10	1,2- Dichloromethane	107-06-2	10	10	Non applicable	Non applicable
11	Dichloromethane	75-09-2	20	20	Non applicable	Non applicable
12	Di(2-etileksil)- phthalate(DEHP)	117-81-7	1,3	1,3	Non applicable	Non applicable

13	Diuron	330-54-1	0,2	02	1,8	1,8
14	Endosulfan	115-29-7	0,005	0,0005	0,01	0,004
15	Fluoranthene	206-44-0	0,1	0,1	1,0	1,0
16	Hexachloro-benzene	118-74-1	0,01[9]	0,01[9]	0,05	0,05
17	Hexachloro-butadiene	87-68-3	0,1[9]	0,1[9]	0,6	0,6
18	Hexachloro-cikloheksan	608-73-1	0,02	0,002	0,04	0,02
19	Isoproturon	34123-59-6	0,3	0,3	1,0	1,0
20	Lead and its compounds	7439-92-1	7,2	7,2	Non applicable	Non applicable
21	Mercury and its compounds	7439-97-6	0,05[9]	0.05[9]	0,07	0,07
22	Naphthalene	91-20-3	2,4	1.2	Non applicable	Non applicable
23	Nickel and its compounds	7440-02-0	20	20	Non applicable	Non applicable
24	Nonylphenol (4-Nonilfenoli)	104-40-5	0,3	0,3	2,0	2,0
25	Oktilfenol ((4-(1,1',3,3' - tetramethylbutyl)-fenoli))	140-66-9	0,1	0,01	Non applicable	Non applicable
26	Pentachloro-benzene	608-93-5	0,007	0,0007	Non applicable	Non applicable
27	Pentachloro -fenoli	87-86-5	0.4	0,4	1,0	1,0
28	Polycyclic aromatic hydrocarbons (HPA)[10]	Non applicable	Non applicable	Non applicable	Non applicable	Non applicable
	Benzo(a)pyrene	50-32-8	0,05	0,05	0,1	0,1
	Benzo(b)fluoranthene	205-99-2	Σ = 0.03	Σ = 0,03	Non applicable	Non applicable
	Benzo(k)fluoranthene	207-08-9				
	Benzo(g,h,i)-perylene	191-24-2	Σ = 0,002	Σ = 0,002	Non applicable	Non applicable
	Indeno(l,2,3-cd)- perylene	193-39-5				
29	Simazine	122-34-9	1,0	1,0	4,0	4,0
	Tetrachloroethylene	127-18-4	10	10	Non applicable	Non applicable
	Trichloroethylene	79-01-6	10	10	Non applicable	Non applicable
30	Tributyltin compounds (Tributiltin-	36643-28-4	0,0002	0,0002	0,0015	0,0015
31	Trichlorobenzene	12002-48-1	0,4	0,4	Non applicable	Non applicable
32	Trichloromethane	67-66-3	2,5	2,5	Non applicable	Non applicable
33	Trifluralin	1582-09-8	0,03	0,03	Non applicable	Non applicable

Greece

National Law 3199/2003 is issued in accordance with the Water Framework Directive 2000/60/EC (WFD). The law includes the competent authorities; the implementation procedure of the River Basin Management Plans and the Programs of Measures; the water uses; and the sanctions. To fully harmonize the WFD to the Greek legislation several Presidential Decrees and other regulations are issued.

The regulation Determination of the monitoring stations: Official Gazette of the Greek Republic 2017B/9-9-2011adopts the national monitoring network for monitoring surface and groundwater bodies (according to the article 2 of the Law 3199/2003). The competent authority is the Special Water Secretariat of the Ministry of Environment, Energy and Climate Change. The specific monitoring stations are determined in all surface, groundwater, transitional and coastal water bodies in the country.
The Regulation Maximum Allowable Concentrations of pollutants in groundwater: Ministerial Decision 1811 (Official Gazette of the Greek Republic 3322/30-12-2011)defines the maximum allowable concentrations of pollutants in groundwater bodies. The quality standards of groundwater bodies are given in the regulation's ANNEX (Table 28). Table 29

summarizes the maximum allowable concentrations for natural parameters or parameters due to human factors.

Table 28: Quality standards of pollutants in groundwater

Pollutant	**Quality Standards**
Nitrates	50 mg/l
Active substances in pesticides	0.1 μg/l 0.5 μg/l (total)

Table 29: Parameters and maximum allowable concentrations

Parameter	**Maximum Allowable Concentration**
pH	6,5-9,5
Conductivity	2500 μS/cm
Arsenic (As)	10 μg/l
Cadmium (Cd)	5 μg/l
Lead (Pb)	25 μg/l
Mercury (Hg)	1 μg/l
Nickel (Ni)	20 μg/l
Chromium (Cr)	50 μg/l
Aluminum (Al)	200 μg/l
Ammonium	0,5 mg/l
Nitrites	0,5 mg/l
Chlorides (Cl-)	250 mg/l
Sulfates	250 mg/l
Total synthetic substances (trichloroethylene & tetrachlorethylene)	10 μg/l

The Environmental Quality Standards in surface water: Joint Ministerial Decision 51354/2641/E103/2010 (Official Gazette of the Greek Republic 1909B/8-12-2010) harmonizes the Directive 2008/105/EC of the European Council to the Greek legislation. It includes the list of Environmental Quality Standards for priority substance and pollutants in surface water (inland and other surface waters). The list of the priority substances, their annual average values and their maximum allowable concentrations are given in ANNEX I of the Directive and the JMD.

5. Conclusions on legislative framework for water (re)sources monitoring activities in the Adriatic region

In EU members countries Italy, Slovenia and Greece legislation that address monitoring of the water for human consumption quality is harmonized with EU Drinking water directive. Bosnia and Herzegovina legislation regarding monitoring the quality of water for human consumption is also in accordance with Drinking water directive although B&H is not member of EU. Croatia has two regulations that cover jointly the DWD. There are minor differences between all these national legislative acts.

Montenegro, Serbia and Albania have their own legislation relevant for the monitoring of the water for human consumption quality. The new proposal for the Regulation on “Drinking Water Quality” in Albania, which is still in approval process, has integrated the DWD norms and regulation.

In Serbia WFD requirements are transposed into Water Act and by-laws, existing and those that are still pending to be approved.

Water Framework Directive is not operative in Albania, but the Law on "Integrated Management of Water Resources" and some other DCM updated this year are written in compliance with this Directive.

From analyses of national legislation for water (re)sources monitoring in DRINKADRIA project partner countries it can be concluded that there are more particularities and differences given the monitoring of water (re)sources quality with respect to the quality of water supplied for human consumption.

A common protocol for monitoring activities on cross-border water resources (used for human consumption) in the Adriatic region that could be applicable for all cross-border water (re)sources in all countries is very difficult to propose given the differences in national legislation so it can be concluded that protocols for monitoring activities on cross-border water (re)sources should be prepared bilaterally.

Thus, due to this differences the guideline for preparation of protocol for monitoring activities on cross-border water (re)sources in the Adriatic region is proposed. Based on this guideline and taking into account the particularities for just two countries (instead of 8) the bilateral protocol for monitoring activities on cross-border water (re)sources that is comprehensive can be individually prepared with much more details.

6. Guideline for preparation of protocol for monitoring activities on cross-border water resources (used for human consumption) in the Adriatic region

Introduction

In the Adriatic region there are many cross-border water (re)sources that are abstracted for human consumption in one country with part of the catchment/aquifer in the other country.

In order to improve the protection of cross-border water (re)sources used for human consumption it is necessary for two neighbour countries to establish a protocol that would in detail define the procedure for cross-border monitoring activities.

Within the DRINKADRIA project activities the collection and analyses of national legislative framework for drinking water and water (re)sources monitoring was done for all countries of the Adriatic region involved in the Project (Italy, Slovenia, Croatia, Bosnia and Herzegovina, Montenegro, Serbia, Albania and Greece).

All relevant EU and national legislative acts/regulations/decrees are available on the DRINKADRIA web platform: http://drinkadria.fgg.uni-lj.si/water-resources/legislation-water-sources-monitoring/ .

It was concluded that a common protocol for monitoring activities on cross-border water resources (used for human consumption) in the Adriatic region that could be applicable on all cross-border water (re)sources and all countries is very difficult to prepare given the differences in national legislation. Thus, the protocols for monitoring activities on cross-border water (re)sources should be prepared bilaterally between two interested countries (e.g. relevant institutions in those countries).

For this reason guideline for preparation of protocol for monitoring activities on cross-border water (re)sources in the Adriatic region are proposed. Based on these guideline and taking into account the particularities of just two countries (instead of 8) the bilateral protocol for monitoring activities on cross-border water (re)sources can be prepared with much more details.

Guideline

The bilateral protocol for monitoring activities on cross-border water resources (used for human consumption) should include:

- relevant institutions on both sides;
- the procedure for exchange of results from national level monitoring and other levels of monitoring between relevant institutions of both countries;
- the procedure of exchange of planned monitoring programmes or even the preparation of joint monitoring programmes;

- the procedure to enable the access to monitoring locations in the neighbor country;
- the procedure of sample collection;
- the monitoring methods for both parties that should be standardized and comparable;
- the procedures regarding data and information use and publication;
- the procedure covering of additional monitoring costs;
- human resources and capacities development;
- other that might address cross-border water resources used for human consumption management.

The bilateral protocol for monitoring activities on cross-border water resources (used for human consumption) should be structured as follows (if applicable):

1. **Whereas:**

- EU Water Framework Directive;
- EU Drinking Water Directive, etc.;
- National regulatory framework relevant for Drinking Water Protection Zones;
- Risk assessment and management (Water Safety plans);
- Bilateral commissions;
- Strategies;
- Freedom of movement is a postulate in EU and accession countries also inducing possibility to take samples;
- …

2. **Scope of common procol for water (re)sources monitoning activities:**

- Appropriate drinking water (re)sources management in cross-boundary context is essential.
- Mutual exchage of information is reqired.
- We are drinking same water thus development of mutual trust, confidence, and awareness that same reality is shared by all of as is prerequest.
- Multiplication of monitoring activities should be considered as a tool for increase of mutual confidence instead of mistrust.
- Soft transition of administrative responsabilities in the cross-border context.
- Other than might be significant for particular cross-border drinking water source.

3. **Application/Interested parties**

- This protocol is addressing public institutions in charge for monitoring surface and ground water for human use.
- Interested private stakeholders play an important role in the cross-border monitoring of water resources, but their monitoring results and interpretations should be considered unofficial and therefore not part of this protocol.

- Nevertheless, the private parties should be informed about the existence of the protocol and motivated to respect the procedures and requirements defined by this protocol.
- Other than might be significant for particular cross-border drinking water source.

4. Glossary of terms

Terms to be defined are:

- Cross-border / transboundary water (re)source
- Authority
- Agency
- Bilateral comission
- Monitoring
- Cross-border monitoring
- Regular, investigative, accidental monitoring
- Parallel sampling
- Monitoring programme
- Monitoring stations
- Other of relevance for particular cross-border drinking water source.

5. Protocol

The parties agree:

Acces to monitoring locations/sites

- Access to measurement locations/sites and infrastructure should be enabled to the neighbouring country party even with short advanced notice to institution in charge.
- Access to the zones with any specific restrictions should be enabled as well, balancing the level of restrictions and monitoring requirements.
- …

Sample collection

- Parallel sampling (not necessary analysis) should be enorsed in order to ensure the comparability of monitoring results.
- Presence of the national representative of instiurtion in charge in the cross-border monitoring and sampling is endorsed.
- ...

Monitoring methods

- Monitoring methods of both parties should be standardized and comparable.

- ...

Data and information

- Data and information from the national monitoring system and national reporting and publishing systems should be considered official.
- Parties agree that they will endorse common validation procedures and publication of the agreed data from national and cross-border monitoring.
- Public disclosure of the monitoring results – with interpretation of the results shall be performed as a joint expert statement using the mechanism of bilateral commission.
- …

Monitoring programmes

- Different types of monitoring have different regulations and should be declared.
- Parties endorse the annual exchange of planned monitoring programmes and obtained results of monitoring for previous year (time period should be defined) this is including official national level monitoring as well as other monitoring programmes.
- Development of cross-border monitoring long term action plan is endorsed, ensuring stability of monitoring process and development of adequate time series.
- …

Monitoring costs

- Interested party must cover the cost of all the additional monitoring for which they show interest in the other country (regular additional, investigative additional and accidental additional).
- Costs incurred to the third party, including national public bodies/institutions should be compensated unless agreed otherwise.
- …

Human resources and capacities development

- Involved countries endorse the exchange of professionals recognizing that the human resources are in the focal point of the improvement of the overall cross-border monitoring system**.**

All before mentioned should be in line with EU and national legislation and policies.

7. References:

[1] EU Water Framework Directive, 2000/60/EC
[2] EU Drinking Water Directive, 98/83/EC
[3] EU Groundwater Directive, 2006/118/EC
[4] Legislative Decree no. 31 of 2 February 2001, Implementation of EU Drinking Water Directive 98/83/EC on the quality of water intended for human consumption (Ordinary Supplement to Official Gazzete of the Italian Republic no. 52 on 03.03.2001., orig. *Attuazione della Direttiva 98/83/CE relativa alla qualità delle acque destinate al consumo umano*)
[5] Legislative Decree no. 27 of 2 February 2002, An integration/modification of the previous Legislative Decree, no. 31/2001 (Official Gazzete of the Italian Republic no.58 on 9.3.2002. orig. *Modifiche ed integrazioni al D.Lgs. 2 febbraio 2001, no. 31, recante attuazione della direttiva 98/83/CE relativa alla qualità delle acque destinate al consumo umano*)
[6] Legislative Decree no. 152 of 3 April 2006, Environmental Code (Ordinary Supplement to Official Gazzete of the Italian Republic no. 88 del 14.04.2006. and further modifications, orig. *Norme in Materia Ambientale*)
[7] Waters Act (Official gazette of Republic of Slovenia No. 67/02, 2/04, 41/04, 57/08, 57/12, 100/13, 40/14, 56/15, orig. *Zakon o vodah*)
[8] Regulations on drinking water (Official gazette of Republic of Slovenia No. 19/04, 35/04, 26/06, 92/06, 25/09, 74/15, orig. *Pravilnik o pitni vodi*)
[9] Decree on groundwater status (Official gazette of Republic of Slovenia No. 25/09, 68/12, *orig. Uredba o stanju podzemnih voda*)
[10] Regulations on groundwater monitoring (Official gazette of Republic of Slovenia No. 31/09, *orig. Pravilnik o monitoringu podzemnih voda*)
[11] Decree on surface water status (Official gazette of Republic of Slovenia No. 14/09, 98/10, 96/13, 24/16, *orig. Uredba o stanju površinskih voda*)
[12] Regulations on surface water status monitoring (Official gazette of Republic of Slovenia No. 10/09, 81/11, *orig. Pravilnik o monitoringu stanja površinskih voda*)
[13] *Water Act* (Official gazette of Republic of Croatia No. 153/09, 130/11, 56/13, 14/14**,** *orig. Zakon o vodama*) [12] and *The Water Management Financing Act* (Official gazette of Republic of Croatia No. 153/09, 90/11,056/13 *orig. Zakon o financiranju vodnoga gospodarstva*)
[14] *Act on water intended for human consumption* (Official gazette of Republic of Croatia No. 056/2013, *orig. Zakon o vodi za ljudsku potrošnju*)
[15] *Regulations on parameters compliance and analysis methods for water intended for human consumption* (Official gazette of Republic of Croatia No. 125/2013, *orig. Pravilnik o parametrima sukladnosti i metodama analize vode za ljudsku potrošnju*)
[16] *Decree on water quality standard* (Official gazette of Republic of Croatia No. 073/2013, *orig. Uredba o standardu kakvoće voda*)
[17] *Regulations on protection measures and conditions for determination of sanitary protection zones of the drinking water source* (Official gazette of Republic of Croatia No. 066/2011, *orig. Pravilnik o uvjetima za utvrđivanje zona sanitarne zaštite izvorišta*)

[18] Regulations on Drinking Water Safety (Official Gazette of BiH no. 40/10 and 30/12, *orig. Pravilnik o zdravstvenoj ispravnosti vode za piće*)
[19] Regulations on Natural Mineral and Natural Spring Water (Official Gazette of BiH no. 26/10, *orig. Pravilnik o prirodnim mineralnim i prirodnim izvorskim vodama*)
[20] Decision on Characterization of Surface and Ground Waters, Reference Requirements, and Parameters for the Assessment of Water Status and Water Monitoring (Official Gazette of FBiH no. 1/14; *orig. Odluka o karakterizaciji površinskih i podzemnih voda, referentnim uslovima i parametrima za ocjenu stanja voda i monitoringu voda* [20])
[21] Water law (Official Gazette of FBiH no. 70/06; *orig. Zakon o vodama*)
[22] Regulations on Dangerous and Harmful Substances in Water (Official Gazette of FBiH no. 43/07, *orig. Uredba o opasnim štetnim materijama u vodama*)
[23] Regulations on Classification of Waters and Coastal Sea Waters within the Borders of Former Socialist Republic of Bosnia and Herzegovina (Official Gazette of SR BiH no. 18/80, *orig. Uredba o klasifikaciji voda i voda obalnog mora Jugoslavije u granicama Socijalističke Republike Bosne i Hercegovine*)
[24] Regulations on Watercourse Categorization (Official Gazette of SR BiH no. 43/67; *orig. Uredba o kategorizaciji vodotoka*)
[25] Decision on Characterization of Surface and Ground Waters, Reference Requirements, and Parameters for the Assessment of Water Status and Water Monitoring (Official Gazette of FBiH no. 1/14; *orig. Odluka o karakterizaciji površinskih i podzemnih voda, referentnim uslovima i parametrima za ocjenu stanja voda i monitoringu voda*)
[26] Low on water (Official Gazette RS, no. 50/06, *orig. Zakon o vodama*)
[27] Regulations on classification and categorization of watercourses (Official Gazette RS, no. 42/01; *orig. Uredba o klasifikaciji voda i kategorizaciji vodotoka*)
[28] Water Law (Official Gazette of Republic of Montenegro no. 27/2007, 32/2011 & 47/2011, orig. *Закон о водама/Zakon o vodama*)
[29] Regulations on the hygienic quality of drinking water (Official Gazette of Republic of Montenegro no. *24/2012-42,* orig. *Правилник о хигијенској исправности воде за пиће/Pravilnik o higijenskoj ispravnosti vode za piće*)
[30] Regulations on methods for determining and maintaining sanitary protection zones for drinking-water sources and restrictions in the related zones (Official Gazette of Republic of Montenegro no. 66/2009, orig. *Правилник о одређивању и одржавању зона и појасева санитарне заштите изворишта и ограничењима у тим зонама/Pravilnik o određivanju i održavanju zova i pojaseva sanitarne zaštite izvorišta i ograničenjima u tim zonama*)
[31] Law on communal activities (Official Gazette of Republic of Montenegro no. 12/95, orig. *Закон о комуналним дјелатностима/Zakon o komunalnim djelatnostima*)
[32] Water Act (Official gazette of Republic of Serbia 30/2010 and 93/2012), orig. *Закон о водама/Zakon o vodama*)
[33] Act on Sanitary Observation (Official Gazette of Republic of Serbia, no. 125/2004, orig. Закон о санитарном надзору/*Zakon o sanitarnom nadzoru*)

[34] Drinking water supply sources management and protection Act (Official Gazette of Republic of Serbia, no. 27/77, 24/85, 29/88, 49/89 and 46/91, orig. Закон о искоришћавању и заштити изворишта водоснабдевања/*Zakon o iskorišćavanju i zaštiti izvorišta vodosnabdevanja*)
[35] Environmental protection Act and Act on amendments and additions to the Act on environmental protection (Official Gazette RS, no. 135/04, 36/09 and 72/09 –43/11-constitutional court, orig. Закон о заштити животне средине Закон о заштити животне средине /*Zakon o zaštiti životne sredine*)
[36] Act on Public Health (Official Gazette RS“, no. 72/2009, orig. Закон о јавном здрављу/*Zakon o javnom zdravlju*)
[37] Regulations on drinking water sanitary standards (Official Gazette RS, no. 42/98 and 44/99, orig. *Правилник о хигијенској исправности воде за пиће/Pravilnik o higijenskoj ispravnosti vode za piće*)
[38] Regulations on Establishment and management of drinking water source protection zones (Official Gazette RS, no. 92/08, orig. *Правилник о начину одређивања и одржавања зона санитарне заштите изворишта водоснабдевања/Pravilnik o načinu određivanja i održavanja zona sanitarne zaštite izvorišta vodosnabdevanja*)
[39] Regulations on surface water ecological and chemical status parameters and groundwaterchemical and quantitative status parameters (Official Gazette of Republic of Serbia, no 74/2011, orig. *Правилник о параметрима еколошког и хемијског статуса површинских вода и параттертима хемијског и квантитативног статуса подземних вода/Pravilnik o parametrima ekološkog i hemijskog statusa površinskih voda i parametrima hemijskog i kvantitativnog statusa podzemnih voda*)
[40] Law No. 1. 111/2012, date 15.12.2012 "Integrated Management of Water Resources" (Official Gazette of Republic of Albania no. 157/2012, orig. *Për menaxhimin e integruar të burimeve ujore*)
[41] DCM no 1189, dated 18.11.2009 "to the rules and procedures for the drafting and implementation of a national program of environmental monitoring" (Official Gazette of Republic of Albania no. 200/2009, orig. *Për rregullat dhe procedurat për hartimin dhe zbatimin e programit kombetar të monitorimit të mjedisit*)
[42] DCM. 246, dated 04.30.2014 "for determination of the environmental quality standards for surface waters" (Official Gazette of Republic of Albania no. 65/2014, orig. *Vendim i KM nr. 246, datë 30.4.2014 “Për përcaktimin e normave të cilësisë së mjedisit për ujërat sipërfaqësore"*)
[43] DCM nr.797, dated 29.09.2010 "On approving of hygiene and sanitation regulations for the management of bathing water quality" (Official Gazette of Republic of Albania no. 150/2010, orig. *Për miratimin e rregullores higjieno-sanitare “Për administrimin e cilësisë së ujërave të larjes*”)
[44] DCM no 1304, dated 11.12.2009 "The Approval of the Regulation" On the Water Supply and Sewage services in the service area of the water-joint stock Supply and Sewage Utilities" (orig. *Kodi i Furnizimit me Ujë dhe Kanalizime*)
[45] DCM no 145, dated 26.02.1998 for the approval of the "hygiene and health regulation for the control of drinking water quality, the design, construction and supervision of

systems of drinking water supply." (orig. *Rregullore higijeno-sanitarie per kontrollin e cilesise se ujit te pijshem projektimin ndertimin shfrytezimin dhe mbikqyrjen e sistemeve te furnizimit me uje te pijshem*)

[46] National Law 3199/2003 for the "Protection and Management of Water" in compliance with the Water Framework Directive 2000/60/EC (Official Gazette of the Greek Republic 280/9-12-2003, orig. *Προστασία και Διαχείριση των υδάτων - Εναρμόνιση με την Οδηγία 2000/60/ΕΚ του Ευρωπαικού Κοινοβουλίου και του Συμβουλίου της 23ης Οκτωβρίου 2000*)

[47] Joint Ministerial Decision Y2/2600/01 regarding the water quality for human consumption according the European Directive 98/83/EC and its amendment ΔΥΓ2/Γ.Π. οικ 38295 (Official Gazette of the Greek Republic 892/11-7-01, orig. *«Ποιότητα νερού ανθρώπινης κατανάλωσης", σε συμμόρφωση προς την οδηγία 98/83/ΕΚ του Συμβουλίου της Ευρωπαικής Ένωσης της 3ης Νοεμβρίου 1998. (Κοινή Υπουργική Απόφαση Υ2/2600/2001*)

[48] Ministerial Decree 1811 for the determination of the maximum allowable concentrations of pollutants in groundwater in implementation of the paragraph 2 of Article 3 of the JMD 39626/2208/E130/2009 (Official Gazette of the Greek Republic 3322/30-12-2011, orig. *Αριθμ. οικ. 1811, Ορισμός ανώτερων αποδεκτών τιμών για τη συγκέντρωση συγκεκριμένων ρύπων, ομάδων ρύπων ή δεικτών ρύπανσης σε υπόγεια ύδατα, σε εφαρμογή της παραγράφου 2 του Άρθρου 3 της υπ' αριθμ.: 39626/2208/Ε130/2009 κοινής υπουργικής απόφασης (Β΄ 2075)*)

[49] Joint Ministerial Decree 140384. Determination of the national stations network for monitoring the quality and quantity of the water systems (Official Gazette of the Greek Republic 2017B/9-9-2011, orig. *Αριθμ. οικ. 140384. Ορισμός Εθνικού Δικτύου Παρακολούθησης της ποιότητας και της ποσότητας των υδάτων με καθορισμό των θέσεων (σταθμών) μετρήσεων και των φορέων που υποχρεούνται στην λειτουργία τους, κατά το άρθρο 4, παράγραφος 4 του Ν. 3199/2003 (Α΄ 280)*)

[50] Joint Ministerial Decree 51354/2641/E103/2010 for the determination of the Environmental Quality Standards for the concentrations of pollutants in surface waters (according to the Directive 2008/105/EC) (Official Gazette of the Greek Republic 1909B/8-12-2010, orig. *Αριθμ. Η.Π. 51354/2641/Ε103 Καθορισμός Προτύπων Ποιότητας Περιβάλλοντος (ΠΠΠ) για τις συγκεντρώσεις ορισμένων ρύπων και ουσιών προτεραιότητας στα επιφανειακά ύδατα, σε συμμόρφωση προς τις διατάξεις της οδηγίας 2008/105/ΕΚ του Ευρωπαϊκού Κοινοβουλίου και του Συμβουλίου της 16ης Δεκεμβρίου 2008 «σχετικά με Πρότυπα Ποιότητας Περιβάλλοντος (ΠΠΠ) στον τομέα της πολιτικής των υδάτων και σχετικά με την τροποποίηση και μετέπειτα κατάργηση των οδηγιών του Συμβουλίου 2/176/ΕΟΚ, 83/513/ΕΟΚ, 84/156/ΕΟΚ, 84/491/ΕΟΚ και 86/280/ΕΟΚ και την τροποποίηση της οδηγίας 2000/60/ΕΚ του Ευρωπαϊκού Κοινοβουλίου και του Συμβουλίου», καθώς και για τις συγκεντρώσεις ειδικών ρύπων στα εσωτερικά επιφανειακά ύδατα και άλλες διατάξεις*) [49]

Annexes

Report (LP, FB1, FB2, FB3): Italian legislation on drinking water quality and quantity

Report (FB5): National legislation for water quality and quantity and for drinking water - Slovenia

Report (FB8 and FB9): Croatian legislation for drinking water and water resources quality

Report (FB12): Legislation for water quality monitoring and for health safety of drinking water in Bosnia and Herzegovina

Report (FB14): Montenegrian legislation for monitoring water quality and quantity monitoring

Report (FB10): Serbian legislation for drinking water and water resources quality monitoring

Report (FB11): National legislation for water quality and monitoring - Albania

Report (FB16): National legislation for monitoring water quality (and quantity), water resources and drinking water - Greece

Common protocol for water (re)sources monitoring activities in the Adriatic region – Rijeka, July 2016

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