



5



**Solutions-
Our
Approach**



5.1 Introduction

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

Uisce Éireann 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
- Uisce Éireann 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. Uisce Éireann 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 Uisce Éireann's three (3) 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 Uisce Éireann. 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 Uisce Éireann 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 PoM¹'.

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 Uisce Éireann expect to be able to make further improvements.

In late 2018, Uisce Éireann 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

Uisce Éireann will take a three-step process to reduce leakage both nationally and within the South East 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. Uisce Éireann 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, Uisce Éireann 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, Uisce Éireann 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/d).

STEP 3: Appropriate Leakage Level (ALL)

As the 2034 SELL targets approach, Uisce Éireann'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 Uisce Éireann 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 738 million litres per day (Ml/d). SELL targets aim to reduce this to 525 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 East 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	214	130	84
Leakage level for non-GDA WRZs (Nationally)	524	395	129
National leakage level	738	525	213

In 2019 the leakage level in the GDA was 214 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 (4) 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, Uisce Éireann 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/d). These additional targets equate to a net leakage reduction of 42 MI/d, 36.5 MI/d, 70 MI/d and 29 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.

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

	National Leakage Reduction (MI/d)					
	Non-GDA WRZs					National Total
	GDA	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	9	42	36.5	70	29	187
Total	158		94	102	46	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 Uisce Éireann 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 (4) regions of the NWRP is prioritised on an annual basis as part of the National Leakage Reduction programme. This allows Uisce Éireann'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 East Region, 0.91 MI/d of leakage targets have been applied to the SDB. These include:

- SAK – 0.35 MI/d through net leakage reduction in Fethard & Mullenbawn Regional Public Water Supply, Galtee Regional and Tipperary Town Supply.
- SAL – 0.32 MI/d through net leakage reduction in Kilkenny City.
- SAM – 0.24 MI/d through net leakage reduction in Fardystown, Enniscorthy and Gorey.

This does not mean that only 0.91 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 16.1 MI/d of leakage reduction (required to achieve 17 MI/d of leakage reductions within the South East 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 the South East

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

Box 5.1 – Leakage Reduction in the South East Region

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. Uisce Éireann have been working in partnership with 31 of our Local Authority partners and our regional contractors Shareridge, to reduce leakage across our South East Region. Together we have identified key issues facing the water network across the region, in order to reduce leakage and secure supplies for future growth.

Problems identified in the region 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 assets such as water mains, replacing old lead service connections and pressure reducing valves in addition to implementing other programmes such as Find & Fix, Frist Fix Free and a metering programme. The metering programme will help us to better understand the flow and distribution of water in our networks across the region and identify those areas with the highest leakage levels.

We are currently constructing new hydraulic network models on the following water supply schemes in the SE Region to further improve our understanding of the networks and to identify more opportunities for leakage reduction in those schemes:

- Kilkenny Water Supply Scheme
- East Waterford Water Supply Scheme (which includes Waterford City)
- Gorey Regional Water Supply and Gorey Urban Water Supply Scheme (Co. Wexford)
- South Regional Water Supply Scheme (Co. Wexford)
- Bunclody Water Supply Scheme (Co. Wexford)
- Clonmel Water Supply Scheme & Environs (Co. Tipperary)

Since 2020 under the Leakage Reduction Programme we have:

- Replaced approximately 170 km of old and underperforming watermains;
- Installed 15 new Pressure Reducing Valves (PRV's);
- Upgraded and repaired our existing stock of PRV's as part of a Planned Maintenance Programme, including optimization (in some cases via the provision of pressure controllers);
- Replaced old lead service connections causing water quality issues.

5.3 Use Less: Water Conservation

Uisce Éireann is committed to helping all of our customers to become more efficient in their water use. Research commissioned by Uisce Éireann 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 Uisce Éireann 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.

Reducing customer water use will not only reduce the pressure on the public water supply system but will also reduce carbon emissions associated with water treatment and supply. Research from the UK indicates that 6% of the UK's total greenhouse gas emissions are from household water supply and use and 90% of these emissions are from how water is used in the home. This equates to over 2.6 kg CO₂e per home per day. A 20% reduction in household water use could lead to a carbon emission reduction of up to 0.45 kg-CO₂ per property per day². Reduction in water usage will also result in a reduction of wastewater discharged to the sewer network.

Uisce Éireann 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.

5.3.1 Water Conservation Activities

Presently Uisce Éireann 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.

National and Local Media Campaigns

In addition to the broader water conservation programmes, such as the Green Schools and Water Stewardship schemes, Uisce Éireann promotes water conservation through national and local media campaigns during the year depending on the water demand, weather conditions, and available water. The campaigns raise awareness of the importance of saving water to cope with scarcity and protect the water environment. They include information on how the public can save water over both the immediate and longer term. For example, during periods of hot weather, customers are encouraged to minimise the amount of water used by avoiding power washing or cleaning the car and reusing water for the garden. We also have a water conservation webpage <https://www.water.ie/conservation/> which provides details on why and how to conserve water.

Targeted Sectoral Campaigns

In 2021 the Water Forum commissioned research on a Framework for Improving Domestic Water Conservation in Ireland³. A key recommendation from this research is the provision of revised building regulations and fittings standard. Uisce Éireann is supportive of this recommendation as a measure to reduce water demand.

Uisce Éireann currently works with developers to determine if water efficiency measures could be taken, and the developer can reduce the projected required water demand. In August 2022, we launched a guide for the construction industry that sets out how builders and developers can achieve water conservation through measures such as innovative technology installations and rainwater harvesting systems. We ran Water Conservation Clinics, developed in partnership with the Construction Industry Federation (CIF), to offer training and guidance on how businesses can conserve water on site. Uisce Éireann is also exploring concepts for potential pilot projects with developers to determine if water efficiency measures could be implemented to reduce projected water demand. We will seek to reduce demand requirements from large new connection applications for domestic and non-domestic developments through the new connection application process.

Green Schools

Green Schools is an award programme for primary and secondary schools. It helps students to learn about the environment, including water conservation and efficiency. Uisce Éireann sponsors the water theme of the An Taisce Green Schools Programme which includes student-led Water Forums, Walk for Water events, Water Ambassador Support Sessions and poster competitions. More information on the Green-Schools programme can be found on our website at <https://www.water.ie/about/programmes-sponsorships/green-schools/>.

First Fix Free Scheme

The First Fix Free scheme aims to help reduce the amount of water wasted through leaks on customers' properties. The scheme offers a free investigation of potential leaks on external supply pipes and a free repair if a water leak is identified. The scheme is open to domestic or mixed-use customers with a predominant domestic water use. More information on the scheme can be found on our website at <https://www.water.ie/help/leaks/first-fix-free/>.

Conservation Calculator

The Conservation Calculator is a free tool that was developed in response to research, which showed that consumers want additional tools to assist them in conserving water. The tool will assist households to assess their water usage habits and find out how much water they are saving daily. It offers customers useful and practical tips on how to reduce water usage and track their progress. The Conservation Calculator is available at www.water.ie/calculator.

5.3.2 Domestic Metering Network

Uisce Éireann's Use Less pillar also involves investment in the domestic metering network. The existing network covers almost 60% of domestic units and has smart functionality, such as automatic drive-by reading, month-end readings, and continuous-flow (leak) alarms. This functionality will support the achievement of our water conservation ambition and has already been used in our 'First Fix Free' programme.

In 2018 Uisce Éireann carried out a pilot study of sub-metering of apartments, where smart meters were used with fixed radio communications. This trial was primarily to confirm that it is feasible to sub-meter apartment buildings and retrieve usage data. It has also demonstrated how water usage data can be made available to the occupants of the apartments. This work was funded by the CRU. The final report, “Pilot Technology Trials of Water Metering Systems for Multi-Unit Development”, is available at <https://www.water.ie/about/research-and-innovation/>. Uisce Éireann are currently running a ‘smart network’ trial in the South Dublin Area.

5.3.3 Grey Water Recycling and Rainwater Harvesting

Grey water recycling and rainwater harvesting are private side measures that can potentially result in a reduction in demand (greywater) or a reduction in some peaking in dry conditions. Further research and innovation in these areas is required to improve the viability of these measures. The challenge for non-potable supplies such as grey water is the need to prevent contamination of drinking water supplies. A parallel network of pipeline would be required to separate domestic plumbing systems from non-potable supplies.

Due to the seasonality of rainfall in Ireland, a significant amount of storage would be required to ensure that rainwater harvesting is a viable option to address demand, particularly during dry periods. The space for the storage required to maintain supplies during dry weather would not be available at a typical domestic property. As outlined in Section 9.3 of the RWRP-NW, Uisce Éireann will work with our Innovation Team to review the potential for pilot studies to understand the benefits and outcomes for conservation measures such as rainwater harvesting and grey water reuse.

5.3.4 Water Savings

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.

In order to address water conservation Uisce Éireann has considered water conservation in our Domestic and Non-Domestic forecasts. Whilst Uisce Éireann 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 2040⁴. For other areas, it is assumed that there will be no significant increase in non-domestic demand. Where demand increases, Uisce Éireann will try to facilitate the growth via efficiency improvements and water conservation. Water Savings

Box 5.2 – Water Stewardship in the South East Region: Supporting the Business Community through Uisce Éireann’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. Uisce Éireann 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 Uisce Éireann 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 Uisce Éireann 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 (3) 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 East Business Community?



We are offering three (3) 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 Uisce Éireann 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 East Region?

Testimonials from our South East Certified Water Steward Graduates

	About	Benefits of CWS	Wins
<p>Sulzer Pumps Ireland Ltd</p> <p>Whitemill Industrial Estate</p> <p>Wexford Town</p>	<p>Sulzer Pumps Ireland Ltd celebrates 50 years in Wexford next year.</p> <p>Employ approximately 270 team members.</p> <p>Sulzer Pumps Ireland Ltd design and manufacture a range of pumps, mixers, aerators and control monitoring equipment.</p> <p>The site is accredited to ISO 9001, ISO 14001 and ISO 45001.</p>	<p>Networking with other likeminded participants.</p> <p>High level of experiential learning from participation on the CWS programme.</p> <p>Highly Competent CWS tutors who presented both the theory and real world practical application of water stewardship.</p> <p>Knowledge to make a real difference on site in relation to water conservation and water sustainability.</p>	<p>Develop a bespoke on site water charter.</p> <p>Collaboration amongst key stakeholders in identifying and implementing on site water conservation initiatives.</p> <p>Empowerment to champion water conservation and water sustainability.</p>

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.

Uisce Éireann’s currently have 163 surface and groundwater sources located within the South East Region. Each source needs to be utilised, managed and maintained sustainably in order to protect the source for future use. There are also 143 WTPs in the South East 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

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.

Uisce Éireann 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, Uisce Éireann are members of an expert group chaired by the Department of Housing Local Government and Heritage (DHLGH) to make recommendations to the Minister regarding a new approach to drinking water source protection as part of the transposition of the recast Drinking Water Directive. Other members of the group include the County and City Management Association (CCMA), the Local Authority Waters Programme (LAWPRO), the National Federation of Group Water Schemes (NFGWS), the Environmental Protection Agency (EPA), Geological Survey of Ireland (GSI), the Health Service Executive, the Department of Agriculture, Food and the Marine (DAFM), the Irish National



Figure 5.2 Option Types

Accreditation Board (INAB), the National Standards Authority of Ireland (NSAI) and the Commission for Regulation of Utilities (CRU). Implementation of source protection measures will require further collaboration with several stakeholders including, riparian owners, industry groups, the agricultural and environmental sector forestry and Teagasc. These measures will complement existing ongoing works for example the works carried out by Teagasc under the Agricultural Sustainability and Advisory Programme (ASSAP) which looks to improve water quality through working with farmers.

Uisce Éireann 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 Uisce Éireann 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-SE 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.

Uisce Éireann 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 East Region Uisce Éireann 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. Waterwise. 2021. Net Zero and the Role of Water Efficiency. <https://www.waterwise.org.uk/knowledge-base/net-zero-and-the-role-of-water-efficiency-waterwise-2021/>
3. Irish Water (2002). A Framework for Improving Domestic Water Conservation in Ireland. Available from: <https://www.waterwise.org.uk/knowledge-base/a-framework-for-improving-domestic-water-conservation-in-ireland-nov-2021/>.
4. 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/>.