

6<sup>th</sup> Annual Report on  
**Sustainable Water**  
A Long-Term Water Strategy  
for Northern Ireland (2015 – 2040)



Department for  
**Infrastructure**

An Roinn

**Bonneagair**

Department for

**Infrastructure**

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# Executive Summary

1. The Executive's Sustainable Water – A Long-Term Water Strategy sets out a common vision for a sustainable water sector. To ensure full compliance with the Strategy, an Implementation Action Plan was agreed by all the relevant stakeholders. The Department for Infrastructure (DfI) is responsible for managing the implementation of the Strategy. This is the sixth Annual Report on the implementation of the Strategy.
2. The Implementation Action Plan originally contained 231 actions, which were categorised as short-term (2015-21), medium-term (2021-2027) and long-term (2027-40). To date, 30 actions have been completed (25 short-term, 4 medium-term and 1 medium/long-term), whilst a large number of the remaining actions, in particular the short-term actions, are transitioning to business as usual.
3. Key achievements this period include:
  - i. NI Water is pursuing a number of energy efficiency opportunities including; pump efficiency, real time control and odour control.
  - ii. NI Water is also progressing opportunities to increase solar generation, energy storage and vehicle charging capability throughout the PC21 (2021-2027) period. The company is also progressing with a Hydrogen and Oxygen Demonstrator project, to establish the benefits of electrolysis and oxygen in the wastewater process;
  - iii. In the last year, NI Water has continued to improve the resilience in water treatment works (WTW). It has invested in a new pilot borehole WTW at Moneymore, to help understand costs of groundwater production and inform the next Water Resource & Supply Resilience Plan. Construction work is ongoing at Derg WTW to install a new clarification plant. Two primary filters have also been added to Clay Lake WTW to improve the production resilience of the plant;
  - iii. NI Water has continued to reinforce its strategic watermain network across Northern Ireland.

- iv. The Shared Waters Enhancement & Loughs Legacy (SWELL) is a four-year, €35m project focused on the construction of new wastewater treatment works (WwTW) and upgrades to sewerage networks on both sides of the border to address wastewater pollution in Carlingford Lough and Lough Foyle. In 2021-22, several projects have been completed, as detailed later in the report; and
  - v. The Drinking Water Inspectorate developed a new [Single Private Well](#) web application which was officially launched on the Department for Agriculture, Environment and Rural Affairs (DAERA) website in March 2022. This application provides bespoke advice and guidance to the owners and users of private wells on protection of the groundwater, treatment options and steps to take to ensure the quality of their water supply is safeguarded.
4. A number of key challenges exist as we continue to progress the Strategy:
    - **Funding** - Full implementation of the Strategy will require significant financial investment over the 25-year period of the Strategy. Funding availability will have an impact on key stakeholders' ability to deliver the objectives of the Strategy.
    - **Increased Water Consumption** – Increased periods of prolonged hot dry weather are likely to lead to more demand surges. Typically demand increases by 20% in extreme heat scenarios.
    - **Climate Change** - The Strategy and its delivery partners will need to consider these latest climate projections in the management of flood risk, development planning and the delivery of Strategy actions.
    - **Water Quality** - Water catchments continue to be impacted by a wide range of pressures including urban development, industry, agriculture, abstraction, forestry and chemicals.
    - **Future Agricultural Policy** – The Strategy may need to flex to align with the shape and nature of future agricultural support and agri-environment schemes.



The Executive's Sustainable Water – A Long-Term Water Strategy sets out a common vision for a sustainable water sector.



# Introduction

5. This is the sixth Annual Report on the Executive's Sustainable Water – A Long-Term Water Strategy. The Strategy sets out a common vision for a sustainable water sector and focuses on Economic Development & Growth, Affordability, Environmental Improvement & Compliance, Flood Risk Management and Sustainable Service Delivery.
  - iii. to achieve the environmental requirements of the Water (Amendment) (Northern Ireland) (EU Exit) Regulations 2019 in a sustainable manner; and
  - iv. to provide sustainable water and sewerage services that meet customers' needs.
6. The Strategy focuses on four high-level aims to cover the key water needs within a catchment:
  - i. to provide high quality sustainable supplies of drinking water to households, industry and agriculture;
  - ii. to manage flood risk and drainage in a sustainable manner;
7. This document reports progress for 2021/22 against each high-level aim.



# Drinking Water Supply and Demand



PROVIDING HIGH QUALITY, SUSTAINABLE SUPPLIES OF DRINKING WATER TO HOUSEHOLDS, INDUSTRY AND AGRICULTURE

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## DW AIM 1:

### Manage Drinking Water Quality Risks in a Sustainable Manner from Source to Tap

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8. NI Water has, in consultation with key stakeholders, put a number of plans and programmes in place to achieve this aim:
  - i. A wide range of sustainable projects have been undertaken by NI Water's Sustainable Catchment Area Management Plan (SCAMP) team with multiple benefits and objectives, including the reduction of chemical usage in the water treatment process. This is in addition to the extensive INTERREG Source To Tap project, which is led by NI Water and also involves pesticide initiatives including weed-wiping in the Derg catchment and a pilot sphagnum seeding exercise at the Tullychurry site to help inform others if this is useful in accelerating recovery of sphagnum at restoration sites;
  - ii. NI Water has also developed a water catchment partnership to promote key messages on topics such as weed control and water quality protection at agricultural shows and farmer engagement events; and
  - iii. the Drinking Water Inspectorate (DWI) continues to work with NI Water to ensure that it reviews the mitigations identified within all the risk assessments of the Drinking Water Safety Plans and supports the prioritisation of investment to manage the drinking water quality risks identified.

9. NI Water continues to deliver its programme of lead pipe replacement as set out in its PC21 (2021-27) plan. This includes lead pipe replacements in response to customer requests and/or following an exceedance of the lead standard for samples taken as part of its routine sampling programme as well as the pro-active lead replacement programme. In addition, NI Water is involved in a research project working with Water UK, examining lead plumbosolvency control technology.
10. NI Water used social media to highlight the risks posed by lead to specific postcodes in high risk areas.
11. In 2021, DWI continued to constructively engage with NI Water to effectively regulate drinking water quality. DWI assessed 40 Drinking Water Quality Events of which one was categorised as “Major”, two as “Serious” and 19 as “Significant”. Overall public drinking water quality for 2021 remained high with 99.88% compliance.

Where necessary enforcement action is taken by DWI, and in 2021, one new Notice was issued against NI Water to implement effective treatment for recurring aluminium contraventions at Drumaroad WTW. Furthermore, in July 2021, NI Water was sentenced to a Conditional Discharge for a period of 1 year for supplying water which was unfit for human consumption in the first drinking water prosecution

case against NI Water under Article 110 of the Water and Sewerage Services (NI) Order 2006.

12. DWI worked flexibly with NI Water in relation to its enforcement notice at Derg WTW, extending the notice period to enable NI Water additional time to carry out extensive pilot plant studies. This resulted in a more effective treatment option being identified by NI Water than was originally planned. Work is well underway on a major £12 million upgrade scheme, with beneficial use achieved at the end of March 2023.
13. DWI undertakes an annual monitoring programme of private water supplies, and in 2021, there were over 11,900 tests carried out, with 99.19% of these tests compliant with drinking water standards at these supplies. The Service Level Agreement (SLA) continues to operate between councils and DWI. A review of the terms of the SLA was completed following engagement through the Drinking Water Working Group in June 2021 and Environmental Health Northern Ireland in October 2021. In addition, two training sessions focusing on sample collection competency were delivered to council staff in June and November 2021. A total of 24 council staff attended this training, either for the first time or for refresher training. Risk assessment training was delivered to 22 council staff in March 2022.

14. DWI also launched a Single Well Application on the DAERA website in collaboration with Digital Services Division. This provides bespoke guidance to owners and users of private wells, springs or boreholes serving single domestic properties in relation to source protection to prevent contamination, treatment and maintenance of their private drinking water supply. Users can also request their supply to be included in the Northern Ireland Environment Agency's (NIEA) groundwater monitoring programme to build a database of groundwater quality within Northern Ireland.
15. DWI also leads on a series of targets, within the Strategy, related to managing water quality risks within domestic distribution systems. These include promoting the use of the Water Safety Plan approach within buildings, where water is made available to the public, by providing appropriate advice and guidance. DWI has continued, during 2021/22, to work with key stakeholders, and intends, within the short to medium term, to develop and promote such an approach.

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## **DW Aim 2:**

### **Meet the Water Demand Needs of Society, the Economy and the Environment**

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16. NI Water is currently developing its next Water Resource & Supply Resilience Plan, with consultation scheduled in Autumn 2023.
17. During 2021/22, NI Water's education team delivered 299 educational school visits and virtual talks on key water efficiency messages to primary schools. In addition, NI Water also attended 64 other education events during 2021/22.

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## **DW Aim 3:**

### **Resource Efficient Drinking Water Treatment and Supply Chains**

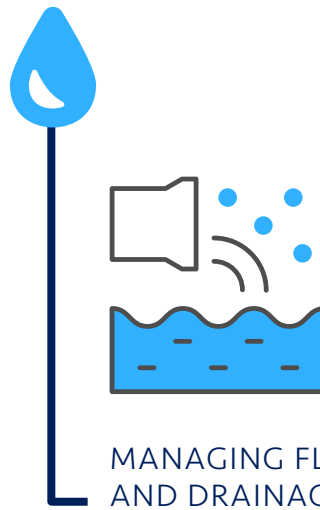
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18. In 2021/22, NI Water implemented a number of energy efficiency projects across its water assets, primarily focussing on pump optimisation and control. In the PC21 period to date, NI Water has invested c.£1.8m in pump optimisation and control improvement work and this will help deliver energy benefits of c.£720k for the company whilst also improving resilience at these sites. This will help to unlock significant energy and carbon savings, reducing operating costs and providing a better value service to customers.

19. As part of the pump optimisation programme, pumps have now been upgraded at Westland, Magheraliskmisk pumping station and work at Moyola WTW commenced in September 2022. Work has also commenced at Derg WTW, Seagahan WTW, Ballygomartin WPS, North Road WPS and River Bann Raw Water Pumping Station (RWPS). Control improvement changes have been implemented at Carnbane WPS (Newry) with further control changes being undertaken at 10 wastewater pumping stations, to take account of energy tariffs and water storage levels, to ensure NI Water can pump as cost efficiently as possible whilst maintaining customer supplies. In addition, NI Water's Data Analytics Team is undertaking a programme of Process Reviews and sub metering work at WTW sites, to help better understand energy usage at these sites. Performance Dashboards are also being developed to inform this work.
20. A wide range of sustainable projects have been undertaken by the SCAMP team with multiple benefits and objectives, including the reduction of chemical usage in the water treatment process.



# Flood Risk Management and Drainage



MANAGING FLOOD RISK AND DRAINAGE IN A SUSTAINABLE MANNER

21. Given the number of flood events in Northern Ireland in recent years, and the widespread impact that these events have caused, one of the key aims of the Strategy is to manage flood risk and drainage in a sustainable manner.
22. The Department for Infrastructure is the competent authority for implementing the Floods Directive in Northern Ireland, in partnership with a number of other statutory bodies and departments, including NI Water, local councils and DAERA. For the second cycle Flood Risk Management Plan (FRMP), a single plan covering all three River Basin Districts was adopted to reduce duplication. Following an extensive consultation process, the second cycle FRMP and associated environmental documentation were published by 22 December 2021, meeting the target date set out in legislation.
23. The third cycle of the Flood Directive process will now begin with a review and, if necessary, update of the Northern Ireland Flood Risk Assessment (NIFRA) 2018, by December 2024.

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## FRMD Aim 1:

### Delivering Sustainable Flood Resilient Development

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24. Land-use planning is key to managing flood risk and drainage issues. DfI is working closely with council planning departments to enable them to make informed decisions in relation to flood risk policies that should be included in their new Local Development Plans (LDPs) and Development Management issues.
25. The Stormwater Management Group (SMG) is a multi-agency group jointly chaired by DfI and NIEA. Its focus is to encourage the use of sustainable drainage systems (SuDS) as the preferred means of dealing with surface water and to identify the legislative and resourcing provisions necessary. The group is exploring various options for approval and adoption/maintenance of soft SuDS assets to encourage their uptake among developers.

The SMG works with local councils on their LDPs to encourage inclusion of SuDS within Plans, particularly referencing the additional benefits of soft SuDS and is continuing to engage with stakeholders to identify potential pilot soft SuDS projects.

In addition, work is progressing with developers of private sites, where soft SuDS feature in the development to help identify possible risks and issues and find solutions and mitigation measures which can be implemented to enable the SuDS proposal to proceed. Learning from these developments will help inform future SuDS policy and guidance.

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## FRMD Aim 2:

### Managing the Catchment to Reduce Flood Risk

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26. DfI Roads and Rivers and NI Water continue to carry out routine proactive and reactive maintenance, as resources permit, on publicly-managed drainage systems, particularly during periods of intense or prolonged rainfall. Specifically, DfI Rivers has a rolling programme of annual watercourse and drainage asset inspection.
27. Statutory responsibility for the Reservoirs Act (Northern Ireland) 2015 transferred to the Department for Infrastructure with effect from 2 June 2021. A targeted consultation on the

commencement orders and secondary legislation required to commence and implement the reservoir safety policy envisaged by the Act closed in January 2022. Consultation responses have been analysed and a consultation report published in October 2022.

28. “Living With Water in Belfast – An Integrated Plan for Drainage and Wastewater Management in Greater Belfast” was published by the Department in November 2021. The core objectives of the plan are to provide the drainage and wastewater treatment infrastructure needed to protect Belfast against flooding, enhance the environment, and enable the city to grow. Current estimates are that approximately £1.4bn of capital investment will be required to implement the plan over the next 12 years. The Living With Water approach is being extended beyond Belfast, and the development of a Strategic Drainage Infrastructure Plan for Derry/Londonderry, similar to the one published for Belfast, was commenced in June 2021. The focus of Living With Water is on developing integrated, catchment-based solutions to manage rainwater in a more natural way. However, it should be recognised that significant investment will also be required in wastewater treatment works and sewerage networks.

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### **FRMD Aim 3:**

#### **Provide Sustainable Integrated Drainage in Rural and Urban Areas**

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29. NI Water has set in place a process for removing stormwater and infiltration from the sewer network on a prioritised basis, taking into account large flows at wastewater treatment works and pumping stations during rainfall events. The aim of this is to provide more capacity within networks for growth and also to reduce the risk of flooding.

During 2021/22, NI Water removed 1,200m<sup>2</sup> of permeable water from the combined sewer system within the Bangor Drainage Area Plan project. NI Water is engaging with DfI on determining options for stormwater separation in Derry/Londonderry in conjunction with the Buncrana Road improvement scheme.

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### **FRMD Aim 4:**

#### **Improve Flood Resistance and Resilience in High Flood Risk Areas**

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30. DfI Rivers maintains registers of flood hot spots that are at risk from flooding. Established in 2013, the Flood Investment and Planning Group (FIPG) continues to provide a co-ordinated approach to the identification of flooding issues to be addressed on a multi-agency basis. During 2021/22, progress has been made on a number of investigations and schemes

including at the Main Street area of Ballynahinch and an ongoing issue at Glennor Crescent in Carryduff.

31. DfI Rivers spent approximately £18.7m on drainage and flood alleviation schemes in 2021/22 which protected 164 properties.
32. In 2021/22, DfI Rivers repaired over 0.92km of designated culverts and 3.15km of fluvial defences. In addition to this, DfI Rivers also maintained over 389 designated rural open watercourses and 100% of all designated culvert inlet grilles. DfI Rivers also inspected and maintained, as required, 88.51% of all designated urban open watercourses.
33. In September 2021, DfI Rivers awarded a £17m contract to Lagan Construction Limited, for the design and construction phase of the Belfast Tidal Flood Alleviation Scheme. The scheme has encountered some delays to the pre-construction stage. The principal aim of this scheme is to provide a long-term approach to tidal flood risk management for Belfast City Centre and the tidal River Lagan, from Belfast Lough to Stranmillis Weir. It is estimated that there are currently over 1,500 properties at risk of flooding within Belfast from a significant tidal event. Climate change predictions estimate this could rise to over 3,900 properties by 2080 and over 7,300 by 2117.

34. The Shimna River Flood Alleviation Scheme has been substantially completed. The Northern Ireland Flood Risk Management Plans identified Newcastle as being one of 20 Significant Flood Risk Areas in Northern Ireland. Newcastle has experienced flooding regularly over the last 40-50 years, most recently in August 2020. The scheme is designed to reduce flood risk from the Shimna River to 312 properties and involves the construction of over 1400m of flood defences at an estimated cost of £6.5m.

35. DfI Rivers is progressing its 10-year capital works programme for over 70 watercourse-related projects. This largely focuses on Strategic Flood Risk Assessments (SFRAs) identified in the Northern Ireland Flood Risk Management Plans, namely:

- Upstream flood storage is currently being considered for the Newry Flood Alleviation Scheme, which is at design stage;
- A review of the Omagh feasibility study commenced in January 2022 and is to consider any potential for upstream flood storage; and
- The Portadown Flood Alleviation Scheme is at design stage and progress to construction is currently programmed for early 2024.

36. A new DfI Rivers 10-year Asset Management Plan has been completed. DfI Rivers' Asset Management & Mapping Unit has a database of above and below ground assets that is used to manage and value the asset. DfI is currently in discussion with Land and Property Services with regard to the utilisation of modern data capture techniques such as aerial photography, satellite imagery and drone video footage, to better capture flood incidents and improve data recording.

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## FRMD Aim 5:

### Extreme Weather Events

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37. The Regional Community Resilience Group (RCRG) continues to deliver community resilience work across Northern Ireland, with DfI Rivers providing strategic leadership in this important area of work to manage flood risk. Community resilience developed under the guidance of DfI Rivers, is identified as one of the key measures to assist in the management of flood risk.

DfI Rivers has now helped to establish 35 Regional Community Resilience Groups, to help local communities prepare for, and respond to, weather-related emergencies, with initial engagement in a further four areas commenced. Regional Community Resilience Groups continue work on flood warning and informing activities and the River Level Alert network continues to be expanded as necessary.



# Environmental Protection and Improvement



PROTECTING AND ENHANCING  
THE WATER ENVIRONMENT IN A  
SUSTAINABLE MANNER

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## EP Aim 1:

### Sustainable Environmental Policy and Regulation.

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38. NIEA hosted its 2021 Water Framework Directive Statistics Report Webinar in December 2021, to update and engage with the public about the new classification result for our rivers, lakes, groundwater and coastal and transitional water bodies. The webinar discussed the changes to water classification, especially the inclusion of ubiquitous, persistent, bio accumulative, toxic (uPBT) substances. It also presented the updated classification results for Northern Ireland's water environment.
39. In October 2022, the DAERA Minister approved the final River Basin Management Plan (2021-27) including a Programmes of Measures. The plan, while still requiring Executive approval before it can be published, outlines the measures that will be undertaken to protect and improve our water over the next six years.

40. NI Water has commenced a pilot study in the Clay Lake drinking water catchment to ascertain the pollutant load and its impact on raw water intake. This approach may be rolled out to other drinking water catchments and could help to inform changes to farming practices which has the ability to lower drinking water treatment cost and also improve water quality across Northern Ireland.

The Shared Waters Enhancement & Loughs Legacy (SWELL) is a four-year, €35m project focused on the construction of new wastewater treatment works and upgrades to sewerage networks on both sides of the border to address wastewater pollution in Carlingford Lough and Lough Foyle. In 2021/2022, NI Water completed 4 sites within the SWELL project: Strabane WwTW (£3.69m), Donemana WwTW (£2.96m), Warrenpoint WwTW (£7m) and Newpoint WwPS (£3.7m).

## EP Aim 2:

### Sustainably Managing the Catchment to Improve Water Quality

41. DAERA established the Sustainable Catchment Project (SCP) to address cross cutting water quality issues in the Ballinderry, Dundrum Bay and Upper Bann catchments. The Rivers Trust acts as a facilitator and works at farm level. The SCP is delivering capital support for a variety of on-farm measures and interventions designed to improve and protect water quality in the prioritised river catchments.

These on-farm measures are identified and supported by a bespoke Water Environment Management Plan (WEMP) produced for each farm by Rivers Trust farm advisors. A total of 49 farms across the three catchments received funding during 2021-22. Capital investment of £1 m is being delivered in 2022-2023 and hoped that the SCP approach can in future be extended to other catchments with water quality issues.

42. DAERA's Environmental Farm Scheme (EFS) aims to deliver specific environmental measures in order to restore, preserve and enhance biodiversity; improve water quality; and foster carbon conservation and sequestration in agriculture. The EFS contains a 'Higher Level', which is aimed at environmentally designated land and priority habitats, and a 'Wider Level' which is aimed at the

wider countryside. Water quality measures are largely being delivered through the 'Wider Level' of EFS because it targets more intensively farmed land, where agricultural pressures on water quality are greatest. From January 2023, there are 3631 'Wider Level' agreements and 1362 'Higher Level' agreements, in place.

43. Uptake of water quality measures has been good, with 73% of 'Wider Level' agreements including at least one of the five specific water quality options. In total, through the first five tranches, some 2,546km of watercourses have been protected by fencing and 220km of riparian zones created. The water quality measures implemented through EFS will help to reduce nutrient inputs and sedimentation arising from farming activities. Therefore, they will contribute to the Executive's Draft Outcomes Framework.
44. DAERA's Forest Service supported a significantly increased area of 525 hectares of new privately-owned woodland in 2021/22 and planted an additional 15 hectares of Forest Service forest, supplying a wide range of ecosystem services, including flood mitigation.

45. A further 140 hectares of riparian native woodland water buffer was identified and attributed across the Forest Service estate in 2021-22, bringing the total to 205 hectares since the publication of the Long-Term Water Strategy in 2016. This riparian woodland is able to intercept surface water flow from areas at risk of contributing to diffuse pollution and have a positive influence on future water quality. Forest Service continues to review forest management plans and identify further opportunities to create new riparian woodland to enhance water quality and protect aquatic habitats. Conifers planted adjacent to watercourses are removed in the course of harvesting operations in line with Sustainable Wood Production Plans. These areas are converted to water buffers of open ground or broadleaved woodland that is either planted or allowed to regenerate naturally.

46. Looking forward, it will be important to ensure that government policy on woodland expansion to help mitigate climate change and deliver other ecosystem services, including enhancement of biodiversity, protection of the water environment and safeguarding of soil carbon, is incorporated into future agricultural and environmental policy development. Greater promotion of natural flood risk management techniques will also be important, where practicable.

47. In PC21, NI Water initiated a modelling programme to help derive catchment based solutions, to target the key sources of pollution including from the agricultural sector, which impact on water quality across Northern Ireland.

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### **EP Aim 3:**

#### **Effective and Efficient Wastewater Collection and Treatment**

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48. DAERA and NIEA are the environmental regulators of the water environment in Northern Ireland, implementing regulatory regimes for both water abstraction and discharges to the environment. NIEA continues to work with both NI Water and industry on improving compliance with Water Order Discharge Consents and Abstraction Impoundment Licenses.

49. Throughout 21/22, DAERA has been working in partnership with DfI, the Department of Health, the Public Health Agency, Queen's University Belfast and NI Water, to develop a province wide SARS-COV-2 wastewater surveillance programme. Executive funding of £3.8m was secured to expand the monitoring programme from an initial pilot project covering 2 WwTW sites.

An Environmental Monitoring Hub for Northern Ireland has been established at Queen's University,

which provides information on SARS-COV-2 wastewater trends across Northern Ireland within 24 hours of sampling and also uses advanced techniques and genome sequencing to detect variants of concern. During 2021/22, the monitoring network has progressively expanded up to 30 sites, with sampling three times per week, covering approximately 64% of the Northern Ireland population.

Funding has been secured to continue the wastewater surveillance programme in 2022/23 at a slightly reduced level of sampling frequency and covering 24 sites (60% population coverage). In addition, plans are being developed for the period up to 2025, with the intention that wastewater surveillance can be used as a tool to guide Public Health responses to a range of viruses, Antimicrobial Resistance (AMR) and other issues of concern.

50. NIEA has commenced a significant reform of water regulation, working across departments and industry, to carry out a root and branch review of water-related regulatory regimes. Governance structures are under development and major advances have been made throughout 2021/22, to deliver some of the principles of the reform set out below:

i. **Enabling Development:** Significant engagement has taken place with NI Water on finding solutions to enable development

in a constrained wastewater asset. A critical element of this is the consideration and development of a storm water off-set policy. The operational policy, where the environment allows, will put in place mechanisms for the removal of clean water from the sewer to create capacity in the network without detriment to the environment. The operational policy is now used by NI Water, to guide the decisions in Wastewater Impact Assessments, to help enable development in those areas of constraint;

ii. **Private Sewerage Reform:** NIEA is reforming the application process applied to private sewerage infrastructure in conjunction with NI Water. Throughout 2021/22, NIEA worked with NI Water to seek solutions for those housing developments which could not connect to a public sewer. Both the discharge consent application process and the NI Water article 161 adoption application are now aligned to how private sewerage infrastructure is designed, constructed and operated in a way which protects both public health and the environment. Reform of operational procedures across the private sewerage application process have been aligned to capture every opportunity to control any



risks to the environment and future homeowners;

iii. **NI Water Compliance**

**Assessment Reform:** NIEA and NI Water continue to work together on the reform of compliance assessment. Continued development of the necessary tools is needed, in particular the design of a new compliance assessment database, to include data relating to flow and priority substances, in addition to the current sanitary parameters; and

iv. **Reform of Consenting**

**Methodology:** Continued review and development of operational consenting procedures to deliver improvement to water quality. NI Water submitted the first outcomes of the pilot Integrated Ecosystem Model for the Dundrum catchment. The findings provided valuable evidence of the source of the water quality issues. NIEA has been working on changing the operational procedures to take account of this new evidence which will direct capital investment to those assets which are contributing the most to the water quality issues.

51. NI Water continues to pursue and consider sustainable treatment technologies and has commissioned a new site to utilise willow trees in the treatment process.

52. NI Water is continuing to install monitors on its combined sewer overflows / emergency overflow sites in PC21 and 52 monitors were installed in 2021/22.

53. NI Water has also focussed on Process Improvement work at WwTW sites and is in the process of trialling real time control / digital twin technologies at two sites, to establish process and energy efficiency benefits of these approaches. In the north coast area, NI Water is also trialling pump optimisation technology work, to balance the flows in the sewerage network so that the load arriving at the WwTW works is balanced, and peaks and troughs are avoided. If this trial is successful, it will lead to more balanced flow at the WwTW assisting in the treatment process, delivering energy efficiency benefits and will help avoid or defer capital intervention, helping to reduce energy consumption.

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## EP Aim 4:

### Maintain Sustainable Levels of Water in the Environment

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54. NIEA works with NI Water on the review of abstraction licences and these reviews are based on sound evidence and strong Habitat Regulation Assessments to protect the environment. An extensive monitoring programme has been put in place by NI Water, guided by NIEA, to gather the appropriate level of evidence required to review abstraction licences. NIEA continues to work with NI Water on the review of abstraction licences ensuring the protection of the environment whilst also meeting the need for drinking water supply.

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## EP Aim 5:

### Improving River and Coastal Water Morphology and Biodiversity

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55. DAERA leads the preparation of River Basin Management Plans for Northern Ireland. Current Plans identify key pressures originating from sewage-related and agricultural activities. Plans also identify existing and continuing measures, as well as new measures, to address and reduce the impacts of the key pressures affecting our water resources in Northern Ireland.

56. DfI and DAERA reconvened the Coastal Forum in June 2021. The Forum is the agreed mechanism through which members, including local councils, DfI, DAERA and the National Trust, work in partnership to progress coastal management issues. It most recently met in March 2022 and was co-chaired by senior officials within both Departments. This Forum meeting provided an update on recent research projects, including the Northern Ireland 3-Dimensional Coastal Survey, which was commissioned in November 2020 to deliver a detailed baseline survey for the entirety of the NI coast. All stakeholders remain committed to working collaboratively through the Coastal Forum in progressing coastal erosion & coastal management issues.

57. DAERA in conjunction with other devolved administrations, the Department for Environment, Food and Rural Affairs (DEFRA) and key water stakeholders, is reviewing the Programme of Measures in the Marine Strategy Part Three. There have been some delays, but DEFRA advises that the revised Programme of Measures is now planned for publication in 2023.

58. DAERA has also undertaken work to align the draft shellfish protocol with considerations included in marine policy documents. This has resulted in a revised aquaculture process map, which took into account the key policies of the Marine Plan and the Water Framework Regulations.

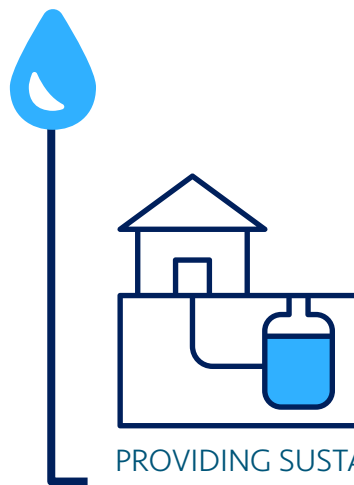
59. DAERA carried out the following in-channel and riparian fisheries habitat improvement works, which included:
- i. Moyola river - 200m restoration of habitat units, with associated re-grading of banks and reconnection with the flood plain to encourage repair of natural processes removed post-drainage scheme;
  - ii. River Bush - restoration of four spawning beds, including raking of gravel, removal of weed, and addition of 150 tonnes of spawning gravel;
  - iii. Agivey River - restoration of spawning beds, including addition of 60 tonnes of spawning gravel; and
  - iv. Ballinamallard River - two miles of channel improved with installation of habitat units incorporating the introduction of spawning and nursery substrate (approximately 4000 tonnes of material introduced). Four miles of riparian fencing incorporating mains water provision for excluded stock.
60. The INTERREG VA funded project continued in 2021 with works conducted across the Blackwater catchment including riparian and in-channel habitat improvement works.
61. Loughs Agency also carried out salmonid restoration works which have principally focused on erosion control, riparian fencing, instream works and riparian planting on the following rivers; River Derg, River Faughan, River Finn, Glenelly River, Drumragh River, Camowen River, Owenkillew River, Mournebeg River and River Roe.
62. DAERA prepared a discussion paper on a new Nature Recovery Strategy and shared this with stakeholders, to develop the thinking for co-design and development of a new Strategy. The Strategy will need to address the 23 international targets that were agreed at the United Nation's Convention on Biological Diversity (COP 15), which took place in December 2022. The new Strategy is anticipated to be launched for consultation in September 2023.







# Water and Sewerage Services



PROVIDING SUSTAINABLE WATER  
AND SEWERAGE SERVICES THAT MEET  
CUSTOMERS' NEEDS

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## WSS Aim 1:

Provide Efficient and Affordable Water and Sewerage Services

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63. NI Water's provision of water and sewerage services is overseen and monitored by the Northern Ireland Authority for Utility Regulation, which sets challenging targets for year-on-year efficiency improvements.

64. Despite the impact of COVID-19, over the 2021/22 year, NI Water met or exceeded planned delivery in all, but nine, of the 45 Key Outputs. These are summarised in the following table:

MEASURE	PROGRESS	OUTCOME
<p><b>DG2 - Properties at risk of low pressure removed from risk register by company action (number on the register)</b></p>	<p>The DG2 Register Refresh project was completed in July 2022, which even with the impact of COVID-19 delays, is well ahead of the original target of March 2023.</p>	<ul style="list-style-type: none"> <li>• 176 properties were removed by company action</li> <li>• Net increase of 1,313 properties on the register</li> <li>• To date in PC21, two work packages of DG2 schemes have been issued to NI Water’s Asset Delivery team for construction.</li> </ul>
<p><b>DG3 - Reduction in Supply Interruptions (&gt;3hrs, &gt;6hs, &gt;12hrs) - Overall Score</b></p>	<p>The PC21 Interruption to Supply (ITS Strategy) has continued to improve service and NI Water continues to invest in the renewal and replacement of watermains including SMART technology. Telemetry installed at water booster stations to help provide a quicker response to customers when an issue occurs.</p>	<p>DG3 overall performance score was 1.59. In July 2021, a burst on a pumped trunk main, close to Dunore WTW, caused 13,462 properties in the Antrim area to experience an unplanned interruption of greater than 3 hours. The burst occurred when NI Water was already managing a high demand incident. DG3 performance, excluding the impact from Dunore, has been excellent for 2021/22. The Dunore event had minimal impact on the &gt;6hrs and &gt;12hrs targets.</p>
<p><b>Net Promoter Score (NPS)</b></p>	<p>NI Water’s Net Promoter Score for 2021/22 was 32 against a target of 42.</p>	<p>A programme of work is continuing to improve NPS performance, although NI Water believes that the target of 42 is somewhat unrealistic and has, therefore, commenced discussions with the Utility Regulator, to raise the possibility of changing this target to a more realistic figure.</p>

MEASURE	PROGRESS	OUTCOME
<b>Impermeable surface water collection area removed</b>	<p>NI Water has acknowledged a slow to start to this programme, with only 1,200m<sup>2</sup> of impermeable surface water removed from the combined sewerage system in 2021/22, against an annual target of 364,540m<sup>2</sup>. This has been due to the ongoing analysis, aimed at determining the best methodology, to inform future schemes.</p>	<p>NI Water aims to identify the best methodology later this year, to enable a greater rollout of schemes, to help meet the PC21 target.</p>
<b>Watermains</b>	<p>The cumulative length of Watermains Rehabilitation pipelines completed by NI Water in 2021/22 was 101.62km.</p>	<p>The PC21 Target is 838km, which equates to an average output of 139.667km per year. The 101.62km is lower than the average annual target and this is due to a number of factors including: availability of resources due to the draw from other utilities such as Gas, Telecoms and Irish Water, increases in material costs and more work focused in urban areas, which is generally slower to complete.</p>
<b>Unsatisfactory Intermittent Discharges (UID)</b>	<p>Four UID improvement schemes were delivered in 2021/22, against a target of eight.</p> <p>Stricklands Glen WwPS (Bangor) was delayed because the council requested a planning application for the pumping main. Whilst planning permission for pumping stations is normal, permission for pipelines and pumping mains is not. Beneficial use is now forecast for 2022/23.</p>	<p>The 4 remaining UIDs not delivered in 2021/22, are now profiled for delivery in 2022/23.</p>

MEASURE	PROGRESS	OUTCOME
<p><b>Small Wastewater Treatment Works (WwTWs)</b></p>	<p>Two small rural WwTW schemes completed in 2021/22 against a target of 6. A third scheme was constructed, but it has not yet achieved the level of performance defined for 'beneficial use'. The addition of chemical dosing, to address an alkalinity problem, now appears necessary.</p>	<p>The remaining small WwTWs for delivery within 2021/22 were delayed due to longer than usual timescales for the manufacture of the Rotating Biological Contactor units. The manufacturer advised that production was impacted by workforce availability during the COVID-19 Pandemic.</p> <p>The PC21 Final Determination Target for Rural Wastewater Improvement Programme outputs in each year is 6, with a total of 36 sites to be delivered in the PC period (2021-27). NI Water still intends to deliver the full 36 sites, although, it is to be noted that the numbers to be delivered may be spread over 2022/23-2026/27 as opposed to attempting to deliver 10 in 2022/23.</p>
<p><b>Combined Sewer Overflows (CSOs) and Emergency Overflow (EOs) event and duration monitoring equipment</b></p>	<p>NI Water delivered 52 event and duration monitors (EDMs) at CSOs in 2021/22.</p> <p>NI Water did not deliver any EDMs at WwTW as they continue to work with NIEA to establish the method of measurement of flow at treatment works, which may require a combination of flow meters and EDMs.</p>	<p>This programme of work has been identified as a PC21 'development output' due to the significant amount of further investigation required to confirm the priority, scope and scale of monitoring required, including interaction with drainage area plan models, which are currently under development.</p>
<p><b>Serious Development Restrictions (SDRs) removed</b></p>	<p>Whilst a target to have 4 SDRs removed in year 1 has not been achieved the projects are under construction and beneficial use is expected in 2022/23.</p>	<p>Target not achieved in year 1.</p>

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## WSS Aim 2:

### Provide High Quality Services to All Water and Sewerage Customers

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65. NI Water has introduced sewer risk modelling and capacity mapping, to complement work on the register of properties at risk of internal (DG5) and external flooding. NI Water removed three properties from the DG5 register in 2021/22.
66. NI Water has implemented key initiatives from its Interruption to Supply (ITS) strategy, such as post interruption reviews to establish key learnings, utilising water tankers in response to interruption to supply evens and engaging extensively with internal and external stakeholders. These measures have reduced lost minutes per property for NI Water customers by over 60%.
67. Throughout 2021/22, NI Water's education team have been proactive in influencing consumer behaviour through effective education and community campaigns. They have successfully increased awareness of the need for water conservation and more environmental friendly lifestyle choices. Some of these educational campaigns have promoted and prioritised NI Water's key messages such as the importance of preparing for winter, water efficiency, bag it and bin it (preventing pollution), customer care and reducing single use plastic.

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## WSS Aim 3:

### Providing High Quality Customer Service and Customer Information

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68. NI Water continues to make efficiencies through its ambitious Achieving Customer Excellence programme. Part of this programme involves an extensive data quality project to improve the overall accuracy of the information held on NI Water's corporate systems relating to various customer accounts.  
  
NI Water has deployed a modern meter data management system to collect and record meter readings on site and return to the corporate billing system in real-time with an out-turn success rate for 2021/22 of 99.66%. NI Water has now installed over 5,000 Automatic Meter Reading (AMR) meters, which will reduce the likelihood of manual error/meter misread and increase the accuracy of billing.
69. In 2021/22, the number of written complaints received by NI Water was 1954, 100% of which were responded to within the target of 10 days.
70. NI Water's volume of unwanted telephone contacts was also below the 67,000 target for 2021/22, at 66,064. This is NI Water's best ever unwanted telephone contacts performance.



71. During 2021/22, NI Water achieved the target of first point of contact resolution by resolving 84% of issues at the first time of contact. Future improvement on current performance levels is likely to require capital investment in the water and sewerage infrastructure. (Note: There was a change in reporting methodology for PC21, hence the change in target from 20/21).

72. NI Water's Net Promoter Score (NPS), which is a globally recognised measure of customer advocacy, was measured through daily customer surveys, following an interaction. The NPS score can range from -100 to 100. In 2021/22, NI Water's NPS score was well within the good range at 32, however was below the target of 42 set for PC21. A programme of work is continuing to improve NPS performance and discussions have commencing with the Utility Regulator, regarding the possibility of changing this target to a more realistic figure.

73. NI Water's digital solutions, Web Self-Service and Interactive Voice Response, are now well established for several services, e.g. 33% of customers use a digital channel to make bill payments and 68% of customers request a septic tank de-sludge digitally. NI Water continues to encourage and promote the use of self-serve with its customers and

aims to launch a new digital service in 2022/23 for new connections, adoption agreements and trade effluent, further improving options for customers and removing calls from its contact centre.

74. NI Water has a number of Headline Performance Indicators (HPIs) which are linked to the company's overall Strategic Priorities. NI Water has met, or exceeded, planned delivery in all but one (the NPS discussed above) of the 12 indicators.

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#### **WSS Aim 4:**

##### **Provide Resilient and Secure Water and Sewerage Service**

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75. NI Water's Water Resource & Supply Resilience Plan was published in June 2020 and the technical guidance for the preparation of the next plan was issued to NI Water on 14 May 2021. The next plan will have a greater focus on sustainability, biodiversity and carbon, considering e.g. groundwater sources.

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## WSS Aim 5:

### Utilises its Estate to Promote Recreation, Biodiversity and Cultural Heritage

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76. NI Water's ambition to plant 1 million trees by 2030 started in February 2021 with planting of 16,000 native trees at Fofanny Dam in the Mourne. A further 8,000 trees were subsequently planted in the area by 2022. Future plans for 2023 include a native woodland planting programme at Annalong Valley and in the Stoneyford catchment. As the second biggest landowner in Northern Ireland, after DAERA Forest Service, NI Water is committed to delivering this planting programme across its 11,300 hectares of land.
77. During PC15, NI Water completed restoration work on the Mourne Wall at a total cost of £1.6m. NI Water will continue to maintain the Mourne Wall throughout PC21 at a cost of £2.4m. In addition, NI Water has improved facilities at a number of its sites such as Silent Valley and its Heritage Wastewater Centre, Belfast. Increased visitors numbers, particularly since the COVID-19 lockdown, has highlighted the value of Silent Valley to the wider community in Northern Ireland.
78. Building on the existing partnerships developed under INTERREG VA Programme (2014-2020), the Department, alongside the Department for Housing, Local Government and Heritage (DHLGH) are continuing to work with NI Water and Irish Water on two potential projects under the Special EU Programmes Body (SEUPB) PEACE PLUS Programme. These projects are: (1) SWELL2 and (2) a drinking water quality project, which fall under Theme 5 of the programme, "Supporting a Sustainable Future". They aim to protect and improve water quality of shared loughs, rivers and lakes, host educational and stakeholder engagement events and engage with farmers on sustainable water management techniques. These funding streams, under Theme 5 of the Programme, are unlikely to be launched until late 2023 and, if successful, these PEACE PLUS projects will build upon related work and the collaborative working, under INTERREG funding for the "SWELL" and "Source to Tap" projects.



**Mourne Wall  
Restoration Project**  
northern ireland  
water  
Delivering what matters

# Conclusion

79. This sixth Annual Report on Sustainable Water - A Long-Term Water Strategy highlights the continued progress stakeholders are making to improve our water environment. Going forward it will be important to ensure that the Strategy aligns with new and emerging strategies, including green growth and Northern Ireland's response to the Climate Change Act, while ensuring that the actions in the Strategy continue to facilitate wider economic development and decarbonisation objectives.

80. In addition, the pandemic has reinforced the vital role that water plays in protecting the health and wellbeing of our citizens, and this has underlined the need to manage our water resource in a more sustainable way, to help ensure that there is sufficient water available to meet the future demands of the population.