

Chapter 6

Objective:

Protect and Enhance the Environment



Our Strategic Aims

- Ensure that Irish Water services are delivered in a sustainable manner which contributes to the protection of the environment.
- Operate our water services infrastructure in a manner that supports the achievement of water body objectives under the Water Framework Directive.
- Manage all our residual waste in a sustainable manner.

Introduction

Protecting and improving the future, long term quality of the water environment is fundamental to providing safe water services and for the protection of human health and biodiversity. The water environment is inextricably linked to the wider environment and it is important to consider protection of the environment in a holistic way. Irish Water protects the water environment in its role in delivering water services, but also the broader environment in terms of the impacts of our activities, for example in our use of energy and our carbon footprint.

An enhanced water environment results in a reduced requirement for water treatment and supports recreational activities, biodiversity, tourism and the natural character of our countryside.

The need to protect and improve the water environment and the environment generally has been recognised in a number of European Directives that afford special protection to identified areas that are important for drinking water supply, nature conservation, bathing and fisheries. Examples include the Birds Directive, Habitats Directive, Bathing Water Directive and the Water Framework Directive (WFD). The WFD is the overarching Directive within which all matters impacting the water environment are managed.

This chapter will consider the implementation of sustainable strategies and measures to support our objectives in protecting and enhancing the environment.

Water Framework Directive

The Water Framework Directive (WFD) establishes a catchment based approach to the protection, improvement and sustainable use of rivers, lakes, transitional waters (estuaries), coastal waters and groundwater. It adopts the 'polluter pays' principle and will, over time, integrate the requirements of a number of existing directives for the protection of the water environment. It seeks to develop a holistic approach to sustainable water use, balancing social and economic factors with the need to protect and improve our water environment.

The WFD is implemented through river basin management plans which assess the current status of our inland and coastal water bodies (known as characterisation and classification). Where the status of a water body is less than Good (for example from pollution or over-abstraction), remedial actions or measures must be proposed and implemented to achieve the objectives set for each water body. Collectively, these are known as programmes of measures. The river basin management plans are currently being updated and will be published in 2017.

The Current Situation

The current State of the Environment Report published by the EPA (2012) reports that 29% of rivers and canals and 53% of lakes were not Good or High status under the WFD and therefore required improvement. The recent trend in river water quality indicates an overall increase in the length of river channel which is slightly polluted which is mainly due to eutrophication (over-enrichment of nutrients resulting from agriculture and other land use). However, the number of seriously polluted river sites has decreased significantly since monitoring began, reflecting investment in basic wastewater treatment and improved environmental management of agriculture and other land use activities. The number of High status water bodies with sensitive and rare ecology like the Freshwater Pearl Mussel has declined in recent years and site specific, targeted work is required to remediate these and prevent further loss.

Groundwater is faring better with 85% of groundwater bodies being at good status. The principal reasons for failing groundwater bodies resulted from nutrient loading resulting from agricultural practices. A small number of water bodies failed due to site specific contamination from historical mining or other sources. There has been a general reduction in nitrate concentration in groundwater since monitoring commenced, attributed to reductions in the use of inorganic fertilisers and restrictions on land spreading in agriculture.

The EPA is responsible for licensing wastewater discharges from treatment plants for large towns, and for certification of discharges from treatment plants for smaller agglomerations (under 500 Population Equivalent). Currently, water abstractions are not licenced or regulated by the EPA. Compliance with wastewater discharge licences and certificates will continue to drive improvements in treatment and water quality. The current status of wastewater compliance is outlined in Chapter 5 (Provide Effective Management of Wastewater).

Irish Water is a high energy user with an annual cost estimated at €60M. In general, energy efficiency has not been a primary consideration in the construction and operation of water and wastewater treatment infrastructure in the past.



What our Customers can Expect from Us

Our Customers should expect that in the future, following a period of sustained increased investment, all of our operations will meet their statutory compliance requirements, in particular our wastewater discharges. We will work closely with our environmental regulator, the EPA, and other environmental stakeholders and the general public to participate fully in the process of developing river basin management plans and the associated programmes of measures in the implementation of the WFD in Ireland.

Key Challenges

A balance needs to be struck between our activities that impact on the environment and the ability of the environment to sustain these impacts over both the short and longer terms. Meeting the requirements of the WFD programmes of measures with regard to the sustainability of our abstractions, discharge licences and input to catchment management planning will be a significant challenge to our new organisation.

There are risks to water ecosystems outside our control from invasive alien species and from climate change which need to be considered in the future planning of our infrastructure.

With water and wastewater services delivered across 34 local authorities there was previously no national sustainability policy or guidance on operations. Each local authority had its own policy with regard to works design and procurement. Irish Water will develop national sustainability and green procurement strategies for the sector.

With an ageing infrastructure, meeting our obligations for energy efficiency will require significant investment, in both the upgrade and replacement of inefficient systems whilst ensuring the best whole life options are selected for new capital investments.

The provision of water and wastewater services generates a significant volume of both water and wastewater sludge which is dispersed around the many water and wastewater treatment plants and other sites we operate. Effective and safe management of this sludge, utilising its potential for energy generation or reuse where feasible, is a key challenge.

Objectives and Strategies

The proposed strategies to achieve this objective of protecting and enhancing the environment are summarised in the table below and are detailed in the remaining sections of this chapter.

Strategy		Purpose
Aim EN1 – Ensure that Irish Water services are delivered in a sustainable manner which contributes to the protection of the environment		
EN1a	Implement a Sustainability Policy and Sustainability Framework	To ensure that Irish Water services are delivered in a sustainable manner balancing the need to support the social and economic development of the country with the need to protect water resources and the water environment.
EN1b	Prepare and implement a Sustainable Energy Strategy.	To meet our obligations under the National Energy Efficiency Plan (2009-20).
EN1c	Prepare and implement a Climate Change Adaptation and Mitigation Strategy.	To support national objectives for climate change mitigation and to meet our obligations under the National Climate Change Adaptation Framework to ensure the resilience and sustainability of water services.
EN1d	Adopt a Green Procurement Approach and drive efficient use of all our resources.	To ensure that we utilise resources efficiently in our management of water and wastewater services.
EN1e	Adhere to environmental and planning legislation when planning and developing water services assets.	To ensure that all future Irish Water infrastructure meets national planning and environmental legislation and to protect sites of natural and cultural importance.



Strategy	Purpose
<p>Aim EN2 - Operate our water services infrastructure in a manner that supports the achievement of water body objectives under the Water Framework Directive</p>	
<p>EN2a</p>	<p>Work effectively with other stakeholders to support a catchment based approach.</p> <p>To contribute to the achievement of water body objectives under the Water Framework Directive.</p>
<p>EN2b</p>	<p>Manage the operation of our water and wastewater infrastructure towards the achievement of water body objectives.</p> <p>To ensure that the operation of our water and wastewater infrastructure assists the achievement of water body objectives under the WFD.</p>
<p>Aim EN3 – Manage all our Residual Waste in a Sustainable Manner</p>	
<p>EN3a</p>	<p>Develop and implement a Corporate Waste Management Strategy.</p> <p>To ensure Irish Water meets its corporate sustainability responsibilities.</p>
<p>EN3b</p>	<p>Develop and implement a National Wastewater Sludge Management Plan.</p> <p>To reduce the environmental impacts from wastewater treatment by re-use and renewable energy generation, where feasible.</p>
<p>EN3c</p>	<p>Develop and implement a National Water Sludge Management Plan.</p> <p>To reduce the environmental impacts from water treatment processes.</p>

EN1: ENSURE THAT IRISH WATER SERVICES ARE DELIVERED IN A SUSTAINABLE MANNER WHICH CONTRIBUTES TO THE PROTECTION OF THE ENVIRONMENT.

[EN1a] Implement a Sustainability Policy and Sustainability Framework

Water services face a range of environmental challenges from changing climate and extreme weather events, escalating energy costs and the impacts of demands of other stakeholders on water resources. It is important that Irish Water implements all of its operations in a way that enables long term sustainability.

Irish Water will prepare and implement a Sustainability Policy and a Framework to support the policy. These documents will represent our long term commitment to protecting and enhancing of the environment. The eight key framework components are Resource Efficiency, Climate Change, Habitats & Wildlife, Equity & Economic Development, Health, Amenity, Social Impact and Culture & Heritage. Our commitments under each of these headings will be established and documented. We aim to continually improve our environmental performance and will ensure that its requirements are communicated to all our employees and those working on our behalf.

[EN1b] Prepare and implement a Sustainable Energy Strategy

The National Energy Efficiency Action Plan (NEEAP) is the Government policy setting out plans and actions to achieve energy efficiency savings across the economy. The action plan was updated in 2014 (NEEAP3) to take account of the Communication from the European Commission setting out its ambition for a 2030 Climate and Energy Policy Framework. The Commission's proposals for 2030 include a reduction in greenhouse gas emissions (GHG) by 40% below the 1990 level, an EU-wide binding target for renewable energy of at least 27% and renewed ambitions for energy efficiency policies. The review of the Energy Efficiency Directive, published in July 2014, calls for an efficiency target of 30% in 2030.

Irish Water is the largest single public user of electricity in Ireland. Our sustainable energy strategy will document how Irish Water will achieve energy efficiency through the use of technologies and initiatives designed to improve energy efficiency and use of renewable energy sources where appropriate and economically viable. We intend to target asset investment and operational changes to meet targets for energy use, consumption and efficiency.

Irish Water's target is an improvement in energy efficiency by 33% by 2020 from the 2009 baseline. Irish Water has entered into an energy partnership with SEAI to avail of their support, resources and expertise in meeting this target.

[EN1c] Prepare and implement a Climate Change Adaptation and Mitigation Strategy

Climate change impacts in Ireland are expected to include more intense rainfall events as well as periods of increased drought along with a rise in sea level. These events will impact on water services through increased risk of sewer flooding, possible inundation of treatment plants and other assets; deterioration in water quality in our rivers and lower dry weather river flows reducing the water available for abstraction or for diluting treated effluent.

Adapting to climate change will require careful planning, preparation, investment and management. Our strategy will address the vulnerability of water services to climate change events and identify actions to modify our infrastructure or operations. This could include, for example, the relocation of abstractions to larger more sustainable water sources, the blending of multiple sources and the implementation of flood protection measures.

[EN1d] Adopt a green procurement approach and drive efficient use of all of our resources.

We will implement a 'green procurement' approach and seek to reduce and remove wastage in our investment and operations decisions. We will work with the Sustainable Energy Authority of Ireland (SEAI) to ensure all goods and services are procured in accordance with the Green Procurement Guidelines. We will adopt a low carbon approach and consider the whole life carbon cost of all new investments. We will implement annual reporting of the actions being taken to improve energy efficiency.

Irish Water will optimise use of chemicals in our treatment processes and review the use of chemicals that have the potential to impact negatively on the environment. We will strive to support the purchase of energy-efficient products and services, where possible and applicable. We will ensure that significant new capital projects are designed and optimised for energy performance as far as possible.

[EN1e] Adhere to environmental and planning legislation when planning and developing water services assets.

All Irish Water projects follow a systematic process to determine the appropriate strategy, option, design and method of implementation prior to construction and operation of new assets. This approach includes extensive consultation, where appropriate, with relevant planning authorities (local authorities, regional planning agencies, An Bord Pleanála) and our regulators (the Commission for Energy Regulation and the Environmental Protection Agency) in addition to key stakeholders such as Government departments, non-governmental organisations, special interest groups and the general public.

All our projects are designed and developed in accordance with planning guidelines and environmental regulations from the outset. We will comply with the statutory processes relevant to our programmes and projects, including Strategic Environmental Assessment (SEA), Environmental Impact Assessment (EIA) and Appropriate Assessment (AA) under the Habitat's Directive.

EN2: OPERATE OUR WATER SERVICES INFRASTRUCTURE IN A MANNER THAT SUPPORTS THE ACHIEVEMENT OF WATER BODY OBJECTIVES UNDER THE WATER FRAMEWORK DIRECTIVE.

[EN2a] Work effectively with other stakeholders to support a catchment based approach.

We will participate in river basin management planning at a national and river basin level for the development and implementation of programmes of measures in relation to water services in support of the WFD. We consider that each programme of measures should be proportionate to each sector, based on the polluter pays principle, and planned over a timescale which is affordable.

We will work with the EPA and other relevant stakeholders to identify 'on-the-ground' measures to be implemented. Our approach will focus on holistic solutions for the management of the catchment which will consider impacts from all catchment land uses including water services, tourism, agriculture and industry.

We will develop, collaboratively where feasible, catchment based assessments of receiving waters, identifying the impact of our operations and other impacts on water status and assess the environmental benefit of options available to us.

[EN2b] Manage the operation of our water and wastewater infrastructure towards the achievement of water body objectives.

Delivery of water services, particularly the abstraction of water for supply and discharges from our wastewater and water treatment plants, directly interact with the water environment, which the Water Framework Directive (WFD) seeks to protect and enhance. We will target investment to meet the agreed Programmes of Measures related to treated effluent discharges set for specific water body objectives under the WFD, prioritising the greatest environmental benefit from the funding available.

We intend that our water abstractions will be managed sustainably to minimise impact on water body status or use by other stakeholders (for example, maintaining minimum environmental and navigation flows).

We will work towards meeting the requirements of the Priority Substances Directive which sets environmental quality standards (EQS) for the specified substances (i.e. pollutant chemicals) in surface waters (river, lake, transitional and coastal) and will include for targeted monitoring and compliance (where applicable) in our detailed plans and programmes. We will, where appropriate, regulate the discharge of such priority substances under our trade effluent licences.

EN3: MANAGE ALL OUR RESIDUAL WASTE IN A SUSTAINABLE MANNER

[EN3a] Develop and implement a Corporate Waste Management Strategy.

Irish Water will develop and implement a Corporate Waste Management Policy and Plan as part of the resource efficiency element of our Sustainability Framework [Strategy EN1a].

We will manage waste generation and waste streams within the organisation to promote reduction, reuse and recycling of materials. Our plans will propose suitable transportation and disposal routes for waste and require annual reporting of the waste generated and recycled onsite with ongoing targets for reduction.

[EN3b] Develop and implement a National Wastewater Sludge Management Plan.

The wastewater treatment process generates sludges which require further treatment prior to re-use or disposal. There is a deficit of sludge management facilities nationally and additional facilities are required to manage wastewater sludge.

We aim to treat all wastewater sludges to meet the requirements of the DECLG Code of Practice for re-use where possible as fertilizer and soil conditioner. This requires a stable pasteurised product, complying with chemical standards for safe use in agriculture or equivalent use.

Transport and re-use/disposal of all wastewater sludges will be managed by Irish Water to ensure compliance with our standards for treatment and disposal by registered Contractors with full traceability. Re-use in agriculture or forestry will be managed in accordance with Nutrient Management Plans to ensure compliance with nitrogen and phosphorus controls.

Irish Water will work with industry to develop alternatives for the beneficial re-use of wastewater sludge and the possible recovery of energy and/or constituents in a sustainable and economically viable manner. Anaerobic digestion plants reduce the organic solids and create biogas which can be used to generate electricity for use in the treatment plant or for sale to the electricity grid. These will be developed where feasible and economically viable

[EN3c] Develop and implement a National Water Sludge Management Plan.

Sludges are also generated from the water treatment process through the removal of colour and fine sediments from the abstracted water using chemicals. These sludges contain aluminium, ferric salts or other chemical residues from the purification process and require dewatering prior to disposal. To date the sludges have limited re-use and have principally been disposed at landfill.

Irish Water will work with industry to develop alternatives for the beneficial re-use of water treatment residual sludge and the possible recovery of constituents in a sustainable and economically viable manner. Landfill disposal will continue to play a major role in managing these sludges. We will ensure that transport and disposal of these wastes are carried out in compliance with waste legislation and with least environmental impact.

Indicators and Targets

Indicators and targets for Irish Water to protect and enhance the environment are presented in the table below.

Strategic Objective	PROTECT AND ENHANCE THE ENVIRONMENT			
	Definition	Current Baseline (Based on Current Knowledge)	End of 2021 Target	2040 Target
AIM EN1	Ensure that Irish Water services are delivered in a sustainable manner that contributes to the protection of the environment			
Water and Wastewater Residual Sludge Disposal	% compliance of treatment and disposal of sludges with Irish Standards	 96%	 99%	 100%
Energy Efficiency	% increase in overall energy efficiency at Irish Water facilities	 2009 Baseline	 33% energy efficiency improvement over baseline by (2020)	 Meet relevant targets that will be established by national energy policy
AIM EN2	Operate our water services infrastructure in a manner that supports the achievement of water body objectives under the WFD			
Waste Water Compliance	Aim WW1 target			
Sustainable Water Supply	Aim WS3 Target: Reduced leakage of treated water supply. Implement National Water Resources Plan.			

