



5

**Solutions-
Our
Approach**

5.1 Introduction

Irish Water faces significant challenges in terms of the Quantity, Quality, Reliability and Sustainability of the public supplies across the country.

Irish Water must ensure that our water supplies become more sustainable over time, therefore we need to ensure that solutions to our supply issues consider the broader environment within which we operate. This means:

- Continuous abstraction from source alone is not a sustainable approach to meet ever increasing demand in the long term. Therefore, where feasible we must cater for increased growth requirements in the first instance by driving an aggressive leakage reduction programme combined with strong promotion of water conservation measures in homes and businesses; and
- Irish Water fully adhere to the World Health Organisation (WHO) principle that the starting point for good clean drinking water is source protection, rather than relying on ever more complex and costly treatment for sources that are deteriorating due to inadequate protection. Irish Water will achieve this by developing and implementing Drinking Water Safety Plans (DWSPs) across all of our supplies.

Sustainability must therefore be at the core of our approach to developing appropriate solutions to meet future water demand. Solutions should therefore fit into one of Irish Water's three pillars; Lose Less, Use Less and Supply Smarter as set out in the Framework Plan and summarised in Figure 5.1.



Lose Less – reducing water lost through leakage and improving the efficiency of our distribution networks;

Use Less – reducing water use through efficiency measures; and

Supply Smarter – improving the quality, resilience and security of our supply through infrastructure improvements, operational improvements and development of new sustainable sources of water.

Figure 5.1 Three Pillars to Address the Key Challenges

Together these pillars will enable us to optimise our capital and operational solutions to achieve the best outcomes and react to emerging issues.

5.2 Lose Less: Leakage Reduction

Leakage is the loss of water from the distribution network. Leakage can occur from fractures and bursts, smaller holes and pinholes in pipe walls, leakage at joints, valves, service connections and other fittings and as a result of overflows at storage reservoirs.

Only a tiny proportion of leaks within our distribution networks come to the surface as visible leaks. Most water leakage is absorbed into the ground or escapes into sewers and drains, so cannot be seen at ground level.

The **Lose Less** pillar includes the actions which will improve our understanding of leakage, ways to reduce it and the tools required to help us to find and fix leaks. Activity to reduce leakage from the public distribution network was historically undertaken by Local Authorities and is now managed by Irish Water. Our supply network is built from a variety of pipe materials of different ages and differing quality control during construction. Good network and water-use information, expert knowledge, specialist equipment and rigorous management is therefore required to reduce and control leakage. As our water mains network ages, leakage will increase if we do not continue to invest in fixing leaks, leading to a Natural Rate of Leakage Rise (NRR).

In order to address leakage Irish Water are committed to a National Leakage Reduction Programme which includes measures such as pressure management, active leakage control (ALC) and targeted water mains replacement. The National Leakage Reduction Programme incorporates advice from industry specialists and authors of the European Commission produced reference document 'Good Practices on Leakage Management WFD CIS WG PoM'.

Our National Leakage Reduction Programme will be a major intervention to support growth over the timeframe of the National Water Resources Plan (NWRP). It aims to reduce our leakage through:

- Establishing over 4,500 district meter areas to enable us to monitor flows and identify areas of suspected high leakage;
- Establishing our Find and Fix activities to deliver active leakage control;
- Undertaking large-scale targeted water mains replacements;
- Valve and control replacement;
- Implementing pressure management controls; and
- Delivering the 'First Fix Free' initiative to address leaks on pipes, within the boundary of domestic properties where the customer has responsibility.

As operational data and understanding of asset performance of our networks improves Irish Water expect to be able to make further improvements.

In late 2018, Irish Water developed a Leakage Management System (LMS) which will help us to assess leakage trends in a uniform way across our supplies and to manage active leakage control activities. We are continuing to embed the system and develop its calibration, but it is already (and will continue) helping us to understand leakage across our distribution networks. We are also looking at emerging acoustic technologies and intelligence systems to allow us to optimise our active leakage control activities, and non-destructive testing technology.

5.2.1 Three Step Leakage Reduction

Irish Water will take a three (3) step process to reduce leakage both nationally and within the South West Region:

STEP 1: Sustainable Economic Level of Leakage

The SELL concept is built on the principle that when the total costs of producing water (including environmental and social) are greater than the cost of reducing leakage, there is a natural driver to further reduce leakage to achieve equilibrium. In other jurisdictions, the industry regulators for water supply set leakage reduction targets for the individual water utilities based on SELL, the Sustainable Economic Level of Leakage. As utilities have achieved or are approaching SELL, through progression along their leakage reduction glidepath, regulators are setting the challenge for some to go beyond SELL.

As this is Ireland's first NWRP, the target for leakage reduction has been set as SELL. Irish Water aim to achieve the National SELL target by 2034, recognising that current leakage levels are unacceptably high. SELL targets will be continually reviewed through the five-year water resources planning cycles. As we progress towards SELL targets, Irish Water will continually review and proactively target further leakage reductions.

Details of the SELL assessment process can be found in Appendix H of the Framework Plan. During the development of the Framework Plan separate SELL targets were developed for the Greater Dublin Area (GDA) and the rest of Ireland. These national SELL Targets are set out in Table 5.1.

STEP 2: Go Beyond SELL

Further to the initial SELL targets considered in the Framework Plan, Irish Water has set additional leakage targets with the objective of reducing leakage levels to 21% of total demand for larger WRZs (WRZs where demand is greater than 1,500 m³/day).

STEP 3: Appropriate Leakage Level (ALL)

As the 2034 SELL targets approach, Irish Water's knowledge of the condition and responsiveness of our networks to leakage reduction activities will have improved and we will set further leakage reduction targets on the basis of Appropriate Level of Leakage (ALL) for each supply. This will require WRZ Level and site-specific assessments. These assessments will require data which is not yet available to Irish Water and as such these targets will be developed approaching 2034.

5.2.1.1 Step 1: SELL Targets

Estimated leakage levels for 2019 and target SELL for 2034 are presented in Table 5.1.

In 2019 the national leakage level was 739 million litres per day (Ml/d). SELL targets aim to reduce this to 525.5 Ml/d by 2034 requiring a national leakage reduction of 213 Ml/d. The national leakage level target SELL will be met by leakage reductions nationally and across all WRZs. During the development of the Framework Plan, separate SELL targets were developed for the Greater Dublin Area (GDA) and the rest of Ireland (all non-GDA WRZs). The GDA is located in the Eastern and Midlands Region of the NWRP. Targets for the South West Region are included in the national leakage level for non-GDA WRZs. Table 5.1 compares the GDA WRZ and non-GDA WRZ leakage levels and SELL targets.

Table 5.1 Leakage Levels and Target SELL (MI/d)

	Leakage Level (MI/d)	Target SELL (MI/d)	Leakage Reduction Required (MI/d)
	2019	2034	
GDA leakage level	215	131	84
Leakage level for non-GDA WRZs (Nationally)	524	395	129
National leakage level	739	526	213

In 2019 the leakage level in the GDA was 215 MI/d. In order to meet the 2034 GDA leakage target a leakage reduction of 84 MI/d is required within the GDA (Table 5.1) as presented in the RWRP-EM.

The 2019 leakage level for non-GDA WRZs was 524 MI/d. In order to meet the 2034 SELL target a leakage reduction of 129 MI/d is required (Table 5.1). This reduction will be achieved across the four NWRP regions (Table 5.2). A reduction of 22.5 MI/d will be achieved within the non-GDA WRZs in the Eastern and Midlands Region (as presented in the RWRP-EM). A leakage reduction of 57 MI/d, 32 MI/d and 17 MI/d will be achieved in the South West Region, North West Region and South East Region respectively.

5.2.1.2 Step 2: Beyond SELL

Further to the initial SELL targets considered in the Framework Plan, Irish Water has set additional leakage targets with the objective of reducing leakage levels to 21% of total demand for larger WRZs (WRZs where demand is greater than 1,500m³/day). These additional targets equate to a net leakage reduction of 45.5 MI/d, 39 MI/d, 72 MI/d and 30.5 MI/d across the Eastern and Midlands, South West, North West and South East Region respectively. Together the SELL and Beyond SELL targets aim to reduce leakage nationally by 400 MI/d by 2034. These targets are summarised in Table 5.2 for each region.

Table 5.2 Leakage Levels and Target SELL Steps (MI/d)

	GDA	National Leakage Reduction (MI/d)				
		Non-GDA WRZs				National Total
		Eastern and Midlands Region	South West Region	North West Region	South East Region	
Step 1: SELL Target	84	22.5	57	32	17	213
Step 2: Beyond SELL	0*	45.5	39	72	30.5	187
Total	152	96	104	47.5	400	
Step 3: Post 2034 Appropriate Leakage Level	TBC Pending future data availability					

*Leakage Targets in GDA achieve 21% leakage in 2034.

5.2.1.3 Step 3: Appropriate Leakage Level (ALL)

As discussed above, as we approach the 2034 targets, our knowledge of the condition and responsiveness of our networks to leakage reduction activities will have improved and as we move towards 2034, we will set further leakage reduction targets on the basis of Appropriate Level of Leakage (ALL) for each supply. This will require WRZ Level and site-specific assessments. These assessments will require data which is not yet available to Irish Water and as such, these targets will be developed as we move closer to 2034.

5.2.2 Leakage Targets and Demand Forecasting

Leakage targets are not automatically applied to the Supply Demand Balance (SDB) calculations. The SELL leakage target for the GDA has been prioritised, given the size of the supply demand deficit, and is incorporated into the SDB. Leakage outside of the GDA across all four regions of the NWRP is prioritised on an annual basis as part of the National Leakage Reduction programme. This allows Irish Water's leakage reduction programmes to be flexible and targeted, to meet specific emerging needs.

As set out in Section 4.3.3 of the Framework Plan leakage targets for 2019 were applied to priority supplies based on:

- Size of supply demand deficits
- Existing abstractions with sustainability issues
- Observed impacts during the 2018 drought

For the South West Region, 3.7 MI/d of leakage targets have been applied to the SDB. These include:

- SAH – 1.07 MI/d through net leakage reduction in Listowel Regional Public Water Supply, Central Regional – Lough Guitane and Mid-Kerry.
- SAI – 2.29 MI/d through net leakage reduction in Cork City and Clonakilty.
- SAJ – 0.37 MI/d through net leakage reduction in Charlesville/Doneraile, Millstreet and Newmarket.

This does not mean that only 3.7 MI/d will be applied for the region between 2019 and 2034 but rather we committed to a figure for 2019 in the SDB and provided flexibility in where the remaining 53.3 MI/d of leakage reduction (required to achieve 57 MI/d of leakage reductions within the South West Region) will occur after that.

Leakage reductions are applied to the SDB by reducing the Demand component of the calculation. For this reason, the future estimated Deficit will reduce as a lower Demand is subtracted from the available supply. It is acknowledged that if these leakage targets are not met then the solution (Preferred Approach) will not fully meet the Demand and hence the Deficit will not be met. For this reason, we are working to meet these targets now, in advance of the Preferred Approach reaching project stage.

Where leakage reductions have not been incorporated into the SDB, any leakage reduction achieved will result in a reduction to the projected Demand. In this scenario the Preferred Approach within each WRZ, Study Area or the Region may be capable of providing more water than is needed. In this scenario, this will enable us to modify the Preferred Approach to reduce the quantity of water required to be delivered or if it coincides with greater than expected growth it will open up available water for this increased demand. For this reason, our leakage targets will be reviewed annually and will be subject to further modification. At project level, when we proceed to develop the Preferred Approach, we will review the SDB and subtract the target leakage reductions from the Deficit at this stage. This ensures that the Preferred Approaches are not oversized, or that the Needs are over emphasized.

In order to ensure that the Preferred Approaches which we develop (as described in Section 6-8) remain appropriate in the scenario of reduced leakage and static demand we have carried out a Sensitivity Analysis of our Preferred Approaches. This has allowed us to understand the impact of leakage reductions on the Preferred Approach and whether it would still be valid under a reduced leakage scenario. This process allows us to balance the delivery of the Preferred Approach between the Lose Less pillar (Section 5.2) and Supply Smarter pillar (Section 5.4). The Supply Smarter Options usually involve new or upgraded water sources and treatment plants. At project level these are delivered on a modular basis. For example, if we build a new water treatment plant (WTP) we assess the demand profile of that supply over 25 years and then deliver the capacity in modules to align with demand increase. Therefore, if we meet or exceed our leakage targets and the demand is less, we do not build the last modules of the new WTP, thus balancing supply with demand.

5.2.3 Challenges in Meeting Leakage Reduction Targets

While the optimum economic solution is to reduce leakage as quickly as possible and we aim to go above and beyond our SELL targets, there are a number of wider considerations that may impact delivery. These include:

- Data improvements which are necessary to improve visibility of active leakage control efficiency and key parameters such as background leakage;
- Existing and or future budget constraints;
- The availability of skilled and trained resources to undertake find and fix activity. It is not feasible to significantly increase the level of resource for a short duration. To do this would risk driving inefficiency into the leakage management process;

- There are planning constraints to consider in relation to shut offs when carrying out repairs, to maintain supply and pressure to customers;
- Repairs carry a social cost and impact particularly in relation to traffic delays, therefore spreading the impact over time manages this impact; and
- Technology and innovation improvements which are likely to improve active leakage control efficiency over time, and a number of trials in areas such as permanent acoustic sensors/smart networks, may offer more cost-effective solutions in the near future.

5.2.4 Leakage Reduction in Cork City

Box 5.1 presents an example of the work being carried out to reduce leakage in the South West Region.

Box 5.1 – Leakage Reduction in Cork City

The aim of our National Leakage Reduction Programme is to improve the water network and fix leaks across the country. This improves the reliability of supplies and delivers a more sustainable network. Irish Water have been working in partnership with Cork City Council and our regional contractors, Coffey Group and Ward and Burke Construction, to reduce leakage in Cork City. Together we have identified key issues facing the water network within the city, in order to reduce leakage and secure supplies for future growth.

Problems identified in the city included high levels of dated and fragile infrastructure along with water mains that are prone to bursts.

To reduce leakage, it was identified that improvements needed to be made to critical water networks and district metering. A Find and Fix Programme and Pressure Management Programme were also implemented.

The District Meter Area improvement programme involved the installation or replacement of meters across the district. This improved understanding of water flows across the district helping to direct Find and Fix crews to the highest priority areas. The data collected allowed the program of work to be efficient and provides a long-term source of valuable data on water use within the district.

A water mains replacement programme was prioritized in Victoria Quarter, Truners Cross and The Marina. Network upgrades here facilitated further complementary programmes of work.

An example of a critical water network improvement which contributed to direct and indirect leakage savings is the completion of Phase 1 of the Eastern Strategic Link (ESL) water main project. The ESL is a trunk water main which travels from the East at Tivoli along the quays to the city centre. The connection allows movement of water from east to west for the first time, allowing greater connectivity of resources in the city. Through the works, however, as well as ensuring a more robust supply for the city it allowed Leakage Reduction Programme works to take place.

Following the programme of works:

- 15.3 km of Water Mains were constructed;
- 51 District Metering Areas were established;
- 25 pressure regulation valves were installed;
- 514 Find and Fix works were completed; and
- 8 million liters of water have been saved daily since 2020.

The collaboration of each of the stakeholders was essential for the success of the project with interdependent project completion, preliminary works and historical network knowledge proving vital. Communication with residents, businesses and stakeholders was also essential due to the significant impact of the works over a period of time. Cork City now benefits from a more reliable water supply and reduced leakage which will continue in the future.

5.3 Use Less: Water Conservation

Irish Water is committed to helping all of our customers to become more efficient in their water use. Research commissioned by Irish Water has shown that the broad perception among the general public is that we have an abundant water supply and that the need for water conservation is confined only to periods of extreme dry weather, as we have seen in recent years. We also know that low understanding of personal individual consumption, combined with high levels of leakage within the water supply network, and the misconception that Irish Water is not addressing the significant and complex leakage challenge, are further barriers to behavioural change. The **Use Less** pillar focuses on activities to help us to understand water use habits, influence behaviour, encourage change and to promote the use of water efficient devices and appliances.

Irish Water are committed to a behavioural change campaign that will educate and inform the end users about their individual water consumption and the challenges of providing a sustainable treated water supply in order to encourage water conservation. This will require investment and ongoing research.

Presently Irish Water is actively promoting water conservation in schools, business and communities through activities including:

- National and Local Media Campaigns
- Targeted Sectoral campaigns
- Green Schools
- Water Stewardship Scheme (see Box 5.2)
- First Fix Free Scheme
- Development of an online water conservation application which will provide tips on how to conserve water in the home

Irish Water also works with stakeholders to support policy change such as developing water efficiency standards in Building Regulations and social housing. More details of these activities can be found in the Framework Plan.

The ability to reduce Demand (based on technology, behaviour and metering) is uncertain and sensitive to the situational context and the awareness of Need. Technology offers benefits, but the changeover rates to new technologies are uncertain. Monitoring regimes need to be designed and maintained to understand significant changes that have been made and their result on water use. It is therefore difficult at this time to assess the potential benefit of water conservation activity in Ireland. Also, due to the funding mechanisms for water services, findings from water efficiency measures developed in the UK cannot be directly applied to Ireland. Over the coming years our ability to quantify the impact of these initiatives in terms of reduction in water use will improve as our data and intelligence systems become more refined. We will also work with our Innovation Team to review the potential for pilot studies to understand the potential benefits and outcomes for conservation measures such as rainwater harvesting and grey water reuse.

In order to address water conservation Irish Water has considered water conservation in our Domestic and Non-Domestic forecasts. Whilst Irish Water recognises that occupancy rates are falling within households, which typically leads to an increase in demand, we have held our per-capita consumption rates as static across our supplies when calculating our future forecasts. This means that increased per capita consumption growth will need to be addressed through water efficiency. An allowance for non-domestic growth has been made for towns and cities identified as strong growth areas in Project 2040². For other areas, it is assumed that there will be no significant increase in non-domestic demand. Where demand increases, Irish Water will try to facilitate the growth via efficiency improvements and water conservation.

Box 5.2 – Water Stewardship in the South West Region: Supporting the Business Community through Irish Water’s Water Stewardship Programme

Irish businesses use around 510 million litres of water every day. To put that in context, the city of Limerick requires about one-tenth of that at 51 million litres per day. Measures that support business to be more efficient and sustainable in how they use water make a real difference to safeguarding our national supply. Irish Water is working closely with business stakeholder groups to raise awareness of our Water Stewardship Programme to support businesses to lower water consumption and reduce operating costs while protecting the environment. Small changes such as identifying water waste on site, setting a baseline for water use, raising awareness amongst staff and customers, or upgrading to water efficient devices can make a big difference to water efficiency and also to save money for businesses.



One of the programmes developed by Irish Water is Certified Water Steward (CWS) training which is tailored to every size of business with a shorter small and medium-sized enterprise (SME) programme and more in-depth training for medium to large businesses. The programme is the first of its kind globally and accredited internationally by the European Water Stewardship (EWS) Standard. It has been made possible thanks to the funding from Irish Water and Skillnet Ireland via the Department of Further and Higher Education, Research, Innovation and Science and it is a clear demonstration of Ireland’s growing reputation and leadership actions on water stewardship and climate action.

Over 1000 new water conservation projects have been implemented by graduates to date and three sites have progressed to EWS/AWS (Alliance for Water Stewardship) international water stewardship certification. Overall, 70% of businesses are introducing Annual Water Stewardship Targets as a result of the programme and 100% would recommend the training to other businesses.

What Green Credentials are on Offer to the South West Business Community?



We are offering three different opportunities for businesses of all sizes to enhance their green credentials:

1. Water Conservation Pledge

- We are inviting businesses to commit to making changes that will conserve water.
- Businesses can share their pledge badge on social media to show they are taking action.

2. Sustainable Water Partner Training

- Businesses are invited to take free online water stewardship training and learn about the importance of safeguarding this critical resource.
- Businesses can share their new Sustainable Water Partner badge on marketing materials/social media and add it to their green credentials.

3. Certified Stewardship Training

- Achieve international best practice certification. The programme is accredited by the EWS Standards.
- Funded Programme by Irish Water and the Lean & Green Skillnet with the support of Skillnet Ireland and the Department of Further and Higher Education, Research, Innovation and Science.
- Save water and money. The programme will provide you with the knowledge and skills to reduce water consumption and operating costs at your site.
- Protect the environment. You will learn the key principles of water stewardship and the actions required to improve your environmental performance.
- The programme is the first of its kind globally and is fully supported by the EPA, Origin Green, Irish Business and Employees Confederation (Ibec), Chambers Ireland, Industrial Development Authority Ireland (IDA), (Sustainable Energy Authority of Ireland) SEAI, Bord Iascaigh Mhara (BIM) and Enterprise Ireland.
- Origin Green accept our certification as part of their sustainability credential.

What does CWS Training deliver?

Module 1 - Introduction to water stewardship - the business case

Module 2 - Water mapping of your business

Module 3 - Water conservation and quick wins at your site



Module 4 - Developing a strategy and action plan

Optional workshops/webinars - Mentoring and support for the development of your Water Charter as well as providing peer to peer learning opportunities.

Develop a water charter for your site assessment - The charter will capture the business case for action, your site's water map, water saving opportunities and an agreed action plan. To achieve certification, participants will be expected to present this charter to senior management and get approval for implementation.

How has the water stewardship programme supported the South West Region?

Testimonials from our South West Certified Water Steward Graduates

	About	Benefits of CWS	Wins
	<p>University College Cork offers a wide range of academic programs at undergraduate and postgraduate level. The University has c. 23,600 students; c. 15,700 of these follow undergraduate programmes, while c. 5,300 are engaged in postgraduate study and research.</p> <p>The University was the first University in the world to achieve the Green Flag from the foundation for Environmental Education (2010), the first University to achieve ISO 50001 certification (2011). In 2018, UCC was the first university outside of North America to be awarded a Gold Star from the Association for the Advancement of Sustainability in Higher Education. (https://www.ucc.ie/en/greencampus/)</p>	<p>The program gave the Estates Office the space and time to re-assess the University's water conservation program. With the assistance of the expert tutors, the program delivered a clear roadmap to UCC for refreshing the Universities water conservation campaign.</p>	<p>Using the knowledge gained from the program the University developed its own water charter, identifying a series of initiatives to conserve water use across the University as well as refreshing our internal policy and guidance documents for ongoing building and refurbishment programs</p>
	<p>Gilead Sciences Ireland operations are located in Carrigtwohill Industrial Estate Carrigtwohill, Co. Cork</p> <p>and are responsible for manufacturing, quality control, packaging, and the release and distribution of Gilead products in the European Union and other international locations such as the</p>	<p>The Certified Water Steward Programme educates system owners to understand water usage within their facility and engage with stakeholders, this information is used to support communication and</p>	<p>This programme facilitated the creation of the Cork Manufacturing site Water Charter and Water Map. In 2021 funding was approved to create a digital</p>

	countries supported by the Gilead Access Program.	culture change around water reduction/recycling on site.	water map to baseline water usage and identify opportunities and leaks. Significant Water users have been identified with our 1st rain water harvesting capital project being complete in 2021 supplying rain water to our boiler feedwater system.
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5.4 Supply Smarter

The **Supply Smarter** pillar actions to proactively engage in the protection of our natural water resources, improve the performance and resilience of existing supplies, improve interconnectivity within our supply networks, increase the amount of water available for use, improve compliance, address the environmental impacts of existing abstractions and mitigate the impacts of climate change. We support this through asset maintenance, operations and by delivering process optimisation and training. The key Option types for infrastructure improvements under the **Supply Smarter** pillar are listed in Figure 5.2.

As well as reducing leakage and improving water efficiency, we must develop our infrastructure to improve interconnectivity and storage, and create a more robust, smarter system. Our water supplies in some areas often come from small local rivers, which can have an environmental impact. We must therefore look at all of our water sources from rivers and lakes to groundwater so that we can reduce our reliance on these rivers. This will also allow us to take climate change into account.

All Options are considered at the ‘Unconstrained’ stage in the Option Development Process (Section 6) including technical assessment of transfers across Water Resource Zones (WRZs), and interactions with private Group Water Schemes, i.e., cumulative assessment of abstractions from the same source, and Options which consider connecting to Group Water Schemes.

Irish Water’s currently have 247 surface and groundwater sources located within the South West Region. Each source needs to be utilised, managed and maintained sustainably in order to protect the source for future use. There are also 227 WTPs in the South West Region. Development and growth over the years means that some WTPs are undersized, treating water in quantities far beyond what they were originally designed for and so investment is needed to upgrade these facilities.

As part of our **Supply Smarter** pillar we are currently carrying out the following activities:

- Capital Investment and Improved Operations
- Source Protection and Catchment Management Activities
- Data Acquisition and Improvement



Figure 5.2 Option Types

We are currently implementing an investment programme in our water supply infrastructure which includes WTP upgrades to improve the Level of Service (LoS) we can provide to our customers. We have numerous water supply improvement projects and programmes in progress, to improve both the Quality and Quantity of drinking water. We publish details of planned, live and recently completed projects on our website. For more information please visit www.water.ie.

Irish Water recognises the importance of source protection in ensuring the security and sustainability of our water supplies and are currently working with key stakeholders to promote this concept. In recognition of the importance of multi-stakeholder engagement and collaboration in managing shared natural resources, Irish Water have formed a group of Environmental Protection Agency (EPA), Geological Survey Ireland (GSI), National Federation of Group Water Schemes (NFGWS), Department of Housing Local Government and Heritage (DHLGH) and Independent experts to provide steering on the strategy, objectives and high-level activities needed to ensure the concepts of the three pillars are consolidated.

Irish Water are actively involved in source protection projects to trial catchment scale interventions for example to reduce the risk of pesticides causing exceedances in water supplies.

As Irish Water are at the initial stages of resource planning we are relying on the best available data, surrogate data and trends from neighbouring jurisdictions in the development of the RWRP-SW SDB. We have identified the data improvements which will be required to support best practice in the future and have invested in systems to manage it. Overtime we will build on the existing database improving our understanding which will be fed into the SDB. Detailed explanations of our current data approaches and future plans can be found in the Framework Plan.

Irish Water will also look at the waste produced from our WTPs (known as residual waste) to reduce the impact of this waste on the environment through the circular economy approach and nature-based solutions.

5.5 Summary

In this section we have outlined the activities which we are already undertaking and plan to undertake in the future under our three-pillar approach to Lose Less, Use Less and Supply Smarter, to reduce the supply demand deficits across the public water supply.

Across the South West Region Irish Water are committed to:

- Carrying out ongoing leakage management including active leakage control, pressure management and find and fix activities to offset Natural Rate of Leakage Rise (NRR).
- Continuing household and business water conservation campaigns, initiatives and education programmes.
- Implementing legally enforceable Water Conservation Orders, as required, in drought periods in order to protect the environment and our public water supplies.

5.6 References

1. European Union. 2015. Good Practices on Leakage Management WFD Common Implementation Strategy Working Group Programme of Measures. Available from: <https://op.europa.eu/>.
2. Department of Housing, Local Government and Heritage. 2019. Project Ireland 2040 – National Planning Framework. Available from: <https://www.gov.ie/en/publication/774346-project-ireland-2040-national-planning-framework/>.