

## Storm Emma puts the Spotlight on Irish Water's Inadequate Leakage Plans

Many of Dublin's water pipes were laid in the 1800s – they are up to 140 years old. The life expectancy of these pipes is around 80-100 years. Dublin's pipes are on borrowed time and are now so fragile that they cannot withstand extra stress (such as frost heave during a cold snap), which triggers bursts/outages and **leave Dubliners without water**. Irish Water's own business plan stated "*The cast iron mains ... are often heavily corroded ... this gives rise to high leakage, rust discolouration and high risk of failure causing **supply disruption***". Yet **Irish Water's mains replacement target is just 1% per annum** – a target which it is reportedly already failing to meet, and which would result in some pipes not being touched for another 100 years.

1% per annum might be viable for the *maintenance* of a modern, functioning water supply system such as those on continental Europe (e.g. Paris and Frankfurt, where leakage is around 7%) but it is **not viable for Dublin**. Dublin's water supply system does not need maintenance: it needs a **major overhaul**. After Storm Emma, the Environmental Protection Agency (one of Irish Water's regulators) was reported in the Sunday Times saying Irish Water is not doing enough to reduce leakage, that "*the solution is to replace all the problematic pipes, as patching them up is not working*" and that, if they do not, **Dublin will face water restrictions again in the near future "because our network is so old this will happen here again and again"**.

It is not normal for a developed world city to have such a compromised water supply network. It results in **unreliable water quality** (due to **water ingress** and the need to chlorinate heavily) and **outages/floods**. **Even before Storm Emma, Dublin's water pipes were so full of holes that its total leakage was around 57%<sup>i</sup>**. Dublin will almost certainly never reduce its leakage to the sub-10% levels seen in comparable cities - but it is important to note that "spare capacity" (i.e. extra water available for supply *over and above average demand*) is driven by leakage levels. If Dublin's 2015 total leakage had been 20% it would have had **112% (one hundred and twelve per cent) spare capacity**: this is absolutely enormous.

For the past 22 years, while Dublin's water pipes have been neglected, the focus has been on the Shannon pipeline to pump yet more water into Dublin's water supply system. When one reads the reports that have been produced in relation to the Shannon project it is difficult not to perceive **a bias against fixing leaks in favour of the Shannon pipeline**. For example, the costs for leakage recovery that were adopted in the analysis for the Shannon project have been *proven* by the First Fix results to have been **more than three times over-stated**.<sup>ii</sup>

**Dublin has a history of describing its unambitious leakage targets as "ambitious"**. In 2010, as part of the Shannon Project process, RPS Consulting produced a report for Dublin City Council proposing **zero leakage reduction over 30 years** – the report described its leakage targets as "*ambitious*"<sup>iii</sup>. Over the past ten years an annual average of just EUR10million has been spent on replacing water mains *nationally* (not just for Dublin) - **this equates to just 0.8% of the proposed EUR1.3billion Shannon Project**. In recent years **London replaced 1,868km of mains in 4 years**; by contrast, **Dublin replaced 140km in 6 years**<sup>iv</sup>.

**Irish Water's latest leakage targets are yet again unambitious** particularly when compared to recent achievements elsewhere in the EU<sup>v</sup>. Dublin has around **9,200km** of water mains; Irish Water told the *Joint Committee on Housing, Planning and Local Government* in February 2018 that it plans to replace just **70km** of them.

**Irish Water's 1% p.a. mains replacement target means Dublin will have increasing water outages. The Shannon pipeline would not stop Dublin having outages: the only thing that can stop outages is replacing Dublin's pipes.**

<sup>i</sup> Leakage within a water supply network is made up of (i) distribution/network leakage, and (ii) customer side leakage. Leakage in the UK is reported as “total leakage” being distribution leakage plus “supply pipe losses from consumers’ pipes” (source: OFWAT). By contrast, when Irish Water states that Dublin’s leakage is around 38% this is its **distribution leakage ALONE: it does not include ANY customer side leakage**. Comparing this 38% figure with UK leakage data is therefore misleading. The First Fix results show that Dublin’s base year *customer side leakage* was almost certainly at least 100Mld which equated to **19%** of its base year average demand. **Dublin’s total leakage was therefore almost certainly at least 57% - not 38%.**

<sup>ii</sup> Irish Water itself notes that recovering water through repairing leaks is *far easier since* the introduction of meters yet its analysis for the Shannon project used cost data from *before the introduction of meters*. Irish Water’s analysis states that recovering water through fixing customer-side leaks costs **EUR750,000 per 1Mld – this is well over three times the true cost**. The recent First Fix results show that saving water by fixing customer side leaks has cost an average of **EUR212,000 per 1Mld**.

Irish Water defends its position by stating that the cost of recovering water through fixing leaks is cheaper at the beginning but becomes increasingly expensive as time goes on. In response to this: (1) the scheme has *already recovered far more water than Irish Water thought would ever be possible* – and that entire recovery has been effected at this fractional cost, and (2) the cost of recovering a unit of water through fixing leaks under the First Fix scheme has actually *decreased* each quarter: as at the **Q1 2016** report it had cost an average of **EUR252,000** to recover 1Mld; this cost *decreased every quarter* and by **Q1 2017** it had cost an average of just **EUR212,000** to recover 1Mld.

<sup>iii</sup> In 2010, RPS projected distribution side leakage as follows (see p14, Appendix A to “The Plan, Water Supply Project - Dublin Region”, October 2010):

Year	2010	2022	2031	2040
Leakage rate [absolute volume of leakage]	<b>160.8Mld</b>	<b>160.3Mld</b>	<b>160.0Mld</b>	<b>160.0Mld</b>
Leakage % [as percentage of predicted distribution input]	29%	26%	23%	20%

The *absolute* volume of distribution side leakage was projected to *remain static* at around **160Mld** over 30 years, i.e. **zero reduction**. Expressing leakage targets in **absolute terms** is international best practice. Expressing target leakage as a **percentage of predicted distribution input (“DI”)** is considered *misleading*:

- No UK water supplier is allowed to present its leakage targets in this way.
- The International Water Association (“IWA”) states: “... expressing real losses as the percentage of [DI] gives a **misleading** perspective of true performance because it is strongly influenced by changes and differences in consumption, which may vary substantially seasonally and from one year to another, and is not under the control of the utility...”.
- At the 2017 IWA Performance Indicators Conference, it was stated “**Everyone knows percentages of [distribution input] must not be used for target-setting...**”.

However, the 2010 Report did *not* present its leakage targets in *absolute* terms but, rather, presented them *as a percentage of DI*: this enabled it to *present its target as a reduction in leakage from 29% to 20%* which it described as “ambitious”.

<sup>iv</sup> In 2007 the Dublin Region Watermains Rehabilitation Project began operation with the intention of replacing 250km of Dublin's water mains within 5 years. However, according to the press releases, **in the following 6 years only 140km of Dublin's mains were actually replaced** (from 2007 to mid-2013). Contrast this with London: from 2005/06 to 2009/10 **1,868km of London's mains were replaced** (see *Thames Water Mains Replacement Programme Independent Review, Findings and Recommendations Report* (02 July 2010)). **London replaced an average of 467km per year versus 23km per year in Dublin where the leakage problem was far worse.**

<sup>v</sup> For examples of recent leakage reduction efforts in the EU:

- **London** recently reduced its leakage by **30% in 6 years**,
- **Scotland** by **55% in 10 years**,
- **Lisbon** (the capital of Portugal) by **64% in 8 years**,
- **Reggio Emilia** (Italy) by **50% in 8 years**,
- **Malta** by **83% in under 20 years**.