



*Government of the Republic of Croatia*

## **CHAPTER 27 ENVIRONMENT**

### **IMPLEMENTATION PLAN**

**(revised)**

# **FOR WATER UTILITY DIRECTIVES**

Zagreb, November 2010

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# IMPLEMENTATION PLAN FOR WATER UTILITY DIRECTIVES

**COUNCIL DIRECTIVE CONCERNING URBAN WASTE WATER TREATMENT (91/271/EEC OF 21 MAY 1991) AND COUNCIL DIRECTIVE ON THE QUALITY OF WATER INTENDED FOR HUMAN CONSUMPTION (98/83/EC OF 3 NOVEMBER 1998)**

## 1 INTRODUCTION

The Implementation Plan for water utility directives has been prepared on the basis of Technical consultations that lasted from February 2009 to April 2010 and contains agreed activities and deadlines concerning implementation of directives and represents the base for clarifying the request for transition period.

The Republic of Croatia has submitted requests to be granted a transition period until 31 December 2018 for the implementation of Council Directive 98/83/EC with regard to the microbiological parameters set out in Annex I - Part A and Part C and Annex III of Directive on the quality of water intended for human consumption and for a full application of Articles 3., 4., 5., 6., and 7. of Directive concerning urban waste water treatment (91/271/EEC) by 31 December 2023 (total duration).

Furthermore, as a Member State Croatia intends to make use of the possibility for derogations as provided for in Article 9 of Council Directive 98/83/EC with regard to the chemical parametric values set out in Annex I - Part B of the Directive in the time period 3+3+3 from the date of its accession to the EU, which it intends to grant/request upon accession to the EU.

## 2 CROATIAN LEGAL AND INSTITUTIONAL FRAMEWORK RELATED TO WATER SUPPLY AND WASTE WATER SEWAGE

The Croatian legal framework regulating water supply and waste water sewage is fully aligned with the EU *acquis*.

The Croatian institutional framework regarding water supply and waste water sewage still isn't fully adapted for the fulfilment of obligations stemming from the EU water *acquis*. The reform of the water utility sector is expected.

### 2.1 Legal framework

The basic acts regulating drinking water supply and waste water sewage in the Republic of Croatia are the following:

- ◆ The Water Act (Official Gazette 153/2009)
- ◆ The Utilities Act (Official Gazette 36/95, 70/97, 128/99, 57/00, 129/00, 59/01,, 82/04, 110/04-Regulation, 178/04, 38/09, 79/09) - in transitional period according to the Water Act
- ◆ The Water Management Financing Act (Official Gazette 153/2010)
- ◆ The Food Act (Official Gazette 46/2007 I)
- ◆ The Ordinance on the sanitary quality of drinking water (Official Gazette 47/2008).

- ◆ Regulation on water quality standards - adopted in June 2010 and in process of publishing in Official Gazette
- ◆ Ordinance on emission limit values for waste waters, adopted in June 2010 and in process of publishing in Official Gazette

In December 2009, the New Water Act and new Water Management Financing Act were enacted, thus creating the necessary preconditions for adopting subordinate regulations in the field of water quality. Consequently, Regulation on water quality standards, Ordinance on emission limit values for waste waters, Decision on designation sensitive areas were adopted, whereby national legislation is fully aligned with the EU *acquis* regarding drinking water supply and waste water sewage.

Pursuant with the provisions of the Utilities Act and its amendments, units of local and regional self-government established utility companies for the organization of public utility services of water supply and collection and treatment of waste water.

Pursuant with the provisions of the new Water Act (OG 153/09), which came into force on 1 January 2010 these services are transferred to the scope of the Water Act and significant reform of the water utility sector is expected, which will equalize and improve the quality of service and lead to more efficient management of public water supply and collection and treatment of waste water systems in service areas, i.e. the entire territory of the Republic of Croatia.

According to the Water Act, local self-government units in which the performance of public utility services of water supply and collection and treatment of waste water were organised pursuant to the Utility Act are obliged to harmonise these services with the provisions of Water Act within two years from its entry into force (deadline is 1st January 2012).

The legal status and the subject of operation of the provider of utility services within the activities of water supply and waste water sewerage and treatment whose legal status was regulated pursuant to the Utility Act are obliged to harmonise it with the provisions of Water Act within one year from the entry into force of the new Ordinance on special conditions for performing water supply and waste water sewerage and treatment activities (whose enactment is envisaged until the end of December 2010). If the provider of utility services performs other utility services (such as gas supply, disposal of municipal waste, retail market, etc.) pursuant to that Act, the provider is obliged to harmonise his legal status and subject of operation, i.e. to exclude these utility services from its scope of work in a period of three years from the entry into force of Water Act (deadline is 1st January 2013).

The prerequisite for abovementioned reform is adoption of two bylaws, i.e. Regulation establishing service areas (deadline is 1st January 2012) and Ordinance specifying special conditions for performance of activities of public water supply and public sewerage (deadline is 1st January 2011).

## 2.2 Institutional framework

Ministry of Regional Development, Forestry and Water Management (MRDFWM) through its Directorates is competent authority for managing water and the water management system and is thus responsible for the implementation of the requirements set forth in directives. Pursuant to the Water Act (OG 107/95, 105/05), administrative supervision over the implementation of the Water Act and the subordinate legislation adopted there under, as well as administrative supervision over Hrvatske vode (Croatian Water) legal entity for water management, is carried out by the MRDFWM. The responsibility for defining water policy and ensuring integration of international and EU obligations lies with the Directorate of Water Policy and International Projects (DWPIP) of MRDFWM.

Hrvatske vode is a legal entity for water management established under the Water Act, its founding act, with the aim of "constant and undisturbed execution of public services and other tasks through which water management is achieved within the scope defined by plans and in accordance with available funds". These are in particular the following: preparation of supporting data for the making of water policy; development of programs, plans, and other documents representing the basis for the

provision of sufficient quantities of water of adequate quality for various purposes, protection of water against pollution, regulation of watercourses and other water bodies, and protection against adverse effects of water; investment and other tasks through which such programs and plans are implemented; carrying out measures ensuring rational water use, water protection, and protection against floods and other forms of adverse effects of water. Hrvatske vode operates on the entire territory of the Republic of Croatia, covering all river basin districts and small basins.

The Council for Water Services, which was established under the Water Act (OG 153/09), will be the national regulator for ensuring legality in the area of determining the price of water services in accordance with the Water Act. Appointment of Council members is in the procedure of Croatian Parliament.

Public water supply and waste water sewage are under the authority of local self-government units (towns/municipalities). Water supply and waste water sewage activities are performed by utility companies.

Drinking water quality standards are under the responsibility of the Ministry of Health and Social Welfare. This Ministry is, through the Croatian National Institute of Public Health (authorised laboratories) which carries out the sampling and performs analyses, responsible for the monitoring of the sanitary quality of drinking water (for monitoring the compliance with the established standards) and for informing the public.

Within the Ministry of Health and Social Welfare, the *Directorate for Sanitary Inspection* is responsible for Waters and Water Supply Safety Control.

A number of other ministries are involved in the implementation of the UWWT Directive - but mainly in consultative and/or co-operation roles. In particular, are relevant: the Ministry of Environment Protection Physical Planning and Construction, the Ministry of Health and Social Welfare; the Ministry of Culture - Nature Protection Directorate; and the Ministry of Sea, Transport and Infrastructure.

## 2.3 Other Stakeholders

Other important stakeholders in relation to the *Directive on the quality of water intended for human consumption* are consumers, as the Directive aims to ensure that water supplied is of a sufficient quality to prevent diseases and public water service providers as the suppliers of drinking water supplies. Also important is the *food and drink industry sector* which requires high quality water in manufacturing processes.

Other important stakeholders in relation to the Directive concerning urban waste water treatment are polluters, regional and local government, water and sewerage companies; industrial users of water; fishermen and other river users; the general public and environmental NGOs. In particular the management of collection and urban waste water treatment and the appropriate treatment of the sludge falls under the responsibility of the local administrations. Good cooperation with all stakeholders is very important, because of fulfilment of UWWTD requests concerning level of public connection and achievement of good status of water, because the level of public connection is only 43% and percentage of treated waste waters from population is only approximately 27 % at the moment.

## 2.4 Compliance of national legislation with the Directive 98/83/EC on the quality of water intended for human consumption

The drinking water quality standards laid down by the Ordinance on the sanitary quality of drinking water are fully in line with the Directive's requirements. In addition to the limit values for mandatory parameters, it also defines the limits for a number of additional parameters, in accordance with WHO

standards and the practice of monitoring drinking water quality in the Republic of Croatia. The Ordinance is very strict in relation to the compliance deadlines, requiring immediate compliance with the defined maximum permissible values, with the exception of those for bromate and lead, for which the compliance deadline is postponed until 2013 and for arsenic until 2015.

Republic of Croatia requests a transitional period until 31 December 2018 for the implementation of Council Directive 98/83/EC with regard to the microbiological parameters set out in Annex I - Part A and Part C and Annex III of the Directive.

Furthermore, as a Member State Croatia intends to make use of the possibility for derogations as provided for in Article 9 of Council Directive 98/83/EC with regard to the chemical parametric values set out in Annex I - Part B of the Directive in the time period 3+3+3 from the date of its accession to the EU, which it intends to grant/request upon accession to the EU.

## 2.5 Compliance of national legislation with the Directive 91/271/EEC concerning urban waste water treatment

The adopted Regulation on water quality standards and Ordinance on emission limit values for waste waters are fully aligned with the provisions of the UWWTD.

The expected deadline for full implementation of the UWWTD is the year 2023. Depending on the size of the agglomeration and sensitivity of the receiving water, the deadline for the construction/extension of the required urban waste water collection and treatment systems has been required until 2018/2020/2023.

## 3 CURRENT STATUS

### 3.1 Water utility sector

#### 3.1.1 Status of water supply

There are 135 companies registered for carrying out water supply activities (2009) which provide the service on the territory of one or more local self-government units.

According to data from January 2010, public water supply systems abstract water from 376 water abstraction sites. There is a total number of 673 wells within the public water supply system (groundwater water intake structures and a small number of surface water intake structures), on which the Croatian National Institute of Public Health performs monitoring in order to control sanitary quality of drinking water.

According to data of Hrvatske vode, out of around 389 million cubic metres (m<sup>3</sup>) of water consumed in 2009, 132 million m<sup>3</sup> were abstracted directly by industry for its own needs, while the consumption of drinking water, i.e. water distributed exclusively by public providers of public water supply services amounted to around 257 million m<sup>3</sup> (66%), 178 million m<sup>3</sup> of which were consumed by households, and 79 million m<sup>3</sup> by industries (Fig. 1). These quantities do not include the quantities consumed by local water supply systems and individual water intake structures, which are currently not recorded.

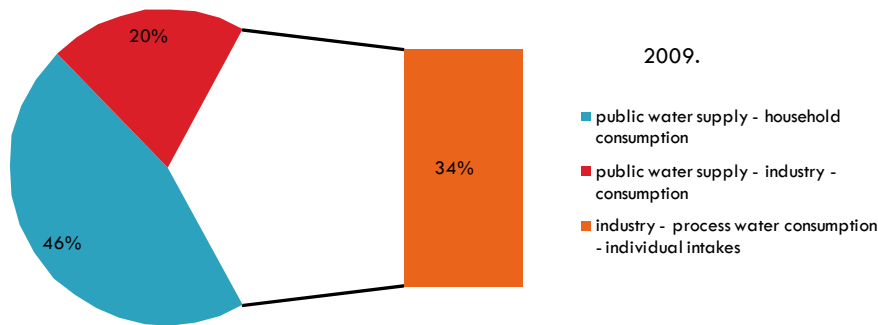


Fig. 1 Water consumption in 2009 (source: Hrvatske vode)

According to the data of the Central Bureau of Statistics for the 1994 - 2007 period (Fig. 2), a decrease in water consumption is still present.

The coverage ratio (share of the population able to connect to the public water supply system) on the level of the Republic of Croatia is on the average 80-82%. The connection ratio (share of the population connected to the public water supply system) is somewhat lower and it is estimated at is on the average 74%. There are significant differences in the level of coverage between regions. The differences are even larger between the counties and in particular between towns and municipalities.

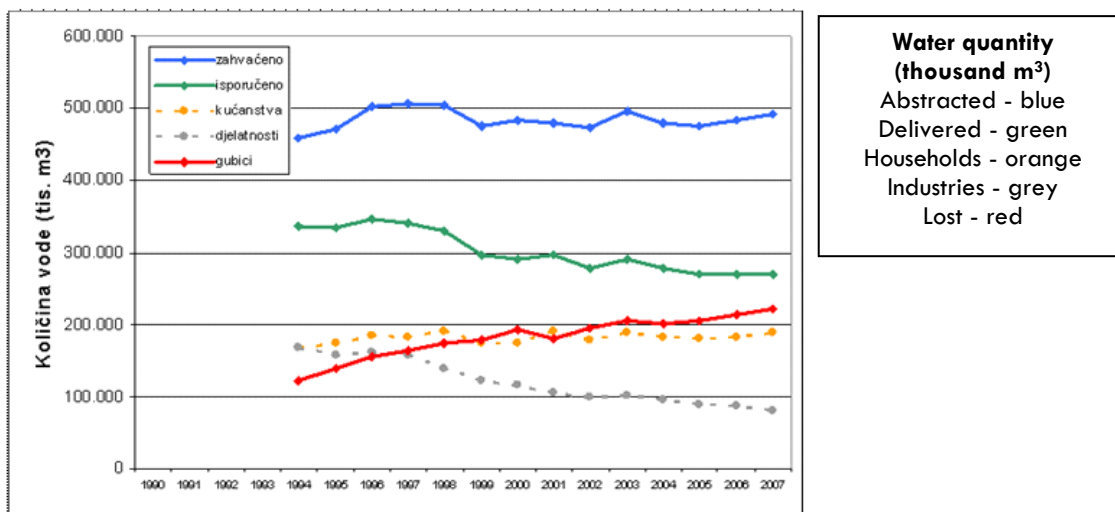


Fig. 2 Quantity of water in public water supply in the period 1994 - 2007 (Source: Central Bureau of Statistics, Statistical Yearbook)

In general, the quality of drinking water from public water supply systems is satisfactory at the level of the Republic of Croatia, but there are great regional differences. The share of non-complying samples on the level of Croatia was 5.9% in terms of chemical parameters and 5.5% in terms of microbiological parameters (Source: Central Bureau of Statistics, Statistical Yearbook). This means that a multi-annual gentle downward trend in the percentage of non-complying samples has continued. The most frequent cause of non-compliance with chemical parameters is related to the physical properties of water, presence of nitrogen salts, iron or manganese and higher total quantities of organic matter expressed

as the consumption of  $\text{KMnO}_4$ . In terms of microbiological indicators, water samples failed to comply mostly due to an increased total count of aerobic bacteria in 1 ml of water and very rarely due to the presence of indicators of faecal pollution or pathogen bacteria.

In general, the quality of drinking water from public water supply systems is satisfactory at the level of the Republic of Croatia, but there are great regional differences.

For the purpose of preparing the negotiating position during the technical consultations, two studies were prepared in order to collect basic information about the status of the so called local water supply systems which distribute water to more than 50 inhabitants. In preliminary stage 443 local water supply systems were identified with 632 water intake structures which encompass the total of around 7,2 % inhabitants. For easier identification, local water supply systems are categorized per water supply zones, and the results of water quality analyses with regard to microbiological and chemical parameters of drinking water quality are systematized in Tab. 3.

It is estimated that out of the total number of population of the Republic of Croatia, 3.282.220 inhabitants are able to connect to public water supply systems, and that 318.939 inhabitants (around 7,2% of total population) use water from small-scale, uncontrolled water supply systems (Fig. 3). In terms of the total number of population:

- ◆ 108.339 (4,2%) inhabitants are connected to systems - non-compliant only for microbiological parameters
- ◆ 44.710 (1%) inhabitants are connected to systems - non-compliant for chemical and microbiological parameters
- ◆ 4.045 (0,1%) inhabitants are connected to systems at risk in terms of microbiological parameters
- ◆ 64.850 (1,5%) inhabitants are connected to systems - non-compliant only for chemical parameters.

Out of the total number of population, 221.953 inhabitants, i.e. 5%, or nearly 70% of inhabitants connected to uncontrolled, local water supply systems, use water non-compliant with health requirements.

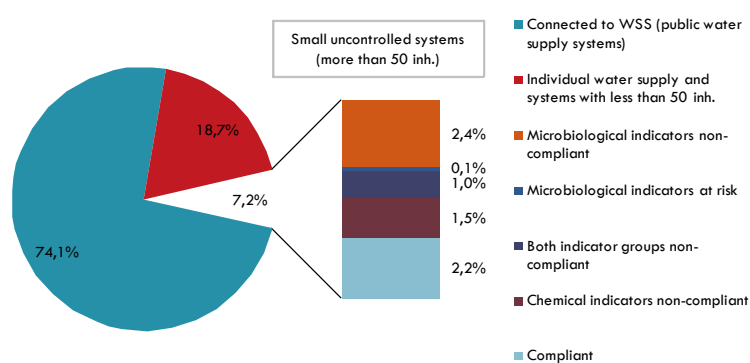


Fig. 3 Current status of water supply

The basic indicators for selected 31 water supply zones with the systems which do not comply with microbiological parameters only are systematized in Tab. 1.



Tab. 1 Basic indicators for selected 31 zones (non-compliant only for microbiological parameters)

	inh.	%
total number of population in the Republic of Croatia (according to 2001 Census)	4.437.460	
total number of population in the area of the selected 31 zones	2.564.344	
out of which:		
estimated number of population in the area of the selected 31 zones that can be connected to <b>controlled public systems (see note)</b>	1.878.099	73%
number of population connected to uncontrolled systems	216.820	8,5%
out of which non-compliant only for microbiological parameters	108.339	4,2%
out of which non-compliant for chemical and microbiological parameters	24.576	1,0%
out of which at risk in terms of microbiological parameters	3.854	0,2%
total non-compliant for microbiological parameters (108.339+24.576+3.854)	136.769	5,3%
non-compliant only for chemical parameters	9.430	0,4%
total non-compliant (136.769+9.430)	146.199	5,7%
compliant on small uncontrolled systems (216.820 - 146.199) - <u>but under risk</u>	70.621	2,8%

**NOTE:** It should be pointed out that estimates are based on the official Census of settlements and population dating from 2001, and that the lack of clarity related to utilization of drinking water from controlled and uncontrolled water supply systems and their overlapping will be clarified after the new Census (in 2011).

It is estimated that around 14% of the population is supplied with water from their own wells.

### 3.1.2 Status of public sewage (waste water collection and treatment)

According to the data collected in the 2007 - 2009 period on the territory of the Republic of Croatia, a public sewage activity is performed by 151 providers of public sewage service which manage public sewage systems.

A general characteristic of the water utility sector in the Republic of Croatia is that the level of development of waste water sewage services largely lags behind water supply services. 43,6% of Croatia's population is covered by public sewerage systems, with significant differences between regions and even greater differences between counties, i.e. municipalities and towns. A little bit more than 100 waste water treatment plants (WWTP) with a total capacity of 3,7 million PE have been constructed, with approximately identical shares of plants with preliminary and primary treatment (1,45 million PE) and plants with secondary treatment (2,15 million PE). There is only one tertiary WWTP (0,1 million PE). Around 27% of the population or 61% of the population connected to the public sewerage system, is provided with a waste water treatment service. Significant capacities for waste water treatment have been constructed in towns in which the main industrial polluters are located and they are intended for the needs of the economy.

Every year sewerage systems collect 213 million m<sup>3</sup> of waste water (2005 - 2007 average). This is mostly household waste water (around 60%). During a longer period a slight downward trend in the quantity of collected waste water has been recorded, brought about by increasingly smaller quantities of waste water collected from economic activities. Approximately one third of the collected waste water quantity is discharged into the environment without any treatment. The remaining two thirds undergo treatment at one of the available WWTPs. Significant breakthroughs in waste water treatment occurred in 2004 and 2007, when the primary and secondary treatment respectively in a waste water treatment plant of the City of Zagreb was put into operation. The largest quantity of waste water was until 2007 treated only mechanically.

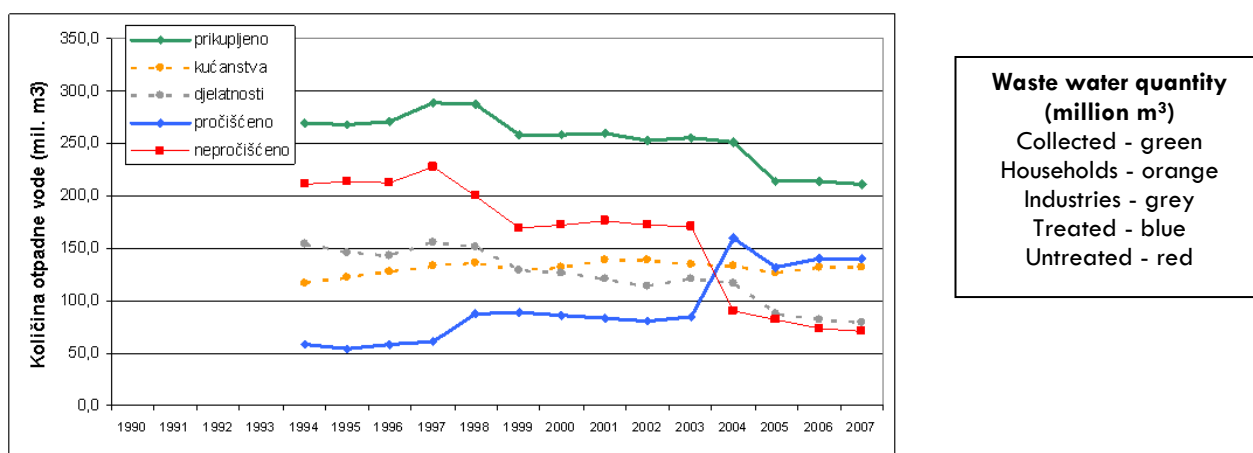


Fig. 4 Quantity of waste water in public sewerage systems in the period 1994 - 2007  
(Source: Central Bureau of Statistics, Statistical Yearbook)

### 3.1.3 Water price analysis

A complex tariff system is used. It includes a number of instruments for the recovery of certain categories of costs of public water supply and waste water sewage services from direct users. In general, costs are divided into two groups: the costs of performing the activity at the level of the municipal operator and capital costs and costs of expert and administrative tasks in water management which refer to the provision of water resources and water pollution protection.

According to data for the year 2005, the average price of water<sup>1</sup> was HRK 7,89 (EUR<sup>2</sup> 1,09)/m<sup>3</sup> for households and HRK 13,64 (1.88 EUR)/ m<sup>3</sup> for industries. The prices ranged between HRK 3.50 (EUR 0,48) and HRK 17,51 (EUR 2,41)/m<sup>3</sup> for households and between HRK 3,50 (EUR 0,48) and HRK 24,47 (EUR 3,37)/m<sup>3</sup> for industries. Great differences in water prices between municipal operators are to a large extent the result of different scopes of work of various operators or of a different spectrum of water services they provide and charge to users. The price of water for industries is on the average almost twice the amount of the price paid by households.

Around 65% of the funds collected from the price of water is intended for the recovery of costs for performing the activities at the level of municipal operators (operation, routine maintenance and infrastructure management), while the rest is directed to special-purpose funds for the financing of water management and construction of water structures for public water supply and waste water sewerage or into the state budget.

The average price of water in the year 2009 in Croatia amounts to HRK 10,54 (EUR 1,45)/m<sup>3</sup> for households and HRK 19,39 (EUR 2,67)/m<sup>3</sup> for industry (the price includes the costs of water supply, sewerage, VAT, and all fees laid down by law, development fee, etc.). In comparison with the year 2005, the price of water for households has increased by 33%, and for industry by 42%. The total increase referred mostly to the components of the price of water which is the revenue of a public provider of water utility services. The lowest price of drinking water from public water supply systems for households in 2009 amounted to HRK 3,50 (EUR 0,48)/m<sup>3</sup>, and highest price amounted to EUR 20,15 (EUR 2,77)/m<sup>3</sup>.

The price of drinking water which is abstracted on the territory of other countries (beyond the borders of the Republic of Croatia) and is used the supply of water to inhabitants on the territory of the Republic of Croatia amounts on the average to HRK 8,06 (EUR 1,11)/m<sup>3</sup> (excl. VAT and charges). In

<sup>1</sup> Weighted average, which takes into account the quantitative share of particular price.

<sup>2</sup> 1EUR = 7,259334 HRK » 1EUR = 7,26 HRK according to the foreign exchange central rate, Croatian National Bank, 31.03.2010.

other words, the water imported from the neighbouring countries is on the average more expensive than the water abstracted and distributed in Croatia.

### 3.2 Objectives of the implementation of water utility directives

The objectives of the implementation of water utility directives are accepted in the Water Management Strategy, Water Act and Water Management Financing Act and bylaws adopted pursuant to these laws, and are obligatory component of the Programme of Measures within the River Basin Management Plan, which is in drafting process.

## 4 NATIONAL IMPLEMENTATION PLAN FOR WATER UTILITY DIRECTIVES

### 4.1 Directive 98/83/EC on the quality of water intended for human consumption

#### 4.1.1 Bases for implementing the Directive

##### Completed:

- ◆ Identify all relevant water distributors and determine the state of existing infrastructure
- ◆ The Council for Water Services. The basic task of the Council for Water Services as a national regulator shall be to ensure legality in the field of determining the price of water services. Appointment of Council members is in the procedure of Croatian Parliament.

**Pending** in line with the deadlines specified in the Water Act (transitional periods for the reform of the utility sector)

- ◆ Establish an adequate administrative system competent for public water supply - Reform of the utility sector
- ◆ Develop the technical and financial programmes for the improvement of water supply systems in accordance with the obligations arising from the Directive
- ◆ Introduce precautionary measures for quality assurance of treatment, equipment and materials
- ◆ Implement measures to ensure the required water quality standards, including specific measures in relation to bromate, lead and trihalomethanes
- ◆ Prepare and pass regulations necessary for Plan implementation
- ◆ Establish a system for reporting to the European Commission

Full implementation of the Directive's requirements, including the implementation of technical measures which ensure full compliance with maximum permissible concentrations for drinking water on the entire territory of the Republic of Croatia is foreseen by the Water Management Strategy.

##### Water supply zones

The state of water supply in the Republic of Croatia is analyzed and monitored on the level of so called "distribution areas", i.e. areas in which it is possible to organize public water supply in general terms. The entire territory of the Republic of Croatia is divided into 68 distribution areas. Distribution areas were determined predominantly on the basis of technical analysis of the existing state and development plans for water supply. The average distribution area has 65.000 inhabitants (compared with 2009. consumption) annual water production of about 3,8 mil. m<sup>3</sup>.



Fig. 5 Water supply zones

Tab. 2 Basic indicators - water supply zones

County No.	County	WATER SUPPLY ZONE (WSZ)	Number of settlements in WSZ	Population No. in the WSZ	Population that can connect to public WSS in WSZ	Connection ratio in WSZ (2007) - potential supply with sanitary compliant drinking water	Total investment per WSZ for 3+3+3+ action plan (EUR) (1EUR=7,26HRK)
I	Zagrebačka	WSZ DUGO SELO	47	28.724	21.116	73,5%	3.016.000
		WSZ VELIKA GORICA	92	70.137	49.577	70,7%	16.963.000
		WSZ IVANIĆ GRAD	49	28.167	23.908	84,9%	4.900.000
		WSZ JASTREBARSKO - KLINČA SELA	77	23.213	20.486	88,3%	10.240.000
		WSZ PISAROVINA	14	3.697	1.246	33,7%	2.513.000
		WSZ SVETI IVAN ZELINA	68	17.790	9.095	51,1%	12.565.000
		WSZ VRBOVEC	127	29.178	6.779	23,2%	49.820.000
		WSZ ZAPREŠIĆ	63	50.379	43.868	87,1%	3.078.000
		WSZ ŽUMBERAK - KRAŠIĆ	64	4.262	3.234	75,9%	3.016.000
		WSZ ZAGREB	95	53.488	40.838	76,3%	0
		WSZ HRVATSKO ZAGORJE	1	661	661	100,0%	0
	<b>Zagrebačka Total</b>		697	309.696	220.808	71,3%	106.111.000
II	Krapinsko-zagorska	WSZ HRVATSKO ZAGORJE	423	142.432	86.462	60,7%	46.844.000
		<b>Krapinsko-zagorska Total</b>	423	142.432	86.462	61%	46.844.000
III	Sisačko-moslavačka	WSZ GLINA	43	8.365	4.801	57,4%	7.576.000
		WSZ VELIKA GORICA	7	3.996	284	7,1%	689.000
		WSZ GVOZD - TOPUSKO	42	7.239	5.503	76,0%	6.198.000
		WSZ KARLOVAC - DUGA RESA - LASINJA	6	267	0	0,0%	551.000
		WSZ MOSLAVAČKA POSAVINA JAŠENOVAC	85	60.934	44.719	73,4%	28.691.000
		WSZ PAŠINO VRELO	110	20.058	10.667	53,2%	6.405.000
		WSZ PETRINJA - SISAK	163	84.528	40.956	48,5%	44.163.000
	<b>Sisačko-moslavačka Total</b>	456	185.387	106.930	58%	94.273.000	
IV	Karlovačka	WSZ KARLOVAC - DUGA RESA - LASINJA	255	91.244	53.972	59,2%	18.650.000
		WSZ LIČKA JESENICA	167	13.893	9.200	66,2%	20.083.000
		WSZ OGULIN	77	25.192	24.472	97,1%	8.847.000
		WSZ OZALJ	151	11.458	11.087	96,8%	1.722.000
	<b>Karlovačka Total</b>	650	141.787	98.731	70%	49.302.000	

County No.	County	WATER SUPPLY ZONE (WSZ)	Number of settlements in WSZ	Population No. in the WSZ	Population that can connect to public WSS in WSZ	Connection ratio in WSZ (2007) - potential supply with sanitary compliant drinking water	Total investment per WSZ for 3+3+3+ action plan (EUR) (1EUR=7,26HRK)
<b>V</b>	<b>Varaždinska</b>	WSZ VARAŽDIN	301	184.769	154.566	83,7%	36.281.000
	<b>Varaždinska Total</b>		301	184.769	154.566	84%	36.281.000
<b>VI</b>	<b>Koprivničko-križevačka</b>	WSZ KRIŽEVCI	135	36.338	16.514	45,4%	12.810.000
		WSZ ĐURĐEVAC	37	30.079	18.103	60,2%	11.226.000
		WSZ KOPRIVNICA	92	58.050	45.614	78,6%	14.628.000
	<b>Koprivničko-križevačka Total</b>		264	124.467	80.231	64%	38.664.000
<b>VII</b>	<b>Bjelovarsko-bilogorska</b>	WSZ BJELOVAR	73	51.921	11.774	22,7%	7.393.000
		WSZ ČAZMA	71	16.458	3.067	18,6%	11.846.000
		WSZ DARUVAR	68	25.608		0,0%	15.220.000
		WSZ GAREŠNICA	36	16.082	3.754	23,3%	7.645.000
		WSZ GRUBIŠNO POLJE	24	7.523	5.011	66,6%	4.077.000
		WSZ TROJSTVO - GRĐEVAC	51	15.492	2.746	17,7%	10.744.000
	<b>Bjelovarsko-bilogorska Total</b>		323	133.084	26.352	20%	56.925.000
<b>VIII</b>	<b>Primorsko-goranska</b>	WSZ CRES - LOŠINJ	40	11.347	11.009	97,0%	8.264.000
		WSZ GORSKI KOTAR	263	26.430	24.738	93,6%	43.691.000
		WSZ HRVATSKO PRIMORJE	8	9.480	9.430	99,5%	275.000
		WSZ OPATIJA - RIJEKA - KRK	197	238.088	230.989	97,0%	21.185.000
		WSZ ŽRNOVNICA	28	20.160	19.921	98,8%	8.890.000
	<b>Primorsko-goranska Total</b>		536	305.505	296.087	97%	82.305.000
<b>IX</b>	<b>Ličko-senjska</b>	WSZ GOSPIĆ	75	17.491	14.676	83,9%	5.510.000
		WSZ HRVATSKO PRIMORJE	51	12.125	10.393	85,7%	3.311.000
		WSZ LAPAC	18	1.880	1.659	88,2%	1.377.000
		WSZ OTOČAC	34	15.434	13.396	86,8%	4.821.000
		WSZ UDBINA - KORENICA	74	6.747	3.953	58,6%	3.485.000
	<b>Ličko-senjska Total</b>		252	53.677	44.077	82%	18.504.000
<b>X</b>	<b>Virovitičko-podravska</b>	WSZ ORAHOVICA	44	13.107	9.927	75,7%	2.204.000
		WSZ PITOMAČA	12	10.465	5.712	54,6%	6.309.000



County No.	County	WATER SUPPLY ZONE (WSZ)	Number of settlements in WSZ	Population No. in the WSZ	Population that can connect to public WSS in WSZ	Connection ratio in WSZ (2007) - potential supply with sanitary compliant drinking water	Total investment per WSZ for 3+3+3+ action plan (EUR) (1EUR=7,26HRK)
		WSZ SLATINA	70	26.181	20.028	76,5%	3.030.000
		WSZ VIROVITICA	64	43.636	40.653	93,2%	4.298.000
	<b>Virovitičko-podravaska Total</b>		<b>190</b>	<b>93.389</b>	<b>76.320</b>	<b>82%</b>	<b>15.841.000</b>
<b>XI</b>	<b>Požeško-slavonska</b>						
		WSZ PAKRAC - LIPIK	68	15.529	10.198	65,7%	56.061.000
		WSZ POŽEŠTINA	209	70.302	59.368	84,4%	25.696.000
	<b>Požeško-slavonska Total</b>		<b>277</b>	<b>85.831</b>	<b>69.566</b>	<b>81%</b>	<b>81.757.000</b>
<b>XII</b>	<b>Brodsko-posavska</b>						
		WSZ DAVOR - NOVA GRADIŠKA	92	52.416	11.924	22,7%	26.570.000
		WSZ ISTOČNA SLAVONIJA - SLAVONSKI BROT	93	124.349	89.089	71,6%	44.461.000
	<b>Brodsko-posavska Total</b>		<b>185</b>	<b>176.765</b>	<b>101.013</b>	<b>57%</b>	<b>71.031.000</b>
<b>XIII</b>	<b>Zadarska</b>						
		WSZ GRAČAC	40	3.923	3.448	87,9%	2.755.000
		WSZ ZRMANJA - ZADAR	181	158.122	126.259	79,8%	38.967.000
	<b>Zadarska Total</b>		<b>221</b>	<b>162.045</b>	<b>129.707</b>	<b>80%</b>	<b>41.722.000</b>
<b>XIV</b>	<b>Osječko-baranjska</b>						
		WSZ ĐAKOVO	56	52.260	29.238	55,9%	10.275.000
		WSZ BARANJA	52	42.633	31.170	73,1%	33.233.000
		WSZ DONJI MIHOLJAC	31	19.070	7.567	39,7%	6.419.000
		WSZ NAŠICE	58	37.109	28.113	75,8%	9.291.000
		WSZ OSIJEK	39	147.109	139.069	94,5%	43.673.000
		WSZ VALPOVO	28	32.325	31.990	99,0%	14.492.000
	<b>Osječko-baranjska Total</b>		<b>264</b>	<b>330.506</b>	<b>267.147</b>	<b>81%</b>	<b>117.383.000</b>
<b>XV</b>	<b>Šibensko-kninska</b>						
		WSZ KNIN	23	17.187	14.770	85,9%	4.515.000
		WSZ ŠIBENIK	173	95.704	82.980	86,7%	12.810.000
	<b>Šibensko-kninska Total</b>		<b>196</b>	<b>112.891</b>	<b>97.750</b>	<b>87%</b>	<b>17.325.000</b>
<b>XVI</b>	<b>Vukovarsko-srijemska</b>						
		WSZ ILOK	6	9.930	9.930	100,0%	10.730.000
		WSZ ISTOČNA SLAVONIJA - VINKOVCI	58	146.086	118.217	80,9%	92.893.000
		WSZ VUKOVAR	21	48.752	48.470	99,4%	14.725.000
	<b>Vukovarsko-srijemska Total</b>		<b>85</b>	<b>204.768</b>	<b>176.617</b>	<b>86%</b>	<b>118.348.000</b>

County No.	County	WATER SUPPLY ZONE (WSZ)	Number of settlements in WSZ	Population No. in the WSZ	Population that can connect to public WSS in WSZ	Connection ratio in WSZ (2007) - potential supply with sanitary compliant drinking water	Total investment per WSZ for 3+3+3+ action plan (EUR) (1EUR=7,26HRK)
XVII	Splitsko-dalmatinska	WSZ SPLIT - SINJ - OMIŠ - OTOCI	229	380.547	354.614	93,2%	47.893.000
		WSZ IMOTSKI - MAKARSKA - VRGORAC	98	72.876	63.545	87,2%	21.394.000
		WSZ ŠIBENIK	40	10.253	3.282	32,0%	0
		<b>Splitsko-dalmatinska Total</b>	<b>367</b>	<b>463.676</b>	<b>421.441</b>	<b>91%</b>	<b>69.287.000</b>
XVIII	Istarska	WSZ ISTRRA	466	97.046	95.913	98,8%	15.857.000
		WSZ LABIN	94	24.131	23.650	98,0%	8.375.000
		WSZ PULA	88	85.167	84.773	99,5%	25.926.000
		<b>Istarska Total</b>	<b>648</b>	<b>206.344</b>	<b>204.336</b>	<b>99%</b>	<b>50.158.000</b>
XIX	Dubrovačko-neretvanska	WSZ DUBROVNIK	108	62.350	54.359	87,2%	7.610.000
		WSZ IMOTSKI - MAKARSKA - VRGORAC	10	2.274	2.032	89,4%	0
		WSZ NERETVA - PELJEŠAC - KORČULA - LASTOVO - MLJET	108	58.246	50.878	87,4%	35.802.000
		WSZ SPLIT - SINJ - OMIŠ - OTOCI	1	0	0	0,0%	0
		<b>Dubrovačko-neretvanska Total</b>	<b>227</b>	<b>122.870</b>	<b>107.269</b>	<b>87%</b>	<b>43.412.000</b>
XX	Međimurska	WSZ MEĐIMURJE	128	118.426	116.651	98,5%	13.553.000
		<b>Međimurska Total</b>	<b>128</b>	<b>118.426</b>	<b>116.651</b>	<b>99%</b>	<b>13.553.000</b>
XXI	Grad Zagreb	WSZ VELIKA GORICA	6	1.373	0	0	0
		WSZ PISAROVINA	1	213	0	0	0
		WSZ ZAGREB	63	777.559	724.431	93,2%	185.675.000
		<b>Grad Zagreb Total</b>	<b>70</b>	<b>779.145</b>	<b>724.431</b>	<b>93%</b>	<b>185.675.000</b>
<b>TOTAL REPUBLIC OF CROATIA</b>			<b>6.760</b>	<b>4.437.460</b>	<b>3.606.492</b>	<b>82%</b>	<b>1.354.701.000</b>

**REMARK:** Water supply zone (WSZ) marked in red is in two or more counties

LABORATORIES (TOTAL FOR REPUBLIC OF CROATIA) - HRK 8.832.000 HRK / EUR 1.217.000



Tab. 3 Results of analyses of drinking water quality from local water supply systems systematized per water supply zone

NUTS II	WATER SUPPLY ZONE (WSZ)	ZONE No.	Population No. in the WSZ	Connected Population No. in the WSZ	Population No. - SWSS- outside public water supply	Chemical indicators non-compliant	Microbiological indicators non-compliant	Microbiological indicators at risk	Total microbiological	Both indicator groups non-compliant	Total non-compliant	Total compliant
HR02	WSZ BARANJA	212	42.633	21.267	<b>3.109</b>	2.309	0	0	0	400	2.709	400
HR02	WSZ BJELOVAR	107	51.921	11.774	<b>50</b>	0	50	0	50	0	50	
HR03	WSZ CRES - LOŠINJ	305	11.347	10.818	<b>0</b>	0	0	0	0	0	0	
HR02	WSZ ČAZMA	108	16.458	3.067	<b>0</b>	0	0	0	0	0	0	
HR02	WSZ DARUVAR	125	25.608	15.419	<b>6.400</b>	0	2.800	0	2.800	100	2.900	3.500
HR02	WSZ DAVOR - NOVA GRADIŠKA	127	52.416	10.700	<b>3.980</b>	1.200	0	0	0	2.000	3.200	780
HR02	WSZ DONJI MIHOLJAC	209	19.070	6.805	<b>0</b>	0	0	0	0	0	0	
HR03	WSZ DUBROVNIK	408	62.350	54.158	<b>0</b>	0	0	0	0	0	0	
HR01	WSZ DUGO SELO	105	28.724	18.604	<b>0</b>	0	0	0	0	0	0	
HR02	WSZ ĐAKOVO	130	52.260	29.235	<b>10.499</b>	8.148	0	0	0	351	8.499	2.000
HR01	WSZ ĐURĐEVAC	204	30.079	6.820	<b>1.838</b>	0	293	0	293	50	343	1.495
HR02	WSZ GAREŠNICA	111	16.082	3.754	<b>400</b>	0	0	0	0	400	400	
HR02	WSZ GLINA	120	8.365	4.285	<b>0</b>	0	0	0	0	0	0	
HR03	WSZ GORSKI KOTAR	306	26.430	24.277	<b>15.691</b>	0	9.518	0	9.518	1.501	11.019	4.672
HR03	WSZ GOSPIĆ	312	17.491	14.123	<b>0</b>	0	0	0	0	0	0	
HR03	WSZ GRAČAC	402	3.923	3.448	<b>3.200</b>	0	0	0	0	0	0	3.200
HR02	WSZ GRUBIŠNO POLJE	124	7.523	5.011	<b>3.500</b>	0	0	0	0	0	0	3.500
HR02	WSZ GVOZD - TOPUSKO	119	7.239	4.595	<b>0</b>	0	0	0	0	0	0	
HR03	WSZ HRVATSKO PRIMORJE	308	21.605	19.707	<b>1.191</b>	471	0	0	0	0	471	720
HR01	WSZ HRVATSKO ZAGORJE	101	143.093	80.630	<b>39.915</b>	0	38.070	140	38.210	1.000	39.210	705
HR02	WSZ ILOK	216	9.930	9.930	<b>2.596</b>	752	0	0	0	0	752	1.844
HR03	WSZ IMOTSKI - MAKARSKA - VRGORAC	406	75.150	63.125	<b>0</b>	0	0	0	0	0	0	
HR02	WSZ ISTOČNA SLAVONIJA - SLAVONSKI BROD	129	124.349	72.501	<b>5.990</b>	5.490	500	0	500	0	5.990	
HR02	WSZ ISTOČNA SLAVONIJA - VINKOVCI	131	146.086	104.088	<b>43.110</b>	30.600	0	0	0	1.500	32.100	11.010
HR03	WSZ ISTRA	301	97.046	95.913	<b>440</b>	0	440	0	440	0	440	
HR01	WSZ IVANIĆ GRAD	106	28.167	11.333	<b>0</b>	0	0	0	0	0	0	
HR01	WSZ JASTREBARSKO - KLINČA SELA	114	23.213	19.485	<b>1.170</b>	0	450	380	830	50	880	290

NUTS II	WATER SUPPLY ZONE (WSZ)	ZONE No.	Population No. in the WSZ	Connected Population No. in the WSZ	Population No. - SWSS- outside public water supply	Population number						
						Chemical indicators non-compliant	Microbiological indicators non-compliant	Microbiological indicators at risk	Total microbiological	Both indicator groups non-compliant	Total non-compliant	Total compliant
HR02	WSZ KARLOVAC - DUGA RESA	116	91.511	46.657	1.738	0	1.538	0	1.538	200	1.738	
HR03	WSZ KNIN	404	17.187	14.770	1.570	0	1.420	0	1.420	50	1.470	100
HR01	WSZ KOPRIVNICA	203	58.050	33.993	234	0	234	0	234	0	234	
HR01	WSZ KRIŽEVCI	103	36.338	12.434	621	0	621	0	621	0	621	
HR03	WSZ LABIN	303	24.131	23.650	0	0	0	0	0	0	0	
HR03	WSZ LAPAC	311	1.880	1.651	200	0	200	0	200	0	200	
HR02	WSZ LIČKA JESENICA	118	13.893	8.744	195	0	120	0	120	0	120	75
HR01	WSZ MEDIMURJE	202	118.426	91.098	1.461	0	0	0	0	0	0	1.461
HR02	WSZ MOSLAVAČKA POSAVINA - JASENOVAC	109	60.934	34.998	100	0	0	0	0	0	0	100
HR02	WSZ NAŠICE	210	37.109	20.098	5.400	0	250	0	250	5.150	5.400	
HR03	WSZ NERETVA - PELJEŠAC - KORČULA - LASTOVO - MLJET	407	58.246	46.224	8.725	0	725	0	725	8.000	8.725	
HR02	WSZ OGULIN	117	25.192	20.835	482	0	210	0	210	0	210	272
HR03	WSZ OPATIJA - RIJEKA - KRK	304	238.088	139.678	26.311	0	24.757	0	24.757	0	24.757	1.554
HR02	WSZ ORAHOVICA	208	13.107	7.736	150	0	0	0	0	0	0	150
HR02	WSZ OSIJEK	214	147.109	136.016	19.943	7.760	0	0	0	12.183	19.943	
HR03	WSZ OTOČAC	309	15.434	12.102	600	0	600	0	600	0	600	
HR02	WSZ OZALJ	113	11.458	10.585	100	0	100	0	100	0	100	
HR02	WSZ PAKRAC - LIPIK	126	15.529	8.696	0	0	0	0	0	0	0	
HR02	WSZ PAŠINO VRELO	122	20.058	8.333	150	0	0	0	0	150	150	
HR02	WSZ PETRINJA - SISAK	121	84.528	40.359	1.080	200	820	0	820	60	1.080	
HR01	WSZ PISAROVINA	115	3.910	1.246	120	0	60	0	60	0	60	60
HR02	WSZ PITOMAČA	205	10.465	0	9.500	650	1.950	0	1.950	4.750	7.350	2.150
HR02	WSZ POŽEŠTINA	128	70.302	53.100	983	0	226	0	226	155	381	602
HR03	WSZ PULA	302	85.167	84.773	0	0	0	0	0	0	0	
HR02	WSZ SLATINA	207	26.181	13.799	0	0	0	0	0	0	0	
HR03	WSZ SPLIT - SINJ - OMIŠ - OTOCI	405	380.547	349.221	3.000	0	0	0	0	3.000	3.000	
HR01	WSZ SVETI IVAN ZELINA	102	17.790	6.643	5.027	330	2.037	1.300	3.337	1.360	5.027	
HR03	WSZ ŠIBENIK	403	105.957	86.129	0	0	0	0	0	0	0	
HR02	WSZ TROJSTVO – GRĐEVAC	110	15.492	2.746	3.000	2.000	0	0	0	0	2.000	1.000
HR03	WSZ UDBINA – KORENICA	310	6.747	2.194	2.136	0	1.000	0	1.000	0	1.000	1.136

NUTS II	WATER SUPPLY ZONE (WSZ)	ZONE No.	Population No. in the WSZ	Connected Population No. in the WSZ	Population No. - SWSS- outside public water supply	Chemical indicators non-compliant	Microbiological indicators non-compliant	Microbiological indicators at risk	Population number				
									Total microbiological	Both indicator groups non-compliant	Total non-compliant	Total compliant	
HR02	WSZ VALPOVO	211	32.325	25.074	0	0	0	0	0	0	0	0	
HR01	WSZ VARAŽDIN	201	184.769	138.244	45.180	2.500	6.550	0	6.550	660	9.710	35.470	
HR01/2	WSZ VELIKA GORICA	503	75.506	47.887	400	0	0	200	200	0	200	200	
HR02	WSZ VIROVITICA	206	43.636	34.121	1.150	1.000	0	0	0	150	1.150		
HR01	WSZ VRBOVEC	104	29.178	5.552	0	0	0	0	0	0	0		
HR02	WSZ VUKOVAR	215	48.752	48.072	1.180	1.180	0	0	0	0	1.180		
HR01	WSZ ZAGREB	501	831.047	754.055	13.094	260	8.820	1.554	10.374	420	11.054	2.040	
HR01	WSZ ZAPREŠIĆ	502	50.379	41.551	2.100	0	1.300	480	1.780	320	2.100		
HR03	WSZ ZRMANJA – ZADAR	401	158.122	126.196	19.250	0	2.000	0	2.000	750	2.750	16.500	
HR03	WSZ ŽRNOVNICA	307	20.160	19.921	680	0	680	0	680	0	680		
HR01	WSZ ŽUMBERAK – KRAŠIĆ	112	4.262	3.167	0	0	0	0	0	0	0		
	<b>TOTAL</b>		<b>4.437.460</b>	<b>3.287.220</b>	<b>318.939</b>	<b>64.850</b>	<b>108.339</b>	<b>4.054</b>	<b>112.393</b>	<b>44.710</b>	<b>221.953</b>	<b>96.986</b>	

Code	Name	Counties
HR01	Northwestern Croatia	<ul style="list-style-type: none"> <li>◆ Grad Zagreb,</li> <li>◆ Zagrebačka,</li> <li>◆ Krapinsko-zagorska</li> </ul>
HR02	Central and Eastern Croatia (Pannonian)	<ul style="list-style-type: none"> <li>◆ Bjelovarsko-bilogorska,</li> <li>◆ Virovitičko-podravska,</li> <li>◆ Požeško-slavonska,</li> <li>◆ Brodsko-posavska,</li> <li>◆ Osječko-baranjska,</li> <li>◆ Vukovarsko-srijemska</li> </ul>
HR03	Adriatic Croatia	<ul style="list-style-type: none"> <li>◆ Primorsko-goranska,</li> <li>◆ Ličko-senjska,</li> <li>◆ Zadarska</li> <li>◆ Varaždinska,</li> <li>◆ Koprivničko-križevačka,</li> <li>◆ Međimurska</li> <li>◆ Karlovačka</li> <li>◆ Sisačko-moslavačka</li> <li>◆ Šibensko-kninska,</li> <li>◆ Splitsko-dalmatinska,</li> <li>◆ Istarska</li> <li>◆ Dubrovačko-neretvanska</li> </ul>

The average distribution area contains 99 settlements, i.e. slightly over 65.000 inhabitants. At moderate average consumption of 150 l/person/day, about 3,570 mil. m<sup>3</sup> of water would be distributed annually in a distribution area, thus these are relatively small systems in general

### **Implementation periods**

Republic of Croatia requests a transitional period until 31 December 2018 for the implementation of Council Directive 98/83/EC with regard to the microbiological parameters set out in Annex I - Part A and Part C and Annex III of the Directive.

Furthermore, as a Member State Croatia intends to make use of the possibility for derogations as provided for in Article 9 of Council Directive 98/83/EC with regard to the chemical parametric values set out in Annex I - Part B of the Directive in the time period 3+3+3 from the date of its accession to the EU, which it intends to grant/request upon accession to the EU.

### **4.1.2 Implementation costs**

#### **Construction costs**

The planned investments will fully solve the problem of increased quantities of arsenic, chlorides, nitrates, turbidity, naturally increased contents of iron and manganese as well as microbiological pollution (already recorded pollution or risk of pollution occurrence) in the water supply systems of the Republic of Croatia and lead up to full harmonization with the requirements of the Drinking Water Directive.

Total costs of construction to be carried out in 68 water supply zones amount to HRK 9,835 billion (EUR 1,355 billion), by means of which the Republic of Croatia would comply with the requirements of the Drinking Water Directive. The greatest investments are expected in the period 2013-2015, amounting to EUR 182 million/year.

Costs of construction and development shall be financed through a combined model, i.e. from the following sources:

1. current investment funds:
  - a. price of water, namely from: the development surcharge, which would be the revenue of a common body of the service area and/or units of local self-government and can therefore be used for construction within the service area or the territory of the unit of local self government; and the water use fee, which is a revenue of Hrvatske vode
  - b. State Budget, budgets of local and regional self-government units
2. additional sources yet to be ensured (EU funds, additional national sources of funding, etc.)

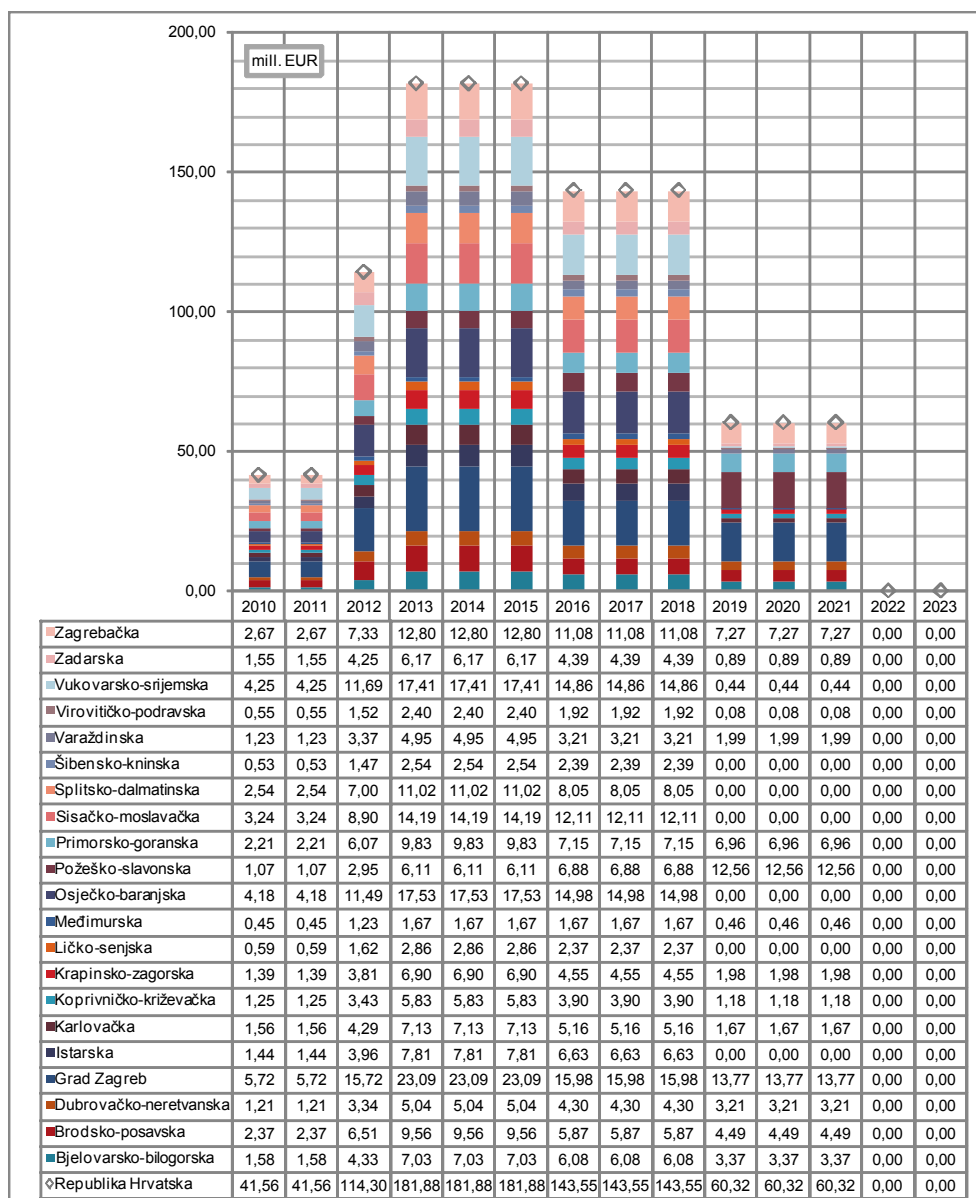


Fig. 6 Construction costs (mil. EUR)

### Other costs included in the price of water

The costs of providing water supply in accordance with the requirements of the Directive include the costs of operation and maintenance, depreciation including repayment of previous loans and are financed from the price of the service of water supply, which is the revenue of the service provider and is collected and used at the level of the service area.

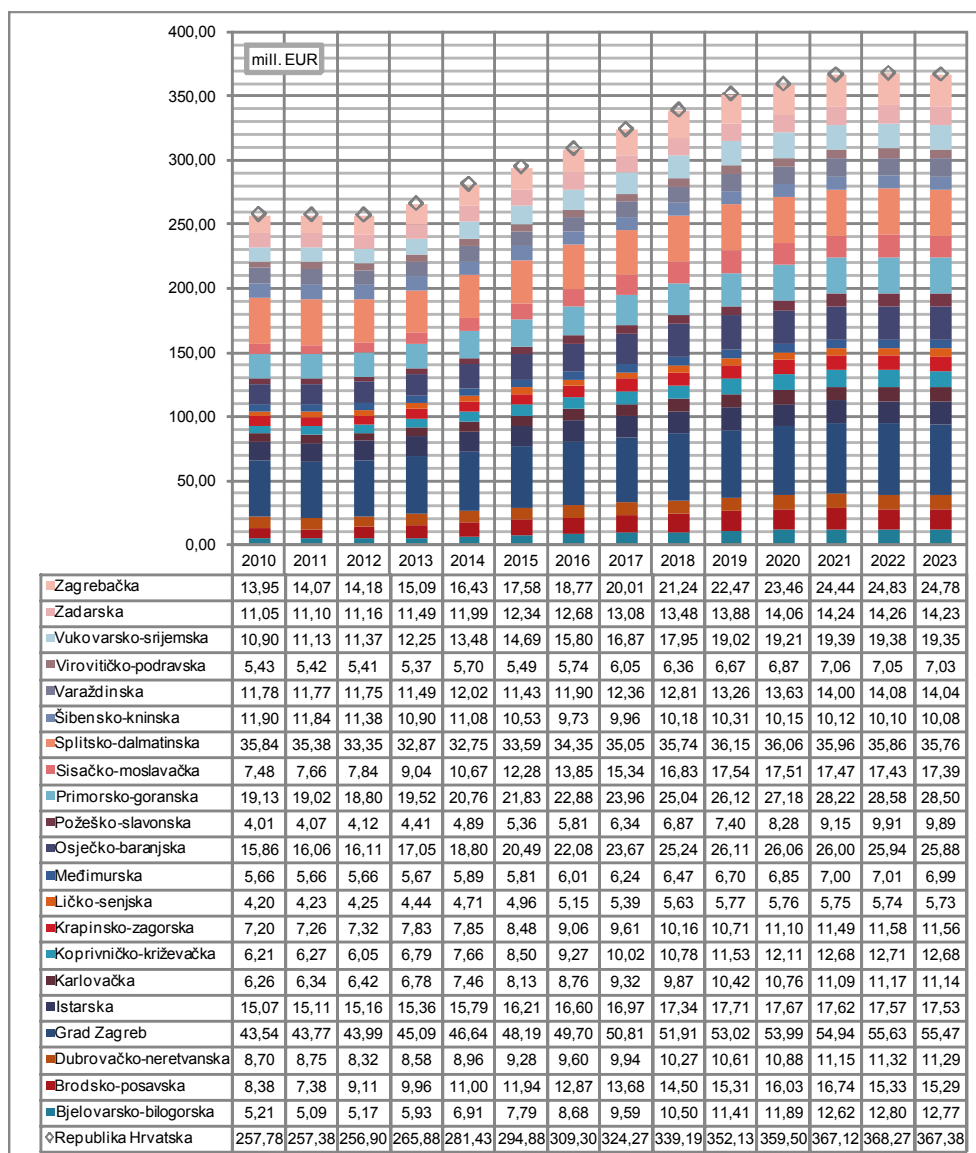


Fig. 7 Other costs included in the price of water

An estimate of "other costs" included in the price of water which refer to the execution of public water supply activities - depreciation increased by the amount of VAT, operation and maintenance increased by the amount of VAT, repayment of loans, water use fee - ranges from around EUR 258 million per year in the beginning to around EUR 367 million per year at the end of the period of adjustment to the Directive's requirements.

### Total costs

The total annual costs of the Drinking Water Directive implementation, i.e. development of water supply systems in a manner to ensure sufficient water quantities of adequate quality as well as to ensure reliable delivery and regular control of drinking water, range from EUR 300 to 483 million (2018).

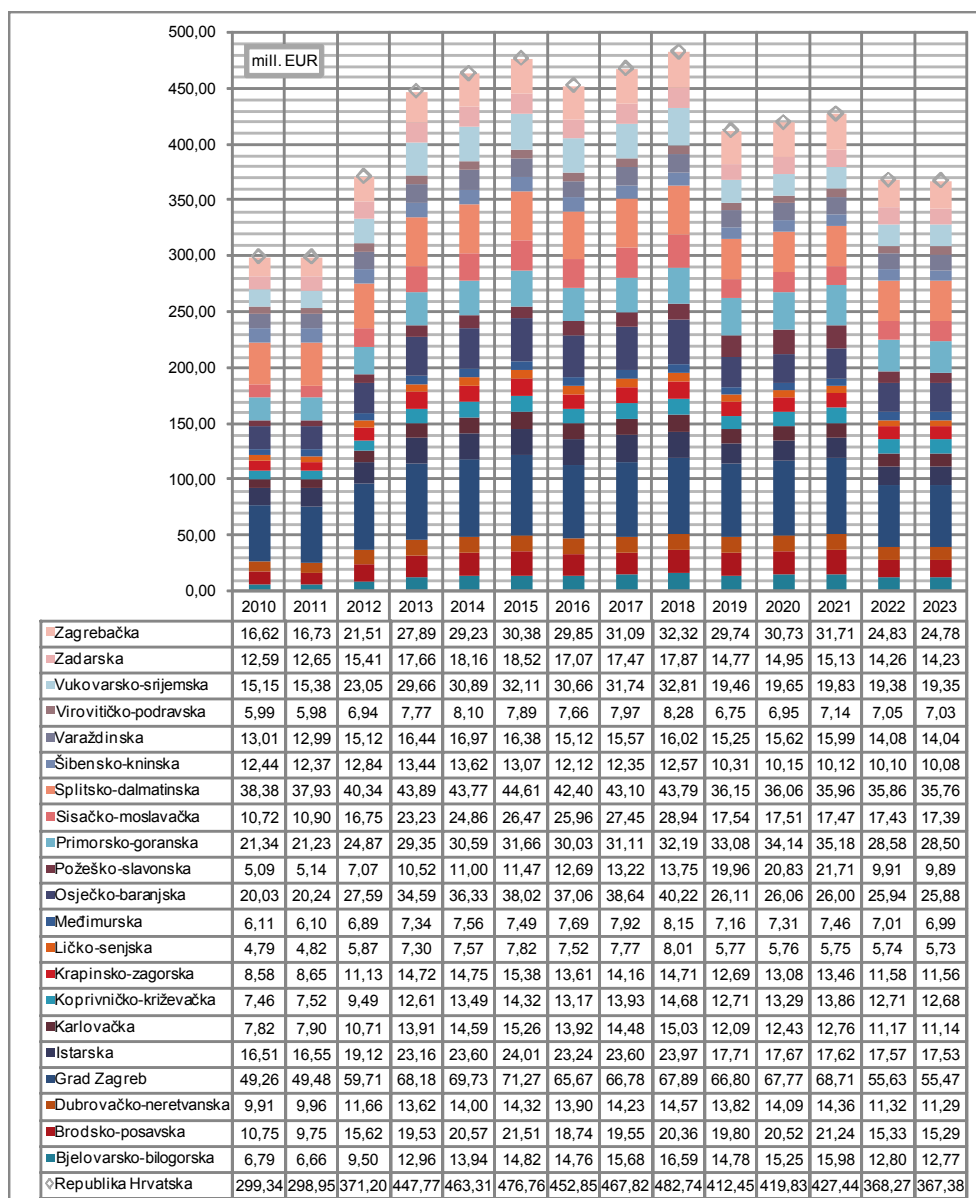


Fig. 8 Total Directive implementation costs

In the total costs for implementing the Directive, construction costs represent - depending on the year - between 14% at the end of the construction period to nearly 40% in 2013 and 2014.

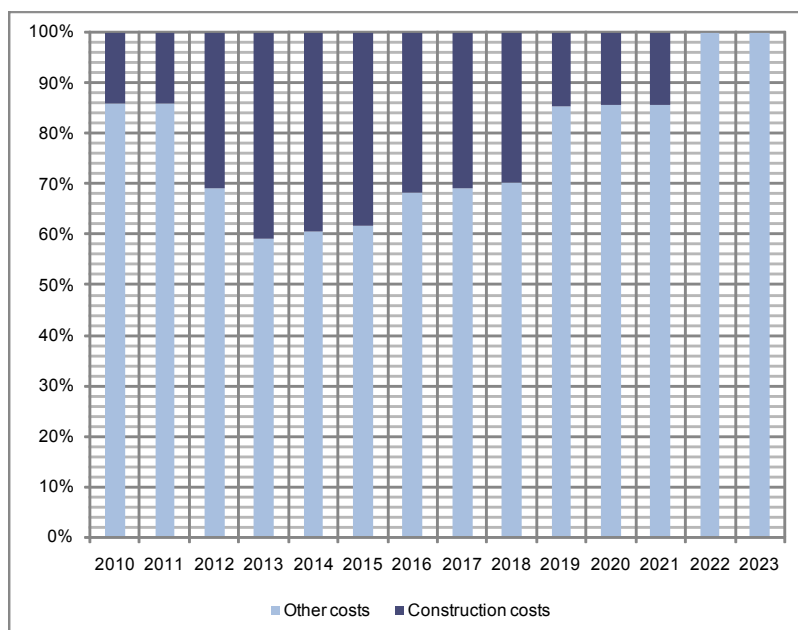


Fig. 9 Ratio of construction costs and other Directive implementation costs

With regards to the supplied quantity of water, the Directive implementation costs range, at the Croatian national level, from 12,27HRK/m<sup>3</sup> (1,69 EUR/m<sup>3</sup>) during the intensive construction period to slightly over 8,35 HRK/m<sup>3</sup> (1,15 EUR/m<sup>3</sup>) at the end of the construction period. Per counties, the Directive implementation costs in relation to the supplied water quantities significantly vary and in some years reach nearly 3,78 EUR/m<sup>3</sup> (27,44 HRK/m<sup>3</sup>).

Tab. 4 Annual Directive implementation costs in relation to the supplied water quantities (EUR/m<sup>3</sup>)

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Bjelovarsko-bilogorska	1,87	1,84	2,63	2,98	2,74	2,55	2,26	2,16	2,08	1,70	1,63	1,59	1,27	1,28
Brodsko-posavska	1,70	1,55	2,48	2,83	2,74	2,65	2,15	2,10	2,05	1,88	1,85	1,82	1,32	1,32
Dubrovačko-neretvanska	1,22	1,23	1,44	1,66	1,69	1,71	1,64	1,66	1,68	1,58	1,59	1,60	1,27	1,27
Grad Zagreb	0,89	0,90	1,09	1,24	1,26	1,29	1,18	1,20	1,22	1,19	1,21	1,22	0,99	0,99
Istarska	0,91	0,92	1,06	1,29	1,32	1,35	1,31	1,33	1,36	1,01	1,01	1,01	1,01	1,01
Karlovačka	1,17	1,18	1,61	1,99	2,00	2,00	1,75	1,75	1,75	1,36	1,35	1,34	1,18	1,18
Koprivničko-križevačka	1,32	1,34	1,69	2,01	1,95	1,89	1,60	1,56	1,54	1,25	1,23	1,21	1,11	1,11
Krapinsko-zagorska	1,44	1,45	1,88	2,34	2,21	2,19	1,84	1,83	1,81	1,50	1,48	1,47	1,27	1,27
Ličko-senjska	1,60	1,62	1,98	2,36	2,36	2,35	2,18	2,18	1,57	1,58	1,58	1,58	1,58	1,58
Međimurska	0,98	0,98	1,11	1,15	1,16	1,11	1,12	1,12	1,13	0,97	0,96	0,96	0,91	0,91
Osječko-baranjska	1,20	1,21	1,66	1,97	1,97	1,97	1,84	1,83	1,83	1,19	1,20	1,20	1,20	1,20
Požeško-slavonska	1,13	1,14	1,58	2,27	2,31	2,33	2,51	2,54	2,58	3,64	3,71	3,78	1,73	1,73
Primorsko-goranska	1,14	1,14	1,34	1,51	1,51	1,50	1,36	1,36	1,36	1,35	1,34	1,34	1,09	1,10
Sisačko-moslavačka	1,37	1,40	2,15	2,64	2,54	2,45	2,20	2,15	2,11	1,28	1,28	1,28	1,29	1,29
Splitsko-dalmatinska	1,10	1,09	1,16	1,26	1,24	1,26	1,19	1,20	1,21	1,00	1,00	1,00	1,00	1,00
Šibensko-kninska	1,58	1,58	1,64	1,70	1,70	1,61	1,47	1,48	1,49	1,23	1,21	1,21	1,21	1,22
Varaždinska	1,22	1,22	1,43	1,50	1,50	1,41	1,26	1,26	1,27	1,17	1,17	1,17	1,04	1,04
Virovitičko-podravska	1,42	1,42	1,65	1,74	1,71	1,58	1,46	1,45	1,44	1,12	1,11	1,10	1,09	1,09
Vukovarsko-srijemska	1,51	1,53	2,31	2,90	2,96	3,01	2,82	2,86	2,91	1,69	1,68	1,66	1,63	1,64
Zadarska	1,24	1,25	1,53	1,72	1,74	1,74	1,58	1,59	1,61	1,31	1,30	1,30	1,23	1,23
Zagrebačka	1,19	1,20	1,55	1,91	1,90	1,89	1,77	1,77	1,77	1,56	1,56	1,55	1,22	1,22
<b>Republic of Croatia</b>	<b>1,16</b>	<b>1,16</b>	<b>1,45</b>	<b>1,69</b>	<b>1,69</b>	<b>1,69</b>	<b>1,56</b>	<b>1,57</b>	<b>1,58</b>	<b>1,33</b>	<b>1,33</b>	<b>1,33</b>	<b>1,15</b>	<b>1,15</b>
Min	0,89	0,90	1,06	1,15	1,16	1,11	1,12	1,12	1,13	0,97	0,96	0,96	0,91	0,91
Max	1,87	1,84	2,63	2,98	2,96	3,01	2,82	2,86	2,91	3,64	3,71	3,78	1,73	1,73
20% of the counties with the lowest Directive implementation costs in relation to the quantity of water supplied														
20% of the counties with the highest Directive implementation costs in relation to the quantity of water supplied														



## 4.2 Directive 91/271/EEC concerning urban waste water treatment

### 4.2.1 Bases for implementing the Directive

#### Completed:

- ◆ Identify sensitive areas and relevant catchments' areas
- ◆ Identify agglomerations and determine the state of existing waste water sewerage infrastructure in the agglomerations
- ◆ Determine conditions/permits for designing, construction, operation and maintenance of urban waste water treatment plants in accordance with the requirements of the Directive
- ◆ The Council for Water Services. The basic task of the Council for Water Services as a national regulator shall be to ensure legality in the field of determining the price of water services. Appointment of Council members is in the procedure of Croatian Parliament.

**Pending** in line with the deadlines specified in the Water Act (transitional periods for the reform of the utility sector)

- ◆ Reform of the utility sector on the basis of the Water Act and bylaws.

### 4.2.2 Agglomerations

The selected concept of identification of agglomerations in the Republic of Croatia implies that an area of one agglomeration is served by one collecting system and one waste water treatment plant assessed as the most appropriate in terms of the present situation. A more detailed analysis of current state, carried out during the negotiating process, has provided more precise data and estimates of the percentage of population connected to public waste water systems.

The collection of waste water from 4.437.460 inhabitants of the Republic of Croatia living in a total of 6.762 settlements can be organized in 763 systems, i.e. agglomerations. Only 294 agglomerations are larger than 2.000 PE.

An average-sized system, i.e. agglomeration in the Republic of Croatia has 3,4 settlements and 5.131 inhabitants, with associated 5,4 settlements and 692 inhabitants with exclusively individual waste water disposal. However, the greatest number of agglomerations are very small agglomerations, below 2.000 PE (469 out of 763). The requirements of the UWWT Directive refer primarily to the 294 agglomerations larger than 2.000 PE.

Out of the total estimated existing maximum load, agglomerations larger than 2.000 PE will encompass around 93% of the load (with an average load of around 18.000 PE and an average number of 12,066 inhabitants, in the settlements where waste water is planned to be disposed through a system of sewers). These agglomerations encompass the total of 1.783 settlements with 3.547.000 inhabitants which should connect directly to the sewerage system, representing 80% of Croatia's population according to the 2001 Census.

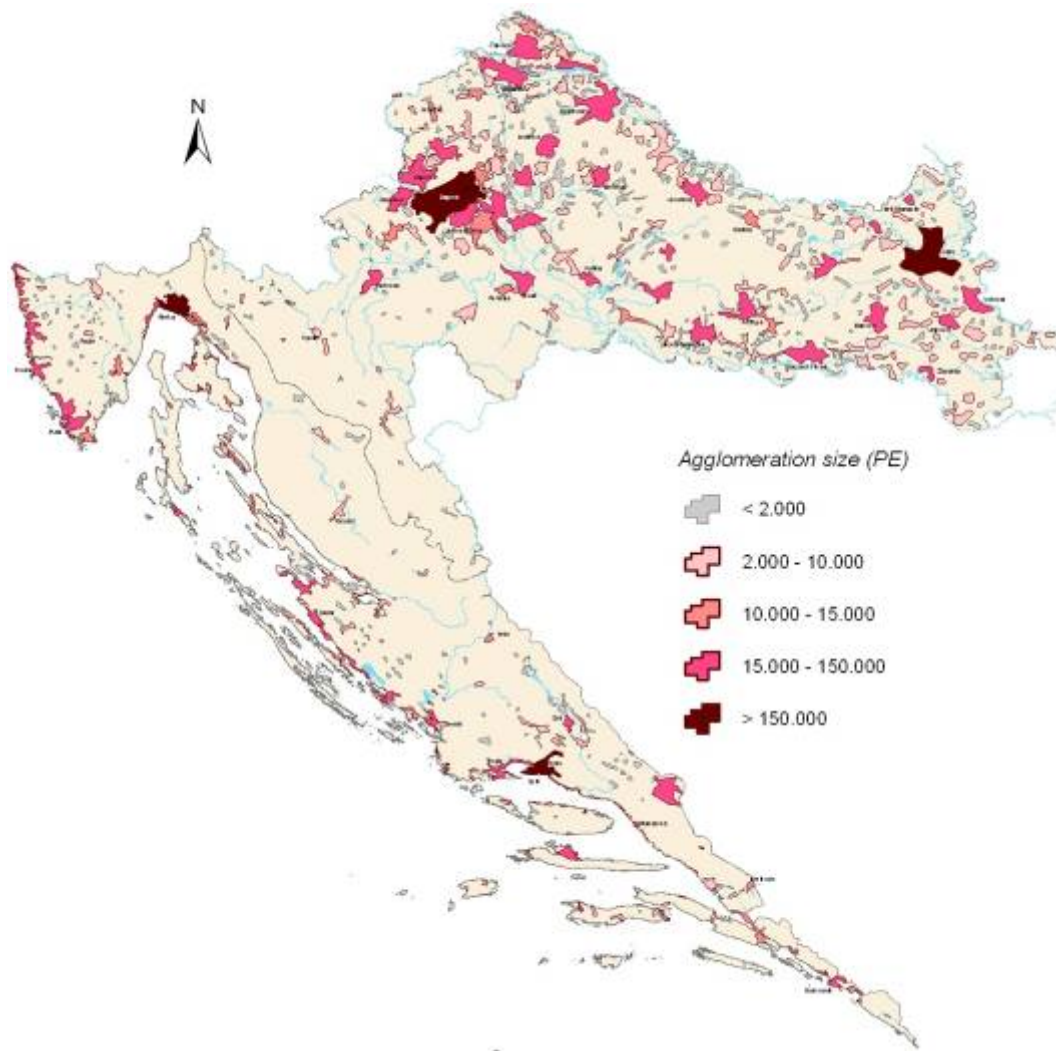


Fig. 10 Spatial distribution of agglomerations with load larger than 2,000 PE

The spatial distribution of population (the average size of a settlement in the Republic of Croatia is 656 inhabitants) makes the development of public waste water systems technically and economically complex, both during their construction and operation.

The percentage of population connected to waste water systems drops with smaller systems. It is greatest when it comes to the systems of more than 150.000 PE - slightly below 74%, and the lowest (slightly more than 4%) for the systems of less than 2.000 PE.

The share of industry and tourism in total load grows with the size of the agglomeration, amounting to around 50% for the agglomerations larger than 15.000 PE.

The spatial coverage of agglomerations and their loads will in the future be adjusted to the changes of spatial conditions, i.e. to the changes in the number of users, economic trends, but also to the financial capacities and the standard of living. The definition of agglomerations thus becomes a continuous process, an integral part of planning and managing this activity, coordinated with generally accepted water protection principles, with the aim of maximizing impacts on water and environment in a wider sense, with minimum costs, coordinated with the capacities of users.

More precise planning of the scope and load of individual agglomerations, including a consideration of realistic capacities of development, operation and maintenance of the system's facilities, will be the result of subsequent more thorough analyses which will be carried out during the preparation of

individual feasibility studies which will study an area in much more detail than at this top planning level with information available so far.

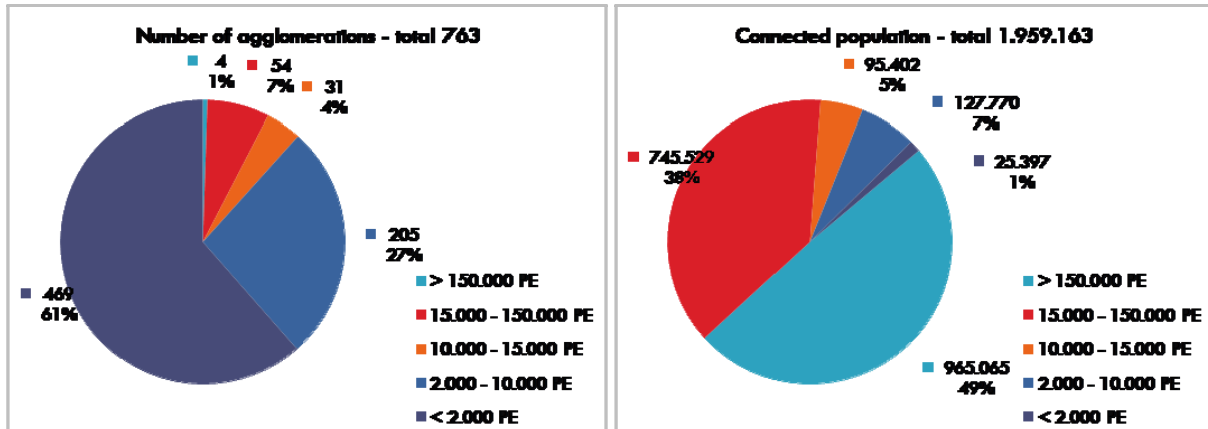


Fig. 11 Collection and treatment of urban waste water - Basic indicators

Tab. 5 List of agglomerations &gt; 2.000 PE

Agglomeration	Type of receiving water	Name of receiving water	Area sensitivity*	ID sensitive area	Deadline for meeting the requirements 31 Dec. –	Population connection rate	Total existing load PE	Total planned load PE	WWTP - Existing level of treatment	WWTP - current capacity PE	WWTP - Planned level of treatment	WWTP - Planned capacity PE	Price of collection network EUR	WWTP construction price EUR	Total construction price EUR
Andrijaševci	Watercourse	Bosut River	sensitive	3000	2023	0%	4.429	4.659			2	5.000	3.810.000	1.088.000	4.898.000
Babina Greda	Watercourse	Berava River	sensitive	3000	2023	0%	4.412	4.862			2	5.000	2.150.000	1.088.000	3.238.000
Banjole	Sea	West Coast of Istria	normal		2023	21%	4.187	8.068	P	7.000	2	10.000	1.361.000	2.684.000	4.045.000
Bapska	Watercourse	Danube River	sensitive	3000	2023	0%	2.151	2.151			2	2.750	952.000	680.000	1.633.000
Baska	Sea	Kvarner Bay	normal		2023	71%	10.554	15.364	P	12.000	2	19.000	2.401.000	3.946.000	6.347.000
Baška Voda	Sea	Brač Channel	normal		2023	70%	12.545	19.900			2	20.000	1.224.000	4.082.000	5.306.000
Batrina	Watercourse	Adžamovka-Orljava Rivers	sensitive	3000	2023	0%	4.324	4.500			2	4.500	5.619.000	680.000	6.299.000
Bedekovčina	Watercourse	Krapina River	sensitive	3000	2023	17%	7.973	8.000			2	8.000	4.233.000	2.449.000	6.682.000
Belí Manastir	Watercourse	Karašica Canal	sensitive	3000	2018	32%	17.865	16.056	2	8.000	3	16.000	4.490.000	2.585.000	7.075.000
Belica	Watercourse	Boščak River	sensitive	3000	2023	0%	2.509	2.700			2	2.700	1.633.000	1.633.000	3.265.000
Belišće	Watercourse	Drava River	sensitive	3000	2018	69%	34.880	232.058	2	240.000	3	240.000	2.177.000	6.395.000	8.571.000
Benkovac	Watercourse	Benkovac Stream	sensitive	5000, 4007	2023	50%	4.368	6.967	2	3.500	2	7.000	3.924.000	476.000	4.401.000
Beravci	Watercourse	Moravnik River	sensitive	3000	2023	0%	3.084	3.200			2	3.200	2.109.000	544.000	2.653.000
Bešina-Murter	Sea	Murter Sea	normal		2023	0%	11.545	17.300			2	17.300	8.435.000	4.762.000	13.197.000
Bibinje-Sukošan	Sea	Zadar Channel	normal		2020	20%	15.395	20.449	1	6.400	2	20.200	11.565.000	3.673.000	15.238.000
Bilice	Groundwaters	Groundwaters	sensitive	5000,1014	2023	0%	2.179	3.000			2	3.000	1.633.000	408.000	2.041.000
Biograd	Sea	Pašman Channel	normal		2020	55%	20.014	53.543			2	54.000	4.109.000	2.585.000	6.694.000
Bjelovar	Watercourse	Bjelovarska River	sensitive	3000	2018	63%	73.927	97.878	2	50.000	3	100.000	4.141.000	16.667.000	20.808.000
Blato	Sea	Korčula Channel	normal		2023	0%	5.206	7.785			P	8.000	5.932.000	1.088.000	7.020.000
Bol	Sea	Hvar Channel	normal		2023	100%	6.647	18.100			1	18.100	1.361.000	1.224.000	2.585.000
Bošnjaci	Watercourse	Obla River	sensitive	3000	2023	0%	4.803	4.953			2	5.000	2.993.000	1.156.000	4.150.000
Brckovljani	Watercourse	Nova Zelina River	sensitive	3000	2023	0%	4.065	4.200			2	4.200	5.864.000	952.000	6.816.000
Brela	Sea	Brač Cannel	normal		2023	93%	9.818	14.400			1	14.500	272.000	544.000	816.000
Brodski Stupnik	Watercourse	Pavlovac River	sensitive	3000	2023	0%	3.267	3.500			2	3.500	2.517.000	476.000	2.993.000
Buje	Watercourse	Venella torrential stream – "ponor"	sensitive	5000, 1000	2023	75%	3.930	7.569	2	4.000	2	8.000	1.769.000	857.000	2.626.000
Buzet	Watercourse	Mala Huba River	sensitive	5000, 1000	2023	68%	7.536	7.222	2	7.800	2	7.800	14.662.000	1.061.000	15.724.000
Čačinci	Watercourse	Krajna River	sensitive	3000	2023	0%	2.364	2.379			2	3.500	1.020.000	816.000	1.837.000
Čavtat	Sea	Adriatic Sea	normal		2023	40%	5.897	15.000	P	9.800	1	15.000	1.361.000	544.000	1.905.000
Čazma	Watercourse	Česma River	sensitive	3000	2023	56%	4.529	4.861			2	5.000	986.000	1.687.000	2.673.000
Cerna	Watercourse	Bosut River	sensitive	3000	2023	0%	5.440	5.910			2	6.000	1.430.000	1.361.000	2.791.000
Cestica	Watercourse	Drainage Canal	sensitive	3000	2023	0%	3.900	4.283			2	4.500	5.853.000	2.313.000	8.166.000
Cres	Sea	Kvarner Bay	normal		2023	90%	7.833	13.633			2	14.000	680.000	3.537.000	4.218.000
Črikvenica	Sea	Kvarner Bay	normal		2023	71%	10.827	13.756			2	16.000	2.993.000	3.810.000	6.803.000
Čakovec	Watercourse	Trnava River	sensitive	3000	2018	55%	67.805	108.709	2	91.000	3	116.000	32.533.000	3.401.000	35.935.000
Dalj	Watercourse	Danube River	sensitive	3000	2023	0%	5.653	5.653			2	6.000	2.993.000	1.905.000	4.898.000
Daruvar	Watercourse	Toplica River	sensitive	3000	2018	66%	38.108	49.449	2	23.000	3	50.000	2.211.000	9.184.000	11.395.000
Davor	Watercourse	Sava River	sensitive	3000	2023	60%	2.513	2.650			2	2.650	68.000	612.000	680.000
Delnice	Watercourse	Delnički Stream	sensitive	3000	2023	63%	5.178	7.029	1	4.500	2	9.000	3.886.000	1.361.000	5.246.000
Dicmo	Groundwaters	Groundwaters	sensitive	5000	2023	0%	2.031	4.550			3	4.600	5.442.000	816.000	6.259.000
Đakovo	Watercourse	Ribnjak River	sensitive	3000	2018	54%	33.265	35.000			3	35.000	13.429.000	6.122.000	19.551.000
Đurđevac	Watercourse	Čivičevac River	sensitive	3000	2023	30%	7.116	8.500	2	3.000	2	9.000	1.361.000	2.449.000	3.810.000

Agglomeration	Type of receiving water	Name of receiving water	Area sensitivity *	ID sensitive area	Deadline for meeting the requirements 31 Dec. –	Population connection rate	Total existing load PE	Total planned load PE	WWTP - Existing level of treatment	WWTP - current capacity PE	WWTP - Planned level of treatment	WWTP - Planned capacity PE	Price of collection network EUR	WWTP construction price EUR	Total construction price EUR
Donja Dubrava	Watercourse	Drava River	sensitive	3000	2018	8%	16.173	23.740			3	25.000	29.252.000	5.986.000	35.238.000
Donja Zdenčina	Watercourse	Brebernica River	sensitive	3000	2023	32%	3.705	3.955			2	4.000	3.810.000	884.000	4.694.000
Donji Andrijevci	Watercourse	Biđ River	sensitive	3000	2023	42%	4.015	4.365			2	4.500	2.046.000	680.000	2.726.000
Donji Kraj	Watercourse	Sutla River	sensitive	3000	2023	0%	3.282	3.697			2	4.000	4.963.000	1.027.000	5.990.000
Donji Kraljevec	Watercourse	Rakovnica River	sensitive	3000	2023	10%	5.631	8.760			2	8.800	7.823.000	2.041.000	9.864.000
Donji Miholjac	Watercourse	Drava River	sensitive	3000	2023	50%	6.890	9.960	1	8.000	2	10.000	1.361.000	4.354.000	5.714.000
Draganić	Watercourse	Collection Canal	sensitive	3000	2023	0%	2.950	3.000			2	3.000	1.429.000	816.000	2.245.000
Draž	Watercourse	Karašica River	sensitive	3000, 4004	2023	0%	2.140	2.140			2	3.000	1.041.000	816.000	1.857.000
Drniš	Watercourse	Čikola River	sensitive	4005, 5000	2023	75%	3.332	9.558			3	10.000	3.837.000	3.088.000	6.925.000
Držimurec	Watercourse	Trnava River	sensitive	3000	2023	0%	4.548	4.730			2	4.800	2.920.000	1.633.000	4.552.000
Dubrava	Watercourse	Ograđenka River	sensitive	3000	2023	0%	2.601	2.701			2	2.800	3.946.000	612.000	4.558.000
Dubrovnik	Sea	Adriatic Sea	normal		2018	70%	46.298	100.000	P	50.000	2	100.000	9.148.000	9.524.000	18.672.000
Dugi rat	Sea	Brač Channel	normal		2023	0%	5.625	10.968			1	11.000	5.212.000	1.361.000	6.573.000
Dvor	Watercourse	Una River	sensitive	3000	2023	30%	2.094	2.234			2	3.000	1.973.000	816.000	2.789.000
Ernestinovo	Watercourse	Vuka River	sensitive	3000	2023	0%	2.225	2.225			2	2.700	1.537.000	816.000	2.354.000
Fužine	Groundwaters	Groundwaters	sensitive	1031, 5000	2023	12%	5.422	7.939			2	8.000	5.578.000	980.000	6.558.000
Garčin	Watercourse	Lateral Canal of Biđ Polje	sensitive	3000	2023	0%	3.380	4.000			2	4.000	3.197.000	408.000	3.605.000
Garešnica	Watercourse	Šovica River	sensitive	3000	2023	56%	6.752	7.115	2	7.000	2	7.000	2.082.000	544.000	2.626.000
Gat	Watercourse	Drava River	sensitive	3000	2023	0%	4.425	4.425			2	5.340	4.422.000	1.429.000	5.850.000
Glavničica	Watercourse	Kašina River	sensitive	3000	2020	4%	10.349	10.561			3	12.000	11.093.000	3.401.000	14.494.000
Glina	Watercourse	Glina River	sensitive	3000	2023	49%	5.390	6.590			2	9.000	7.007.000	2.721.000	9.728.000
Gola	Watercourse	Ždralica-Drava Rivers	sensitive	3000	2023	0%	2.042	2.154			2	2.100	2.517.000	1.361.000	3.878.000
Goričan	Watercourse	Jagodnjak River	sensitive	3000	2023	0%	3.148	2.850			2	3.000	1.611.000	1.633.000	3.244.000
Gospić	Watercourse	Novčica River	sensitive	5000	2023	50%	7.664	7.595	2	5.200	2	8.000	3.401.000	680.000	4.082.000
Gračac	Watercourse	Ričica River	sensitive	4000, 5000	2023	0%	2.723	4.729			2	5.000	7.400.000	1.367.000	8.767.000
Gradac	Sea	Neretva Channel	normal		2023	26%	11.143	15.550			2	15.600	3.211.000	4.082.000	7.293.000
Gradec	Watercourse	Glogovnica River	sensitive	3000	2023	0%	2.486	2.500			2	2.500	3.673.000	544.000	4.218.000
Gradina	Watercourse	County Canal	sensitive	3000	2023	0%	2.452	2.452			2	3.000	1.905.000	816.000	2.721.000
Gradište	Watercourse	Bosut-Bистра Canal	sensitive	3000	2023	0%	3.532	3.800			2	3.800	1.905.000	884.000	2.789.000
Greda	Watercourse	Plitvica River	sensitive	3000	2023	2%	5.457	5.540			3	5.500	8.163.000	2.721.000	10.884.000
Grubišno Polje	Watercourse	Šovarnica River	sensitive	3000	2023	29%	4.282	5.492			2	5.500	1.116.000	1.871.000	2.986.000
Gudovac	Watercourse	Plavnica River	sensitive	3000	2023	0%	2.694	2.910			2	3.000	1.224.000	1.020.000	2.245.000
Gundinci	Watercourse	Berava River	sensitive	3000	2023	0%	2.344	2.400			2	2.400	1.905.000	408.000	2.313.000
Gunja	Watercourse	Sava River	sensitive	3000	2023	0%	8.432	9.932			2	10.000	7.347.000	2.653.000	10.000.000
Hercegovac	Watercourse	Tomašica River	sensitive	3000	2023	29%	3.673	4.860			2	5.000	959.000	1.673.000	2.633.000
Hum na Sutli	Watercourse	Sutla River	sensitive	3000	2023	0%	2.414	3.900			2	3.900	2.014.000	1.224.000	3.238.000
Hvar	Sea	Hvar Channel	normal		2023	100%	13.672	24.200			2	25.000	408.000	5.442.000	5.850.000
Ilok	Watercourse	Danube River	sensitive	3000	2023	30%	5.897	7.997			2	8.000	680.000	2.177.000	2.857.000
Imotski	Watercourse	Glavina Stream	sensitive	1022, 5000	2018	17%	23.711	32.600	2	10.000	3	33.000	21.578.000	6.735.000	28.313.000
Ivanec	Watercourse	Bednja River	sensitive	3000	2020	28%	13.347	15.280			3	16.000	13.946.000	4.762.000	18.707.000
Ivanić Grad	Watercourse	Lonja River	sensitive	3000	2018	39%	17.615	19.484	1	20.000	3	20.000	11.810.000	2.041.000	13.850.000
Ivankovo	Watercourse	Rakovac River	sensitive	3000	2023	0%	7.495	7.995			2	8.000	2.721.000	2.041.000	4.762.000

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Jadranovo	Sea	Grundwaters	normal		2023	3%	2.008	2.168	2	500	1	2.500	961.000	663.000	1.623.000
Jakovlje	Watercourse	Kupinje River	sensitive	3000	2023	0%	3.952	4.525			2	5.000	2.114.000	1.361.000	3.475.000
Jakšić	Watercourse	Vetovka River	sensitive	3000	2023	95%	2.053	2.403			2	2.500	136.000	544.000	680.000
Jalžabet	Watercourse	Canal "D"	sensitive	3000	2023	0%	3.166	5.886			2	6.000	2.789.000	1.769.000	4.558.000
Janjina	Sea	Sea	normal		2023	0%	2.056	4.968			2	5.000	2.912.000	1.769.000	4.680.000
Jarina	Watercourse	Vučica River – Vuka River tributary	sensitive	3000	2023	0%	2.627	2.627			2	3.000	1.156.000	816.000	1.973.000
Jasenak	Watercourse	Jasenačka River	sensitive	3000	2023	0%	2.301	3.801			2	4.000	408.000	680.000	1.088.000
Jastrebarsko	Watercourse	Collection Canal	sensitive	3000	2020	51%	11.945	13.145			3	14.000	7.755.000	2.721.000	10.476.000
Jelsa-Vrboska	Sea	Hvar Channel	normal		2020	0%	24.531	35.640			2	35.700	11.701.000	6.803.000	18.503.000
Josipdol	Watercourse	Munjava River	sensitive	3000	2023	0%	2.598	2.798			2	2.800	1.905.000	816.000	2.721.000
Kali	Sea	Zadar Channel	normal		2023	0%	2.766	6.065			1	6.100	1.293.000	680.000	1.973.000
Kaptol	Watercourse	Kaptolka River	sensitive	3000	2023	68%	2.621	2.621			2	2.700	2.041.000	748.000	2.789.000
Karlovac-Duga Resa	Watercourse	Kupa River	sensitive	3000	2018	66%	117.163	96.604			3	100.000	26.667.000	14.966.000	41.633.000
Kaštela-Trogir	Sea	Šolta Channel	normal		2018	39%	80.340	148.000			2	148.000	32.707.000	11.565.000	44.272.000
Klimno-Šilo	Sea	Vinodol Channel	normal		2023	0%	3.631	7.967			1	8.600	4.844.000	1.837.000	6.680.000
Kneževi Vinogradi	Watercourse	Kenca Canal	sensitive	3000	2023	0%	2.780	2.780			2	3.500	1.510.000	816.000	2.327.000
Knin	Watercourse	Orašnica River	sensitive	4005, 5000	2020	32%	12.619	24.700			3	25.000	8.163.000	5.442.000	13.605.000
Komiža	Sea	open sea	normal		2023	60%	2.723	7.890			P	7.900	884.000	952.000	1.837.000
Konjšćina	Watercourse	Krapina River	sensitive	3000	2023	21%	3.357	3.609			2	4.000	3.088.000	1.088.000	4.177.000
Koprivnica	Watercourse	Moždanski Ditch	sensitive	3000	2018	28%	54.776	95.615	3	100.000	3	100.000	45.306.000	.000	45.306.000
Korčula	Sea	Pelješac Channel	normal		2023	0%	6.379	18.733			2	18.800	6.735.000	2.721.000	9.456.000
Kostrena	Sea	Kvarner Bay	normal		2023	18%	13.576	41.600			2	41.600	37.307.000	5.819.000	43.127.000
Koška	Watercourse	Donja Jasenovica River	sensitive	3000	2023	0%	2.847	2.847			2	3.500	2.517.000	816.000	3.333.000
Kotoriba	Watercourse	Senečnjak IV	sensitive	3000	2023	50%	3.333	3.550			2	4.000	805.000	1.633.000	2.438.000
Kraljevica	Sea	Kvarner Bay	normal		2023	48%	7.871	14.140			1	14.200	23.116.000	3.307.000	26.423.000
Krapina	Watercourse	Krapinica River	sensitive	3000	2020	34%	10.648	20.000			3	21.200	5.259.000	5.850.000	11.109.000
Krapinske Toplice	Watercourse	Kostelina River	sensitive	3000	2023	32%	2.708	3.914	1	3.000	2	4.000	1.361.000	544.000	1.905.000
Krašić	Watercourse	Kupčina River	sensitive	3000	2023	29%	2.039	3.839	2	4.000	2	4.000	2.558.000	68.000	2.626.000
Križevci	Watercourse	Glogovnica River	sensitive	3000	2018	37%	16.895	24.237	1	25.000	3	25.000	2.620.000	3.810.000	6.429.000
Križ-Novoselec	Watercourse	Česma River	sensitive	3000	2023	17%	4.539	5.139			2	5.000	5.646.000	1.156.000	6.803.000
Krk	Sea	Kvarner Bay	normal		2023	74%	10.014	19.764			2	23.000	3.265.000	4.435.000	7.701.000
Kruševo	Groundwaters	Groundwaters	sensitive	1008, 5000	2023	0%	2.078	3.200			2	3.200	1.388.000	707.000	2.095.000
Kutina	Watercourse	Kutinica River	sensitive	3000	2018	79%	17.977	24.577	1	25.000	3	25.000	1.352.000	3.897.000	5.249.000
Kutjevo	Watercourse	Kutjevačka River	sensitive	3000	2023	76%	3.981	4.481			2	4.800	952.000	2.163.000	3.116.000
Labin	Watercourse	Krapanj River	sensitive	1002, 5000	2020	81%	12.932	14.910	2	12.000	3	15.000	8.234.000	1.497.000	9.731.000
Lanterna	Sea	West Coast of Istria	sensitive	1000	2018	90%	21.955	26.286			3	28.140	490.000	6.803.000	7.293.000
Lekenik	Watercourse	Lekenički Stream	sensitive	3000	2023	0%	3.340	3.440			2	3.500	1.905.000	680.000	2.585.000
Lepoglava	Watercourse	Bednja River	sensitive	3000	2023	26%	7.334	8.470			2	8.700	5.442.000	2.721.000	8.163.000
Lipik-Pakrac	Watercourse	Iliđa River arm and further to Pakra River	sensitive	3000	2018	65%	15.550	19.202	1	20.000	3	20.000	6.531.000	2.041.000	8.571.000
Lipovec Lonjski	Watercourse	Lonja River	sensitive	3000	2023	0%	2.452	2.452			2	2.500	3.714.000	544.000	4.259.000

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Lipovljani	Watercourse	Subocka River	sensitive	3000	2023	20%	2.777	3.500			2	3.500	585.000	1.088.000	1.673.000
Lopar	Sea	Kvarner Bay	normal		2023	84%	7.741	11.841	P	14.000	2	14.000	653.000	2.590.000	3.244.000
Ludbreg	Watercourse	Bednja River	sensitive	3000	2023	25%	7.653	9.091			2	10.000	15.252.000	3.401.000	18.653.000
Lumbarda	Sea	Sea	normal		2023	66%	2.721	8.560			P	8.600	1.510.000	680.000	2.190.000
Lužani	Watercourse	Orljava River	sensitive	3000	2023	0%	2.095	2.200			2	2.200	2.381.000	544.000	2.925.000
Makarska	Sea	Hvar Channel	normal		2020	94%	30.261	39.800	P	40.000	2	40.000	1.088.000	4.082.000	5.170.000
Mala Buna	Watercourse	Buna River	sensitive	3000	2023	0%	3.153	3.749			2	5.300	2.046.000	1.307.000	3.353.000
Mali Lošinj	Sea	Kvarner Bay	normal		2020	71%	16.692	22.165			2	23.000	4.667.000	3.687.000	8.354.000
Mali Zdenci - Veliki Zdenci	Watercourse	Šovarnica River	sensitive	3000	2023	0%	3.071	4.794			2	5.000	531.000	1.088.000	1.619.000
Malinska-Njivice	Sea	Kvarner Bay	normal		2020	32%	22.261	34.639			2	35.500	4.652.000	6.463.000	11.115.000
Malostonski zaljev	Sea	Mljet Channel	normal		2023	0%	14.968	27.100	1	30.000	2	41.000	5.385.000	5.442.000	10.827.000
Mandre	Sea	Maunski Channel	normal		2023	0%	5.276	11.380			1	11.500	2.381.000	299.000	2.680.000
Marija Bistrica	Watercourse	Bistrica River	sensitive	3000	2023	25%	4.327	4.510			2	5.000	3.844.000	1.633.000	5.476.000
Marina	Groundwaters	Groundwaters	sensitive	1017	2023	0%	5.086	11.300			3	11.500	8.310.000	2.041.000	10.350.000
Marjančaci	Watercourse	Vučica River	sensitive	3000	2023	0%	2.045	2.076			2	2.000	946.000	544.000	1.490.000
Markušica	Watercourse	Vuka River	sensitive	3000	2023	0%	2.054	2.054			2	3.000	912.000	816.000	1.728.000
Martinšćica	Sea	Kvarner Bay	normal		2023	29%	8.215	9.733			1	10.000	1.959.000	1.265.000	3.224.000
Medulin	Sea	Kvarner Bay	normal		2023	7%	11.851	18.126			2	21.000	12.327.000	4.789.000	17.116.000
Metković	Watercourse	Neretva River	sensitive	1022	2020	43%	13.982	17.460			3	20.000	14.707.000	5.442.000	20.150.000
Mimice	Sea	Brač Channel	normal		2023	0%	2.940	6.000			P	6.000	2.762.000	408.000	3.170.000
Mošćenica	Watercourse	Kupa River	sensitive	3000	2023	0%	2.348	4.100			2	4.100	4.082.000	816.000	4.898.000
Mošćenička Draga	Sea	Kvarner Bay	normal		2023	64%	2.024	3.861			1	4.700	3.205.000	1.088.000	4.293.000
Muč	Groundwaters	Groundwaters	sensitive	1018, 5000	2023	0%	2.741	5.410			3	5.400	5.442.000	1.361.000	6.803.000
Mursko Središće	Watercourse	Mura River	sensitive	3000	2020	12%	11.391	18.560			3	19.000	19.252.000	5.986.000	25.238.000
Našice	Watercourse	Našička River	sensitive	3000	2018	47%	17.345	17.441	1	20.000	3	20.000	7.195.000	2.721.000	9.916.000
Nečujam	Sea	Sea	normal		2023	0%	2.083	3.300			P	3.300	956.000	680.000	1.637.000
Nijemci	Watercourse	Bosut River	sensitive	3000	2023	0%	2.543	2.543			2	3.000	3.088.000	762.000	3.850.000
Nin	Sea	Virsko Sea	normal		2020	0%	16.857	66.945			2	67.000	13.857.000	5.214.000	19.071.000
Nova Gradiška	Watercourse	Šumetlica River	sensitive	3000	2018	63%	23.913	29.548			3	30.000	7.891.000	6.122.000	14.014.000
Novalja	Sea	Kvarner Bay	normal		2023	49%	11.872	19.351	1	14.500	2	19.500	6.395.000	2.571.000	8.966.000
Novi Grad	Watercourse	Sava River	sensitive	3000	2023	0%	2.120	2.120			2	2.120	3.946.000	476.000	4.422.000
Novi Jankovci	Watercourse	Vidor River	sensitive	3000	2023	0%	6.347	6.347			2	7.000	6.939.000	1.769.000	8.707.000
Novi Marof	Watercourse	Bednja River	sensitive	3000	2023	16%	7.810	11.850			3	12.000	13.469.000	3.401.000	16.871.000
Novi Vinodolski	Sea	Kvarner Bay	normal		2023	50%	10.780	18.447			2	20.000	3.946.000	3.714.000	7.660.000
Novigrad Istarski	Sea	West Coast of Istria	sensitive	1000	2020	68%	13.185	28.875			3	33.000	5.905.000	7.402.000	13.306.000
Novigrad Podravski	Watercourse	Kemarnica River	sensitive	3000	2023	27%	2.455	2.700			2	2.900	1.633.000	1.361.000	2.993.000
Nova Selo na Dravi	Watercourse	HPP drainage canal, Drava River	sensitive	3000	2023	0%	5.657	6.170			2	6.200	4.329.000	1.905.000	6.234.000
Novska	Watercourse	Novska River	sensitive	3000,	2020	58%	10.861	12.920			3	13.000	1.627.000	3.624.000	5.251.000



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				4002											
Nuštar	Watercourse	Vuka River	sensitive	3000	2023	6%	5.862	5.862	1	5.000	2	6.000	2.082.000	952.000	3.034.000
Ogulin	Groundwaters	Groundwaters	sensitive	3000	2023	0%	9.345	9.345			3	12.000	2.952.000	4.082.000	7.034.000
Okučani	Watercourse	Sloboština River	sensitive	3000	2023	0%	5.497	6.600			2	6.600	5.374.000	1.156.000	6.531.000
Omiš	Sea	Brač Channel	normal		2023	50%	9.658	21.800	P	32.210	1	22.000	7.452.000	680.000	8.132.000
Omišalj	Sea	Kvarner Bay	normal		2023	61%	2.490	11.397			2	13.300	2.449.000	3.279.000	5.728.000
Opatija-Lovran	Sea	Kvarner Bay	normal		2018	60%	29.183	45.636			2	46.000	12.338.000	10.925.000	23.263.000
Opuzen	Watercourse	Neretva River	sensitive	1022	2023	26%	4.858	9.400	P	9.000	2	9.500	4.218.000	952.000	5.170.000
Orahovica	Watercourse	Vučica River	sensitive	3000	2023	47%	5.390	8.442			2	8.500	2.177.000	2.041.000	4.218.000
Orebić	Sea	Pelješac Channel	normal		2023	0%	8.209	16.910			2	17.000	10.565.000	680.000	11.245.000
Oriovac	Watercourse	Oriovac River	sensitive	3000	2023	0%	2.721	3.000			2	3.000	2.449.000	449.000	2.898.000
Ošijek	Watercourse	Drava River	sensitive	3000	2018	64%	285.622	287.829			3	250.000	29.030.000	31.020.000	60.051.000
Otočac	Watercourse	north arm of the Gacka River	sensitive	5000	2023	50%	6.270	7.623	2	5.600	2	8.000	8.072.000	653.000	8.725.000
Otok	Watercourse	Ceřina-watercourse	sensitive	3000	2023	0%	4.154	7.000			2	7.000	3.537.000	1.361.000	4.898.000
Otok (Vinkovci)	Watercourse	Skrotinci River	sensitive	3000	2023	15%	7.875	8.000			2	8.000	3.253.000	2.041.000	5.306.000
Pag	Sea	Pag Channel	sensitive	1035	2023	63%	3.548	7.572	1	2.700	1	7.600	4.109.000	340.000	4.449.000
Pašman	Sea	Middle Channel	normal		2023	0%	3.565	11.230			1	11.500	3.673.000	2.041.000	5.714.000
Paukovec	Watercourse	Zelina River	sensitive	3000	2023	0%	2.974	2.974			2	3.000	4.490.000	748.000	5.238.000
Pazin	Watercourse	Šaltarija River - Pazinčica River tributary	sensitive	2001, 5000	2023	78%	7.036	8.424	2	8.000	2	8.000	3.333.000	.000	3.333.000
Petlovac	Watercourse	Barbara Canal	sensitive	4004, 3000	2023	0%	2.048	2.048			2	2.500	1.269.000	680.000	1.950.000
Petrčane	Sea	Zadar Channel	normal		2023	0%	6.594	8.500			P	8.500	3.333.000	884.000	4.218.000
Petrijevci	Watercourse	Vučica River	sensitive	3000	2023	0%	7.670	7.680			2	9.900	3.946.000	2.721.000	6.667.000
Petrinja	Watercourse	Kupa River	sensitive	3000	2020	76%	14.459	30.250			3	30.250	11.565.000	4.490.000	16.054.000
Pirovac-Tisno-Jezera	Sea	Murter Sea	normal		2020	0%	15.159	24.455			2	27.000	10.456.000	5.442.000	15.898.000
Pitomača	Watercourse	Šušulic Canal	sensitive	3000	2023	33%	8.707	14.720	1	7.500	2	15.000	3.048.000	2.993.000	6.041.000
Pleternica	Watercourse	Orljava River	sensitive	3000	2020	28%	13.121	13.421			3	15.000	7.959.000	3.401.000	11.361.000
Plitvička jezera	Watercourse	Korana River	sensitive	3000	2023	0%	3.421	14.921			3	15.000	26.122.000	5.442.000	31.565.000
Ploče	Sea	Neretva Channel	normal		2023	12%	8.390	12.900			1	13.000	8.068.000	2.231.000	10.299.000
Podbrest	Watercourse	HPP drainage canal, Drava River	sensitive	3000	2023	0%	3.144	3.570			2	3.600	2.819.000	1.633.000	4.452.000
Podgora	Sea	Hvar Channel	normal		2023	100%	5.934	8.890			P	9.000	#VALUE!	503.000	503.000
Podravske Sesvete	Watercourse	Čivičevac River	sensitive	3000	2023	0%	8.220	8.236			2	9.000	10.068.000	2.721.000	12.789.000
Podstrana	Sea	Brač Channel	normal		2023	32%	12899	21500			2	21500	2.721.000	3.401.000	6.122.000
Podturen	Watercourse	Mura River	sensitive	3000	2023	0%	4.392	5.750			2	5.900	6.939.000	2.041.000	8.980.000
Polonje	Watercourse	Lonja River	sensitive	3000	2023	0%	3.280	3.400			2	3.400	5.442.000	952.000	6.395.000
Popovača	Watercourse	Vlahinička River	sensitive	3000	2023	32%	6.792	7.115			2	7.000	1.112.000	1.769.000	2.880.000
Poreč-Jug	Sea	West Coast of Istria	sensitive	1000	2018	62%	45.280	52.375	P	26.000	3	54.810	10.449.000	14.348.000	24.797.000
Poreč-Sjever	Sea	West Coast of Istria	sensitive	1000	2018	59%	18.306	29.126			3	29.300	18.459.000	7.066.000	25.525.000
Posedarje	Watercourse	Baštica watercourse	sensitive	1008, 5000	2023	0%	2.736	5.550			2	6.000	2.306.000	1.224.000	3.531.000
Postira	Sea	Brač Channel	normal		2023	90%	3.155	5.500			P	5.500	1.088.000	544.000	1.633.000
Požega	Watercourse	Orljava River	sensitive	3000	2018	77%	37.611	64.817	1	33.500	3	67.000	9.932.000	8.163.000	18.095.000
Pregrada	Watercourse	Kostelina River	sensitive	3000	2023	40%	2.100	2.146			2	2.200	884.000	871.000	1.755.000



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Preko	Sea	Zadar Channel	normal		2023	32%	7.967	14.500			2	14.500	3.673.000	2.041.000	5.714.000
Premantura	Sea	West Coast of Istria	normal		2023	3%	2.445	6.498	2	500	2	7.500	2.748.000	2.517.000	5.265.000
Pridraga	Groundwaters	Groundwaters	sensitive	1025, 5000	2023	0%	2.471	4.660			2	4.660	2.041.000	952.000	2.993.000
Primošten	Sea	Adriatic Sea	normal		2023	45%	9.261	15.000	P	1.000	1	15.000	4.082.000	2.721.000	6.803.000
Privlaka	Watercourse	Bosut River	sensitive	3000	2023	0%	3.926	4.000			2	4.000	3.810.000	952.000	4.762.000
Promajna-Krvavica	Sea	Hvar Channel	normal		2023	0%	4.143	7.000			P	7.000	1.361.000	544.000	1.905.000
Pučišća	Sea	Brač Channel	normal		2023	85%	2.027	5.300			P	5.300	204.000	476.000	680.000
Pula-Centar	Sea	West Coast of Istria	normal		2018	84%	82.041	97.823	P	35.000	2	98.000	16.410.000	23.592.000	40.002.000
Pula-Sjever	Sea	West Coast of Istria	normal		2020	47%	17.234	27.304	P	14.000	2	29.300	5.439.000	6.367.000	11.807.000
Punat	Sea	Kvarner Bay	normal		2023	52%	7.359	12.441	P	10.000	1	15.000	3.605.000	871.000	4.476.000
Punitovci	Watercourse	Vuka River	sensitive	3000	2023	0%	2.454	2.454			2	2.600	1.605.000	707.000	2.313.000
Rab	Sea	Kvarner Bay	normal		2023	62%	13.873	21.188			2	22.000	9.605.000	5.102.000	14.707.000
Rabac	Sea	Kvarner Bay	normal		2023	100%	6.722	14.984			1	18.000	1.361.000	1.497.000	2.857.000
Rajevo Selo	Watercourse	Sava River	sensitive	3000	2023	0%	2.975	2.975			2	3.000	3.265.000	748.000	4.014.000
Raša	Watercourse	Krapanj River	sensitive	1002, 5000	2023	89%	2.006	2.396			2	2.400	3.537.000	748.000	4.286.000
Ražanac	Sea	Velebitski kanal	normal		2023	0%	4.430	7.455			P	7.500	3.354.000	816.000	4.170.000
Rijeka	Sea	Kvarner Bay	normal		2018	67%	274.673	333.923	P	540.000	2	350.000	40.766.000	48.952.000	89.719.000
Rogoznica	Sea	Sea	normal		2023	53%	6.331	19.838	P	9.000	2	20.000	6.250.000	1.633.000	7.883.000
Rovinj	Sea	West Coast of Istria	sensitive	1000	2018	63%	38.673	63.954	P	64.900	3	64.900	7.252.000	11.837.000	19.088.000
Rovišće	Watercourse	Rijeka River	sensitive	3000	2023	0%	3.441	3.560			2	3.600	1.292.000	1.224.000	2.516.000
Rugvica - Dugo Selo	Watercourse	Sava River	sensitive	3000	2018	32%	21.915	48.900			3	50.000	17.946.000	8.844.000	26.790.000
Samobor	Watercourse	Rakovica River	sensitive	3000	2018	56%	30.227	37.927			3	40.000	34.692.000	6.395.000	41.086.000
Savudrija	Sea	West Coast of Istria	sensitive	1000	2018	71%	17.283	28.112	P	15.000	3	32.400	1.744.000	8.334.000	10.078.000
Selce	Sea	Kvarner Bay	normal		2023	97%	3.223	4.985			1	5.000	639.000	705.000	1.344.000
Semeljci	Watercourse	Brana River	sensitive	3000	2023	0%	3.442	3.442			2	4.000	2.224.000	816.000	3.041.000
Senj	Sea	Podvelebit Channel	normal		2023	46%	6.791	8.670	2	9.900	2	9.900	3.673.000	.000	3.673.000
Šibenik	Sea	Zlarin Channel	normal		2018	58%	79.606	100.000	1	50.000	2	100.000	14.408.000	5.442.000	19.850.000
Sinj	Watercourse	Cetina River	sensitive	5000	2018	30%	36.570	29.650	P	15.000	3	30.000	19.728.000	2.721.000	22.449.000
Sisak	Watercourse	Sava River	sensitive	3000	2018	70%	51.563	59.997			3	60.000	32.041.000	10.884.000	42.925.000
Škabrnja	Groundwaters	Groundwaters	sensitive	5000, 4007	2023	0%	2.962	4.198			2	4.000	4.708.000	544.000	5.252.000
Skradin	Watercourse	Krka River	sensitive	1014	2023	34%	2.022	3.350	2	1.700	3	3.400	2.449.000	680.000	3.129.000
Slano	Sea	Koločep Channel	normal		2023	34%	2.129	5.400			1	5.400	1.476.000	816.000	2.293.000
Slatina	Watercourse	Kurjakuša River	sensitive	3000	2020	42%	14.234	34.366			3	34.500	4.177.000	4.762.000	8.939.000
Slavonski Brod	Watercourse	Sava River	sensitive	3000	2018	67%	92.518	100.000			3	100.000	35.114.000	16.246.000	51.360.000
Slavonski Šamac	Watercourse	Sava River	sensitive	3000	2023	0%	5.150	5.150			2	5.000	6.395.000	1.020.000	7.415.000
Slunj	Watercourse	Korana River	sensitive	3000	2023	65%	2.043	4.943			2	6.000	1.837.000	1.088.000	2.925.000
Smokvica-Brna	Sea	Lastovo Channel	normal		2023	0%	2.578	2.978			P	3.000	2.014.000	503.000	2.517.000
Špišić Bukovica	Watercourse	Lendava River	sensitive	3000	2023	0%	3.791	3.791			2	4.500	2.128.000	1.088.000	3.216.000
Split-Solin	Sea	Brač Channel	normal		2018	78%	250.671	305.000	P	150.000	2	305.000	36.940.000	13.605.000	50.545.000
Starigrad Zadarski	Sea	Velebit Channel	normal		2023	0%	2.989	10.654			2	11.000	3.361.000	1.769.000	5.129.000

Agglomeration	Type of receiving water	Name of receiving water	Area sensitivity*	ID sensitive area	Deadline for meeting the requirements 31 Dec. –	Population connection rate	Total existing load PE	Total planned load PE	WWTP - Existing level of treatment	WWTP - current capacity PE	WWTP - Planned level of treatment	WWTP - Planned capacity PE	Price of collection network EUR	WWTP construction price EUR	Total construction price EUR
Staro Petrovo Selo	Watercourse	Pokotina River	sensitive	3000	2023	0%	3.381	4.000			2	4.000	2.177.000	816.000	2.993.000
Suhopolje	Watercourse	Dabrovica Canal	sensitive	3000	2023	0%	3.675	5.300			2	5.500	2.585.000	816.000	3.401.000
Sunja	Watercourse	Sunja River	sensitive	3000	2023	4%	3.248	3.348			2	3.400	2.857.000	816.000	3.673.000
Supetar	Sea	Brač Channel	normal		2023	75%	8.322	19.900			1	20.000	2.705.000	1.769.000	4.473.000
Supetarska Draga	Sea	Kvarner Bay	normal		2023	17%	5.766	9.078			1	9.900	8.299.000	1.633.000	9.932.000
Sušine-Đurđenovac	Watercourse	Bukvik River	sensitive	3000	2023	21%	5.016	7.516			2	8.000	3.673.000	2.177.000	5.850.000
Šutivan	Sea	Brač Channel	normal		2023	50%	2.259	5.200	P	2.000	P	5.200	816.000	136.000	952.000
Sveti Ivan Zelina	Watercourse	Lonja River	sensitive	3000	2023	24%	7.980	8.600			2	9.000	10.925.000	2.177.000	13.102.000
Sveti Martin na Muri	Watercourse	Mura River	sensitive	3000	2023	0%	3.384	3.478			2	3.500	3.195.000	1.361.000	4.555.000
Šemovec	Watercourse	Drava River	sensitive	3000	2023	0%	2.285	2.467			2	2.500	5.306.000	1.905.000	7.211.000
Tkon	Sea	Pašman Channel	normal		2023	0%	2.707	8.000			1	8.000	3.469.000	680.000	4.150.000
Tovarnik	Watercourse	Boris Canal tributary	sensitive	3000	2023	0%	2.396	2.476			2	2.500	2.721.000	680.000	3.401.000
Trilj	Watercourse	Cetina River	sensitive	5000	2023	19%	5.253	8.950	2	3.500	2	9.000	2.721.000	476.000	3.197.000
Trpanj	Sea	Neretva Channel	normal		2023	0%	2.213	5.400			P	5.400	272.000	388.000	660.000
Tučepi	Sea	Hvar Channel	normal		2023	100%	8.700	15.000			1	15.000	272.000	544.000	816.000
Turčišće	Watercourse	Trnava River	sensitive	3000	2023	0%	4.291	4.130			2	4.200	4.109.000	1.633.000	5.741.000
Ugljan	Sea	Zadar Channel	normal		2023	0%	3.316	6.285			P	6.370	2.789.000	449.000	3.238.000
Umag	Sea	West Coast of Istria	sensitive	1000	2018	84%	19.482	33.391	P	20.000	3	35.000	4.128.000	8.597.000	12.725.000
Varaždin	Watercourse	Drava River	sensitive	3000	2018	56%	143.310	199.555	2	140.000	3	210.000	99.048.000	20.408.000	119.456.000
Varaždinske Toplice	Watercourse	Bednja River	sensitive	3000	2023	32%	6.327	7.036			2	7.000	3.810.000	2.721.000	6.531.000
Vela Luka	Sea	Korčula Channel	normal		2020	0%	19.311	28.000			2	27.000	3.347.000	5.442.000	8.789.000
Veleševac	Watercourse	Sava River	sensitive	3000	2020	0%	14.199	19.869			3	22.700	19.502.000	4.762.000	24.264.000
Veli Lošinj	Sea	Kvarner Bay	normal		2023	50%	5.997	8.842			1	9.900	1.433.000	1.253.000	2.686.000
Velika	Watercourse	Veličanka River	sensitive	3000	2023	35%	3.995	4.195			2	4.200	3.265.000	1.224.000	4.490.000
Velika Gorica	Watercourse	Sava River	sensitive	3000	2018	70%	54.725	73.462	2	35.000	3	90.000	21.442.000	11.156.000	32.599.000
Veliki Bukovec	Watercourse	Bednja River	sensitive	3000	2023	0%	2.881	3.001			2	3.000	5.646.000	2.041.000	7.687.000
Viljevo	Watercourse	Drava River	sensitive	3000	2023	0%	2.262	2.293			2	3.000	1.252.000	816.000	2.068.000
Vinišće	Sea	Drvenik Channel	normal		2023	0%	2.847	4.590			P	4.600	2.449.000	680.000	3.129.000
Vinkovci	Watercourse	Bosut River	sensitive	3000	2018	80%	47.912	62.239	2	43.000	3	63.000	4.762.000	4.082.000	8.844.000
Vir	Sea	Virsko Sea	normal		2020	0%	31.608	62.000			2	62.000	20.408.000	6.803.000	27.211.000
Virje	Watercourse	Zdelja River	sensitive	3000	2023	10%	3.684	4.100	2	5.000	2	5.000	952.000	.000	952.000
Virovitica	Watercourse	Manteč River	sensitive	3000	2018	36%	23.853	24.049			3	25.000	5.627.000	4.762.000	10.389.000
Vis	Sea	Vis Channel	sensitive	1044	2023	90%	4.273	10.956	P	3.000	1	11.000	884.000	408.000	1.293.000
Vladislavci	Watercourse	Vuka River	sensitive	3000	2023	0%	2.179	2.179			2	2.400	1.215.000	653.000	1.868.000
Vodice	Sea	Kaprijski Channel	normal		2023	35%	12.792	44.000			2	44.000	26.677.000	5.254.000	31.931.000
Vođinci	Watercourse	Vođinački rit	sensitive	3000	2023	0%	5.700	5.850			2	6.000	5.034.000	1.361.000	6.395.000
Voloder	Watercourse	Gračenica River	sensitive	3000, 4002	2023	5%	3.732	3.998			2	4.000	725.000	1.701.000	2.426.000
Vrbanja	Watercourse	Jopež River	sensitive	3000	2023	0%	3.082	3.182			2	3.200	2.993.000	952.000	3.946.000
Vrbovec	Watercourse	Luka-Lonja Rivers	sensitive	3000	2018	37%	20.655	30.000			3	30.000	13.252.000	6.122.000	19.374.000
Vrbovsko	Watercourse	Dobra River	sensitive	3000	2023	8%	2.044	2.422			2	2.500	1.497.000	1.088.000	2.585.000
Vrgorac	Groundwaters	Groundwaters	sensitive	5000	2023	23%	5.412	5.800	2	5000	3	6.000	3.265.000	680.000	3.946.000

Agglomeration	Type of receiving water	Name of receiving water	Area sensitivity *	ID sensitive area	Deadline for meeting the requirements 31 Dec. –	Population connection rate	Total existing load PE	Total planned load PE	WWTP - Existing level of treatment	WWTP - current capacity PE	WWTP - Planned level of treatment	WWTP - Planned capacity PE	Price of collection network EUR	WWTP construction price EUR	Total construction price EUR
Vrpolje	Watercourse	Srednje River	sensitive	3000	2023	0%	6.781	7.498			2	7.500	6.422.000	1.361.000	7.782.000
Vrsar	Sea	West Coast of Istria	sensitive	1000	2020	95%	13.122	18.583	1	17.000	3	22.750	1.361.000	3.716.000	5.076.000
Vukovar	Watercourse	Danube River	sensitive	3000	2018	53%	40.234	55.266			3	60.000	21.483.000	10.476.000	31.959.000
Zabok	Watercourse	Krapina River	sensitive	3000	2018	18%	27.423	34.619			3	35.000	21.537.000	12.245.000	33.782.000
Zadar	Sea	Zadar Channel	normal		2018	72%	81.972	130.138	2	200.000	2	200.000	3.540.000	.000	3.540.000
Zagreb	Watercourse	Sava River	sensitive	3000	2018	76%	1.177.361	1.221.152	2	1.200.000	3	1.500.000	280.025.000	47.347.000	327.372.000
Zaprešić	Watercourse	Sava River	sensitive	3000	2018	32%	118.885	101.188	1	61.000	3	115.000	44.123.000	15.374.000	59.498.000
Zaton	Sea	Koločep Channel	normal		2023	0%	2.904	8.300			1	8.300	1.476.000	272.000	1.748.000
Zlatar	Watercourse	Krapina River	sensitive	3000	2023	37%	9.073	11.034			2	12.400	6.599.000	3.401.000	10.000.000
Zubovići - Kustići	Sea	Pag Channel	sensitive	1035	2023	0%	2.375	4.393			1	4.500	3.469.000	936.000	4.405.000
Župa Dubrovačka	Sea	Adriatic Sea	normal		2023	30%	14.486	33.200			2	33.300	11.661.000	6.122.000	17.783.000
Županja	Watercourse	Sava River	sensitive	3000	2018	50%	18.739	20.000			3	20.000	4.558.000	5.850.000	10.408.000

\* The term "sensitive" denotes a sensitive receiving body or a receiving body in the catchment area of a sensitive area for which the goal is the implementation of a more advanced treatment in larger agglomerations

#### 4.2.3 Sensitive areas

In compliance with the obligations resulting from the activities and decisions of the Danube River Protection Convention, which were, together with the basic documents of the Convention, also confirmed by the joint Declaration of the Ministers in Charge of Water Management of the Contracting Parties to the Danube River Protection Convention and the Convention for Protection of the Black Sea against Pollution on the Enhancement of Cooperation (23 February 2007, Bucharest), the Republic of Croatia shall proclaim the area of the Danube river basin a sensitive area due to eutrofication of the Danube Delta (criterion a) of the Directive) and shall apply in this entire area more advanced treatment with nitrogen and phosphorus removal in all agglomerations larger than 10.000 PE. In that way the Republic of Croatia wishes to give its full contribution to the protection of the Danube river basin according to its impact on its pollution, and is also ready to take its share of responsibility.

The Republic of Croatia shall proclaim the mainland part of the Adriatic Sea basin a single sensitive area for protection of protected areas designated for abstraction of water for human consumption (criterion c) of the Directive - Water Framework Directive 2000/60/EC) and shall apply more advanced treatment with nitrogen and phosphorus removal if necessary in all agglomerations larger than 10.000 PE for all discharges into inland waters.

In order to protect the areas designated for the abstraction of water for human consumption, the mainland part of the Adriatic Sea basin is intended to be given the highest level of protection, if that should prove necessary. This is an area of significant strategic water reserves, whose protection is a national priority of utmost importance. This area is a karst area which, in comparison with other areas, has specific characteristics in view of flow and pollution transfer, which makes the implementation of groundwater and groundwater ecosystem protection measures additionally complex.

The mainland part of the Adriatic Sea basin and the 22 sensitive areas in question (5001 - 5022) have been designated according to the same criterion - protected areas - areas designated for the abstraction of water for human consumption. A single area on the mainland part of the Adriatic Sea basin (ID 5000) is located inland, while the remaining 22 sensitive areas (ID 5001 - 5022) are located on the islands on which there are no agglomerations larger than 10.000 PE discharging treated waste water into fresh water (inland water).

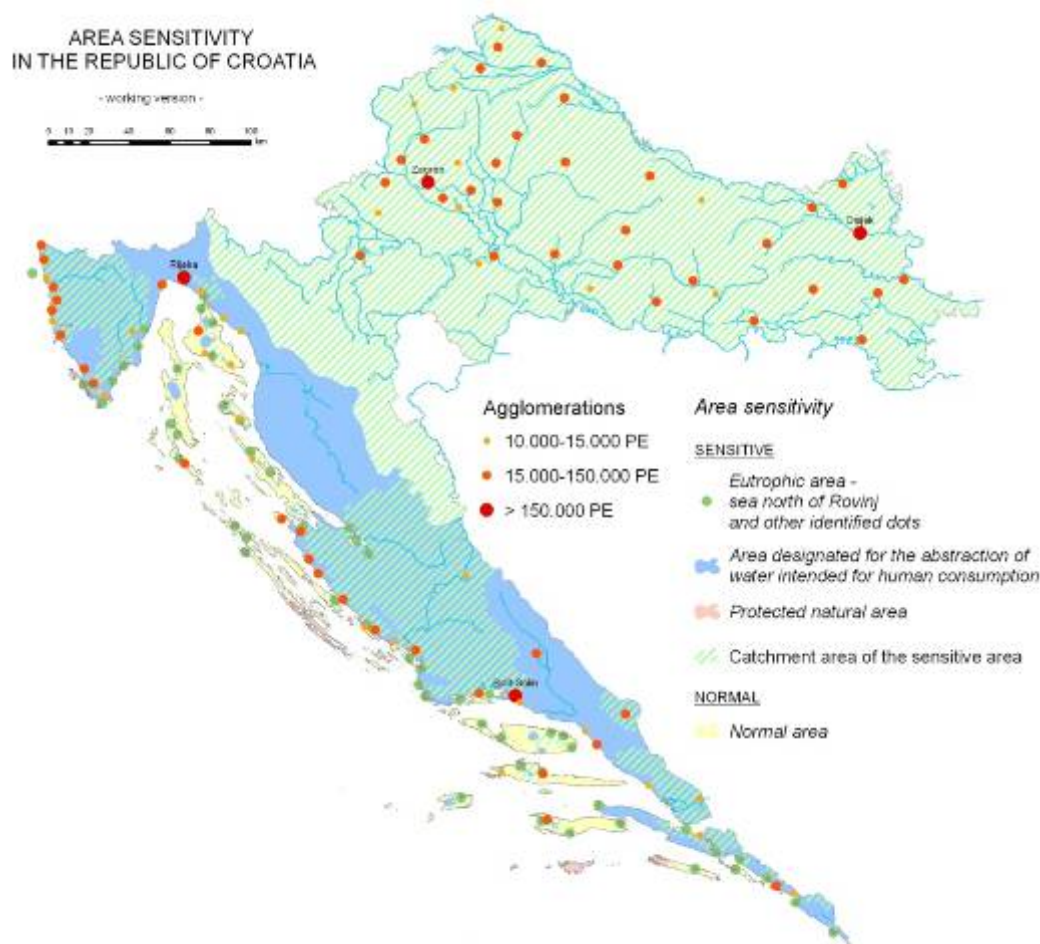


Fig. 12 Map of sensitive areas

Tab. 6 List of sensitive areas and catchments of sensitive areas

Name	Area ID	Relevant Directive	Sensitivity criterion	Limiting factor
Western coast of the Istrian Peninsula	1000	Urban Waste Water Treatment Directive 91/271/EEC, Annex II A, a	Eutrophic areas	N and P
Medulin Bay	1001	Urban Waste Water Treatment Directive 91/271/EEC, Annex II A, a	Eutrophic areas	N and P
Port Budava	1024	Urban Waste Water Treatment Directive 91/271/EEC, Annex II A, a	Eutrophic areas	N and P
Raša Bay	1002	Urban Waste Water Treatment Directive 91/271/EEC, Annex II A, a	Eutrophic areas	N and P
Pula Bay	1003	Urban Waste Water Treatment Directive 91/271/EEC, Annex II A, a	Eutrophic areas	N and P
Prklog Cove	1047	Urban Waste Water Treatment Directive 91/271/EEC, Annex II A, a	Eutrophic areas	N and P
Plomin Cove	1030	Urban Waste Water Treatment Directive 91/271/EEC, Annex II A, a	Eutrophic areas	N and P
Bakar Bay	1031	Urban Waste Water Treatment Directive 91/271/EEC, Annex II A, a	Eutrophic areas	N and P

Name	Area ID	Relevant Directive	Sensitivity criterion	Limiting factor
Omišalj Bay	1048	Urban Waste Water Treatment Directive 91/271/EEC, Annex II A, a	Eutrophic areas	N and P
Soline Bay	1049	Urban Waste Water Treatment Directive 91/271/EEC, Annex II A, a	Eutrophic areas	N and P
Punat Cove	1050	Urban Waste Water Treatment Directive 91/271/EEC, Annex II A, a	Eutrophic areas	N and P
Port Cres	1040	Urban Waste Water Treatment Directive 91/271/EEC, Annex II A, a	Eutrophic areas	N and P
Osor Bay	1004	Urban Waste Water Treatment Directive 91/271/EEC, Annex II A, a	Eutrophic areas	N and P
Lošinj Strait	1005	Urban Waste Water Treatment Directive 91/271/EEC, Annex II A, a	Eutrophic areas	N and P
Port Mali Lošinj and Arturi Cove	1006	Urban Waste Water Treatment Directive 91/271/EEC, Annex II A, a	Eutrophic areas	N and P
Supetar Cove and Kapor Cove	1032	Urban Waste Water Treatment Directive 91/271/EEC, Annex II A, a	Eutrophic areas	N and P
Barbat Strait	1033	Urban Waste Water Treatment Directive 91/271/EEC, Annex II A, a	Eutrophic areas	N and P
Stara Novalja Cove	1034	Urban Waste Water Treatment Directive 91/271/EEC, Annex II A, a	Eutrophic areas	N and P
Pag Bay	1035	Urban Waste Water Treatment Directive 91/271/EEC, Annex II A, a	Eutrophic areas	N and P
Ljubač Bay and Nin Bay	1007	Urban Waste Water Treatment Directive 91/271/EEC, Annex II A, a	Eutrophic areas	N and P
Karin Sea	1025	Urban Waste Water Treatment Directive 91/271/EEC, Annex II A, a	Eutrophic areas	N and P
Novigrad Sea	1008	Urban Waste Water Treatment Directive 91/271/EEC, Annex II A, a	Eutrophic areas	N and P
Part of the Velebit Strait	1009	Urban Waste Water Treatment Directive 91/271/EEC, Annex II A, a	Eutrophic areas	N and P
Široka Cove	1010	Urban Waste Water Treatment Directive 91/271/EEC, Annex II A, a	Eutrophic areas	N and P
Brgulj Bay	1011	Urban Waste Water Treatment Directive 91/271/EEC, Annex II A, a	Eutrophic areas	N and P
Pantera Bay and port Soliščica	1036	Urban Waste Water Treatment Directive 91/271/EEC, Annex II A, a	Eutrophic areas	N and P
Pašman Strait	1012	Urban Waste Water Treatment Directive 91/271/EEC, Annex II A, a	Eutrophic areas	N and P
Pirovac Bay and Murter Strait	1013	Urban Waste Water Treatment Directive 91/271/EEC, Annex II A, a	Eutrophic areas	N and P
Šibenik Strait	1014	Urban Waste Water Treatment Directive 91/271/EEC, Annex II A, a	Eutrophic areas	N and P
Port Grebaštica	1026	Urban Waste Water Treatment Directive 91/271/EEC, Annex II A, a	Eutrophic areas	N and P
Port Peleš	1015	Urban Waste Water Treatment Directive 91/271/EEC, Annex II A, a	Eutrophic areas	N and P
Port Rogoznica	1016	Urban Waste Water Treatment Directive 91/271/EEC, Annex II A, a	Eutrophic areas	N and P
Trogir Bay	1017	Urban Waste Water Treatment Directive 91/271/EEC, Annex II A, a	Eutrophic areas	N and P
Kaštela Bay	1018	Urban Waste Water Treatment Directive 91/271/EEC, Annex II A, a	Eutrophic areas	N and P
Nečujam Cove	1041	Urban Waste Water Treatment Directive 91/271/EEC, Annex II A, a	Eutrophic areas	N and P
Starigrad Bay	1019	Urban Waste Water Treatment Directive 91/271/EEC, Annex II A, a	Eutrophic areas	N and P
Port Vrboska	1020	Urban Waste Water Treatment Directive 91/271/EEC, Annex II A, a	Eutrophic areas	N and P
Port Sumartin	1042	Urban Waste Water Treatment Directive 91/271/EEC, Annex II A, a	Eutrophic areas	N and P
Povlja Bay	1037	Urban Waste Water Treatment Directive 91/271/EEC, Annex II A, a	Eutrophic areas	N and P
Pučišća Cove	1043	Urban Waste Water Treatment Directive 91/271/EEC, Annex II A, a	Eutrophic areas	N and P
Milna Cove	1038	Urban Waste Water Treatment Directive 91/271/EEC, Annex II A, a	Eutrophic areas	N and P
Port Vis	1044	Urban Waste Water Treatment Directive 91/271/EEC, Annex II A, a	Eutrophic areas	N and P
Ston Strait	1021	Urban Waste Water Treatment Directive 91/271/EEC, Annex II A, a	Eutrophic areas	N and P
Vela Luka Bay	1039	Urban Waste Water Treatment Directive 91/271/EEC, Annex II A, a	Eutrophic areas	N and P
Brna Cove	1045	Urban Waste Water Treatment Directive 91/271/EEC,	Eutrophic areas	N and P

Name	Area ID	Relevant Directive	Sensitivity criterion	Limiting factor
Ježevica Channel	1023	Annex II A, a Urban Waste Water Treatment Directive 91/271/EEC, Annex II A, a	Eutrophic areas	N and P
Port Lovište	1051	Urban Waste Water Treatment Directive 91/271/EEC, Annex II A, a	Eutrophic areas	N and P
Sobra Cove	1046	Urban Waste Water Treatment Directive 91/271/EEC, Annex II A, a	Eutrophic areas	N and P
Šipanska Luka Cove	1052	Urban Waste Water Treatment Directive 91/271/EEC, Annex II A, a	Eutrophic areas	N and P
Port Slano	1027	Urban Waste Water Treatment Directive 91/271/EEC, Annex II A, a	Eutrophic areas	N and P
Port Zaton	1028	Urban Waste Water Treatment Directive 91/271/EEC, Annex II A, a	Eutrophic areas	N and P
Port Cavtat	1029	Urban Waste Water Treatment Directive 91/271/EEC, Annex II A, a	Eutrophic areas	N and P
Port Gornji Molunat	1053	Urban Waste Water Treatment Directive 91/271/EEC, Annex II A, a	Eutrophic areas	N and P
Mali Ston Bay and Malo more	1022	Urban Waste Water Treatment Directive 91/271/EEC, Annex II A, a	Eutrophic areas	N and P
Velebit Nature Park	4000	Directive 79/409/EEC on the conservation of wild birds, Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora	Protected nature areas	
Plitvice Lakes National Park	4001	Directive 79/409/EEC on the conservation of wild birds, Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora	Protected nature areas	N and P
Lonjsko polje Nature Park	4002	Directive 79/409/EEC on the conservation of wild birds, Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora	Protected nature areas	N and P N and P N and P N and P
Žumberak - Samoborsko gorje Nature Park	4003	Directive 79/409/EEC on the conservation of wild birds, Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora	Protected nature areas	
Kopački rit Nature Park	4004	Directive 79/409/EEC on the conservation of wild birds, Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora	Protected nature areas	
Krka National Park	4005	Directive 79/409/EEC on the conservation of wild birds, Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora	Protected nature areas	N and P
Crna Mlaka	4006	Directive 79/409/EEC on the conservation of wild birds, Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora	Protected nature areas	N and P
Vransko Lake Nature Park	4007	Directive 79/409/EEC on the conservation of wild birds, Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora	Protected nature areas	N and P
Brijuni National Park	4008	Directive 79/409/EEC on the conservation of wild birds, Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora	Protected nature areas	
Telaščica Nature Park	4009	Directive 79/409/EEC on the conservation of wild birds, Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora	Protected nature areas	indicator which presents the limiting factor for achievement of desired protection of a certain protected area
Kornati National Park	4010	Directive 79/409/EEC on the conservation of wild birds, Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora	Protected nature areas	
Mljet National Park	4011	Directive 79/409/EEC on the conservation of wild birds, Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora	Protected nature areas	
Lastovo Archipelago Nature Park	4012	Directive 79/409/EEC on the conservation of wild birds, Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora	Protected nature areas	
Danube River Basin	3000	Urban Waste Water Treatment Directive 91/271/EEC, Annex II A, a	Eutrophic areas	N and P
Adriatic Basin - Inland part	5000	Urban Waste Water Treatment Directive 91/271/EEC, Annex II A, c - Water Framework Directive 2000/60/EC, Annex IV - Protected areas - Areas intended for the abstraction of water intended for human consumption	Protected areas for water intended for human consumption	N and P (if necessary)
Sanitary water source protection zone - Vransko Lake	5001	Urban Waste Water Treatment Directive 91/271/EEC, Annex II A, c - Water Framework Directive 2000/60/EC, Annex IV - Protected areas - Areas intended for the abstraction of water intended for human consumption	Protected areas for water intended for human consumption	N and P (if necessary)
Sanitary water source protection zone - Ponikve water storage reservoir	5002	Urban Waste Water Treatment Directive 91/271/EEC, Annex II A, c - Water Framework Directive 2000/60/EC, Annex IV - Protected areas - Areas intended for the	Protected areas for water intended for	N and P (if necessary)



Name	Area ID	Relevant Directive	Sensitivity criterion	Limiting factor
		abstraction of water intended for human consumption	human consumption	
Sanitary water source protection zone - water abstraction sites in Bašćanska Valley	5003	Urban Waste Water Treatment Directive 91/271/EEC, Annex II A, c - Water Framework Directive 2000/60/EC, Annex IV - Protected areas - Areas intended for the abstraction of water intended for human consumption	Protected areas for water intended for human consumption	N and P (if necessary)
Sanitary water source protection zone - springs - Dobrinj - Vrbničko polje	5004	Urban Waste Water Treatment Directive 91/271/EEC, Annex II A, c - Water Framework Directive 2000/60/EC, Annex IV - Protected areas - Areas intended for the abstraction of water intended for human consumption	Protected areas for water intended for human consumption	N and P (if necessary)
Sanitary water source protection zone - a lake near Njivice	5005	Urban Waste Water Treatment Directive 91/271/EEC, Annex II A, c - Water Framework Directive 2000/60/EC, Annex IV - Protected areas - Areas intended for the abstraction of water intended for human consumption	Protected areas for water intended for human consumption	N and P (if necessary)
Sanitary water source protection zone - wells on the island of Rab	5006	Urban Waste Water Treatment Directive 91/271/EEC, Annex II A, c - Water Framework Directive 2000/60/EC, Annex IV - Protected areas - Areas intended for the abstraction of water intended for human consumption	Protected areas for water intended for human consumption	N and P (if necessary)
Sanitary water source protection zone - Mlinica spring	5007	Urban Waste Water Treatment Directive 91/271/EEC, Annex II A, c - Water Framework Directive 2000/60/EC, Annex IV - Protected areas - Areas intended for the abstraction of water intended for human consumption	Protected areas for water intended for human consumption	N and P (if necessary)
Sanitary water source protection zone - Pidoka spring	5008	Urban Waste Water Treatment Directive 91/271/EEC, Annex II A, c - Water Framework Directive 2000/60/EC, Annex IV - Protected areas - Areas intended for the abstraction of water intended for human consumption	Protected areas for water intended for human consumption	N and P (if necessary)
Sanitary water source protection zone - Dole - Povljana	5009	Urban Waste Water Treatment Directive 91/271/EEC, Annex II A, c - Water Framework Directive 2000/60/EC, Annex IV - Protected areas - Areas intended for the abstraction of water intended for human consumption	Protected areas for water intended for human consumption	N and P (if necessary)
Sanitary water source protection zone - Vrčići	5010	Urban Waste Water Treatment Directive 91/271/EEC, Annex II A, c - Water Framework Directive 2000/60/EC, Annex IV - Protected areas - Areas intended for the abstraction of water intended for human consumption	Protected areas for water intended for human consumption	N and P (if necessary)
Sanitary water source protection zone - Žman	5011	Urban Waste Water Treatment Directive 91/271/EEC, Annex II A, c - Water Framework Directive 2000/60/EC, Annex IV - Protected areas - Areas intended for the abstraction of water intended for human consumption	Protected areas for water intended for human consumption	N and P (if necessary)
Sanitary water source protection zone - Bol	5012	Urban Waste Water Treatment Directive 91/271/EEC, Annex II A, c - Water Framework Directive 2000/60/EC, Annex IV - Protected areas - Areas intended for the abstraction of water intended for human consumption	Protected areas for water intended for human consumption	N and P (if necessary)
Sanitary water source protection zone - Dol	5013	Urban Waste Water Treatment Directive 91/271/EEC, Annex II A, c - Water Framework Directive 2000/60/EC, Annex IV - Protected areas - Areas intended for the abstraction of water intended for human consumption	Protected areas for water intended for human consumption	N and P (if necessary)
Sanitary water source protection zone - Kotoruže	5014	Urban Waste Water Treatment Directive 91/271/EEC, Annex II A, c - Water Framework Directive 2000/60/EC, Annex IV - Protected areas - Areas intended for the abstraction of water intended for human consumption	Protected areas for water intended for human consumption	N and P (if necessary)
Sanitary water source protection zone - Vir, Novi Vir, Libora	5015	Urban Waste Water Treatment Directive 91/271/EEC, Annex II A, c - Water Framework Directive 2000/60/EC, Annex IV - Protected areas - Areas intended for the abstraction of water intended for human consumption	Protected areas for water intended for human consumption	N and P (if necessary)
Sanitary water source protection zone - Korita	5016	Urban Waste Water Treatment Directive 91/271/EEC, Annex II A, c - Water Framework Directive 2000/60/EC, Annex IV - Protected areas - Areas intended for the abstraction of water intended for human consumption	Protected areas for water intended for human consumption	N and P (if necessary)
Sanitary water source protection zone - Komiža	5017	Urban Waste Water Treatment Directive 91/271/EEC, Annex II A, c - Water Framework Directive 2000/60/EC,	Protected areas for water	N and P (if necessary)



Name	Area ID	Relevant Directive	Sensitivity criterion	Limiting factor
		Annex IV - Protected areas - Areas intended for the abstraction of water intended for human consumption	intended for human consumption	
Sanitary water source protection zone - Prgovo - Duboka	5018	Urban Waste Water Treatment Directive 91/271/EEC, Annex II A, c - Water Framework Directive 2000/60/EC, Annex IV - Protected areas - Areas intended for the abstraction of water intended for human consumption	Protected areas for water intended for human consumption	N and P (if necessary)
Sanitary water source protection zone - Babino polje	5019	Urban Waste Water Treatment Directive 91/271/EEC, Annex II A, c - Water Framework Directive 2000/60/EC, Annex IV - Protected areas - Areas intended for the abstraction of water intended for human consumption	Protected areas for water intended for human consumption	N and P (if necessary)
Sanitary water source protection zone - Kozarica	5020	Urban Waste Water Treatment Directive 91/271/EEC, Annex II A, c - Water Framework Directive 2000/60/EC, Annex IV - Protected areas - Areas intended for the abstraction of water intended for human consumption	Protected areas for water intended for human consumption	N and P (if necessary)
Sanitary water source protection zone - Sobra	5021	Urban Waste Water Treatment Directive 91/271/EEC, Annex II A, c - Water Framework Directive 2000/60/EC, Annex IV - Protected areas - Areas intended for the abstraction of water intended for human consumption	Protected areas for water intended for human consumption	N and P (if necessary)
Sanitary water source protection zone - Blatsko polje	5022	Urban Waste Water Treatment Directive 91/271/EEC, Annex II A, c - Water Framework Directive 2000/60/EC, Annex IV - Protected areas - Areas intended for the abstraction of water intended for human consumption	Protected areas for water intended for human consumption	N and P (if necessary)

In consideration of the strengths and weaknesses of available options (more advanced level of treatment for all agglomerations larger than 10.000 PE or a minimum reduction of total nitrogen and phosphorus load by 75%) for fulfilling the requirements of the UWWT Directive, the Republic of Croatia opts for the implementation of a more advanced treatment in all agglomerations larger than 10.000 PE. The said approach is in line with the administrative practice used in the Republic of Croatia so far.

#### 4.2.4 Implementation costs

##### Construction costs

Total costs of construction to be carried out in 294 agglomerations amount to HRK 23,172 billion (EUR 3,192 billion), by means of which the Republic of Croatia would comply with the requirements of the UWWT Directive. The greatest investments are expected in the years 2013 and 2018, amounting to slightly more than EUR 294 million.

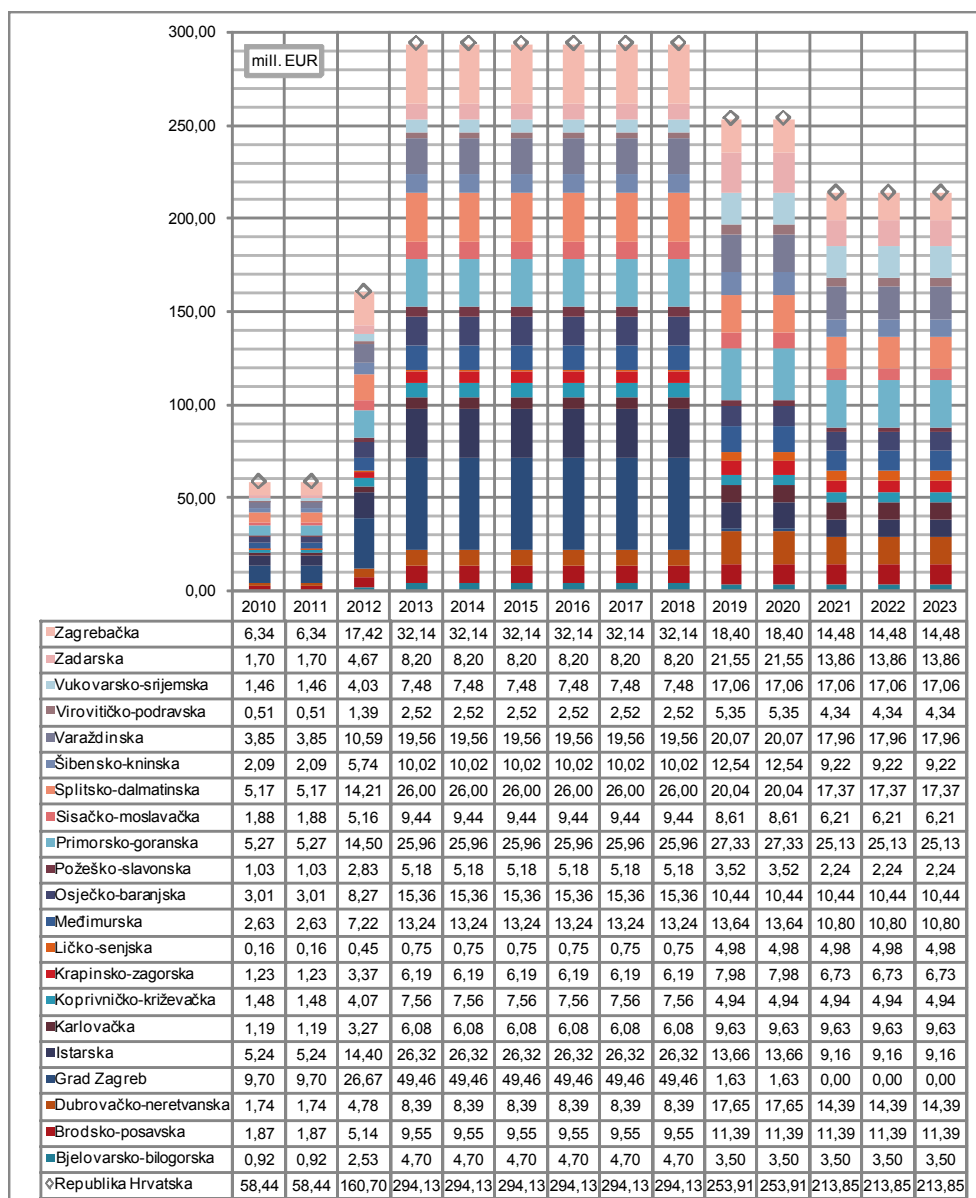


Fig. 13 Construction costs

Costs of construction and development shall be financed through a combined model, i.e. from the following sources:

1. current investment funds:
  - a. price of water, namely from: the development surcharge, which would be the revenue of a common body of the service area and/or units of local self-government and can therefore be used for construction within the service area or the territory of the unit of local self government; and the water use fee, which is a revenue of Hrvatske vode
  - b. State Budget, budgets of local and regional self-government units
2. additional sources yet to be ensured (EU funds, additional national sources of funding, etc.)

**Other costs included in the price of water**

The costs of urban waste-water collection and treatment in accordance with the requirements of the Directive include the costs of operation and maintenance, depreciation including repayment of previous loans and are financed from the price of the service of water supply, which is the revenue of the service provider and is collected and used at the level of the service area.

An estimate of "other costs" included in the price of water which refer to the execution of public sewerage activities - depreciation increased by the amount of VAT, operation and maintenance increased by the amount of VAT, repayment of loans, water use fee - ranges from around EUR 171 million per year in the beginning to around EUR 374 million per year at the end of the period of adjustment to the Directive's requirements.

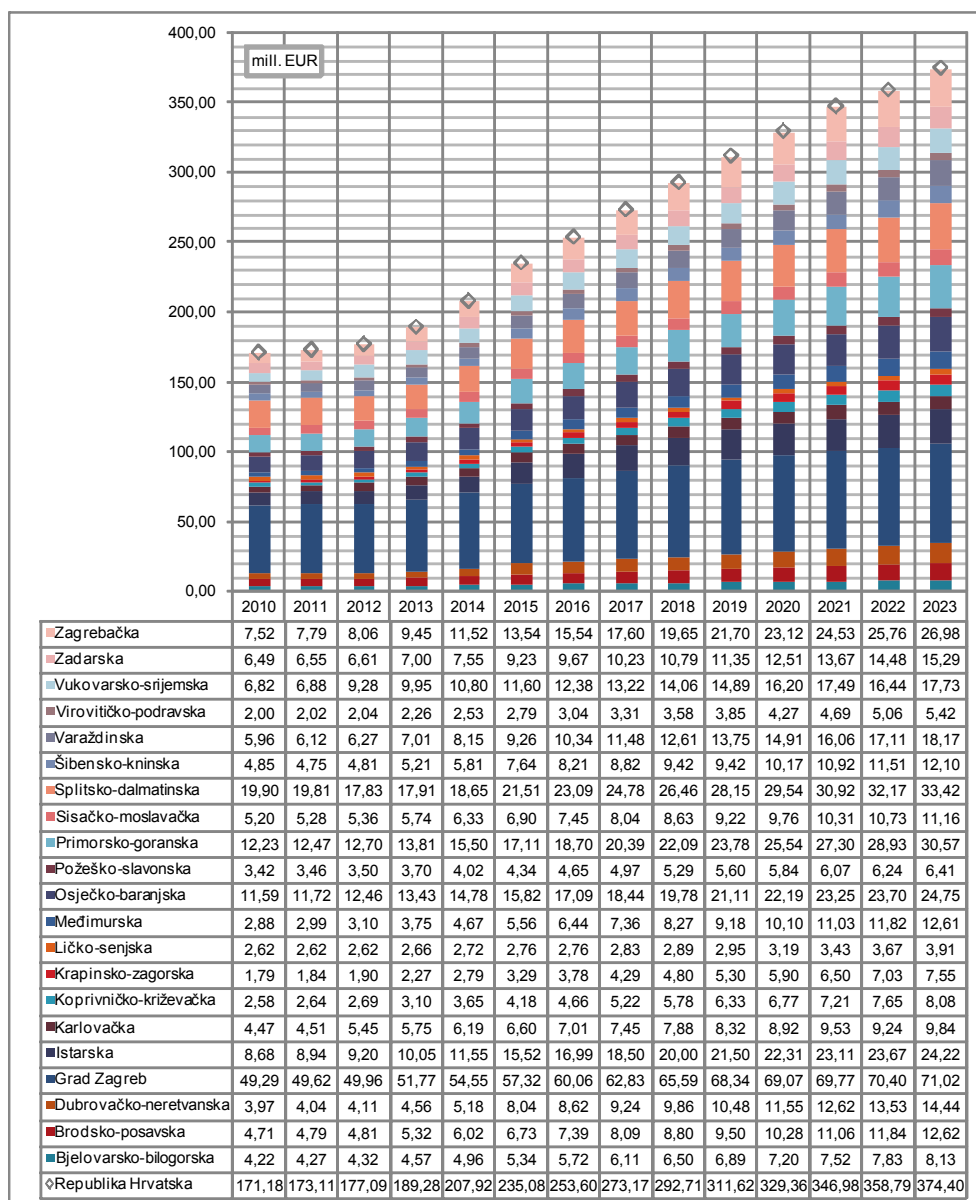


Fig. 14 Other costs

### Total costs

The total annual costs of the Urban Waste Water Treatment Directive implementation, i.e. development of sewerage collection and treatment systems in a manner to ensure sufficient level of environment

protection as well as to ensure reliability in service provision and regular control range from EUR 230 to 588 mil. (in 2023.)

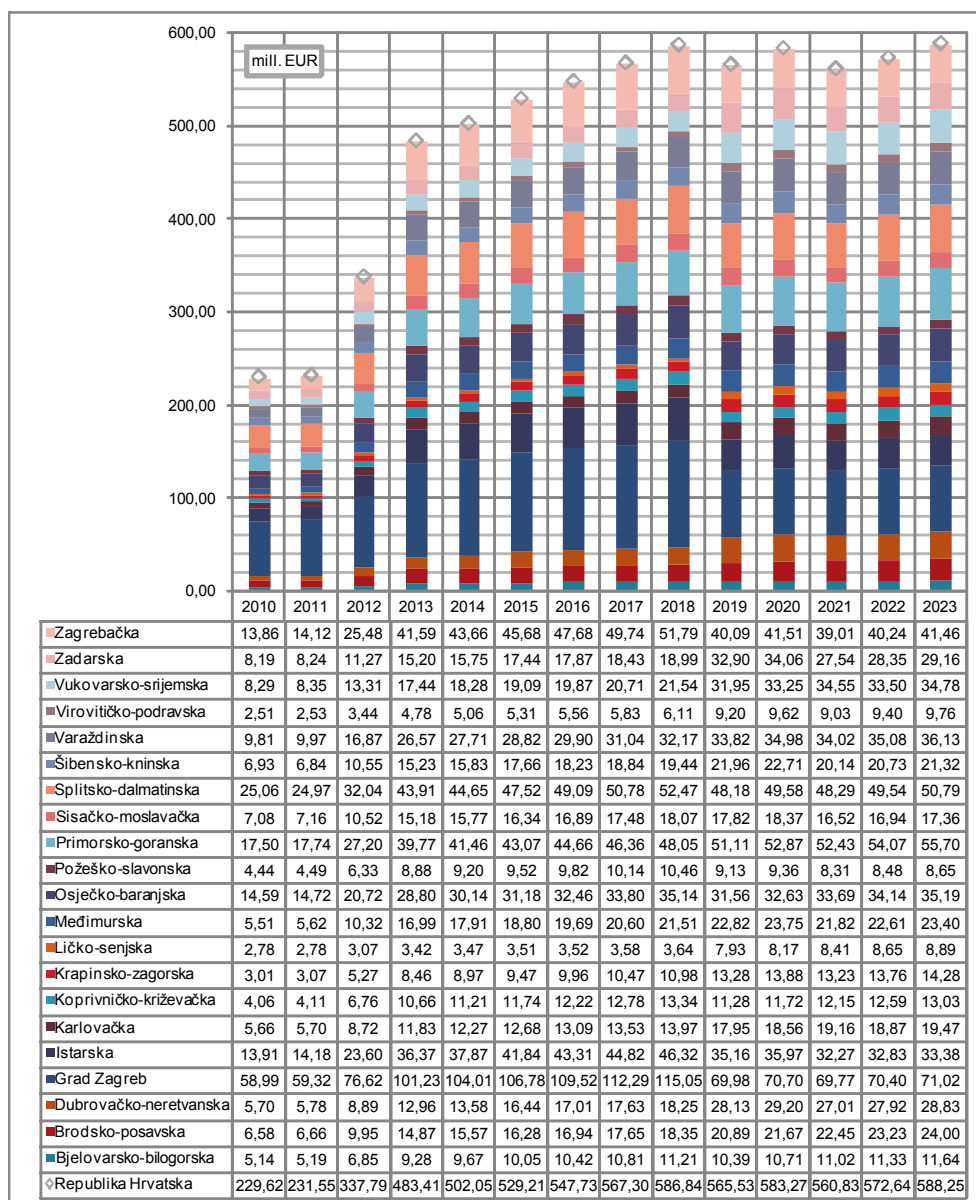


Fig. 15 Total costs of the Urban Waste Water Treatment Directive implementation

In the total costs for implementing the Directive, construction costs represent - depending on the year - between 25% at the beginning of the construction period to more than 60% in the 2013.

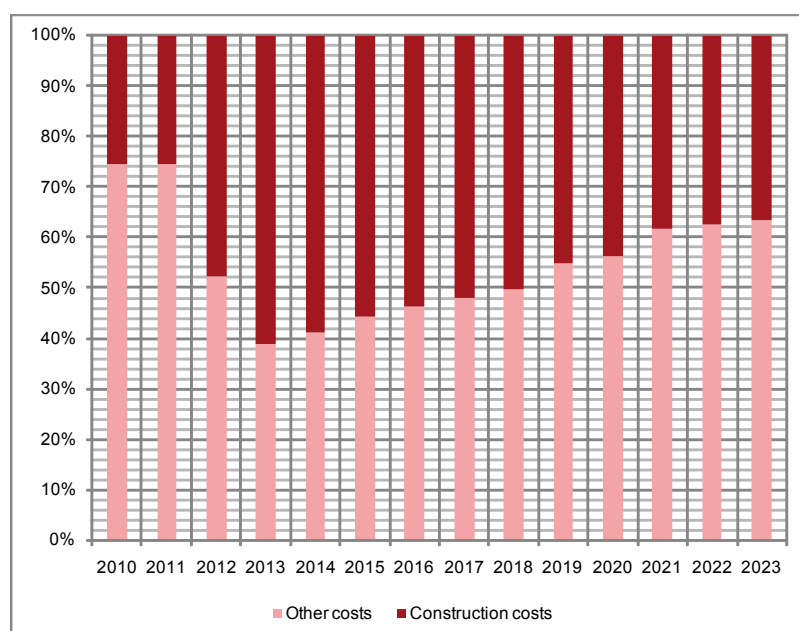


Fig. 16 Ratio of construction costs and other Directive implementation costs

With regards to the supplied quantity of water delivered to the population connected to the sewerage systems, the Directive implementation costs range, at the Croatian national level, from 1,34 EUR/m<sup>3</sup> (9,73 HRK/m<sup>3</sup>) at the beginning of the intensive construction period to slightly over 2,68 EUR/m<sup>3</sup> (19,46 HRK /m<sup>3</sup>) at the end of the construction period. Per counties, the Directive implementation costs in relation to the supplied water quantities to the population connected to the sewerage systems significantly vary and in some years exceed 6,43 EUR/m<sup>3</sup> (46,68 kn/m<sup>3</sup>).

Tab. 7 Total cost estimate of the Directive implementation in relation to the supplied water quantities to the population connected to the sewerage systems (EUR/m<sup>3</sup>)

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Bjelovarsko-bilogorska	0,99	1,00	1,33	1,75	1,77	1,80	1,82	1,84	1,87	1,69	1,71	1,72	1,73	1,74
Brodsko-posavska	1,09	1,10	1,65	2,29	2,24	2,20	2,15	2,12	2,09	2,27	2,24	2,22	2,21	2,19
Dubrovačko-neretvanska	1,59	1,62	2,50	3,30	3,16	3,53	3,39	3,28	3,18	4,61	4,53	3,97	3,91	3,85
Grad Zagreb	1,32	1,33	1,72	2,21	2,22	2,22	2,22	2,23	2,23	1,33	1,31	1,27	1,26	1,24
Istarska	1,16	1,18	1,97	3,01	3,11	3,40	3,49	3,58	3,67	2,76	2,80	2,49	2,52	2,54
Karlovačka	1,42	1,43	2,20	2,82	2,78	2,74	2,71	2,68	2,65	3,28	3,26	3,25	3,10	3,09
Koprivničko-križevačka	1,39	1,41	2,32	3,07	2,79	2,57	2,39	2,25	2,15	1,67	1,61	1,56	1,51	1,47
Krapinsko-zagorska	1,93	1,97	3,40	4,50	4,06	3,74	3,49	3,30	3,14	3,48	3,36	2,98	2,90	2,83
Ličko-senjska	2,19	2,20	2,44	2,62	2,58	2,53	2,46	2,43	2,40	5,10	5,12	5,14	5,17	5,19
Međimurska	2,54	2,60	4,80	6,43	5,72	5,20	4,80	4,50	4,26	4,13	3,96	3,38	3,27	3,17
Osječko-baranjska	1,32	1,34	1,89	2,46	2,42	2,36	2,33	2,31	2,28	1,96	1,94	1,92	1,88	1,86
Požeško-slavonska	1,23	1,25	1,77	2,42	2,45	2,48	2,50	2,53	2,55	2,18	2,20	1,91	1,92	1,92
Primorsko-goranska	1,07	1,09	1,68	2,35	2,34	2,34	2,33	2,33	2,33	2,40	2,40	2,30	2,31	2,31
Sisačko-moslavačka	1,00	1,01	1,49	2,08	2,08	2,09	2,09	2,10	2,11	2,02	2,03	1,78	1,78	1,78
Splitsko-dalmatinska	1,14	1,14	1,46	1,92	1,88	1,92	1,92	1,91	1,91	1,70	1,69	1,60	1,60	1,59
Šibensko-kninska	2,19	2,17	3,36	4,45	4,28	4,44	4,29	4,17	4,06	4,34	4,26	3,60	3,54	3,49
Varaždinska	1,99	2,02	3,44	5,03	4,90	4,78	4,68	4,59	4,52	4,52	4,46	4,15	4,11	4,07
Virovitičko-podravaska	1,21	1,23	1,67	2,10	2,02	1,95	1,89	1,85	1,81	2,56	2,53	2,25	2,23	2,20
Vukovarsko-srijemska	1,93	1,95	3,11	3,56	3,31	3,10	2,93	2,80	2,69	3,71	3,61	3,53	3,23	3,17
Zadarska	1,41	1,43	1,96	2,48	2,42	2,54	2,47	2,42	2,38	3,95	3,92	3,05	3,02	3,00
Zagrebačka	1,75	1,79	3,23	4,70	4,45	4,24	4,07	3,93	3,81	2,76	2,68	2,38	2,33	2,28
<b>Republic of Croatia</b>	<b>1,34</b>	<b>1,35</b>	<b>1,98</b>	<b>2,68</b>	<b>2,64</b>	<b>2,66</b>	<b>2,63</b>	<b>2,60</b>	<b>2,58</b>	<b>2,39</b>	<b>2,38</b>	<b>2,20</b>	<b>2,18</b>	<b>2,16</b>
min	0,99	1,00	1,33	1,75	1,77	1,80	1,82	1,84	1,81	1,33	1,31	1,27	1,26	1,24
max	2,54	2,60	4,80	6,43	5,72	5,20	4,80	4,59	4,52	5,10	5,12	5,14	5,17	5,19
	20% of the counties with the lowest Directive implementation costs in relation to the quantity of water supplied													
	20% of the counties with the highest Directive implementation costs in relation to the quantity of water supplied													

#### 4.2.5 Implementation periods

The transitional periods for fulfilling the requirements of the UWWT Directive foresee their full fulfilment by the end of 2023, which would - assuming Croatia's accession to the European Union at the beginning of 2012 - represent a 12-year transitional period. The collection and treatment of urban waste water for the first group of agglomerations larger than 15.000 PE, regardless of area sensitivity, would be completed by the end of 2018. Exception to this are agglomerations on the coastal area (discharge of waste water into the sea not designated as sensitive) of a predominantly tourist character (a share of tourists in the total peak load exceeding 30%) and between 15.000 and 50.000 PE, which would be completed by the end of 2020 (11 agglomerations), as follows: Bibinje - Sukošan, Biograd, Jelsa - Vrboska, Makarska, Mali Lošinj, Malinska - Njivice, Nin, Pirovac - Tisno - Jezera, Pula - Sjever, Vela Luka i Vir. Because of a marked seasonal tourist character, the nominal load in these 11 agglomerations occurs during a short time period, while the average load is significantly lower. By studying the results of the final bathing water quality assessment for the year 2009, it is obvious that in the areas of the agglomerations in question the seawater quality has been rated excellent and good. As a matter of fact, this holds true for the major part of locations in Croatia. Because of additionally raised protection level (expansion of areas designated as sensitive in terms of urban waste water discharge), i.e. because of the required increase in the level of waste water treatment, and increased costs in relation to previous analyses, the second group of agglomerations - between 10.000 and 15.000 PE - in sensitive area is planned to be completed by the end 2020. The requirements for all of the remaining agglomerations would be fully met by the end of 2023.

Tab. 8 Transitional periods

Sensitivity	Agglomeration size (PE)				
	2.000-10.000	10.000-15.000	15.000-50.000	50.000-150.000	>150.000
Black Sea basin - sensitive area	waste water collection secondary treatment	wastewater collection more advanced treatment	wastewater collection more advanced treatment		wastewater collection more advanced treatment
	31.12.2023. (12)	31.12.2020. (9)	31.12.2018. (7)		31.12.2018. (7)
Adriatic basin - sensitive area (discharge on the land and on the part of the sensitive sea)	waste water collection secondary (or appropriate*) treatment	waste water collection more advanced treatment	waste water collection more advanced treatment		waste water collection more advanced treatment
	31.12.2023. (12)	31.12.2020. (9)	31.12.2018. (7)		31.12.2018. (7)
Adriatic basin - area of the "normal sea")	waste water collection appropriate treatment	waste water collection secondary treatment	waste water collection secondary treatment	waste water collection secondary treatment	waste water collection secondary treatment
	31.12.2023. (12)	31.12.2023. (12)	31.12.2018. (7) 31.12.2020. (9)**	31.12.2018. (7)	31.12.2018. (7)

\* - Coastal areas  
\*\* - Coastal agglomerations with a significant share of tourism in total load (> 30%)

## 5 OVERVIEW OF IMPLEMENTATION COSTS

The implementation costs for water utility directives will be compared with the net available household income per capita, taken over from the document BASIC INDICATORS FOR SETTING AFFORDABLE PRICES OF WATER AND SEWERAGE COLLECTION FOR HOUSEHOLD IN THE REPUBLIC OF CROATIA AND REGIONS/COUNTIES, The Institute of Economics, July 2008. It has to be noted that the foreseen growth has been delayed by 5 years in the light of the most recent circumstances of economic recession.

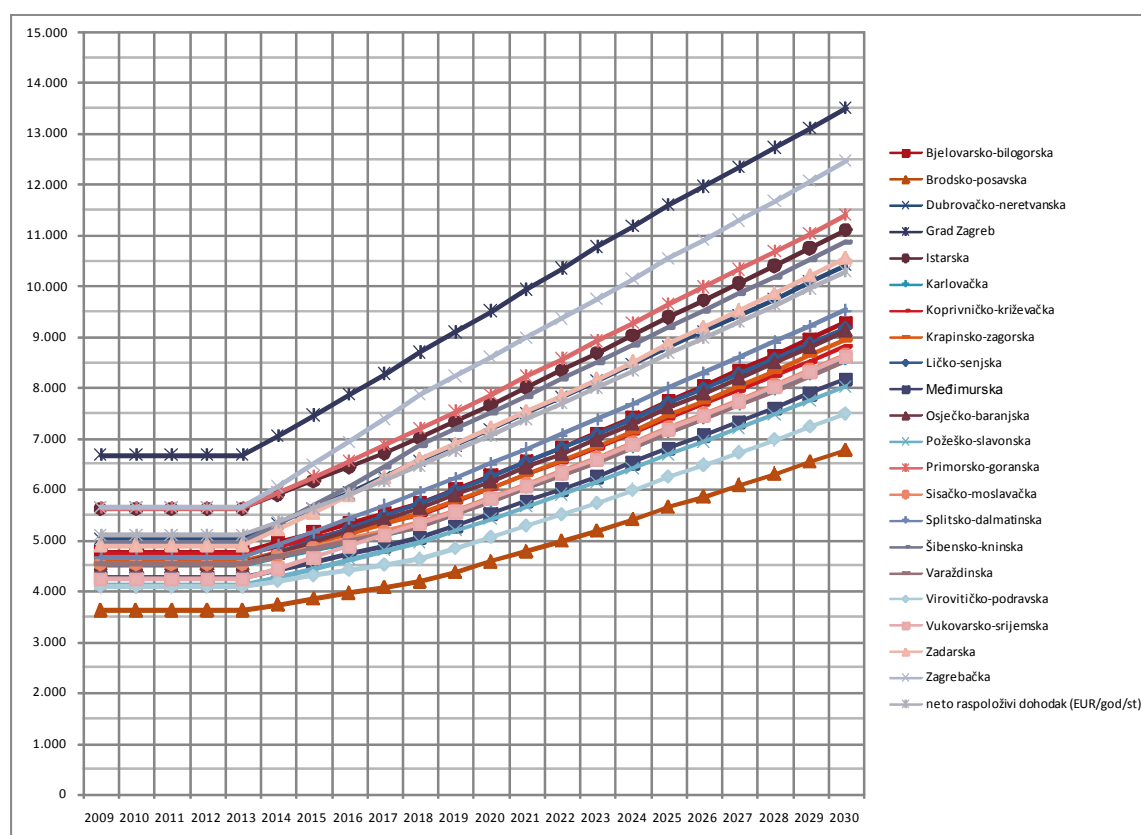


Fig. 17 Forecasted net available household income per capita (EUR/c/year)

The following data has been used for the calculation of water consumption:

- ◆ Demographic forecast taken over from the document BASIC INDICATORS FOR SETTING AFFORDABLE PRICES OF WATER AND SEWERAGE COLLECTION FOR HOUSEHOLD IN THE REPUBLIC OF CROATIA AND REGIONS/COUNTIES, The Institute of Economics, July 2008
- ◆ Estimated growth of connection ratio, and
- ◆ Consumption of 150 l/c/d, i.e. data on the ratio of water quantities supplied to households and industry (on the basis of reports from providers of utility services for the 2006-2008 period).

All the data is analysed on the level of the counties.

Tab. 9 Basic data used in the calculation of system O&M costs on the county level

	Ratio of household consumption in total quantity of water supplied	Unit operation and maintenance costs HRK/m <sup>3</sup>	Anticipated connection ratio at the beginning of construction period	Anticipated connection ratio at the end of construction period
Bjelovarsko-bilogorska	62%	3,80	31%	90%
Brodsko-posavska	71%	3,81	47%	90%
Dubrovačko-neretvanska	68%	3,82	83%	95%
Istarska	61%	3,67	99%	99%
Karlovačka	70%	3,77	61%	90%
Koprivničko-križevačka	51%	4,02	43%	90%
Krapinsko-zagorska	73%	3,82	57%	90%
Ličko-senjska	73%	4,16	75%	95%
Međimurska	79%	3,67	77%	99%
Osječko-baranjska	77%	3,79	72%	97%
Požeško-slavonska	74%	3,82	72%	95%
Primorsko-goranska	59%	3,82	67%	97%

	Ratio of household consumption in total quantity of water supplied	Unit operation and maintenance costs HRK/m <sup>3</sup>	Anticipated connection ratio at the beginning of construction period	Anticipated connection ratio at the end of construction period
Sisačko-moslavačka	64%	3,82	50%	90%
Splitsko-dalmatinska	64%	3,82	89%	95%
Šibensko-kninska	67%	3,82	86%	95%
Varaždinska	70%	3,82	75%	99%
Virovitičko-podravska	71%	3,80	60%	95%
Vukovarsko-srijemska	87%	3,81	79%	97%
Zadarska	69%	3,82	80%	95%
Grad Zagreb	70%	3,82	92%	97%
Zagrebačka	75%	3,81	63%	95%

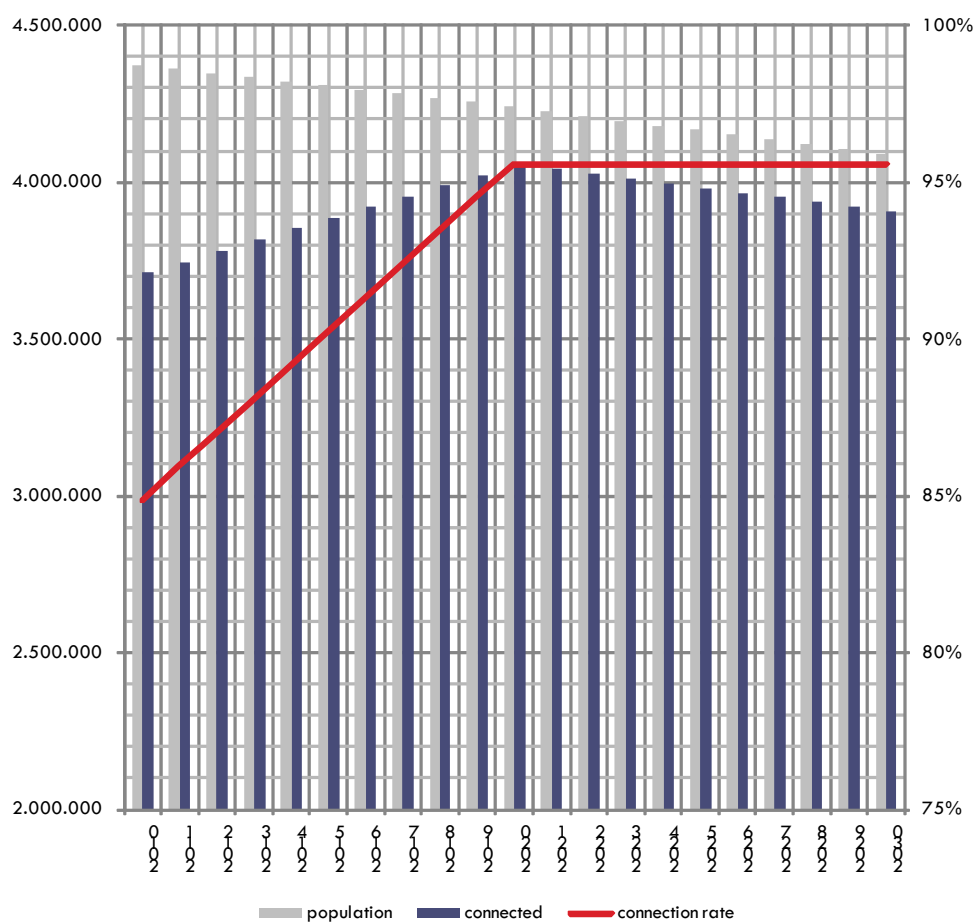


Fig. 18 Population and connection rate - forecast

Counties and respective agglomerations and water supply zones with construction costs are listed in Tab. 10.

Tab. 10 Counties with respective agglomerations and water supply zones

	County	total cost of construction 000 HRK	total cost of construction 000 EUR (1EUR=7,26HRK)
	BJELOVARSKO - BILOGORSKA		
	Water supply zones	413.270	56.924
1	WSZ BJELOVAR	53.670	7.393
2	WSZ ČAZMA	86.000	11.846



	County	total cost of construction 000 HRK	total cost of construction 000 EUR (1EUR=7,26HRK)
3	WSZ DARUVAR	110.500	15.220
4	WSZ GAREŠNICA	55.500	7.645
5	WSZ GRUBIŠNO POLJE	29.600	4.077
6	WSZ TROJSTVO - GRĐEVAC	78.000	10.744
	<b>Agglomerations</b>	<b>363.833</b>	<b>50.115</b>
1	Bjelovar	152.937	21.066
2	Darugar	83.750	11.536
3	Garešnica	19.300	2.658
4	Čazma	19.650	2.707
5	Grubišno Polje	21.950	3.023
6	Hercegovac	19.350	2.665
7	Rovišće	18.496	2.548
8	Mali Zdenci - Veliki Zdenci	11.900	1.639
9	Gudovac	16.500	2.273
	Total construction	777.103	107.039
	<b>BRODSKO - POSAVSKA</b>		0
	<b>Water supply zones</b>	<b>515.680</b>	<b>71.030</b>
1	WSZ DAVOR - NOVA GRADIŠKA	192.896	26.570
2	WSZ ISTOČNA SLAVONIJA - SLAVONSKI BROD	322.784	44.461
	<b>Agglomerations</b>	<b>893.830</b>	<b>123.117</b>
1	Slavonski Brod	377.494	51.996
2	Nova Gradiška	103.000	14.187
3	Vrpolje	57.200	7.879
4	Okučani	48.000	6.612
5	Slavonski Šamac	54.500	7.507
6	Batrina	46.300	6.377
7	Donji Andrijević	20.036	2.760
8	Staro Petrovo Selo	22.000	3.030
9	Garčin	26.500	3.650
10	Brodski Stupnik	22.000	3.030
11	Beravci	19.500	2.686
12	Oriovac	21.300	2.934
13	Davor	5.000	689
14	Gundinci	17.000	2.342
15	Novi Grad	32.500	4.477
16	Lužani	21.500	2.961
	Total construction	1.409.510	194.147
	<b>DUBROVAČKO - NERETVANSKA</b>		0
	<b>Water supply zones</b>	<b>315.170</b>	<b>43.412</b>
1	WSZ DUBROVNIK	55.250	7.610
2	WSZ IMOTSKI - MAKARSKA - VRGORAC	0	0
3	WSZ NERETVA - PELJEŠAC - KORČULA - LASTOVO - MLJET	259.920	35.802
	<b>Agglomerations</b>	<b>995.226</b>	<b>137.083</b>
1	Dubrovnik	137.240	18.904
2	Vela Luka	64.600	8.898
3	Malostonski zaljev	79.578	10.961
4	Župa Dubrovačka	130.708	18.004
5	Metković	148.100	20.399
6	Ploče	75.700	10.427
7	Orebić	82.650	11.384
8	Korčula	69.500	9.573
9	Cavtat	14.000	1.928
10	Blato	51.600	7.107
11	Opuzen	38.000	5.234
12	Zaton	12.850	1.770
13	Lumbarda	16.100	2.218
14	Smokvica - Brna	18.500	2.548
15	Trpanj	4.850	668
16	Slano	16.850	2.321
17	Janjina	34.400	4.738
	Total construction	1.310.396	180.495
	<b>ISTARSKA</b>		0
	<b>Water supply zones</b>	<b>364.140</b>	<b>50.157</b>

	County	total cost of construction 000 HRK	total cost of construction 000 EUR (1EUR=7,26HRK)
1	WSZ ISTRA	115.120	15.857
2	WSZ LABIN	60.800	8.375
3	WSZ PULA	188.220	25.926
	<b>Agglomerations</b>	<b>1.724.894</b>	<b>237.589</b>
1	Pula - Centar	294.016	40.498
2	Porec - Jug	182.257	25.104
3	Rovinj	140.300	19.325
4	Lanterna	53.600	7.383
5	Umag	93.526	12.882
6	Poreč - Sjever	187.611	25.842
7	Savudrija	74.075	10.203
8	Pula - Sjever	86.778	11.953
9	Novigrad Istarski	97.802	13.471
10	Vrsar	37.310	5.139
11	Labin	71.520	9.851
12	Medulin	125.800	17.328
13	Buzet	115.569	15.919
14	Pazin	24.500	3.375
15	Rabac	21.000	2.893
16	Banjole	29.730	4.095
17	Buje	19.300	2.658
18	Premantura	38.700	5.331
19	Raša	31.500	4.339
	Total construction	2.089.034	287.746
	<b>KARLOVAČKA</b>		<b>0</b>
	Water supply zones	357.930	49.302
1	WSZ KARLOVAC - DUGA RESA	135.400	18.650
2	WSZ LIČKA JESENICA	145.800	20.083
3	WSZ OGULIN	64.230	8.847
4	WSZ OZALJ	12.500	1.722
	<b>Agglomerations</b>	<b>655.700</b>	<b>90.317</b>
1	Karlovac - Duga Resa	306.000	42.149
2	Ogulin	51.700	7.121
3	Plitvička jezera	232.000	31.956
4	Draganić	16.500	2.273
5	Josipdol	20.000	2.755
6	Jasenak	8.000	1.102
7	Slunj	21.500	2.961
	Total construction	1.013.6304	139.618
	<b>KOPRIVNIČKO - KRIŽEVAČKA</b>		<b>0</b>
	Water supply zones	280.700	38.664
1	WSZ ĐURĐEVAC	81.500	11.226
2	WSZ KOPRIVNICA	106.200	14.628
3	WSZ KRIŽEVCI	93.000	12.810
	<b>Agglomerations</b>	<b>559.755</b>	<b>77.101</b>
1	Koprivnica	333.000	45.868
2	Križevci	47.255	6.509
3	Podravske Sesvete	94.000	12.948
4	Đurđevac	28.000	3.857
5	Virje	7.000	964
6	Novigrad Podravski	22.000	3.030
7	Gola	28.500	3.926
	Total construction	840.455	115.765
	<b>KRAPINSKO - ZAGORSKA</b>		<b>0</b>
	Water supply zones	340.090	46.844
1	WSZ HRVATSKO ZAGORJE	340.090	46.844
	<b>Agglomerations</b>	<b>574.210</b>	<b>79.092</b>
1	Zabok	248.300	34.201
2	Krapina	81.650	11.247
3	Zlatar	73.500	10.124
4	Bedekovčina	49.110	6.764
5	Marija Bistrica	40.250	5.544
6	Konjščina	30.700	4.229
7	Krapinske Toplice	14.000	1.928

	County	total cost of construction 000 HRK	total cost of construction 000 EUR (1EUR=7,26HRK)
8	Hum na Sutli	23.800	3.278
9	Pregrada	12.900	1.777
	Total construction	914.300	125.937
	LIČKO - SENJSKA		0
	Water supply zones	134.340	18.504
1	WSZ GOSPIĆ	40.000	5.510
2	WSZ HRVATSKO PRIMORJE	24.040	3.311
3	WSZ LAPAC	10.000	1.377
4	WSZ OTOČAC	35.000	4.821
5	WSZ UDBINA - KORENICA	25.300	3.485
	Agglomerations	219.411	30.222
1	Novalja	65.900	9.077
2	Gospić	30.000	4.132
3	Senj	27.000	3.719
4	Otočac	64.131	8.833
5	Zubovići - Kustići	32.380	4.460
	Total construction	353.751	48.726
	MEĐIMURSKA		0
	Water supply zones	98.398	13.553
1	WSZ MEĐIMURJE	98.398	13.553
	Agglomerations	1.100.560	151.592
1	Čakovec	264.120	36.380
2	Donja Dubrava	259.000	35.675
3	Mursko Središće	185.500	25.551
4	Novo Selo na Dravi	45.820	6.311
5	Donji Kraljevec	72.500	9.986
6	Držimurec	33.460	4.609
7	Podturen	66.000	9.091
8	Turčišće	42.200	5.813
9	Sveti Martin na Muri	33.480	4.612
10	Kotoriba	17.920	2.468
11	Goričan	23.840	3.284
12	Podbrest	32.720	4.507
13	Belica	24.000	3.306
	UKUPNO IZGRADNJA	1.198.958	165.146
	OSJEČKO - BARANJSKA		0
	Water supply zones	852.200	117.383
1	WSZ BARANJA	241.272	33.233
2	WSZ DONJI MIHOLJAC	46.600	6.419
3	WSZ ĐAKOVO	74.600	10.275
4	WSZ NAŠICE	67.450	9.291
5	WSZ OSIJEK	317.065	43.673
6	WSZ VALPOVO	105.213	14.492
	Agglomerations	1.152.063	158.686
1	Osijek	441.373	60.795
2	Belišće	63.000	8.678
3	Đakovo	143.700	19.793
4	Beli Manastir	52.000	7.163
5	Našice	72.880	10.039
6	Petrijevci	49.000	6.749
7	Donji Miholjac	42.000	5.785
8	Dalj	36.000	4.959
9	Sušine - Đurđenovac	43.000	5.923
10	Gat	43.000	5.923
11	Semeljci	22.350	3.079
12	Koška	24.500	3.375
13	Kneževi Vinogradi	17.100	2.355
14	Punitovci	17.000	2.342
15	Viljevo	15.200	2.094
16	Ernestinovo	17.300	2.383
17	Vladislavci	13.730	1.891
18	Draž	13.650	1.880
19	Petlovac	14.330	1.974

	County	total cost of construction 000 HRK	total cost of construction 000 EUR (1EUR=7,26HRK)
20	Marjančaci	10.950	1.508
	Total construction	2.004.263	276.069
	POŽEŠKO - SLAVONSKA		0
	Water supply zones	593.550	81.756
1	WSZ PAKRAC - LIPIK	407.000	56.061
2	WSZ POŽEŠTINA	186.550	25.696
	Agglomerations	360.900	49.711
1	Požega	133.000	18.320
2	Lipik - Pakrac	63.000	8.678
3	Pleternica	83.500	11.501
4	Velika	33.000	4.545
5	Kutjevo	22.900	3.154
6	Kaptol	20.500	2.824
7	Jakšić	5.000	689
	Total construction	954.450	131.467
	PRIMORSKO - GORANSKA		0
	Water supply zones	597.550	82.307
1	WSZ CRES - LOŠINJ	60.000	8.264
2	WSZ GORSKI KOTAR	317.200	43.691
3	WSZ HRVATSKO PRIMORJE	2.000	275
4	WSZ OPATIJA - RIJEKA - KRK	153.805	21.185
5	WSZ ŽRNOVNICA	64.545	8.890
	Agglomerations	2.256.855	310.862
1	Rijeka	659.432	90.831
2	Opatija - Lovran	170.981	23.551
3	Malinska - Njivice	81.695	11.253
4	Mali Lošinj	61.400	8.457
5	Rab	108.100	14.890
6	Kostrena	316.980	43.661
7	Crikvenica	50.000	6.887
8	Novi Vinodolski	56.300	7.755
9	Baška	46.650	6.426
10	Krk	56.600	7.796
11	Martinšćica	23.700	3.264
12	Kraljevica	194.210	26.751
13	Cres	31.000	4.270
14	Lopar	23.840	3.284
15	Punat	32.900	4.532
16	Veli Lošinj	19.741	2.719
17	Supetarska Draga	73.000	10.055
18	Fužine	48.200	6.639
19	Delnice	38.560	5.311
20	Klimno - Šilo	49.100	6.763
21	Selce	9.880	1.361
22	Omišalj	42.100	5.799
23	Vrbovsko	19.000	2.617
24	Mošćenička Draga	31.557	4.347
25	Jadranovo	11.930	1.643
	Total construction	2.854.405	393.169
	SISAČKO - MOSLAVAČKA		0
	Water supply zones	684.420	94.273
1	WSZ GLINA	55.000	7.576
2	WSZ GVOZD - TOPUSKO	45.000	6.198
3	WSZ KARLOVAC - DUGA RESA	4.000	551
4	WSZ MOSLAVAČKA POSAVINA - JASENOVAC	208.300	28.691
5	WSZ PAŠINO VRELO	46.500	6.405
6	WSZ PETRINJA - SISAK	320.620	44.163
7	WSZ VELIKA GORICA	5.000	689
	Agglomerations	735.976	101.374
1	Sisak	315.500	43.457
2	Kutina	38.579	5.314
3	Petrinja	118.000	16.253
4	Novska	38.595	5.316
5	Popovača	21.171	2.916

	County	total cost of construction 000 HRK	total cost of construction 000 EUR (1EUR=7,26HRK)
6	Glina	71.500	9.848
7	Voloder	17.831	2.456
8	Lekenik	19.000	2.617
9	Sunja	27.000	3.719
10	Lipovljani	12.300	1.694
11	Mošćenica	36.000	4.959
12	Dvor	20.500	2.824
	<b>Total construction</b>	<b>1.420.396</b>	<b>195.647</b>
	<b>SPLITSKO - DALMATINSKA</b>		<b>0</b>
	<b>Water supply zones</b>	<b>503.020</b>	<b>69.287</b>
1	WSZ IMOTSKI - MAKARSKA - VRGORAC	155.320	21.394
2	WSZ SPLIT - SINJ - OMIŠ - OTOCI	347.700	47.893
3	WSZ ŠIBENIK	0	0
	<b>Agglomerations</b>	<b>1.980.168</b>	<b>272.750</b>
1	Split - Solin	371.506	51.172
2	Kaštela - Trogir	325.400	44.821
3	Sinj	165.000	22.727
4	Makarska	38.000	5.234
5	Jelsa - Vrboska	136.000	18.733
6	Imotski	208.098	28.664
7	Hvar	43.000	5.923
8	Podstrana	45.000	6.198
9	Baška Voda	39.000	5.372
10	Gradac	53.600	7.383
11	Brela	6.000	826
12	Omiš	59.770	8.233
13	Tučepi	6.000	826
14	Supetar	32.879	4.529
15	Bol	19.000	2.617
16	Podgora	3.700	510
17	Dugi rat	48.310	6.654
18	Vrgorac	29.000	3.994
19	Trilj	23.500	3.237
20	Marina	76.075	10.479
21	Vis	9.500	1.309
22	Otok	36.000	4.959
23	Promajna - Krvavica	14.000	1.928
24	Postira	12.000	1.653
25	Mimice	23.300	3.209
26	Vinišće	23.000	3.168
27	Muč	50.000	6.887
28	Komiža	13.500	1.860
29	Sutivan	7.000	964
30	Nečujam	12.030	1.657
31	Dicmo	46.000	6.336
32	Pučišća	5.000	689
	<b>Total construction</b>	<b>2.483.188</b>	<b>342.037</b>
	<b>ŠIBENSKO - KNINSKA</b>		<b>0</b>
	<b>Water supply zones</b>	<b>125.780</b>	<b>17.325</b>
1	WSZ KNIN	32.780	4.515
2	WSZ ŠIBENIK	93.000	12.810
	<b>Agglomerations</b>	<b>891.285</b>	<b>122.767</b>
1	Šibenik	145.900	20.096
2	Pirovac - Tisno - Jezera	116.850	16.095
3	Vodice	234.694	32.327
4	Knin	100.000	13.774
5	Betina - Murter	97.000	13.361
6	Primošten	50.000	6.887
7	Rogoznica	57.941	7.981
8	Drniš	50.900	7.011
9	Bilice	15.000	2.066
10	Skradin	23.000	3.168
	<b>Total construction</b>	<b>1.017.065</b>	<b>140.092</b>

	County	total cost of construction 000 HRK	total cost of construction 000 EUR (1EUR=7,26HRK)
	VARAŽDINSKA		0
	Water supply zones	263.400	36.281
1	WSZ VARAŽDIN	263.400	36.281
	Agglomerations	1.667.620	229.700
1	Varaždin	878.000	120.937
2	Ivanec	137.500	18.939
3	Novi Marof	124.000	17.080
4	Ludbreg	137.100	18.884
5	Lepoglava	60.000	8.264
6	Varaždinske Toplice	48.000	6.612
7	Greda	80.000	11.019
8	Cestica	60.020	8.267
9	Jalžabet	33.500	4.614
10	Veliki Bukovec	56.500	7.782
11	Šemovec	53.000	7.300
	Total construction	1.931.020	265.981
	VIROVITIČKO - PODRAVSKA		0
	Water supply zones	115.000	15.840
1	WSZ ORAHOVICA	16.000	2.204
2	WSZ PITOMAČA	45.800	6.309
3	WSZ SLATINA	22.000	3.030
4	WSZ VIROVITICA	31.200	4.298
	Agglomerations	299.600	41.267
1	Virovitica	76.360	10.518
2	Slatina	65.700	9.050
3	Pitomača	44.400	6.116
4	Orahovica	31.000	4.270
5	Špišić Bukovica	23.640	3.256
6	Suhopolje	25.000	3.444
7	Gradina	20.000	2.755
8	Čačinci	13.500	1.860
	Total construction	414.600	57.107
	VUKOVARSKO - SRIJEMSKA		0
	Water supply zones	859.200	118.347
1	WSZ ILOK	77.899	10.730
2	WSZ ISTOČNA SLAVONIJA - VINKOVCI	674.402	92.893
3	WSZ VUKOVAR	106.900	14.725
	Agglomerations	995.514	137.123
1	Vinkovci	65.000	8.953
2	Vukovar	234.900	32.355
3	Županja	76.500	10.537
4	Gunja	73.500	10.124
5	Otok (Vinkovci)	39.000	5.372
6	Ivankovo	35.000	4.821
7	Novi Jankovci	64.000	8.815
8	Ilok	21.000	2.893
9	Nuštar	22.300	3.072
10	Vođinci	47.000	6.474
11	Cerna	20.514	2.826
12	Bošnjaci	30.500	4.201
13	Andrijaševci	36.000	4.959
14	Babina Greda	23.800	3.278
15	Privlaka	35.000	4.821
16	Gradište	20.500	2.824
17	Vrbanja	29.000	3.994
18	Rajevo Selo	29.500	4.063
19	Jarmina	14.500	1.997
20	Nijemci	28.300	3.898
21	Tovarnik	25.000	3.444
22	Bapska	12.000	1.653
23	Markušica	12.700	1.749
	Total construction	1.854.714	255.470
	ZADARSKA		0
	Water supply zones	302.900	41.722

	County	total cost of construction 000 HRK	total cost of construction 000 EUR (1EUR=7,26HRK)
1	WSZ GRAČAC	20.000	2.755
2	WSZ ZRMANJA - ZADAR	282.900	38.967
	<b>Agglomerations</b>	<b>1.030.674</b>	<b>141.966</b>
1	Zadar	26.018	3.584
2	Vir	200.000	27.548
3	Biograd	49.200	6.777
4	Nin	140.170	19.307
5	Bibinje - Sukošan	112.000	15.427
6	Preko	42.000	5.785
7	Petrčane	31.000	4.270
8	Mandre	19.700	2.713
9	Ražanac	30.650	4.222
10	Benkovac	32.344	4.455
11	Pašman	42.000	5.785
12	Pag	32.700	4.504
13	Ugljan	23.800	3.278
14	Starigrad Zadarski	37.700	5.193
15	Škabrnja	38.602	5.317
16	Kali	14.500	1.997
17	Posedarje	25.950	3.574
18	Gračac	64.440	8.876
19	Tkon	30.500	4.201
20	Pridraga	22.000	3.030
21	Kruševo (Novigrad Zadarski)	15.400	2.121
	<b>Total construction</b>	<b>1.333.574</b>	<b>183.688</b>
	<b>GRAD ZAGREB</b>		<b>0</b>
	<b>Water supply zones</b>	<b>1.348.000</b>	<b>185.675</b>
1	WSZ PISAROVINA	0	0
2	WSZ VELIKA GORICA	0	0
3	WSZ ZAGREB	1.348.000	185.675
	<b>Agglomerations</b>	<b>2.512.718</b>	<b>346.104</b>
1	Zagreb	2.406.186	331.431
2	Glavničica	106.532	14.674
	<b>Total construction</b>	<b>3.860.718</b>	<b>531.779</b>
	<b>ZAGREBAČKA</b>		<b>0</b>
	<b>Water supply zones</b>	<b>770.362</b>	<b>106.110</b>
1	WSZ DUGO SELO	21.893	3.016
2	WSZ HRVATSKO ZAGORJE	0	0
3	WSZ IVANIĆ GRAD	35.576	4.900
4	WSZ JASTREBARSKO - KLINČA SELA	74.346	10.240
5	WSZ PISAROVINA	18.244	2.513
6	WSZ SVETI IVAN ZELINA	91.221	12.565
7	WSZ VELIKA GORICA	123.148	16.963
8	WSZ VRBOVEC	361.692	49.820
9	WSZ ZAGREB	0	0
10	WSZ ZAPREŠIĆ	22.349	3.078
11	WSZ ŽUMBERAK-KRAŠIĆ	21.893	3.016
	<b>Agglomerations</b>	<b>2.201.048</b>	<b>303.175</b>
1	Zaprešić	437.307	60.235
2	Velika Gorica	239.600	33.003
3	Samobor	301.985	41.596
4	Rugvica	196.905	27.122
5	Vrbovec	142.400	19.614
6	Ivanić Grad	101.800	14.022
7	Veleševac	178.342	24.565
8	Jastrebarsko	77.000	10.606
9	Sveti Ivan Zelina	96.300	13.264
10	Križ - Novoselec	50.000	6.887
11	Brckovljani	50.100	6.901
12	Jakovlje	25.540	3.518
13	Donja Zdenčina	34.500	4.752
14	Donji Kraji	44.023	6.064
15	Polonje	47.000	6.474



	County	total cost of construction 000 HRK	total cost of construction 000 EUR (1EUR=7,26HRK)
16	Mala Buna	24.646	3.395
17	Paukovec	38.500	5.303
18	Dubrava	33.500	4.614
19	Gradec	31.000	4.270
20	Lipovec Lonjski	31.300	4.311
21	Krašić	19.300	2.658
	Total construction	2.971.410	409.285

Total costs of construction to be carried out in 294 agglomerations and 68 water supply zones amount to slightly more than HRK 33,000 billion (EUR 4,546 billion), by means of which the Republic of Croatia would comply with the requirements of the Drinking Water Directive and the Urban Waste Water Treatment Directive. The greatest investments are expected in the period 2013 - 2015, amounting to slightly more than EUR 476 million.

However, total implementation costs for water utility directives are significantly higher (incl. construction costs and other costs), reaching EUR 1,070 billion in the year 2018. In the structure of total costs, construction costs decrease from nearly 50% to slightly more than 20%.

Total annual costs for harmonization with water utility directives range between EUR 529 million (HRK 3,84 billion in the year 2010 and EUR 1,070 billion (HRK 7,8 billion) in the year 2018.

Aside from the first three years of the adaptation period, over 50% of the required funds is directed at covering the operating costs. At the beginning of the adaptation period more funds go to water supply, while towards the end of the adaptation period the costs of waste water collection and water supply become roughly equal.

With regard to the quantities of water supplied (to population connected to the water supply systems and population connected to sewerage systems), implementation costs for water utility directives are the highest in the year 2013, amounting on the average to 4,37 EUR/m<sup>3</sup> (31,73 HRK/m<sup>3</sup>) in the Republic of Croatia. They then decrease near the end of the adaptation period, amounting to slightly more than 3,30 EUR/m<sup>3</sup> (23,95 HRK/m<sup>3</sup>). Looking at individual counties, the costs vary significantly, sometimes reaching nearly 6,9 EUR/m<sup>3</sup> (50 HRK/m<sup>3</sup>). The counties with the most favourable ratio of costs and quantities of water supplied/collected and treated are Grad Zagreb, Splitsko-dalmatinska and Primorsko-goranska Counties.

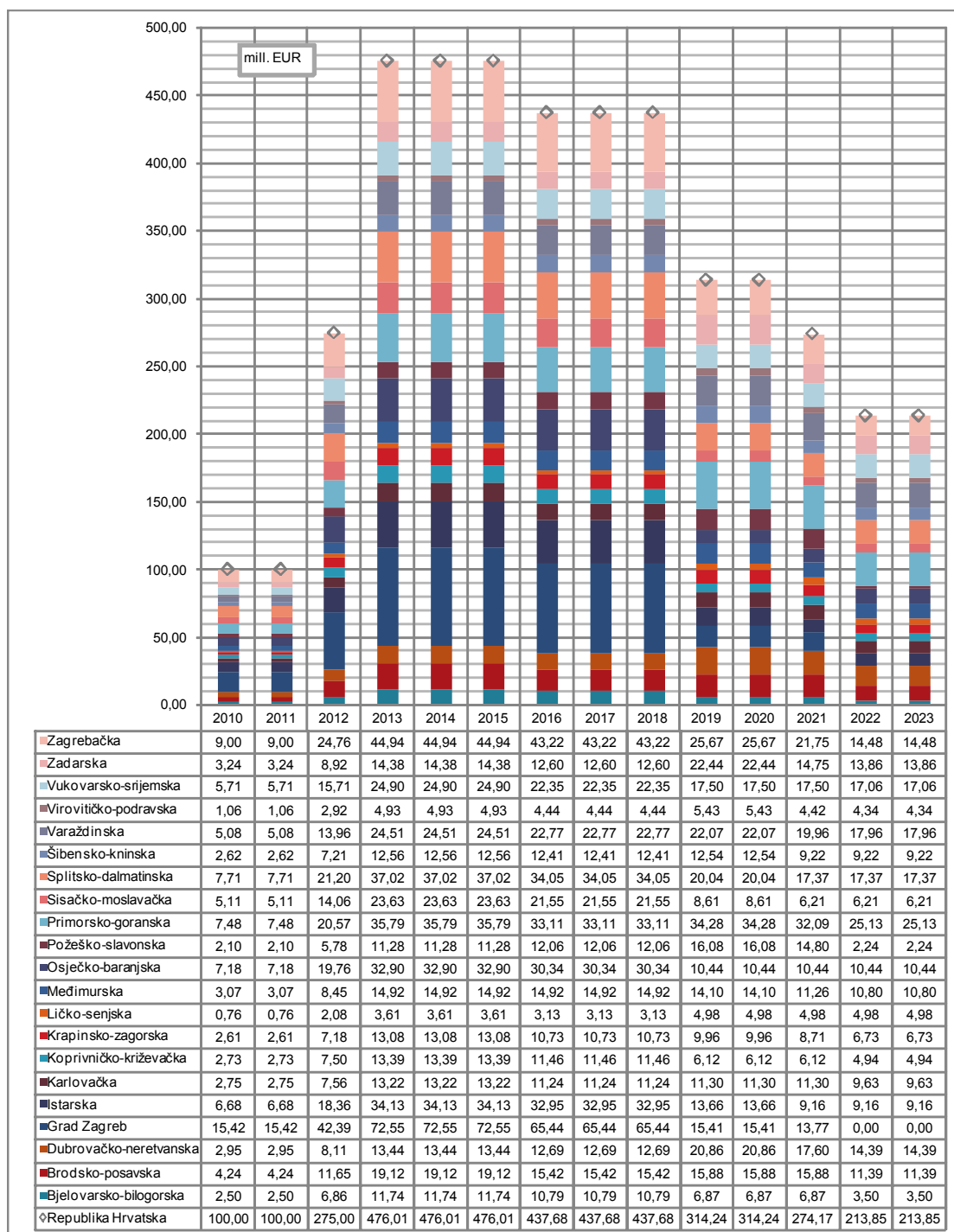


Fig. 19 Construction costs

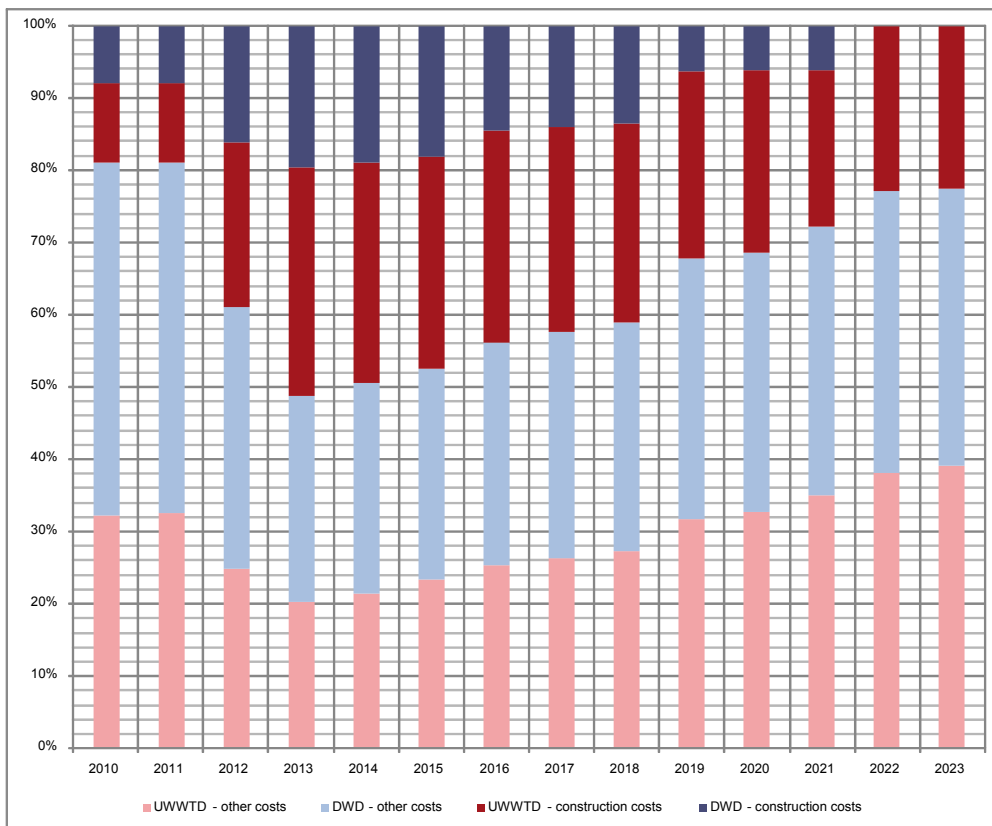
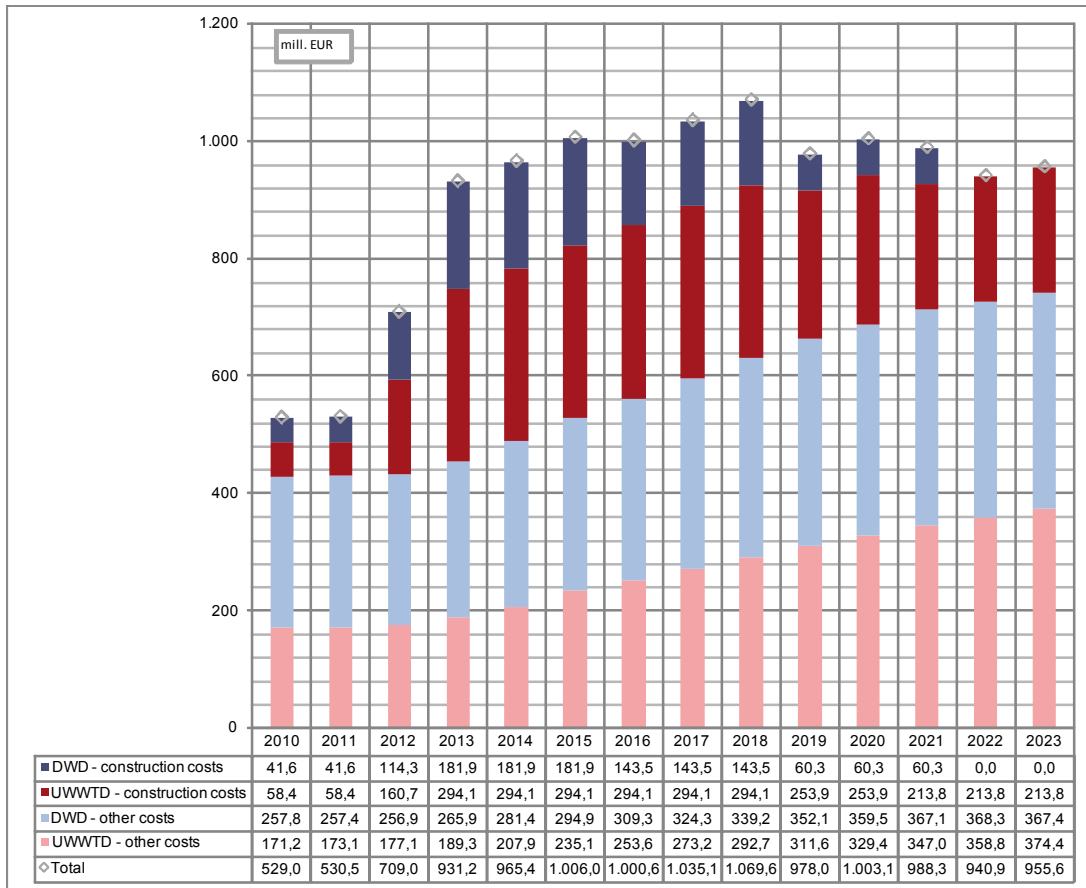


Fig. 20 Total implementation costs for water utility directives

Tab. 11 Price of water (EUR/m<sup>3</sup>) which would ensure full cost recovery (per counties)

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Bjelovarsko-bilogorska	2,86	2,84	3,95	4,73	4,52	4,35	4,08	4,00	3,95	3,40	3,33	3,30	3,01	3,02
Brodsko-posavska	2,78	2,65	4,14	5,12	4,98	4,84	4,30	4,22	4,14	4,15	4,09	4,04	3,52	3,51
Dubrovačko-neretvanska	2,81	2,85	3,94	4,96	4,85	5,24	5,03	4,94	4,86	6,19	6,12	5,58	5,18	5,12
Grad Zagreb	2,21	2,23	2,81	3,45	3,48	3,51	3,41	3,43	3,45	2,52	2,52	2,49	2,25	2,24
Istarska	2,07	2,10	3,04	4,30	4,43	4,75	4,80	4,91	5,03	3,77	3,81	3,50	3,53	3,55
Karlovačka	2,58	2,62	3,81	4,82	4,78	4,74	4,46	4,43	4,40	4,64	4,61	4,60	4,28	4,27
Koprivničko-križevačka	2,71	2,75	4,01	5,08	4,73	4,45	3,98	3,82	3,69	2,92	2,84	2,77	2,63	2,59
Krapinsko-zagorska	3,37	3,43	5,28	6,84	6,28	5,93	5,33	5,12	4,96	4,98	4,85	4,45	4,17	4,10
Ličko-senjska	3,80	3,82	4,41	4,98	4,94	4,88	4,64	4,61	4,58	6,67	6,70	6,72	6,75	6,77
Međimurska	3,53	3,59	5,91	7,58	6,88	6,31	5,92	5,62	5,38	5,10	4,93	4,34	4,18	4,08
Osječko-baranjska	2,52	2,55	3,55	4,43	4,39	4,33	4,17	4,14	4,12	3,15	3,14	3,12	3,07	3,06
Požeško-slavonska	2,36	2,39	3,35	4,70	4,76	4,81	5,01	5,07	5,13	5,83	5,91	5,69	3,65	3,65
Primorsko-goranska	2,22	2,23	3,02	3,86	3,85	3,83	3,69	3,69	3,69	3,74	3,74	3,65	3,40	3,40
Sisačko-moslavačka	2,37	2,41	3,64	4,72	4,62	4,54	4,30	4,25	4,22	3,31	3,31	3,06	3,07	3,07
Splitsko-dalmatinska	2,24	2,23	2,63	3,18	3,12	3,18	3,10	3,11	3,12	2,70	2,69	2,60	2,60	2,60
Šibensko-kninska	3,78	3,75	5,00	6,15	5,98	6,05	5,76	5,65	5,55	5,57	5,47	4,82	4,76	4,71
Varaždinska	3,21	3,25	4,86	6,53	6,40	6,19	5,94	5,86	5,78	5,70	5,64	5,33	5,14	5,10
Virovitičko-podravska	2,63	2,65	3,32	3,84	3,73	3,53	3,35	3,30	3,25	3,69	3,64	3,35	3,31	3,29
Vukovarsko-srijemska	3,43	3,48	5,42	6,46	6,27	6,12	5,76	5,67	5,60	5,41	5,29	5,19	4,86	4,81
Zadarska	2,65	2,68	3,48	4,20	4,16	4,28	4,05	4,02	3,99	5,25	5,22	4,35	4,25	4,23
Zagrebačka	2,94	2,99	4,78	6,61	6,35	6,13	5,84	5,69	5,57	4,32	4,24	3,93	3,55	3,50
<b>Republic of Croatia</b>	<b>2,50</b>	<b>2,51</b>	<b>3,42</b>	<b>4,37</b>	<b>4,34</b>	<b>4,35</b>	<b>4,19</b>	<b>4,17</b>	<b>4,16</b>	<b>3,72</b>	<b>3,70</b>	<b>3,53</b>	<b>3,32</b>	<b>3,31</b>
max	3,80	3,82	5,91	7,58	6,88	6,31	5,94	5,86	5,78	6,67	6,70	6,72	6,75	6,77
min	2,07	2,10	2,63	3,18	3,12	3,18	3,10	3,11	3,12	2,52	2,52	2,49	2,25	2,24
	20% of the counties with lowest Directive implementation costs in relation to the quantity of water supplied													
	20% of the counties with highest Directive implementation costs in relation to the quantity of water supplied													

Comparing the implementation costs for water utility directives in relation to the quantity of water supplied with the available household income per capita per year, the affordability of these costs can be checked in relation to the financial capacity of households. The affordability of costs has been checked in terms of allocation of 2,5% and 3% of the net available household income for covering total implementation costs for water utility directives.

- ◆ If households would allocate 2.5% of their net available income for implementation costs for these directives, the financing gap would revert only in the City of Zagreb.
- ◆ If households would allocate 3% of their net available income for implementation costs for these directives, the financing gap would at the level of the national average, revert at the very end of the implementation period .
- ◆ It is only the allocation at the level of 4% of net available income at the level of the Republic of Croatia that would ensure stable financing during the entire adjustment period, even though in this case significant financing gaps would occur.

It has to be noted that costs for implementing the directives are evenly distributed to the total quantity of water supplied (to households and industry). In other words, the practice used so far - defining different prices of water for households and industry - hasn't been taken into consideration. Such analyses can be made at the level of more detailed planning documentation.

Affordability ratio 2.5% net available income	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Bjelovarsko-bilogorska	2,21	2,21	2,21	2,21	2,29	2,38	2,47	2,56	2,65	2,77	2,90	3,03	3,16	3,29
Brodsko-posavska	1,67	1,67	1,67	1,67	1,73	1,78	1,83	1,88	1,94	2,02	2,12	2,21	2,30	2,40
Dubrovačko-neretvanska	2,33	2,33	2,33	2,33	2,46	2,60	2,74	2,89	3,04	3,18	3,32	3,47	3,61	3,76
Grad Zagreb	3,09	3,09	3,09	3,09	3,26	3,44	3,63	3,82	4,02	4,20	4,39	4,59	4,78	4,98
Istarska	2,60	2,60	2,60	2,60	2,72	2,85	2,98	3,11	3,24	3,39	3,54	3,70	3,86	4,01
Karlovačka	2,09	2,09	2,09	2,09	2,16	2,23	2,30	2,37	2,44	2,55	2,67	2,79	2,91	3,02

Affordability ratio 2.5% net available income	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Koprivničko-križevačka	2,19	2,19	2,19	2,19	2,26	2,33	2,41	2,48	2,55	2,66	2,79	2,91	3,03	3,16
Krapinsko-zagorska	2,12	2,12	2,12	2,12	2,21	2,29	2,38	2,47	2,55	2,67	2,79	2,92	3,04	3,16
Ličko-senjska	2,10	2,10	2,10	2,10	2,20	2,31	2,42	2,53	2,65	2,77	2,89	3,02	3,15	3,28
Međimurska	1,97	1,97	1,97	1,97	2,04	2,12	2,19	2,26	2,33	2,44	2,55	2,67	2,78	2,89
Osječko-baranjska	2,10	2,10	2,10	2,10	2,20	2,30	2,40	2,50	2,61	2,72	2,85	2,98	3,10	3,23
Požeško-slavonska	1,91	1,91	1,91	1,91	1,98	2,06	2,14	2,21	2,29	2,40	2,51	2,62	2,73	2,84
Primorsko-goranska	2,61	2,61	2,61	2,61	2,74	2,88	3,03	3,18	3,33	3,48	3,64	3,80	3,96	4,12
Sisačko-moslavačka	2,10	2,10	2,10	2,10	2,17	2,25	2,32	2,40	2,47	2,59	2,70	2,82	2,94	3,06
Splitsko-dalmatinska	2,16	2,16	2,16	2,16	2,27	2,39	2,51	2,63	2,75	2,88	3,01	3,14	3,27	3,41
Šibensko-kninska	2,30	2,30	2,30	2,30	2,46	2,63	2,80	2,99	3,18	3,32	3,47	3,63	3,78	3,93
Varaždinska	2,10	2,10	2,10	2,10	2,17	2,23	2,30	2,37	2,44	2,55	2,66	2,78	2,90	3,02
Virovitičko-podravska	1,89	1,89	1,89	1,89	1,94	1,99	2,04	2,09	2,14	2,24	2,34	2,44	2,54	2,65
Vukovarsko-srijemska	1,96	1,96	1,96	1,96	2,06	2,16	2,26	2,36	2,46	2,57	2,69	2,81	2,93	3,05
Zadarska	2,26	2,26	2,26	2,26	2,41	2,56	2,72	2,88	3,05	3,19	3,33	3,48	3,62	3,77
Zagrebačka	2,62	2,62	2,62	2,62	2,80	3,00	3,21	3,42	3,64	3,81	3,98	4,16	4,33	4,51
<b>Republika Hrvatska</b>	<b>2,38</b>	<b>2,38</b>	<b>2,38</b>	<b>2,38</b>	<b>2,50</b>	<b>2,63</b>	<b>2,75</b>	<b>2,88</b>	<b>3,01</b>	<b>3,15</b>	<b>3,30</b>	<b>3,44</b>	<b>3,59</b>	<b>3,73</b>
	Affordable price of water is sufficient													
	Affordable price of water is not sufficient													

Affordability ratio 3,0% net available income	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Bjelovarsko-bilogorska	2,65	2,65	2,65	2,65	2,75	2,86	2,97	3,07	3,18	3,33	3,48	3,64	3,79	3,94
Brodsko-posavska	2,01	2,01	2,01	2,01	2,07	2,13	2,20	2,26	2,32	2,43	2,54	2,65	2,76	2,88
Dubrovačko-neretvanska	2,80	2,80	2,80	2,80	2,95	3,12	3,29	3,47	3,65	3,81	3,99	4,16	4,34	4,52
Grad Zagreb	3,12	3,12	3,12	3,12	3,27	3,42	3,58	3,73	3,89	4,07	4,25	4,44	4,63	4,82
Istarska	2,51	2,51	2,51	2,51	2,59	2,68	2,76	2,85	2,93	3,06	3,20	3,35	3,49	3,63
Karlovačka	2,63	2,63	2,63	2,63	2,72	2,80	2,89	2,97	3,06	3,20	3,34	3,49	3,64	3,79
Koprivničko-križevačka	2,55	2,55	2,55	2,55	2,65	2,75	2,86	2,96	3,06	3,20	3,35	3,50	3,64	3,79
Krapinsko-zagorska	2,52	2,52	2,52	2,52	2,65	2,78	2,91	3,04	3,18	3,32	3,47	3,63	3,78	3,94
Ličko-senjska	2,37	2,37	2,37	2,37	2,45	2,54	2,63	2,71	2,80	2,93	3,06	3,20	3,33	3,47
Međimurska	2,52	2,52	2,52	2,52	2,64	2,76	2,88	3,00	3,13	3,27	3,42	3,57	3,72	3,87
Osječko-baranjska	2,29	2,29	2,29	2,29	2,38	2,47	2,56	2,66	2,75	2,88	3,01	3,14	3,27	3,41
Požeško-slavonska	3,13	3,13	3,13	3,13	3,29	3,46	3,64	3,81	3,99	4,18	4,37	4,56	4,75	4,95
Primorsko-goranska	2,52	2,52	2,52	2,52	2,61	2,70	2,79	2,88	2,97	3,10	3,25	3,39	3,53	3,68
Sisačko-moslavačka	2,59	2,59	2,59	2,59	2,72	2,86	3,01	3,15	3,30	3,45	3,61	3,77	3,93	4,09
Splitsko-dalmatinska	2,76	2,76	2,76	2,76	2,95	3,15	3,37	3,58	3,81	3,98	4,17	4,35	4,53	4,72
Šibensko-kninska	2,52	2,52	2,52	2,52	2,60	2,68	2,76	2,84	2,92	3,06	3,20	3,34	3,48	3,62
Varaždinska	2,27	2,27	2,27	2,27	2,33	2,39	2,45	2,51	2,57	2,68	2,80	2,93	3,05	3,18
Virovitičko-podravska	2,36	2,36	2,36	2,36	2,47	2,59	2,71	2,83	2,95	3,09	3,23	3,37	3,51	3,66
Vukovarsko-srijemska	2,72	2,72	2,72	2,72	2,89	3,07	3,26	3,46	3,66	3,82	4,00	4,17	4,35	4,53
Zadarska	3,70	3,70	3,70	3,70	3,91	4,13	4,36	4,59	4,82	5,04	5,27	5,51	5,74	5,97
Zagrebačka	3,14	3,14	3,14	3,14	3,36	3,60	3,85	4,10	4,37	4,57	4,77	4,99	5,20	5,41
<b>Republika Hrvatska</b>	<b>2,86</b>	<b>2,86</b>	<b>2,86</b>	<b>2,86</b>	<b>3,00</b>	<b>3,15</b>	<b>3,31</b>	<b>3,46</b>	<b>3,62</b>	<b>3,78</b>	<b>3,95</b>	<b>4,13</b>	<b>4,30</b>	<b>4,48</b>
	Affordable price of water is sufficient													
	Affordable price of water is not sufficient													