Slovak Republic

The European Commission and the OECD jointly review investment needs and financing capacities for water supply, sanitation and flood protection in each of the European Union's 28 member countries[1]. A fact sheet was developed for each country. Each fact sheet: (i) highlights the main drivers of future expenditure and quantifies projected investment needs; and (ii) analyses past sources of financing as well as capacities to finance future needs.

The analysis reflected in the fact sheets aims to support cross-country comparisons. For some indicators, trade-offs had to be made between reporting the most up-to-date and accurate data for each individual country and using data available for all countries in order to support such cross-country comparisons. The fact sheets were reviewed by country authorities and have been revised to reflect comments as much as possible. Inaccuracies on selected items may remain, which reflect discrepancies between national and international data sources.

A full methodological document will be published to explain in detail the sources, categories and methods used to produce estimates. In a nutshell:

- Current levels of expenditure (baseline) on water supply and sanitation are based on a range of data sets from Eurostat, which combine water-related public and household expenditures.
- Projections on future expenditures for water supply and sanitation are driven by the growth in urban population. Additional scenarios for water supply and sanitation were developed to factor in such drivers such as compliance with Drinking Water Directive (DWD), Urban Wastewater Treatment Directive (UWWTD) and emerging EU water directives.
- The paucity of data on current levels of flood protection expenditures did not allow for monetisation of projected future investment needs. Projections of growth rates of future expenditures for flood protection combine estimates of exposure of population, assets and GDP to risks of coastal or river floods.
- The characterisation of past sources of financing in each country is derived from baseline data on current levels of public and household expenditures, debt finance and EU transfers.
- Countries' future financing capacities are approximated by analysing room for manoeuvre in 3 areas: i) the ability to raise the price of water services (taking into account affordability concerns); ii) the ability to increase public spending; and iii) the ability to tap into private finance. Affordability analysis is based on water-related household baseline expenditures, not on average tariffs (which are highly uncertain, inaccurate and not comparable across countries).

[1] Further information and project outputs can be found on the websites of the European Commission and the OECD.

The future costs of diffuse pollution, compliance with the Water Framework Directive, adaptation to climate change, contaminants of emerging concern, urban floods from heavy rains, as well as the potential of innovation to minimise future financing needs are explored qualitatively and will be reflected separately. Costs related to water storage and bulk water supply are not considered.

Key messages

- Slovakia has benefitted from significant EU funding for water supply and wastewater treatment.
- Although water charges are in place, rates remain too low to support infrastructure financing needs. Affordability issues are a concern for low income households.
- Flood defence generates comparatively high levels of expenditures per capita.

Context

Slovakia's level of GDP per inhabitant is in the lower quartile of EU member states, although future economic growth forecasts rank second at 3.5% per annum. Water supply coverage and wastewater treatment compliance remain challenges. Flood risks will increase in the coming decades.

Over 80% (82%) of Slovakia's surface waters originate in from neighbouring countries (OECD, 2011). More than 80% of drinking water derives from groundwater sources, mainly concentrated in the south-western part of the country (EC, 2017). Thus, assuring water quality of groundwater bodies is particularly important (OECD, 2011).

Between 2000 and 2009, water abstractions decreased markedly across all major uses, and in particular for agriculture (OECD, 2011).

Table 1 presents a number of key indicators characterising the country context and features relevant to future expenditures for WSS and flood protection. These indicators are further discussed in the next sections, including those that underpin the projections of future investment needs.

Table 1. Key features relevant to future expenditures for WSS and flood protection

	Indicator	Value (rank if applicable)	Data Source	Year
Economy and Demographics	GDP per capita	EUR 14 900 (21/28)	Eurostat	2016
	Projected GDP growth	3.5% (2/28)	IMF	2016-2022
	Projected urban population variation by 2050	1.15x (32/28)	UN	2017-2050
Water Supply and Sanitation	Estimated annual average expenditure per capita	EUR 93	Authors based on EUROSTAT	2011-2015
	Population not connected to public water supply	11.7%	EUROSTAT	2015
	Annual domestic sector consumption per capita	N/A	EUROSTAT	
	Leakage rate for public water supply Non-revenue water	28% c28%	EC EurEau	2017 2017
	Compliance with UWWTD Art.3, 4 and 5	99.7% (19/28); 98.4% (15/28); 60.6% (22/28)	EC	2014
Flood Protection	Estimated annual average expenditure per capita	EUR 11 (6/27)	EC survey	2013-15
	Population potentially affected in flood risk areas	19%	EC report	2015
	Expected increase in urban damage	2,29	Authors, based on WRI	2015-2030

Note: Rank 1 implies best in class among the EU member countries for which data are available for each indicator.

Main drivers and projections of future investment needs

Water supply and sanitation

Slovakia reaches very high compliance rates of 99.52% for microbiological, 100% for chemical and 99.4% for indicator parameters under the Drinking Water Directive (DWD) (EC, 2016a).

For the Urban Waste Water Treatment Directive (UWWTD), Slovakia had until 31 December 2015 to comply. As of 2012, 97.9% of the wastewater load collected was subject to secondary treatment. However, only 43.3% of the wastewater load collected was subject to more stringent treatment (EC, 2016b).

There is a notable gap (13%) between urban and rural areas in terms of the percentage of the population with access to safely managed sanitation (WHO-UNICEF, 2017).

The estimated investments needs to reach full compliance with the UWWTD are EUR 1 211 million for public sewers for the period 2016-21, according to the National Programme of the Slovak Republic for the implementation of the UWWTD.

Table 2 projects future investment needs in water supply and sanitation for a business as usual and a compliance scenario. The compliance scenario consists of two dimensions: (1) investments needed to comply with the revised DWD, extend access to vulnerable populations and improve network efficiency (reduce leakage); and (2) investments needed to comply with the UWWTD. A major caveat is the lack of accurate cross-country data on the state of the asset and on whether the business as usual appropriately reflects the need to renew existing infrastructures.

Table 2. Water supply and sanitation: Projected investment needs to 2050 (million EUR)

SLOVAKIA		Baseline 2015	2020	2030	*Total by 2030*	2040	2050
BAU water supply and sanitation	**CAPEX**	**174**	**196**	**238**	**-**	**290**	**347**
	TOTEX	**503**	**504**	**518**		**548**	**579**
Scenario Compliance + for water supply and sanitation	**ADD. CAPEX**	-	**121**	**125**	***1315***	**-**	**-**
	ADD. TOTEX		**317**	**287**	***3255***		
Compliance with DWD, access and efficiency (water supply)	ADD. CAPEX	-	24	24	*240*	-	-
	ADD. TOTEX		67	67	*671*		
Compliance with UWWTD (sanitation)	ADD. CAPEX		97	101	1075		
	ADD. TOTEX		250	220	2583		

Note: BAU projections on future expenditures for water supply and sanitation are estimated based on the growth in urban population. Additional scenarios for water supply and sanitation are based on drivers relating to compliance the DWD and UWWTD as well as (for water supply) the cost of connecting vulnerable groups and of reduced leakage. The projections do not take into account the age and pace of renewal of water supply and sanitation assets due to the lack of comprehensive and comparable data across EU member countries.
Source: OECD analysis based on Eurostat (water-related public and household expenditure data) for the baseline; United Nations and Eurostat (total and urban population statistics and projections); European Commission (estimates of costs of compliance with revised DWD and of connecting vulnerable groups, leakage rates, and distance to compliance with UWWTD).

Flood risk management

Slovakia has undertaken a preliminary assessment of the risk of flooding from all relevant sources (rivers, surface water flooding from heavy rainfall, dams and reservoirs and groundwater) (EC, 2015).

The most recent flood incident in Slovakia with serious economic damage costs occurred in 2013. The total direct costs estimated for the 24 recorded floods during the 2002-2013 period are EUR 790 million (EC, 2017).

Table 3 highlights growth factors in future investment needs for protection against (riverine and coastal) flood risks. Urban floods from heavy rains will be discussed separately (not in the country fact sheet).

Table 3. Protection against coastal and river flood risks: Projected growth rates of investment needs to 2030

	Expenditures to protect against river flood risk			Expenditures to protect against coastal flood risk
	Total growth factors, by 2030			Categories (1-4), by 2030
	Expected urban damage	Expected affected population	Expected affected GDP	
Slovakia	2,29	1,52	2,47	N/A

Note: It was not possible to establish a robust baseline of current expenditures for flood protection due to the absence of comprehensive and comparable data across EU member countries. As a result, this table presents projected growth factors in future expenditures. A growth factor is defined as the factor by which current flood risk expenditures should be multiplied in order to maintain current flood risk protection standards in the future (by 2030). For coastal flood, countries were classified in one of four categories of projected coastal flood risk investment needs, in which 1 indicates very low growth of projected investment needs and 4 very high growth of projected investment needs by 2030.
Source: OECD analysis based on the Aqueduct Global Flood Analyzer of the World Resources Institute (river flood impacts by urban damage, affected GDP, and affected population), the global database of FLOod PROtection Standards (Scussolini et al., 2016) (for countries river flood-related protection level), the European Commission Joint Research Centre (change of build-up in areas vulnerable for coastal flooding), a 2010 study by Hinkel et al, (number of people exposed to coastal flooding, and damage costs in the case of a coastal flood event).

Other selected pressures affecting compliance with the WFD

According to the first generation of RBMPs, 65% of natural surface water bodies achieve a good or high ecological status. Only 42% of heavily modified or artificial water bodies achieve a high or ecological potential. Good chemical status is reached for 96% of surface water bodies, 72% of heavily modified and artificial water bodies and 61% of groundwater bodies. 69% of groundwater bodies are in good quantitative statues (EC, 2017).

The main pressures related to the attainment of good status are organic pollution, nutrients pollution, pollution by hazardous substances from both diffuse and point sources as well as hydromorphological alterations (EC, 2017).

Past financing strategies and room for manoeuvre to finance future needs

Water supply and sanitation

Between 2004 and 2008, investments in wastewater rose almost six-fold and investment in groundwater management tripled (OECD, 2011).

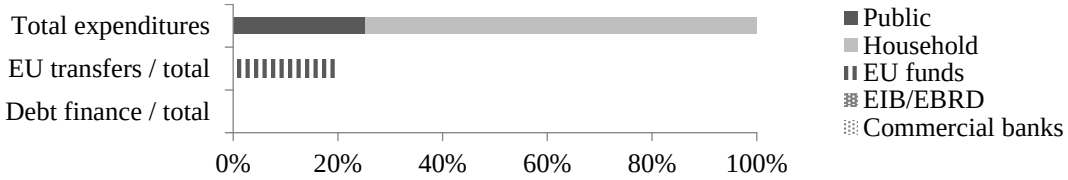
The majority of water-related investments are supported by EU funds, due to limited domestic funding capacity (EC, 2017). Water efficiency has been an area of significant investments benefitting from EU funds. In addition, EIB provided EUR 730 million for water and wastewater infrastructure investments between 2013 and 2015 (EBRD, 2017).

The significant dependence on EU funds has been identified as a distorting element in establishing a balanced water pricing policy (EC, 2017). Increased water charges have contributed to more efficient water use, however current rates are not sufficient to support environmental infrastructure needs (OECD, 2011).

Affordability issues remain a concern for low income households. Notably, 5% of households spend over 3% of total expenditure on WASH services (WHO-UNICEF, 2017).

As depicted in Figure 1, Slovakia has been relying significantly more on household than public expenditures to finance WSS-related capital and operational expenses. Public expenditures have in turn been heavily dependent on EU transfers. Debt finance does not appear to have played a role.

Figure 1. Share of annual average expenditure on WSS, by source (2011-15, %)



Source: Eurostat (for public and household expenditures), European Commission (for EU transfers), European Investment Bank, IJ Global, Thomson Reuters, Dealogic (for debt finance).

Table 4 indicates that Slovakia faces some financing challenges. Current prices could be increased without facing critical affordability but this could change under a likely scenario of increased investment needs given the country's current low per capita expenditure level. The country, however, has leeway to increase public spending thanks to a healthy fiscal condition.

Table 4. Indicators of future financing capacities for water supply and sanitation

	Indicator	Value (rank)	Year	Data Source
Ability to price water	Water expenditures in lowest household income decile	1.9% (14/26)	2011-15	Authors based on EUROSTAT
	Full cost recovery equivalent in lowest household income decile	2.54% (10/28)	2011-15	Authors based on EUROSTAT
	At-risk-of-poverty rate	12.7% (4/28)	2016	EUROSTAT
Ability to raise public spending	Tax revenue / GDP	32.4% (6/28)	2016	EUROSTAT
	Government consolidated debt / GDP	51.8% (10/28)	2016	EUROSTAT
	Sovereign rating	A+	2017	Standard & Poor's
Ability to attract private finance	Domestic credit to private sector / GDP	53% (22/28)	2015	World Bank
	Ease of doing business global rank	29 (18/28)	2017	World Bank

Key features of past and financing strategies and options for future ones

Flood risk management

Estimates indicate a shortfall of around EUR 450 million for protection against floods. The situation is exacerbated by housing construction on flood plains, which implies a potential for higher damage and rescue costs in case of flooding. In addition to the EUR 140 million allocated for flood prevention in the period 2007-13, additional efforts are needed to support flood prevention and response measures, including better landscape and land use planning (OECD, 2011).

Slovakia's 2014-20 operational programmes include plans to invest in nature-based solutions. However, the effectiveness of these plans can be contravened by recent plans to invest in grey infrastructure projects in the context of the National Strategy on Climate Change (EC, 2017).

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