

Malta

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

- Malta relies on a mix of conventional (e.g. groundwater) and non-conventional (e.g. desalination) resources for its water supply.
- The quality of groundwater is degrading (saline intrusion, nitrate), which may increase costs of supply in the future. Current investments in water re-use aim to reduce pressures on groundwater.
- EU funding has provided a significant share of past public funding over the past decade.

Context

Malta sits at the EU member state median in terms of GDP per capita. It ranks first for economic growth projections in coming years. Malta is one of the most urbanised EU member states, in part due to its size. Both urbanisation rate and total population are expected to rise slightly over the next three decades. Malta achieves universal water supply coverage, but compliance with the UWWTD is not yet achieved.

Malta is a water-scarce country due to limited natural water endowments, a semi-arid climate and high population density, resulting in high water demand. Malta's groundwater resources are over-exploited and thus exposed to saline intrusion and extensive nitrate contamination. If groundwater resources continue to deteriorate, drinking water supply will become increasingly dependent on desalination, increasing the cost of supply significantly (EC, 2017).

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 22 700 (14/28) | Eurostat | 2016 |
| | Projected GDP growth | 3.5% (1/28) | IMF | 2016-2022 |
| | Projected urban population variation by 2050 | 1.19x (10/28) | UN | 2017-2050 |
| Water Supply and Sanitation | Estimated annual average expenditure per capita | EUR 178 | Authors based on EUROSTAT | 2011-2015 |
| | Population not connected to public water supply | 0% | EUROSTAT | 2015 |
| | Annual domestic sector consumption per capita | 64.3 m3 | EUROSTAT | |
| | Leakage rate for public water supply | 26% | EC | 2017 |
| | Non-revenue water | c.43% | EurEau | 2017 |
| | Compliance with UWWTD Art.3, 4 and 5 | na | EC | 2014 |
| Flood Protection | Estimated annual average expenditure per capita | EUR 20 (4/27) | EC survey | 2013-15 |
| | Population potentially affected in flood risk areas | N/A | EC report | 2015 |
| | Expected increase in urban damage | 1,00 | 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

Malta reaches very high compliance rates (99-100%) for microbiological and chemical parameters for drinking water. But the rate of compliance with indicator parameters in the Drinking Water Directive (DWD) is at 92%, likely due to intrusion of sea water (EC, 2016).

The collection of wastewater reaches 100%. However, wastewater treatment is not in compliance with EU requirements. Malta reports that excess farm manure discharges in the collecting systems is responsible for poor performance of wastewater treatment plants. A Farm Waste Management Plan was published in March 2016 to address these issues (EC, 2017).

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)

| MALTA | | Baseline 2015 | 2020 | 2030 | Total by 2030 | 2040 | 2050 |
|--|---------------|------------------|------|------|------------------|------|------|
| BAU water supply and sanitation | CAPEX | 12 | 18 | 30 | - | 43 | 54 |
| | TOTEX | 74 | 79 | 86 | - | 89 | 91 |
| Scenario Compliance + for water supply and sanitation | ADD. CAPEX | - | 8 | 9 | 91 | - | - |
| | ADD. TOTEX | - | 35 | 25 | 328 | - | - |
| Compliance with DWD, access and efficiency (water supply) | ADD. CAPEX | - | 1 | 1 | 6 | - | - |
| | ADD. TOTEX | - | 2 | 2 | 20 | - | - |
| Compliance with UWWTD (sanitation) | ADD. CAPEX | - | 8 | 8 | 85 | - | - |
| | ADD. TOTEX | - | 33 | 23 | 308 | - | - |

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.

(1) Malta signals projected CAPEX are expected to vary between EUR 5 and 10 million.

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

Flash floods pose a risk in Malta. The 2003 flash flood caused estimated damage of EUR 30 million (RPA, 2014).

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

Table 3 highlights growth factors in future investment needs for protection against (riverine and coastal) flood risks. There is no information in Malta on the projected impacts of climate change for future flood events (EC, 2015). 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 | |
| Malta | 1,00 | 1,00 | 1,00 | 1 |

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).

Of note: Malta has embarked on a holistic approach to urban flood management through a number of projects (some of which are still at applications stage) targeting uncontrolled surface water runoff both in urban areas and in the upstream parts of the catchment. These projects will focus on different facets of flood management such as the rehabilitation of valleys to increase water storage capacity, the adoption of sustainable urban drainage systems and the development of site specific valley management plans. Such techniques and methodologies are currently being tested at pilot stage through initiatives financed under the LIFE Integrated Project and projects financed under the ERDF and Cohesion Fund. The eventual implementation of these upstream measures on an island-wide basis to complement downstream flood relief is projected to require significant investments in the years to come.

Other selected pressures affecting compliance with the WFD

Seventy-one percent of natural surface water bodies in Malta are reported to achieve good or high ecological status according to the first RMBPs. A similar share (73%) of groundwater bodies are in good quantitative status, while only 13% achieve good chemical status (EC, 2017).

The main pressures on surface water are diffuse pollution (affecting 67% of water bodies), point sources (affecting 56%) and coastal management (affecting 33%) (EC, 2017). Private groundwater abstraction is an important pressure on the resource. Monitoring of the quantitative status of the resource could be improved. The enforcement of rules to protect groundwater from nitrates contamination remains a challenge (EC, 2017).

Past financing strategies and room for manoeuvre to finance future needs

Water supply and sanitation

Malta has benefitted from a significant amount of EU funding for water supply and wastewater management – in addition to domestic public finance - and will continue to receive Cohesion

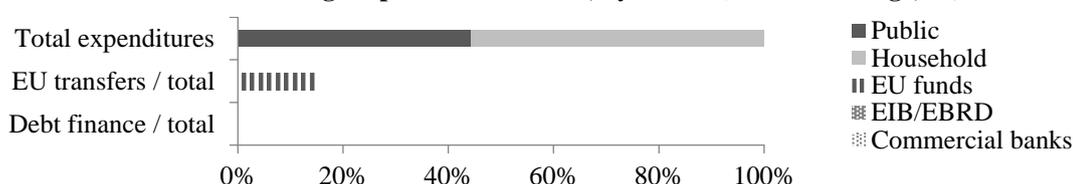
Policy investments to develop infrastructure to secure water supply, improve efficiency of use and the quality of groundwater (EC, 2018).

Replacement of groundwater with desalinated water results in higher water production costs. However, desalination production costs are declining due to advances in energy efficiency.

There are a few environmental charges related to water in Malta, including a charge on effluent discharge and a charge for the connection (or re-connection) to water supply. In addition, there is a rising block tariff in place for water supplied from municipal supply, a tariff system for water reuse designed to encourage its uptake relative to groundwater, as well as groundwater abstraction charges. (OECD, 2018).

Figure 1 shows that Malta relies almost equally on public and household expenditures to finance WSS-related expenditures and costs. EU transfers have played an important role in supporting the former. Debt finance appears to have played no role.

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 Investment Bank, IJ Global, Thomson Reuters, Dealogic (for debt finance).

Based on criteria in Table 4, Malta appears to face reasonably manageable financing constraints. Water pricing are not close to affordability constraints yet. Further reliance on public spending (as well as recourse to debt financing, should need be) should also be made possible by a relatively 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 | 1.56% (12/26) | 2011-15 | Authors based on EUROSTAT |
| | Full cost recovery equivalent in lowest household income decile | 2.8% (12/28) | 2011-15 | Authors based on EUROSTAT |
| | At-risk-of-poverty rate | 16.5% (15/28) | 2016 | EUROSTAT |
| Ability to raise public spending | Tax revenue / GDP | 33.6% (7/28) | 2016 | EUROSTAT |
| | Government consolidated debt / GDP | 57.6% (12/28) | 2016 | EUROSTAT |
| | Sovereign rating | A- | 2017 | Standard & Poor's |
| Ability to attract private finance | Domestic credit to private sector / GDP | 98% (9/28) | 2015 | World Bank |

Flood risk management

Malta received EUR 0.96 million from the EU Solidarity Fund for damage caused by storm and floods in 2013. A National Flood Relief project, co-funded by the EU Cohesion Fund is being implemented (EC, 2017).

References

- Environment and Resources Authority (ERA) (2016), “The 2nd Water Catchment Management Plan for the Malta Water Catchment District 2015-2021”, www.energywateragency.gov.mt/water-framework-directive/ (accessed 11 May 2018).
- European Commission (EC) (2018), “EU funding continues to bring benefits to Malta”, 9 February 2018, http://ec.europa.eu/regional_policy/en/newsroom/news/2018/02/02-09-2018-eu-funding-continues-to-bring-benefits-to-malta (accessed: 23 February 2018).
- EC (2017), “The EU Environmental Implementation Review”, 28 Country reports, http://ec.europa.eu/environment/eir/index_en.htm.
- EC (2016), “Synthesis Report on the Quality of Drinking Water in the Union examining Member States’ reports for the 2011-2013 period, foreseen under Article 13(5) of Directive 98/83/EC”, COM (2016) 666 final, <http://ec.europa.eu/environment/water/water-drink/pdf/reports/EN.pdf> (accessed 22 October 2018).
- EC (2015), “Report on the progress in implementation of the Floods Directive”, Commission Staff Working Document, SWD(2015) 51 final, Brussels, 9.3.2015.
- EC (2009), “Malta: Country overview and assessment of climate change adaptation” *The economics of climate change adaptation in EU coastal areas*, https://ec.europa.eu/maritimeaffairs/sites/maritimeaffairs/files/docs/body/malta_climate_change_en.pdf (accessed: 22 February 2018).
- OECD (2018), Database on Policy Instruments for the Environment, <https://pinedatabase.oecd.org/> (accessed: 22 February 2018).
- Risk & Policy Analysts (RPA) (2014), “Study on Economic and Social Benefits of Environmental Protection and Resource Efficiency Related to the European Semester”, Study for the European Commission, <http://ec.europa.eu/environment/nature/ecosystems/docs/RPA%20Final%20Report.pdf> (accessed 22 October 2018).
- WHO-UNICEF (2017), *Progress on Drinking Water, Sanitation and Hygiene: 2017 update and SDG baselines*, Geneva, World Health Organization (WHO) and the United Nations Children’s Fund (UNICEF).