Sources and uses of water in the EU and Ireland

IRISH CENTRE FOR RESEARCH IN APPLIED GEOSCIENCES

Sources of water in the EU

Globally water is generally abstracted from **four primary sources**; rivers, groundwater aquifers, lakes and artificial reservoirs. The largest source of water in the EU is rivers and the amount of abstraction remains relatively constant throughout the year (Fig. 1). Increases in water demand in the second and third quarter of the year is made-up by taking more water from groundwater aquifers and artificial reservoirs.

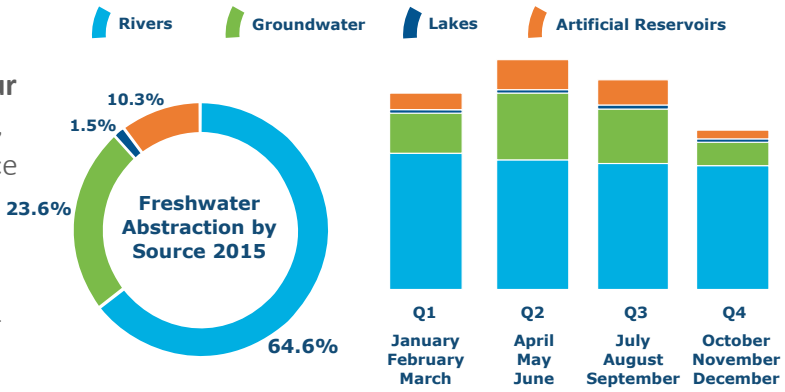

Figure 1: Freshwater abstraction by source in 2015 for the EU.
Source: European Environment Agency

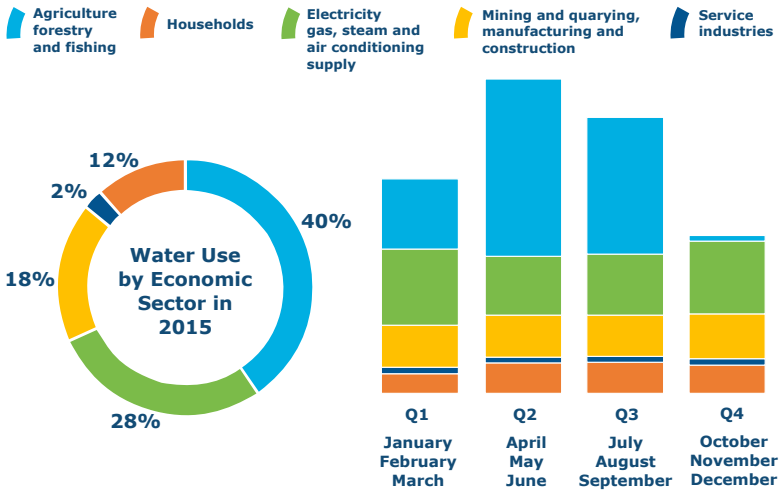

Figure 2: Water use in the EU by economic sector in 2015.
Source: European Environment Agency

Water use in the EU

The 'Agriculture, forestry and fishing' sector consumes more water than any other economic sector in the EU (Fig. 2). Demand for water is **significantly higher in the summer months** primarily due to the need for crop irrigation. Other sectors require a relatively constant supply of water throughout the year. Although this data can vary greatly between countries depending on primary economic activities, it is invaluable for **resource planning**. An international perspective is required as water is not confined by artificial geographical boundaries.

Water is a finite resource in Ireland

One thing that will come as no surprise to anyone who lives in Ireland, is that enough water falls on the country to provide a growing population with a clean and consistent supply. This is something we are very lucky to have in comparison to other countries (Fig. 3) and something we shouldn't take for granted considering water is the most **essential life supporting resource** on the planet.

However, in Ireland, storage is an issue due to the nature of the soils and rock. This continues to cause problems during extended wet periods with regards to **flooding** particularly in the western half of the country. The storage issue also causes the opposite effect following extended dry periods in the densely populated areas of eastern Ireland (e.g. **drought** in the summer of 2018).

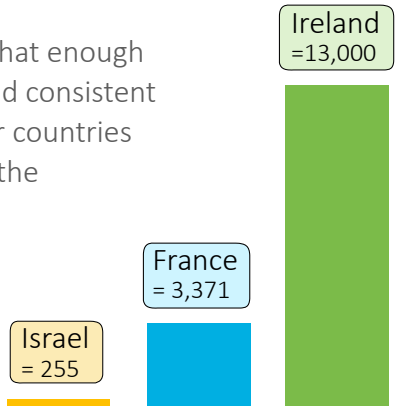

Figure 3: Country comparison of renewable water resources (m^3) per capita per annum
Source: Zhao and Crosbie, 2012

What is water used for in our homes and where does it come from?

Ireland's domestic water consumption is approximately **111 litres per person per day**. Water is used for many things in domestic homes, however by far the biggest use of water is personal and clothes washing, accounting for a combined 62% of domestic water demand (Fig. 4).

Homes across the country are supplied with water in different ways with three-quarters being served by public mains (Fig. 5). Approximately **80%** of public water is abstracted from **surface sources**.

Domestic Uses

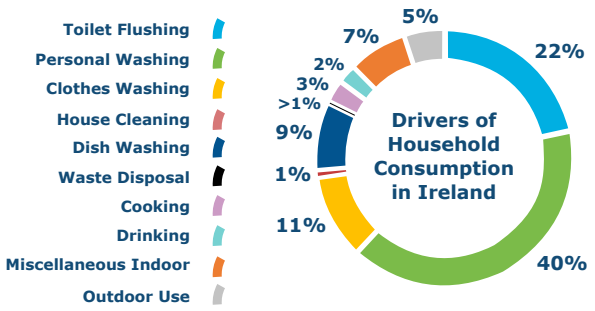

Figure 4: Estimated drivers of household water consumption in Ireland 2018.
Source: Expert Commission on Domestic Public Water Services

Domestic Sources

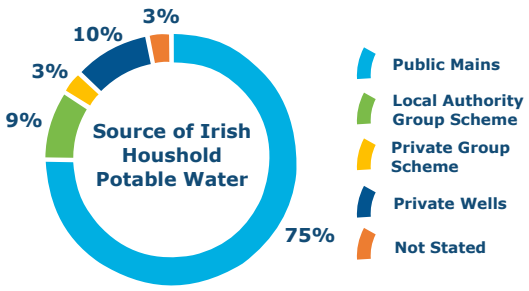

Figure 5: Sources of Irish household potable water.
Source: Expert Commission on Domestic Public Water Services

Water quality in Ireland

Household water supplies are routinely tested for the presence/level of microorganisms (e.g. e-coli) and other chemical (e.g. arsenic, lead etc.) and physical (e.g. electrical conductivity) parameters. Over **98% of people in Ireland** have access to high quality water (post-treatment). The most common reason for non-compliance in terms of water quality is the presence of e-coli (Fig. 6), some forms of which can have serious health effects. However, these cases are extremely rare.

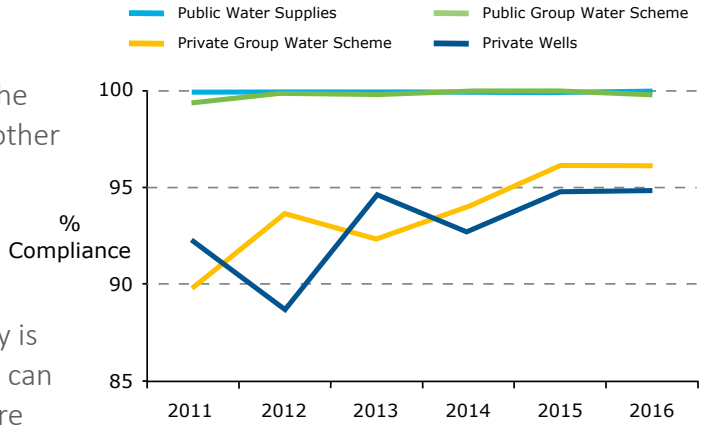

Figure 6: E-coli compliance per water supply type.
Source: Environmental Protection Agency (Ireland)

The Water Framework Directive (WFD)

'This piece of EU legislation has become a major driver for achieving sustainable management of water in Ireland and across the EU. Under this directive, all inland and coastal waters must reach 'Good' ecological status. 'Good ecological status' means achieving satisfactory quality water, suitable for local communities' drinking, bathing, agricultural, industrial and recreational needs, while maintaining ecosystems that can support all the species of plants, birds, fish and animals that live in these aquatic habitats.'

Source: Environmental Protection Agency (Ireland)

For more info on securing and protecting groundwater resources visit www.icrag-centre.org

Sources:
European Environment Agency: eea.europa.eu/data-and-maps.
Environmental Protection Agency (Ireland): www.epa.ie/water/watmg/wfd/
Expert Commission on Domestic Public Water Services: Report on the funding of domestic public water services in Ireland, November 2016. (and sources therein)
Central Statistics Office (CSO): Income and expenditure on water supply and waste water treatment, 2013
Zhao and Crosbie, 2012: Water pricing in Ireland: A techno-economic and political assessment.

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