



Smart policies, strong utilities, sustainable services

WATER AND WASTEWATER SERVICES IN THE DANUBE REGION

SLOVENIA SLOVENIA COUNTRY NOTE

A State of the Sector | May 2015

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KEY WATER AND SANITATION SECTOR CHALLENGES

- Increasing the rehabilitation of the water infrastructure and improving its reliability. Although there has been much progress in the replacement and rehabilitation of the water and sanitation infrastructure, water losses in some utilities remain very high, evidence that more replacement work is needed. In addition, the hydrological drought of 2011–2012 proved that numerous water supply systems may experience serious problems in case of prolonged drought.
- Improving monitoring and reporting practices. The only effective monitoring system currently is the water quality monitoring scheme. There are no other utility performance monitoring and reporting systems, such as on water balance, water losses, and nonrenewable water. This makes monitoring of improvements in operational efficiency and sound economic management of water utilities almost impossible.



FURTHER RESOURCES

On water services in the Danube Region

- A regional report analyzing the State of Sector in the region, as well as detailed country notes for 15 additional countries, are available at SoS.danubis.org
- > Detailed utility performance data are accessible, if available, at www.danubis.org/eng/utility-database



On water services in Slovenia

The following documents are recommended for further reading; the documents, and more, are available at www.danubis.org/eng/country-resources/slovenia

- Filippini, M., N. Hrovatin, and J. Zoric. 2008. "Cost Efficiency of Slovenian Water Distribution Utilities: An Application of Stochastic Frontier Methods." *Journal of Productivity Analysis* 29 (2), 169-182.
- ▶ TC Vode. 2013. Market Sector Scan of Water Management of Slovenia. Ljubljana: TC Vode.

This note has been prepared by Maria Salvetti, consultant, with the support of Stjepan Gabric, World Bank, based on the data collection by Primoz Banovec, local consultant. It is part of a regional State of the Sector review led by David Michaud, World Bank, under the Danube Water Program financed by the Austrian Ministry of Finance, whose support is gratefully acknowledged. The authors welcome comments and can be contacted through David Michaud (dmichaud@worldbank.org).

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WATER SNAPSHOT

Sources for all numbers in the snapshot are provided in full in the body of this country page; a complete description of the methodology is provided in the State of the Sector Regional Report, at SoS.danubis.org.

	Value	Year	Danube average	Danube best practice
Context	for Serv	vices		
GDP per capita, PPP [current international \$]	28,298	2013	16,902	n.a.
Population [M. inh]	2.060	2013	8.451	n.a.
Poverty headcount ratio [\$2.50 a day [PPP] [% of pop]]	0.01	2011	1.65	n.a.
Local government units [municipalities]	212	2014	1,987	n.a.
For which, average size [inh]	9,719	2013	4,253	n.a.
Total renewable water availability [<i>m³/cap/year</i>]	15,411	2008- 2012	7,070	n.a.

Organization of Services

-					
Number of formal water service providers	98	2014	661	n.a.	
Average population served	18,502	2013	9,496	n.a.	
Water services law?		Ye	es		
Single line ministry?	Yes [Ministry of Environment and Spatial Planning]				
Regulatory agency?	No				
Utility performance indicators publicly available?	Yes [www.ijsvo.si]				
Major ongoing reforms?		Ν	lo		

Access to Services

Access to piped water (%)	99	2012	83	100
Access to flush toilet (%)	99	2012	79	99

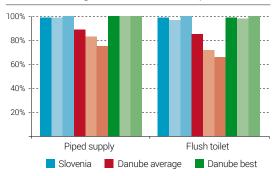
Service continuity [hours/day]	24	2013	20	24
Nonrevenue water [<i>m³/km/d</i>]	7	2011	35	5
Water utility performance index [WUPI]	80	n.a.	69	94

Performance of Services

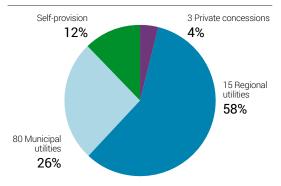
Financing of Services

Operating cost coverage	1	2013	0.96	1.49
Average residential tariff [€/m³]	2.14	2013	1.32	n.a.
Share of potential WSS expen- ditures over average income [%]	0.8	2012	2.6	n.a.
Average annual investment [€/cap/year]	51	n.a.	23	n.a.

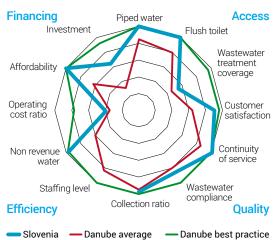
Access to services: average, bottom 40% and poor



Sector Structure



Sustainability Assessment



Based on normalized indicators, closer to the border is better

Sector	ainability	Danube	Danube best
Sustainability		Average	practice
Assessment	84	64	96

CONTEXT FOR SERVICES

Indicator	Year	Source	Value	EU MS average	Danube average	Danube best				
Socioeconomic Situation										
Population [M. inhabitants]	2013	World Bank 2015	2.060	8.481	8.451	n.a.				
Population growth [compound growth rate 1990 – 2013] [%]	1990- 2013	World Bank 2015	0.13	-0.26	-0.37	n.a.				
Share of urban population [%]	2013	World Bank 2015	50	63	63	n.a.				
GDP per capita, PPP [current international \$]	2013	World Bank 2015	28,298	24,535	16,902	n.a.				
Poverty headcount ratio [\$2.50 a day [PPP] [% of pop]]	2011	World Bank 2015	0.01	1.86	1.65	n.a.				
Adr	ninistrati	ve Organizat	ion							
No. of local government units [municipalities]	2014	SOS 2015	212	2,335	1,987	n.a.				
Av. size of local government units [inhabitants]	2013	Authors' elab.	9,719	3,632	4,253	n.a.				
	Water I	Resources								
Total renewable water availability [m³/cap/year]	2008- 2012	FAO Aquastat 2015	15,411	10,142	7,070	n.a.				
Annual freshwater withdrawals, domestic [% of total withdrawal]	2013	World Bank 2015	18	38	26	n.a.				
Share of surface water as drinking water source	2014	ICPDR 2015	3	16	31	n.a.				

Economy. Slovenia has been an EU member since 2004 and has one of the highest per capita GDPs in Central

Europe. Slovenia has experienced one of the most stable political transitions in Central and South-Eastern Europe. However, long-delayed privatizations and an increasingly indebted banking sector have fueled investor concerns since 2012. The 2008–2009 economic crisis hit Slovenia especially hard in the real estate and construction sectors, and the unemployment rate rose to 13% in 2014, according to the Slovenia Statistical Office (SURS 2015). The country's 2 million inhabitants are evenly distributed between urban and rural areas, but there are regional disparities between the wealthier and more developed central and western regions and the less developed eastern regions.

Governance. Public administration is organized at the national and municipal levels. Slovenia is a parliamentary republic composed of 212 municipalities. Local self-government units perform activities such as local spatial planning and development and provision of local public services including water and wastewater services.

Water resources. Slovenia has good-quality and sufficient water resources. Eighty-one percent of the Slovenian territory belongs to the Black Sea basin, and the rest is part of the Adriatic Sea basin (ICPDR 2010). With 15,411 m³/ capita/year, there are sufficient quantities of water on average in Slovenia, and most of it is in a good ecological state. However, agriculture has had a severe impact on groundwater quality, and there is a concern about the decreasing groundwater level in certain areas due to overabstraction. Industrial and domestic pollution of surface water is present in the Sava River and in coastal waters, where heavy metals and toxic chemicals threaten water quality. Runoff and river flow characteristics have changed significantly due to urbanization, transportation, and construction of hydropower plants. As a result, floods, especially flash floods due to hilly terrain, are more frequent and more intense, causing extensive material damage to infrastructure (including water and wastewater assets) and concerning more than 15% of the country's territory (ICPDR 2010). Due to the increasing concentration of population located at the bottom of basins and broad valleys (where almost two-thirds of Slovenes reside), a significant share of the population now lives in areas exposed to floods. This is the case for both rural and urban settlements. Climate change is expected to reinforce flood and drought frequency and amplitude. However, no action plan has been implemented.

Water supply sources. Drinking water supply relies almost exclusively on groundwater. Surface water is predominantly used for the production of electric energy in hydroelectric power stations, while groundwater provides 97% of the raw water for potable public supply (ICPDR 2015). Industry is another significant user of water. Only a



small share of water consumption is used for agriculture, tourism, services, and fish farming. The major source of surface water pollution comes from point sources (emissions from industrial and communal wastewaters and rainwater from urbanized areas). In still or slow-flowing surface waters, the occurrence of eutrophication due to excessive amounts of nutrients is a significant problem. Groundwater is mostly susceptible to diffuse pollution from agriculture and urbanization, which is most pronounced in the very north-eastern part of Slovenia. Critical pollutants significantly contributing to this pollution are desetilatrazine, nitrates, and atrazine. Concentrations of atrazine and desetilatrazine are generally declining, however, due to the ban on their use (ICPDR 2010). Karstic characteristics of more than one-third of the Slovene territory result in specific management issues for water utilities, such as turbidity and risks of microbiological contamination in case of intensive precipitation or difficulties managing drinking water protection zones (ICPDR 2010).

ORGANIZATION OF SERVICES

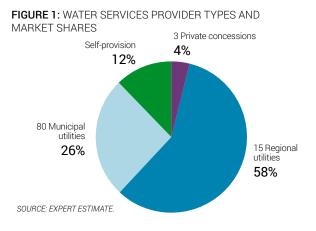
Indicator	Year	Source	Value	EU MS average	Danube average	Danube best
Number of formal water service providers	2014	Expert estimate	98	1,060	661	n.a.
Average population served [inhabitants]	2013	Authors' elab.	18,502	6,643	9,496	n.a.
Dominant service provider type		Local /	municipal util	ity companie	es	<u>.</u>
Service scope		1	Water and sar	nitation		
Ownership	Municipality					
Geographic scope		One	e to a few mur	nicipalities		
Water services law?			Yes			
Single line ministry?		Yes [Ministry of	f Environment	and Spatial	Planning]	
Regulatory agency?			No	-	-	
Utility performance indicators publicly available?			Yes [www.ijs	svo.si]		
National utility association?	Ye	s [CCIS Chamber	of commerce	e with extens	sive coverage	e]
Private sector participation			4 concessi	ons		

Service provision. Local government units provide water and sanitation services through 98 utilities. Fifteen

regional water and sanitation utilities serve 58% of the population. Eighty medium and small municipal water utilities serve about 26% of the population. The rest of the population, mainly located in rural areas, relies on selfprovision (12%). Three private operators provide water and sanitation services to 7 municipalities (Figure 1).

Policy-making and sector institutions. The regulation of the water sector is centralized at the national level.

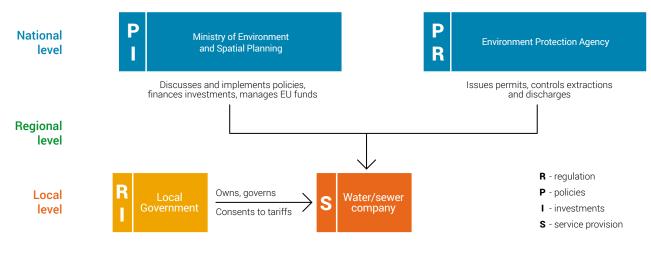
There are two national entities in charge of water sector regulation in Slovenia (Figure 2):



- The Ministry of Environment and Spatial Planning, which is the line ministry responsible for water sector policy development and implementation. It is in charge of regulatory benchmarking, and finances investments and manages EU Cohesion Funds (MOP 2015a).
- The Environment Protection Agency, which is responsible for issuing water abstraction permits and for water resources management and allocation. It is also responsible for monitoring water resources quality and quantity, collecting water abstraction and pollution taxes, and protecting drinking water intake zones (ARSO 2015).



FIGURE 2: WATER SERVICES SECTOR ORGANIZATION



SOURCE: AUTHORS' ELABORATION

Capacity and training. Staff capacity building and training is an important issue in the water sector. Water services management staff is appointed by municipal representatives, and political influence is exerted on the utility management board. However, turnover according to political cycles is not necessarily the rule. Staff training has mainly been driven by individual initiatives from water utilities, which are largely undocumented and one-off. The lack of well-trained technical and financial personnel has led to inefficiency in the technical operations and financial management of some water utilities. Thus, there is room for improvement of staff training and for development of staff capacity in the water sector. The national water association does not currently provide training or technical assistance to water stakeholders.

Economic regulation. Local government units are in charge of service quality and tariff setting. The water sector in Slovenia is regulated through a public self-regulated model, since there is no national regulatory agency. A partial benchmarking approach has been adopted by the Ministry of Environment, but it is not being used as an economic regulatory tool (MOP 2015a). Service quality and tariff setting are the responsibility of municipalities, which must follow a mandatory methodology spelled out in a decree issued in January 2013. This new pricing mechanism is based on the cost recovery principle. Tariffs are revised on an annual basis by utilities and must be approved by municipal councils. Prior to this decree, water tariffs were controlled by the central government and were kept very low.

Ongoing or planned reforms. There has recently been little change in the water supply sector. Many water utilities in urban areas have been in continuous operation for more than a century. After the transition process in the 1990s, the number of municipalities increased from 60 to 212, and the number of water services increased to 98 utilities. Prompted by the EU integration process,¹ large investments were made to improve wastewater collection and treatment, and to a lesser extent to enhance water supply. Currently, however, there are no significant institutional reforms ongoing in the sector.

¹ The EU integration process is still active, since final deadlines for the Urban Wastewater Treatment Directive are in 2015.



ACCESS TO SERVICES

Indicator	Year	ar Source Value		EU MS average	Danube average	Danube best				
Water Supply										
Piped supply – average [%]	2012	Authors' elab.	99	91	83	100				
Piped supply – bottom 40% [%]	2012	Authors' elab.	99	85	76	100				
Piped supply – below \$2.50/day [PPP] [%]	2012	Authors' elab.	100	77	61	100				
Including from public supply – average [%]	2013	MOP 2015b	88	83	74	99				
	Sanitatio	n and Sewera	age	•	•					
Flush toilet – average [%]	2012	Authors' elab.	99	83	79	99				
Flush toilet – bottom 40% [%]	2012	Authors' elab.	98	74	70	98				
Flush toilet – below \$2.50/day [PPP] [%]	2012	Authors' elab.	100	63	54	100				
Including with sewer – average [%]	2012	SURS 2015	58	67	66	94				
	Wastew	ater Treatme	nt		*	<u>.</u>				
Connected to wastewater treatment plant [%]	2013	SURS 2015	54	62	45	95				

Service coverage. Slovenians have full access to water services. Ninety-nine percent of the Slovenian population has access to piped water and flush toilets (Figure 3). Eighty-eight percent has access to public piped water supply and 58% to piped sewer systems. Only 54% of wastewater discharged from sewage systems is treated.

Equity of access to services. Marginalized groups have fairly good access to water

supply and sanitation facilities. Indeed, 100% of the poorest share of the population (living on less than \$2.50 a day) reportedly has access to piped water and flush toilets, although no specific study about service coverage of ethnic minorities has been performed.

Data Availability

There are almost no data available on the efficiency of water utilities. As a result, it is difficult to assess the overall performance of the sector.

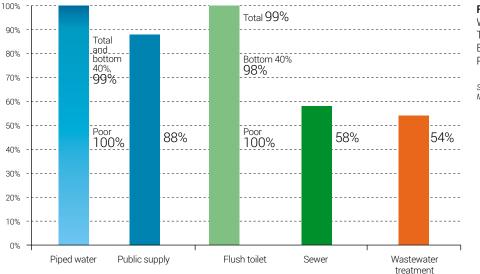


FIGURE 3: ACCESS TO WATER AND SANITATION: TOTAL POPULATION, BOTTOM 40% OF THE POPULATION AND POOR

SOURCE: AUTHORS' ELABORATION, MOP 2015B AND SURS 2015.



Service infrastructure. One-fourth of the Slovenian water network was installed before 1920. From 2000 to 2010, the rehabilitation of water supply systems was boosted by EU grants and funding specifically dedicated to water infrastructure improvement. Slovenian water pipes are made of polyethylene high-density (PEHD) (53%), of polyvinyl chloride (PVC) (10%), cast iron (8%), or asbestos and cement (10%). This latter material (now discarded in modern water systems) is liable to cracking and leakage. Among the 486 water treatment plants, 72% rely on chlorine disinfection and 13% on mechanical and chemical treatment.

Value	Va	lue	Year	Source	
value	Water	Wastewater	real	Source	
Number of treatment plants	486	304	2013/2011	Expert estimate & Eurostat 2014	
Length of network [km]	22,655	8501	2013	SURS 2015	
Average connections per km of network	20	31	2013	SURS 2015	

PERFORMANCE OF SERVICES

Service Quality

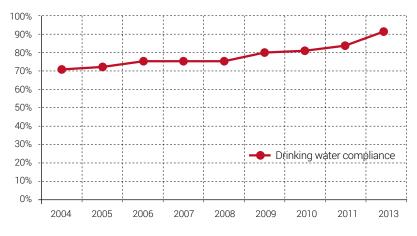
Indicator	Year	Source	Value	EU MS average	Danube average	Danube best
Residential water consumption [liters/capita/day]	2014	SURS 2014	114	113	122	n.a.
Water supply continuity [hours/day]	2013	Expert estimate	24	24	20	24
Drinking water quality [% of samples in full compliance]	2013	ARSO 2015	92	96	93	99.9
Wastewater treatment quality [% of samples in full BOD5 compliance]	2011	Eurostat 2014	83	79	79	100
Sewer blockages [number/km/year]	-	-	_	3.0	5.0	0.2
Customer satisfaction [% of population satisfied with services]	2013	Gallup 2013	90	78	63	95

Quality of service. Drinking water quality in Slovenia improved during 2004–2013 for both microbiological and chemical parameters. The compliance rate has steadily increased over the last decade to 92% in 2013 (Figure 4). However, there are still some potable water quality issues in small settlements. Average water consumption is 114 liters per day and service is continuous throughout the day.

Customer satisfaction. The satisfaction of the population with the service provided in their city is very high, at 90% (Gallup 2013), higher than in most countries in the region.



FIGURE 4: EVOLUTION OF NONREVENUE WATER AND COLLECTION RATIO



SOURCE: ARSO 2015.

Efficiency of Services

Indicator	Year	Source	Value	EU MS average	Danube average	Danube best
Nonrevenue water [%]	2011	SURS 2012	31	34	35	16
Nonrevenue water [<i>m³/km/day</i>]	2011	SURS 2012	7	14	35	5
Staff productivity [water and wastewater] [number of employees/1,000 connections]	-	-	-	8.7	9.6	2.0
Staff productivity [water and wastewater] [number of employees/1,000 inh. served]	-	-	-	1.0	1.7	0.4
Billing collection rate [cash income/billed revenue] [%]	2013	Expert estimate	97	102	98	116
Metering level [metered connections/connections] [%]	2013	Expert estimate	95	96	84	100
Water Utility Performance Index [WUPI]	n.a.	Authors' elab.	80	80	69	94

Overall efficiency. Because there are few data on efficiency, a proper assessment of the efficiency of the water sector cannot be made. However, we can say that in 2012, nonrevenue water amounted to 31% or 7 m3/day/km, in line with most countries in the region. The metering level is high at 95%. There are no data regarding staff productivity.

Recent trends. The evolution of the efficiency of the water sector cannot be analyzed due to lack of data. No information regarding the evolution of the efficiency of utilities is available. The water sector needs to be better assessed and monitored in order to monitor future improvement in efficiency.



FINANCING OF SERVICES

Sector Financing

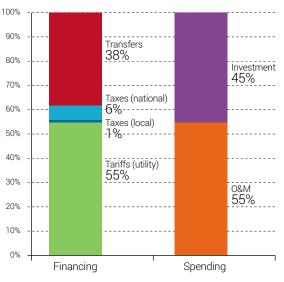
Indicator	Year	Source	Value	EU MS average	Danube average	Danube best					
Sources of Financing											
Overall sector financing [€/capita/year]	Authors' elab.		113	101	62	n.a.					
Overall sector financing [share of GDP] [%]	Authors' elab.		0.55	0.55	0.45	n.a.					
Percentage of service cost financed from tariffs	Authors' elab.		55	65	67	n.a.					
Percentage of service cost financed from taxes	Authors' elab.		7	10	13	n.a.					
Percentage of service cost financed from transfers	Authors' elab.		38	25	20	n.a.					
	Service	Expenditur	e								
Average annual investment [share of overall sector financing] [%]	Authors' elab.		45	42	38	n.a.					
Average annual investment [€/capita/year]	Authors' elab.		51	42	23	n.a.					
Estimated investment needed to achieve targets [€/capita/year]	2007-2013	GHK 2006	114	65	43	n.a.					
Of which, share of wastewater management [%]	Authors' elab.		72	64	61	n.a.					

Overall sector financing. Tariffs only cover

operation and maintenance costs (Figure 5). Investments, which represent less than half of sector costs, are mainly funded by EU funds and are augmented by subsidies from national and municipal budgets. Seventy-two percent of investments go to sanitation projects and 28% to waterworks.

The main sources of funding of water and wastewater utilities are described in Figure 6 using the OECD three Ts methodology (tariffs, transfers, and taxes).

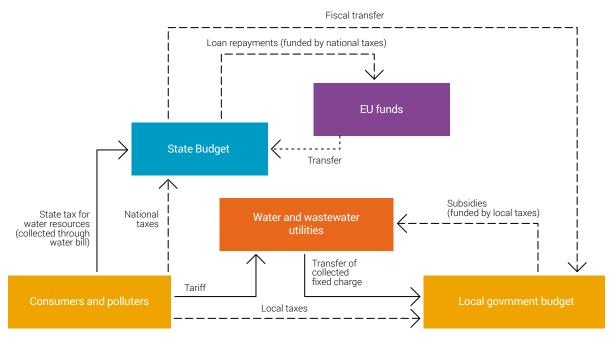
FIGURE 5: OVERALL UTILITY SECTOR FINANCING, 2012



SOURCE: AUTHORS' ELABORATION.



FIGURE 6: MAIN SOURCES OF FUNDING OF WATER & WASTEWATER SERVICES



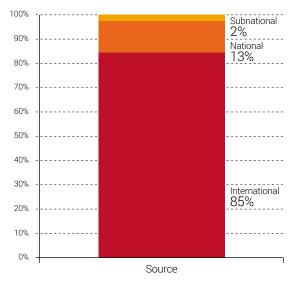
SOURCE: AUTHORS' ELABORATION.

Investment needs. To meet investment needs, the annual per capita capital expenditure would have to triple. At present, investments are needed for the renovation of existing water infrastructure and to reduce water leakage. In the Operational Program for Urban Waste Water Drainage and Treatment, the investments in wastewater management from all financial sources (EU funds, the national budget, the local community budget, and the environmental water pollution tax) for 2009–2015 are estimated at around €1.6 billion, or approximately €266 million per year or €114 per capita per year.

Investments. Current investments in the water and sanitation infrastructure mainly rely on EU Cohesion

Funds. In Slovenia, regional policy and measures are implemented by 12 regional development agencies within the framework of the Operational Programme for Strengthening Regional Development Potentials (OPSRDP) (SVRK 2007a). The country is also entitled to receive EU Cohesion Funds under the framework of Operational Programme of Environment and Transport Infrastructure Development (OPETID) (SVRK 2007b). In addition to these programs and associated funding, a Water Fund, managed by the Ministry of Environment and receiving its funds from water resources rights, can be used to finance investments in water infrastructure; construction of public and local infrastructure to meet water infrastructure requirements; and for intermunicipal and regional projects for the purpose of constructing facilities for the pumping, filtering, and capturing of water for construction of movable water distribution systems for drinking water supply.

FIGURE 7: INVESTMENT SOURCES, 2012



SOURCE: AUTHORS' ELABORATION.



From 2007 to 2013, \in 555 million (\notin 462 million from the OPETID, comprised of \notin 393 million from EU funds and \notin 69 million from the national budget), and \notin 93 million from OPSRDP (comprised of \notin 77.5 million from EU funds and \notin 15.5 million from local contributions) was available for water infrastructure investments, and \notin 187 million was available for water infrastructure investments, and \notin 133 million from OPETID), with an additional \notin 103 million from EU funds and \notin 30 million from the national budget. This represented an average capital expenditure of \notin 51 per capita per year (Figure 7). No information is available regarding how these grants were actually spent.

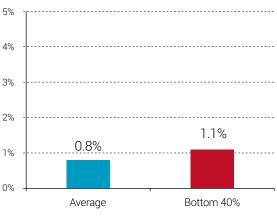
Cost Recovery and Affordability

Indicator	Year	Source	Value	EU MS average	Danube average	Danube best					
Cost Recovery											
Average residential tariff [incl. water and wastewater] [€/m³]	2013	Expert estimate	2.14	2.18	1.32	n.a.					
Operation and maintenance unit cost [ϵ/m^3]	Authors' elab.		1.69	1.77	1.20	n.a.					
Operating cost coverage [billed revenue/operating expense]	2013	Expert estimate	1	1.10	0.96	1.49					
	Affo	ordability									
Share of potential WSS expenditures over average income [%]	2012	Authors' elab.	0.8	3.1	2.6	n.a.					
Share of potential WSS expenditures over bottom 40% income [%]	2012	Authors' elab.	1.1	4.7	3.8	n.a.					
Share of households with potential WSS expenditures above 5% of average income [%]	2012	Authors' elab.	0.3	24.7	14.1	n.a.					

Cost recovery. Utilities only recover operation and maintenance costs through tariffs. With water tariffs controlled by the central government until January 2013, water utilities struggled to generate adequate revenues to cover their costs. According to the national legislation on water tariff setting, local government units can partially subsidize the water price using their municipal budget. However, this option is not often used.

Tariffs. Water tariffs are composed of a fixed and a variable fee and amount to an average of €2.14/m3. According to the January 2013 decree, the water tariff comprises a fixed charge for service availability, which is set depending on the meter diameter, and a volume charge proportionate to water consumption. This tariff structure is uniform for all categories of water users (households, public institutions, industry). However, in specific cases, very large industries can directly negotiate water tariffs with the local public provider. The average water price is €0.98/m3, including the fixed charge. The average sanitation price is €1.16/ m3, including the fixed charge. Water prices can vary depending on conditions under which the water is supplied in Slovenia's regions. Some areas benefit from abundant and qualitative water resources, which are supplied through a gravity conveyor system at very low production costs, whereas in other regions (especially karstic ones), water must be transported over long distances, with notable pumping costs and high potable treatment costs.

FIGURE 8: SHARE OF POTENTIAL AVERAGE WATER AND SANITATION EXPENDITURE IN INCOME



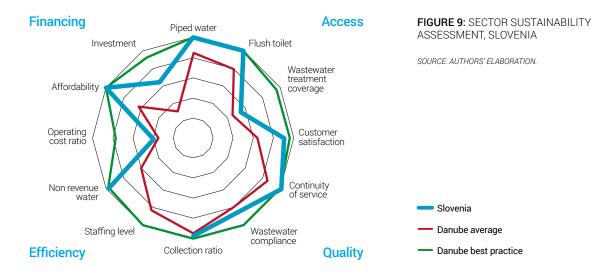
SOURCE: AUTHORS' ELABORATION.



Affordability. The water and sanitation tariff does not currently trigger any affordability issues. The share of water and wastewater expenses in average household income has remained stable over time at 0.8% in both 1996 and 2013. For the bottom 40%, potential water expenses are 1.1% of household income, which does not trigger an affordability issue at present (Figure 8).

WATER SECTOR SUSTAINABILITY AND MAIN CHALLENGES

To evaluate and reflect the sustainability of services in the region, an overall sector sustainability assessment was done, taking into account four main dimensions: access to services, quality of services, efficiency of services, and financing of services. Each of these dimensions is measured through three simple and objective indicators. For each indicator, best practice values are established by looking at the best performers in the region, and countries closest to those best performers are deemed to have a more mature sector. A more complete description of the methodology to assess the sector sustainability is included in the Annex of the State of the Sector Regional Report from the Danube Water Program. The outcomes of this assessment for the Slovenia water sector are displayed in Figure 9, which also shows average and best practices in the Danube region. The Slovenian sector sustainability score is 84, which is above the Danube average sustainability score of 64. The assessment shows that, on average, the country performs well in terms of access to piped water and flush toilets, affordability, continuity of service, customer satisfaction, nonrevenue water, and collection ratio. The main deficiencies of Slovenia's water sector identified through the sector sustainability assessment are wastewater treatment coverage, operating cost ratio, and investment level (Figure 9).



The main sector challenges are:

Increasing the rehabilitation of the water infrastructure and improving its reliability. Although there has been much progress in the replacement and rehabilitation of the water and sanitation infrastructure, water losses in some utilities remain very high, evidence that more replacement work is needed. The funding required must be secured. In addition, the hydrological drought of 2011–2012 revealed that numerous water supply systems may experience serious problems in case of prolonged drought. The reliability of the water supply under extreme hydrological conditions needs to be improved.



Improving monitoring and reporting practices. The only effective monitoring system currently is the water quality monitoring scheme. There are no other utility performance monitoring and reporting systems, such as on water balance, water losses, and nonrenewable water. This makes monitoring of and improvements in operational efficiency and sound economic management

of water utilities almost impossible.

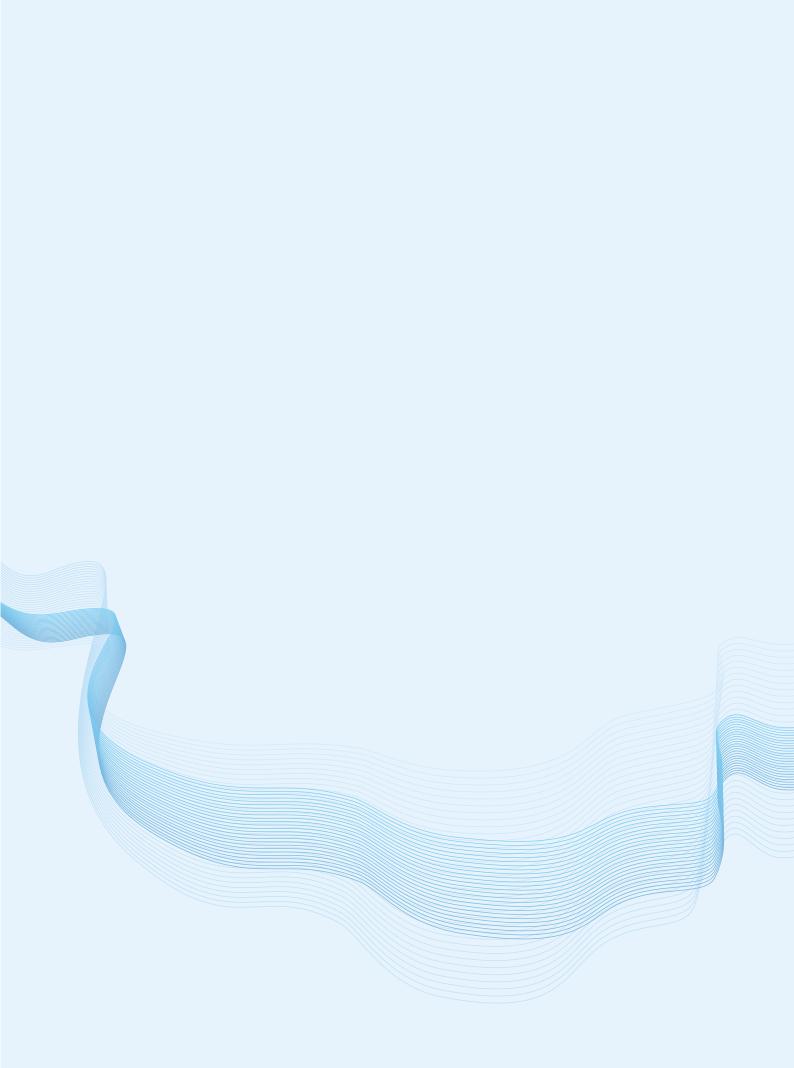
Slovenian Waters

In 2009, a public registry of water supply systems (called IJSVO) and a cadaster of public water supply infrastructure were developed. These tools are now in use and have improved the analytical information on the overall status of water supply in Slovenia. Thus, it is now possible to access information on water supply from the agglomeration level to the level of individual building and supply pipe. Improvements regarding data quality and validation are still necessary, but these registries are, nevertheless, key tools in the overall management of the water supply sector.

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Smart policies, strong utilities, sustainable services

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