

CAPACITY OF WASTEWATER TREATMENT PLANTS

WWTP



HRVATSKE VODE

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WWTPs in Croatia



- I. COMPLETED WWTPs COMPLYING WITH THE URBAN WASTEWATER TREATMENT DIRECTIVE**
- II. COMPLETED WWTPs (EXTENSION REQUIRED)**
- III. WWTPs UNDER CONSTRUCTION**
- IV. WWTP PROJECTS IN IMPLEMENTATION**

WWTPs in Croatia



Number and capacity of WWTPs built (> 2,000 PE)

WWTP size	Treatment level	No./ PE	Mura & Upper Drava	Danube & Lower Drava	Middle & Lower Sava	Upper Sava	Northern Adriatic Basins	Southern Adriatic Basins	Total	Active In total
< 2,000	P	No.						4	4	3
		PE						4.100	4.100	3.100
	1	No.					1		1	1
		ES					500		500	500
	2	No.	2	1	6		18	3	30	25
		PE	3.200	300	4.690		9.400	2.650	20.240	14.765
3	No.					8		8	5	
	PE					2.800		2.800	1.300	
> 2,000	P	No.	0	0	0	0	11	25	36	33
		PE	0	0	0	0	757.900	583.810	1.341.710	1.323.310
	1	No.	1	1	5	2	5	7	21	19
		PE	7.500	5.000	118.500	67.500	127.300	175.000	500.800	487.800
	2	No.	4	3	8	6	8	5	34	26
		PE	239.000	250.500	149.100	1.246.000	60.500	122.000	2.067.100	2.025.400
	3	No.	2	2	2	0	0	0	6	5
		PE	109.990	23.000	106.000	0	0	0	238.900	231.400
TOTAL		No.	9	7	21	8	51	44	140	117
		PE	359.690	278.800	378.290	1.313.500	958.400	887.560	4.176.150	4.087.575

WWTPs in Croatia



Current level of WWTP development

- There are 140 WWTPs installed in Croatia
- Among these, 43 WWTPs have capacity below 2,000 PE
- 97 WWTPs have capacity exceeding 2,000 PE
- 290 WWTPs, i.e. 197 new ones, must be constructed
- 36 WWTPs have preliminary treatment: 1,341,710 PE or 32.24%
- Out of 140 WWTPs, 117 are functional
- Efficiency is assessed at 49 WWTPs (secondary and tertiary treatment)
- ~~WWTPs mostly do not comply with treatment efficiency~~



WWTPs in Croatia



WWTPs in Croatia



Completed WWTPs – complying with EU
UWWTD

KARLOVAC

KOPRIVNICA

ZADAR

OGULIN

NAŠICE

WWTPs in Croatia



KARLOVAC

Total investment: **€ 36,000,000**

Implementation period: **2009 - 2012**

Receiving water body: **Kupa River**



TECHNICAL PROJECT ELEMENTS:

- Reconstruction and construction of water and wastewater systems of the town of Karlovac
- Construction of a WWTP with capacity of 98,500 PE
- Tertiary treatment of wastewater

WWTPs in Croatia



KOPRIVNICA

Total investment: **€ 76,013,000**
Implementation period: **2006 – 2008**
Receiving water body: **Bistra Koprivnička**



TECHNICAL PROJECT ELEMENTS:

- SBR WWTP
- Construction of a WWTP with capacity 100,000 PE
- Tertiary treatment of wastewater

WWTPs in Croatia



ZADAR

Total investment: € 25,000,000

Implementation period: 2005 - 2009

Receiving water body: The sea



TECHNICAL PROJECT ELEMENTS:

- Reconstruction of overflow structures and construction of a retarding basin of the Zadar – Centar sewer system
- Construction of a WWTP with capacity 100,000 PE
- Secondary treatment

WWTPs in Croatia



OGULIN

Total investment: € 9,150,000

Implementation period: 2010 - 2012

Receiving water body: **The underground**



TECHNICAL PROJECT ELEMENTS:

- Construction of 13 km of the network and 12 pumping stations
- Construction of a WWTP with capacity 7,500 PE in Phase I
- Tertiary treatment of wastewater

WWTPs in Croatia



NAŠICE

Total investment: **€ 2,116,402**

Implementation period: **2010-2012**

Receiving water body: **Našička River**



TECHNICAL PROJECT ELEMENTS:

- Construction of a WWTP with capacity 15,000 PE
- Tertiary treatment



Preparation of new projects:

- ❑ Hrvatske vode has so far provided HRK 260 million from its own resources for the preparation of projects of construction of water and wastewater infrastructure in the estimated value of EUR 2.6 billion from the Structural and Cohesion Funds that are available to Croatia as an EU Member State
- ❑ A significant number of highly mature projects
- ❑ Achieved so far:
 - Detailed designs for 2300 km of water and wastewater networks prepared
 - 20 preliminary designs for WWTPs prepared
 - 537 location permits obtained
 - 338 confirmations of detailed designs obtained

WWTPs in Croatia



INVESTMENTS IN THE WATER SECTOR IN ORDER TO COMPLY WITH THE EU ENVIRONMENTAL REQUIREMENTS (ACQUIS COMMUNAUTAIRE) AND ADDRESS THE INVESTMENT NEEDS IDENTIFIED BY THE EU MS THAT EXCEED SUCH

REQUIREMENTS **Future OP projects (2014 – 2020):**

	WWTP - Planned level of treatment	WWTP - Planned capacity	Total investment price (65% of total investment)	Investment (EU part) in EUR mln
1	237	6.201.550	8.703.524.513 kn	1.153 €
2	33	588.700	0	0
3	204	5.612.850	8.703.524.513 kn	1.153 €

	TOTAL:	1
	Agglomerations not planned within the OP	2
	Agglomerations planned within the OP	3

WWTPs in Croatia



	Agglomeration ID	Agglomeration	Receiving water body	WWTP - Planned level of treatment	WWTP - Planned capacity	Total investment price (65% of total investment)	Investment (EU part) in EUR mln
1	1003	Baska	Kvarner Bay	2	19.000	30.323.000	4,016
2	7003	Beli Manastir	Canal Karašica	3	16.000	33.800.000	4,477
3	7004	Belisce	Drava River	3	240.000	40.950.000	5,424
4	1005	Betina-Murter	Murter Sea	2	17.300	63.050.000	8,351
5	6008	Bjelovar	Bjelovacka	3	100.000	99.409.000	13,167
6	101339	Čakovec	Trnava	3	75.000	.000	0,000
7	6012	Daruvar	Toplica	3	50.000	54.438.000	7,210
8	6020	Djakovo	Ribnjak	3	35.000	93.405.000	12,372
9	5044	Donja Dubrava	Drava River	3	25.000	168.350.000	22,298
10	1022	Drnis	Čikola	3	5.000	.000	0,000
11	1024	Dubrovnik	Adriatic Sea	2	100.000	89.206.000	11,815
12	2052	Imotski	Glavina Brook	3	33.000	135.264.000	17,916
13	4037	Ivanic Grad	Lonja River	3	20.000	66.170.000	8,764
14	4040	Karlovac-Duga Resa	Kupa River	3	98.500	81.250.000	10,762
15	1037	Kastela-Trogir	Šolta Strait	2	148.000	211.510.000	28,015
16	1020	Klimno-Šilo	Vinodol Strait	1	8.600	31.915.000	4,227
17	1039	Knin	Orašnica	3	20.000	.000	0,000
18	5021	Koprivnica	Moždanski jarak	3	100.000	216.450.000	28,669
19	4044	Krapina	Krapinica	3	21.200	53.073.000	7,029
20	4048	Krizevci	Glogovnica	3	25.000	30.716.000	4,068
21	1047	Krk	Kvarner Bay	2	23.000	36.790.000	4,873
22	4051	Kutina	Kutinica	3	25.000	25.076.000	3,321
23	101444	Lanterna	Western coast of Istria	3	30.000	.000	0,000
24	6047	Lipik-Pakrac	Branch of the Ilidža R. & further into the Pakra R.	3	20.000	40.950.000	5,424
25	1061	Malinska-Njivice	Kvarner Bay	2	35.500	53.102.000	7,033
26	4058	Moscenica	Kupa River	2	4.100	23.400.000	3,099
27	5004	Nasice	Našička River	3	20.000	43.472.000	5,758
28	1073	Nin	Vir Sea	2	67.000	91.111.000	12,068
29	6051	Nova Gradiska	Šumetlica	3	30.000	66.950.000	8,868
30	5057	Novo Selo na Dravi	Drava HPP tailrace canal	2	5.000	29.783.000	3,945

WWTPs in Croatia



	Agglomeration ID	Agglomeration	Receiving water body	WWTP - Planned level of treatment	WWTP - Planned capacity	Total investment price (65% of total investment)	Investment (EU part) in EUR mln
31	1080	Omislj	Kvarner Bay	2	13.300	27.365.000	3,625
32	1081	Opatija-Lovran	Kvarner Bay	2	58.300	75.193.000	9,959
33	7012	Osijek	Drava River	3	170.000	.000	0,000
34	4063	Petrinja	Kupa River	3	30.250	76.700.000	10,159
35	6061	Pleternica	Orlava River	3	15.000	54.275.000	7,189
36	1094	Porec-Jug	Western coast of Istria	3	48.000	.000	0,000
37	1095	Porec-Sjever	Western coast of Istria	3	37.000	.000	0,000
38	6064	Pozega	Orlava River	3	67.000	86.450.000	11,450
39	1107	Pula-Centar	Western coast of Istria	2	98.000	191.110.000	25,313
40	1109	Punat	Kvarner Bay	2	15.000	31.525.000	4,175
41	1116	Rijeka	Kvarner Bay	2	350.000	428.631.000	56,772
42	101105	Rovinj	Western coast of Istria	3	64.900	91.195.000	12,079
43	4002	Rugvica	Sava River	3	50.000	127.988.000	16,952
44	4011	Samobor	Rakovica	3	40.000	196.290.000	25,999
45	1121	Savudrija	Western coast of Istria	3	32.400	48.149.000	6,377
46	1124	Sibenik	Zlarin Strait	2	100.000	94.835.000	12,561
47	1126	Sinj	Cetina River	3	30.000	107.250.000	14,205
48	4071	Sisak	Sava River	3	60.000	.000	0,000
49	6077	Slavonski Brod	Sava River	3	80.000	.000	0,000
50	5129	Spisic Bukovica	Lendava	2	4.500	15.366.000	2,035
51	1131	Split-Solin	Brač Strait	2	305.000	241.479.000	31,984
52	1156	Umag	Western coast of Istria	3	35.000	60.792.000	8,052
53	5035	Varazdin	Drava River	3	210.000	570.700.000	75,589
54	4010	Velika Gorica	Sava River	3	90.000	155.740.000	20,628
55	7050	Vinkovci	Bosut River	3	63.000	42.250.000	5,596
56	5132	Virovitica	Manteč	3	25.000	49.634.000	6,574
57	1165	Vodice	Kaprije Strait	2	44.000	152.551.000	20,205
58	4089	Vrbovec	Luka-Lonja	3	30.000	92.560.000	12,260
59	1169	Vrsar	Western coast of Istria	3	22.500	.000	0,000

WWTPs in Croatia



	Agglomeration ID	Agglomeration	Receiving water body	WWTP - Planned level of treatment	WWTP - Planned capacity	Total investment price (65% of total investment)	Investment (EU part) in EUR mln
60	7081	Vukovar	Danube River	3	41.200	.000	0,000
61	4090	Zabok	Krapina River	3	35.000	161.395.000	21,377
62	1171	Zadar	Zadar Strait	2	200.000	70.861.000	9,386
63	4008	Zagreb	Sava River	3	1.500.000	1.564.021.000	207,155
64	4009	Zapresic	Sava River	3	115.000	284.249.000	37,649
65	7053	Zupanja	Sava River	3	17.000	46.475.000	6,156
66	101390	Bibinje-Sukosan	Zadar Strait	2	25.000	65.000.000	8,609
67	1006	Biograd	Pašman Strait	2	54.000	31.980.000	4,236
68	4007	Glavnicica	Kašina	3	12.000	69.246.000	9,172
69	5017	Ivanec	Bednja	3	16.000	89.375.000	11,838
70	4039	Jastrebarsko	Sabirni kanal	3	14.000	50.050.000	6,629
71	101207	Jelsa-Vrboska	Hvar Strait	2	35.700	88.400.000	11,709
72	3068	Labin	Krapanj	3	15.000	46.488.000	6,157
73	1058	Makarska	Hvar Strait	2	40.000	.000	0,000
74	1060	Mali Losinj	Kvarner Bay	2	23.000	39.910.000	5,286
75	1062	Malostonski zaljev	Mljet Strait	2	41.000	51.726.000	6,851
76	1066	Medulin	Kvarner Bay	2	21.000	81.770.000	10,830
77	1067	Metkovic	Neretva River	3	20.000	96.265.000	12,750
78	5056	Mursko Sredisce	Mura River	3	19.000	.000	0,000
79	1074	Novalja	Kvarner Bay	2	19.500	42.835.000	5,674
80	1076	Novigrad Istarski	Western coast of Istria	3	33.000	57.460.000	7,611
81	4060	Novska	Novska	3	13.000	25.087.000	3,323
82	1088	Pirovac-Tisno-Jezera	Murter Sea	2	27.000	75.953.000	10,060
83	2005	Plitvicka jezera	Korana River	3	15.000	150.800.000	19,974
84	1108	Pula-Sjever	Western coast of Istria	2	29.300	56.406.000	7,471
85	1111	Rab	Kvarner Bay	2	22.000	39.650.000	5,252
86	5123	Slatina	Kurjakuša	3	34.500	42.705.000	5,656
87	101058	Vela Luka	Korčula Strait	2	27.000	41.990.000	5,562
88	4014	Velesevec	Sava River	3	22.700	115.923.000	15,354
89	1163	Vir	Vir Sea	2	62.000	130.000.000	17,219
90	1178	Zupa Dubrovačka	Adriatic Sea	2	33.300	130.708.000	17,312
91		Pitomača		2	15.000	28.860.000	3,823



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THANK YOU FOR YOUR ATTENTION!