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Environmental statistics

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Wastewater discharged in the Republic of Serbia, 2011

– Preliminary data –

The data represent the preliminary results of the survey on wastewater discharged with the wastewater collecting system. The tables present 2011 data on wastewater by origin and wastewater by treatment methods.

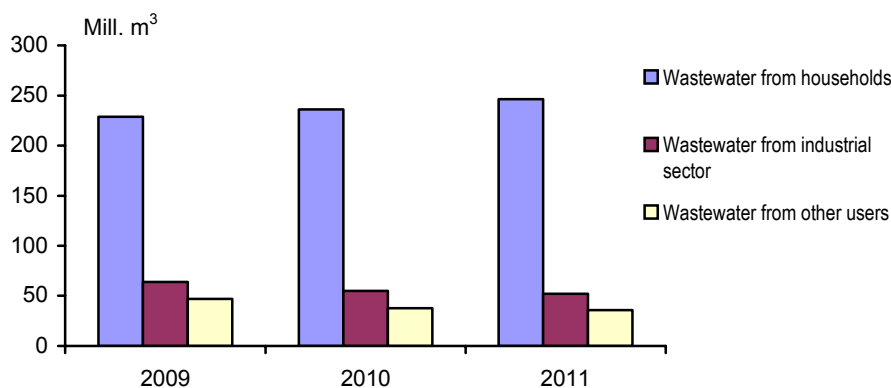
Total quantity of wastewater in 2011 increased by 1.1% compared to the referent period 2010, out of which wastewater discharged in municipalities with wastewater collecting system increased by 1.7% relative to 2010 and in municipalities without wastewater collecting system, discharged wastewater decreased by 6.9% compared to 2010.

In 2011, regarding the municipalities with wastewater collecting system, discharged wastewater of households increased by 4.4% relative to 2010, industrial sector produced 5.1% less wastewater, while discharged wastewater of other users decreased by 5.8% relative to same period in 2010.

In 2011, treated wastewater increased by 9.6% compared to 2010 and the most frequently applied method was secondary treatment.

Starting from 1999 the Statistical Office of the Republic of Serbia has not at disposal and may not provide available certain data relative to AP Kosovo and Metohia and therefore these data are not included in the coverage for the Republic of Serbia (total).

Graph 1. Discharged water in the Republic of Serbia, by origin, 2009–2011



1. Wastewater in the Republic of Serbia, by origin¹⁾, 2011

Republic of Serbia

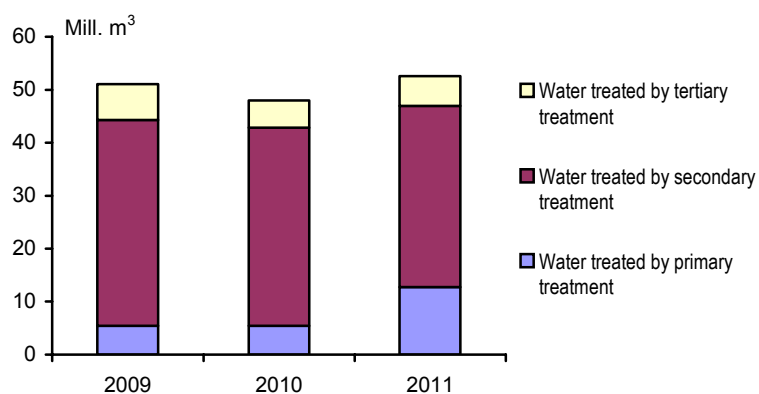
	Total wastewater, thous. m ³	Wastewater from municipalities with wastewater collecting system, thous. m ³				Wastewater from municipalities without wastewater collecting system ³⁾ , thous. m ³	Number of households connected to wastewater collecting network
		Total	From households	From industrial sector	From other users ²⁾		
Total	356 254	334 265	246 506	52 090	35 669	21 989	1 389 373
Serbia – North	198 526	181452	131 520	31 412	18 520	17 074	785 551
Region of Belgrade	119 491	119481	83 437	24 615	11 429	10	478 957
Region of Vojvodina	79 035	61971	48 083	6 797	7 091	17 064	306 594
Serbia – South	157 728	152813	114 986	20 678	17 149	4 915	603 822
Region of Šumadija and West Serbia	97 991	94514	71 468	12 504	10 542	3 477	356 347
Region of South and East Serbia	59 737	58299	43 518	8 174	6 607	1 438	247 475

¹⁾ Preliminary data.

²⁾ Other users include water from enterprises from the following divisions: agriculture, forestry, fishing, hospitals, schools, hotels, restaurants and other public utilities, other public water supply systems, as well as water for own consumption

³⁾ Wastewater from municipalities without wastewater collecting system is estimated as 90% of water quantities distributed to those municipalities.

Graph 2. Treated wastewater in the Republic of Serbia, by treatment method, 2009–2011



2. Wastewater in the Republic of Serbia, by treatment methods¹⁾, 2011

Republic of Serbia

	Treated wastewater quantity, thous. m ³				Wastewater discharged from municipalities with wastewater collecting system, thous. m ³	Share of treated wastewater in total wastewater discharge, %
	Total	Primary treatment	Secondary treatment	Tertiary treatment		
Total	52 599	12 734	34 235	5 630	334 265	15.7
Serbia – North	15 368	1 951	7 923	5 494	181 452	8.5
Region of Belgrade	–	–	–	–	119 481	–
Region of Vojvodina	15 368	1 951	7 923	5 494	61 971	24.8
Serbia – South	37 231	10 783	26 312	136	152 813	24.4
Region of Šumadija and West Serbia	32 880	10 580	22 300	–	94 514	34.8
Region of South and East Serbia	4 351	203	4 012	136	58 299	7.5

¹⁾ Preliminary data

3. Wastewater, 2009–2011

Republic of Serbia

	2009	2010	2011 ¹⁾
Total urban wastewater, thous. m ³ ²⁾	364 896	352 211	356 254
Wastewater from municipalities with wastewater collecting system, thous. m ³	339 852	328 582	334 265
From households	228 953	236 011	246 506
From industrial sector	63 958	54 905	52 090
From other users ³⁾	46 941	37 666	35 669
Treated urban wastewater, thous. m ³	51 051	48 011	52 599
Primary treatment	5 451	5 456	12 734
Secondary treatment	38 830	37 411	34 235
Tertiary treatment	6 770	5 144	5 630
Wastewater collecting network			
Total length of wastewater collecting network, km	13 856	14 144	14 371
Main collectors	2 110	2 233	2 341
Collecting networks	11 746	11 911	12 030
Number of households connected to wastewater collecting network	1 319 380	1 359 385	1 389 373

¹⁾ Preliminary data

²⁾ Other users include water from enterprises from the following divisions: agriculture, forestry, fishing, hospitals, schools, hotels, restaurants and other public utilities, other public water supply systems, as well as water for own consumption

³⁾ Wastewater from municipalities without wastewater collecting system is estimated as 90% of water quantities distributed to those municipalities.

Methodological explanations

Data on wastewaters and treated waters are collected from the reporting units that manage wastewater collecting systems. Activity of the reporting units is defined in the following sections: Water supply, sewerage, waste management and remediation activities (division 36 – Water collection, treatment and supply and division 37 – Sewerage) and sector Public administration and defence (group 8411 – Public administration activity, vs. local communities regulating large rural water supply and wastewater collecting systems), according to the Classification of Activities.

Regarding the geographical aspect, the survey encompasses enterprises that perform their activities on the whole territory of the Republic of Serbia.

Data are collected by the reporting method, meaning that the reporting unit completes the questionnaire based on its available documentation and records. In case the respective documentation and records are not available, experts provide estimations based on wastewater collecting system functioning, equipment and characteristics of the network and supporting facilities for wastewater treatment. The completed questionnaire is delivered by the reporting unit to the competent statistical authority on the territory of the enterprise's head office.

Wastewater is water which is, after use, treated as wastewater and transported to treatment plant or let out into recipient (underground or surface water). Wastewater quantities do not include atmospheric water. Quantities of wastewater are determined by water meter or are estimated according to regulations related to the particular activity group.

Treatment of wastewater means water purification from hazardous and harmful substances and radio-nuclides contained, thus making water innocuous for further use.

Primary treatment is treatment of wastewater by a physical and/or chemical process involving collecting of suspended solids, or other process in which the BOD₅⁴⁾ of the incoming wastewater is reduced by at least 20% before discharge and the total suspended solids of the incoming wastewater are reduced by at least 50%.

Secondary treatment is treatment of wastewater by a process generally involving biological treatment with a secondary settlement or other processes, resulting in a BOD removal of at least 70% and a COD⁵⁾ removal of at least 75%.

Tertiary treatment is continuation of secondary treatment of nitrogen and/or phosphorous and/or any other pollutant affecting the quality or a specific use of water: microbiological pollution, color etc. The following minimum treatment efficiencies define tertiary treatment: organic pollution removal of at least 95% for BOD and 85% for COD, and at least one of the following- nitrogen removal of at least 70%, phosphorus removal of at least 80% and microbiological removal achieving a faecal coli form density less then 1000 in 100 ml.

More detailed methodologies are available on the website of the Office: <http://webrzs.stat.gov.rs/WebSite/userFiles/file/Zivotna%20sredina/SMET8/SMET0110VKC.pdf>.

⁴⁾ BOD₅ – Biological Oxygen demand after five days
⁵⁾ COD – Chemical Oxygen demand in KMnO₄