Quarterly Report No. 1 of 2020

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WAB

Water Advisory Body

MARCH 2020

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Contents

Executive Summary

Please note: This replaces the report issued on 10 March 2020.

This is the second quarterly report published by the Water Advisory Body in relation to its function of reviewing the implementation by Irish Water of its Strategic Funding Plan.

The Water Advisory Body was established on 1 June 2018. The purpose of the Water Advisory Body (the WAB) is to advise the Minister on measures needed to improve the transparency and accountability of Irish Water; and to report on a quarterly basis to an Oireachtas Committee on the performance by Irish Water in the implementation of its Strategic Funding Plan.

A set of performance indicators has been selected to represent the activity of Irish Water in relation to the performance of its functions. Data in respect of these indicators is collated and published as part of the quarterly reports of the WAB in order to provide objective information on performance. This information is relevant to Irish Water itself, to track its own performance over time, but also to further inform both the Minister for Housing, Planning and Local Government and the Oireachtas on the performance of Irish Water.

The information published within this report is accurate as of 31 Dec 2019. The detailed findings of this report are set in section 2 and key events in section 3. The following findings from the report are of note:

- **Leakage -** By any measure, Ireland's leakage rate is unacceptable and needs to be a focus for Irish Water in the future. The WAB will continue to monitor the level of unaccounted for water until the end of this year until Irish Water makes its new leakage metric available for assessment.
- **First Fix Scheme -** There is a drop-off in the number of leak repairs completed under the First Fix Scheme from mid-2016. However, liability for Excess Use Charges for domestic households will be introduced in late 2020 with first bills to issue in 2022. It is expected that this will encourage customers to avail of the scheme and that higher numbers of leak repairs will be achieved in the future.
- **Remedial Action List (Water) -** The issues at the Leixlip Water Treatment Plant have exposed the vulnerability of Dublin's water supply, which is also replicated across the country. The WAB continues to be concerned that Irish Water invest in capacity, resilience and operational practices to deliver continuing improvement in water supply quality and security.
- **Priority Urban Area List (Wastewater) -** The WAB notes and accepts the Environmental Protection Agency's view that Ireland is not addressing the deficiencies in its waste water treatment infrastructure at a fast enough pace. This view has been highlighted again, recently, by the EPA.

- **Lead service connections replaced -** Irish Water aims to remove all public-side lead pipework by 2026, and has set specific targets in that context. The WAB wish to see the completion of all public side lead replacement by, at least, the target date of 2026 set out by Irish Water in its Lead in Drinking Water Mitigation Plan.[1]
- **Mains replacement rate (for water mains) -** Although Irish Water's mains replacement rate of 0.33% is within a range comparable with other similar entities, the WAB agrees with the Commission for Regulation of Utilities' view that Irish Water's replacement rate will need to be higher given Irish Water's infrastructure is likely to be older and in worse condition on average.
- **Overall compliance with microbiological indicators for drinking water -** In general, the WAB notes that compliance with the microbiological standards is high.
- **Boil Water Notices -** When Irish Water took charge of water supplies in 2014 it set a target to eliminate all boil water notices that were in place at that time. This target was achieved and while no specific future targets have been set, Irish Water is working to continue reducing the number of people affected by boil water notices. However, the WAB notes that short term boil water notices are not always captured by examining the population remaining on a boil water notice at the end of a quarter. This is evidenced in during Q4 2019, where two short term boil water notices were imposed on the Leixlip water treatment plant. This was the single largest boil water notice imposed in Ireland, with more than 600,000 consumers affected.
- **Compliance of Urban Waste Water Treatment (UWWT); Plants with Environmental Protection Agency discharge licenses -** Overall, compliance for urban waste water treatment is very low. Over half of the 75% non-compliance can be attributed to one waste water treatment plant – the plant at Ringsend, Dublin. A priority remains the 35 towns and villages releasing raw sewage into the environment.
- **Ease of Contact -** Customer Satisfaction Scores for the three years to 2017 are on an upward trend, so it is disappointing to see a drop-off in Irish Water's performance in 2018. The WAB expects Irish Water to improve its performance against this indicator in the future.
- **Irish Water Customer Complaints Management -** Irish Water has demonstrated good performance against this metric and it is close to Irish Water's stated aim in its "Water Services Strategic Plan" to resolve (or have outlined steps taken towards resolving) 100% of complaints within five working days.

1 https://www.water.ie/docs/Lead-in-Drinking-Water-Mitigation-Plan.pdf

Part 1
Introduction

The Water Advisory Body (the WAB) is established under statute. The WAB consists of five members:

Paul McGowan
Chairperson

Martin Sisk

Miriam McDonald

Tom Collins

Michelle Minihan

Improving the transparency and accountability of Irish Water

Our overall function is to advise the Minister on the measures needed to improve the transparency and accountability of Irish Water for the purpose of increasing the confidence of members of the public in Irish Water. The WAB's functions are set out in the Water Services Act 2017.

Irish Water's Strategic Funding Plan is a public document and available on Irish Water's website www.water.ie. Every three months the WAB prepares a report on Irish Water. This report sets out the WAB's view on how Irish Water is performing against its own Strategic Funding Plan. Each report is prepared for the Oireachtas and is published on the WAB's website – www.wateradvisorybody.ie. This is the second quarterly report of the WAB.

Performance Indicators in this Report

The WAB has chosen a set of performance indicators. In this report, we explain each indicator and why it is important. It is important to the WAB, in choosing performance indicators, that they are a useful reflector of performance and that they can be used to monitor Irish Water's performance. The WAB will keep these performance indicators under review to make sure that they remain relevant and continue to be good measures of performance.

There are some areas of interest to the WAB where data are not available. These include cost reduction and efficiency improvements, procurement, remuneration and staffing policies of Irish Water.

The absence of data will require the WAB to take a different approach to measuring performance in the following areas.

Cost reduction and efficiency improvements

In relation to measuring cost reduction and efficiency improvements, the WAB will use the Commission for Regulation of Utilities' Revenue Control 3 Decision on Irish Water to inform discussion on how indicators in these areas might be developed. The Decision was published by the Commission for Regulation of Utilities in December 2019. The WAB notes that the CRU has provided Irish Water an opportunity to submit an updated submission to it, to support the requested level of capital expenditure. The WAB is cognisant that this is an ongoing process and will await the Commission's final decision on any additional capex by 30 June 2020.

Irish Water procurement, remuneration and staffing policies

In relation to procurement, remuneration and staffing policies the Water Advisory Body proposes that Irish Water commissions an independent audit on these policy areas, reporting directly to the WAB.

The first of these reports will cover procurement policies and procedures. Irish Water will carry out in-depth reviews of its procedures in line with the scope provided by the WAB. The WAB expects completion of this review in 2020.

TECHNICAL NOTE

THE LEGISLATIVE BASIS FOR THE WATER ADVISORY BODY

The Water Advisory Body (the WAB) is an independent statutory body established under Part 7 of the Water Services Act 2017. The WAB was formally established on 1 June 2018. The Act provides for a 5-member board with a member appointed from each of three specific organisations (the Commission for Regulation of Utilities, the Environmental Protection Agency and An Fóram Uisce) and two members appointed through the Public Appointments Service process. The Water Advisory Body held its first meeting on 13 July 2018.

Part 7 of the Act also outlines the function and reporting arrangements for the WAB. The substantive functions of WAB set out in the 2017 Act are:

a) To advise the Minister on the measures needed to improve the transparency and accountability of Irish Water for the purpose of increasing the confidence of members of the public in Irish Water.

b) To furnish, on a quarterly basis, a report to the Committee on the performance by Irish Water in the implementation of its Strategic Funding Plan with particular regard to the following:

   a. Infrastructure delivery and leakage reductions;

   b. Cost reduction and efficiency improvements;

   c. Improvements in water quality, including the elimination of boil water notices;

   d. Procurement, remuneration and staffing policies;

   e. Responsiveness to the needs of communities and enterprise.

The WAB is also required to provide an annual report to the Minister on the performance of the WAB's functions during the period since its establishment.

Part 2
Key Performance Indicators

The WAB has selected eleven performance indicators, each measuring the performance of Irish Water under a different heading.

These headings are –

- infrastructure delivery and leakage reductions (6 indicators);
- improvements in water quality (3 indicators); and
- the responsiveness of Irish Water to the needs of communities and enterprise (2 indicators).

For each indicator chosen, the WAB has included a brief explanation, the reason why the indicator is important and recent data and commentary as to how Irish Water is performing in relation to the indicator. Where available, the targets that Irish Water is working to in relation to each indicator are also set out.

The WAB will continue to refine indicators to ensure they remain a useful measure of the performance of Irish Water.

In relation to procurement, remuneration and staffing policies the WAB proposes that Irish Water commission an independent audit on those policy areas. The independent body commissioned to undertake the audit will report directly to the WAB. Following an assessment of the audit by the WAB, performance indicators for these areas will be developed where practical.

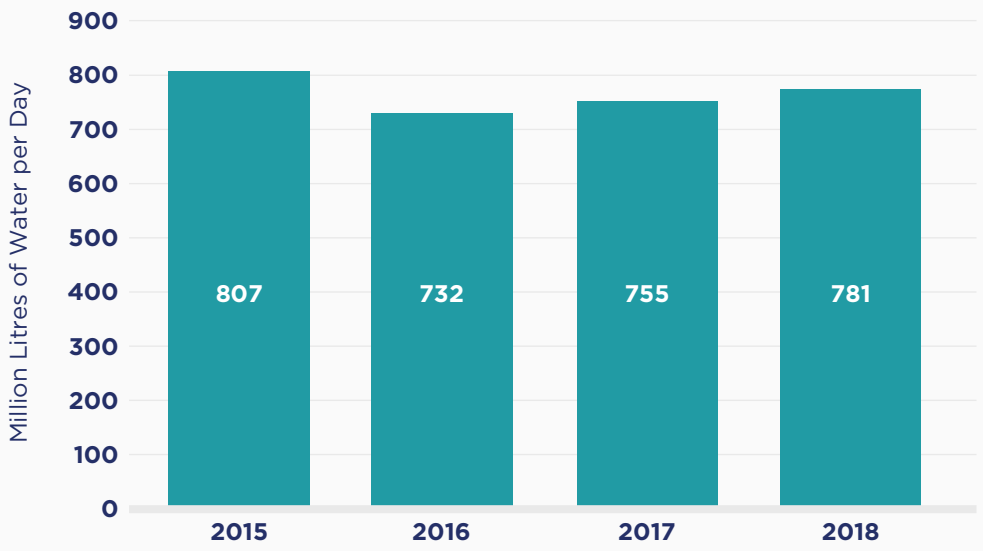
As already mentioned, the WAB will use the Commission for Regulation of Utilities' Revenue Control decision on Irish Water to facilitate and inform discussion on how indicators might be developed to measure cost reduction and efficiency improvements in Irish Water.

2.1 Infrastructure Delivery and Leakage Reductions Indicators

This Performance Indicator is based on information valid up to December 2019

2.1.1 Performance Indicator 1 - Leakage

Figure 1
Annual Average Daily Water Demand (millions of litres or Megalitres of water per day)



Brief Explanation

The technical definition of leakage or "Real Water Losses" is set out in the technical note below. Leakage, or Real Water Losses, is the loss of drinking water on the public side of the water supply network and is measured in millions of litres per day.

Irish Water has now implemented a leakage management system in line with international best practice and is expected to report on the level of leakage later in 2020. Under this new system the measurement of leakage will follow the definition set out in the Technical Note below. In the meantime, Irish Water has been reporting on "Unaccounted- for-Water" which is the sum of Real Water Losses, Apparent Losses and Unbilled Water.

"Unaccounted for Water" is calculated as the difference between the volume of water supplied into the water supply network and the volume of water that is delivered to customers' premises. "Unaccounted for Water" comprises of a number of items:

- Unbilled water including;
  - All water used by Irish Water.
  - Other unbilled use including, for example, water used by fire services.
- Apparent losses;
  - Water used at connections not recorded on Irish Water's system.
  - Under-recorded use by customers because of, for example, broken water meters and data handling errors.
- Real Losses on the public network from leaks and overflows.[2]

It should be noted that the leakage calculation does not include water lost due to leaks that occur on the customer's premises. Where this occurs, Irish Water provides a First Fix Scheme to assist and encourage domestic customers to fix leaks that occur on their property. The First Fix Scheme is included as a separate performance indicator in this section.

Why we focus on this Performance Indicator

Reducing the level of real water losses ensures that water sources are conserved and that revenue is not spent on treating large quantities of drinking water that is ultimately lost and not used by customers. Until the leakage metric is available later in 2020, the WAB will use the level of "Unaccounted for Water" to measure the performance of Irish Water in ensuring water delivered through its distribution network is not lost to customers.

Figure 1 shows the annual volume of 'unaccounted for water' in millions of litres of water per day in Ireland from 2015 to 2018. These volumes of 'unaccounted for water' represent a significant proportion of the average daily water demand.

Commentary

Irish Water's Strategic Funding Plan 2019-2024, states "It is estimated that, nationally, approximately 45% of treated water is lost due to leakage". The volume of unaccounted for water is high has risen steadily over the period 2016 – 2018. "Unaccounted for Water" on the public network, has risen from 732 megalitres per day in 2016 to 781 megalitres per day in 2018.

Leakage needs to be a focus for Irish Water in the future. Irish Water acknowledges that leakage from its "water supply networks is at unacceptable levels and well above international norms"[3].

2 **Source:** Irish Water Performance Assessment Framework - 2018 Implementation Update – CRU Information Paper

3 **Source:** Irish Water Performance Assessment Framework - 2018 Implementation Update – CRU Information Paper

We note that Irish Water commenced the roll out of its Leakage Management System (LMS) in November 2018 and that this has been fully operable across all Local Authorities since October of 2019. The WAB welcomes the fact that Irish Water will be reporting on national leakage ('Real Water Losses') from 2020 onwards. The WAB will continue to monitor the level of "Unaccounted for Water" until Irish Water makes its leakage metric available for assessment.

TECHNICAL NOTE

LEAKAGE

Figure 2 illustrates the water balance and captures how the total volume of water entering into the network ('distribution input') is apportioned between 'authorised use' (across domestic, non-domestic and unbilled water use) and 'water losses' (which is subdivided into 'apparent losses' and 'real losses').

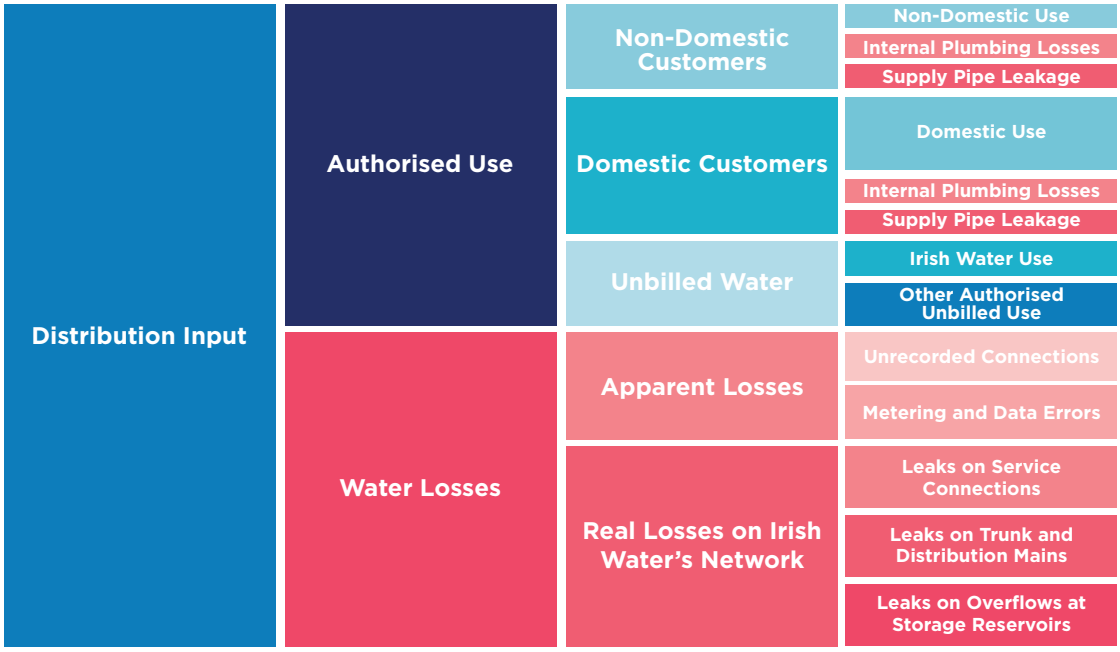
Real losses on Irish Water's network, commonly referred to as leakage, includes leaks on trunk mains and distribution pipes, leaks on service connections and leaks and overflows at storage reservoirs. There are two approaches to determining leakage on the public network. The first looks at a top down water balance where the water entering the network is assigned to water losses and water use based on metering information and well-reasoned estimates.

In addition to this, water losses should be estimated using a bottom-up approach by monitoring demand at a time when customer use is low which is typically at night. During a period of low, predictable customer use, flow into District Metered Areas is monitored for a continuous period of at least one hour. This flow is then allocated between public network losses, customer supply pipe losses and customer use and then converted from hour to day with an adjustment made for variations in pressure between day and night. Estimates of losses on trunk mains and service reservoirs are then added to the calculated District Metered Area losses to provide an estimate of total losses on the public network.

A final leakage number can then be reported by reconciling differences in the top-down and bottom-up approach to leakage estimation and applying robust statistical analysis in line with best international practice.

Figure 2

Components of Water Demand



2.1.2 Performance Indicator 2 - First Fix Scheme

This Performance Indicator is based on the latest available information valid up to Quarter 4 2018

Figure 3
Combined total of Irish Water and Customer Leak Repairs completed each Quarter

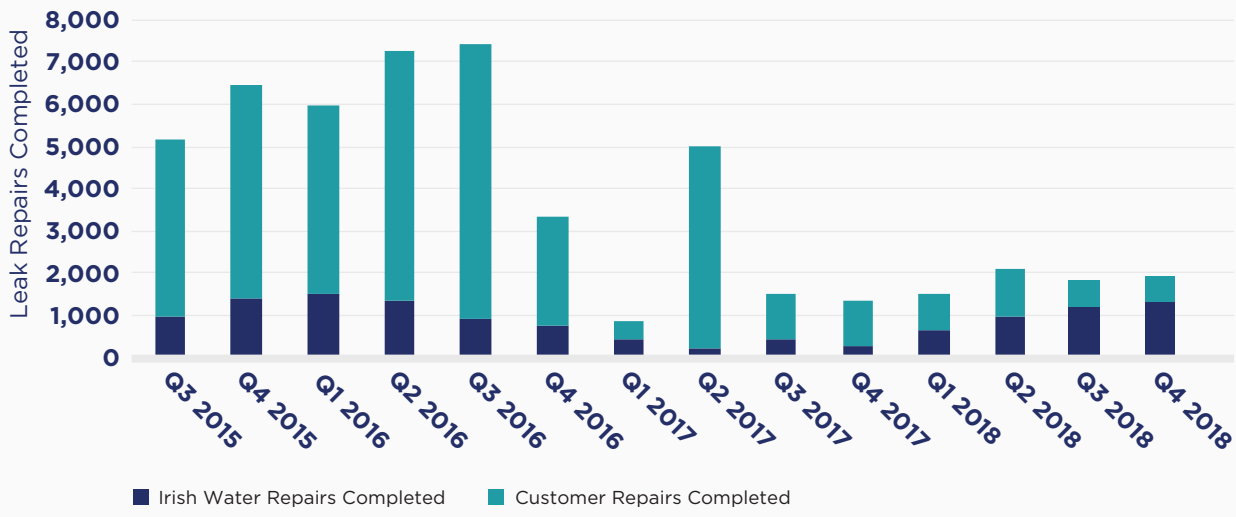
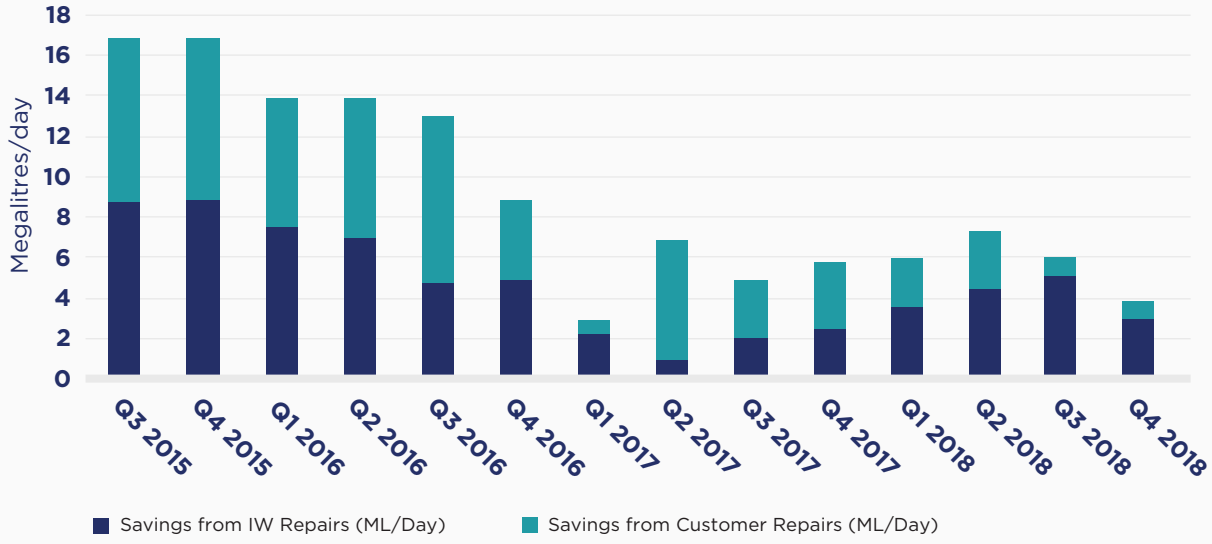


Figure 4
Combined total Savings in Megalitres/day of Irish Water and Customer Leak Repairs completed each quarter



Between the introduction of the First Fix Scheme in 2015 and Quarter 4 2018, the cumulative water savings are estimated by Irish Water to be 138.71 Megalitres/day. A cumulative estimated total of 69.73 Megalitres/day has been saved through repairs carried out by Irish Water and a further estimated 68.98 Megalitres/day of water has been saved through repairs carried out by customers.

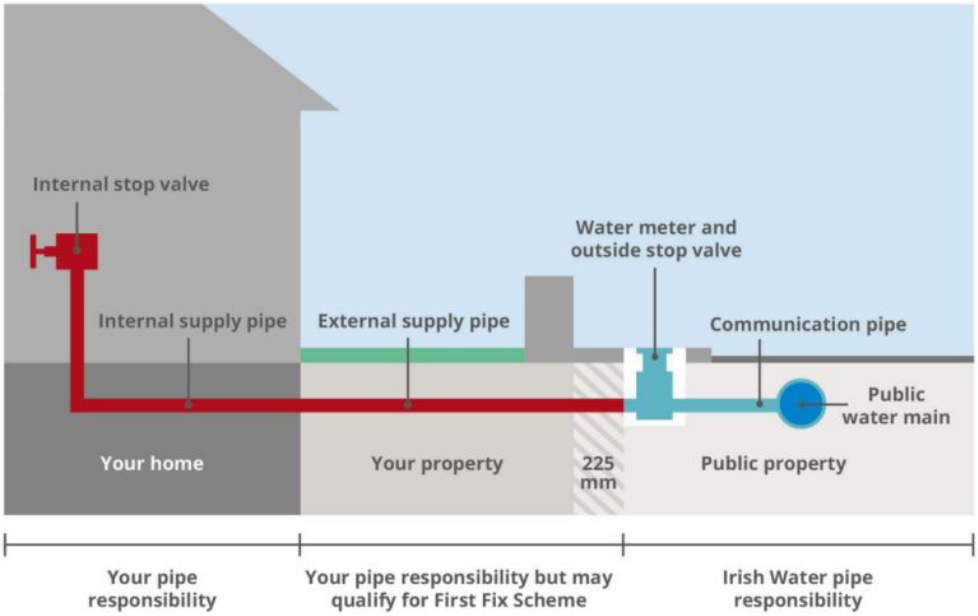
Brief Explanation

In 2015 Irish Water introduced the First Fix Scheme to tackle leakage on domestic customers' properties.

Under Irish Water's First Fix Scheme, metered domestic customers are notified when Irish Water suspects a leak is occurring within the boundary of their property. A leak alarm notifies Irish Water that there is a constant flow of six or more litres of water per hour for a continuous period of 48 hours or more. Irish Water may then offer domestic customers a free leak investigation and free leak repair for leaks on the external customer supply pipe.

The 'external customers supply pipe' is outside of the customer home but within the boundary of the customer property, as illustrated in Figure 5. Customers are responsible for fixing leaks on pipes located within the customer home ('internal supply pipe').

Figure 5
Irish Water's First Fix Scheme – Pipe Responsibility



Irish Water reports key data from the First Fix scheme each quarter. These reports are published on Irish Water's website. It provides information on the number of leak investigations carried out and the number of leak repairs completed. Irish Water also provides information on how many leak investigations identified leaks that didn't qualify for the scheme, the amount of money that Irish Water spends on the scheme and litres of water saved per day through the scheme.

Why we focus on this Performance Indicator

Reducing drinking water loss through the First Fix Scheme helps to conserve water and can help to reduce the amount of money Irish Water spends on treating and supplying water that is ultimately leaked and not used by customers.

The rate of repairs carried out by Irish Water through the First Fix scheme is an important indicator of the performance of Irish Water in ensuring water delivered through its distribution network is not lost through leakage from the customers' premises.

Figure 3 shows the number of leak repairs per quarter completed by both Irish Water and the customer. The highest number of leak repairs carried out by Irish Water to date were completed in Quarter 1 2016 while the lowest number was completed in Quarter 2 2017. The highest number of leak repairs carried out by customers to date were completed in Quarter 3 2016, while the lowest number was completed in Quarter 1 2017.

Figure 4 shows the total savings in Megalitres/day estimated by Irish Water as a result of both Irish Water and customer leak repairs each quarter. The highest estimated savings in Megalitres/day as a result of leak repairs carried out by Irish Water took place in Quarter 4 2015, while the highest savings in Megalitres/day as a result of leak repairs carried out by customers took place in Quarter 3 2016.

Commentary

In Quarter 4 2018, a total of 1,916 leak repairs were completed. 1,290 of these repairs were external to the customer property and were carried out by Irish Water, and the remaining 626 leaks were internal to the customer property and repaired by the customer.

As of Quarter 4 2018 Irish Water had completed approximately 12,000 leak repairs and customers had completed approximately 41,000 leak repairs in total. Irish Water estimates that the scheme has saved nearly 139 million litres of water per day up to the end of Quarter 4 2018.

Project expenditure is reported quarterly in arrears. The cumulative total expenditure up to the end of Quarter 4 2018 (end of December 2018) is €32,883,212 consisting of €16,336,550 for leak investigations, €12,667,026 for repairs and €3,879,636 for additional costs[4]. This expenditure is within the original allowed funding amount of €51m for the scheme. Irish Water has been approved additional funding for the First Fix Scheme over the upcoming revenue control period, from 2020 to 2024.

4 **Source:** Irish Water Leakage Reduction Programme - First Fix Leak Repair Scheme - For Domestic Water Customers - Quarterly Report Q4 2018

Specific targets have not been set for Irish Water in respect of the First Fix Scheme. This is because availing of a leak investigation and possible First Fix requires a good level of customer engagement to meet any target.

This performance indicator has been updated with data for Q3 2018 and Q4 2018. It shows a continuation of a disappointing drop-off in the number of leak repairs completed under the scheme since mid-2016. This coincides with the suspension and eventual abolition of domestic water charges. Excess Use Charges for domestic households will be introduced in late 2020, with first bills to issue in 2022. It is expected that this will encourage customers to avail of the Scheme and that higher numbers of leak repairs will be achieved in the future. Future WAB reports will continue to monitor the rate of First Fix repairs by Irish Water and customers.

TECHNICAL NOTE

WHY THE FIRST FIX SCHEME IS IMPORTANT

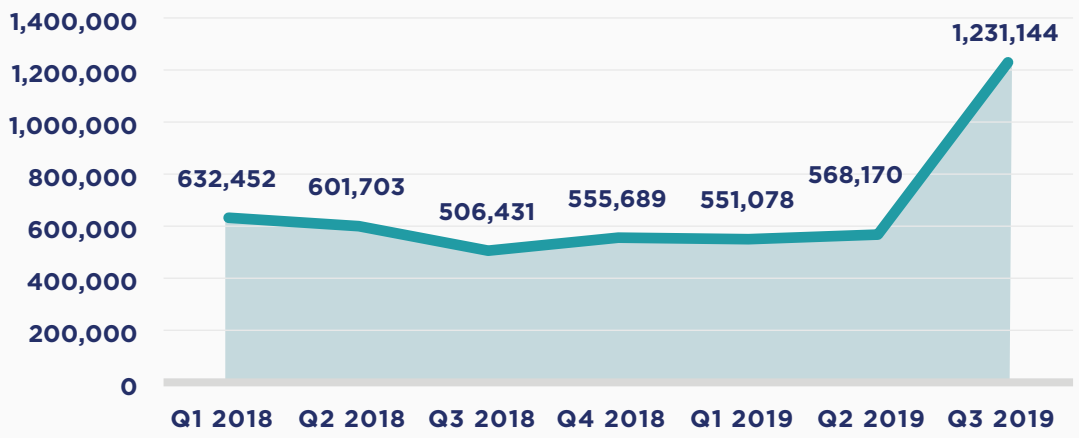
Reducing drinking water loss through the First Fix Scheme helps to:

- conserve water;
- reduce the amount of money Irish Water spends on treating and supplying water that is ultimately leaked and not used by customers; and
- allows Irish Water to manage better risks and uncertainty in supplying drinking water (such as faster demand growth than anticipated when planning and designing water infrastructure).

2.1.3 Performance Indicator 3 - Remedial Action List (Water)

This Performance Indicator is based on information valid up to Quarter 3 2019.

Figure 6
Population Served by Supplies on the Remedial Action List[5]



Brief Explanation

The Environmental Protection Agency publishes the Remedial Action List. This is a list of public water supplies in need of significant corrective action, usually at the treatment plant. Public water supplies are added to the Remedial Action List for a variety of reasons including ongoing failure to comply with drinking water quality standards or inadequate treatment levels.

Why we focus on this Performance Indicator

The number of supplies on the list, and the population that these supplies serve, are important as they indicate the progress of Irish Water in ensuring public drinking water supplies are safe and secure. When Irish Water has demonstrated that the supply is safe and secure, it can be removed from the Remedial Action List.

Commentary

Figure 6 shows the population served by drinking water supplies included on the list from Quarter 1 2018 to end Quarter 3 2019. The figures had been showing a general downward trend in both the number of drinking water supplies on the list and the population that these supplies serve: however, the addition of the Leixlip supply to the Q3 2019 Remedial Action List has changed this.

Under normal circumstances, the WAB would expect a continual reduction in the number of supplies and users on the Remedial Action List, with a substantial reduction by 2020.

5 **Source:** Environmental Protection Agency

At the end of Quarter 3 2019 the Remedial Action List contained 64 water supplies, similar to the end of Q2 2019. Four supplies were removed and four were added. However, there was a significant increase in the population served by supplies needing remedial action from 568,170 to 1,231,144. This was due to the addition of water supply zones supplied by Leixlip Water Treatment Plant, affecting 657,395 people, as a result of issues at the plant which will require upgrade works to be carried out.

Irish Water has an action plan in place to remediate the drinking water supplies that are currently included on the Remedial Action List. These fall into three broad categories:

- Water Supplies with a target date for completion of remedial works (51 Supplies with a population served of 541,489)
- Water Supplies with no target date for completion of remedial works (8 Supplies with a population served of 673,675)
- Water Supplies remedial works is complete but awaiting verification (5 Supplies with a population served of 15,980)

The 51 supplies with a target date for completion of remedial works is broken down as follows:

- 15 supplies (serving 225,797 people) by end 2019,
- 23 supplies (serving 75,420 people) by end 2020,
- 11 supplies (serving 218,870 people) by end 2021 and
- Two supplies (serving 21,402) people by end 2022.

There are eight Supplies for which Irish Water has yet to set target dates for completion of the remedial works. Future WAB reports will monitor the progress of Irish Water in meeting the targets they have set to remediate those water supplies through the quarterly updates of the Remedial Action List.

The WAB notes that the issues at Leixlip Water Treatment Plant has exposed the vulnerability of Dublin's water supply which is also replicated across the country. The WAB continues to be concerned that Irish Water invests in capacity, resilience and operational practices to deliver continuing improvement in water supply quality and security. The WAB will also monitor the number of new drinking water supplies, and population served by those supplies, that are added to the Remedial Action List in any Quarter.

The WAB also notes the importance of timely and accurate communication and information which set realistic expectations on the duration of Boil Water Notices.

TECHNICAL NOTE

REASONS FOR ADDING A DRINKING WATER SUPPLY TO THE REMEDIAL ACTION LIST

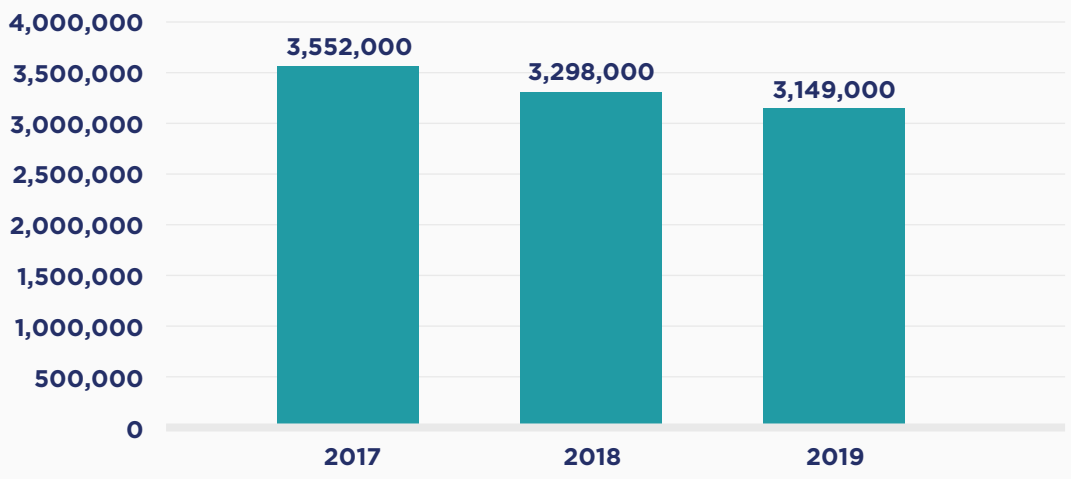
Public water supplies can be added to the Environmental Protection Agency's Remedial Action List for one or more of the following reasons:

- Persistent failure to comply with the standards for priority parameters such as E.coli, trihalomethanes, aluminum, pesticides or turbidity;
- Inadequate treatment of the water supply, for example, where there is no treatment other than chlorination available for a surface water supply;
- Monitoring results or compliance checks carried out by the Environmental Protection Agency indicate a lack of operational control at the treatment plant; or
- The Health Service Executive has identified a supply where improvements are required.

2.1.4 Performance Indicator 4 - Priority Urban Area List (Wastewater)

This Performance Indicator is based on information valid up to December 2019.

Figure 7
Population equivalent served by priority areas



Brief Explanation

The Environmental Protection Agency also publishes a Priority Urban Area List. This is a list of urban areas that most urgently need improvement in the waste water treatment provided. An urban area can be added to the Priority Urban Area List for a number of reasons including failing to meet EU sewage treatment standards or because waste water is having a harmful effect on water quality in rivers, lakes or coastal waters.

Why we focus on this Performance Indicator

The number of urban areas on the list is important as it is an indicator of the performance of Irish Water in ensuring that waste water generated within communities is not polluting our water or creating a health risk. When Irish Water has provided an appropriate level of waste water treatment for an urban area, the area can be removed from the list. This is determined by the Environmental Protection Agency.

The number of urban areas on the priority urban area list has reduced from 148 in 2017 to 120 in 2019. Figure 7 shows the population equivalent served by priority areas included on the Priority Urban Area List for 2017 and 2018. The figures show a downward trend in the population equivalent served by priority urban areas included on the list from 2017 to 2019.

Under normal circumstances the WAB expects to see a continued reduction of the population equivalent served by priority areas on the list.

Commentary

The targets for completion of remedial actions in Priority Urban Areas are reported to the Environmental Protection Agency. Progress is also monitored by the Environmental Protection Agency.

At the end of 2019, there were 120 priority areas included on the list which represented a population equivalent of 3,149,000 people, a reduction of 403,000 from 2017.

It is important to note that this includes 2.3 million population equivalent served by the Ringsend treatment plant. Remedial work is underway. When Ringsend is removed from the list, the population equivalent will be reduced significantly.

The inclusion of an urban area on the list means that Irish Water must improve waste water treatment levels in that area. There can, therefore, be a range of actions that Irish Water might need to take to upgrade the treatment being provided to a specific urban area, depending on the reason it was added to the list. These might include:

- Infrastructural upgrades to the waste water plant to treat sewage to the required standards;
- Upgrades to the collection systems to ensure waste water is collected properly;
- Operational improvements to the plants.

The target dates for the completion of those specific actions are reported to the Environmental Protection Agency which monitors Irish Water's delivery on those targets. Future WAB reports will monitor the progress of Irish Water in reducing the number of agglomerations on the Priority Urban Area List.

The Environmental Protection Agency launched its Urban Waste Water Treatment Report for 2018 in November 2019. The WAB notes the Environmental Protection Agency's views on the findings of the report namely:

- the pace at which Irish Water is fixing the legacy of deficiencies in Ireland's waste water treatment infrastructure is too slow and there are repeated delays in providing treatment for many areas.
- it is not acceptable that waste water treatment at 21 large towns and cities did not meet European Union standards set to protect the environment and that at least 13 towns and villages will continue discharging raw sewage after 2021 because they will still not have a waste water treatment plant.

The EPA notes that inadequately treated waste water is putting people's health at risk and is having an impact on our rivers, lakes and coastal waters.

The WAB notes with concern that the EPA has again highlighted the pace at which deficiencies are addressed by Irish Water.

TECHNICAL NOTE

REASONS FOR AN URBAN AREA BEING INCLUDED ON THE PRIORITY URBAN AREA LIST

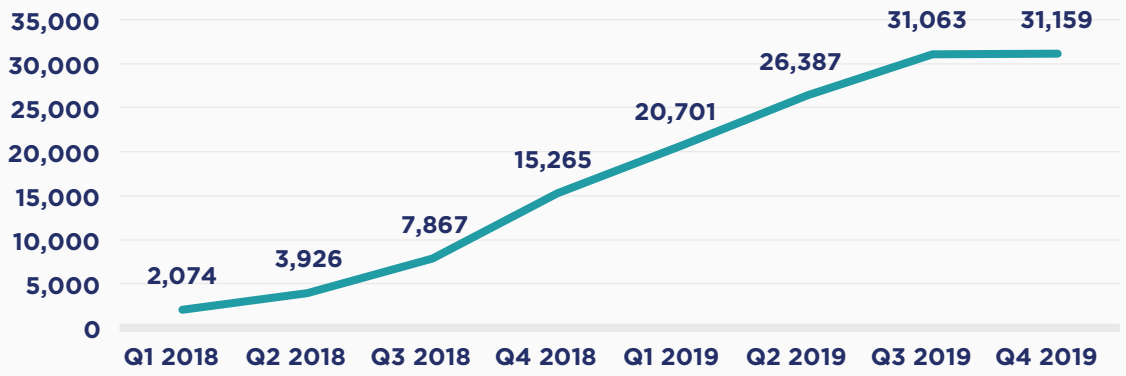
The Priority Urban Area list is a list of urban areas that most urgently need improvement in the waste water treatment provided. Improvement in the level of treatment provided to an urban area may be required for various reasons including:

- it is failing to meet EU sewage treatment standards;
- it is discharging raw sewage because there is no treatment plant;
- it is a key pressure on the water quality of rivers or lakes;
- it is impacting negatively on bathing water;
- an improvement (i.e. an increase in treatment level) is needed to protect Pearl Mussels; or
- an improvement (i.e. an increase in treatment level) needed to protect Shellfish Waters.

2.1.5 Performance Indicator 5 - Lead service connections replaced

This Performance Metric is based on information valid up to December 2019 including Quarter 4 figures.

Figure 8
Total lead connections replaced (cumulative)



Irish Water has an annual target for lead replacements. In 2019, this was front-loaded, as contractors were already in place to undertake this work. As a result replacement rates were higher in the first part of the year. The target for 2019 was 9,000 replacements, and Irish Water completed 15,248 up to the end of Q4 2019. Figure 8 above shows that the rate of progress of lead connection replacements has slowed in the last quarter of 2019.

Brief Explanation

Lead is a harmful substance that can be found in drinking water when it dissolves from lead pipework, mains connections and plumbing fittings. While there are no lead water mains in Ireland, there are still some lead pipes remaining in the public network (these connect the water mains to individual houses or groups of houses). The presence of lead pipes or fittings in a property depends mainly on the age of the pipe.

Why we focus on this Performance Indicator

Where lead is found in drinking water, its consumption is harmful to people. The World Health Organisation reexamined the evidence and changed its advice that lead in drinking water was not considered a health risk unless it reached a certain level. There is no level of lead in drinking water which is now considered to be completely safe and it is best to limit exposure, for all age groups, to lead[6]. Those most sensitive to the neurodevelopmental effects of lead are foetus, infants and children.

6 https://apps.who.int/iris/bitstream/handle/10665/254637/9789241549950-eng.pdf;jsessionid=9F277B98B3C42FE03A350DF4EBC3AEDE?sequence=1

The *"National Lead Strategy"*[7], published by the Government in 2015, sets out that lead in drinking water is both the responsibility of water suppliers and property owners. Irish Water, as the water supplier for public water supplies, is therefore responsible for lead pipework in the water distribution network. This is known as public side lead.

The rate of replacement of lead services in the water distribution network is an important indicator of the performance of Irish Water in ensuring water delivered through its distribution network is safe for consumption. As part of its Leakage Reduction Programme, Irish Water is planning to remove all remaining lead pipes from the public water network.

Figure 8 shows the cumulative number of lead connections replaced by Irish Water to date, with detailed replacement figures given for the last eight quarters. This data is compiled by the Environmental Protection Agency on a quarterly basis.

Commentary

In May 2017, after public consultation, Irish Water published its "Lead in Drinking Water Mitigation Plan"[8], which sets out what Irish Water is going to do to reduce lead in the water distribution network.

The goal of both the National Strategy and the Mitigation Plan is the removal of all lead pipework from the network.

Irish Water estimates there are 180,000 lead service connections that need replacing of which:

- 140,000 are service connections from water mains which run under the roads; and
- 40,000 are backyard service connections, where lead pipes run through backyards serving a number of houses.

Irish Water aims to remove all public-side lead pipework by 2026 and the WAB encourages Irish Water to continue the replacement of lead pipes to benefit the health of users.

The WAB wishes to see the alleviation of public side lead replacement at least commensurate with the target set out by Irish Water for removal of all public side lead by 2026.

Future WAB reports will continue to monitor the lead services replacement rate by Irish Water to measure Irish Water's progress in achieving its targets.

7 https://www.hse.ie/eng/health/hl/water/drinkingwater/lead/

8 https://www.water.ie/docs/Lead-in-Drinking-Water-Mitigation-Plan.pdf

TECHNICAL NOTE

ADVERSE HEALTH EFFECTS OF LEAD

There are many acute and chronic effects of lead exposure. At very high levels of exposure, lead can cause damage to most organs in the body, particularly the kidneys and central nervous and blood systems.

However, studies over the last 30 years have shown that lead can affect health as a result of ongoing exposure to lower levels of lead. In particular, the evidence

indicates that chronic exposure to low levels of environmental lead can adversely affect cognitive development in children. Chronic exposure to lead can also cause:

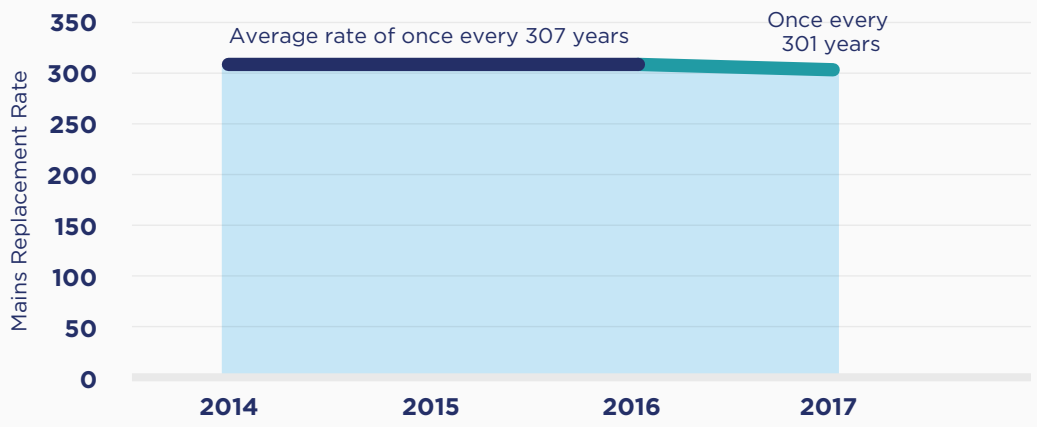
- renal toxicity;
- disturbances in cardiac conduction and rhythm and increase in blood pressure;
- hepatic damage;
- anaemia and other haematological effects;
- reproductive and developmental toxicity;
- gastrointestinal disturbances.

Source: Environmental Protection Agency – Health Services Executive Joint Position Paper Lead in Drinking Water; 2013

2.1.6 Performance Indicator 6 - Mains replacement rate (for water mains)

This Performance Metric has not been updated in this report.

Figure 9



Brief Explanation

Irish Water has approximately 63,000km of water mains distributing treated drinking water around the country. In 2015, Irish Water reported that the average age of the water mains infrastructure in Ireland was estimated at 65 to 85 years, while cast iron mains in some of our cities and towns were estimated to be up to 140 years old.

Given the age profile of the drinking water infrastructure, the mains replacement rate carried out by Irish Water is an important performance indicator. The mains replacement rate is calculated by dividing the length of water mains replaced in a year by the total length of water mains served by Irish Water.

Why we focus on this Performance Indicator

The maintenance (including replacement) of water mains is important as it supports the provision of a secure, quality supply of treated drinking water to customers. If water mains are not appropriately maintained, Irish Water's customers can experience low water pressure, reduced water quality and water supply interruptions due to pipes bursting. Burst pipes add to the amount of water lost through leakage.

Figure 9 shows Irish Water's mains replacement rate from 2014 to 2017. It has remained at a consistent level for that time period.

9 **Source:** Commission for the Regulation of Utilities

Commentary

There has been no update to this metric since the publication of the last Water Advisory Body Quarterly Report in October 2019, and thus the commentary set out below still applies.

In 2015, when it published its 7-year Strategic Funding Plan, Irish Water estimated that 49% of the water it produces is lost to leakage from the distribution network due to its age and quality. Through Irish Water's leakage reduction programmes and analysis of metered information, this estimate has fallen in subsequent years. In 2017, approximately 46% of the average daily water demand was classed as 'unaccounted for water' on the public network.

The "*Irish Water Capital Investment Plan 2017 – 2021 Monitoring Report No. 2*"[10] noted Irish Water replaced 209km of water mains in 2017. This represents a replacement rate of 0.33% of Irish Water's network and a replacement rate of once every 300 years. To place this in context, companies in England and Wales are 'replacing' (mostly by renewal, but some by relining) in the region of 0.1% to 0.4% of their networks annually. Although Irish Water's mains replacement rate of 0.33% is within this range, the Commission for Regulation of Utilities is of the view that Irish Water's replacement rate will need to be higher given Irish Water's infrastructure is likely to be older and in worse condition on average.

There are no specific targets in place to monitor Irish Water's mains replacement rate. Therefore, future WAB reports will monitor the mains replacement rate to assess if Irish Water has achieved improved performance against this metric over time.

10 *Irish Water Capital Investment Plan 2017-2021 - Monitoring Report No. 2* – published 29 April 2019.

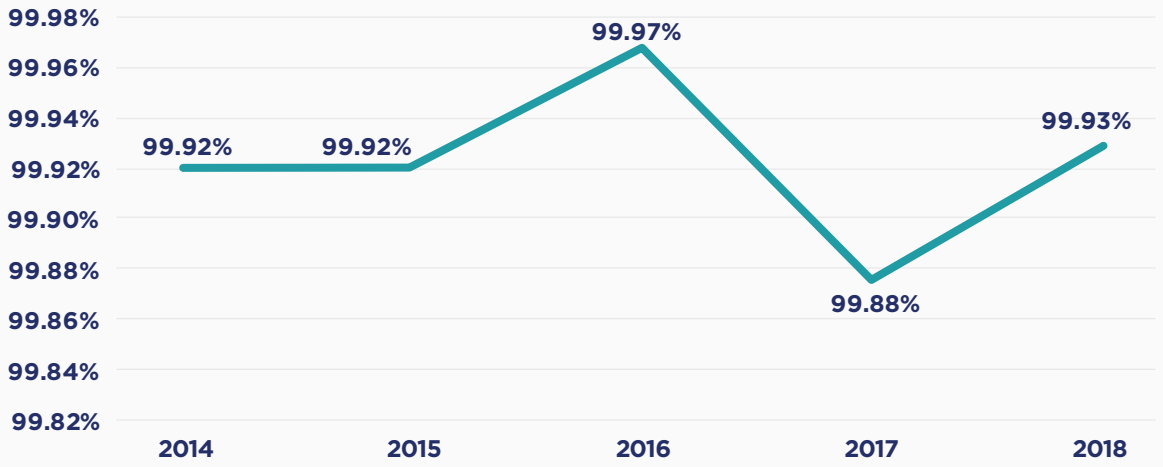
2.2 Improvements in Water Quality, including the elimination of Boil water notices

2.2.1 Performance Indicator 7 - Overall compliance with microbiological indicators for drinking water

This Performance Indicator is based on information valid up to end 2018.

Figure 10

Percentage of samples complying with E. coli Standard[11]



Brief Explanation

Microbiological indicators measure the level of bacteria in drinking water. These are the most important health indicators of drinking water quality, particularly the presence of E. coli in water. The presence of this bacterium in drinking water is a good indication that a water supply has been contaminated.

Why we focus on this Performance Indicator

Irish Water is responsible for the production, distribution and monitoring of drinking water in public water supplies. Where monitoring shows a failure to meet the water quality standards for drinking water in a public water supply, Irish Water is required to take action. When Irish Water notes a microbiological failure it must notify the Environmental Protection Agency and investigate why it happened. It must also consult the Health Services Executive to confirm if the failure might impact the health of any person who drinks the water. This may result in, for example, a boil water notice being issued.

11 **Source:** Environmental Protection Agency

This indicator is important, therefore, as it reflects whether treatment plants managed by Irish Water are operating correctly and that drinking water supplies are safe and secure from bacterial contamination.

Under normal circumstances the WAB expects to see a compliance rate of close to 100%.

Commentary

In general, the WAB notes that compliance with the microbiological standards is high as illustrated in Figure 10, which shows that compliance has remained over 99% in the period 2014 – 2018.

The Environmental Protection Agency produces an annual report, which gives an overview of the quality of drinking water in public water supplies.

These Annual Reports are based on the assessment of monitoring results reported to the Environmental Protection Agency.

During 2018, six public water supplies showed samples which failed to meet the standards for E. coli. One of these failed due to issues at the treatment plant, while issues with sampling or contamination of the consumers' taps were suspected in the remainder. Further information is available in the Environmental Protection Agency's *"Drinking Water Quality in Public Supplies 2018"* report[12]. This is a decrease from 2017 when 11 supplies failed the standard for E. coli.

Future WAB reports will monitor the success of Irish Water in decreasing the number of public water supplies that do not comply with the *E. coli* standard.

TECHNICAL NOTE

RISKS OF *E. COLI* IN DRINKING WATER

E. coli is an indicator organism, the presence of which in drinking water indicates that the supply has become contaminated with human or animal waste or that the disinfection systems is not operating adequately. The presence of *E. coli* in drinking water is an indication that other more harmful micro-organisms may be present and that action is urgently required to identify the cause of the failure and to ensure that treatment is improved to adequately disinfect the water.

Source: Environmental Protection Agency Advice Note No. 3 – *E. coli* in Drinking Water

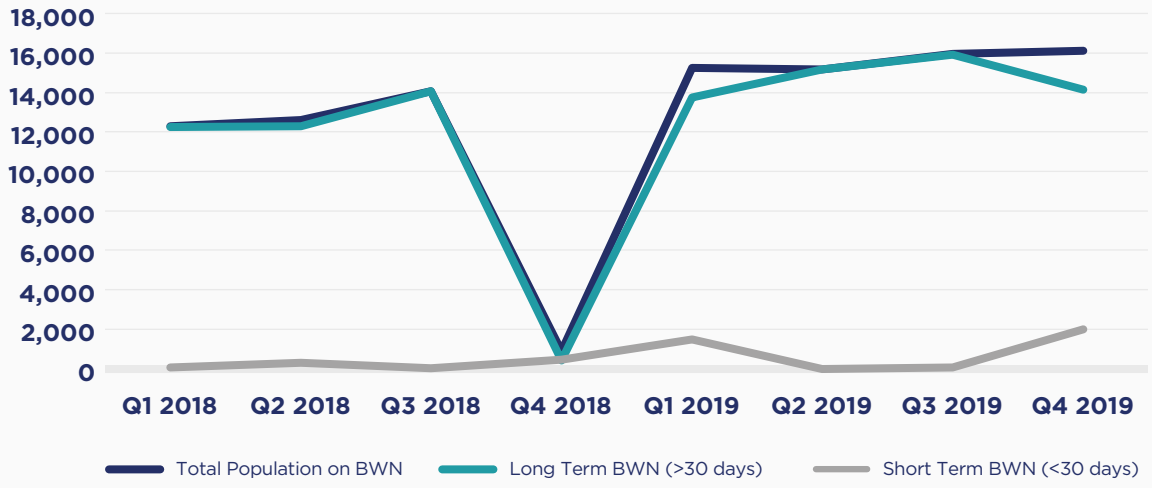
12 http://www.epa.ie/pubs/reports/water/drinking/EPA%20DW%20Public%20Supplies_web.pdf

2.2.2 Performance Indicator 8 - Boil Water Notices

This Performance Metric is based on information valid up to 31 December 2019.

Figure 11

Boil water notices at the end of each quarter[13]



Brief Explanation

If a public water supply becomes contaminated with bacteria or a pathogen, a boil Water Notice may be issued. A boil water notice is a formal notice issued to all households and businesses in an area advising them that drinking water from the public water supply is not safe to drink unless it is boiled and cooled beforehand. Irish Water must notify the Environmental Protection Agency when a failure in water quality is noted. However, Irish Water will usually only issue a boil water notice after consulting with the Health Services Executive, the statutory authority on public health matters, to confirm if the failure might impact on people's health.

Why we focus on this Performance Indicator

The number of boil water notices issued is an important indicator of drinking water quality and as a measure to protect public health of customers. The number of people affected by boil water notices issued, therefore, is an important indicator as to whether Irish Water is ensuring public drinking water supplies are safe and secure

Figure 11 shows the total population on boil water notices at the end of Quarter 4 2019. The graph also shows how long those boil water notices have been in place by showing the population on boil water notices for less than thirty days and the population on boil water notices for more than thirty days.

Under normal circumstances the WAB expects that no consumer should be on a long-term Boil Water Notice. Boil water notices should be kept at low levels and for as short a period as possible.

13 **Source:** Environmental Protection Agency

Commentary

At the end of Quarter 3 2019, 15,965 people were on boil water notices and at the end of Quarter 4 2019, there was 16,132 people on boil water notices. The number of people on boil water notices at the end of each quarter, has risen during 2019. This represents an increase from 12,288 in Quarter 1 2018. However, this does not reflect shorter term boil water notices which have been imposed and lifted within the quarter itself. (See Figure 12 and commentary on Leixlip incidents).

Of the 17,821 people on boil water notices during Q3 2019, 12,576 of those relate to Lough Talt and 1,978 to the Tallanstown supply. This accounts for around 80% of all people on boil water notices in Quarter 3 2019. Sligo County Council confirmed in May 2019 that planning permission has been granted to upgrade the Lough Talt water treatment plant. These upgrade works are scheduled to be completed in 2020 and will have a significant impact on the number of long-term boil water notices currently in place.

When Irish Water took charge of water supplies in 2014 it set a target to eliminate all boil water notices that were in place at that time. This target was achieved and while no specific future targets have been set, Irish Water is working to continue reducing the number of people affected by boil water notices.

Leixlip Incidents

In October and November 2019, two boil water notices were placed on the Leixlip water supply, affecting 615,539 and 657,395 people respectively. These two separate Boil Water Notices were due to two separate and different events. Both events occurred within a 3 week period, from 21 October to 12 November 2019. Following both events, the EPA conducted audits of the Leixlip water treatment plant.

The first incident involved a mechanical failure (a blockage in a pipe). This led to increased turbidity levels in treated water and an increased risk of breakthrough of *Cryptosporidium/Giardia*, as a result. Following the incident the EPA recommended that ultraviolet be considered by Irish Water as an additional barrier to inactivate *Cryptosporidium/Giardia* at Leixlip water treatment plant. The EPA inspectors found that there was a failure to respond to multiple alarms that activated in response to the elevated turbidity levels on the day of the event. This automatic shutdown was only operating on one production line on the day of the incident. Automatic shutdown of all three production lines has since been implemented.

The second incident arose due to the entry of raw water with high turbidity levels into the Leixlip water treatment plant. This was attributed to very heavy rainfall. The EPA made a number of recommendations concerning operation and upgrade works at the Leixlip plant arising out of this second incident. EPA found that, until such time as the filter upgrade works and coagulation process optimization are complete, there is a risk of reoccurrence of this type of event when there are high turbidity levels in the raw water for a sustained period.

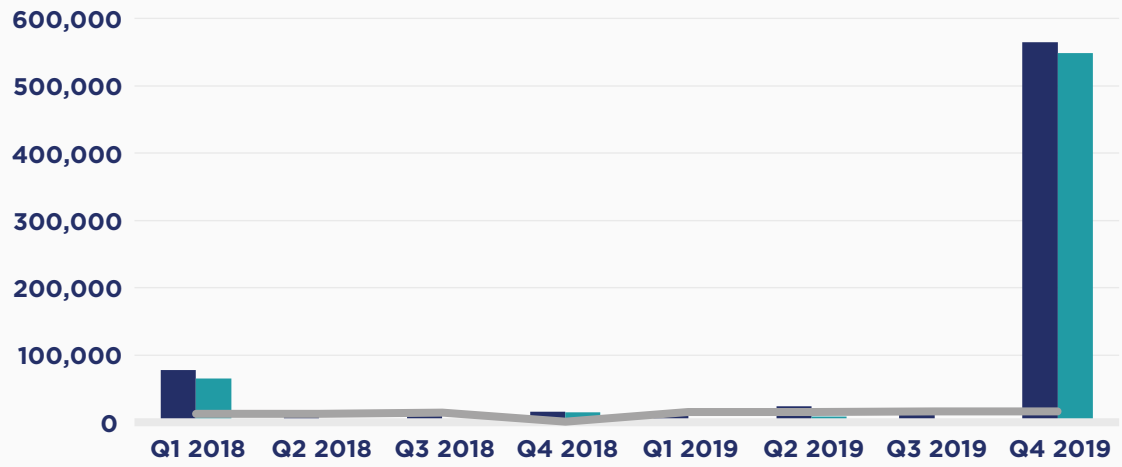
The EPA has published audit reports following both incidents and these can be found at the following links:

https://www.epa.ie/pubs/advice/drinkingwater/drinkingwateraudits2019/leixlipwatertreatmentplantaudit20191024.html

https://www.epa.ie/pubs/advice/drinkingwater/drinkingwateraudits2019/leixlipwatertreatmentplantaudit20191108.html

Figure 12 shows the total population on boil water notices during the quarters of 2018 and 2019.

Figure 12
Boil water notices imposed and lifted within each quarter



When assessing how Irish Water is ensuring a safe and secure supply of drinking water, it is important to look at population added and removed within a quarter, as well as examining the population remaining on a Boil Water Notice at the end of each quarter. The WAB notes that short term boil water notices are not always captured by examining the population remaining on a boil water notice at the end of a quarter. This is evidenced in Figure 12, during Q4 2019, where two short term boil water notices were imposed on the Leixlip water treatment plant. This was the single largest boil water notice imposed in Ireland, with more than 600,000 consumers affected.

TECHNICAL NOTE

REASONS WHY A BOIL WATER NOTICE MIGHT BE ISSUED

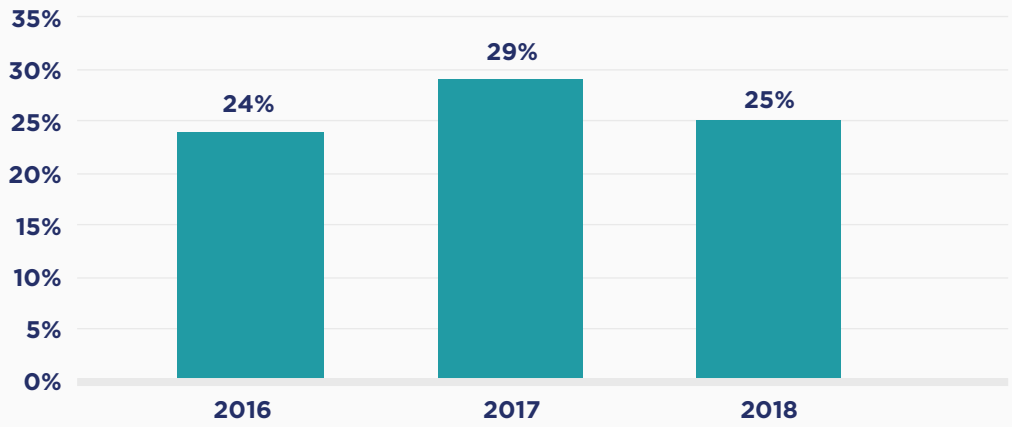
The most common reason for issuing a Boil Water Notice would be where routine testing of the drinking water supply has shown the presence of harmful bacteria (such as E. coli), or pathogens such as Cryptosporidium.

- In some cases a Boil Water Notice may be imposed where there is a risk of contamination but where test results are yet to be confirmed.
- Boil Water Notices that remain in place for greater than 30 days are classified as long-term notices.

2.2.3 Performance Indicator 9 - Compliance of Urban Waste Water Treatment (UWWT); Plants with Environmental Protection Agency discharge licences

This Performance Metric is based on information valid up to end 2018.

Figure 13
Percentage of Population served by compliant Urban Waste Water Treatment plants (by population equivalent)[14]



Brief Explanation

The objective of waste water treatment is to collect the waste water generated within communities, remove the polluting material, and then release the treated water safely back into the environment. Without such treatment, the waste water produced would pollute our waters and create a health risk. A waste water discharge license is required for treatment plants that are discharging from areas with a population equivalent of 500 or more.

Why we focus on this Performance Indicator

The percentage of population served by waste water treatment plants that are compliant with their discharge licence is an important indicator of the performance of Irish Water in ensuring that our treatment plants are not polluting our water or creating a health risk. Untreated waste water, commonly referred to as raw sewage, can be contaminated with harmful bacteria and viruses. This can pose a health risk to people who come into contact with contaminated water and can threaten aquatic ecosystems and the amenity value of our waters.

Figure 13 shows the percentage of the population served by treatment plants (by population equivalent) that complied with their Environmental Protection Agency Discharge licence.

Under normal circumstances the WAB expects to see a continued increase in compliance in this area.

14 **Source:** Environmental Protection Agency

Commentary

Overall, compliance is very low. The total population equivalent requiring waste water treatment by Irish Water in 2018 was 5,338,000 . Only 25% of the population's (1,315,000) sewage was treated to the required standard in 2018, down by 4% from the previous year.

The reduction in compliance is primarily due to increased population in areas served by non-compliant waste water treatment plants.

Of the 75% of the population served by the plants that were not compliant, it is worth noting that over half of that non-compliance can be attributed to one waste water treatment plant – the plant at Ringsend, Dublin. Dealing with the non-compliance issues at this plant has the potential to result in a significant improvement in the overall compliance rate.

The Ringsend plant will be upgraded in two phases:

1. Construction work (begun in 2018) to extend the plant and provide additional treatment capacity for a population equivalent of 400,000. This new extension is due to be completed in 2020.
2. Further work to upgrade the current treatment process and bring the treatment capacity up to 2.4 million is due to begin in 2021. Irish Water recently revised the expected completion date for this work from 2023 to 2025.

The quality of the treated waste water will improve as the upgrade works proceed but is not expected to start meeting the required standards until the end of 2022 at the earliest.

The EPA prioritises where Irish Water should target its resources to bring improvements in treatment where they are most needed. This includes 35 towns and villages releasing raw sewage into the environment. Half of the raw sewage comes from three areas; Arklow, Cobh and Kilmore Quay[15].

Future WAB reports will monitor the progress of Irish Water in improving the percentage of the population served by compliant waste water treatment plants.

15 https://www.epa.ie/pubs/reports/water/wastewater/uwwreport2018.html

2.3 Responsiveness to the needs of Communities and Enterprise

This Performance Metric is based on information valid up to end 2018.

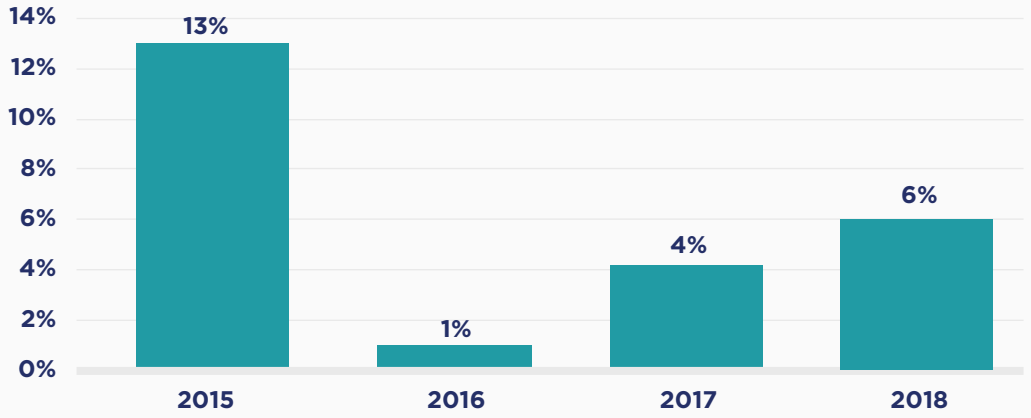
2.3.1 Performance Indicator 10 – Ease of Contact

In terms of the Ease of Contact performance indicator, the Commission for Regulation of Utilities has chosen four separate metrics:

The Call Abandonment Rate metric is the percentage of calls that are abandoned while a caller is waiting in the queue to speak to an agent (having been directed through the Interactive Voice Recognition system).

Figure 14

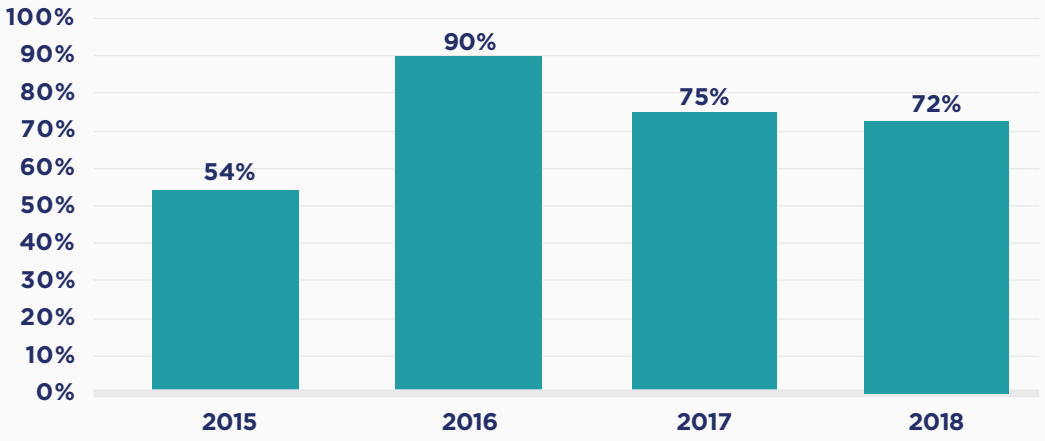
Call Abandonment Rate



The Speed of telephone response by Irish Water is measured by two separate telephone service factors. The first metric, Telephone Service Factor 1 (TSF 1) measures the percentage of calls that enter a queue to speak to an agent which are answered within 20 seconds.

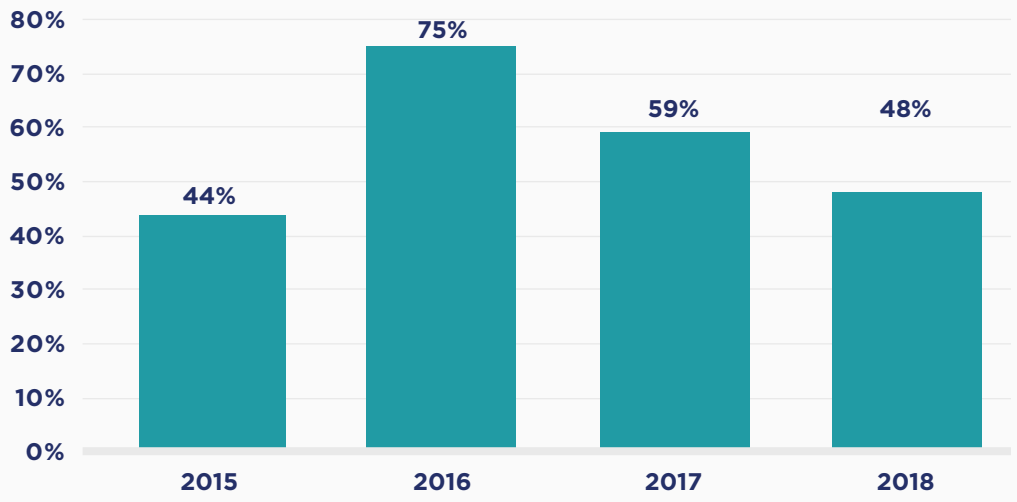
Figure 15

Telephone Service Factor 1: Calls answered by Agent within 20 seconds



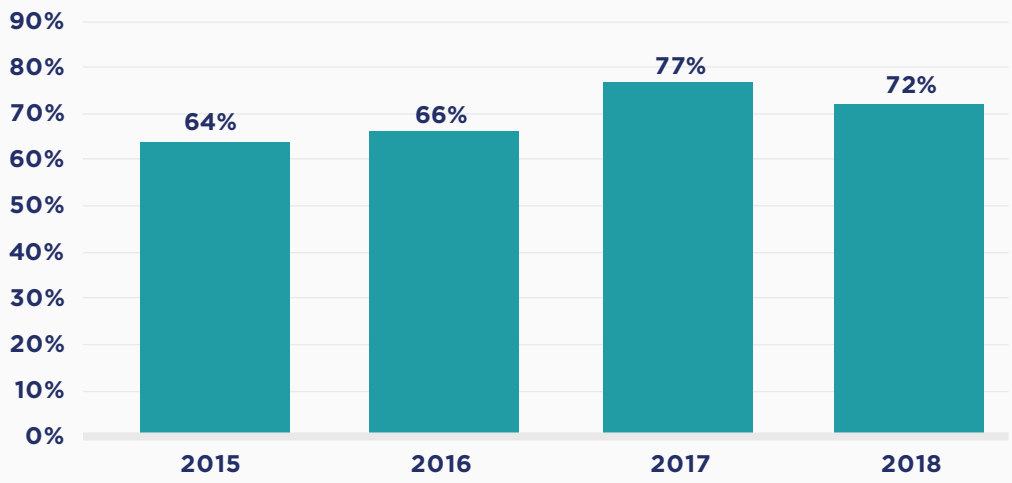
The second metric, Telephone Service Factor 2 (TSF 2), measures the number of calls that are dealt with through the Interactive Voice Recognition system as well as the number of calls when placed in a queue to speak to an agent (after going through the Interactive Voice Recognition system) answered by an agent within 20 seconds.

Figure 16
Telephone Service Factor 2: Calls dealt with through Interactive Voice Recognition & calls answered by Agent within 20 seconds



The Customer Satisfaction metric measures customer satisfaction levels of their experience dealing with Irish Water through phone contact. A survey is conducted by an independent research company, where customers rate their satisfaction level on a ten-point scale.

Figure 17
Customer Satisfaction Scores



Brief Explanation

Supplying water for consumption and managing wastewater are Irish Water's core functions. How it interacts with its customers is an important indicator of its overall performance and is important in engendering trust in the organisation. As set out above, there are four parts to this performance indicator. Each part relates to the experience customers receive when contacting Irish Water.

Why we focus on this Performance Indicator

Irish Water deals with large volumes of customers on a daily basis. Customers usually contact Irish Water when something has gone wrong and are looking for a response. These customer contact indicators reflect the interaction that a customer has with Irish Water and allows an assessment of Irish Water's performance through its contact centre.

Commentary

Overall, Customer Satisfaction Scores for the three years to 2017 were on an upward trend, although this score declined in 2018 (Figure 17) disappointingly.

There was also a worsening in speed of telephone response and the abandonment rate in 2018.

- 48% of calls were either dealt with by the Interactive Voice Recognition System or answered within 20 seconds by an agent, down from 59% in 2017 (Figure 16).
- 72% of calls in the queuing system to speak to an agent were answered in 20 seconds, down from 75% in 2017 (Figure 15).
- In 2018, 6% of calls to Irish Water were abandoned while a caller was waiting in the queue to speak to an agent. This is an increase from 4% in 2017 (Figure 14).

For comparison, The UK Contact Centre Decision-Maker's Guide 2018-19 (16th edition) reported an industry median average of 4.4% and mean average of 5.7% for call abandonment rates.

As noted above Irish Water's customer satisfaction scores, increased steadily from 2015 to 2017, from 64% to 77%, however 2018 showed a decline to 72%.

In relation to both Telephone Service Factor 1 and 2 and the Abandonment Rate, it must be stated, that 2018 included increased customer contact with Irish Water due to weather events such as Storm Eleanor in January, Storm Emma in March, and the drought experienced over the summer months. Irish Water's domestic refunds campaign also increased call volumes in January.

Nevertheless, it is disappointing to see a drop-off in Irish Water's performance against all four metrics in 2018. The WAB expects Irish Water to improve its performance against this indicator in the future.

TECHNICAL NOTE

COMPONENTS OF EASE OF CONTACT

There are four components to the ease of telephone contact performance indicator:

- Ease of telephone contact – call abandonment rate: This indicator is defined as the percentage of calls that are abandoned while a caller us waiting in the queue to speak to a customer service agent, having been directed through the Interactive Voice Recognition system;
- Ease of telephone contact – customer call-back survey: This indicator is defined as Irish Waters performance in a Customer Survey conducted by an independent research company engaged by Irish Water;
- Ease of contact – speed of telephone response: This indicator is defined in two parts as follows:

  a) Telephone Service Factor 1 = Total number of calls answered by an agent within 20 seconds of entering the queue to speak to an agent ÷ total number of calls that enter the queue to speak to an agent.

  b) Telephone Service Factor 2 = (Total number of calls picked up by the Interactive Voice Recognition system and do not progress to the queue + calls answered by an agent within 20 seconds of entering the queue to speak to an agent) ÷ total number of calls received. For clarity, the total number of calls received by the contact centre comprises the number of calls dealt with in the IVR + the number of calls abandoned in the IVR + the number of calls placed in a queue to speak to an agent.

2.3.2 Performance Indicator 11 - Irish Water Customer Complaints management

This Performance Metric is based on information valid up to end-2018.

Figure 18
Response to Complaints within 5 working days

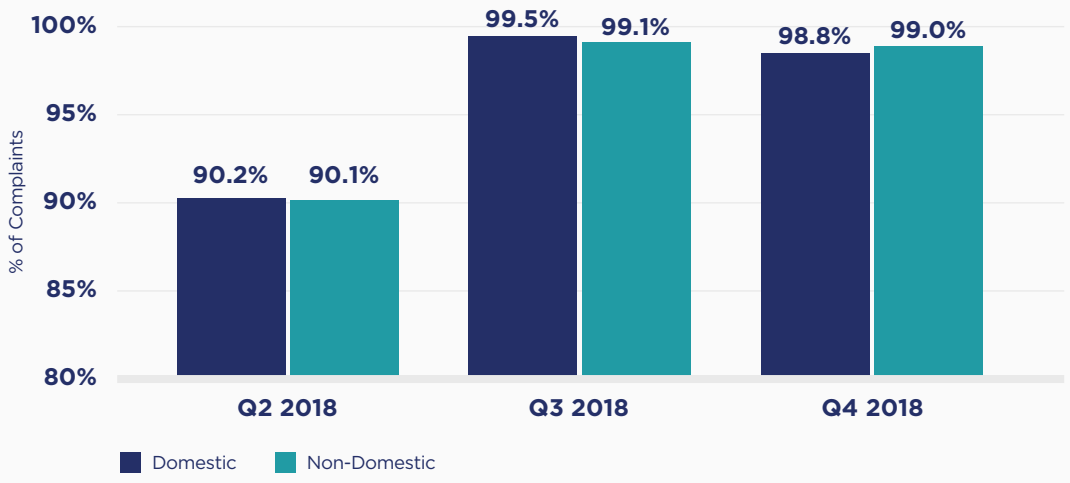
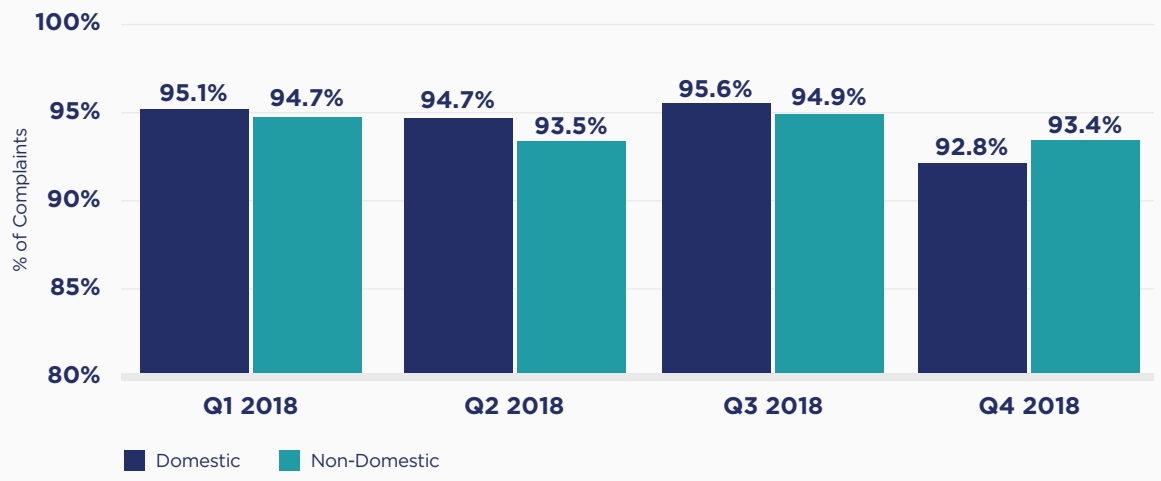


Figure 19
Response to Complaints (with Final Decision) within 2 months



Brief Explanation

Customer complaints handling refers to the rate at which Irish Water resolves complaints that customers have made regarding some aspect of the service they received from Irish Water.

Irish Water has published a complaint handling Code of Practice, for both domestic and non-domestic customers of Irish Water. Irish Water's Code of Practice must comply with the Domestic and Non-Domestic Customer Handbooks, which set out the required levels of customer service and customer protection measures that Irish Water must provide to its customers.

This Code of Practice on complaint handling defines a complaint as "the expression (through various channels, letter, email, phone call, physical claim) of a customer's dissatisfaction and his/her explicit expectation for a response or resolution."

The Commission for Regulation of Utilities has included a metric in its Performance Assessment Framework on which Irish Water is required to report:

- the number of complaints responded to within five working days with either a resolution or an outline plan for proposed resolution; and
- the number of complaints on which a final decision was issued within two months.

Why we focus on this Performance Indicator

This performance indicator focuses on two components of the code:

- the number of complaints responded to within five working days with either a resolution or an outline plan for proposed resolution; and
- the number of complaints on which a final decision was issued within two months.

By monitoring these indicators, the WAB is able to measure Irish Water's performance in responding to complaints it receives. Monitoring this metric will also encourage appropriate response times when customers contact Irish Water with a complaint.

Commentary

This is the first time Irish Water has reported on these complaint management metrics to the CRU under the Performance Assessment Framework.

Irish Water has provided data from Q2 2018 to Q4 2018 (Figure 18) for complaints responded to within five working days, with either a resolution or an outline plan of the proposed resolution. The response to complaints is relatively matched between domestic and non-domestic customers across all quarters. Irish Water's efficiency at responding to complaints within five working days increased after Q2 and maintained a rate of approximately 99% for the second half of the year. Irish Water has demonstrated good performance against this metric and it is close to Irish Water's stated aim in its "Water Services Strategic Plan" to resolve (or have outlined steps taken towards resolving a complaint) 100% of complaints within five working days. The WAB expects this performance to continue in the future.

Complaints for which a final decision is issued within two months are reported on for the entire year 2018 (Figure 19). Again, the percentage of complaints responded to is relatively similar across domestic and non-domestic customers. Irish Water issued a final decision within two months to over 90% of complaints over 2018. Irish Water's annual average under this metric for 2018 was 94.6% for domestic customers and 94.1% for non-domestic customers.

In Irish Water's "Water Services Strategic Plan October 2015", under a heading entitled 'Customer Complaint Handling', Irish Water states that the utility aims to resolve (or have outlined steps taken towards resolving a complaint) 100% of complaints within five working days.

Future WAB reports will continue to monitor Irish Water's performance against this metric.

Part 3
Other Key Events

Key Events

3.1 Commission for Regulation of Utilities' Decision on Irish Water's Revenue Control 3 (2020 – 2024)

On 5 December 2019, the CRU published its Decision Paper on Irish Water's revenue allowance for the Revenue Control 3 ('RC3') period following a consultation earlier this year. This is Irish Water's first five-year revenue control and covers the period 2020-2024.

As economic regulator of Irish Water, the CRU is responsible for setting the total level of revenue that Irish Water can receive (through Government subvention and from customers) to cover its efficiently incurred costs in delivering water and wastewater services to both domestic and non-domestic customers.

The output of a revenue control is a regulatory contract that defines the obligations on the utility regarding what it should deliver in terms of outcomes for customers (for example, provision of good quality and secure water supply) and outputs (for example, building new treatment plants and replacing water mains) and the efficient level of capital and operating expenditure to deliver those outcomes and outputs.

In determining the regulatory contract for RC3, the CRU's objective is to assess that Irish Water is setting the right priorities and delivering value for money. The CRU did so by examining Irish Water's Strategic Funding Plan, reviewing Irish Water's submissions regarding the level of outcomes and outputs that it proposed to deliver and considered how Irish Water can be challenged to deliver continued efficiencies without reducing the quality of its services to its customers.

Key elements of the CRU's Revenue Allowance Decision

The following outlines the key elements of the CRU's Decision for the 5-year revenue control period:

Operating Cost efficiency

The CRU, based on benchmarking Irish Water costs against a range of comparator companies, considers that Irish Water has significant scope to improve the efficiency by which it delivers on its operating requirements over the RC3 period.

- The CRU requires Irish Water to meet the following target efficiency gains on an annual basis:

Irish water Operating Costs Effciency Targets					
	2020	2021	2022	2023	2024
Efficiency Target	2%	2%	4%	6%	6%

Capital Cost efficiency

The CRU also examined the efficiency of the proposed spending on capital projects.

- Approximately 1/3 of the capital investment due to take place during the RC3 period is already committed, i.e., under contract, and therefore not subject to a further efficiency challenge.
- The remaining 2/3 of the capital spend is subject to a 3% per annum efficiency challenge as CRU considers that cost efficiencies can be achieved in the capital expenditure programme.
- The two large projects, Greater Dublin Drainage and Water Supply project, have been excluded as the scope of these projects has not yet been finalised. The CRU will monitor the progress of Greater Dublin Drainage and Water Supply project during the RC3 period and will engage with the Department for Housing, Planning and Local Government ('DHPLG') on an annual basis to determine whether the funding in respect of these projects should be provided, depending on the progress made in relation to these projects.
- Also, the CRU examined the efficiency and contingency levels included in Irish Water's non-network capital expenditure submission and reduced the allowed costs associated with non-network capital expenditure by €47m.

Revised Capital Investment Plan submitted by Irish Water

Irish Water's Capital Investment Plan sets out the capital projects and programmes that it plans to progress and deliver during the period of each plan. They include proposed budgets and timelines and the outputs and outcomes that will be delivered for the investment.

As Irish Water provided updated information to the CRU in late October 2019 regarding the overall capital investment plan that it intends to deliver, along with changes in costs for projects and programmes, which appears to represent significant changes to the original consulted upon capital investment plan, the CRU was not able to do a comprehensive assessment of the reasonableness of the proposed capital expenditure within the short timeframe remaining.

- The CRU is, therefore, not approving €788m of the Irish Water Capex request at this point in time, which represents the change in costs of existing projects and programmes and the costs of entirely new programmes identified by Irish Water and provided to CRU in October 2019. The underlying costs of these projects and programmes will be subject to an additional review over the coming months before any decision is taken to allow them.

The CRU decision with regard to approved levels of capital and operating expenditure:

Operational Expenditure, real 2017	2020	2021	2022	2023	2024	Total RC3
Irish Water Request and CRU Allowance	**€m**	**€m**	**€m**	**€m**	**€m**	**€m**
Irish Water request	745	750	752	743	728	3719
CRU Decision	**731**	**731**	**716**	**694**	**671**	**3544**
Irish Water request - v - CRU allowance						-174

Network Capital Expenditure, real 2017	2020	2021	2022	2023	2024	Total RC3
Irish Water Request and CRU Allowance	**€m**	**€m**	**€m**	**€m**	**€m**	**€m**
Irish Water request	780	881	1083	1121	967	4,832
Efficiency Challenge	-23	-36	-68	-86	-92	-305
Unapproved costs	0	-197	-197	-197	-197	-788
CRU Decision	**757**	**648**	**819**	**838**	**678**	**3,739**
Irish Water request - v - CRU allowance						-1,093

Non-network Capital Expenditure, real 2017	2020	2021	2022	2023	2024	Total RC3
Irish Water Request and CRU Allowance	**€m**	**€m**	**€m**	**€m**	**€m**	**€m**
Irish Water request	98	118	106	65	38	425
CRU Decision	**90**	**105**	**92**	**58**	**33**	**378**
Irish Water request - v - CRU allowance						-47

Total Allowed Revenue for RC3 period (2020-2024)

In summary, the CRU has decided to allow expenditure of €7,907m for the five-year period. This represents a reduction of €1,316m (or 14.6%) relative to Irish Water's request.

This allowed expenditure is translated into the 'revenue allowance' amount, which Irish Water is allowed to recover through a mixture of Government subvention and customer charges.

The revenue amount includes allowances for operating costs, depreciation and return on capital costs, and an adjustment for revenue relating to the previous revenue control periods (called the k-factor). As a result of this review, the CRU has decided to allow Irish Water to recover a total revenue allowance of €5,191.1m (real 2017 prices) (€4,744.7m, 2017 prices, PV 2020) for the five-year period.

Delivering Outcomes and Outputs for Customers

For the revenue allowances set out, Irish Water will deliver a mixture of projects and programmes, which in turn deliver various outputs and outcomes. However, overall, the CRU is very concerned about the change in the level of outputs and outcomes proposed by Irish Water as part of its revised capital investment plan (received in late October 2019), compared to the levels consulted on.

Limited background information was provided on how the revised outcomes and outputs have been developed and the re-prioritisation process undertaken by Irish Water. While the CRU acknowledges that such changes in outcomes can arise from a mix of re-prioritisation, better information and data allowing more reliable forecasts of requirements and changes to the baseline start positions for some outcomes at the end of the previous price control, the CRU remains extremely concerned that the general picture of the revised plan is one of a reduction in all outcomes with the exception of Leakage Reduction and Energy Efficiency Improvement where no change to outcomes is proposed. Further, the CRU found that most unit costs had dramatically increased and that the level of outputs and outcomes has broadly reduced disproportionately.

- For this reason, the CRU considers the outcomes and outputs submitted by Irish Water as the minimum levels to be delivered over the RC3 period.
- Alongside the capital expenditure review, the CRU will examine how Irish Water's planning and prioritisation process was used to generate these revisions and assess whether they continue to provide value for money, compared to the levels consulted on.

Performance Measurement

In order that Irish Water customers get value for money for the inputs (capital and operating expenditure) approved by the CRU, the CRU carries out a range of monitoring activities:

- Irish Water is required to report to the CRU during the RC3 period regarding its progress towards delivery on the outputs and outcomes. The CRU will monitor and report on Irish Water's expenditure and delivery of outputs and outcomes through its Capital Expenditure Monitoring Programme and the CRU Performance Assessment Framework.
- The CRU also monitors Irish Water in other ways, for example through the First Fix Programme and compliance with the obligations in Irish Water's Customer Handbooks.

Incentives placed on Irish Water

The CRU sets both financial and reputational incentives for Irish Water. The incentives are intended to enhance the requirement for Irish Water to efficiently manage costs by ensuring that the business has an incentive in the delivery of its responsibilities, particularly regarding quality, efficiency and timeliness of service delivery to the customer.

- For RC3, the CRU decided to continue the approach previously taken in prior price controls in order to build upon work currently being undertaken by Irish Water on a number of these incentives. These covered a combination of financial and reputational incentives.
- In addition, in this revenue control, the CRU decided to introduce a further financial incentive (or penalty, where Irish Water does not reach targets) for leakage reduction.

Next Steps

The CRU will provide an opportunity for Irish Water to submit an updated submission to it, to support the requested level of capital expenditure. This updated submission will include:

- both the scope of information that the CRU requires for the revenue control, updated for changes from the original submission in November 2018, and a report explaining the processes and procedures used to develop the revised submission.
- This report will also include the reasons for the changes in the scope of projects and programmes, the reasons for the changes in outputs and outcomes, the prioritisation process used by Irish Water, and the method used to develop cost estimates. This should include an assessment of the project planning and costing process and provide a detailed analysis and explanation as to the drivers of the changes between the two submissions (November 2018 to October 2019).

This updated submission must be provided to the CRU in its entirety by 31 March 2020.

The CRU will then be in a position to make a final determination on outputs and outcomes that Irish Water must deliver over the RC3 period, along with the efficient level of capital expenditure to deliver those outcomes and outputs.

WAB Commentary on CRU's Decision

The WAB notes that €788m of capital costs sought by Irish Water has been disallowed by the CRU at this time, and the CRU will provide an opportunity for Irish Water to submit an updated submission to it, to support the requested level of capital expenditure. The WAB is cognisant that this is an ongoing process and is therefore not in a position to give a view at this time.

Nevertheless, the WAB acknowledges the serious concerns raised by the CRU in relation to the lack of information provided by Irish Water to support and explain the significant changes in its capital costs, as well as changes to the associated outcomes and outputs set out in its revised capital investment Strategic Funding Plan. The WAB notes with concern the CRU's finding that most unit costs in the revised plan had dramatically increased and that the level of outputs and outcomes has broadly reduced disproportionately. The WAB welcomes the CRU approach to undertake a full review of Irish Water's revised capital investment plan. The WAB will be keen to understand how the revised plan achieves a reasonable set of outputs and outcomes for customers. Once this review has been completed and published, the WAB will provide comment at that stage.

Part 4
WAB's Commentary on Key Indications and Conclusions

This Report includes eleven key performance indicators by which the performance of Irish Water can be monitored.

In Table 1 we summarise the WAB's comments on each metric.

Table 1
Summary of the WAB's comments on each metric

Number	Indicator	WAB Commentary
1.	Leakage	Ireland's level of unaccounted for water continues to be very high and has continued to rise for the last two years. The WAB will continue to monitor the level of unaccounted for water until the end of this year until Irish Water makes its leakage metric available for assessment, expected later in 2020.
2.	First Fix Scheme	This performance indicator was updated with Q3 & Q4 data from 2018 and there has been a disappointing drop-off in the number of leak repairs completed under the First Fix Scheme from mid- 2016. This coincides with the suspension and eventual abolition of domestic water charges. Liability for Excess Use Charges for domestic households will be introduced in late 2020 with first bills to issue in 2022. It is expected that this will encourage customers to avail of the scheme and that higher numbers of leak repairs will be achieved in the future. Future WAB reports will continue to monitor the rate of first fix repairs by Irish Water and customers.

Number	Indicator	WAB Commentary
3.	Remedial Action List (Water)	Irish Water has an action plan in place to remediate the drinking water supplies that are currently included on the Remedial Action List. Future WAB reports will monitor the progress of Irish Water in meeting the targets they have set to remediate supplies through the quarterly updates of the Remedial Action List. The WAB notes that the issues at Leixlip Water Treatment Plant have exposed the vulnerability of Dublin's water supply which is also replicated across the country. The WAB continues to be concerned that Irish Water invests in capacity, resilience and operational practices to deliver continuing improvement in water supply quality and security. The WAB will also monitor the number of new drinking water supplies, and population served by those supplies, that are put on to the list in any quarter. The WAB also notes the importance of timely and accurate communication and information which set realistic expectations on the duration of Boiled Water Notices.
4.	Priority Urban Area List (Wastewater)	The WAB notes the Environmental Protection Agency's view that Ireland is not addressing the deficiencies in its waste water treatment infrastructure at a fast enough pace. It is the Environmental Protection Agency's view that, 13 years after the final deadline to comply with treatment standards, it is not acceptable that there are still 28 large towns and cities discharging sewage that fail to meet these standards. The Environmental Protection Agency also noted that this is putting our health at risk and is having an impact on our rivers, lakes and coastal waters. The WAB notes with concern that the EPA has again highlighted the pace at which deficiencies are addressed by Irish Water.
5.	Lead service connections replaced	Irish Water aims to remove all public-side lead pipework by 2026 and has set specific targets in that context. Future WAB reports will monitor the lead services replacement rate by Irish Water to measure Irish Water's progress in achieving its targets. The WAB wish to see the alleviation of public side lead replacement at least commensurate with the target set by Irish Water for the removal of all public side lead by 2026.

Number	Indicator	WAB Commentary
6.	Mains replacement rate (for water mains)	Irish Water replaced 209km of water mains in 2017. This represents a replacement rate of 0.33% of Irish Water's network and a replacement rate of once every 300 years. Although Irish Water's mains replacement rate of 0.33% is within a range comparable with other similar entities, the WAB agrees with the Commission for Regulation of Utilities' view that Irish Water's replacement rate will need to be higher given Irish Water's infrastructure is likely to be older and in worse condition on average. There are no specific targets in place to monitor Irish Water's mains replacement rate. Therefore, future WAB reports will monitor the mains replacement rate to assess if Irish Water has achieved improved performance against this metric over time.
7.	Overall compliance with microbiological indicators for drinking water	In general, the WAB notes that compliance with the microbiological standards is high. Future WAB reports will monitor the success of Irish Water in decreasing the number of public water supplies that do not comply with the E. coli standard.
8.	Boil Water Notices	When Irish Water took charge of water supplies in 2014 it set a target to eliminate all boil water notices that were in place at that time. This target was achieved and while no specific future targets have been set, Irish Water is working to continue reducing the number of people affected by boil water notices. However, when assessing how Irish Water is ensuring a safe and secure supply of drinking water, it is important to look at population added and removed within a quarter, as well as examining the population remaining on a Boil Water Notice at the end of each quarter. The WAB notes that short term boil water notices are not always captured by examining the population remaining on a boil water notice at the end of a quarter. This is evidenced in Q4 2019, where two short term boil water notices were imposed on the Leixlip water treatment plant. This was the single largest boil water notice imposed in Ireland, with more than 600,000 consumers affected.

Number	Indicator	WAB Commentary
9.	Compliance of Urban Waste Water Treatment (UWWT); Plants with Environmental Protection Agency discharge licenses	Overall, compliance is very low. Only 25% of the population's (1,315,000) sewage was treated to the required standard in 2018, down by 4% from the previous year. Over half of the 75% non-compliance can be attributed to one waste water treatment plant – the plant at Ringsend, Dublin. Dealing with the non-compliance issues at this plant has the potential to result in a significant improvement in the overall compliance rate. While the quality of the treated waste water will improve as the upgrade works at Leixlip proceed, is not expected to start meeting the required standards until the end of 2022 at the earliest. The EPA prioritises where Irish Water should target its resources to bring improvements in treatment where they are most needed. This includes 35 towns and villages releasing raw sewage into the environment. Half of the raw sewage comes from three areas, Arklow, Cobh and Kilmore Quay[16]. Future WAB reports will monitor the progress of Irish Water in improving the percentage of the population served by compliant waste water treatment plants.
10.	Ease of Contact	Irish Water deals with large volumes of customers on a daily basis. Customers usually contact Irish Water when something has gone wrong and are looking for a response. Customer contact indicators reflect the interaction that a customer has with Irish Water and allows an assessment of Irish Water's performance through its contact centre. While Customer Satisfaction Scores for the three years to 2017 are on an upward trend, it is disappointing to see a drop-off in Irish Water's performance against all four metrics in 2018, and the WAB expects Irish Water to improve its performance against this indicator in the future.

16 https://www.epa.ie/pubs/reports/water/wastewater/uwwreport2018.html

Number	Indicator	WAB Commentary
11.	Irish Water Customer Complaints management	This is the first time Irish Water has reported on complaint management metrics to the CRU under the Performance Assessment Framework. Irish Water's efficiency at responding to complaints within five working days increased after Q2 and maintained a rate of approximately 99% for the second half of the year. The response to complaints is relatively matched between domestic and non-domestic customers across all quarters. Irish Water has demonstrated good performance against this metric and it is close to Irish Water's stated aim in its "Water Services Strategic Plan" to resolve (or have outlined steps taken towards resolving a complaint) 100% of complaints within five working days. The WAB expects this performance to continue in the future. Future WAB reports will continue to monitor Irish Water's performance against this metric.

The WAB has previously noted that there is a history of under-investment in water and waste water in Ireland and much of the recent focus by Irish Water has been on the provision of high-quality public water.

Despite only three months passing from the first WAB report, there has been significant updates to our 11 key performance indicators. Regrettably, a number of those metrics show a deterioration in performance. Also, the Boil Water Notices arising from two separate incidents at the Leixlip Water Treatment Plant are a concern. The WAB is considering a new metric to track situations similar to this.

It continues to be the WAB's view that the management and improvement of the drinking and waste water infrastructure and network requires significant and sustained action, particularly in the areas of leakages, mains repairs and waste water treatment. The WAB is of the view that current investment levels need to be maintained, coupled with a strong organisational focus, to enable and deliver a substantial improvement programme.

It is firmly our view that increasing public confidence in Irish Water is dependent on visible action in these key areas.

Glossary of Terms

Agglomeration - an agglomeration is an urban settlement (village, town or city area) which is connected through a pipe network to a wastewater treatment plant.

Chlorination – Water chlorination is the process of adding chlorine or chlorine compounds such as sodium hypochlorite to water. In particular, chlorination is used to prevent the spread of waterborne diseases.

Cryptosporidium – A disease-causing protozoon widely found in surface water sources.

E.Coli –Coliforms, specifically Escherichia coli (E. coli), are the universal indicator microorganisms of faecal contamination of water. These bacteria, which are of definite faecal origin (human and animal), are excreted in vast numbers and their presence in a water supply is proof that faecal contamination has occurred and is a definite indication that pathogens may be present.

Pathogen – Microorganisms that can cause disease in humans, other organisms or animals and plants. They may be bacteria, viruses, or protozoa and are found in sewage, in runoff from animals, farms or rural areas populated with domestic and/or wild animals, and in water.

Population Equivalent – in waste-water treatment the population equivalent is a reference that describes the specific load of a wastewater treatment plant.

Remuneration – Reward for employment in the form of pay, salary, or wage, including allowances, benefits (such as company car, medical plan, pension plan), bonuses, cash incentives, and monetary value of the noncash incentives.

Trihalomethanes – Trihalomethanes are a group of four chemicals formed, along with other disinfection by-products, when chlorine or other disinfectants used to control microbial contaminants in drinking water react with naturally occurring organic and inorganic matter in water.

Trunk Mains – Trunk water supply pipelines deliver bulk water from one part of the system to another, often aided by pumping. As such, trunk mains are larger in diameter than reticulation mains, are not networked and have fluctuating pressures.

Turbidity – Turbidity is a measure of the degree to which the water loses its transparency due to the presence of suspended particulates. The more total suspended solids in the water, the murkier it seems and the higher the turbidity. Turbidity is considered as a good measure of the quality of water.

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