

Slovak Republic

Country report

This report captures the main messages of a review of the state of play in Slovakia with regards to closing the finance gap and support compliance with the EU Directives on Drinking Water, Urban Wastewater Treatment and Floods, and to a lesser extent the Water Framework Directive. It reflects OECD analyses, and official and expert opinions expressed at a national workshop held in Bratislava, 8 March 2019. The workshop focused on financing compliance towards the EU water *acquis*. It was co-convened by the Ministry of Environment of Slovakia, the OECD and the European Commission (DG Environment). It gathered approximately 30 delegates from national and local authorities, water utilities, research organisations and financing institutions. Representatives of the Netherlands and Czechia participated as peer reviewers, sharing experience from their countries.

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1. Financing compliance with the EU water *acquis* - Recommendations

Slovakia has two major water management challenges: 1) high prevalence of individual sanitation systems (highest in the EU) and non-compliance with the Urban Wastewater Treatment Directive (UWWTD), particularly in rural areas and small agglomerations; and 2) a large finance gap and high reliance on EU funding for drinking water, sanitation and flood protection infrastructure. Climate change and population growth, coupled with ageing of existing infrastructure compound these challenges.

Additional reforms will be necessary to reach full compliance for the EU water *acquis*. As such, there is a need to rethink, prioritise and optimise the financial framework of the water sector in Slovakia. The water sector is significantly subsidised, and there is still a lack of accountability and incentives for performance of the various players. A large number of small utilities and local authorities have limited technical and finance capacity, and there is limited ability to increase spending from public budgets or to access commercial finance. Slow disbursement of funds, methodological issues and lack of investment priorities create inefficiencies in the spending of what funds are available for the water sector.

Complying with the EU water *acquis* delivers multiple benefits for society, the economy and the environment. While some measures can be costly, this report considers options to comply in cost-effective ways, taking account of distinctive capacities and challenges in Slovakia.

This report identifies a number of recommendations to assist Slovakia with closing the finance gap and managing the transition towards sustainable water management, in the context of limited scope for additional public funding from central, regional and local authorities. Priority recommendations include:

- Develop a sustainable financing strategy to meet financing needs and investment priorities in cooperation with national and local authorities. Ensure adequate financial resources to implement it. The strategy should include provisions for improved operation and maintenance of water infrastructure, accounting for the back-log of under-investment in maintenance over the past decades. Targeted social measures to address affordability constraints, and solidarity mechanisms to help cover investment costs in communities where financing capacities are especially limited, should be considered in the strategy. Municipalities should be given support to implement the strategy, including the development of capacity to operate and maintain infrastructure, and in project preparation (including streamlining procedures), disbursement of funds and implementation of new investments.
- Incentivise connection to central sewer systems (to reduce costs of water pollution and drinking water treatment) to households without access living in areas above a given population density, and to provide a new source of revenue for water supply and sanitation (WSS) utilities. Options may include: i) increased monitoring, enforcement and issuance of financial penalties for mismanagement of individual and other appropriate systems (IAS); ii) direct government subsidies building on the success of the “let’s connect” programme (connection for EUR 1); iii) incorporating the cost of connection into the overall capital cost of wastewater treatment plants; and iv) public education and awareness on the environmental impacts of IAS and the consequences of inaction.

- Continue to pursue the reform of economic instruments in the water sector. This includes further enforcement of polluter- and user-pays principles, as well as reflecting part of the environmental and resource costs¹ in tariffs for WSS services and abstraction charges. Independent oversight (economic regulation) on WSS tariffs may be necessary to remove the detrimental influence of politics over WSS tariff levels. Lessons can be learned from Portugal in the establishment of independent economic regulation as part of a transparent, stable, long-term (>20+ years) roadmap.

¹ Environmental costs are defined as representing damage costs that water users impose on the environment and ecosystems, and those who use the environment (e.g. a reduction in the ecological quality of aquatic ecosystems or the salinisation and degradation of freshwater resources). Resource costs are defined as the costs of foregone opportunities which other users suffer due to the depletion of the resource beyond its natural rate of recharge or recovery (e.g. linked to the over-abstraction of groundwater).

2. Context

Overall, Slovakia is a small economy, but has a strong financial system. The economy has grown strongly in recent years (3.2% in 2017), at rates above the EU-28 average (2.4% in 2017) and is expected to continue to strengthen (EC, 2019a). Despite this, Slovakia's level of GDP per inhabitant is in the lower quartile of EU member states (EuroStat, 2018). Structural problems that Slovakia faces include regional disparities, poor infrastructure and an ageing population (OECD, 2019a). Over 16% of population is threatened by poverty (EuroStat, 2019), especially in the east of the country and in rural areas; rural areas account for 86% of the territory and 40% of the population (OECD, 2011). In particular, the majority of the Roma (who make up approximately 8% of the population) live in poverty and suffer from social exclusion, low employment and low life expectancy (FRA, 2016).

Slovakia is a small, mountainous, land-locked country in central Europe, sharing borders with Austria, Czechia, Hungary, Poland and Ukraine. 96% of the territory sits within the Danube river basin, with the remainder in the Vistula river basin. Both basins are transboundary (international), and are divided into ten sub-basins within Slovakia for water planning and management purposes. The nation enjoys abundant and evenly distributed water resources. However, effective management of these resources remains a challenge, particularly regarding floods which have imposed significant costs to the economy.

Since joining the European Union in 2004, the Slovak Republic has made progress in addressing water-related risks, increasing investment in water infrastructure, and upgrading environmental policies and institutions. However, much remains to be done.

Financing the expansion of, and maintaining existing and ageing, water supply and sanitation infrastructure for a declining but urbanising population², in the face of climate change, will be an ongoing challenge for Slovakia. Wastewater connection and treatment levels are among the lowest in the EU; 32.3% of the Slovak population are not connected to a public sewer system (Statistical Office, 2018). This is particularly a challenge in remote small agglomerations (< 2000 inhabitants), which cover approximately 28% of the Slovak population (OECD, 2018). An investment of approximately EUR 1200 million is needed to ensure that wastewater in the remaining agglomerations is properly collected and treated (according to the National Programme of the Slovak Republic for the implementation of the UWWTD).

² The current population of Slovakia is 5.45 million and is expected to gradually decline to <5 million by 2050 (UN, 2017). This will reduce potential revenue from water supply and sanitation tariffs. At the same time, the share of the population residing in urban areas is projected to increase from 53.7% to 65.7% by 2050 (UN, 2019).

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	UN	2017-2050
Water Supply and Sanitation	Estimated annual average expenditure per capita	EUR 93	Authors based on EUROSTAT	2011-2015
	Population not connected	13%	EC	2015
	Annual domestic sector consumption per capita	n.a.	EUROSTAT	
	Leakage rate for public water supply	28%	EC	2017
	Non-revenue water	c28%	EurEau	2017
	Compliance with UWWTD Art.3, 4 and 5 (Index) ^a	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
	Pop. potentially affected in flood risk areas	19%	EC report	2015
	Value of assets at risk (rise 2015-30):	2.29 x	WRI	2015-2030

Note: Rank 1 implies best in class among the EU member countries for which data is available for each indicator. a. for the sake of country comparison, the level of compliance with the UWWTD refers to performance in 2014. The latest data on Slovakia, reported in the Ninth Report on the Implementation of the UWWTD shows compliance as Art. 3 (99.6%), Art. 4 (97.9%) and Art. 5 (57.2%).

3. Characterising the financing challenge

Slovakia's non-compliance with the EU water *acquis* relates to a number of factors. These include:

- budgetary constraints, which is reflected by a high reliance on EU funding of infrastructure for water supply (60% of total investment), sanitation (44%) and flood protection (85%);
- low WSS tariffs and a fragmented water industry, with a large number of small water utilities that are not financially or technically viable;
- insufficient environmental monitoring, and poor dissemination of data and information;
- limited environmental compliance and enforcement, which acts as an incentive to remain disconnected to public sewerage systems and to build in flood risk areas;
- weak capacity to set investment priorities on the basis of benefits in terms of compliance with EU water *acquis*; and
- methodological, competition and procurement issues which delay and increase the cost of investment.

An overview of the challenges, current financing strategies and factors driving future investment needs are examined in the following subsections, on water supply and sanitation services, flood protection and the Water Framework Directive (WFD) (water quantity and quality).

3.1. Water supply and sanitation services

Slovakia has made significant progress towards implementation of the EU Drinking Water Directive (DWD). Slovakia has 93% household access to safely managed drinking water supply (WHO and UNICEF, 2017), and demonstrates high compliance (99-100%) with the microbial and chemical indicator parameters of the DWD (EC, 2016). Assuring the quality of groundwater bodies will be particularly important to maintain high compliance with the DWD; more than 80% of drinking water derives from groundwater sources, mainly concentrated in the south-western part of the country (EC, 2017a).

Progress with compliance of the UWWTD lags behind. According to 2014 data, Slovakia has the highest rate of IAS in the EU and distance to compliance for more stringent wastewater treatment in sensitive areas is 43% (EC, 2017b). Complying with more stringent wastewater treatment is particularly challenging because the whole of Slovakia is designated as a sensitive area. An infringement procedure was launched by the EC in 2016 for Slovakia's non-compliance with the UWWTD.

A high prevalence of IAS and ageing sewers increase the risk of groundwater (and drinking water) contamination with microbiological pollutants, thereby compromising efforts to achieve the objectives of the WFD and the DWD. The estimated investment need to reach full compliance with the UWWTD is EUR 1 211 million for the period 2016-21, according to the National Programme of the Slovak Republic for the implementation of the UWWTD. It is expected that the current planned projects and investments up to

2022 to improve wastewater collection and treatment will be insufficient to achieve the objectives of the UWWTD (EC, 2019b).

A significant challenge will be to incentivise drinking water and sewerage connection rates, as inhabitants have refused to join the networks citing high collection charges and a requirement that they finance the connection. Disparities in access to, and the cost burden of, WSS services exist, with rural areas and small agglomerations, poor households and indigenous peoples being disadvantaged. In 2015, there was a 13% difference in access to safely managed sanitation services between urban and rural areas (WHO and UNICEF, 2017). The municipalities under 2000 inhabitants, covering almost 28% of the Slovak population, have a substandard connection extent to the water management infrastructure and a lack of resources (OECD, 2018). In 2016, over one-quarter of Roma in Slovakia lacked access to tap water (27%) and sanitation (29%) within the household, in comparison with a general population average of 12.6% and 0.6% respectively (FRA, 2016). Furthermore, 5% of poor households (from the poorest quintile) spend over 3% of total expenditure on WSS services (WHO and UNICEF, 2017).

There are 14 large regional water companies (whose shareholders are municipalities and towns) in Slovakia, which supply drinking water to 97 % of inhabitants connected to public water supply systems and collect and treat wastewater from 80% of inhabitants connected to public sewerage systems. The investment funds for WSS infrastructure, to a large extent, depend on EU financial assistance. In addition to the 14 large water companies, a large number of municipalities (568) and small operating utilities (76), who provide WSS services to the remainder of the population, are not financially viable and are unable to obtain or afford repayment of loans. Compliance with the UWWTD in small agglomerations and rural areas will require significant efforts, not just financially (high marginal cost of increasing access to sanitation to the last agglomerations), but also to address local capacity gaps. Procurement rules and limited market competition increase the cost of WSS infrastructure in comparison to neighbouring countries Poland and Hungary.

Overall, WSS tariffs in Slovakia are too low to recover full costs and support infrastructure financing needs (including renewal costs); the average price for drinking water and sanitation services is EUR 1.05/m³ and 1.00/m³ respectively. The price is lower for municipalities and small regulated entities; 0.78/m³ and 0.90/m³ for drinking water and sanitation services respectively (Barbarič, 2019). High leakage rates and non-revenue water (ca. 28% for public water supply and ca. 40% for sewer networks) is an indication of deteriorating infrastructure that has not been sufficiently maintained. It also places unnecessary pressure on WSS treatment systems (in terms of energy and treatment costs) and increased risk of water pollution. In principle, water tariffs should include capital, O&M and replacement costs, as well as the costs of negative externalities.

The OECD estimate that a 63% increase from current spending on water supply and sanitation is needed for Slovakia to meet the DWD and UWWTD. A three-pronged approach of measures to minimise investment needs, optimise investment decisions, and mobilise additional finance is required to close the finance gap. In addition to the priority recommendations in the first section, Slovakia should consider the following:

- Pursue consolidation of water utilities to achieve, and benefit from, economies of scale. Lessons can be learned from the Netherlands and Ireland in this regard (see OECD, 2014).
- Develop a proactive approach to improve the accountability, operational efficiency and financial sustainability of water utilities and municipalities, including key performance indicators to reduce the high leakage of drinking water and sewer networks. Options may include: decentralised co-operation with cities having also decentralised sanitation in richer countries, technical assistance and capacity building; performance bench-marking; and performance-based contracts.
- Take the opportunity for peer-to-peer learning, including enhancing staff capacity for environmental monitoring, in-house planning and economic analysis, and stakeholder engagement. The European Commission Structural Reform Support Programme is one programme that could be

utilised, which provides tailor-made support to EU countries for their institutional, administrative and growth-enhancing reforms. It is demand driven and does not require co-financing from EU countries. The TAIXE-EIR PEER 2 PEER is another practical programme on offer from the EC, which facilitates tailored peer-to-peer learning between environmental authorities on implementing environmental policy and legislation.

- Review procurement rules and market competition within the water sector with a view to reducing the cost of water infrastructure to match that of neighbouring countries, and to facilitate the disbursement of EU funds.
- Prioritise investments in water infrastructure to ensure best value for money and the greatest benefit to society and the environment over time.
 - Prioritise investments in connection to sewerage and wastewater treatment to achieve the objectives of the UWWTD and the WFD. In non-viable areas, such as mountainous and isolated areas, cost-effective decentralised wastewater collection and treatment should be considered; compliance monitoring and enforcement will be key. In other regions, investment in the maintenance of existing ageing infrastructure will be necessary to reduce leakage.
 - Prioritise the most ecologically sensitive areas that require more stringent wastewater treatment under the UWWTD.
- Explore options to attract commercial capital for creditworthy borrowers to finance water-related investments. This may include exploring how public and development finance and risk-mitigation instruments (e.g. guarantees, credit enhancement instruments) can be used strategically to improve the risk-return profile of investments that can attract commercial finance (OECD, 2019b).

3.2. Flood protection

Climate change is increasing the risk of surface water and riverine flooding in Slovakia. More irregular precipitation patterns are expected, including an increase in extreme daily precipitation, runoff and local floods (MoE, 2014). Unenforced land use planning and restrictions (i.e. housing construction in flood plains), and inappropriate forestry and agriculture practices, translates into additional, and unnecessary, exposure and vulnerability to flood risks (particularly flash floods), and therefore a financial burden.

Slovakia has recently adopted Flood Risk Management Plans. Flood protection objectives are included in the Flood Protection Act. However, objectives are not specific and measurable. Despite flood risks largely being concentrated in Eastern Slovakia, over 500 Areas of Potential Significant Flood Risk have been identified - the large number of which does not help with prioritisation of investment.

The most recent flood event 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, 2017a). According to OECD projections, urban damage from flooding and the value of assets at risk is expected to increase by 230% by 2030.

Flood management generates high levels of expenditures per capita in comparison to other EU member states. Approximately EUR 1 billion is planned for flood management. EU funds (Cohesion Fund and Regional Development Fund) are expected to provide a large share of resources for flood risk management investments. The main sources of funding is from central government (i.e. general taxes). No commercial finance is foreseen. Local authorities do not contribute to funding flood management, resulting in low incentives for cost-effective solutions and a preference for expensive engineered infrastructure solutions that require minimal land use (in comparison to nature-based solutions).

Slovakia has difficulties spending available funds for flood management, including a lack of projects for flood prevention³, a lengthy preparation procedure, procurement issues, and undefined property rights. The vast majority (almost 100%) of measures to implement the EU Floods Directive are assigned to protection, as opposed to prevention (EC, 2019d). A reliance on traditional engineered infrastructure for flood protection induces hydromorphological pressures on river systems, and impacts water quality and freshwater habitat, therefore creating conflicts between the Flood Directive and WFD.

In order to better manage flood risks, Slovakia could benefit from the following:

- Decentralise flood management to the local level to better reflect local priorities. Place greater emphasis on integrating flood prevention into river basin management plans, on better use of nature-based solutions, and on improved coordination between land use planning and management and flood prevention. Settle property rights and manage land fragmentation with a view to prevent development and incentivise longer-term sustainable land management in flood risk areas.
- Prioritise investments in flood protection to ensure best value for money and the greatest benefit to society and the environment over time.
 - The identification of over 500 Potential Significant Flood Risk Areas should be reviewed to narrow the number of areas at highest risk and prioritise investment.
 - Value scalability, flexibility and multiple benefits of water investments. For example, nature-based solutions, to reduce flood risks (see **Error! Reference source not found.**, Appendix) and achieve co-benefits for water quality, biodiversity and ecosystem resilience.
- Exploit synergies and combined investment opportunities with other sectors (e.g. urban development, food security, energy security, tourism) that reduce water-related risks. There may be options to align incentives through value-capture mechanisms (such as local taxes on property value) and insurance schemes. Lessons can be learned from other countries with mature insurance markets, as there is a wide variety of approaches, with clear trade-offs. In some countries, such as Germany, private insurance companies offer coverage for flood-related damages and losses, either as part of standard property and business interruption policies, or available as an optional add-on to such policies. In others, such as France, coverage for flood damage is ensured, and damages caused by catastrophic floods are covered by a dedicated “cat nat” fund, replenished by insurance companies. Different approaches to insurance achieve different policy objectives, such as broad availability and affordability of coverage, solidarity in terms of loss-sharing across regions, or establishment of clear incentives for risk reduction and/or significant transfer of risk to private markets (OECD, 2016b).

3.3. Water Framework Directive: water quality and quantity management

Overall, Slovakia has good chemical water quality, and groundwater quantity and quality status, under the WFD, in comparison to other EU member states (although monitoring data gaps remain). The intensity of freshwater abstraction is relatively low with agriculture largely rain-fed (irrigation accounts for only 1% of total farmland areas) (OECD, 2011). Good chemical status is achieved in 98% of surface water bodies, and 97.2% and 93% of groundwater bodies achieve good quantitative and chemical status respectively (EC, 2019b;c). However, 44% of surface water bodies fail to reach at least good ecological status, which illustrates that Slovakia still needs make large progress to comply with the WFD (EC, 2019b). Furthermore,

³ Flood prevention is one measure legally required for consideration in the Flood Protection Act, but is not evaluated financially and not prioritised.

trends show that groundwater quality is deteriorating. Assuring adequate quality is particularly important for groundwater, the main source of drinking water for the population.

A number of pressures on freshwater ecosystems have been identified as significant by Slovakia. Diffuse pollution from agriculture and hydromorphological alterations related to flood protection are the main pressures on surface water resources, and IAS and leaking sewerage infrastructure are the main pressures on groundwater resources (EC, 2019b).

Water use is under-priced. Until 2017⁴, water use in agriculture was free of charge; the current price is symbolic (0.001 EUR/m³) and does not cover all water abstracted. This points to room for further progress in water use efficiency, integrated water management and water pricing in line with the user pays principle. (OECD, 2017).

Wastewater discharge fees exist, but revenue collected has decreased by 32% over the period 2012-2016 indicating potential enforcement and bill collection issues (OECD, 2018). No other economic instruments to control water pollution are utilised.

The following is recommended to reduce pressure on Slovakia's water resources:

- Review and adjust the ten sub-basin water management plans so as to increase synergies between policies (including those for agriculture, water supply and sanitation, water quality, flood prevention, land use planning, nature conservation and climate change adaptation) and the objectives of the EU water *acquis*. Accompany the plans with robust and realistic financing strategies. Ensure plans guide decisions that affect water-related risks⁵.
- Continue to scale-up efforts in monitoring and reporting surface and groundwater quality and quantity to better understand the status of water resources and manage accordingly.
- Increase the efficiency of expenditure programmes, such as the Environmental Fund which currently only supports small projects (<EUR 200k). Revenue from new economic instruments (e.g. environmental fines or pollution charges) could be earmarked for the Fund to better support larger projects.
- Consider introducing new economic instruments for priority pollutants to raise additional revenue for water management and internalise negative environmental externalities. This may include the introduction of fertiliser and pesticide taxes to reflect the costs of water pollution, stormwater taxes on property developers for impermeable surfaces that increase the risk of urban flooding, and payment for ecosystem services (PES) from utilities to farmers in exchange for the protection of catchments and the quality drinking water sources. Examples of such policy instruments in OECD countries are presented in OECD (2017b). For example, Norway has a tax on pesticides that reflects the environmental and health-related risks and costs of pesticides; and PES schemes in England, Germany or the Netherlands are gaining in popularity with water utilities, with improved outcomes not only for water quality and reduced drinking water treatment costs, but also for biodiversity, flood management and environmental flows.

⁴ Charging of surface and groundwater use for irrigation in agriculture was introduced by the amendment to the Water Act No. 303/2016 Coll.

⁵ Water-related risks include: water scarcity, floods, water pollution, degradation of ecosystems, and inadequate access to safe water supply and sanitation.

Appendix

Box 1. Boosting investments in nature-based solutions

Nature-based solutions (NbS) involve the use of natural or semi-natural systems that utilise nature's ecosystem services in the management of water resources and associated risks (OECD, 2015c). NbS are increasingly part of the response to water-related risks. For example, conservation or expansion of floodplains can increase water infiltration and reduce flooding risks to cities, while simultaneously supporting agricultural production and wildlife, and providing recreational and tourism benefits. Likewise, permeable pavements and the creation of green spaces can enable surface water to infiltrate the soil, replenish aquifers, and reduce polluted stormwater runoff. The equivalent traditional engineered ('grey') infrastructure solutions include dams, dykes, artificial groundwater recharge, and wastewater treatment plants.

In certain cases, it has been shown to be cost-effective for cities to combine investments in both NbS and grey infrastructure (OECD, 2015a). Apart from having a lower environmental impact, investments in NbS are generally: less capital intensive; have lower operation, maintenance and replacement costs; avoid lock-in associated with grey infrastructure; and appreciate in value over time with the regeneration of nature and its associated ecosystem services (as opposed to the high depreciation associated with grey infrastructure). NbS can also avoid or postpone the costs of building new, or extending existing, grey infrastructure. They can therefore help communities stretch their infrastructure investments further by providing multiple environmental, economic and social benefits.

Slovakia has made some efforts to increase NbS (e.g. natural retention measures and wetlands for flood prevention) under the new national EnviroStrategy 2030. However, there are no specific financial tools to preserve and develop NbS beyond public budgets and various EU funds. Actions to scale-up investment in NbS to achieve the objectives of the EU water *acquis* may include:

- combine investments in grey infrastructure with NbS
- increase funding approval success rates through better quantification of the benefits and costs of NbS (in comparison to grey infrastructure alternatives)
- align water policy objectives, particularly on flood prevention and water quality protection, with climate change mitigation, adaptation, nitrates, biodiversity and land development objectives.
- in the longer-term, settle property rights to increase land available for NbS
- identify opportunities to co-finance NbS with:
 - the Ministry of Agriculture as part of agriculture development (which has one-third of the EU funds budget)
 - the Ministry of Construction and Regional Development as part of urban development
 - local authorities
 - water utilities
 - public and private climate change funding
- identify economic instruments and financial tools to preserve and develop NbS. Options may include: payment for ecosystem services, earmarking revenue generated from pollution charges and non-compliance fees for NbS, and biodiversity offsets.

Sources: OECD (2016), *Water, Growth and Finance: Policy Perspectives*.

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