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WATER AND WASTEWATER SERVICES IN THE DANUBE REGION

UKRAINE COUNTRY NOTE

A State of the Sector | May 2015

danube-water-program.org | danubis.org

KEY WATER AND SANITATION SECTOR CHALLENGES

- **Improving and clarifying the legal regulatory framework of the water sector.** Ukraine is one the 10 most energy-intensive economies in the world (IEA 2009). The National Commission for State Energy and Public Utilities Regulation, which regulates water operators, has only a limited political independence, which can jeopardize the effectiveness of its regulatory mission. Moreover, utilities serving more than 20,000 customers are supervised by various administrative bodies, which causes confusion and overlaps. From an economic development perspective, the administrative structure in Ukraine and the numerous water operators are not facilitating efficiency gains achievement (through economies of scale) and sustainability of water systems. Coordination between oblast, rayon, and rural levels, on the one hand, and water companies operating in rural areas on the other hand, is weak.
- **Ensuring tariff setting according to the cost recovery principle to improve overall efficiency.** Water tariffs are among the lowest in the region, and the affordability analysis shows that there would be space for increases without generating an unacceptable burden on households. With water tariffs being kept low for political reasons, water companies do not have enough financial resources to fund operations and capital investment. As a result, the sector has suffered from underinvestment and poor maintenance for decades.
- **Improving staff capacity and expertise.** Education and training of staff at all levels of water utilities are key to ensure long-lasting operational efficiency and sustainability of the water sector. Capacity and expertise of utility staff and local governments regarding legal interpretation, contractual arrangements, interactions among utility providers, tariff procedures, regulatory impact assessment, and external fund raising for infrastructure development are weak (KPC 2009).

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 Ukraine

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

- KPC. 2009. *Report on Measures to Cope with Over-fragmentation in the Water Wupply and Sanitation Sector.* Vienna: Kommunalkredit Public Consulting GmbH for the Organisation for Economic Co-operation and Development.
- Larive. 2014. *Market Study: Ukrainian Water Sector - Opportunities for Dutch Companies.* Zeist: Larive International.
- NKREKP. 2013. *Annual Report.* Kiev: National Commission for State Energy and Public Utilities Regulation, Ukraine.
- World Bank. 2006. Ukraine: *Addressing challenges in provision of heat, water and sanitation.* Washington, DC: World Bank.

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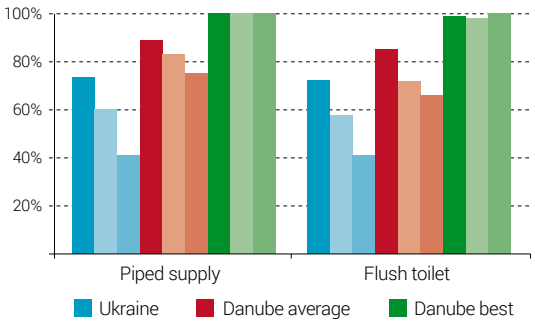
WATER SNAPSHOT

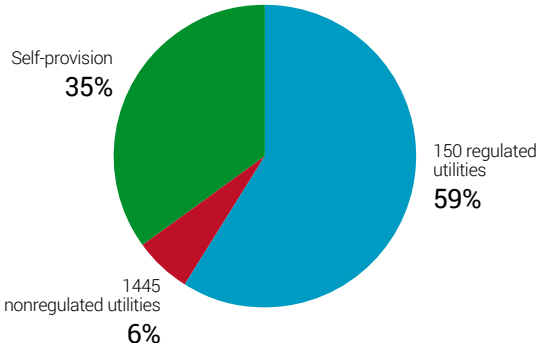
Sources for all numbers in the snapshot are provided in full in the body of this country page; a complete description of the methodology is provided in the State of the Sector Regional Report, at SoS.danubis.org.

	Value	Year	Danube average	Danube best practice
Context for Services				
GDP per capita, PPP *[current international $]*	8,788	2013	16,902	n.a.
Population *[M. inh]*	45.490	2013	8.451	n.a.
Poverty headcount ratio *[$2.50 a day [PPP] [% of pop]]*	0.14	2010	1.65	n.a.
Local government units *[municipalities]*	11,625	2015	1,987	n.a.
For which, average size *[inh]*	3,913	2013	4,253	n.a.
Total renewable water availability *[m³/cap/year]*	3,066	2008-2012	7,070	n.a.
Organization of Services				
Number of formal water service providers	1,595	2013	661	n.a.
Average population served	18,538	2013	9,496	n.a.
Water services law?	Yes			
Single line ministry?	*Yes [Ministry of Regional Development]*			
Regulatory agency?	*Yes [NEURC]*			
Utility performance indicators publicly available?	*No*			
Major ongoing reforms?	Regionalization of water supply and sanitation service provision is planned but not implemented yet			
Access to Services				
Access to piped water *(%)*	73	2010	83	100
Access to flush toilet *(%)*	72	2010	79	99
Performance of Services				
Service continuity *[hours/day]*	17	2012	20	24
Nonrevenue water *[m³/km/d]*	62	2013	35	5
Water utility performance index *[WUPI]*	59	n.a.	69	94
Financing of Services				
Operating cost coverage	0.74	2013	0.96	1.49
Average residential tariff *[€/m³]*	0.48	2013	1.32	n.a.
Share of potential WSS expenditures over average income *[%]*	1.9	2010	2.6	n.a.
Average annual investment *[€/cap/year]*	3	n.a.	23	n.a.

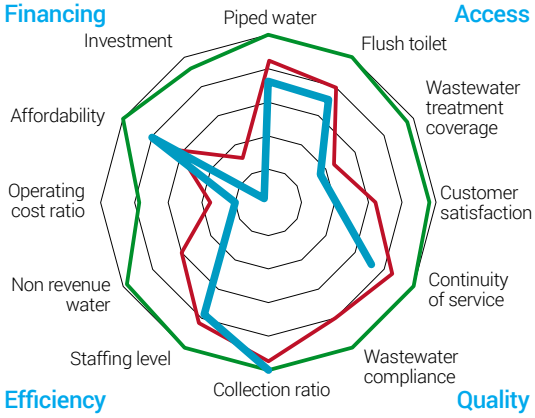
Access to services: average, bottom 40% and poor



Sector Structure



Sustainability Assessment



Based on normalized indicators, closer to the border is better

Sector Sustainability Assessment	Value	Danube Average	Danube best practice
	54	64	96

CONTEXT FOR SERVICES

Indicator	Year	Source	Value	Non-EU average	Danube average	Danube best
Socioeconomic Situation						
Population [M. inhabitants]	2013	World Bank 2015	45.490	24.524	8.451	n.a.
Population growth [compound growth rate 1990–2013] [%]	1990-2013	World Bank 2015	-0.57	-0.54	-0.37	n.a.
Share of urban population [%]	2013	World Bank 2015	69	67	63	n.a.
GDP per capita, PPP [current international $]	2013	World Bank 2015	8,788	8,489	16,902	n.a.
Poverty headcount ratio [$2.50 a day [PPP] [% of pop]]	2010	World Bank 2015	0.14	0.64	1.65	n.a.
Administrative Organization						
No. of local government units [municipalities]	2015	Ukrstat 2015	11,625	6,303	1,987	n.a.
Av. size of local government units [inhabitants]	2013	Authors' elab.	3,913	3,891	4,253	n.a.
Water Resources						
Total renewable water availability [m^3/cap/year]	2008-2012	FAO Aquastat 2015	3,066	9,156	7,070	n.a.
Annual freshwater withdrawals, domestic [% of total withdrawal]	2013	World Bank 2015	24	20	26	n.a.
Share of surface water as drinking water source [%]	2014	ICPDR 2015	35	27	31	n.a.

Economy. Ukraine's economy is in crisis. Ukraine is the second-largest country of the Former Soviet Union, covering 603,549 km^2, with almost 46 million inhabitants and an average population density of 75 people/km^2. Sixty-nine percent of the population lives in urban areas (World Bank 2015). Since 1994, there has been persistent population decline, with an overall decrease of more than 13% (Ukrstat 2015). In 2013, GDP per capita was US$8,788 and real GDP reached only 70% of its 1990 value (World Bank 2015). The country's economy is import oriented, and its trade deficit increases every year. The unemployment rate reached 7.2% in 2014 (Ukrstat 2015).

Governance. Ukraine is a republic combining presidential and parliamentary forms of government. The Ukrainian constitution designates that the president is elected by direct voting and the prime minister and the cabinet of ministers is appointed by the president in agreement with the Verkhovna rada (parliament). The country is divided into 24 regions (oblasts) and the capital city of Kiev, which has a specific status. These regions are divided into 490 districts (rayons) and municipalities, with regional significance. State Administrations (oblast, rayon, municipalities, and the cities of Kiev and Sevastopol) are the local bodies of state executive power. Oblast State Administrations (Council of Ministers of the Autonomous Republic of Crimea, and Kiev and Sevastopol City State Administrations) issue licenses for water supply and sanitation, except for those utility companies that receive licenses directly from the National Regulatory Commission (Verkhovna Rada 2015).

Water resources. Ukraine has uneven spatial distribution of water resources. In 2012, 3.1 billion m^3 of water were abstracted, 27% of which was from groundwater (Ukrstat 2013). The country has considerable groundwater resources that can be used as a source of drinking water. However, these resources are unevenly distributed across the territory, depending on structural, geological, physical, and geographic conditions of the Ukrainian regions. Water resources formed within the country are estimated at 50 billion m^3 per year, including 21 billion m^3 forming a strategic base for drinking water (NISS 2012). With 3,066 m3/capita/year, Ukraine faces an uneven spatial distribution of water resources. Currently, reservoirs and ponds contain about 58 billion m^3 of water, which exceeds the local annual flow of all rivers throughout the country. In general, the regulation of the flow of most rivers reached or even exceeded the upper margin of water and environmental destruction (more than 75% of the total length of the channels at a maximum of 25% to 30%), which dramatically reduces and often completely destroys their self-cleaning ability (MinRegion 2013c).

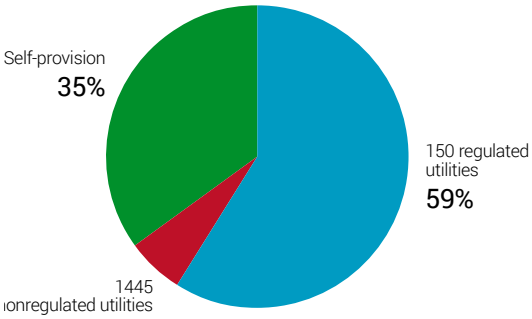
Water supply sources. Drinking water in Ukraine is extracted from surface water (65%) and groundwater resources (35%). The majority of groundwater resources (over 60%) is located in the northern oblasts of Ukraine. The greatest quantity of water (about 58%) is concentrated in the rivers of the Danube basin in the border regions of Ukraine, where the demand for water is weak (no more than 5%). The areas with fewer water resources are the Donbass, Kryvorizhzhya, Crimea, and southern Ukraine, where there are the largest number of consumers (AQUA PRO 2009). Surface water resources used for various purposes are formed mainly in the basins of Dnipro, Dniester, Seversky Donets, Southern and Western Bug, and the small rivers of Azov and the Black Sea region. Water supply for small settlements comes from small rivers, lakes, and other water bodies. The current state of rural water supply systems in Ukraine is critical. In most cases, groundwater quality is not satisfactory due to an important concentration of iron and manganese. Thirty-nine percent of water abstracted is used for agriculture, 40% for industry, and 21% for drinking water supply (Larive 2014). In urban areas, drinking water quality is threatened by old distribution pipes and outdated treatment plants. In rural areas, pollution of rivers, water contamination, seasonal floods, and water shortages are the main quality issues (NISS 2012).

ORGANIZATION OF SERVICES

Indicator	Year	Source	Value	Non-EU average	Danube average	Danube best
Number of formal water service providers	2013	NKREKP 2013	1,595	824	661	n.a.
Average population served [inhabitants]	2013	Authors' elab.	18,538	18,882	9,496	n.a.
Dominant service provider type	Communal Unitary Enterprises					
Service scope	Water and sanitation					
Ownership	Private, state, communal form of ownership					
Geographic scope	One to a few cities, regions					
Water services law?	Yes					
Single line ministry?	Yes [Ministry of Regional Development]					
Regulatory agency?	Yes [NEURC]					
Utility performance indicators publicly available?	No					
National utility association?	Yes [UWA for water and wastewater]					
Private sector participation	Few cases of public-private partnerships in water supply and wastewater disposal service provision (in Odessa, Kiev, Lugansk, Berdyansk, in Vinnitska, Kirovohradska, Kharkivska, and Khersonska oblasts, in Crimea)					

Service provision. Local self-governments are the owners of water and wastewater infrastructure. During the years of post-Soviet independence, the national government withdrew from water and sanitation services, delegating responsibility to local authorities. According to the regional State Administrations, there are 1,595 utilities in the water and wastewater sector serving 65% of the population (Figure 1). The fragmentation of the water sector in Ukraine derives from a high number of medium and small residential settlements, giving rise to a high number of water supply operators. As of the end of 2013, 150 utilities, serving 59% of the population, were subject to state regulation by the National Commission. In addition, there are a number of community-based organizations (cooperatives) serving piped water to 6% of the population. The rest of the inhabitants rely on self-provision (Authors' elaboration). The

FIGURE 1: WATER SERVICES PROVIDER TYPES AND MARKET SHARES



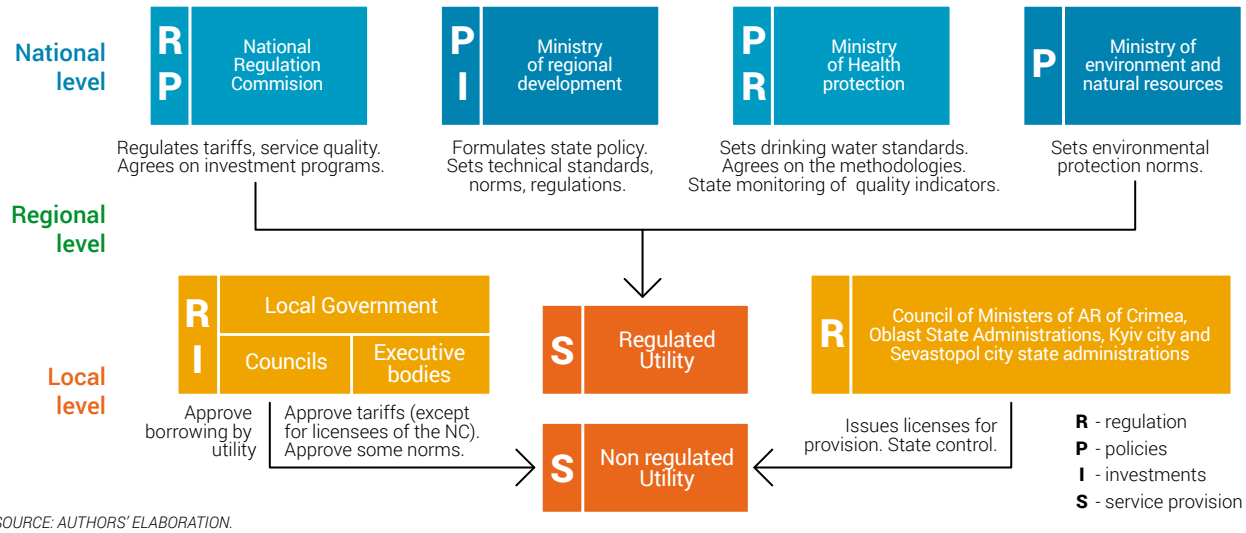
SOURCE: RZS 2012B.

water utilities can have different forms of ownership. They can be private companies (or individual entrepreneurs) operating under private ownership, public utilities owned by municipalities, state utilities operating under the ownership of the state, or utilities with mixed ownership. The most typical and commonly used form of organization for water supply and wastewater utilities is the communal unitary enterprise fully owned by the local self-government (of a city, village, or residential settlement). In many cases, these municipal utilities provide other local public services in addition to water.

Policy-making and sector institutions. The sector is controlled at the national level by several institutions. Several ministries and agencies control the water sector at the national level, with no clear line ministry and mandate overlaps (Figure 2). There is a lack of rational and optimal distribution of responsibilities among the administrative authority levels, which include:

- The *Ministry of Regional Development, Construction and Housing and Communal Services*, which is responsible for the definition of the state policy on regional development, construction, housing, and communal services, including water and sanitation services. It sets technical standards, norms, and regulations (MinRegion 2013b).
- The *Ministry of Ecology and Natural Resources*, which is responsible for the policy on environmental protection and use of natural resources. The *State Environmental Inspection* and the *State Agency for Water Resources* are in charge of implementing this policy through controls and inspection (MENR 2014).
- The *Ministry of Health*, which is responsible for setting environmental norms for drinking water quality and for defining associated measurement methodologies. The *State Sanitary and Epidemiological Service* is in charge of implementing this policy (MOZ 2014).
- The *State Executive Body in the Sphere of Standardization*, under the *Ministry of Economy Department of Technical Regulation*, which is responsible for approving the state standards for drinking water. It also approves the measurement methodologies of drinking water quality (Verkhovna Rada 2010).
- The *National Commission for State Energy and Public Utilities Regulation*, which is responsible for the regulation of local services, including centralized water supply and wastewater services, and heat energy production and transportation, as stipulated under Law 2479-VI dated July 9, 2010. It is a state collegial body established in August 2014, and which was created as a result of the merging of the Energy Regulatory Commission and the Communal Services Regulatory Commission (NKREKP 2015).

FIGURE 2: WATER SERVICES SECTOR ORGANIZATION



SOURCE: AUTHORS' ELABORATION.

Capacity and training. There is a severe lack of staff training and capacity building in the water sector in Ukraine. Staff training has been mainly driven by donor-financed Institutional Strengthening Programs, which are largely undocumented and "one-off." The lack of well-trained technical and financial personnel in the water utilities has led to inefficiency in technical operations and financial management. This problem is further compounded by a relatively high turnover of management staff, who are political appointees with no specifically defined qualifications or experience, and the lack of a single and broadly recognized professional association. As a result, there is considerable room for improvement of staff training and for development of staff capacity in the water sector (KPC 2009).

Economic regulation. The water sector in Ukraine is regulated by different entities depending on the size and scale of water and sanitation service providers. The National Commission for State Energy and Public Utilities Regulation, Ukraine formally regulates utilities serving more than 30,000 people, with an annual volume exceeding 300,000 m^3 of water and 200,000 m^3 of wastewater, with water and wastewater systems located in the territory of two or more regions and/or receiving foreign investments. The commission licenses operators and sets tariffs according to a "rate-of-return" methodology, which includes an investment program jointly approved by the commission and the Ministry of Regional Development, Construction and Housing and Communal Economy of Ukraine. All utilities that do not meet the licensing criteria of the National Commission receive their operating license from one of 25 Oblast State Administrations or the Kiev or Sevastopol State Administration. They apply for a tariff review to the executive body of local self-government, which approves or rejects their request. The utility must then inform customers about future tariff changes (KPC 2009). As a result of this institutional setting, water utilities, depending on their size and scale, are regulated by different entities using dissimilar price-setting processes.

Ongoing or planned reforms. In 2010–11, a new stage of the housing and utility services reform was launched. Among other objectives, the reform targets regionalization of water supply and sanitation services provision. It intends to promote cooperation among municipalities and create a platform for the sustainable development of both large and small communities. The rationale of the 2010–11 reform is being revised with the goal of improving regulation of water supply and sanitation utilities. However, when trying to merge utilities at the intermunicipal level, the National Regulator faces major challenges solving ownership issues of water and sanitation systems for a large number of communities with weak motivation for cooperation. As a result, the regionalization of the sector is progressing slowly.

ACCESS TO SERVICES

Indicator	Year	Source	Value	Non-EU average	Danube average	Danube best
Water Supply						
Piped supply – average [%]	2010	Authors' elab.	73	71	83	100
Piped supply – bottom 40% [%]	2010	Authors' elab.	64	61	76	100
Piped supply – below $2.50/day [PPP] [%]	2010	Authors' elab.	41	39	61	100
Including from public supply – average [%]	2000	COWI A/S 2015	65	63	74	99
Sanitation and Sewerage						
Flush toilet – average [%]	2010	Authors' elab.	72	69	79	99
Flush toilet – bottom 40%	2010	Authors' elab.	63	60	70	98
Flush toilet – below $2.50/day [PPP] [%]	2010	Authors' elab.	41	38	54	100
Including with sewer – average [%]	2012	Ukrstat 2015	73	70	66	94
Wastewater Treatment						
Connected to wastewater treatment plant [%]	2000	COWI A/S 2015	37	36	45	95

Service coverage. Ukraine has an average level of access to water supply and sanitation services. Eighty-six percent of the urban population has access to piped water, but only 22% has access in rural areas; 72% of the population has access to flush toilets (Figure 3); and only 37% of the population, most of which live in urban areas, is connected to a wastewater treatment. Only over a third of the wastewater collected is effectively treated, resulting in a large volume of untreated wastewater being directly discharged into the environment, causing pollution and health hazards.

Ukrainian Data Availability

There is currently no reliable, country-wide publicly available source of information on water services performance in Ukraine. The National Energy and Communal Services Regulatory Commission, the national regulator, recently started collecting data, but has not yet made it publicly available.

Equity of access to services. Lack of information prevents establishing an accurate description of access to services for marginalized groups. However, according to the Household Budget Survey, 41% of the poorest share of the population (those living on less than $2.50 a day) has access to piped water and flush toilets (Authors' elaboration). No study specifically about the service coverage of ethnic minorities and the marginalized population has been performed.

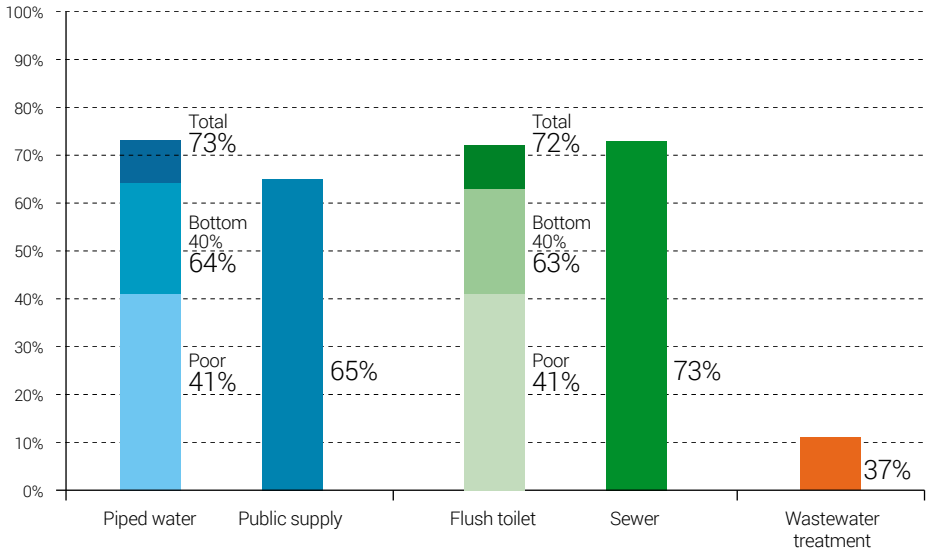


FIGURE 3: ACCESS TO WATER AND SANITATION: TOTAL POPULATION, BOTTOM 40% OF THE POPULATION AND POOR

SOURCE: AUTHORS' ELABORATION, COWI A/S 2015 AND UKRSTAT 2015.

Service infrastructure. The Ukrainian water and wastewater infrastructure needs upgrading. The majority of water utilities are using outdated equipment and operate deteriorated, leaky pipeline networks. High losses and high energy consumption are the main challenges of water companies. The total length of the water supply networks in Ukraine in 2012 was 124,088 km. Thirty-eight percent needs to be replaced—it has outlived its product life—but only 1.9% was replaced in 2012 due to lack of financing. Another major problem is old and deteriorated pumping equipment, resulting in frequent breakdowns, downtime, and high energy costs. The average age of water pumps is around 30 years, and 80 to 85% are still old Soviet models. In Kiev, pumps from 1936 are still in operation. In 2012, there were 6,856 water-pumping plants in operation and 3,093 sewage treatment plants, of which about 87% need a complete overhaul. In 2012, renovation was carried out on only 1.3% of the required replacements due to financial constraints. There are 8,207 sewage pumping stations, 358 of which were replaced in 2012, and 2,849 of which need replacement. The total length of the sewage network in 2012 increased to 44,832 km, of which 179 km was replaced in 2012 (1% of the required length), and 17,187 km of which need to be replaced (38% more than in 2011) (Larive 2014).

Value	Value		Year	Source
	Water	Wastewater		
Number of treatment plants	–	3,093	2012	Larive 2014
Length of network [km]	124,088	44,832	2012	NKREKP 2013 & Larive 2014
Average connections per km of network	–	–	–	–

PERFORMANCE OF SERVICES

Service Quality

Indicator	Year	Source	Value	Non-EU average	Danube average	Danube best
Residential water consumption [liters/capita/day]	2013	NKREKP 2013	115	116	122	n.a.
Water supply continuity [hours/day]	2012	MinRegion 2013c	17	17	20	24
Drinking water quality [% of samples in full compliance]	2010	MinEnv 2010	87	86	93	99.9
Wastewater treatment quality [% of samples in full BOD5 compliance]	–	–	–	n.a.	79	100
Sewer blockages [number/km/year]	–	–	–	12.1	5.0	0.2
Customer satisfaction [% of population satisfied with services]	2013	Gallup 2013	43	44	63	95

Quality of service. The service quality is not yet satisfactory and needs to be improved. The average continuity of water supply is 14 hours for rural settlements and 17 hours, on average, for the whole population. These indicators increased by 44% and 9%, respectively, between 2005 and 2013 (MinRegion 2013c). In 2008, drinking water compliance with physical-chemical parameters was 87%, and for bacteriological standards it was 96.5% (MinEnv 2010). Average water consumption by households ranges from 88 liters per person per day to 174 liters per person per day (NKREKP 2013).

Customer satisfaction. The satisfaction of the Ukrainian population with the quality of water (per Gallup Poll) is low, at 43%. This number is considerably lower than in most countries in the region (Gallup 2013).

Efficiency of Services

Indicator	Year	Source	Value	Non-EU average	Danube average	Danube best
Nonrevenue water [%]	2013	Ukrstat 2013	30	31	35	16
Nonrevenue water [m3/km/day]	2013	Ukrstat 2013	62	59	35	5
Staff productivity [water and wastewater] [number of employees/1,000 connections]	–	–	–	13.3	9.6	2.0
Staff productivity [water and wastewater] [number of employees/1,000 inh. served]	2013	Authors' elab.	2.0	2.0	1.7	0.4
Billing collection rate [cash income/billed revenue] [%]	2013	MinRegion 2013a	98	98	98	116
Metering level [metered connections/connections] [%]	2013	Ukrstat 2013	70	70	84	100
Water Utility Performance Index [WUPI]	n.a.	Authors' elab.	59	59	69	94

Overall efficiency. The efficiency of water and wastewater service providers is an issue in Ukraine. In 2013, nonrevenue water reached 30%. The average collection rate was 98% in 2013, and the metering level was 70%, which is below the average metering rate across the Danube region. Such a low metering level does not allow for consistent measurement of all water consumption, and as a result, there may be a discrepancy between the volumes consumed and billed (Ukrstat 2013).

Recent trends. Limited progress has been made in efficiency over the last 10 years. Nonrevenue water (expressed in m^3/km/day) increased by 24% between 2001 and 2013, reflecting poor network maintenance, underinvestment, and improvement in metering level, which increased from 32% in 2004 to 70% in 2013. Nonrevenue water, expressed in m^3/customer/day, decreased by 26%, mainly due to water consumption reduction. On the positive side, the collection

rate increased by 18% from 2001 to 2013, rising from 84% to 98% (Figure 4). This evolution shows a better capacity of utilities to generate revenues.

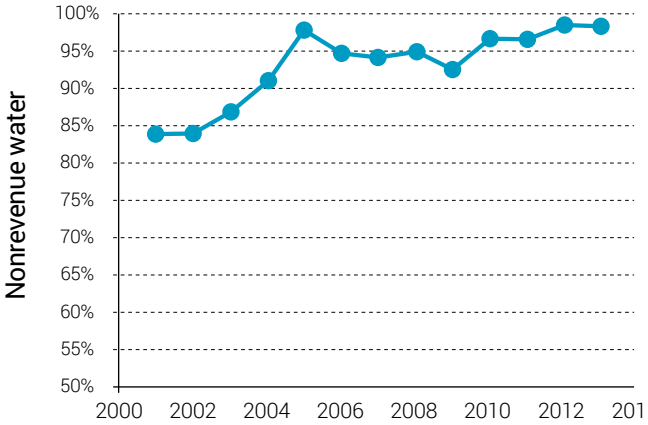


FIGURE 4: EVOLUTION OF COLLECTION RATE IN A SUBSET OF UKRAINIAN UTILITIES

SOURCE: UKRSTAT 2013.

FINANCING OF SERVICES

Sector Financing

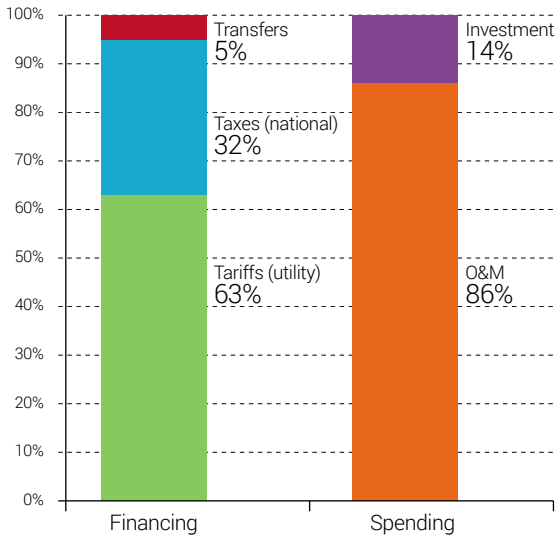
Indicator	Year	Source	Value	Non-EU average	Danube average	Danube best
Sources of Financing						
Overall sector financing [€/capita/year]	Authors' elab.		22	21	62	n.a.
Overall sector financing [share of GDP] [%]	Authors' elab.		0.33	0.35	0.45	n.a.
Percentage of service cost financed from tariffs	Authors' elab.		63	65	67	n.a.
Percentage of service cost financed from taxes	Authors' elab.		32	30	13	n.a.
Percentage of service cost financed from transfers	Authors' elab.		5	5	20	n.a.
Service Expenditure						
Average annual investment [share of overall sector financing] [%]	Authors' elab.		14	14	38	n.a.
Average annual investment [€/capita/year]	Authors' elab.		3	3	23	n.a.
Estimated investment needed to achieve targets [€/capita/year]	2006-2012	World Bank 2006	15	15	43	n.a.
Of which, share of wastewater management [%]	Authors' elab.		40	42	61	n.a.

Overall sector financing. The water sector in Ukraine is characterized by very low investments, and tariffs that do not cover operating costs. Water and sanitation utilities suffered from underinvestment for more than a decade, a situation that persists, since only 14% of the costs of the sector are dedicated to investments (Figure 5). Tariffs, which are the major source of sector funding, do not cover operations costs. As a result, utilities are subsidized by the national budget mainly according to priorities stated in the State Program for Drinking Water and in the State Program for Development of Housing and Communal Economy. However, national funding is unpredictable, because it almost never matches the plans approved. These financial fluctuations derive from political considerations and administrative pressure. National funding also includes subsidies to low-income families and to several other specific

customer groups (Verkhovna Rada 2005a). 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).

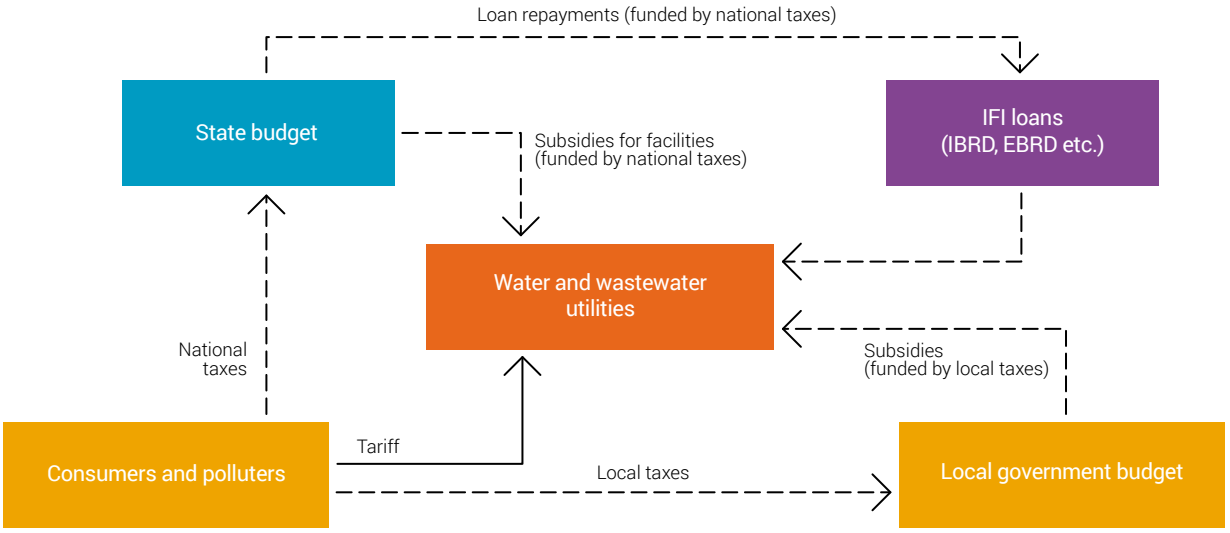
Investment needs. It is estimated that investments of more than €6 billion are needed in the water sector. No recent estimates exist, but according to a 2006 World Bank study, an estimated €6.2 billion is needed for priority rehabilitation of the water sector, or €15 per capita per year (World Bank 2006). Sector assets have been depleted significantly since the early 1990s because of years of neglect and underinvestment. Moreover, the current sector equipment is highly energy-intensive and oversized because of low energy prices and irrational consumption during the Soviet era, and requires modernization. About 60% of these investments are needed in water supply service; the remainder will fund the rehabilitation of sanitation systems. The investments in water supply are essentially aimed at curtailing electricity consumption, reducing technical and commercial losses, and bringing water quality up to healthy standards. The rehabilitation of sanitation systems is intended to curb environmental externalities and reduce electricity consumption (World Bank 2006).

FIGURE 5: OVERALL UTILITY SECTOR FINANCING, 2012



SOURCE: AUTHORS' ELABORATION.

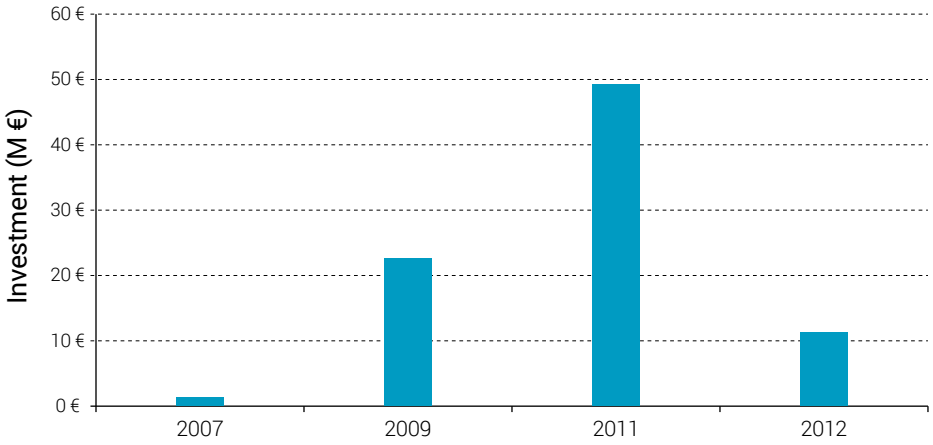
FIGURE 6: MAIN SOURCES OF FUNDING OF WATER AND WASTEWATER SERVICES



SOURCE: AUTHORS' ELABORATION.

Investments. Investment programs are only partially implemented due to chronic underfunding from the state budget. National and regional state programs, such as the State Drinking Water of Ukraine Program, the State Program of Reforming and Developing Housing and Communal Economy, and the State Program for Ensuring Priority Centralized Water Supply in Rural Settlements, are financed under general expenditures of the state budget. Local budgets (e.g., oblast, district, or municipality level) and revenues from water tariffs provide only some complementary funding. However, planned actions under the above-mentioned programs have not been implemented due to chronic underfunding. As a result, only 20% of the targeted 2011 objective of the State Program was implemented. (Figure 7). An audit of the implementation of the State Program for Ensuring Priority Centralized Water Supply Services in Rural Settlements suggests there was inadequate financing of the program during 2008–10. As a result, program implementation reached only 25% of the planned level. Audit results of implementation of programs for reforms and

FIGURE 7: EVOLUTION OF INVESTMENT LEVELS



SOURCE: AUTHORS' ELABORATION.

development of the water supply and sanitation sector in Donetska and Luganska oblasts suggest that oblast-level state administration failed to ensure implementation of the planned actions due to insufficient management and lack of funding from the state budget. Moreover, a number of facilities planned under these programs were financed in a haphazard manner by other state target-specific programs on similar matters (i.e., national programs for development of the housing and utilities sectors for 2009–14, the Drinking Water of Ukraine Program). As a result, actual investment in the water and sanitation sector represents only €3 per capita per year (Verkhovna Rada 2005b).

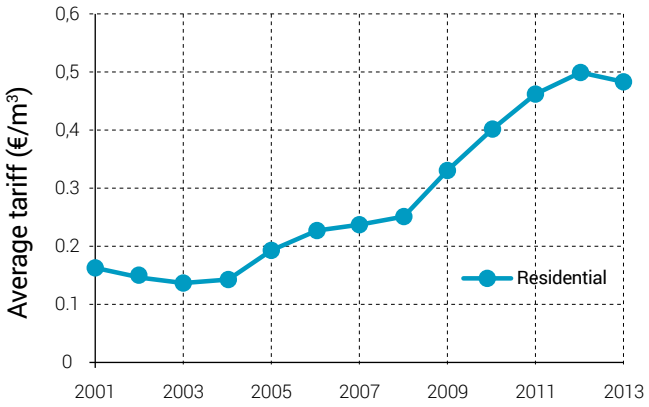
Cost Recovery and Affordability

Indicator	Year	Source	Value	Non-EU average	Danube average	Danube best
Cost Recovery						
Average residential tariff [incl. water and wastewater] [€/m³]	2013	MinRegion 2013a	0.48	0.51	1.32	n.a.
Operation and maintenance unit cost [€/m³]	Authors' elab.		0.68	0.69	1.20	n.a.
Operating cost coverage [billed revenue/operating expense]	2013	MinRegion 2013a	0.74	0.75	0.96	1.49
Affordability						
Share of potential WSS expenditures over average income [%]	2010	Authors' elab.	1.9	2.1	2.6	n.a.
Share of potential WSS expenditures over bottom 40% income [%]	2010	Authors' elab.	2.6	2.9	3.8	n.a.
Share of households with potential WSS expenditures above 5% of average income [%]	2010	Authors' elab.	0.5	2.7	14.1	n.a.

Cost recovery. The water sector lacks funds to ensure proper maintenance of assets and sufficient investments. With an operating ratio of 0.74, water utilities do not generate sufficient revenues to cover their operational costs, not to mention their capital expenditure. Cross-subsidies between commercial and residential customers are widely used. With water tariffs being kept low for social considerations, the sector has suffered from underinvestment and poor maintenance for decades. Moreover, water utility inefficiency translates into high energy consumption, resulting in an accumulated value of outstanding electricity bills of regional water companies of UAH 3.5 billion (approximately €300 million) as of end-2013. Utilities remain one of the largest debtors of electricity supply companies (MinRegion 2013a).

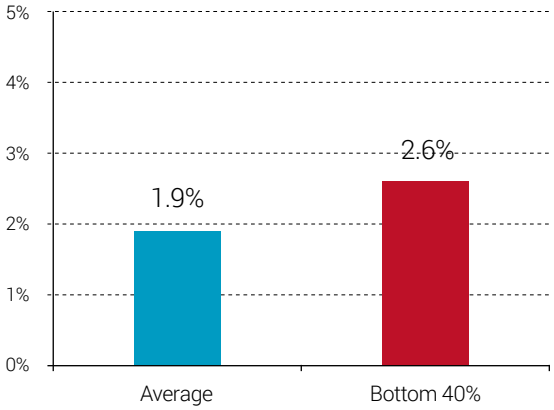
Tariffs. Tariffs have been increasing and will continue to increase in the near future. Tariffs for residential customers increased by 194% between 2001 and 2013 (Figure 8). Over the same period, the annual average inflation rate was 9.3%. Nevertheless, water tariffs remain low and are a major limitation to the sustainability of utilities. They are expected to continue increasing to reach compliance with the cost recovery principle (MinRegion 2013a).

FIGURE 8: EVOLUTION OF AVERAGE TARIFF



SOURCE: MINREGION 2013A.

FIGURE 9: SHARE OF AVERAGE POTENTIAL WATER & SANITATION EXPENDITURE IN INCOME



SOURCE: AUTHORS' ELABORATION.

Affordability. Tariff affordability is not an issue for the population. The potential average water and wastewater bill represents 1.9% of average household income (Figure 9), indicating there is ample room for higher tariffs from a social standpoint. For the poorest quintile, it represents more than 3% (Authors' elaboration). The regulatory framework defines a formal subsidy scheme to address affordability issues. A 2014 governmental decree introduced a national social standard approach in the sphere of housing and utility services. According to this decree, subsidies are granted to households for a specific period, and depending on the average income of the household. Subsidies for centralized cold water supply and centralized wastewater service represent from 7 m^3 to 9 m^3 per person to 4 m^3 per person per month, and for centralized hot water supply from 3.5 m^3 per person to 1.6 m^3 per person per month (Verkhovna Rada 2005a).

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 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 Ukraine water sector are shown in Figure 10, which also shows average and best practices in the Danube region. The Ukrainian sector sustainability score is 54, which is below the Danube average sustainability of 64. The assessment shows that, on average, the country performs well in terms of collection ratio and affordability (Figure 10). The main deficiencies of the Ukraine water sector identified through the sector sustainability assessment are investment level, wastewater treatment coverage, and nonrevenue water.

The main sector challenges are:

- **Improving and clarifying the legal regulatory framework of the water sector.** Ukraine is one the 10 most energy-intensive economies in the world (IEA 2009). The National Commission for State Energy and Public Utilities Regulation, which regulates water operators, has only limited political independence, which can jeopardize the

effectiveness of its regulatory mission. Moreover, utilities serving more than 20,000 customers are supervised by different administrative bodies which brings confusion and overlaps. License and permit issuing authorities are located far from water supply operators, especially in rural areas. As a result, they lack local knowledge and expertise to efficiently perform their mission of water quality and quantity management (KPC 2009). From an economic development perspective, the administrative structure in Ukraine and the numerous water operators are not facilitating efficiency gains (through economies of scale) and sustainability of water systems. Coordination between oblast, rayon, and rural levels, on the one hand, and water companies operating in rural areas on the other hand, could be improved because there is currently no legal institutional body in charge of intergovernmental cooperation on regional issues of water supply and wastewater service provision. This situation prevents implementation of an integrated water management policy at the regional level, and the fragmentation of the sector is considered to be the key constraint of sector development. This has resulted in difficulties monitoring the sector and enforcing regulatory requirements for licensing and permits by the respective state authorities, difficulties in infrastructure financing due to the high number of projects with low levels of investment, low water system operational efficiency due to lack of economy of scale, and low attractiveness for the private sector to participate in the operations and financing of water supply systems (KPC 2009).

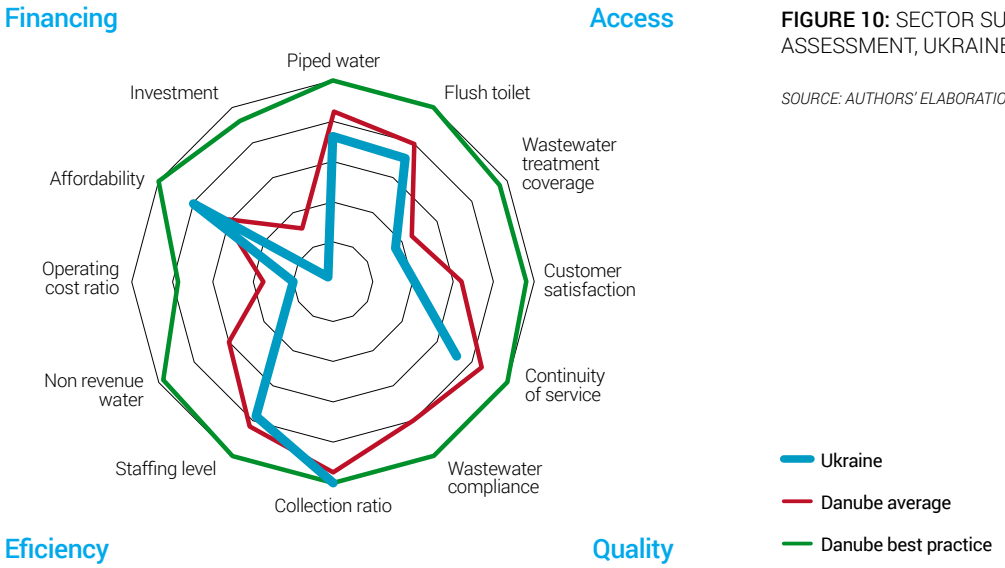


FIGURE 10: SECTOR SUSTAINABILITY ASSESSMENT, UKRAINE

SOURCE: AUTHORS' ELABORATION.

- **Ensuring tariff setting according to the cost recovery principle to improve overall efficiency.** Water tariffs are among the lowest in the region, and the affordability analysis shows that there would be space for increases without generating an unacceptable burden on households. With water tariffs being kept low for political considerations, water companies do not have enough financial resources to fund operations and capital investment. As a result, the sector has suffered from underinvestment and poor maintenance for decades. Moreover, the legal framework is not helping utilities raise funds because the law prohibits the pledging of infrastructure as collateral for utilities to to attract loans. Local tax and fee levels do not allow local governments to provide sustainable funding to water and sanitation utilities. Existing state budget financing of capital investment projects in water supply is unpredictable and unreliable, even for short-term planning (KPC 2009).

- **Improving staff capacities and expertise.** Education and training of staff at all levels of water utilities are key to ensure long-lasting operational efficiency and sustainability of the water sector. Capacities and expertise of utility staff and local governments regarding legal interpretation, contractual arrangements, interactions among utility providers, tariff procedures, regulatory impact assessment, external fund raising for infrastructure development are weak. There is also a deficit in equipment, training, and tools to monitor the efficiency of water systems (i.e., leak- detection equipment), to maintain and rehabilitate water and sanitation assets (KPC 2009).

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UKRAINE COUNTRY NOTE

WORLD BANK GROUP
Water

IAWD
International Association of Water Supply Companies in the Danube River Catchment Area

The World Bank / IAWD Danube Water Program supports smart policies, strong utilities, and sustainable water and wastewater services in the Danube Region by partnering with regional, national, and local stakeholders, promoting an informed policy dialogue around the sector's challenges and strengthening the technical and managerial capacity of the sector's utilities and institutions.

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