

# Roundtable on Financing Water

## Roundtable on Financing Water 6<sup>th</sup> meeting, 7-8 December 2020, virtual meeting *Financing needs and capacities for water-related investments in Europe* Background Paper

### Introduction

Member states of the European Union are required to comply with standards and regulations for water supply and sanitation as well as to elaborate plans for flood risk management, which are set out by the EU acquis on water. Specifically, member states seek to reach compliance with regulations for wastewater treatment in urban areas, access to drinking water and flood management<sup>1</sup>. In a recently published report, the European Commission and the OECD assessed the capacity of member states to cover the investment needs they face now within these sectors and what would be required by 2050 to reach and maintain compliance with the EU standards (OECD, 2020<sup>[1]</sup>). The analysis revealed that member states<sup>2</sup> face a considerable financing gap, amounting to total cumulative additional expenditures of EUR 289 billion needed by 2030 to reach EU compliance. Countries have limited room for manoeuvre to address this financing gap, with large variation in the capacity to bridge the gap among member states. The current COVID-19 crisis exacerbates the challenge to meet these financing needs. Water and wastewater utilities around the world expect their revenues to fall by an average of 15% as a result of the pandemic (GWI, 2020<sup>[2]</sup>) and both public and household budgets face increasing pressure, reducing the various sources of finance for water supply and sanitation. This paper summarises the key findings from the analysis (which are discussed in detail in the Appendix), and presents options to move forward, supporting the Roundtable meeting discussion towards practical implementation of policy options to narrow the financing gap for water-related investments in Europe.

### Questions for discussion

The following questions will help to frame the discussion on how investment needs in Europe can be addressed and how different policy options can be implemented in practice.

1. How can member states use projections of investment needs and estimates of financing capacities to inform strategic financial planning for water-related investments? What would be an appropriate level of further disaggregation (national/local; urban/rural; other)?
2. Which specific policy instruments and financing approaches are the most promising in light of the current circumstances, country contexts and political feasibility?
3. How are financing capacities affected by the COVID-19 crisis? Which finance sources (revenues from water services, including affordability constraints; access to public and commercial finance) are (and will be) most affected by the COVID-19 pandemic? How could any negative effects be mitigated?

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<sup>1</sup> These regulations are defined in the Urban Waste Water Treatment Directive (UWWTD), the Drinking Water Directive (DWD) and the Floods Directive (FD), which are used as reference for the calculation of investment needs, and which are part of the broader EU Water Framework Directive.

<sup>2</sup> Throughout this paper, "member states" refer to the 27 EU member countries and the UK, which was still a member of the EU at the time the analysis was conducted.

4. How can the European Commission support member states to achieve countries' compliance with the EU acquis on water? Particularly:
  - What kind of financial support would be most appropriate (conditionality or enabling conditions; preferred instruments; opportunities to blend them with other sources of finance; other)?
  - Apart from financial support, how can the European Commission further help (sharing information on good practices and peer learning; supporting policy reforms in this or in other domains; providing stricter guidance on water policies, planning, financing; else)?

## Key findings

Current annual average expenditures on **water supply and sanitation (WSS)** are estimated at a total of EUR 100 billion across EU member states, with large variations across countries. Eight member states spend less than EUR 100 per capita each year, while six countries allocate more than EUR 250 per capita annually on WSS services. As previously mentioned, investments in WSS need to increase significantly in order to maintain and reach compliance with European standards. Sanitation represents the lion's share of the total additional expenditures, while urban growth plays a minor role in driving additional needs in the future. On a country level, all member states but Germany will need to increase annual expenditures for water supply and sanitation by more than 25% (OECD, 2020<sup>[1]</sup>).

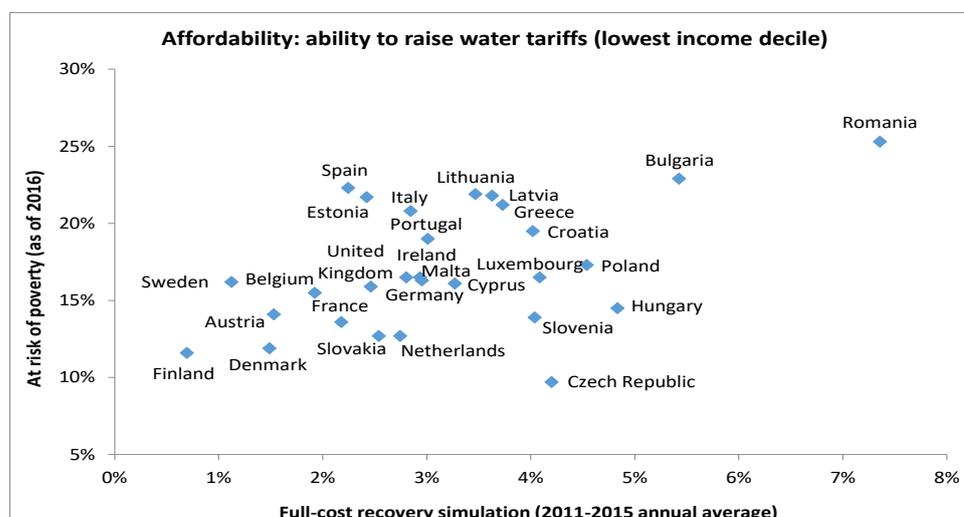
The sources of finance used for water supply and sanitation vary according to EU members. In some countries, public budgets to WSS heavily rely on *EU funding*, other states rely essentially on *water tariffs* (Denmark, England and Wales), while others cover the costs through *taxation* (Ireland).

- *EU transfers* play an important role in the EU-13<sup>3</sup> countries, covering up to 17% of estimated total expenditures for WSS. However, EU support through cohesion funds is projected to decrease in the future, further widening the financing gap and intensifying the need to mobilise alternative sources of finance. Commercial finance could play a role in closing this gap, as it is available in all member states. So far, it has only marginally been used for water-related investments, representing roughly 6% of total expenditures on WSS (and only 1% in the newer EU member countries, the EU-13), leaving room to be scaled up.
- Increasing *water tariffs* could improve cost recovery and increase this source of revenue for water providers, which is a potential option for a number of member states. The OECD analysis found that in 24 EU member states, more than 95% of the population could pay more for water services without facing affordability constraints.

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<sup>3</sup> EU-13 countries are: Bulgaria, Croatia, Cyprus, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Romania, Slovakia and Slovenia.

Figure 1. Affordability of water supply and sanitation compounded by risk of poverty



Note: Known underestimate of total expenditure for Finland and Sweden

Source: Joint Research Centre, European Commission for prices (based on latest available year), EUROSTAT for household expenditures (2011-2015)

- The ability to raise *public spending* depends on current tax income and public debt levels and varies significantly among member states. Countries with a high ratio of debt to GDP, such as Greece, Italy and Portugal, have limited room to increase public budgets for water-related investments. More disaggregated analysis is required to specify financing capacity of local authorities, which cover over 50% of public investment in the EU member states (OECD, 2020<sup>[3]</sup>). This analysis was undertaken prior to the COVID pandemic, thus does not reflect the constraints on public budgets related to the crisis.

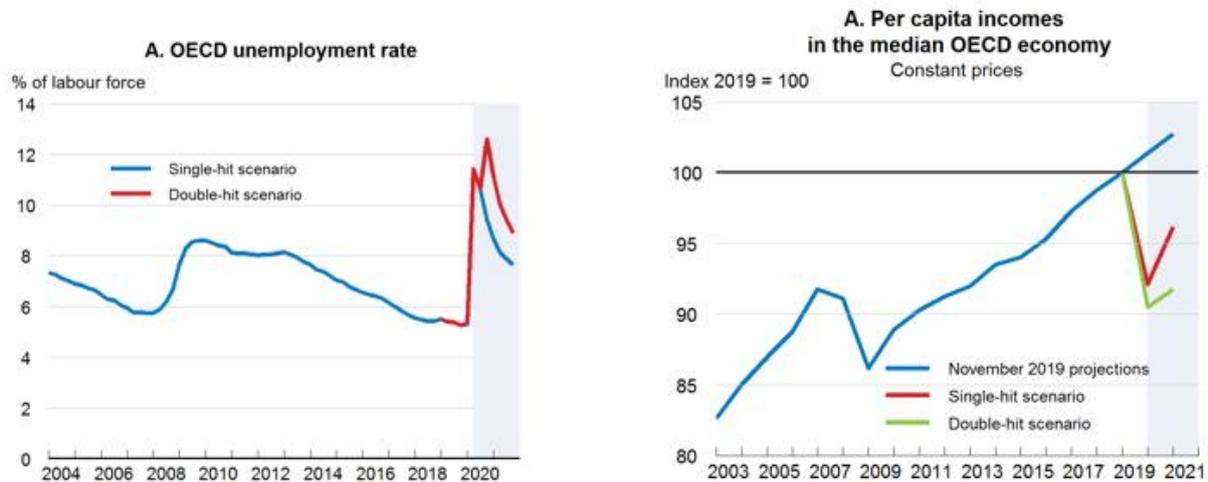
Estimates on current expenditures on **flood protection** are not available for most of the countries. Additional work is required to assess financing needs and capacities for water resources management to address risks of floods and droughts, which remain uncertain. Investment needs for flood protection are based on changes in the exposure of flood risks, relying on the development of indicators such as the value of assets at risk, the number of people affected and value of GDP affected. Some countries (Austria, Luxembourg and the Netherlands) face high growth factors for expenditure needs on flood protection, while others (Cyprus, Greece, Malta, Portugal and Spain) benefit from low or negative growth factors, reducing the necessity to scale up investment in flood protection.

### **Impacts on financing challenges due to the COVID-19 crisis**

The previous findings need to be reconsidered in light of the consequences of the COVID-19 pandemic. Real per capita income is projected to decline by 8% in 2020 and unemployment has more than doubled between 2019 and mid-2020 in OECD countries (OECD, 2020<sup>[4]</sup>). This can affect revenues from utilities, intensify affordability constraints for households and limit member states' possibility to increase water prices. In the US, for instance, revenue losses due to increased bill delinquencies from COVID-19 related job losses are estimated at USD 3.8 billion (NACWA, 2020<sup>[5]</sup>). According to a survey, over 75% of the reviewed water utilities globally have suspended action against non-payers since the COVID-19 outbreak, with the majority expecting this to significantly affect their revenues<sup>4</sup>. (GWI, 2020<sup>[2]</sup>)

<sup>4</sup> The survey was based on responses from 44 utilities around the world.

Figure 2. OECD unemployment rate and per capita incomes in the median OECD economy



Source: OECD (2020), *OECD Economic Outlook, Volume 2020 Issue 1: Preliminary version*.

Tariffs payed by water users generally provide a very stable revenue flow for water utilities, allowing for reliable financial planning. During the COVID crisis, however, water demand decreased significantly, industrial and commercial water use dropping by 27% and leading to revenue falls for water utilities of 15%. European utilities are among the least exposed, and roughly two thirds of the reviewed utilities seem confident to be able to collect the arrears associated with COVID-19. While the pandemic might affect European utilities less than utilities elsewhere in other continents, it is still likely to deter crucial water-related investments now and in the future: More than half of utilities plan to mitigate the impacts of the income losses by reducing on capital projects and by reducing operational outgoings (GWI, 2020<sup>[2]</sup>).

Furthermore, the COVID-19 crisis has effected public budgets in all countries and is projected to increase public debt levels by more than 15% points of GDP in ten European member states between 2019 and 2021 (OECD, 2020<sup>[4]</sup>), exacerbating the challenge for governments to meet the investment needs for reaching compliance with the EU water *acquis*.

## Closing the financing gap: Policy options and their implementation

The substantial financing gap in the water sector in Europe urges governments to take decisive action. The following section outlines key options countries could consider in order to address the financing challenge for water-related investments now and in the future.

### *Make the best use of existing assets and financial resources*

- Improving the operational efficiency and effectiveness of existing infrastructure and service providers can postpone investment needs and is a precondition to attract other sources of finance. Countries need to invest in maintaining and renewing existing networks, improve the performance of existing infrastructure and services, and address systemic problems such as leakage that result in non-revenue water. In Europe, non-revenue water ranges from below 10% in the Netherlands, Germany and Denmark to more than 40% in Malta and Ireland, with the mean lying at 23% for EurEau member countries<sup>5</sup> (EurEau, 2017<sup>[6]</sup>). Tackling these deficiencies raises utilities' revenues,

<sup>5</sup> EurEau represents national drinking and waste water service providers from Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Luxembourg,

contributes to improving service providers' creditworthiness and can increase the users' willingness to pay for services. By introducing processes for benchmarking and publicly reporting on service providers' performance, countries can increase providers' incentives for efficiency and financial sustainability, as well as the overall accountability and transparency of service delivery. Action could be taken in the development of performance criteria, such as the setting of service level standards and performance indicators. As an example, the International Benchmarking Network for Water and Sanitation Utilities (IBNet) is an initiative compiling core performance indicators and providing access to comparative information on water utilities worldwide (IBNet, 2020<sup>[7]</sup>).

- The aggregation of service providers could allow for economies of scale, greater professional capacity and better access to sources of finance in countries with dispersed or fragmented market structures. However, aggregation can entail long consultation and negotiation processes. Hungary, Ireland and the Netherlands, for instance have benefitted from the aggregation of service providers, while Cyprus, Lithuania and Estonia are potential candidates for such a reform.
- Encouraging connections to services at the user level, where central assets are available, can foster compliance with the Drinking Water (DWD) and Urban Waste Water Treatment Directives (UWWTD) and provide additional revenue streams. While in fragmented rural areas, individual and other appropriate systems (IAS) for wastewater management can be beneficial, IAS can also present significant design, monitoring and enforcement challenges and can impede compliance with EU directives. Greece, Hungary and Slovakia heavily rely on IAS, and together with four other countries exceed the 5%-threshold<sup>6</sup>. Defining and assessing the cost-effectiveness of different service delivery options can drive decisions toward the most suitable option in a given context. Where connection to collective systems is hampered by unwillingness or inability to pay for services by local communities (e.g. in Lithuania), measures mitigating for affordability constraints or incentivising connection can be appropriate.
- Developing plans and setting priorities can increase the efficiency and effectiveness of current infrastructure and financial flows. Complex trends and future risks need to be accounted for, such as demographic developments (urbanisation or depopulation of rural areas), as well as geographic conditions and climate change. In Romania, for example, the rural population is projected to contract by 40% in the coming decades, which has implications for current infrastructure developments both in rural and urban areas. Decisions on projects and investments in WSS services need to be guided by clear plans for policy reform that support financial sustainability, compliance and other key policy goals, and that have been prepared and agreed through a multi-level, multi-stakeholder process. To support priority setting and clear decision making under uncertainty, countries may consider tools such as scenario planning approaches or the identification of fall-back options (such as secondary and tertiary solution strategies, allowing for "safe failure" in case first solution strategies are no longer viable).
- Supporting plans with realistic financing strategies and strengthening the capacity to use funds effectively contributes to the sustainability of investments. This requires that financing needs are identified over different time scales and investments are designed and sequenced in different locations and service contexts. Sustainable strategies should clearly set priorities and drive investment decisions, and be developed in co-operation with national and local authorities, accounting for the backlog of under-investment in maintenance over the past decades. The lack of a realistic financing strategy is especially acute for small municipalities (and rural areas). In Poland, for instance, there is a mismatch between high investment needs, and technical and financial capacity of small municipalities, which are mainly rural.

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Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland and the UK.

<sup>6</sup> IAS 5% threshold: IAS collect more than 5% of the total pollution load in agglomerations covered by the UWWTD

- Building capacities for independent economic regulation can support the transition towards sustainable financing strategies. By separating the functions and powers of policy and decision making from WSS service operations to facilitate the independent economic regulation of WSS services, countries can clarify the allocation of roles and responsibilities and support accountability and transparency for different aspects of services. This allows to benefit from synergy effects and can facilitate necessary reforms in the sector. In England and Wales for instance, the economic regulator Ofwat determines water prices, while water utilities are mostly privately owned. Cyprus is an example of a country which could potentially benefit from a structural reform introducing an economic regulator.

#### *Minimise future financing needs*

- Managing water demand can help minimising future needs to invest in supply augmentation. This could be linked with well-designed water allocation regimes, hence improving water use efficiency. In Cyprus, for instance, a significant amount of water is allocated to low value agriculture uses, driving costly investments in supply augmentation and depleting the resource, thus weakening compliance with good ecological status. Reforming the water allocation regime could enhance water use efficiency, discourage wastage and low value uses and secure water for valuable ecosystems. The COVID crisis intensifies the need for water-demand management and more robust water allocation regimes. While commercial and industrial water use decreased, domestic water consumption has risen by 5-25% during the pandemic (isleutilities, 2020<sup>[8]</sup>). In cities, which already suffer from water scarcity, this could cause further challenges (Cooper, 2020<sup>[9]</sup>).
- Encouraging coherence across water policies and other policy domains can contribute to minimising future financing needs. Aligning policy objectives and incentives across policy areas and jurisdictions can enable countries to identify and invest in reforms that realise co-benefits across multiple sectors and meet multiple policy objectives and avoid trade-offs. This can in turn minimise current and/or future risks, liabilities and financing needs, and strengthen countries' capacity to ensure compliance with the DWD) and theUWWTD over the long term. Countries may choose to complement collaborative processes with measures that create specific requirements or incentives for decision makers to integrate objectives from different policy areas into their standard processes. In Slovakia, for instance, synergies between policies could be increased through an adjustment of 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).
- Nature-based solutions for flood protection or other water-related objectives can deliver additional benefits (such as the preservation of good ecological status of water bodies) which help to comply with the Water Framework Directive (OECD, 2020<sup>[10]</sup>). Exploiting innovation which is adaptive to a changing climate and future conditions can contribute to reducing water-related investment needs over the long-run. Innovation could include water-efficient irrigation systems for agriculture, monitoring techniques for river flows and pollution loads or more effective treatment techniques.

#### *Harness additional sources of finance, where appropriate*

- Ensuring that water tariffs reflect the costs of service provision can provide adequate funding for water utilities and help to manage demand for water consumption. Further, a sufficient revenue stream allows utilities to attract additional sources of finance. As previously mentioned, in most EU countries there is room to manoeuvre to raise tariffs, as more than 95% of the population could pay

more for WSS in 24 member states, without facing affordability constraints.<sup>7</sup> Social measures or tailored solutions could complement such an approach, e.g. seasonal tariffs in times of peak demand in touristic areas (potentially in Croatia). Again, the consequences of the COVID -crisis need to be taken into account here.

- Considering new sources of finance, such as economic instruments which internalise negative pressures on water bodies (e.g. pollution, over-abstraction) or which apply the “beneficiary-pays” principle can raise additional revenue. Policy instruments can create cash flows from water-related investment, in the form of taxes on different types of pollution (e.g. the use of fertilizers or pesticides), storm water taxes on property developers, or payment for ecosystem services to farmers who protect catchment areas or maintain flood plains. Insurance or other risk financing instruments can share and transfer risks and reduce the burden on public budgets in case of floods or other water-related disasters. It can also incentivise risk-reducing behaviour and limit exposure. In Germany and the Netherlands, for instance, local taxes are levied for the maintenance of dykes and Romania has a mandatory multi-risk home insurance for homeowners, including flood damages.
- Leveraging public funds to crowd in domestic commercial finance could play an important role to close the financing gap for water-related investments. Public funds, including EU funds, could be used strategically to improve the risk-return profile of investments and strengthen the financial sustainability of the sector and hence provide a basis for accessing commercial finance. Suitable instruments range from loans, grants and funds to guarantees and securitisation. Reforms that improve the investment environment in countries and technical assistance supporting the development of bankable projects, are relevant elements for the creation of a conducive environment to mobilise commercial finance. This could also pave the way to reduce reliance on EU transfers. Mechanisms to mobilise commercial finance are discussed in more detail in Session 5 of the Roundtable meeting.

The following table summarises the various options that governments could consider to address the financing needs arising now and in the future to ensure compliance with European water directives. In light of the COVID-crisis, which exacerbates the financing gap, it becomes even more important that governments implement a variety of options and approaches to tackle the financing challenge for water supply, sanitation and flood protection in Europe.

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<sup>7</sup> Note that affordability estimates were undertaken prior to the COVID crisis, which may impact on household affordability.

**Table 1. Policy options to meet water-related financing needs in Europe**

| Make the best use of existing assets and financial resources                 | Minimise future financing needs  | Harness additional sources of finance  |
|--|--|--|
| Enhance the operational efficiency of water and sanitation service providers | Manage water demand  | Ensure tariffs for water services reflect the costs of service provision   |
| Encourage connections, where central assets are available                    | Strengthen water resource allocation   | Consider options to capture new sources of funding via policy instruments to apply the Polluter and Beneficiary Pays principles. |
| Develop plans that drive decisions   | Encourage policy coherence across water policies and other policy domains (including nature-based solutions) | Leverage public funds (domestic and EU funds) to crowd-in domestic commercial finance  |
| Support plans with realistic financing strategies                            | Exploit innovation in line with adaptive capacities  |  |
| Strengthen capacity to use available funds                                   |  |  |
| Build capacity for economic regulation                                       |  |  |

Source: OECD (2020), *Financing Water Supply, Sanitation and Flood Protection: Challenges in EU Member States and Policy Options*, OECD Studies on Water, OECD Publishing, Paris, <https://dx.doi.org/10.1787/6893cdac-en>.

## Appendix – Financing needs and capacities for water supply, sanitation and flood protection in EU member states – take away messages from recent OECD analysis

### ***A brief outline of the scope and method***

The analysis presented in OECD (2020<sub>[1]</sub>) uses member states' current expenditure on water supply, sanitation and flood protection as a baseline, and the influence of several drivers in order to estimate investment needs in the future. For water supply and sanitation, the main drivers identified are urbanisation and demographic development, as well as compliance with the Drinking Water (DWD) and Urban Wastewater Treatment (UWWTD) Directives. A major driver for investment needs for flood protection is the value of assets at risk of flooding.

For the estimation of expenditure on WSS the following three scenarios are considered:

- *Business as usual (BaU)*: This scenario projects the same level of effort, with no new policies. Projections are driven by urban population growth. The projections reflect the current level of effort and hence do not consider the potential delay or backlog of investment and the state of existing infrastructures. Potential underspending in the operation, maintenance and renewal of existing assets will continue under this scenario, potentially leading to significant additional investment needs in the longer term.
- *For water supply*: projections to achieve compliance, efficiency and access. Most EU member states already comply with, or are close to complying with, the Drinking Water Directive (DWD). It is anticipated that, even when member states comply with the revised DWD, countries will need to invest in water efficiency and minimise non-revenue water (including leakage). In addition, countries will have to ensure that vulnerable groups have access to safe water.
- *For sanitation*: projections to achieve compliance. Several EU member states do not fully comply with the Urban Wastewater Treatment Directive (UWWTD). The extent of compliance varies across EU member states and has been considered the main driver for additional investment in this domain.

Since only a few countries (e.g. Austria and the Netherlands) monitor financial flows and investment in flood protection, the current level of effort could not be monetised to provide a baseline for the extrapolation

of future investment needs. Therefore, projections on investment needs for flood protection are based on changes in the exposure of flood risks, relying on identified growth factors to determine how financing needs may evolve in the future.

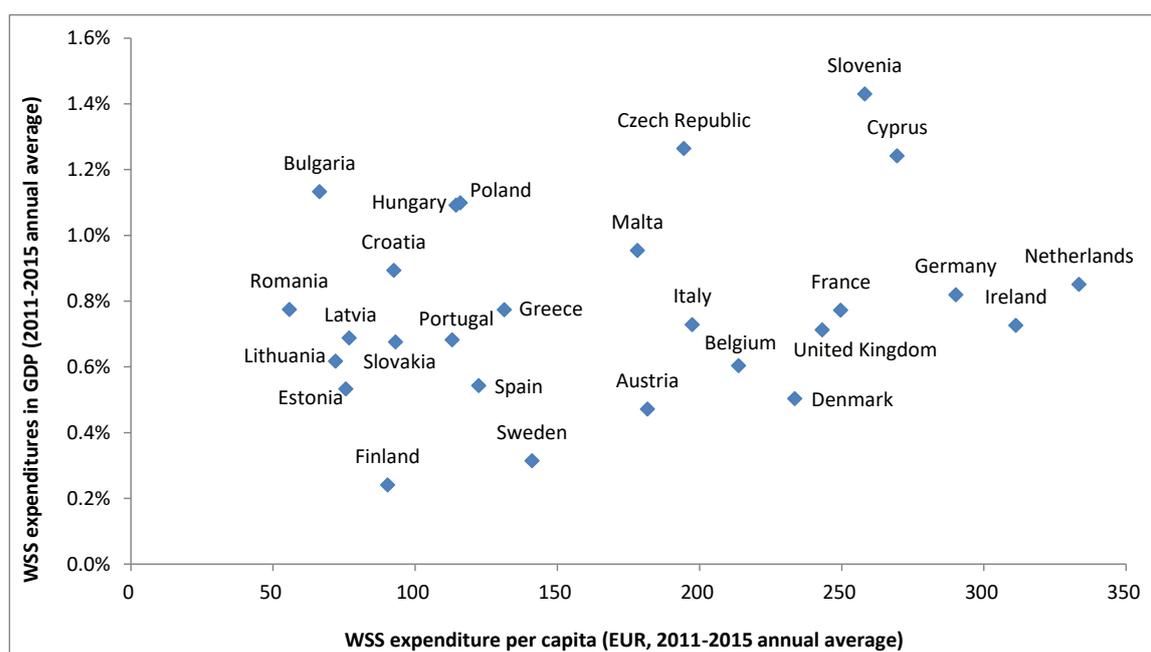
Several emerging challenges, which affect the costs of water services and flood protection, could not be monetised and are hence discussed qualitatively. These include the impacts of contaminants of emerging concern in water bodies - increasing the costs of water treatment - as well as climate change<sup>8</sup>.

### **Key findings: Financing water supply and sanitation**

Current levels of expenditure for water supply and sanitation are estimated at an annual average of EUR 100 billion across the 28 EU member states, a large share spent in the EU15<sup>9</sup> (particularly Germany, France, UK and Italy). Comparing total expenditure to population size, countries vary considerably in their water supply and sanitation expenditure: six member states spend more than EUR 250 per capita annually, while eight countries allocate less than EUR 100 per inhabitant to water supply and sanitation.

WSS expenditure relative to GDP reveals further variation between countries: Slovenia, the Czech Republic or Cyprus, for instance, allocate a larger share of GDP to water supply and sanitation than Estonia, Denmark and Sweden or Finland. Figure 1 depicts estimated expenditure on water supply and sanitation per capita and as percentage of GDP for each member state.

**Figure 1. Estimated expenditures per capita and as % of GDP**



Note: Expenditure for Finland, Croatia and Sweden are underestimated due to data limitations

Source: OECD analysis based on EUROSTAT (WSS-related public and household expenditures, GDP, population)

<sup>8</sup> The current level of adaptation is captured under the BaU scenario. No *additional* level of adaptation was accounted for in the projections.

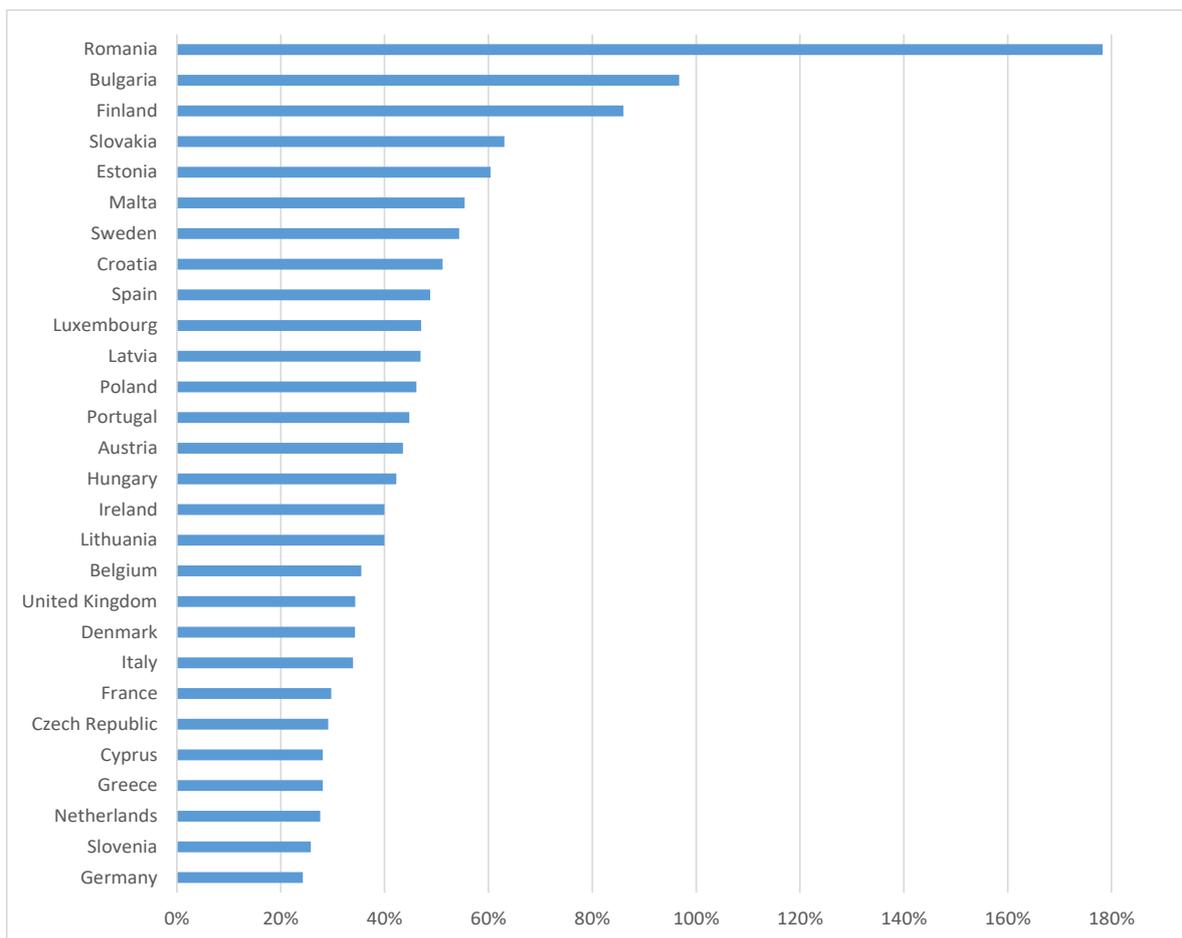
<sup>9</sup> EU-15 countries are: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain, Sweden and United Kingdom.

Looking ahead, countries need to increase their expenditures for WSS significantly, if they are to comply with the DW and UWWT Directives. The analysis estimates that EUR 289 billion total cumulative additional expenditure is needed for EU member states for water supply and sanitation by 2030. The larger share falls to sanitation, mainly driven by the need to increase efficiency and compliance with the directives, while urban population growth only plays a minor driving role.

Comparing this sum with the current levels of expenditure as a baseline on a country basis reveals that all member states need to increase their current annual investments by more than 20% in order to achieve compliance. Figure 2 gives an overview of these findings and shows that Romania and Bulgaria need to at least double their current expenditures, while France, the Czech Republic, Cyprus, Greece the Netherlands, Slovenia and Germany require an increase of current investments by less than one third.

**Figure 2. Per Annum additional expenditures by 2030**

BAU + Compliance + Efficiency vs. baseline<sup>10</sup>



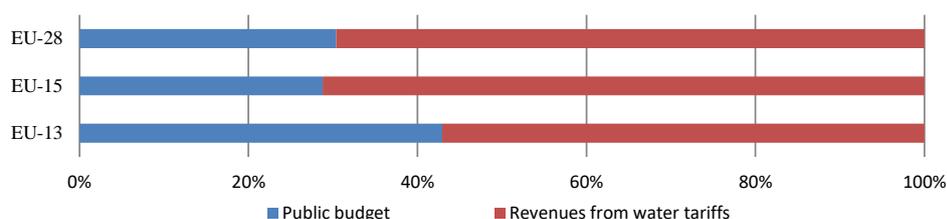
OECD (2020), *Financing Water Supply, Sanitation and Flood Protection: Challenges in EU Member States and Policy Options*, OECD Studies on Water, OECD Publishing, Paris, <https://doi.org/10.1787/6893cdac-en>.

<sup>10</sup> BAU (business as usual) scenario (same level of effort with no new policies, driven by urban population growth) and estimated costs to reach efficiency and compliance with DWD and UWWTD compared to the costs of the baseline scenario (member states' current expenditure level on WSS and flood protection).

Countries' expenditure for water supply and sanitation can be financed by public spending and revenues from water tariffs. Figure 3 visualizes the shares of these two sources of finance for EU-28. Close to 100% share of public spending implies the absence of water pricing, while a high percentage of revenue from water tariffs, on the other extreme, means that the majority of capital and operational expenditures can be financed by the consumer. In the EU-13, public budgets cover 43% of the funding for WSS services and 29% in the EU-15.

**Figure 3. Sources of finance for water supply and sanitation services for the EU-28**

(2011-2015 annual average)

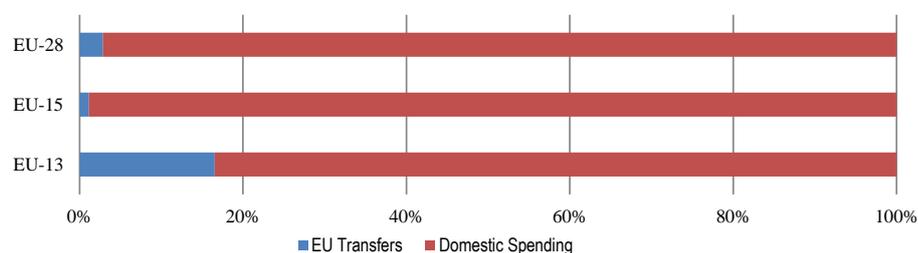


Source: EUROSTAT (General government expenditure by function, Final consumption expenditure on environmental protection services by institutional sector, Final consumption expenditure of households by consumption purpose, Mean consumption expenditure by detailed COICOP level).

In some countries, total expenditure on water supply and sanitation has relied on EU funding, such as the EU Cohesion Funds. For example, up to 50% of Estonia's total expenditure on WSS stem from EU funds; in seven other member states, EU transfers represent more than 20% of total expenditure. In contrast, one third of the member states has not allocated EU funding excessively to water management. Figure 4 gives an overview over shares of EU funding and domestic spending in total expenditures for water supply and sanitation.

**Figure 4. Share of EU funding in estimated total expenditures for water supply and sanitation for the EU-28**

(%, 2011-2015 annual average)



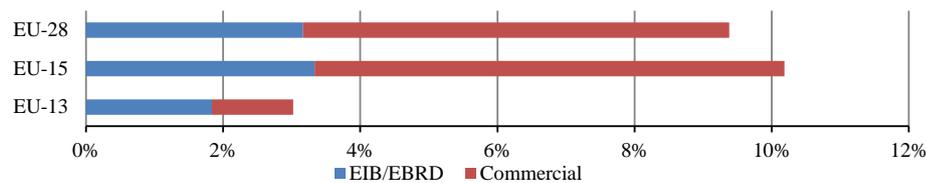
Note: EU cohesion policy funds are channelled through domestic budgets of Member States.

Source: EUROSTAT (for past estimated expenditure), European Commission Directorate-General for Regional and Urban Policy (Open Data Portal for European Structural and Investment Funds).

Countries might also use debt finance to cover their investment needs, especially for upfront capital investments. This option is typically restricted to projects and entities which can demonstrate a reliable ability to create revenue streams to pay back this finance. Figure 5 shows that over 10% of total expenditure on water supply and sanitation are financed through debt in EU-15 countries, while for EU-13 countries this share remains rather small (3%).

**Figure 5. Share of debt in estimated total expenditures for water supply and sanitation for the EU-28**

(%, 2011-2015 annual average)



Note: Debt is assumed to be repaid by either (and therefore not additional to) government or household expenditures presented in previous figures

Source: EUROSTAT (for past estimated expenditures), (European Investment Bank (loan database), European Bank for Reconstruction and Development (loan database), Commercial databases (IJ Global, Thomson Reuters, Dealogic).

### **Key findings: Financing flood protection**

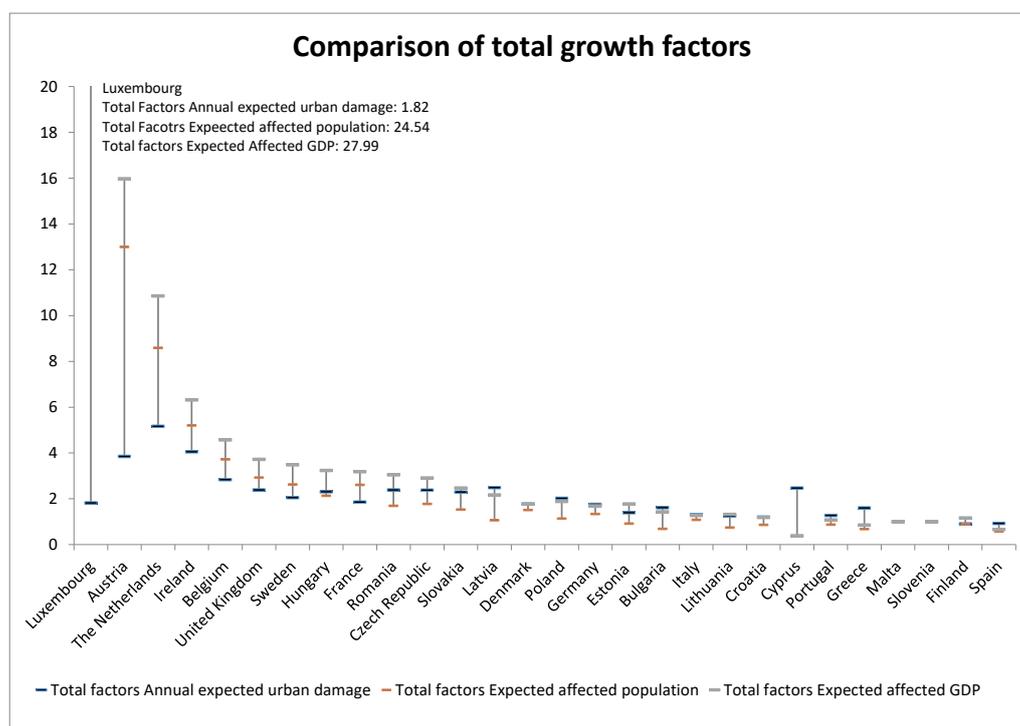
As previously mentioned, expenditures on flood protection are rarely monitored by countries. Only half of the member states reported the costs of measures in their first Flood Risk Management Plans, and, if reports existed, they were incomplete (European Commission, 2019<sup>[11]</sup>). According to available data, a total amount of EUR 3 070 million of public finance was dedicated to flood protection across member states each year between 2011 and 2015, of which 60% originated in EU-15 countries.

In order to project additional expenditures for flood protection, growth factors for flood risk indicators were used. The 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). These indicators are:

- the value of assets at risk,
- the number of people affected and
- the value of GDP affected by floods.

Figure 6 gives an overview of the different growth factors for each country.

Figure 6. Total growth factors for river flood risk expenditure by 2030



Source: Aceton contribution to the EC-OECD analysis, based on WRI projections

The results show that the total growth factors for Austria, Luxembourg, and the Netherlands are the highest compared to other member states. These countries will face the highest increase in expenditures for flood protection by 2030, if they aim to maintain current flood protection standards and do not resort to significantly more cost-effective measures to reduce exposure and vulnerability to flood risks. In contrast, Cyprus, Greece, Malta, Portugal and Spain face low or negative total growth factors, flood protection expenditures are hence projected to face no increase by 2030.

### **Financing capacities at country level (pre-COVID)**

Having discussed the need to increase current expenditure levels on water supply and sanitation as well as on flood protection in order to reach and maintain compliance with the EU *acquis* for water, countries' financing capacities must be considered.

Member states' ability to scale up finance was assessed through three sets of complementary indicators, discussed below.

#### *Ability to price water: Raising tariffs for WSS services*

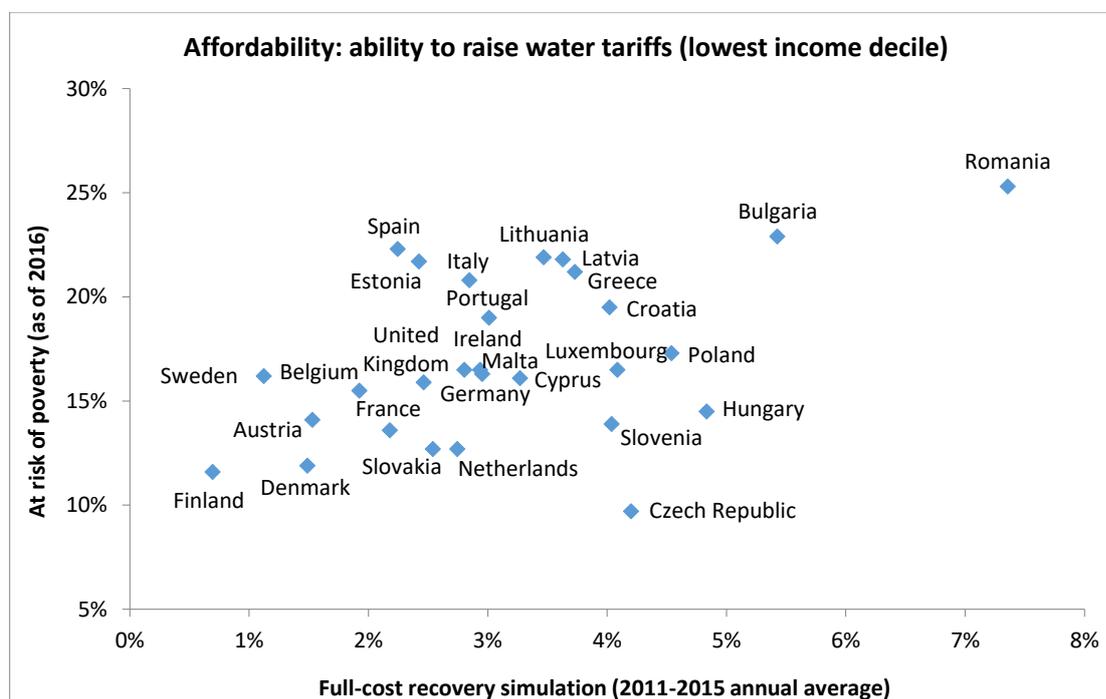
Revenues from tariffs are considered a reliable source of finance to cover at least some of the costs of water supply and sanitation services. While raising tariffs can help financing investment needs, it might also create social affordability issues. The analysis shows that passing on the estimated additional expenditures to households will lead to affordability issues<sup>11</sup> for at least 5% of the population in half of EU

<sup>11</sup> considered as a situation when households spend more than 3-5% of their disposable income on water supply and sanitation.

member states, and even for 10% of the population in 5 or 6 member countries. Yet, in 24 countries, more than 95% of the population could pay more for WSS without facing affordability constraints. This shows different levels of vulnerability to tariff increases across countries, and affects the way accompanying measures should be designed. In the just mentioned 24 countries, rather than ensuring low water prices for everybody, it could be more effective to raise water tariffs, combined with targeted measures addressing the social consequences, in order to enhance the financial sustainability of water services.

Figure 7 gives an overview of affordability issues with an added variable reflecting the percentage of the population at-risk of poverty. It becomes evident, that in Bulgaria and Romania there is a high risk for a significant share of the population to become poor, thus, increasing concerns about affordability.

**Figure 7. Affordability of water supply and sanitation compounded by risk of poverty**



Note: Known underestimate of total expenditure for Finland and Sweden

Source: Joint Research Centre, European Commission for prices (based on latest available year), EUROSTAT for household expenditures (2011-2015)

Taking into account the severe economic consequences of the COVID-19 outbreak, projections show that unemployment in the OECD economies has more than doubled between the end of 2019 and mid-2020 to around 11.5 percent. Real per capita income in the median OECD economy is projected to decline by 8% in 2020, and by up to 9.5% in case of a second wave of infections before the end of the year. Even with some recovery expected in 2021, real per capita income will still be more than 6% lower than projected prior to the pandemic (and more than 10% in case of a second wave). These developments could reduce the ability of households to pay for increased water bills and could reinforce already existing affordability constraints.

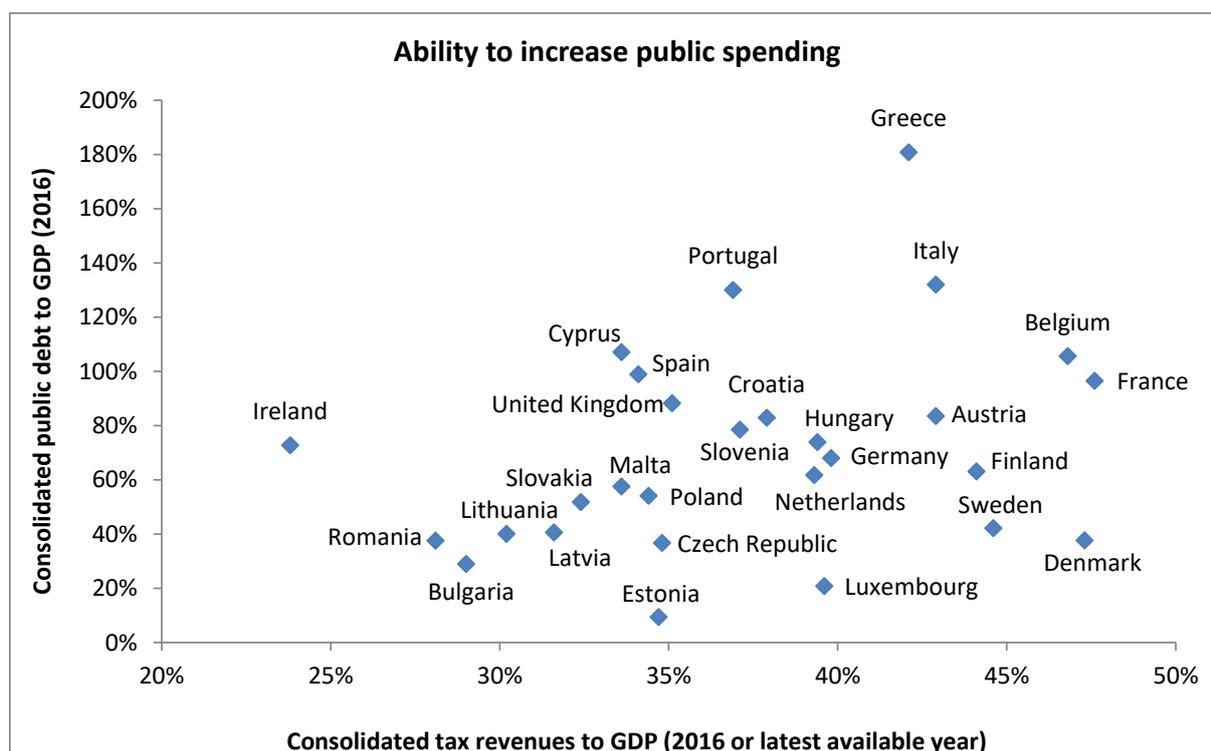
#### *Ability to raise public spending*

Public spending for WSS can be raised either through public debt or through taxes. A high percentage of taxes as a share of GDP may highlight a country's demonstrated ability to use taxation to finance public

expenditures but might also indicate a constraint to further increase taxes moving forward (and conversely for countries with a currently low percentage).

Similarly, a high percentage of public debt may indicate a possible budgetary constraint, which could prevent the country from increasing public spending and from borrowing at a reasonable cost. Figure 9 combines these two elements. Since Greece faces a high level of public debt and a relatively high level of tax revenues, their ability to increase public spending for water supply and sanitation might face constraints.

**Figure 9. Ability to increase public spending based on raising taxes or borrowing**

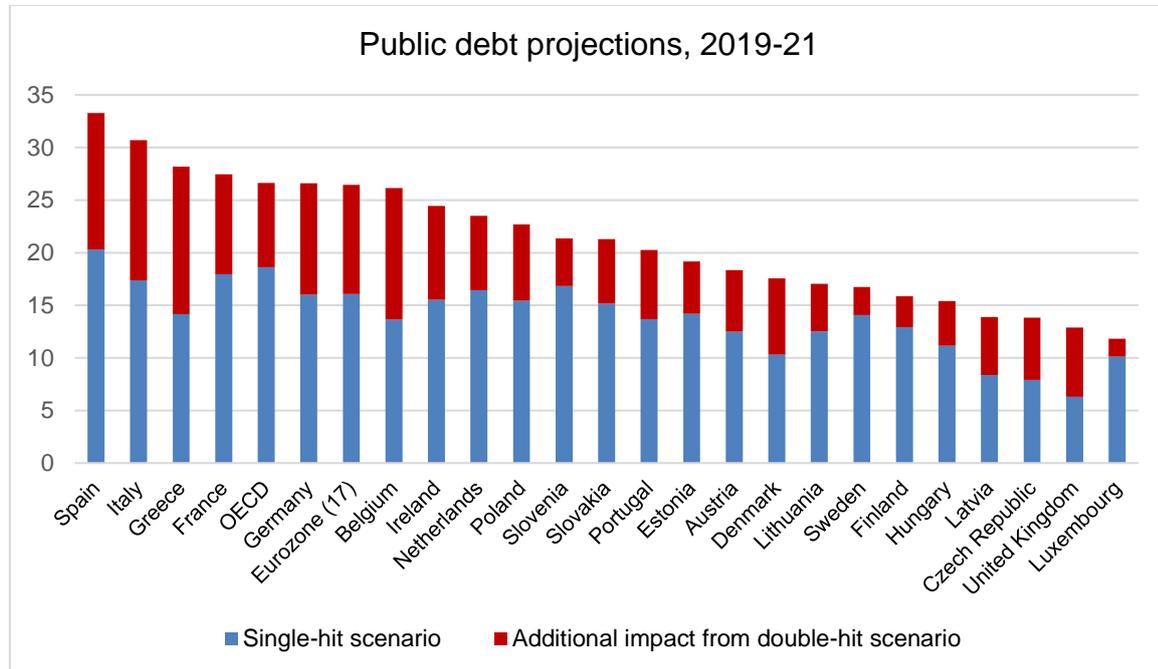


Source: EUROSTAT (2016)

The COVID-19 pandemic has also affected governments' debt burden, owing to numerous recovery packages and measures to mitigate the consequences of the crisis. OECD analysis indicates that public debt is projected to increase by more than 15% points of GDP in ten European member states between 2019 and 2021 and by up to 33% in case of a second infection wave before the end of 2020 (OECD, 2020<sup>[41]</sup>). This could reduce countries' capacity to increase public spending for water supply and sanitation in the future and intensify the financing gap. As figure 10 shows, the change in public debt during the COVID-19 pandemic varies among member states, underlining the heterogeneity of countries' capacity to raise public funds.

Figure 10. Public debt projections 2019-21

Change in % points of GDP



Note: EU countries use the Maastricht definition of debt

Source: OECD (2020), "OECD Economic Outlook – All editions", OECD Economic Outlook: Statistics and Projections (database)

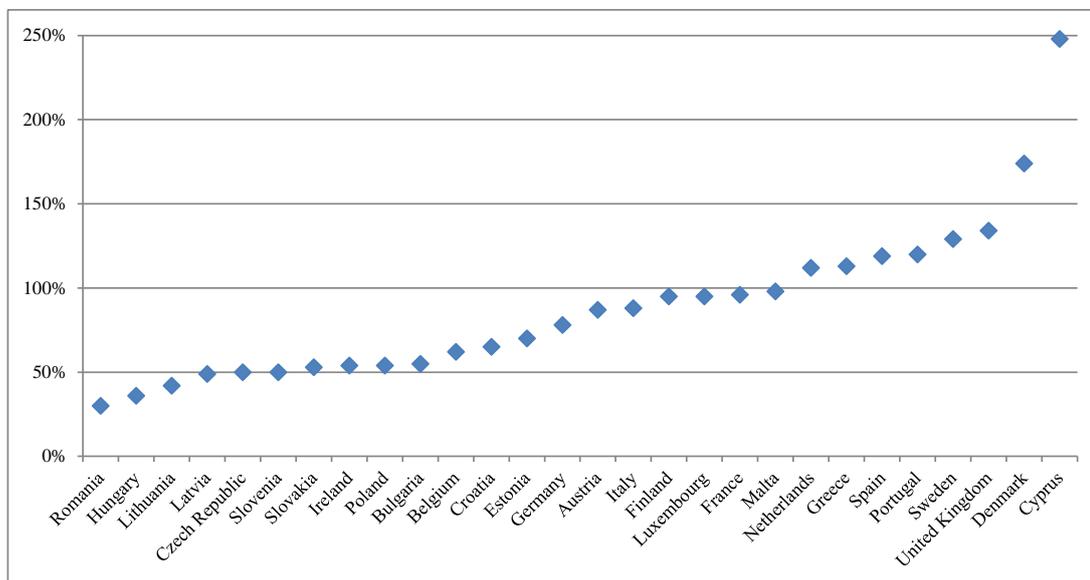
### *Ability to access private finance*

As mentioned above, some member states have been partly relying on debt financing to finance (mainly) upfront capital investments. Comparing domestic credit to private sector investments as percentage of GDP provides a general indication of each country's ability to tap into domestic commercial debt financing. A relatively high percentage may indicate that commercial debt is readily available in the country for financially sustainable WSS projects and vice versa.

For countries with disproportionate banking sectors compared to their GDP or with debt-financed real estate "bubbles", this approach might lead to a distorted ranking, explaining the position of Cyprus at the outer right end of the range.

**Figure 11. Domestic credit to private sector**

(as % of GDP, 2015)



Source: World Bank's Ease of Doing Business Index database (2017), World Bank's Global Development Database (2017).

Notes:

The underlying publication presents time series, which end before the United Kingdom's withdrawal from the European Union on 31 January 2020 at 23:00 GMT. The EU aggregate presented here therefore refers to the EU including the UK. In addition to being included in the EU aggregate, the UK also features in relevant tables and figures, when there is a breakdown of the data by country.

Note by Turkey

The information in this document with reference to "Cyprus" relates to the southern part of the Island. There is no single authority representing both Turkish and Greek Cypriot people on the Island. Turkey recognises the Turkish Republic of Northern Cyprus (TRNC). Until a lasting and equitable solution is found within the context of the United Nations, Turkey shall preserve its position concerning the "Cyprus issue".

Note by all the European Union Member States of the OECD and the European Union

The Republic of Cyprus is recognised by all members of the United Nations with the exception of Turkey. The information in this document relates to the area under the effective control of the Government of the Republic of Cyprus.

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