Ireland

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

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

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

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

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

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

Key messages

- Ireland has one of the highest rates of water availability in the world. Still scarcity can be an issue where demand for water grows and water use efficiency is low.
- Investment in water supply and sanitation is required to deliver improvements to water services throughout Ireland by the provision of clean drinking water and the treatment and return wastewater safely to the environment. This plays a central role in enabling economic growth, protecting both the environment and the protecting the health and safety of citizens and businesses.
- The Irish Parliament suspended domestic water charges in June 2016 and the funding of normal domestic water usage will now be met through central government funding. Domestic users who use excessive amounts of water above an agreed threshold will be charged for the excess amount to ensure that water resources are used efficiently and not wasted. Commercial water users are subject to full cost-recovery.
- River floods are and will remain an issue, driven by heavier rains and changes in land use (extension of land used for residential, industrial, commercial purposes).

Context

Ireland has the second highest per-capita GDP in the EU, although this is partly due to foreign companies recognising revenue in Ireland. Nonetheless, future economic and population growth forecast are well above the EU median. Water coverage and treatment compliance remain challenges, as does future flood risk.

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 58 800 (2/28)	Eurostat	2016
	Projected GDP growth	2.9% (8/28)	IMF	2016-2022
	Projected urban population variation by 2050	1.41x (2/28)	UN	2017-2050
Water Supply and Sanitation	Estimated annual average expenditure per capita (1)	EUR 218	Authors based on EUROSTAT	2011-2015
	Population not connected to public water supplies	17%	EPA	2015
	Annual domestic sector consumption per capita	47,000L/person/year	CRU	
	Leakage rate for public water supply Non-revenue water (2)	44% c47%	EC EurEau	2017 2017
	Compliance with UWWTD Art.3, 4 and 5 (Index)(3)	48% (25/28)	EC	2014
Flood Protection	Estimated annual average expenditure per capita	EUR 9	EC survey	2013-15
	Pop. potentially affected in flood risk areas	16%(4)	EC report	2015
	Value of assets at risk (rise 2015-30)	2.8x (25/28)	WRI	2015-2030

Note: Rank 1 implies best in class among the EU member countries for which data is available for each indicator.
(1) Ireland estimates average CAPEX per person connected to public supply is EUR 218, whereas OECD estimates TOTEX for supply and sanitation.
(2) River Basin Management Plan for Ireland 2018-2021 reports 279 million m3 p.a (published by the Department of Housing, Planning and Local Government).
(3) Ireland reports 44% at end 2016 (CRU18034 - Irish Water Performance Assessment Report No. 2 - February 2018).
(4) to be confirmed.

Main drivers and projections of future investment needs

Water supply and sanitation

Table 2 projects future investment needs in water supply and sanitation. While more accurate projections may have been available for selected countries, proxies have been used which facilitate comparisons across countries. Other water-related investments could not be projected, due to lack of comparable data.

Analysis by the Environmental Protection Agency has found that 83% of people have their drinking water supplied by the public supply provided by Irish Water. Prior to 2014 public water services in Ireland were delivered by 34 individual local authorities acting as water authorities. The setting up of Irish Water has established a single national water services authority to deliver these services.

A further 7% of people have their drinking water supplied by either public or private group schemes. Public group water schemes are group schemes that are supplied in bulk by Irish Water, whereas private group water schemes abstract, treat and distribute drinking water to

their members. The private group water schemes are generally co-operative groups delivering drinking water services to local communities in rural locations, where the high cost of providing infrastructure has made the provision of a public supply unviable. The remaining 10% of people get their drinking water from private wells.

Whilst Irish Water supplies drinking water to 83% of the population, Census data finds that 69% of households are connected to public waste water services provided by Irish Water. The remaining 31% have either individual or group waste water treatment systems – a figure very much in line with the scale of rural population in Ireland.

Irish Water also has around 164,000 non-domestic customer accounts, 51% of which are for water only with the remaining 49% availing of water and wastewater services. Public water services infrastructure in Ireland is older than the EU average (36-42 years for mains, compared to 36 in Europe; figures provided by Asset Intelligence). This generates some issues, including challenges to comply with the Drinking Water Directive and high level of leakage (45% at the end of 2017; from internal Irish Water report). As of end of 2017, 99 of the 962 public water supplies were listed by the Irish EPA as needing remedial action (internal Irish Water report).

Despite dramatic improvement of waste water collection and treatment since the turn of the century, the Irish EPA still reports 44 cases of discharge of untreated wastewater in 2014 of which 38 remain at the start of 2018. Irish Water has committed to reduce this list to zero by 2021. The European Commission took infringement action in 2016 in relation to compliance with the Urban Wastewater Treatment Directive at 38 locations of which 25 remain at the start of 2018.

In 2012, a joint Parliamentary Committee noted that a recurrent investment of EUR 600 million annually was necessary. The minimum total capital expenditure required for the period 2014-21 is projected to be EUR 5.5 billion. This includes EUR 443 million to comply with the UWWTD.

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

IRELAND		Baseline 2015	2020	2030	*Total by 2030*	2040	2050
BAU water supply and sanitation	**CAPEX**	**615**	**701**	**861**	-	**1036**	**1240**
	TOTEX	**1430**	**1530**	**1703**		**1875**	**2067**
Scenario Compliance + for water supply and sanitation	**ADD. CAPEX**	-	**146**	**126**	***1479***	-	-
	ADD. TOTEX		**332**	**265**	***3239***		
Compliance with DWD, access and efficiency (water supply)	ADD. CAPEX	-	18	18	*184*	-	-
	ADD. TOTEX		53	53	*526*		
Compliance with UWWTD (sanitation)	ADD. CAPEX		128	107	1295		
	ADD. TOTEX		279	212	2712		

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.
Ireland provided alternative projections by Irish Water. Total CAPEX by 2030 is projected to be:
EUR 10,642 million under the BAU. The order of magnitude is similar with the OECD projection; the difference may reflect uncertainties on OECD's estimate of CAPEX share of TOTEX.
EUR 2,597 million under the scenario Compliance + for water supply and sanitation; EUR 1,094 million under the scenario Compliance with DWD, access and efficiency (water supply); and EUR 1,503 million under the scenario Compliance with UWWTD (sanitation). The difference of magnitude calls for further discussion between the OECD and Irish authorities.
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

River flooding is quite common in Ireland, with 16 incidents reported between 2002 and 2013, each costing EUR 92 million on average. Some economic activity and part of the population are located in flood plains that will be confronted with more frequent and severe flooding in the future, driven by climate change and land use change.

The capacity to forecast weather events and floods was enhanced in 2016 with the establishment of a steering group and the maintenance of a robust climatological and meteorological monitoring network.

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

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

	Expenditures to protect against river flood risk			Expenditures to protect against coastal flood risk
	Total growth factors, by 2030			Categories (1-4), by 2030
	Expected urban damage	Expected affected population	Expected affected GDP	
Ireland	4,05	5,20	6,32	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).

Other pressures affecting water quality compliance with the WFD

The implementation of the 1st round of river basin management plans has shown no overall improvement in water quality between 2009 and 2015. Nitrate concentration in groundwater is an issue, particularly in the southeast and south part of Ireland.

Pressures vary across regions. Nutrient enrichment from agriculture and untreated sewage (i.e. inappropriate treatment or sewer overflow in cases of heavy rains) is the main pressure on water quality in Ireland. Compliance with UWWTD and the Nitrate Directive will contribute significantly to compliance with the WFD.

The European Commission notes that Ireland uses a number of exemptions without transparent justification.

Climate change will add pressures in terms of water quality and quantity: projected climate change impacts on water resources include summer water shortages in the east, the need for crop irrigation, potential deterioration in water quality, and an increased likelihood of flooding and coastal erosion.

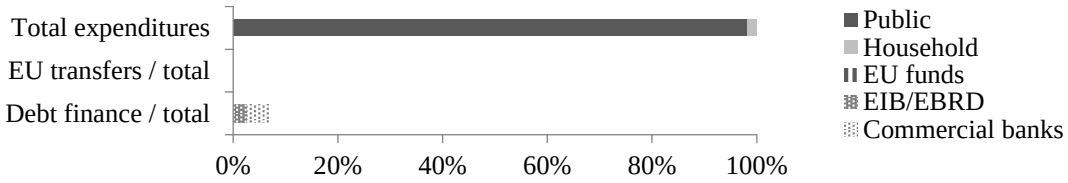
Past financing strategies and room for manoeuvre to finance future needs

Water supply and sanitation

As depicted in Figure 1, Ireland relies very close to exclusively on public expenditures to cover WSS-related expenditures. The country has not benefited from water-related EU transfers and has only rarely relied on debt to finance upfront capital investment costs.

An attempt to introduce water charges for water supply and sanitation services was repelled in the spring 2017. As a consequence, domestic water users in Ireland do not pay a bill for normal water use. For the time being, funding is provided through general taxation, a charge for excessive domestic usage to ensure that water resources are used efficiently and non-domestic tariffs.

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



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

Table 4 indicates that Ireland faces manageable financial constraints. It could (in principle) price water or raise water-related taxes towards full-cost recovery without facing significant affordability concerns.

A relatively healthy fiscal situation also provides leeway for further recourse to public spending. However, a pending issue remains the capacity to secure public funding at the scale required to renew and extend the existing infrastructure for water supply and sanitation.

The setting up of Irish Water has established a single national water services authority to deliver these services. This has facilitated an integrated approach to service delivery ensuring more consistent and targeted investment and development of best practice across the public water and wastewater assets.

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

	Indicator	Value (rank)	Year	Data Source	Assessment
Ability to price water	Water expenditures in lowest household income decile	0.04% (1/26)	2011-15	Authors based on EUROSTAT	Medium
	Full cost recovery equivalent in lowest household income decile	2.95% (15/28)	2011-15	Authors based on EUROSTAT	
	At-risk-of-poverty rate	16.3% (14/28)	2016	EUROSTAT	
Ability to raise public spending	Tax revenue / GDP	23.8% (1/28)	2016	EUROSTAT	Medium
	Government consolidated debt / GDP	72.8% (16/28)	2016	EUROSTAT	
	Sovereign rating	A+	2017	Standard & Poor's	
Ability to attract private finance	Domestic credit to private sector / GDP	54% (15/28)	2015	World Bank	Medium
	Ease of doing business global rank	17 (7/28)	2017	World Bank	

Flood risk management

In December 2017, the Minister of State for Flood Relief claimed EUR 1 billion of public funding was needed over a decade to ensure that flood defences across the country are up to standard. The National Development Plan, published by the Government in February 2018, allocated EUR 940 million up to 2027 for investment in flood relief in Ireland. At the launch of the Flood Risk Management Plans on 3 May 2018 with An Taoiseach, the Minister announced a ten-year programme of investment of up to €1bn on 118 additional schemes.

This programme of investment will deliver protection to approximately 80% of those properties estimated to be at risk nationally from rivers and the sea.

Priority schemes include the biggest ever investment in flood defences. As an illustration, Cork city has been allocated EUR 130 million. Existing schemes, ongoing works and proposed measures project to protect a total of 33,000 properties in Ireland to the national standard of protection.

References

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WWF (2012), *The Water Risk Filter* (http://waterriskfilter.panda.org/en/CountryProfiles#147/profile)