

Austria

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 countries¹. 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

- Austria's water quality is one of the best in the world.
- Austria is particularly exposed to flood risks, which will be exacerbated by a changing climate.
- The protection of groundwater resources against pollution due to the agriculture sector and the industry is an ongoing challenge in some regions.
- Austria does not face any core issue in terms of financing capacity. Current price levels demonstrate the ability to recover costs of WSS services.

Context

Austria enjoys a high standard of living. However, future economic growth is expected to be lower than most EU members. Austria's urbanisation rate is forecast to grow from 66% to nearly 75% by 2050. This, coupled with population growth, implies a large increase in residents in towns and cities. Austria is close to the median in terms of public water supply coverage, and sits in first place for compliance with wastewater treatment. About 40% of Austria's population are estimated to be at risk of flood events.

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 40 400 (6/28)	Eurostat	2016
	Projected GDP growth	1.5% (25/28)	IMF	2016-2022
	Projected urban population variation by 2050	1.32x (4/28)	UN	2017-2050
Water Supply and Sanitation	Estimated annual average expenditure per capita	EUR 182	Authors based on EUROSTAT	2011-2015
	Population not connected	7.9% (supply) 4.9% (sewer)	BMNT / EC	2015
	Annual domestic sector drinking water consumption per capita	660 Mio. m ³ /an.	BMNT	n.a.
	Leakage rate for public water supply	14%	EC	2017
	Non-revenue water	16%	ÖVGW 2018	2017
	Compliance with UWWTD Art.3, 4 and 5 (Index)	100% (1/28)	EC	2014
Flood Protection	Estimated annual average expenditure per capita	EUR 41	EC survey	2013-15
	Pop. potentially affected in flood risk areas	40%	EC report	2015
	Value of assets at risk (rise 2015-30):	1.6x (15/28)	WRI	2015-2030

Note: A rank of 1 implies best in class.

Main drivers and projections of future investment needs

Water supply and sanitation

Austria has ample high-quality water resources (OECD, 2013^[1]). All drinking water is groundwater or spring water (OECD, 2013^[1]). Austria demonstrates very high compliance (99-100%) with the Drinking Water Directive (European Commission, 2017^[2]). All Austrians have access to piped drinking water, with 90% drawing from public water and 10% from private wells and springs (World Bank, 2015^[3]).

Austria also has high compliance with the Urban Waste Water Treatment Directive (European Commission, 2017^[2]). Almost the entire population (99%) has access to a flush toilet, and 100% of collected wastewater is treated (World Bank, 2015^[3]).

Water infrastructure in Austria has received significant investments in recent decades, which is evident in the well-supplied and functioning system. Long-term asset management is an ongoing priority, as Austria will need to maintain these assets to stay on a stable good practice level of service (World Bank, 2015^[3]).

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.

Table 2. Projected investment needs – Water supply and sanitation to 2050 (m. EUR)

AUSTRIA		Baseline 2015	2020	2030	Total by 2030	2040	2050
BAU water supply and sanitation	CAPEX	748	821	966	-	1114	1248
	TOTEX	1538	1624	1798		1959	2079
Scenario Compliance + for water supply and sanitation	ADD. CAPEX	-	191	214	2211	-	-
	ADD. TOTEX		398	420	4454		
	Compliance with DWD, access and efficiency (water supply)	ADD. CAPEX	-	11	11	113	-
	ADD. TOTEX		43	43	431		
Compliance with UWWTD (sanitation)	ADD. CAPEX		179	202	2098		
	ADD. TOTEX		355	377	4023		

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

Austria experiences regular flooding events with high damages. Due to Austria's varying topography (alpine, pre-alpine, and lowland), flood conditions can vary greatly (ICPDR, 2014_[4]). The estimated economic damages from the major flood events of August 2002, August 2005 and June 2013 are reported around EUR 2,445, 515 and 866 million respectively (ICPDR, 2014_[4]). The high potential impact and frequency of flooding have led to strong political support for risk reduction measures. Austria has a comprehensive, effective and well-funded administrative system for managing the consequences of flooding (OECD, 2013_[1]).

Table 3 highlights growth factors in future investment needs for protection against (riverine and coastal) flood risks.

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	
Austria	3,85	13,00	15,98	na

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).

As described above, Austria's geography is particularly prone to natural hazards such as flooding, which will be exacerbated by climate change. The current climate models project an increase in precipitation in winter and a significant decrease in summer across all regions of Austria (Neuhold, 2016_[5]).

Other pressures affecting compliance with WFD

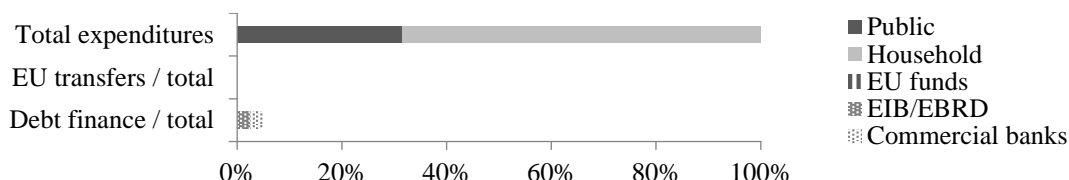
Adaptation of existing infrastructure, such as the sewer systems to manage heavier rainfalls, will be an important challenge in the near future. Drought and an increase in hot days will affect future drinking supply in some areas (BMNT, 2017_[6]). It will be necessary to make sure these areas are connected with other suppliers, which have enough water, as well as find a second pillar of supply.

Flow regulation and morphological changes are the primary pressures on Austrian waters. In addition, diffuse pollution from agriculture and industry affects 16% of water bodies (European Commission, 2017_[2]). In some regions, groundwater resources, which are the primary drinking water resource, face high nitrate and pesticide levels (European Commission, 2017_[2]).

Financing strategies and capacities

Austria relies for more than two-thirds on pricing to finance WSS-related expenditures, with the remaining relying on public spending. The need to recourse to debt finance appears minimal. Further, the country has not benefited from nor would have been in need of EU transfers.

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



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

Revenue from tariffs is the primary financing source of the WSS sector. Tariff revenue covers operations and maintenance costs fully, as well as a significant share of investment costs. Some subsidies are granted by national and federal government budgets to complement funding for investments, which represents in water supply 24% and sanitation 27% of sector spending (BMNT, 2017^[7]).

A 2012 assessment found that water and sanitation services remained affordable at only 1.0% of average household income (World Bank, 2015^[3]).

Austria has a strategy to implement renovation and new investments for both water supply and sanitation infrastructure for 2018–2021. This total plan amounts to EUR 2.6 billion, with EUR 1.2 billion dedicated to water and EUR 1.4 billion to wastewater (BMNT, 2014^[8]). In the past, annual investment rates have met the necessary level.

Based on criteria in Table 4, Austria does not face critical issues in terms of financing capacity. Further reliance on tariffs towards full cost recovery should be possible as affordability does not appear to be a concern. Relatively high current levels of overall taxation and consolidated public debt could, however, constrain a massive increase in public spending.

Table 4. Indicators of future financing capacities

	Indicator	Value (rank)	Year	Data Source	Assessment
Ability to price water	Country-level average price for water supply / m3 (PPP)	1.3 – 2.6 EUR (15/27)	2009	ÖVGW Statistics 2016	High
	Water expenditures in lowest household income decile	1.05% (5/26)	2011-15	Authors based on EUROSTAT	
	Full cost recovery equivalent in lowest household income decile	1.53% (4/28)	2011-15	Authors based on EUROSTAT	
	At-risk-of-poverty rate	14.1% (8/28)	2016	EUROSTAT	
Ability to raise public spending	Tax revenue / GDP	42.9% (22/28)	2016	EUROSTAT	Medium
	Government consolidated debt / GDP	83.6% (20/28)	2016	EUROSTAT	
	Sovereign rating	AA+	2017	Standard & Poor's	
Ability to attract private finance	Domestic credit to private sector / GDP	87% (14/28)	2015	World Bank	High

Flood risk management

Flood protection in Austria is shared across federal, provincial (Länder), district and municipal scales. In general, the federal government is responsible for the development and management of water regulating infrastructures, while Länder and local governments are in charge of spatial planning and water resources management at their respective scales (ICPDR, 2014_[4]).

Major flood events in Austria have triggered increased public and private efforts on flood protection measures through the country. Since the 2002 flood event in Austria approximately EUR 2 billion have been invested by the Federal state for protection measures, and complementary investments had been provided by the Länder and municipalities (ICPDR, 2014_[4]).

The insurance coverage of flood risk is exclusively provided by private insurance companies, and is bundled within standard household coverage. Extended flood damage coverage is available on an optional basis (OECD, 2016_[9]).

Austria's key source for financing flood risk prevention and mitigation measures is the *Katastrophenfonds*, or *KatFonds*, which was enacted after severe flood events in Austria in 1965 and 1966. These funds are both used to finance both disaster risk prevention measures provided by the responsible authorities, and to compensate for damages after a flood event. The fund is supplied by an annual contribution by the federal government of 1.1% of total federal tax income. Three quarters of the annual prevention and mitigation investment funding is allocated to the authorities in charge of prevention and mitigation of natural hazard risk. The remaining funding is used to support preparedness functions (e.g. equipment for fire departments and early-warning systems) and for compensating losses incurred by households and businesses in the event of a disaster (OECD, 2017_[10]).

References

- BMNT (2017), *Evaluierung der Umweltförderung des Bundes 2014-2016*, [7]
https://www.parlament.gv.at/PAKT/VHG/XXVI/III/III_00118/imfname_682286.pdf (accessed on 04 May 2018).
- BMNT (2017), *Klimawandel in der Wasserwirtschaft*, https://www.bmnt.gv.at/wasser/wasser-oesterreich/foerderungen/trinkwasser_abwasser/aktuelle_projekte/klimawandel_wasserwirtschaft.html. [6]
- BMNT (2014), *Investkostenerhebung des Bundes für die Siedlungswasserwirtschaft*, [8]
https://www.bmnt.gv.at/wasser/wasser-oesterreich/foerderungen/trinkwasser_abwasser/aktuelle_projekte/investitionskosten.html.
- European Commission (2017), “The EU Environmental Implementation Review Country Report - AUSTRIA”, http://ec.europa.eu/environment/eir/pdf/report_at_en.pdf (accessed on 28 March 2018). [2]
- ICPDR (2014), “Flood Risk Management Plan for the Danube River Basin District”, [4]
<https://www.icpdr.org/main/sites/default/files/nodes/documents/1stdfrmp-final.pdf> (accessed on 28 March 2018).
- Neuhold, C. (2016), “EU Floods Directive implementation in Austria”, https://www.e3s-conferences.org/articles/e3sconf/pdf/2016/02/e3sconf_flood2016_23004.pdf (accessed on 28 March 2018). [5]
- OECD (2017), *Boosting Disaster Prevention through Innovative Risk Governance: Insights from Austria, France and Switzerland*, OECD Publishing, Paris, [10]
<http://dx.doi.org/10.1787/9789264281370-en>.
- OECD (2016), *Financial Management of Flood Risk*, <http://www.oecd.org/daf/fin/insurance/Financial-Management-of-Flood-Risk.pdf> (accessed on 05 September 2017). [9]
- OECD (2013), “OECD Environmental Performance Reviews: Austria”, <http://www.oecd-ilibrary.org/docserver/download/9713141e.pdf?expires=1522167189&id=id&accname=ocid84004878&checksum=EB1EAC6EBFE9FA1B764DE9017C9C333C> (accessed on 27 March 2018). [11]
- World Bank (2015), “Austria Country note: Water and WasteWater services in the danube region”, [3]
http://sos.danubis.org/files/File/country_notes_pdf/SoS_Austria.pdf (accessed on 28 March 2018).
- World Bank (2015), “Key Water and Sanitation Sector Challenges”, [11]
<http://documents.worldbank.org/curated/en/653681467998782643/pdf/97229-WP-P146139-PUBLIC-Box391472B-SoS-Hungary.pdf> (accessed on 19 February 2018).