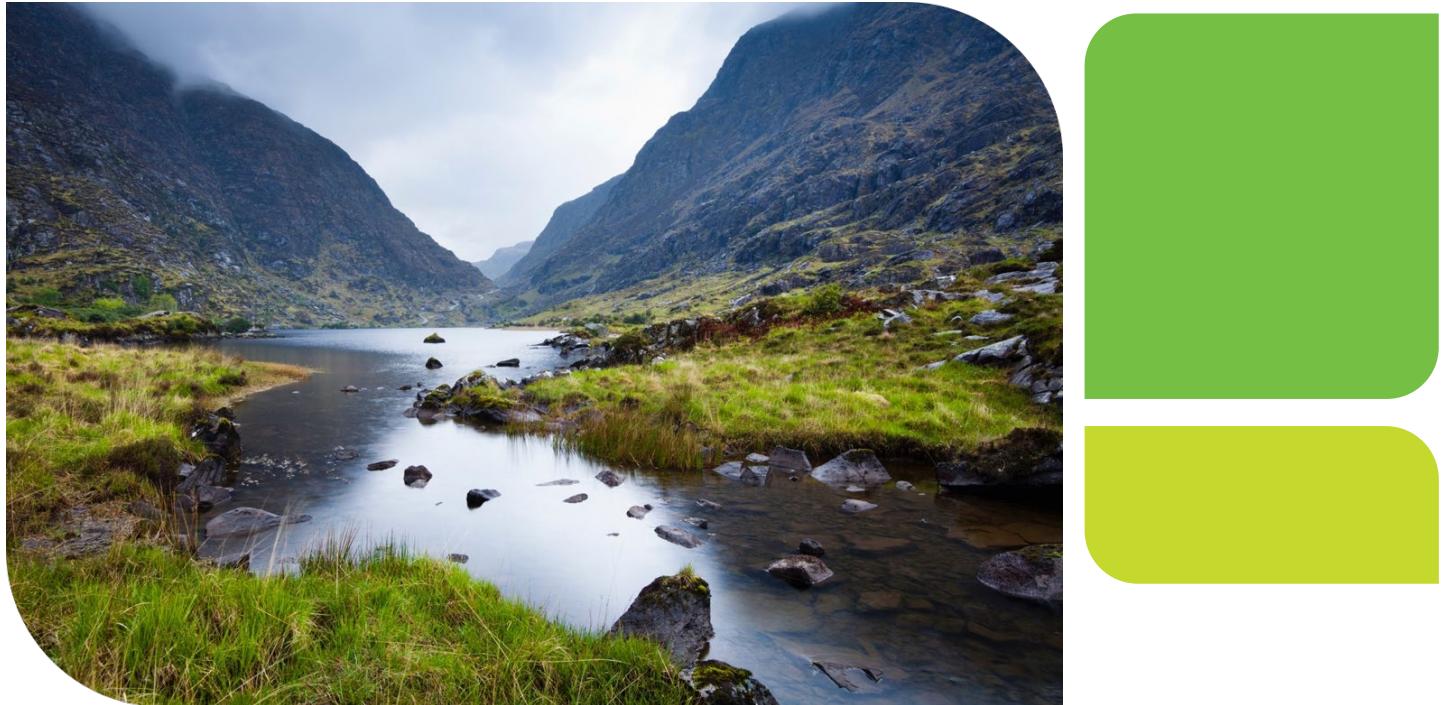


Regional Water Resources Plan: South East

Strategic Environmental Assessment

Scoping Report



Tionscadal Éireann
Project Ireland
2040

Data disclaimer: This document uses best available data at time of writing. Some sources may have been updated in the interim period. As data relating to population forecasts and trends are based on information gathered before the Covid-19 pandemic, monitoring and feedback will be used to capture any updates. The National Water Resources Plan will also align to relevant updates in applicable policy.

Baseline data included in the draft RWRP-SE has been incorporated from numerous sources including but not limited to; National Planning Framework, Central Statistics Office, Regional Spatial and Economic Strategies, Local Authority data sets, Regional Assembly data sets and Irish Water data sets. Data sources will be detailed in the relevant sections of the draft RWRP-SE. 2019 was selected as the base year to align with the planning period (2019-2025) of the NWRP.

© Copyright 2021 Jacobs Engineering Ireland Limited. The concepts and information contained in this document are the property of Jacobs. Use or copying of this document in whole or in part without the written permission of Jacobs constitutes an infringement of copyright.

Limitation: This report has been prepared on behalf of, and for the exclusive use of Jacobs' Client (Irish Water), and is subject to, and issued in accordance with, the provisions of the contract between Jacobs and the Client. Jacobs accepts no liability or responsibility whatsoever for, or in respect of, any use of, or reliance upon, this report by any third party.

Table of Contents

1	Introduction and Background	2
1.1	Introduction	2
1.2	Background to the National Water Resources Plan (NWRP)	2
1.3	Strategic Environmental Assessment	9
1.4	Consultation.....	15
2	Review of Relevant Plans, Policies and Programmes	18
3	Baseline Environment	22
3.1	Scope of the assessment.....	22
3.2	High level environmental trends in the South East region and across Ireland	23
3.3	Population, Economy, Tourism and Recreation, and Human Health.....	24
3.4	Water Environment.....	29
3.5	Biodiversity, Flora and Fauna	35
3.6	Material Assets	37
3.7	Landscape and Visual Amenity	37
3.8	Air Quality and Noise.....	38
3.9	Climate Change.....	38
3.10	Cultural Heritage.....	41
3.11	Geology and Soils	42
3.12	Baseline Topic Interactions, Issues and Opportunities	45
4	Proposed Scope of Assessment and Methodology	48
4.1	Scope of Assessment.....	48
4.2	Proposed SEA Objectives.....	50
4.3	Assessment Approach	51
4.4	Structure of the Environmental Report.....	57
4.5	Limitations and Assumptions for the SEA.....	57
5	Next Steps	60
	Glossary	61
	References.....	64
	Appendix A Figures	68
	Appendix B Policy, Plan and Programme Review.....	B-70
	Appendix C SEA Screening Statement.....	C-77

1

Introduction and Background

This Section includes:

- An introduction to the need for the National Water Resources Plan (NWRP), and the plan for delivery of the NWRP
- An introduction to the South East (SE) region that this Regional Plan covers
- Background to the Strategic Environmental Assessment (SEA) process and how it is integrated with delivery of the Regional Plan and the NWRP

Scoping question: Do you have any suggestions that you would like Irish Water to consider in the preparation of the South East Regional Plan?

1 Introduction and Background

1.1 Introduction

On the 1st of January 2014, through the Water Services Act (No. 1) 2013 (as amended 2017), Irish Water assumed statutory responsibility for the provision of public water services and management of water and wastewater investment. Irish Water's role is to provide public water and wastewater services throughout the country. They are the custodian with the responsibility to manage the precious water resources and, with Local Authority partners, secure it for future generations. It is their responsibility to ensure that all their customers receive a safe and secure supply of drinking water and have their wastewater collected, appropriately treated and returned to the environment. Irish Water support Ireland's social and economic growth in a sustainable manner through appropriate investment in water services and protect the environment in all their activities.

Effective water services, including the delivery of a sustainable and reliable clean water supply and safe disposal of wastewater, are essential for a modern country. Being able to understand and estimate how much water is required, where it is required, and the variability of requirements over the course of the year or over time, is essential to plan appropriately for the future of the public water supply.

1.2 Background to the National Water Resources Plan (NWRP)

1.2.1 Water Resource Planning

A Water Resources Plan is a strategic plan used to identify deficiencies and need across a water supply and to develop plan level capital and operational solutions to address these issues.

Irish Water's National Water Resources Plan (NWRP) will be the first resources plan for the public water supply in the Republic of Ireland. It will allow Irish Water to integrate Government Policy, Legislation and external factors that have the potential to impact their water supplies into the planning and operation of their existing and future supply asset base.

The objective of the NWRP is to manage customer and communities' needs while meeting their requirements over the short, medium and long term by ensuring safe, secure, sustainable and reliable water supplies. The NWRP will:

- Enable Irish Water to address needs across their water supplies in the most effective way over time through the regulated investment cycles proposed as part of the NWRP;
- Ensure that there is a transparent framework to develop the most appropriate projects/programmes to meet statutory obligations in relation to water supply; and
- Provide a framework to track outcomes, allowing interventions to be prioritised to bring the water supply up to the required standards in the shortest possible timeframe.

Water Resources Plans are reviewed on a cyclical basis to take account of new information, data, policies and laws and are usually updated every 5 years. Irish Water know things will change over the next 25 years so within the NWRP they have considered a range of possible futures, some more challenging than others. This approach is called adaptive planning, and means Irish Water are ready and flexible whatever the future holds.

A glossary of technical terms used is included at the end of the document.

1.2.2 Delivery of the NWRP

Due to the scale of the NWRP, which covers an entire country, it will be delivered in two stages:

- **Phase 1: Framework Plan:** a description of the options assessment methodology Irish Water proposes to use for water resource planning, and assessment of need across Irish Water asset base in terms of quality, quantity, reliability and sustainability; and
- **Phase 2: Regional Water Resource Plans (RWRPs)** for the four regional group areas shown in Figure 1.1 below. The Regional Plans apply the options assessment methodology presented in the Framework Plan to the national water supply and develop a programme of preferred short, medium- and long-term solutions and/or groups of solutions to address identified needs for each area of the supply network.

The RWRPs are referred to as follows:

- Regional Water Resources Plan: North West (Group Area 1);
- Regional Water Resources Plan: South West (Group Area 2);
- Regional Water Resources Plan: South East (Group Area 3); and
- Regional Water Resources Plan: Eastern and Midlands (Group Area 4).

Phase 1 of the NWRP is now complete. The Framework Plan and accompanying SEA Environmental Report and Natura Impact Statement (NIS) were adopted in May 2021 following a period of public consultation and update. These documents are available to view on our website at the following location: www.water.ie/nwfp.

The regional groups reflect Irish Water's operational regions and water supply boundaries, with modifications to account for river catchments, as delineated by the EPA in the RBMP. For the purposes of preparing the RWRPs, each regional area has been subdivided into Study Areas (SAs) to assist in the identification of both need and solutions, with all of the SAs to be considered holistically in each RWRP. The SA boundaries comprise clusters of WRZs and are based on Water Framework Directive (WFD) catchments and WRZ location and type (urban and rural). This enables a coordinated approach to developing solutions to meet water quantity and quality deficits and facilitates consideration of WFD impacts.

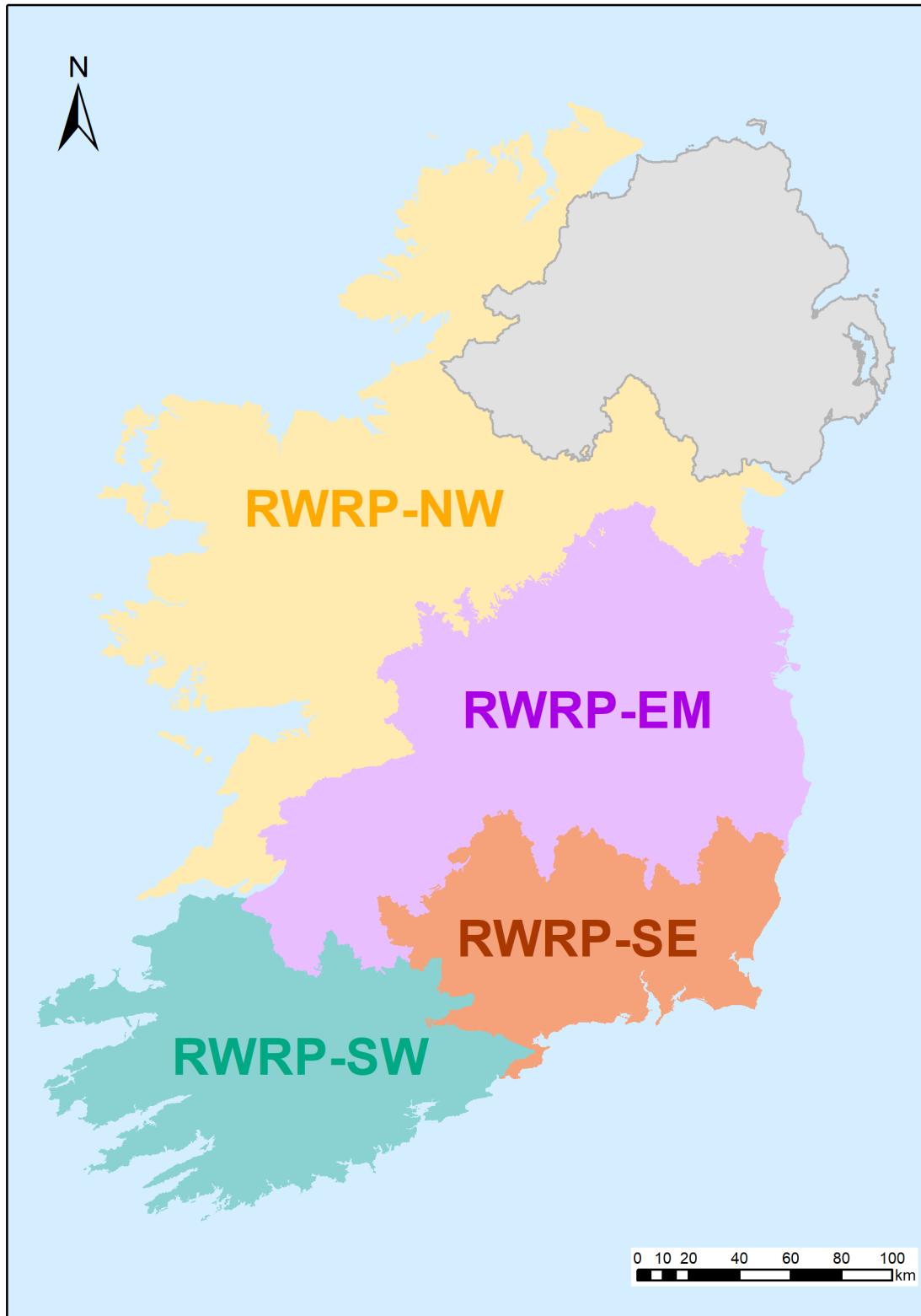


Figure 1.1 Regional Group Areas for roll-out of Phase 2 of the NWRP

1.2.3 Draft Regional Plan: South East (draft RWRP-SE)

This document is the SEA Scoping Report for the draft Regional Water Resources Plan: South East (draft RWRP-SE). The SE region is further subdivided into three Study Areas based on Water Framework Directive (WFD) catchment and Water Resource Zone (WRZ) boundaries within the region, as shown in Figure 1.2.

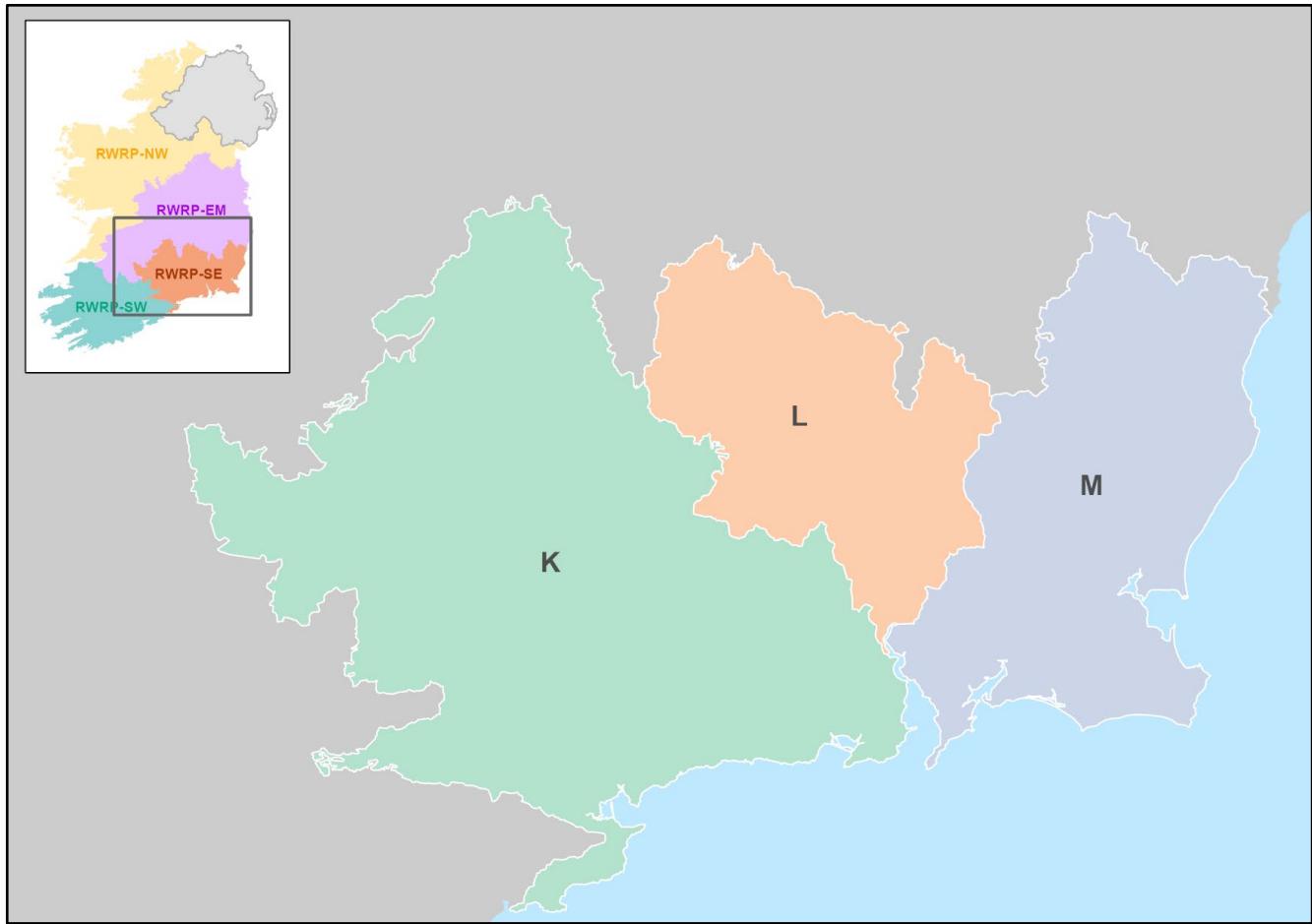


Figure 1.2. Draft RWRP-SE Study Areas

An overview of the three SE Study Areas is provided in Table 1.1.

Table 1.1 Overview of draft RWRP-SE Study Areas

Study Area	Description
SAK	SAK total area is approximately 5,056 km ² and lies within the counties of Limerick, Tipperary, Waterford City, Waterford, Kilkenny, Laois, Cork, and Wexford*. The principal settlements (with a population of over 10,000) within SAK are Waterford City, Clonmel, and Tramore (CSO, 2016).
SAL	SAL total area is approximately 1,699km ² and lies within the counties of Tipperary, Carlow, Kilkenny, Laois, and Wexford. The principal settlement (with a population of over 10,000) within SAL is Kilkenny (CSO, 2016).
SAM	SAM total area is approximately 2,420km ² and lies within the counties of Carlow, Wexford, and Wicklow. The principal settlements (with a population of over 10,000) within SAM are Wexford, and Enniscorthy (CSO, 2016).

*Wexford county intersects with SAK over less than 0.005 km²

1.2.4 Scope of the Draft Regional Plan

The aim of the draft RWRP-SE is to allow Irish Water to maintain a balance between supply and demand. A supply demand balance forecast will enable the identification of any current or predicted water supply deficits from each WRZ. Using this information, a list of potential option types to address that deficit has been developed, as detailed in Table 1.2 below. The RWRP-SE methodology will assess

the WRZ and the sources within them to identify options that could provide a sustainable, reliable source of water into the future.

Table 1.2 Option types

RWRP category	RWRP sub-category	Summary
Lose Less		<p>Reducing leakage from the network is a priority for Irish Water. This can involve a range of measures for actively detecting and repairing leaks such as the installation of meters to better identify customer leakage activity and advanced monitoring tools and techniques to better identify leaks.</p> <p>Leakage reduction will focus on targeted replacement of ageing pipes, pressure management to minimise fluctuations and excessive pressures providing more constant pressures to Irish Water customers whilst reducing bursts and the application of different leak repair approaches to minimise cost and disruption.</p>
Use Less		<p>Environmental awareness/education campaigns and partnerships and distribution of educational materials to raise awareness of water shortages and encourage water conservation and efficiency.</p>
Water Efficiency	Education & Awareness	<p>Use of water efficient products and processes in new and refurbished housing developments and working with building standards to ensure that water efficiency measures are included in standards regulations as mandatory. Encouraging take up of water efficiency measures by domestic and non-domestic customers such as more efficient appliances, repair of leaking toilets, use of water audits.</p>
	Water Efficiency Measures	<p>Actively pursue business customers and industry for partnerships that involve water efficiency goals.</p> <p>Investigate how to use water within Irish Water's existing assets more efficiently through improved treatment processes and recycling of effluent water for appropriate uses.</p>
	Recycling and Reuse	<p>The recycling of treated wastewater or grey water provides a critical supplementary water source for non-potable activities therefore alleviating stress on primary water sources. Grey water refers to the water used in baths, sinks, washing machines, and other kitchen</p>

RWRP category	RWRP sub-category	Summary
		appliances. In periods of drought, when potable water is in short supply, grey water can be a potential alternative water source for activities such as agricultural and landscape irrigation, industrial process, and toilet flushing.
	Metering	Domestic water metering can build a better understanding of water use and network pressures to improve water efficiency and therefore water security and identify leaks. Water meters with advanced analytics to undertake flow balances across the network can allow Irish Water to gain a better understanding of the whole network from the abstraction point to the customers
Supply Smarter – resource supply options		
Surface Water	Surface Water Abstraction	Increasing the abstraction at an existing river or lake source or developing a new river or lake source from which water can be sustainably abstracted. These options would be subject to an abstraction license.
	Groundwater Abstraction	Increasing the abstraction at an existing groundwater source or developing a new groundwater source from which water can be sustainably abstracted. These options would be subject to an abstraction license.
Groundwater	Aquifer Storage Recovery	Storage of treated or raw water in suitable aquifers. During times of plentiful water supply, excess water withdrawn from a river, lake or another groundwater source is injected and stored within an aquifer. This supplementary stored water can be extracted from the aquifer during periods of dry weather and/or increased demand when the primary supply sources are running low. This requires aquifers with suitable characteristics to be available as the risks of losses can be high.
Reservoirs	Storage Reservoirs	Provision of storage reservoirs which can be filled with untreated water abstracted during high flow conditions from surface waters to be drawn on during low flow periods or to provide additional resilience during droughts as a back-up supply source.

RWRP category	RWRP sub-category	Summary
Catchment Management	Catchment management for ground or surface water sources	Activities such as agriculture, forestry, industry, and waste management all have an impact on the retention of water in the catchment and the quality of the water within rivers and loughs. Pollutants in the water can lead to ecological deterioration, increased flood risk and can also create issues for water treatment. There may be scope for changes to land management through working in partnership with landowners, farmers, and regulators to develop agreements and share information and resources to provide long term improvements with wide benefits including water suitable for supply from surface or groundwaters.
Effluent Reuse	Effluent Reuse	Recycling of wastewater effluent from treatment plants can produce a new supply source from wastewater which is otherwise discharged to rivers or the sea. This involves treating wastewater to a sufficiently high standard to meet supply standards relevant for the intended use for example for agricultural/horticulture/industry/water supply or for release to rivers to maintain flows.
Desalination	Desalination: Coastal or Brackish	This involves the process of removing salt and other minerals from seawater or brackish water ¹ river estuaries to make it suitable for human consumption and/or industrial use. The level of treatment required is related to the salt concentration of the water.
Water Transfers	Transfers	Water transfer is the physical movement of water from one area to another usually via pipelines, although other means such as canals or aqueducts can be used. These generally refer to the transfer of treated water and can vary considerably in scale in terms of size and length from local transfers from one WRZ to another, to regional transfers and inter-utility transfers (from Northern Ireland Water) ² .
	Tankering	Delivery of treated water to customers via road tanker to alleviate temporary short-term water shortages in certain localised situations.

¹ Brackish water is water that has more salt than freshwater, but not as much as seawater that is generally found in estuaries.

² No inter-utility transfers have been identified for the SE region

RWRP category	RWRP sub-category	Summary
Network Improvements	Network Improvements (general)	Network improvement involves works such as upgrade, replacement, or operational improvements. They are undertaken to facilitate better water distribution and avoid network limitations. Therefore, strategic network reinforcement improving connections between different sources and customer supply can significantly improve security and resilience.
	Service Reservoir Expansion	Service reservoirs store treated water. They are used to balance out the steady supply of treated water they receive from WTPs and the fluctuating variations in customer demand during a 24-hour period. They can also be used to store a backup supply in low flow events but for a limited period of time.
	WTP Expansion/Rationalisation	Expansion of existing WTPs to facilitate the treatment of a higher volume of water. This option would be considered in-combination with an increase of a surface water or ground water abstraction or the provision of a new surface water or ground water source. Expansion of existing WTPs may be carried out as part of a rationalisation process which involves the merging of WTPs. Rationalisation is carried out to reduce water supply costs, take a malfunctioning WTP out of service or to cease abstraction from an unsustainable source.
Water Treatment Plants		For every litre of untreated water extracted from a source and fed through a water treatment plant to the supply distribution network, a small fraction of the water will be lost from the system as a result of the treatment losses. Generally, WTPs are designed to recover, treat, and recycle as much of the waste stream as economically feasible. However, there can be opportunities to improve efficiency through the upgrading and installation of more complex treatment processes to reduce these process losses and therefore increase the water available for use (WAFU).
	WTP Process Losses	

1.3 Strategic Environmental Assessment

1.3.1 Legislative Requirement

Council Directive 2001/42/EC of the European Parliament and of the Council of 27th June 2001 on the assessment of the effects of certain plans and programmes on the environment (the SEA Directive)

established the statutory requirement for SEA as part of the development of certain plans and programmes. The Directive is applicable to the Framework Plan and the Regional Plans of the NWRP.

The transposing Irish Regulations are the European Communities (Environmental Assessment of Certain Plans and Programmes) Regulations 2004 (S.I. No. 435 of 2004) as amended by the European Communities (Environmental Assessment of Certain Plans and Programmes) (Amendment) Regulations 2011 (S.I. No. 200 of 2011).

In accordance with the overall objective of the SEA Directive as set out in Article 1, a SEA is required to:

"Provide for a high level of protection to the environment and to contribute to the integration of environmental considerations into the preparation and adoption of plans and programmes with a view to promoting sustainable development..."

According to Article 2 of the Directive, "plans and programmes" means plans and programmes, including those co-financed by the European Community, as well as any modifications to them:

- Which are subject to preparation and/or adoption by an authority at national, regional or local level or which are prepared by an authority for adoption, through a legislative procedure by Parliament or Government; and
- Which are required by legislative, regulatory or administrative provisions.

Under Article 3(2), an environmental assessment:

"...shall be carried out for all plans and programmes, (a) which are prepared for agriculture, forestry, fisheries, energy, industry, transport, waste management, water management, telecommunications, tourism, town and country planning or land use and which set the framework for future development consent of projects listed in Annexes I and II to Directive 85/337/EEC³."

1.3.2 SEA Process

The purpose of SEA is to enable plan-making authorities such as Irish Water to incorporate environmental considerations into decision-making at an early stage and in an integrated way throughout the plan-making process. The SEA process is undertaken in four stages. The progress against each stage of the SEA process for the draft RWRP-SE Regional Plan is summarised in Table 1.3. The SEA process for Phase 1 of the NWRP, the Framework Plan, has already been completed.

Table 1.3 Stages of SEA

Stage	Purpose and requirements	Progress to date / current status
Stage 1: Screening	Prior to starting the SEA process, a plan or programme undergoes "screening" to determine whether it requires SEA.	SEA Screening Statement – Irish Water (as the responsible authority) determined that SEA was required for the NWRP when screening was carried out in August 2017. A SEA screening statement for the Regional Plan SE is provided in Appendix C.
Stage 2: Scoping	Consideration of the context and objectives of the SEA provides	SEA Scoping Report – the SEA Scoping Report sets the geographical and

³ Replaced by 2011/92/EU as amended by 2014/52/EU

Stage	Purpose and requirements	Progress to date / current status
	information on baseline data, identifies relevant environmental issues, and trends, and defines the parameters of the scope of the SEA for the purpose of consultation.	temporal scope of the draft Regional Plan and SEA, the baseline environment and a proposed framework of SEA objectives and methodology to inform the Stage 3 assessment.
	Stage 3: Identification, Prediction, Evaluation and Mitigation of Potential Effects	Within the context and parameters identified at the scoping stage. Identification and evaluation of likely significant effects of the draft Regional Plan is carried out, including consideration of alternatives and determination of measures to mitigate and monitor potential residual effects.
Stage 4: Consultation, Revision and Post-Adoption	Consultation with statutory consultees and the public. This may require changes to the draft Regional Plan and SEA Environmental Report in light of responses. Implementation of the monitoring programme.	Environmental Report (SEA of the draft Regional Plan) Stage 4: Consultation, Revision and Post-Adoption

Current Stage in the SEA Process

1.3.3 Appropriate Assessment

In addition to compliance with the SEA Directive, the preparation and implementation of the NWRP must meet the provisions of the Habitats Directive (92/43/EEC). The Habitats Directive has been transposed into Irish law by the Planning and Development Act, 2000 (as amended) and the European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. No. 477 of 2011) (as amended). The Habitats Directive requires that if a plan, policy or programme is likely to have a significant effect on one or more European sites (that is, a Special Area of Conservation (SAC) or Special Protection Area (SPA), also referred to as “Natura 2000” Network), either alone or in combination with other schemes, plans or projects, then it must be subject to Appropriate Assessment (AA).

The NWRP therefore falls under the governing legislation of the European Communities (Birds and Natural Habitats) Regulations 2011 (Habitats Regulations 2011) (as amended); and as a “competent authority”, Irish Water must ensure that their NWRP meets these requirements. The Stage 1 (screening) assessment has concluded that it cannot be excluded, on the basis of objective scientific information following screening that the draft RWRP-SE, individually or in combination with other plans or projects, will have a significant effect on one or more European sites. Accordingly, a full Stage 2 Appropriate Assessment will be required in accordance with the Habitats Regulations 2011.

1.3.4 Integration between SEA (and AA) and the draft Regional Plan and the Framework Plan

The options development process which Irish Water propose to use to develop the Preferred Approach for all Regional Plans is described within the Framework Plan and was subject to a separate SEA

process and finalised in May 2021. The options assessment methodology is outlined briefly below, with further detail available within the Framework Plan and the SEA Statement which accompanies the Framework Plan which can both be found at: www.water.ie/hwRP

There are eight key stages to the options assessment methodology which is applied:

- 1) Identifying need - based on Supply Demand Balance and/or Drinking Water Safety Plan Barrier Assessment.
- 2) Scoping of the Study Area (WRZs) – understanding the Study Area and the existing conditions of assets, supply and demand issues as well as environmental constraints and opportunities.
- 3) Identifying potential options for consideration relevant to the Study Area.
- 4) Coarse screening – assess the unconstrained options and eliminate any that will not be viable
- 5) Further option definition, information collection and preliminary costing.
- 6) Fine screening – options assessment and scoring against the key criteria with further removal of options identified as unviable and development of feasible options for costing (including environmental and social costs and benefits) and scoring assessment update.
- 7) Approach appraisal – comparison and assessment of combinations of options identified to meet the predicted supply demand deficit at WRZ, Study Area and Regional Group area level using Multi-Criteria Analysis (MCA) to determine the preferred approach. Approaches tested will include:
 - Least Cost;
 - Best Appropriate Assessment (Best AA);
 - Quickest Delivery;
 - Best Environmental;
 - Most Resilient; and
 - Lowest Carbon.
- 8) Monitoring and Feedback into Plan – a feedback mechanism to ensure that the Framework Plan continuously adapts to changes such as evolving scientific data, understanding, and policy change in relation to the natural environment.

Figure 1.3 illustrates how SEA influences each stage of the options development process and options assessment methodology outlined above, and Figure 1.4 shows how the SEA and AA reporting will align with each other and with development of the draft RWRP-SE.

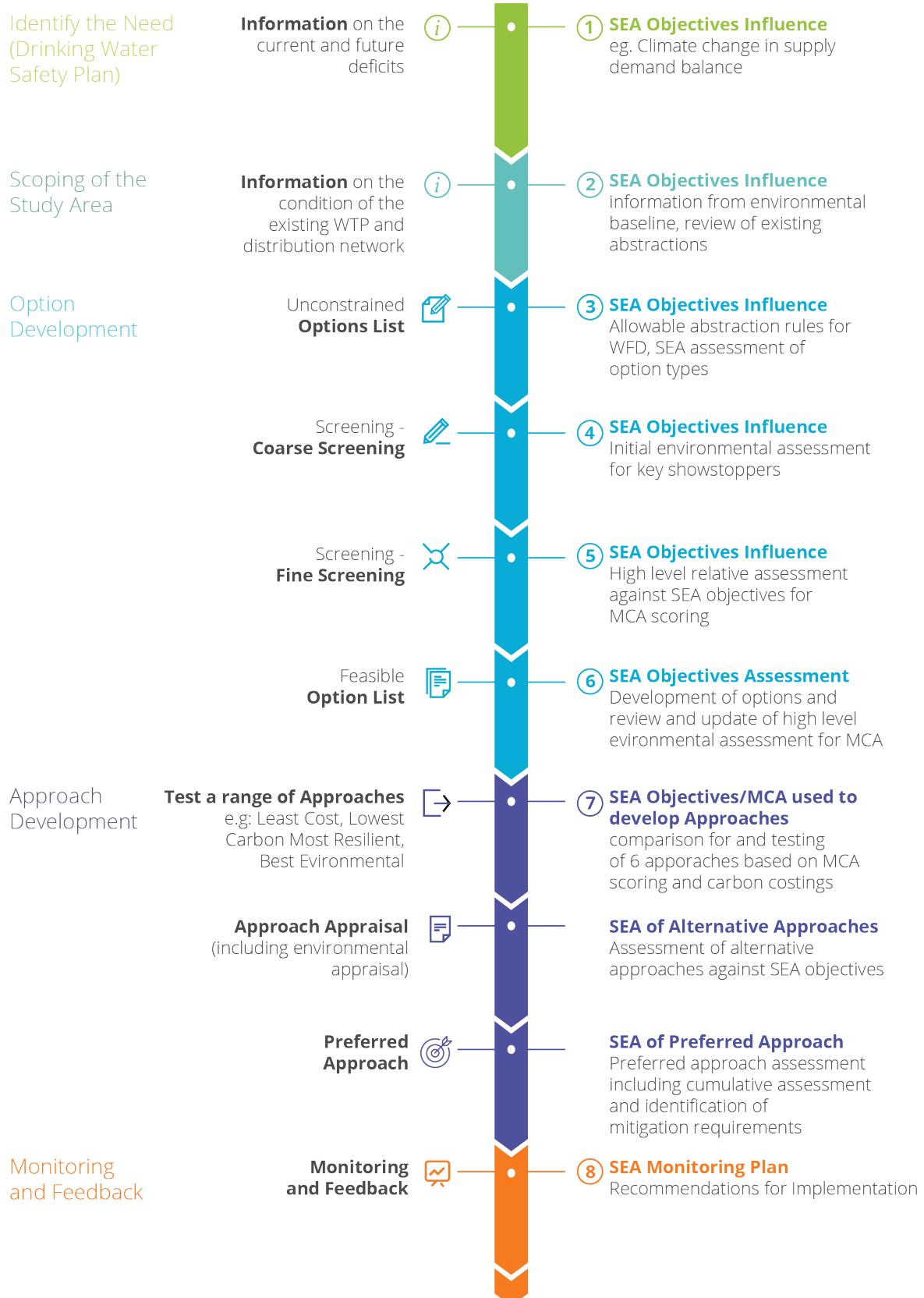


Figure 1.3 SEA influence on draft RWRP-SE development

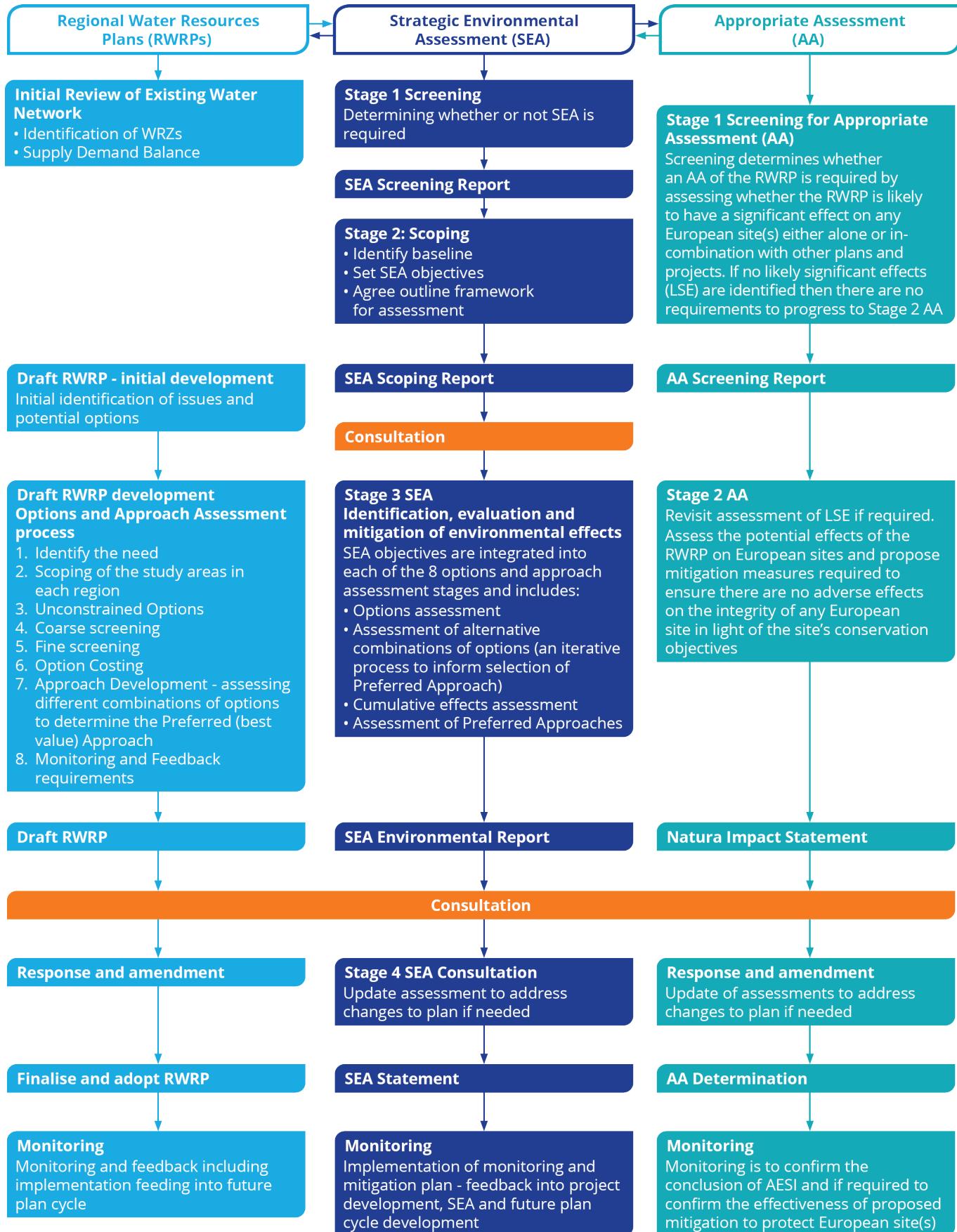


Figure 1.4 Integration between SEA and AA processes and development of the draft RWRP-SE

1.4 Consultation

In line with Article 9 (5) of the SEA Regulations (S.I. No. 435 of 2004), this SEA Scoping Report will be issued to the following statutory Environmental Authorities:

- The Environmental Protection Agency (EPA);
- Department of Housing, Local Government and Heritage (DHLGH);
- The Department of Agriculture, Food and the Marine (DAFM);
- Department of the Environment, Climate and Communications (DECC); and
- Department of Agriculture, Environment and Rural Affairs (DAERA).

This SEA Scoping Report is available online at the following website:

<https://www.water.ie/nwrp>

Further information requests and written submissions or observations can be sent to Irish Water by the **20th December 2022**:

By post:

National Water Resources Plan,
Irish Water,
PO Box 13216,
Glenageary,
Co. Dublin.

By email:

nwrp@water.ie

The following key questions have been prepared to guide consultees and stakeholders in making a submission on this SEA Scoping Report and are repeated under the relevant Sections.

Scoping questions:

- Do you have any suggestions that you would like Irish Water to consider in the preparation of the draft RWRP-SE and SEA?
- Irish Water has reviewed plans, policies and programmes relevant to draft RWRP-SE and SEA in Chapter 2 and Appendix B. Are there any others that should be considered?
- Do you have any comment on the current baseline environment conditions and future trends set out in Chapter 3 and summarised in Section 3.11?
- Do you have any comment on the SEA objectives that are set out in Table 4.1?
- How would you like Irish Water to communicate with you as the development of the draft Regional Plan and SEA progress?

All submissions made on the SEA Scoping Report will be reviewed and relevant feedback incorporated into the SEA Environmental Report and draft RWRP-SE as appropriate. The issues raised, and the response will be summarised in the SEA Environmental Report. No potential for transboundary effects has been identified (see Section 4.2.1 for further detail).

2

Review of Relevant Plans, Policies and Programmes

2 Review of Relevant Plans, Policies and Programmes

This Section provides a summary of the plans, policies and programmes that have been identified as potentially important in development of the baseline environment and SEA objectives for the SEA of the draft RWRP-SE.

Scoping question: Irish Water has reviewed plans, policies and programmes relevant to the draft RWRP-SE in Chapter 2 and Appendix B. Are there any others that should be considered?

The SEA Directive states in Article 5(1) of Annex 1 that the environmental assessment must identify “*the environmental protection objectives, established at International, European Union or national level, which are relevant to the plan or programme, or modification to the plan or programme, and the way those objectives and any environmental considerations have been taken into account during its preparation*”.

In accordance with this requirement, the relationship with the relevant policy, plan programme and legislative framework was explored in order to inform the scope of the SEA and to provide a focus for identifying the baseline environment and development of the SEA objective. The considered plans, programmes and policies are relevant to developing a transparent assessment of the likely environmental effects. Consideration of the plans, programmes and policies allows for an application of a more structured and informed SEA.

A comprehensive review of relevant national and regional level policies, plans, programmes and legislative framework of relevance to water resource planning, including related Irish Water plans and strategies, has been undertaken and consulted upon within SEA Environmental Report for the Framework Plan available at www.water.ie/nwfp. The identified documents will also be directly relevant to the draft RWRP-SE and are provided in Appendix B (Section B.1). Key influences identified at the national level which also apply to the RWRP-SE include:

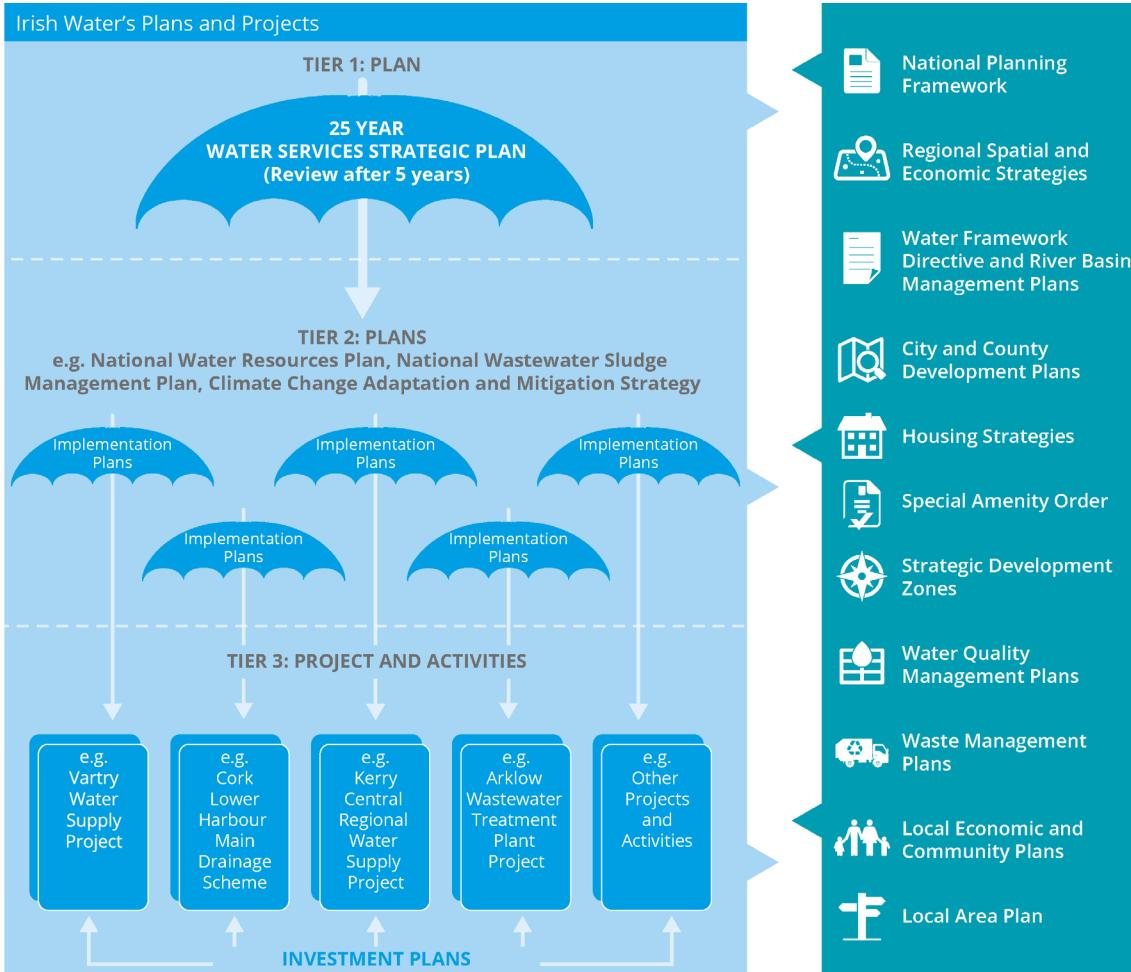
- UN Sustainable Development Goals (SDGs);
- EU WFD (Directive 2000/60/EC of the European Parliament and of the Council establishing a framework for Community action in the field of water policy);
- EU Drinking Water Directive (Directive 2000/21/EC of the European Parliament and of the Council on the quality of water intended for human consumption (recast);
- River Basin Management Plan 2018-2021;
- Draft River Basin Management Plan for Ireland 2022-2027;
- The Water Environment (Abstractions and Associated Impoundments) Bill, 2022.
- National Planning Framework – Project Ireland 2040;
- National Adaptation Framework Sectoral Adaptation Planning;
- Regional Spatial and Economic Strategy (RSES) for the Eastern and Midlands Region, RSES for the Southern Region and RSES for the Northern and Western Regional Assembly; and
- Related Irish Water plans and strategies including the Water Services Strategic Plan (Tier 1 plan), National Wastewater Sludge Management Plan, Lead in Drinking Water Mitigation Plan, Sustainable Energy Strategy - Climate Change Mitigation and Adaptation Strategy, Leakage Reduction Programme and National Disinfection Programme.

A focussed list of additional local level plans policies and strategies relevant to RWRP- SE specifically is provided in Section B.2 of Appendix B. Regional and local level plans likely to be key for the purposes of the SEA for the draft RWRP-SE fall under four main groups as follows:

- County Development Plans, Local Area Plans and Town Development Plans including draft plans where relevant - Planning Authorities are legally required to make County and City Development Plans which sets an agenda for development to make adequate provision for the scale of population growth projected;
- County Heritage Plans and County Biodiversity Action Plans – these plans help ensure targets for species and habitat conservation in the National Biodiversity and Heritage Plans are effective at a local level;
- County Climate Change Adaptation Strategies and Climate Action Plans – these strategies and plans establish future climate risks at a local level and propose actions to adapt to currently observed and future climatic changes;
- County Landscape Character Assessments – these assessments classify and describe the landscape in a county; and
- Regional Waste Management Plans.
- Metropolitan Area Strategic Plans (MASPs)

Other relevant plans, policies and strategies considered and listed within Appendix B include Conservation Plans, Renewable Energy Strategies, Community Biodiversity Action Plans and Noise Action Plans.

These plans and policies have been considered in the development of the SEA objectives as described in the Framework Plan and RWRP-SE SEA Scoping Report and in the assessment, criteria used to assess the options and alternatives considered in the development of the draft RWRP-SE. Figure 2.1 identifies how the NWRP relates to the key national, regional and local level plans, policies and strategies identified above.



It should be noted that the listing of the documents on the right of the graphic is not intended to show a hierarchy of plans or an alignment of the plans with the Irish Water Tier 1, Tier 2 and Tier 3 plans/ projects.

Figure 2.1 Interaction between the Planning System and Irish Water's Plans and Programs

3

Baseline Environment

3 Baseline Environment

This Section sets the proposed geographical and temporal scope of the SEA for the RWRP-SE, and provides environmental baseline information on key environmental topics including:

- Population, Economy, Tourism and Recreation, and Human Health;
- Water Environment;
- Biodiversity, Flora and Fauna;
- Material Assets;
- Landscape and Visual Amenity;
- Air Quality and Noise;
- Climate Change;
- Cultural Heritage;
- Geology and Soils.

Scoping question: Do you have any comment on the current baseline environment conditions and future trends set out in this chapter and summarised in Sections 3.1-3.11?

3.1 Scope of the assessment

3.1.1 SEA geographical scope

As this stage of the assessment the core baseline area for the SEA of the draft RWRP-SE is the area covered by the three Study Areas which comprise the SE Region (see Figure 3.1) and sites designated for nature conservation that are hydrologically connected to waterbodies in the core baseline area (see also Section 3.5 of the RWRP-SE Screening for AA which is provided at www.water.ie/nwfp). The assessment process undertaken for the SEA and AA (see Section 4.2) during evolution of the Plan will consider the potential for linkages of this type, and where necessary, the geographic scope of the core baseline area will be extended accordingly.

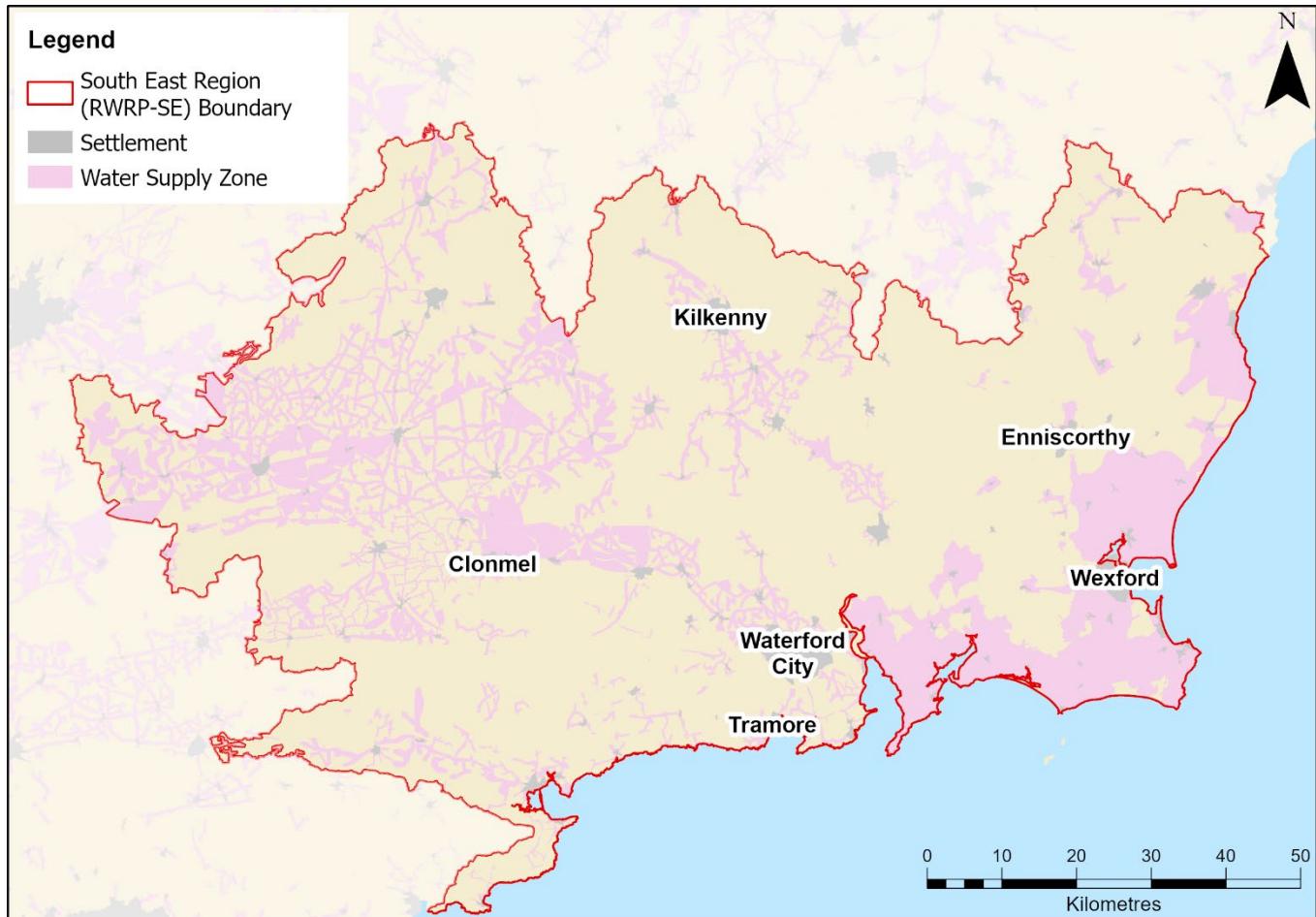


Figure 3.1 Water Supply Zones and Key Settlements in the South East region

3.1.2 Transboundary Effects

The draft RWRP–SE will solely cover Irish Water’s operational area for the South East which lies approximately 150 km from the boundary between the Republic of Ireland and Northern Ireland (see Figure 1.1). The scope for transboundary effects are considered in this scoping report.

3.1.3 SEA temporal scope

The proposed temporal scope for the SEA is the 25-year period that is covered by the Framework Plan and draft RWRP-SE.

3.2 High level environmental trends in the South East region and across Ireland

The EPA’s State of the Environment Report (EPA, 2020) provides:

- An assessment of the overall quality of Ireland’s environment;
- An outline of the pressures being placed on this environment; and
- The key actions that can address these pressures.

The following areas identified as challenges to address across Ireland within this report are particularly pertinent to development of the RWRP- SE:

- **Climate:** high greenhouse gas (GHG) emissions continue, and the scale and pace of GHG reductions must accelerate to meet the 2021 Climate Action Plan targets;
- **Water:** deteriorating water quality trends over the last 20 years, particularly for rivers; and
- **Nature:** deteriorating protected habitat trends, with 85% of EU protected habitats having unfavourable status. Trends for EU protected species are mixed, however freshwater species are most at risk and some freshwater species are under threat.

Waste and the circular economy and air quality are also areas where further action is needed to meet long term objectives and targets. Further detail regarding the baseline environment for each of the topic areas is provided in this section.

The three key challenges of relevance to the RWRP-SE are directly linked to the following UN Sustainable Development Goals (SDG):

- **SDG 13 Climate Action:** Take urgent action to combat climate change and its impacts;
- **SDG 14 Life Below Water:** Conserve and sustainably use the oceans, seas and marine resources for sustainable development; and
- **SDG 15 Life On Land:** Protect and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss.

Significant population increase is anticipated over the coming two decades, which is an important consideration for water demand, and subsequently for the water environment and compliance with the WFD Directive and SDG 14. Section 4.2 of the NWRP Framework Plan (available at www.water.ie/nwfp) sets out the projected demand in this region over the next 25 years versus existing supply, taking into account where reductions in abstraction volumes are known to be required for sustainability reasons. The COVID-19 pandemic impacted household water demand patterns due to people staying at home during lockdown. The long-term changes in demand patterns are not yet known but with the possibility of flexible/remote ways of working continuing into the future, there is a potential for change in where the demand is located which will be required to be considered by Irish Water to improve demand forecasting.

3.3 Population, Economy, Tourism and Recreation, and Human Health

3.3.1 Population

The South East region falls within the Southern Regional Assembly. In total there are three Regional Assemblies which are parts of the regional tier of government in Ireland (Government of Ireland, 2020). Table 3.1 provides an overview of the population of the study areas (SAs) within the RWRP-SE region and the projected increases in population between 2019 and 2044. For the NWRP and Regional Plans, Irish Water have taken 2019 as the baseline population for their supply demand balance (SDB) forecasting. This is extrapolated from the 2016 Census data and growth projections used by Irish Water are based on best available data from the National Planning Framework (NPF), Regional Spatial and Economic Strategies (RSESs), and Metropolitan Area Strategic Plans (MASPs). In addition, the ongoing work between the Regional Assemblies and the local authorities over the course of the development of the Local Authority County/City Development Plans is recognised by Irish Water and will be incorporated into the demand forecasts, once finalised.

The forecast population used in our demand forecasts for WRZs at our regional planning Study Area level is shown in Table 2.2.

Each SA is divided into several (Water Resource Zones) WRZs, and the average percentage population increase during the Plan period anticipated across WRZs within each SA is also shown in Table 3.1.

Table 3.1 Overview of the Population within the RWRP-SE Area

Study Area	Total population served 2019 (CSO, 2016 and IW 2019 population projections)	Population change 2019-2044 (%)
K	214,979	30.0
L	53,617	23.8
M	100,642	26.9
draft RWRP-SE Area Total	369,237	28.2

The overall predicted/estimated regional population growth from the SDB forecast is an increase of 28.2% over the period from 2019 to 2044. All SAs in the region have a projected growth rate that exceeds the 12% national rate observed in the 10-year period from 2006 to 2016. SAK (County Kilkenny, Limerick, Tipperary and Waterford) has the highest projected growth rate at 30.0%, which is driven by the East Waterford Water Supply Scheme and Clonmel and Environs forecast growth of 43.9% and 47.4 respectively by 2044.

3.3.2 Economy and Employment

Study areas or parts of SAs located within the South East region fall within the Mid-West, Mid-East, Midland, South-East, and South-West of the Nomenclature of Territorial Units for Statistics 3 (NUTS 3) Regions. Midlands and South East regions had a household disposable income per person in 2019 that was below the average for Ireland (CSO, 2020a). Mid-East, Mid-West, and South-West region had a household disposable income per person in 2019 that was on a par with the average for Ireland (CSO, 2020a).

Within the core baseline area, unemployment rates in Q4 2020 were lowest in the Mid-East region (5.2%) and highest in the Mid-West region (7.3%) (see Table 3.2). Unemployment data for Q4 2021 shows a different pattern, with highest rates of unemployment seen in the South-East region and lowest in the South-West region. On average a 36% decrease can be seen across the Mid-West, Midland and South-West regions, whereas the Mid-East, and South-East show an increase of 1.9% and 8.3% respectively. Whilst the economic impact of COVID-19 has affected some employment sectors (for example tourism, hospitality, retail) more than others, it is uncertain how this trend might play out in the coming years.

Table 3.2 Unemployment Rates in Q4 2020 and Q4 2021

Region ¹	Unemployment rate Q4 2020 (%) (CSO, 2019)	Unemployment rate Q4 2021 (%) (CSO, 2020b)
Mid-West	7.3	4.5
Mid-East	5.2	5.3
Midland	6.0	4.5

Region ¹	Unemployment rate Q4 2020 (%) (CSO, 2019)	Unemployment rate Q4 2021 (%) (CSO, 2020b)
South-East	6.0	6.5
South-West	6.6	3.6

¹ See Figure 3.8 (Appendix A) for study area boundaries in relation to regions. Majority of the South East study area lies within the South-East and Mid-West NUTS 3 Regions of Ireland.

Population increase and expected economic growth has meant that housing and sustainable urban development have been made a priority for the National Development Programme; therefore, to supply the demand there is the aim to increase housing stock. New dwelling completions for Q1 2021 and Q1 2022 are shown in Table 3.3. There was an increase in new dwelling completions of 25.9% between 2021 and 2022 across Ireland, associated at least partly with the reduction and easing of COVID-19 restrictions on the construction industry. In the whole of Ireland, there were 35.6% more new dwelling completions in Q1 2022 than the completions in Q1 2021. In Q1 2022 the number of new dwelling completions in urban areas was 51.0% higher than in Q1 2021 and accounted for 83.0% of all completions. In rural areas, there was a rise of 19.6% from Q1 2021 to Q1 2022. This is the highest percentage of completions in urban areas since the launch of the reporting in 2011.

Regionally, the number of new dwellings completed in the Mid-West region was the lowest in Q1 2021 and second lowest in Q1 2022. The number of new dwellings completed in the South-West region was second highest in both Q1 of 2021 and 2022, however still significantly lower than new dwellings completed in the Mid-East. The number of new dwellings completed in the Mid-East region was the highest in both Q1 of 2021 and 2022. New dwelling completions in the Mid-East represented approximately 20% of the completions in Ireland in both Q1 2021 and 2022. The number of dwelling completions in every region increased between Q1 2021 and Q1 2022.

Table 3.3 New Dwellings Completed Q1 of 2021 and 2022

Region ¹	New dwellings completed in Q1 2021 (CSO, 2020d)	New dwellings completed in Q1 2022 (CSO, 2022)
Mid-West	254	395
Mid-East	871	1,058
Midland	317	325
South-East	258	499
South-West	582	631

¹ See Figure 3.8 (Appendix A) for study area boundaries in relation to regions. Majority of the South East study area lies within the South-East and Mid-West NUTS 3 Regions of Ireland.

3.3.3 Tourism and Recreation

Tourism has an important role in the core baseline area, particularly in rural locations, with the National Planning Framework (NPF) stating that tourism is a key aspect of rural job creation now and in the future (Government of Ireland, 2018). The majority of the core baseline area encompasses Ireland's Ancient East and slightly extends into Ireland's Hidden Heartlands on its Northern side, and the new Dublin tourism brand on its Western side, three of Fáilte Ireland's tourism programmes in the country. Ireland's Ancient East is part of a tourism development strategy that covers the South, East and part of the

Midlands, and places emphasis on the importance of historic sites in the area (National Tourism Development Authority, 2016). Hidden Heartlands is located in the Mid-West, focussing on rural communities (Fáilte Ireland, 2020a), and the new Dublin tourism brand which is “the first Dublin-dedicated tourism campaign in many years” and seeks to change perceptions of Dublin “from a weak and one-dimensional image to that of a city pulsing with life” (Visit Dublin, 2022).

Key tourist attractions located within the core baseline area are described below (Discover Ireland, n.d.):

- The county of Carlow (SAL and M) is the second smallest and the third least populous of Ireland's 32 traditional counties. It is known for its rich store of historical and archaeological artifacts from pagan sites such as the Brownshill Dolmen and for its ecclesiastical settlements, many of which are of national significance (Carlow Tourism, 2020);
- The county of Cork (SAK) contains internationally recognised Camden Fort Meagher, and it has been described as “Ireland's Maritime Haven”, with emphasis placed on the cultural and historical attractions many of which located along the coastal environments (Pure Cork, n.d.);
- The county of Kilkenny (SAK and L) is known as the “Cultural County” and has rich historical roots and is famous for its medieval buildings and castles (Visit Kilkenny, 2022);
- The county of Laois (SAK and L) has been described as an “outdoor enthusiasts paradise” with emphasis also placed on the county's cultural and historical attractions (Laois Tourism, 2020);
- The county of Limerick (SAK) includes Limerick City, the first city of culture, and emphasises the importance of sports in its touristic appeal (Limerick City and County Council, 2020);
- The county of Tipperary (SAK and L) has been described as the “farming heartland of Ireland” with emphasis also placed on the county's cultural and historical attractions (Tipperary Tourism, 2020);
- Waterford City (SAK) is the oldest city in Ireland, and it is said to be the perfect blend of ancient and modern.
- The county of Waterford (SAK) is home to the stunning 25km County Waterford's Copper Coast, and an UNESCO Global Geopark which offers winding trails for walking, driving, and cycling (Visit Waterford, n.d.);
- The county of Wexford (SAK, L and M) is known as ‘The Sunny Southeast’. Alongside being a Viking town, it offers coasts and beaches, and is said to be one of the best places to see puffins in the wild (Visit Wexford, 2022);
- The county of Wicklow (SAM) has been described as “the garden of Ireland”, containing Ireland's largest national park (Wicklow National Park) and emphasising outdoor recreation as a key asset for the area (Visit Wicklow, 2020);

Ireland's natural heritage is also recognised as an important tourism asset by the Department of Transport, Tourism and Sport (2019). Key natural heritage and outdoor recreation attractions (Department of Housing, Local Government and Heritage, n.d) within the core baseline area include:

- Study Area K: Comeragh Mountains, Capel Island and Knockadoon Head Nature Reserve,
- Study Area L: Ballykeeffe Wood Nature Reserve, Kyledohir Wood Nature Reserve, Garryricken Woods Nature Reserve, Kilkerry Castle
- Study Area M: Ballyteigue Burrow Nature Reserve, The Raven Nature Reserve, Wexford Wildfowl Reserve, Loftus Hall, Irish national Heritage Park

Rivers, loughs and coastal areas across the core baseline area also all make an important contribution to tourism and recreational opportunities and support important fisheries.

3.3.4 Human Health

Table 3.4 provides well-being indicators for the core baseline area. Improvements in air quality, access to good quality drinking water and participation in recreation activity can all have a positive influence on health and well-being.

Table 3.4 Well-Being Indicators for the Core Baseline Area

Region ¹	Life expectancy (CSO, 2017b)	Participation in sports, fitness or recreational physical activities (% of persons aged 15+) (CSO, 2020c)	Air quality (EPA, 2020)
Mid-West	Male: 79.0 Female: 82.5	52	Good
Mid-East	Male: 80.3 Female: 84.0	49	Good
Midland	Male: 80.0 Female: 83.2	47	Good
South-East	Male: 79.3 Female: 83.1	44	Good
South-West	Male: 79.1 Female: 83.2	47	Good

¹ See Figure 3.8 (Appendix A) for study area boundaries in relation to regions. Majority of the South East study area lies within the South-East and Mid-West NUTS 3 Regions of Ireland.

Key issues for public health include reliable access to good quality drinking water. Regulated water service providers have to ensure appropriate service standards of supply and be able to endure drought conditions, peak events, and maintenance downtime on their assets. This requires reserve capacity in supplies. At present, the supplies across the RWRP-SE region do not have the reserve capacity to meet these levels of service at all times. Due to the limited historical monitoring of these supplies, particularly in relation to groundwater, this will need to be studied further.

Currently for day-to-day operations, the majority of WRZs within the RWRP-SE Study Areas suggest a Supply Demand Balance (SDB) deficit (based on a “do minimum” approach) under present and future scenarios (see Table 3.5 for further detail). While sufficient in normal weather conditions, several would fail in drought conditions, and these could result in restrictions to customer use.

During the drought in Summer 2018, all of Irish Water’s groundwater supplies were being monitored due to falling groundwater levels and a number of Irish Water’s supplies were impacted in terms of quality or quantity, for example during recent dry periods, particularly the summer of 2018 and 2020, when water conservation orders were implemented, a number of the supplies across the study area were impacted. Raw water levels dropped significantly at surface water abstraction at Wexford Town (Newtown) WTP (Study Area M), and both Radestown WTP and Borris WTP (Study Area L) where in stream damming

was required to push more water towards the intake. Instream sand bagging was also required at the intake of Pallis for Creagh WTP (Study Area M) as precautionary measure of falling levels in Bann River. The water levels also dropped at Ballykale BH which is currently serving Gorey WRZ (Study Area M). Further information for all three Study Areas on the how the effects of dry periods and drought affected supplies and the environment, will be presented as part of the baseline considered for the SEA Environmental Report.

Poor water quality can be linked to risks to health. In addition, based on Irish Water's internal conservative desktop Water Treatment Plant (WTP) assessments, a significant number of supplies in every Study Area within the South East region appear to have water quality treatment risks (see Table 3.5), and further work is planned to provide more up to date and reliable assessments. As shown in Table 3.5 a number of supplies within the core baseline area are either on the EPA Remedial Action List (RAL) or are subject to an EPA direction, Irish Water are currently progressing corrective action in relation to many of these supplies in advance of the Regional Plans.

Table 3.5 Water Quality and Supply Risks

Study Area	Current number of WRZs with SBD deficit	Total number of WRZs	Number of Supplies with Confirmed Water Quality Risks	Total number of supplies	Number of Supplies on EPA Direction or RAL (Q2 2022)
SAK	39	75	80	99	1
SAL	6	10	11	13	2
SAM	18	26	24	31	1

3.4 Water Environment

This topic covers water quantity and water quality and includes consideration of hydromorphology, WFD and flood risk from surface waterbodies and groundwater. Groundwater aquifers are discussed in section 3.11.2.

Relative to other European countries, Ireland has twice the EU average of lake coverage (12,000 lakes covering ~2% land area). In the South East region there are only 11 lakes however, covering 0.01 % of the regions land area (127 hectares) with just 3 lakes making up ~57% of the area, Lough Knockaderry, Lough Belle and Lough Ballyshunnock. The larger known rivers within this region include the Suir, Slaney, Nore Maigue, Aherlow and Tar, however they represent only a fraction of the extensive 8,830 km network currently mapped by the EPA in the South East region.

Parameters identified to reflect the sensitivity of riverine ecology to changes in flow and water level include geology, gradient and altitude⁴. In the South East region the dominant river typology is represented by B1 – Hard limestone and sandstone; low-medium altitude; low-medium slope (368 river waterbodies). The surface water river systems are shown in Figure 3.2 below.

3.4.1 Water Framework Directive

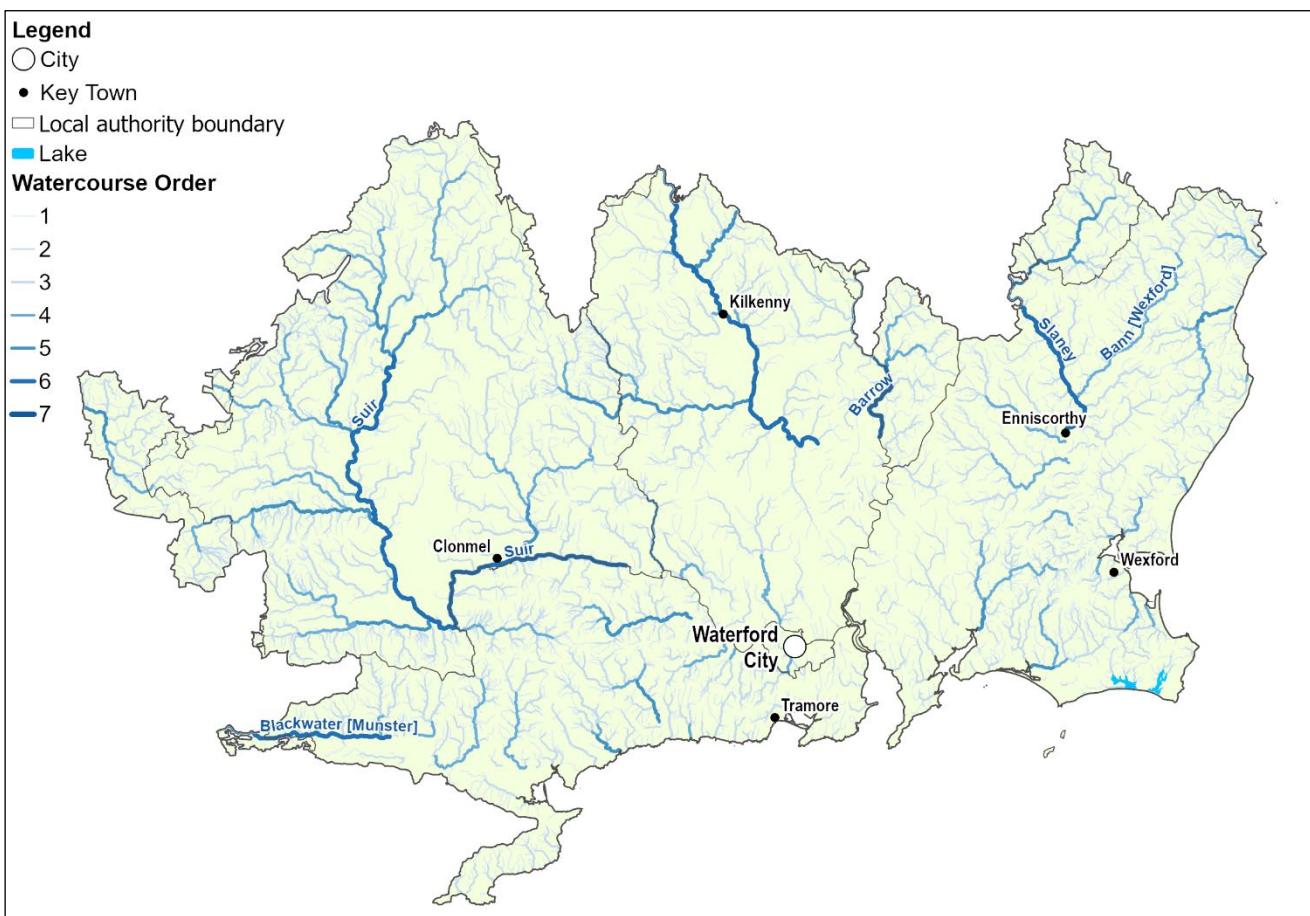


Figure 3.2 Water systems within RWRP-SE

Under the Water Framework Directive (2000/60/EC), Ireland must ensure that all waterbodies achieve ‘Good’ status by 2027. In addition, under the legislation, any modification to a WFD waterbody should not lead to deterioration in either the overall status⁵ or any of the quality elements⁶. Figures 3.3 and 3.4 (Appendix A) show the baseline water environment within the core baseline area, including the WFD catchment boundaries and WFD status of rivers, lakes, canals, transitional and coastal waterbodies and groundwater bodies.

Across Ireland there has been a decline in the number of high-status surface waterbodies and increase in the number of surface waterbodies with poor ecological status over the last three WFD assessment

⁴

https://www.wfd.uk.org/sites/default/files/Media/Environmental%20standards/Environmental%20standards%20phase%201_Finalv2_010408.pdf

⁵ The ecological status assigned for surface water bodies is determined by the status of the poorest quality element. Overall status of groundwater bodies is assigned based on the combined chemical and quantitative element statuses.

⁶ Surface water body status is assessed based on both ecological status or potential and chemical status. Ecological status includes various quality elements including biological elements, water chemistry and the physical condition of water bodies.

cycles (2007-2009 relative to 2013-2018), with declines in ecological status between the last two assessment cycles primarily driven by changes in river waterbody statuses. The most significant pressures on surface water ecological health include nutrient pollution from agriculture, hydromorphological alterations associated with agricultural land drainage and flood protection work and urban wastewater discharges (amongst other causes). The chemical status of surface waterbodies has remained generally good, as has overall groundwater water quality (EPA, 2020).

Failure to meet good chemical status in surface waterbodies is generally linked to elevated concentrations of priority substances such as mercury and polycyclic aromatic hydrocarbons (PAHs), whereas failure to meet status objectives in groundwater bodies is generally associated with historical contamination from industrial sites although nitrogen leaching from agricultural soils is an emerging concern over the last decade. The EPA's State of Environment Report (SOER) 2020 highlights that significant progress is required to meet the legal requirements of the WFD Directive and transposing regulations (European Communities (Water Policy) Regulations 2003 (S.I. No. 722 of 2003) as amended).

Water quality is an important consideration in relation to water supply. Whilst public water supplies in Ireland generally show high compliance with microbiological and chemical standards (EPA, 2020), there are a number of supplies within the South East region on the RAL list (see 3.3.4 for further detail). Key contaminants of concern include trihalomethanes (THM), lead, pesticides (particularly herbicides such as MCPA) and microbial contaminants such as *Cryptosporidium* and *Giardia*.

Irish Water has adopted the Drinking Water Safety Plan approach. It seeks to protect human health by identifying, assessing and managing risks to both water quality and quantity; taking a holistic approach from source (catchment) to tap (consumer). The 'source' component of DWSPs is a key component and understanding the catchment characteristics is important to support the identification, assessment and prioritisation of the risks. Irish Water is developing scientifically robust semi-quantitative methodologies using GIS to risk assess drinking water sources and carry out site-specific Source and Sanitary Surveys. A greater emphasis is being placed on the source-pathway-receptor (SPR) concept for contaminant delivery. The SPR approach requires an understanding of the sources of contaminants and the pathways that contaminants might travel. Contaminants being considered includes Drinking Water Directive regulated parameters such as *Cryptosporidium*, nitrate, ammonia and pesticides etc.

Irish Water is committed to working with public bodies and other stakeholders towards a common goal of the protection of drinking water sources. Irish Water has developed an Interim Pesticide Strategy for its drinking water sources (published in 2021). It will serve as an interim strategy whilst pilot projects are ongoing, and Irish Water develop its long-term approach for catchment management for drinking water source protection. The strategy will cover collaboration with stakeholders in order to assess and manage the risk of pesticides in the catchment, with the DWSP forming a central role. The Interim Pesticide Strategy risk management framework consists of three key pillars with collaboration with stakeholders occurring during all stages of the risk management process.

The recast DWD updates quality standards for water intended for human consumption, in line with latest recommendations of the World Health Organisation and establishes a watch-list mechanism to allow for the monitoring of substances or compounds of public or scientific concern to health, such as endocrine disruptors, pharmaceuticals and microplastics. Irish Water sit on the DHLGH DWD expert group whose role is to provide advice to the Minister on the appropriate preparations and steps necessary for the successful transposition and implementation of the recast Drinking Water Directive.

Irish Water is involved Project Steering Committees/Groups for various ongoing research projects which focus on contaminants of emerging concern (CECs) and include Microplastics, Phthalates, Pharmaceuticals/Pesticides & Antimicrobial Resistance (EPA & UKWIR funded). Irish Water provides asset data and facilitates sampling of wastewater influent and effluent and raw drinking water. Irish Water also participates in iNAP 2 (2021-2025) meetings, where the main objective is to increase environmental surveillance and monitoring for AMR to identify national levels and understand transmission routes.

Figures 3.3 and 3.4 (Appendix A) shows the locations of ‘at risk’ waterbodies within the core baseline area. The Department of Housing, Planning and Local Government’s (DPHLG, 2018) public consultation document regarding the significant water management issues has been considered by Irish Water. A total of 98 of the Areas for Action identified within River Basin Management Plan 2018-2021 (DPHLG, 2018) fall within the core baseline area.

3.4.2 WFD and Abstractions within the South East region

In September 2022, the Government published a Water Environment (Abstractions and Associated Impoundments) Bill 2022 (Abstractions Bill) that proposed alignment of abstraction licencing with the requirements of the Water Framework Directive. Whilst standards for the new abstraction regime are being developed, Irish Water are assessing existing abstractions to identify surface water sites that may exceed future abstraction thresholds. Irish Water has taken a precautionary approach, based on their current understanding of how proposed abstraction legislation might be applied, as outlined in Appendix G of the Framework Plan. This assessment suggests that certain schemes may be subject to reductions in abstraction in the future; however, this will be regulated and determined by the EPA.

As the Abstractions Bill is still to be enacted and associated regulations published, Irish Water do not have full visibility of the future regulatory regime. They have therefore not progressed through a theoretical licencing process on a site-by-site basis and cannot reliably include an estimation of sustainable abstraction within the SDB calculations. Instead, Irish Water use the hydrological yield, water treatment capacity and bulk transfer limitations in their calculation of deployable output. Irish Water also use the sustainable abstraction assessment to assess the sensitivity of the Preferred Approaches (solutions) they develop as part of the NWRP.

Therefore, Irish Water’s Framework Plan assumes that existing abstractions can continue on a transitional basis, subject to the registration and/or licensing requirements as outlined in the Abstractions Bill 2022.

For these existing abstractions, further studies will be undertaken in conjunction with the EPA and appropriate stakeholders. Following investigation, if an abstraction is confirmed to be affecting a waterbody status and the impact cannot be mitigated the SDB will be updated, and solutions will be delivered through future cycles of the River Basin Management Plans and/or RWRPs.

In parallel, Irish Water will also consider other hydromorphological impacts as part of this process.

As the objective of Irish Water’s NWRP is to achieve safe, secure, reliable and sustainable supplies, any new abstractions proposed to be developed by Irish Water as part of their RWRPs will be based on conservative assessments of sustainable abstraction. This will ensure that their water supplies continually improve in terms of environmental sustainability. Irish Water has been an active participant in the characterisation process for the 3rd cycle River Basin Management Plan 2022-2027 and liaised closely with the EPA during the development of the Framework Plan. Therefore, although the proposed Abstractions Bill is still under development and there may be some uncertainty in their calculations of

sustainable abstraction, the assessments used as part of the development of the Regional Plan have followed the same principles as those that will likely be used by the regulatory authorities (based on the legislation as currently envisaged).

Irish Water has also assessed surface water abstractions across the core baseline area with respect to potential conflicts with sustainability guidelines and WFD targets, with the sources identified as surface water abstractions which potentially exceed conservative sustainable abstraction thresholds being at potential risk shown in Table 3.6.

Table 3.6 Abstractions potentially At Risk due to Exceedance of Conservative Sustainability Guidelines

Water Resource Zone	Abstraction
SAK	
Ardfinnan Regional	Ahernes Glen Abstraction, Glenbreda Stream Abstraction
Burncourt Ballylooby	Glengarra River
Clonmel & Environs	Boola River Intake, Poulavanogue Abstraction 1 & 2, Glenary Abstraction 2
Deelish/Ballinacourty/Kilnafrehan	Deelish Reservoir
Dundrum Regional	Multeen River Intake
East Waterford Water Supply Scheme	Clodagh River, Ballyshonnock Impoundment, Mahon River Intake
Fethard & Mullenbawn Regional Public Water Supply	Gurtnapisha, Walshbog, Cloran Stream, Anner River
Galtee Regional	College Stream Intake, Muskry Stream Intake
Portlaw	Portlaw Springs
South Kilkenny	Clonassy/Pollanasa River, River Blackwater, Mullinavat
Thurles / Borrisoleigh	River Clodiagh
SAL	
Kilkenny City	River Dinan, River Douglas
New Ross	River Pollmounty, Dranagh
SAM	
Bunclody	Barkers Stream, Craan Intake
Ferns Regional	River Currlane
Gorey	Bann River (Pallis Bridge), Bann River (Kilmichael Pumping Station)
South Regional	Owenduff
Sow Regional	River Sow- Sow Original
Wexford Town	River Sow – Wexford Town, Coolree Intake

Groundwater abstractions will also need to conform to the proposed new abstraction licencing regime. These abstractions will be assessed in two ways:

- Impacts on the groundwater bodies from which they abstract; and
- Impact of the groundwater abstraction on the base flow in surface waterbodies.

On an interim basis, Irish Water has developed an initial assessment based on the best available information. Over the coming years, Irish Water will work with the environmental regulator, the EPA and the Geological Survey of Ireland (GSI), to develop desktop and site investigation systems to better understand the sustainability of their groundwater sources (informed by data gathered as part of GSI's ongoing GW3D project).

3.4.3 Flood Risk

Flooding is becoming a bigger issue in Ireland (in recent years); the frequency of flood events has been increasing and, with climate change, is expected to increase further. Increased flooding can cause pressure on drains and sewers and can affect water quality.

The Floods Directive (2007/60/EC) required member states to develop Flood Risk Management Plans for areas of existing and future potentially significant flood risk. The Floods Directive was transposed into Irish law by the EU (Assessment and Management of Flood Risks) Regulations 2010 and sets out the responsibilities of the Office of Public Works (OPW). The OPW has been implementing the Directive mainly through the Catchment Flood Risk Assessment and Management (CFRAM) Programme, through which 29 draft Flood Risk Management Plans have been developed. Approximately 300 Areas for Further Assessment have been established along with a range of measures to reduce or manage the flood risk within each catchment. CFRAM mapping for all Areas for Further Assessment is available to view on the CFRAM website (OPW, 2018).

Figure 3.5 (Appendix A) presents areas with high and medium probability of pluvial, fluvial, coastal flooding as well as historical groundwater flooding. There is no probability of groundwater flooding within the South East region. There is minimal evidence of historic groundwater and surface water flooding in the South East region. A number of areas adjacent to rivers in the region such as the River Suir and River Aherlow in the west, as well many smaller areas within the South East region are considered to have high probability (10% Annual Exceedance Probability (AEP)) of fluvial flooding. Dungarvan and Wexford are considered to have high probability of both coastal and fluvial flooding. High probability of coastal flooding can also be observed in the areas of the southern coast of such as at Kilmore Quay south of Wexford and west of Waterford, and Waterford itself. High probability of pluvial (surface water) flooding can be observed in small areas throughout the whole of the South East region. As well as considering surface water flooding, there are ongoing efforts to better understand the role of karst groundwater systems in flooding within the Flood Risk topic.

3.4.4 Drought Risk

Drought risk within the core baseline area is discussed in section 3.3.4 and it identifies where specific existing water supply assets are at risk of failure or reduced levels of service during drought conditions.

Drought can cause low-flow conditions and higher water temperatures that lead to reduction of oxygen concentrations in the water. These environmental effects of drought contributed to fish kills seen in the summer of 2018 across the whole of Ireland. The fish kills caused by 2018 drought event may have increased the vulnerability of fish to acute pollution events as well as underlying levels of pollution. Environmental pressures caused by drought are less likely to affect resilient waterbodies that are in good ecological health (EPA, 2020). The ecological health of waterbodies can also be negatively impacted by over-abstraction of water which can lead to reduction in river flows and lake levels. Irish Water's active

management of some at risk abstractions is needed to avoid negative impacts on waterbodies during drier periods. However, in general outside dry or drought periods, abstractions in Ireland do not put significant environmental pressures on both surface water and groundwater resources (EPA, 2020).

3.5 Biodiversity, Flora and Fauna

3.5.1 Designated Sites

European, national and local designated sites within the core baseline area (South East region) include 14 Special Protected Areas (SPAs), 33 Special Areas of Conservation (SACs), 5 sites designated as Wetlands of International Importance (Ramsar sites), 1 Natural Heritage Area, 8 nature reserves and 135 proposed Natural Heritage Areas (NPWS, 2019). There are a further 2 marine SACs and 2 marine SPAs that are not within the core baseline area but are hydrologically linked to it. These sites are Blackwater Bank SAC, Long Bank SAC, Saltee Islands SPA, and Keeragh Islands SPA. The location of these sites in relation to the core baseline area is shown in Figure 3.6 (Appendix A).

3.5.2 Habitats

Figure 3.7 (Appendix A) illustrates the distribution of different habitat types across the core baseline area; as reported in the Corine Land Use dataset (EPA, 2018). Agricultural land uses dominates all three study areas (SAK, SAL and SAM). There is also a small number of Commonage Land areas located in the core baseline area (EPA, n.d.).

Particularly relevant habitats that depend on water quality and/or quantity are:

- Alkaline fens;
- Bog habitats – transition mires and quaking bog habitats;
- Coastal lagoons;
- Groundwater dependant terrestrial habitats, such as petrifying springs with tufa formation and blanket bogs;
- Molinia meadows on calcareous, peaty or clayey-silt-laden soils (*Molinion caeruleae*); and
- Northern Atlantic wet heaths with *Erica tetralix*;
- Oligotrophic waters containing very few minerals of sandy plains;
- Watercourses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho–Batrachion* vegetation

The EPA OSI national land cover map, currently under development, will be considered for further habitats information, once available.

3.5.3 Species

The key species and habitats of concern within the core baseline area (Nelson et al., 2019) include:

- Fish species - Atlantic Salmon (*Salmo salar*), Twaite shad (*Alosa fallax fallax*), Lamprey species;
- Freshwater pearl mussel (*Margaritifera margaritifera*);
- Killarney Fern (*Trichomanes speciosum*);
- Nore pearl mussel (*Margaritifera durrovensis*);

- Otter (*Lutra lutra*);
- Slender green feather-moss (*Hamatocaulis vernicosus*);
- Waterbirds of ‘qualifying interest’ e.g. Brent goose (*Branta bernicla*), whooper swan (*Cygnus cygnus*), Bewick’s swan (*Cygnus columbianus bewickii*), Greenland white-fronted goose (*Anser albifrons flavirostris*), curlew (*Numenius arquata*), tern species (*Sterna spp.*) and winter migratory waders
- White-clawed Crayfish (*Austropotamobius pallipes*).

Table 3.7 lists the key invasive species to consider (National Biodiversity Data Centre, 2021) for developing options within the SAs.

Table 3.7 Key invasive species present in the South East region

Animals	Plants
A colonial sea squirt (<i>Didemnum spp.</i>)	American skunk-cabbage (<i>Lysichiton americanus</i>)
American mink (<i>Mustela/Neovison vison</i>)	Brazilian giant-rhubarb (<i>Gunnera manicata</i>)
Asian river clam (<i>Corbicula fluminea</i>)	Cord-grasses (<i>Spartina spp.</i>)
Bay barnacle (<i>Balanus improvisus</i>)	Curly waterweed (<i>Lagarosiphon major</i>)
Canada goose (<i>Branta canadensis</i>)	Dwarf eel-grass (<i>Zostera japonica</i>)
Chinese mitten crab (<i>Eriocheir sinensis</i>)	Fringed water-lily (<i>Nymphaoides peltata</i>)
Chinese mitten crab (<i>Eriocheir sinensis</i>)	Giant hogweed (<i>Heracleum mantegazzianum</i>)
Common carp (<i>Cyprinus carpio</i>)	Giant knotweed (<i>Fallopia sachalinensis</i>)
Dace (<i>Leuciscus leuciscus</i>)	Giant-rhubarb (<i>Gunnera tinctoria</i>)
Grey squirrel (<i>Sciurus carolinensis</i>)	Himalayan knotweed (<i>Persicaria wallichii</i>)
Greylag goose (<i>Anser anser</i>)	Himalayan/Indian balsam (<i>Impatiens glandulifera</i>)
Harlequin ladybird (<i>Harmonia axyridis</i>)	Hottentot-fig (<i>Carpobrotus edulis</i>)
Muntjac deer (<i>Muntiacus reevesi</i>)	Japanese knotweed (<i>Fallopia japonica</i>)
Ruddy duck (<i>Oxyura jamaicensis</i>)	New Zealand pigmyweed (<i>Crassula helmsii</i>)
Siberian chipmunk (<i>Tamias sibiricus</i>)	Parrot’s feather (<i>Myriophyllum aquaticum</i>)
Slipper limpet (<i>Crepidula fornicata</i>)	Rhododendron (<i>Rhododendron ponticum</i>)
Wild boar (<i>Sus scrofa</i>)	Salmonberry (<i>Rubus spectabilis</i>)
	Sea-buckthorn (<i>Hippophae rhamnoides</i>)
	Spanish bluebell (<i>Hyacinthoides hispanica</i>)
	Three-cornered leek (<i>Allium triquetrum</i>)
	Water fern (<i>Azolla filiculoides</i>)
	Waterweeds (<i>Elodea spp.</i>)
	Wireweed (<i>Sargassum muticum</i>)

3.6 Material Assets

Material assets are considered to be the natural and built assets (non-cultural assets) required to enable society to function as a place to live and work, in giving them material value. Some of the natural assets within the core baseline area are shown on Figure 3.7 (Appendix A) such as, agricultural land, urban and forest areas.

Built assets include transport and communications infrastructure, and other developed areas, including existing water supply infrastructure. These assets all need to be considered in new water resource planning and infrastructure.

Key road, rail and air transport infrastructure within core baseline area are shown in Figure 3.8 (Appendix A). Key water transport infrastructure includes Rosslare Harbour (SAM) which is the main ferry port for the South East. There is one port of significance in the South East region, the Port of Waterford in SAK. Ireland's canals once played a significant role as a transport network; however, the main uses are now for recreational and heritage purposes. There is only one canal within the core baseline area, Barrow Navigation.

Figure 3.8 (Appendix A) also shows locations of WTPs within the core baseline area.

Any new infrastructure considered for the South East region will need to take existing, planned, land zoning and local development into consideration. At the time of review (September 2022) there were 95 developments in the core baseline area listed on myProjectIreland (2022). These will be examined in further detail for schemes taken forward for Project Level assessment including any additional developments initiated in the intervening period.

Water resources and water quality are also influenced by urban, agricultural and forestry activity within river and groundwater catchments. This can affect the availability and quality of water for supply. Current land use within core baseline area is set out below (EPA, 2018):

- Agriculture – 84.50%;
- Urban – 1.81%;
- Natural habitats – 4.92%;
- Forest – 8.56%;
- Industry – 0.18%; and
- Other – 0.03%.

3.7 Landscape and Visual Amenity

The National Landscape Strategy 2015-2025 is in the process of being implemented and will be Ireland's vehicle for complying with the EU Landscape Convention. Landscape assessment guidance is also available from the local authorities which will be considered when identifying landscape character areas and protected areas at the project level in the future.

The value of the landscape in the South East region is reflected in the baseline data provided in sections 3.3.3 (tourism and recreation), and the designated sites identified in 3.5 (biodiversity, flora and fauna) and 3.10 (cultural heritage).

Landscape Character Areas (LCAs) with high sensitivity in the RWRP-SE area are located in the south-east and centre of Kilkenny County, however the majority of the LCAs within the core baseline area have medium to low sensitivity. Those highly sensitive areas include Brandon Hill, Castlecomer Plateaux, Suir

Valley, Nore Valley, and Blackstairs and Mount Leinster Uplands amongst others (EPA, n.d.). There is limited LCA information available for the eastern and western regions of the core baseline area including Wexford County, Tipperary County and Waterford County.

There are also several Seascape Character Areas (SCAs) that are not within the core baseline area but are hydrologically linked to it. SCAs are located around the coast of the core baseline area near counties Cork, Waterford, and Wexford. These SCAs include, but are not limited to, the Atlantic Celtic Bays and Estuaries, the Celtic Sea Bays and Beaches, and the South East Irish Sea.

Further information on landscape character assessments will be provided in the Study Area Environmental Reviews (SAs K, L, and M).

3.8 Air Quality and Noise

3.8.1 Air Quality

Air quality is monitored and managed using Air Quality Zones and air monitoring sites. The majority of the core baseline area falls within Air Zone D: Rural Ireland with Waterford, Wexford, Kilkenny, and Clonmel falling within Air Zone C: Other Cities and Large Towns (EPA, n.d.). The air quality index rating of the core baseline area is rated as 'good' (EPA, 2020).

In general, the water industry is not a major contributor to air quality issues, although there is potential for local pollution through Irish Water vehicles, generator plants and drinking water residuals treatment facilities. There is a requirement to comply with air pollution regulations and also identify potential opportunities for reducing emissions.

3.8.2 Noise

The main areas within the core baseline area that experience noise pollution are located along M and N roads as shown in Figure 3.8 (Appendix A). Water infrastructure development is not expected to add significantly to noise pollution. Irish Water acknowledges that construction noise can have adverse effects on terrestrial and marine environments and therefore it will be considered through scheme construction management and design for local receptors and for sensitive receptors in close proximity.

3.9 Climate Change

Ireland's current climate is heavily influenced by the Atlantic Ocean, consequently, Ireland has a milder climate that has less extreme temperature variation compared with other countries at a similar latitude. The hills and mountains, many of which are near the coasts, provide shelter from strong winds and from the direct oceanic influence. Winters tend to be cool and windy, while summers are generally mild and less windy (Met Éireann, 2019).

There are four aims that local authorities are required to include in their climate adaptation strategies (Department of Communications, Climate Action and Environment, 2018), these being:

- 1) Mainstream Adaptation: That climate change adaptation is a core consideration and is mainstreamed in all functions and activities across the Local Authority. Ensure that Local Authority is well placed to benefit from economic development opportunities that may emerge through commitment to proactive climate change adaptation and community resilience;
- 2) Informed decision making: That effective and informed decision making is based on reliable and robust evidence base of the key impacts, risks and vulnerabilities of the area. This will support long term financial planning, effective management of risks and help to prioritise actions;

- 3) Building Resilience: That the needs of vulnerable communities are prioritised and addressed, encourage awareness to reduce and adapt to anticipated impacts of climate change and promote a sustainable and robust action response; and
- 4) Capitalising on Opportunities: Projected changes in climate may result in additional benefits and opportunities for the local area and these should be explored and capitalised upon to maximise the use of resources and influence positive behavioural changes.

In addition to these high-level aims, each Local Authority is required to identify the key risks to their area. These are provided in Table 3.7.

Table 3.8 Climate Change Risks Identified by Counties in the Core Baseline Area

County	Key risk areas									
	Flooding (Pluvial, Fluvial, Groundwater or Coastal or Marine)	Extreme Rainfall	Rising Sea Levels and Storm Surges	Storm Frequency and Intensity	Extreme Cold/Heavy Snowfall and Ice	Extreme Heat/Drought Conditions	Bog, Sand, Dune, Gorse, or Forest Fires	Coastal Erosion	Wind Speeds	Air Quality or Pollution
Carlow County (Carlow County Council, 2019)	✓	✓	-	-	✓	✓	-	-	-	-
Cork (Cork County Council, 2019)	✓	-	-	✓	✓	✓	-	✓	✓	-
Kilkenny County (Kilkenny County Council, 2019)	✓	✓	✓	✓	✓	✓	-	-	-	✓
Laois County (Laois County Council, 2019)	-	✓	-	-	✓	✓	✓	-	✓	-
Limerick (Limerick City and County Council, 2019)	✓	-	-	✓	✓	✓	-	✓	✓	-
Tipperary (Tipperary County Council, 2019)	✓	-	-	-	-	✓	-	-	-	-
Waterford (Waterford City and County Council, 2019)	✓	-	✓	-	✓	✓	-	-	✓	-
Wexford County (Wexford County Council, 2019)	✓	✓	✓	✓	✓	✓	✓	-	-	-
Wicklow County (Wicklow County Council, 2019)	✓	✓	✓	✓	-	-	-	-	✓	-

In addition, Ireland has a sectoral climate adaptation plan for the 'Water Quality and Water Services Infrastructure' sector. A summary of this report's findings is included in Table 3.9. Whilst not specifically identified in county level plans, climate change induced risk of water contamination through changes such as increased sediment loads and release of nutrients from catchment soils is a further issue and particularly relevant for approaches that can address these such as through catchment management and nature-based solutions.

Table 3.9 Summary of Key Points from the 'Water Quality and Water Services Infrastructure' Sectoral Climate Change Plan (Department of Housing, Planning and Local Government, 2019b)

Summary	
• Key Points	<ul style="list-style-type: none"> Protecting and improving water quality and improving water services infrastructure are major challenges in Ireland Climate change-induced threats will increase the scale of these challenges Risks to water quality and water infrastructure arise from changing rainfall patterns and different annual temperature profiles. The frequency and intensity of storms and sea level rise are also considered
• The challenges: Water services infrastructure	<ul style="list-style-type: none"> Increased surface and sewer flooding leading to pollution, water, and wastewater service interruptions Reduced availability of water resources Hot weather increasing the demand for water Increased drawdown from reservoirs in the autumn/winter for flood capacity, leading to resource issues Business continuity impacts or interruptions for water services providers
• Primary adaptive measures	<ul style="list-style-type: none"> Fully adopt the 'integrated catchment management' approach Improve treatment capacity and network functions for water services infrastructure Water resource planning and conservation – on both supply and demand sides Include climate measures in monitoring programmes and research Many of these proposed adaptation actions are already underway through existing and scheduled water sector plans and programmes

Climate change is expected to influence weather conditions such as frequency of droughts and extreme events such as storms and is likely to affect habitats and species, water availability for supply and water demand. Across the core baseline area there are many supplies which do not meet the required levels of reserve capacity. As evidenced in the 2018 drought, there is the potential for these deficits to effect access to water in the future. Supporting environmental resilience to climate change will also be an important consideration for the future with additional benefits for supply resilience.

3.10 Cultural Heritage

There are no UNESCO World Heritage Sites (WHS) within the core baseline area however there is one site listed on the Tentative List (EPA, n.d.). There are two Irish Landmark Trust sites located within the core baseline area (EPA, n.d.), as well as numerous designated and non-designated cultural heritage assets inventoried in the Record of Monuments and Places, the Sites and Monuments Record (SMR),

the Record of Protected Structures, and the National Inventory of Architectural Heritage (NIAH). In total in the South East region (within the core baseline area) there are 18,373 sites recorded by the National Monuments Service and 9,164 sites recorded on the NIAH. Given the number of small sites across the core baseline area, these are best viewed on the Department of Culture, Heritage and the Gaeltacht's (2020) 'Historic Environment Viewer' website. There are also several undesignated heritage assets within the marine area surrounding the South East region.

There are also potentially unknown, undesignated archaeological and architectural remains, throughout Ireland.

3.11 Geology and Soils

The geology and soils in the environment can impact the quality and quantity of water in the area through differences in drainage, chemical composition, filtration and resultant land use; which can also have a significant impact. The water supply can be heavily impacted by the type of aquifer in the area, as they impact the system's ability to store and transmit groundwater.

3.11.1 Geology

Figure 3.9 (Appendix A) shows the geology of the core baseline area, with particular reference to potential aquifers.

Understanding the geology of our catchments is vital to the provision of clean water. Geology is responsible for shaping mountain ranges, defining river network systems and determining their character, i.e. slope and erosivity. The bedrock geological maps developed by the GSI are the foundation maps upon which groundwater protection and vulnerability maps have been constructed and upon which WFD groundwater bodies and monitoring programmes have been established by the EPA. In general, the topography and its associated geological deposits can be broadly split into topographic highs and lowland valleys. Considering the extent of glaciation during the last ice age the Irish landscape can be considered a glacial one. Bedrock outcrop often prevails in the mountainous areas, while the remainder of Ireland's bedrock is generally overlain by glacial material or glacially influenced materials (river alluvium, peat or coastal deposits).

The oldest geology of the South East region, comprising greywacke sandstones, slatey mudstones, shales and quartzites were deposited during the Cambrian Period, 541 – 485 million years ago (mya). These represent 5% of the geology of the South East region, consisting of highly complex metamorphic rocks. There is a very minor representation of Precambrian rocks, representing just 1%. Most of them originated as sedimentary rocks such as limestones (which became marbles), sandstones (which became quartzites or psammites) and mudstones (which became schists or pelites). There are large swathes of Cambrian Metasediments stretching from Tramore in Waterford northeast to Ballygarrett at the coast in Wexford.

The Ordovician and Silurian Periods, when present day northwest and southeast Ireland lay along the margins of separate continental masses and divided roughly along the Shannon Estuary, represents the second largest proportion (32%) of the South East region's bedrock geology. During the closure of the Iapetus Ocean, the subduction of oceanic crust was responsible for the formation of a volcanic island arc. These volcanic rocks were erupted and intruded into the Silurian marine sedimentary sequences, which include greywackes, mudstones, lavas and tuffs. These form an extensive band which stretches from Wexford in the northeast to Stradbally on the coast of Waterford.

Broadly speaking the geology of the Munster Basin, consists of east-west trending anticlines (sandstone ridges) and synclines (limestone valleys). The Late Devonian period (c. 370 mya) was a period characterised by river deposition in a sub-equatorial arid environment. The rocks are collectively known as Old Red Sandstone (ORS) and consist mainly of coarse and fine sandstones, siltstones, shales, and conglomerates. They make up around 14% of the bedrock geology in the South East region. These non-marine sediments can form depths of up to 6km in places. They are resistant to erosion and often form rugged terrain of the more upland areas. Most notable are the Knockmealdown Mountains located on the borders of Tipperary and Waterford. They are predominantly overlain by quaternary sediments of Till and raised Peat in the more upland areas.

Most of the bedrock geology of the South East region (34%) falls into the Lower Carboniferous period (350 mya), which consists of a mixture of sandstone, limestone and shale, and these represent the transition from terrestrial to marine depositional conditions. During the transgression of the warm, shallow sea limestones, which are sediments derived from the breakdown and disintegration of calcareous shells of invertebrate animals, were deposited. They are present in the lower lying areas across large areas of Tipperary and Kilkenny and to a smaller extent southeast Wexford. The Upper Carboniferous (325 mya) is represented by 6% of the South East region, dominated by deep water shales in the lower Namurian sequence, while the upper portions are generally sandstones and siltstones. These appear as a small occurrence in northern Tipperary and Kilkenny.

Important geological and geomorphological sites could be identified for protection as NHAs, however, until designation is confirmed, these sites are classified as Irish Geological Heritage Sites (IGHS). There are over 900 IGHS identified around Ireland, including 155 within the core baseline area (see Figure 3.6, Appendix A).

3.11.2 Groundwater Aquifers

Figure 3.9 (Appendix A) shows gravel and bedrock aquifers within the core baseline area.

Resource protection areas are delineated according to the value of the groundwater resources/aquifer category. They describe both resource potential/value (Regionally or Locally important, or Poor) and groundwater flow type (through fissures, karst conduits or intergranular). Regionally important bedrock aquifers are defined as those that can service public water supplies or that have excellent yields ($>400 \text{ m}^3/\text{d}$). The aquifer area is $>25 \text{ km}^2$ and flow is predominantly through fractures, fissures and joints. Locally important bedrock aquifers are defined as those that can service more local public water supplies/group schemes or that have good yields (100-400 m^3/d). Flow is predominantly through fractures, fissures and joints. Poor bedrock aquifers are defined as those that can service more small abstractions (domestic supplies/small group schemes) or that have moderate-low yields ($<100 \text{ m}^3/\text{d}$). Flow is predominantly through a limited and poorly connected network of fractures, fissures and joints. Sand and gravel aquifers are classed as an aquifer if the deposit is highly permeable, more than 10 m thick and greater than one square kilometre in areal extent. The thickness is more often used than the more relevant saturated thickness as the data for this is often not available.

The predominant aquifer type of the South East region, as shown in is made up of poorly productive bedrock (70%), followed by productive fissured (22%), sand and gravel (5%) and karstic aquifers (3%). The aquifer classification for the Dinantian (Lower Carboniferous) aquifers can range from the lesser productive LI, PI and Pu to the more productive Lm and Rf aquifers depending on the nature and concentration of faults and fissures. Dinantian (early) Sandstones, Shales and Limestones Group comprises a mixture of siltstones, sandstones, mudstones, shales and limestones. Overall, the interbedding will tend to limit vertical permeabilities and groundwater flow systems will be rather

localised. There are also large swathes of Dinantian (Lower Carboniferous) Impure Limestones and are interleaved with the Pure Bedded Limestones. The limestones are often characterised by the occurrence of chert and shale bands and are generally less productive than the Pure Bedded Limestones. The ORS are predominantly of a poorly productive bedrock flow regime and assumed to be generally devoid of intergranular permeability, with groundwater flow occurring predominantly through fractures and faults. Most groundwater flow occurs in the top 15-20 metres of the aquifer, with levels generally mirroring topography, although deeper flows along fault zones or connected fractures are encountered which can provide much higher yields. Significant flows can be found at springs issuing from bedding planes marking a change in lithology. Much of western and central Waterford, as well as parts of western Tipperary, is characterised by a larger proportion of ORS bedrock resulting in lower groundwater potential in this part of the Study Area. The Cambrian rocks, mostly seen in southeast Wexford, generally show low aquifer potential but are occasionally capable of supplying group schemes and small commercial interests.

There are extensive swathes of regionally important karst aquifer (diffuse R_k^d) in some areas, particularly in southern Tipperary stretching north-eastwards into Kilkenny and southeast Wexford. The distribution of permeability and yield is more homogenous where the development of karst has resulted in a more diffuse network of flow pathways. This provides a slightly more reliable flow regime than conduit (R_k^c) dominated aquifers, however these karstic environments are still prone to pollution from point sources such as septic tanks, disposal sites and land spreading. A number of large abstractions take place from these pure bedded limestones, namely Fardystown (supplies c. 9,500 m³/d) in Wexford and Mullenbawn spring (650 – 2,200 m³/d) in South Tipperary. Dolomitisation of the limestone results in an increase in porosity and permeability and is most notable in central Kilkenny where a band of bedrock extends to the northeast, while also being present in parts of north Tipperary. Optimum well yields from the dolomite aquifer will be obtained from boreholes drilled into one of the many fault zones and penetrate at least 50-100m of the aquifer. Previous groundwater exploration in the area of Bennetsbridge, Kilkenny showed the productive limestone zones to be relatively localised and associated with areas of dolomitisation. It should be noted that extensive weathering associated with dolomitisation can lead to problems when drilling.

Groundwater flow in the productive fissured aquifers largely takes place along fractures and faults. Where extensive faulting occurs, the aquifer permeability is likely to be increased. Additional fracturing may also be associated with the faulting. An extensive body of productive fissured bedrock, made up primarily of volcanics, stretches from Wexford in the northeast to Stradbally on the coast of Waterford. The most productive yields are sourced from the well-developed fissures in the felsic Rhyolites and Andesites. Lower permeabilities and yields do occur in these however, with intrusive rocks (dykes and sills) forming a barrier to groundwater flow. There are some productive wellfields in this formation, such as Gorey in Wexford which has in the past supplied upwards of 7,000 m³/d. The potential for productive wells becomes less frequent in Co. Waterford due to the greater proportion of intrusive rocks. Although covering a less extensive area than the Ordovician Volcanics, the Devonian Kiltorcan Sandstones form a Regionally Important Fissured aquifer and can be found along the base of the Galtee Mountains, while also extending in a narrow band through Waterford, Tipperary to Kilkenny. This type of bedrock has shown to be able to provide good yields (c. 700 m³/d at Cappoquin), where permeability depends on fractures and fissures. The cleaner sandstones are likely to have a denser network of fracturing and fracture permeability in the shalier sandstones.

The differing spatial extents and permeabilities of sand/gravel aquifers results in a variable development potential. They act as areas for groundwater filtration owing to the intergranular flow mechanics, which

offers good protection against microbial contamination. There are a number of regionally important sand and gravel aquifers (R_g) throughout the region, with the main ones occurring in Kilkenny (Nore Valley and Kilmanagh Gravels) and the Screen Hill Gravels in Wexford. Those in valley settings will likely receive significant rejected recharge from valley sides. The sand/gravel deposits, when overlying areas of bedrock aquifers, can improve the overall flow and storage to the aquifer and also protect against pollution. Conversely, groundwater from the dolomite bedrock can feed into the gravel under certain conditions.

3.11.3 Soils

Dominant soil type in the central and south of the core baseline area are brown earths (EPA, n.d.). The eastern part of the core baseline area is dominated by gley with small patches of podzolics, luvisols, and brown earths. The north and west of the baseline area are dominated by luvisol with patches podzolic, and peat. Small patches of tidal marshes are present on the coastal areas located both south and east of Waterford, north- and south-east of Wexford, and some within and south of Dungarvan.

3.12 Baseline Topic Interactions, Issues and Opportunities

3.12.1 Interrelationships between SEA topics

In accordance with the SEA Directive, it is a requirement to recognise the interrelationships between environmental topics, as changes to one environmental aspect can directly or indirectly influence others. Figure 3.10 below indicates the potential interrelationships between SEA topics demonstrating most topics interact to some level in a range in some circumstances. Key interactions are highlighted.

3.12.2 Transboundary effects

Transboundary effects are not predicted on the basis that the border with Northern Ireland is at the distance over 150 km from the SE region with no shared WFD catchments units or other pathways for effects and no options with potential significant effects on the marine environment are considered for the draft RWRP-SE. Given the nature of the type of options, distance and absence of pathways for effects, transboundary effects on the environment of Northern Ireland are scope out of the assessment for the draft RWRP-SE.

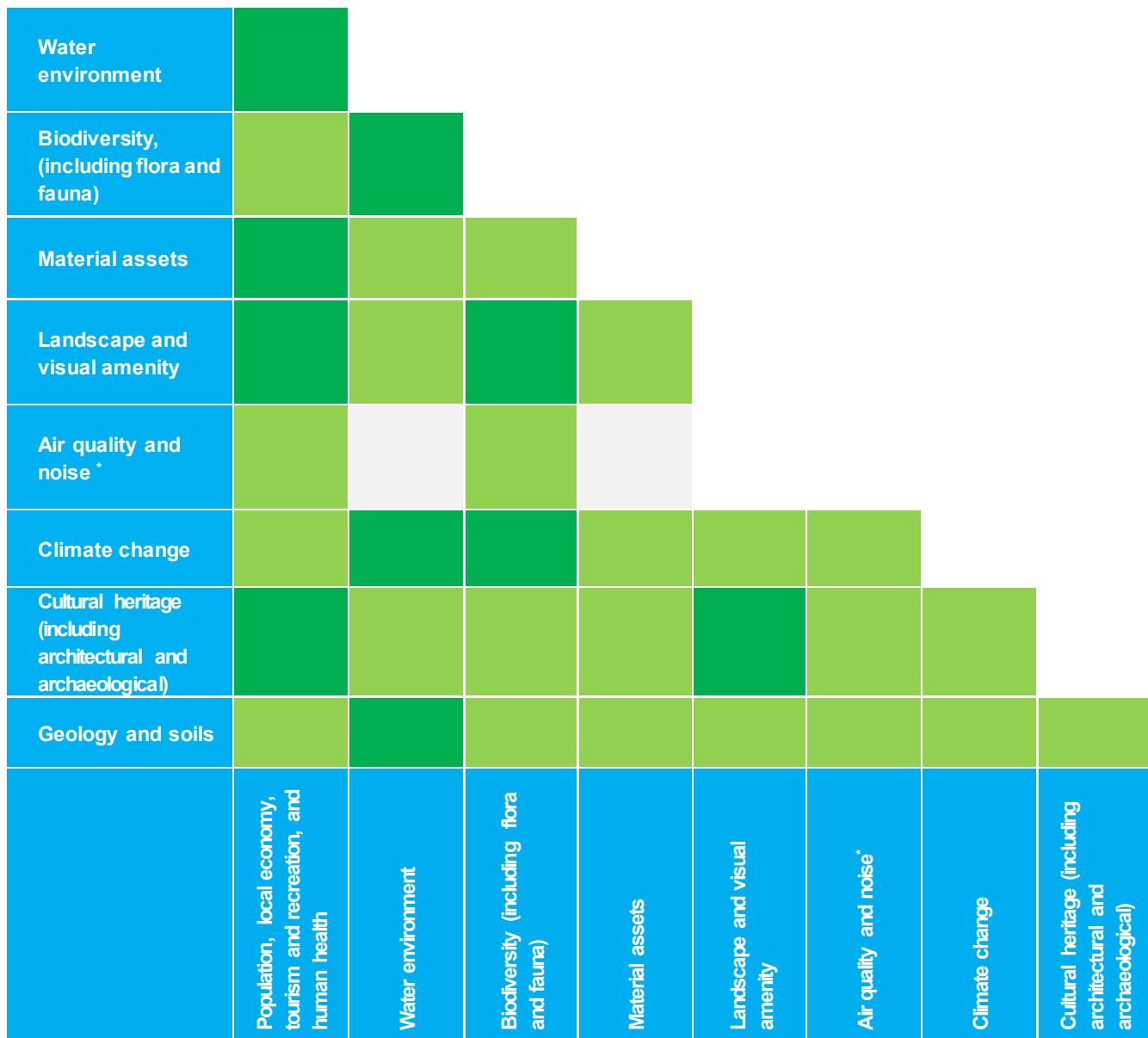


Figure 3.10 Interrelated SEA topics

4

Proposed Scope of Assessment and Methodology

4 Proposed Scope of Assessment and Methodology

This Section provides the proposed SEA objectives for the draft RWRP-SE, outlines the approach to assessment for Preferred Approach and alternatives as has been formalised through the Framework Plan, and sets the proposed structure of the Environmental Report

Scoping question: Do you have any comment on the scope of assessment set out in Table 4.1?

Scoping question: Do you have any comment on the SEA objectives that are set out in Table 4.2?

4.1 Scope of Assessment

All aspects of the environment will need to be considered as individual schemes are taken forward for further design and implementation but key issues relevant for strategic water planning have been identified for the SE region through a review of relevant plans, policies and programmes as set out in Chapter 2 and of the environmental baseline as set out in Chapter 3. Table 4.1 sets out the key issues and trends identified and provides the proposed scope of assessment for the Environmental Report.

Table 4.1 Scope of assessment

SEA Topic	Issues and opportunities	Scoped into assessment? Green - yes Red - No
Population, Economy, Tourism and Recreation, and Human Health	<p>Issues: increasing population and the increased stress of climate change on water quality and water resources could affect health and well-being.</p> <p>Opportunities: Irish Water will put in place plans to assess water quality and put in place measures to address risks as part of the NWRP.</p> <p>Irish Water has ongoing activities to improve the Supply Demand Balance across the SE region, including, leakage management and water conservation measures.</p> <p>Raising awareness of the importance of water conservation and efficiency measures, and the value of the environment for health and wellbeing, can play an important part in water planning along with valuing water as part of access to environment for recreation.</p>	✓
Water Environment	<p>Issues: The proposed abstraction licensing, aligned to WFD requirements, will require many current abstractions to be licensed and may limit future abstraction or involve significant conditions at associated sites. Across the SE region some of the existing abstractions are potentially unsustainable in the medium term; specifically, during drought periods.</p> <p>Irish Water will need to update their sustainability analysis and impact on their baseline SDB calculations when regulatory assessment for new legislation are undertaken.</p> <p>Opportunities: to take account of identified pressure on the water environment in the selection of solutions for individual Study Areas</p>	✓

SEA Topic	Issues and opportunities	Scoped into assessment? Green - yes Red - No
Biodiversity, Flora, and Fauna	<p>Issues: it is considered especially important to avoid the loss of irreplaceable or rare habitats and increasing pressure on vulnerable species; potentially through direct land take or indirect such as through increased abstraction pressure</p> <p>Opportunities: for reducing pressure on water dependent habitats and for incorporating habitat enhancement into scheme design and implementation and linking catchment wide improvements to water quality to habitat enhancement measures.</p>	✓
Material Assets	<p>Issues: WTP assets and network infrastructure requiring improvement or replacement.</p> <p>Opportunities: improvements to support reliability of access to good quality water</p>	✓
Landscape and Visual Amenity	<p>Issues: potential for climate change to affect land use and influencing landscape character, quality, and amenity</p> <p>Opportunities: for decommissioning to remove structures, and for links to habitat enhancement contributing to landscape and visual amenity through scheme design also opportunities linked to wider catchment initiatives to improve water quality and retention.</p>	✓
Air Quality and Noise	<p>No specific issues identified for the baseline for the SE region related to the types of options and combinations under consideration for the draft Regional Plan and disturbance related to construction impacts are addressed in terms of receptors within the population and health topic.</p>	✗
Climate Change	<p>Issues: Climate change issues regarding sea level rise, flooding, extreme weather events and changes in seasonal weather patterns.</p> <p>Climate change has been considered in supply forecasts and additional risks to infrastructure and operations will need to be considered in planning for drought and freeze/thaw events and in detailed scheme design and network operation.</p> <p>Opportunities: additional management to minimise impact on supply and the environment, vulnerability to climate change and drought is required.</p>	✓
Cultural Heritage	<p>Issues: known cultural heritage and archaeological assets and potential unknown archaeological assets could be affected by construction works or change to setting or access. Potential for hydrological changes to affect heritage and archaeological assets.</p>	✓
Geology and Soils	<p>Avoidance of designated geological sites and general need minimise loss of valuable soils</p> <p>Opportunities: generally to apply good soil conservation practices and encourage retention of nutrients and carbon in soil resources. Potential</p>	✓

SEA Topic	Issues and opportunities	Scoped into assessment? Green - yes Red - No
	to reduce loss of soils and nutrients through catchment wide initiatives to improve water quality and support carbon sequestration.	Green
Transboundary effects	No likely significant effects on the environment of Northern Ireland have been identified based on the nature of the type of options under consideration, distance and absence of pathways for effect.	Red

4.2 Proposed SEA Objectives

Proposed SEA objectives for the draft RWRP-SE are set out in Table 4.2 below. These have been developed taking into account the baseline information and key trends for the core baseline area provided in Section 3 and the review of relevant plans, policies and programmes as summarised in Section 2. At least one SEA objective has been identified against each of the SEA topics discussed in Section 3.

These SEA objectives are used as the framework for the assessment of likely significant effects (LSEs) from the Framework Plan compared to a ‘without plan’ alternative and for each of the potential water supply and demand options (construction and operational phases). The methodology for the assessment was developed in accordance with the following EPA guidance:

- Developing and Assessing Alternatives in Strategic Environmental Assessment (SEA);
- Guidance on SEA Statements and Monitoring;
- Residual Management Plan
- Integrating Climatic Factors into Strategic Environmental Assessment in Ireland - A Guidance Note;
- Developing and Assessing Alternatives in Strategic Environmental Assessment (SEA); and
- Good practice guidance on Cumulative Effects Assessment in SEA.

Table 4.2 SEA objectives

Strategic Environmental Assessment topic	SEA Objective
Population, economy, tourism and recreation, and human health	Protect and, where possible, contribute to enhancement of human health and wellbeing and to prevent restrictions to recreation and amenity facilities in provision of water services.
Water environment	Water quality and resources Prevent deterioration of the WFD status of waterbodies with regard to quality and quantity due to Irish Water’s activities. Contribute towards the “no deterioration” WFD condition and, where possible, to restore and improve waterbody status for rivers, lakes, transitional and coastal waters, and groundwater to contribute to meeting WFD objectives.

Strategic Environmental Assessment topic	SEA Objective
	<p>Flood risk</p> <p>Protect and, where possible, reduce risk from flooding as a result of Irish Water's provision of water services.</p>
Biodiversity	Protect and, where possible, enhance terrestrial, aquatic and soil biodiversity; particularly European sites and protected species in provision of water services.
Material assets	<p>Minimise resource use and waste generation from, new or upgraded, existing water services infrastructure and management of residuals from drinking water treatment - to protect human health and the ecological status of waterbodies.</p> <p>Minimise impacts on other material assets and existing as well as future water abstractions.</p>
Landscape and visual amenity	Protect and, where possible, enhance designated landscapes in provision of water services.
Climate change	<p>Climate change mitigation</p> <p>Minimise contributions to climate change emissions to air (including greenhouse gas emissions) as a result of Irish Water's water services</p>
	<p>Climate change adaptation</p> <p>Promote the resilience of the environment, water supply and treatment infrastructure to the effects of climate change.</p>
Cultural heritage	Protect and, where possible, enhance cultural heritage resources in provision of water services.
Geology and soils	Protect soils and geological heritage sites and where possible contribute towards the appropriate management of soil quality and quantity.

**Note air quality and noise are scoped out of this plan level assessment but short-term disturbance impacts from noise and air pollution during construction are addressed for receptors in population, recreation and human health and biodiversity topics.

In addition to the topic specific objectives, interrelated aspects are also considered, where there are potential effects across a number of topics as set out in Section 4.3.

4.3 Assessment Approach

A detailed description of the approach to assessment for the draft RWRP-SE, including the assessment of within-plan and inter-plan cumulative effects, is set out in Sections 9.11.2 to 9.11.5 of the SEA Environmental Report for the Framework Plan which can be found at the following weblink:
www.water.ie/nwrrp

The eight stage options and approach assessment process is outlined in Figure 1.3. The aim of the process is to understand the requirements and then to identify potential solutions to address these. The SEA objectives and assessment criteria provide a framework for integrating the environmental

assessment throughout this process alongside the other criteria taken into account such as feasibility, deliverability, resilience and cost. The stages are also summarised below:

Stages 1 and 2 identify the water supply needs taking account of baseline assessments for both water resource and quality needs and constraints over the plan period including calculation of the supply demand balance taking account of planned growth and resource supply and considering climate change effects.

Stage 3 Unconstrained options: these are all the potential options to be considered to resolve water quality or quantity requirements. Identification of potential options includes an initial high-level consideration of hydrological and hydrogeological constraints and WFD requirements;

Stage 4 Coarse screening involves a high-level review of the unconstrained options against a range of criteria including environmental sustainability criteria and rejection of options considered not to be viable likely to result in significant environmental effects on important receptors such as European sites and would be difficult to avoid or mitigate. Information on options and constraints is also collected to inform the next stage;

Stage 5 Fine screening – this stage includes a comparative options assessment and scoring against the environmental objective criteria for each SEA objective. This stage allows further consideration of the options and removal of options considered unfeasible or unlikely to be environmentally acceptable.

Stage 6 Feasible option list – the remaining options are developed further including costing and review of environmental assessment scoring as part of the Multi Criteria Analysis (MCA).

Stage 7 Approach Assessment - After the feasible options for the study area are identified the next step is to assess a range of possible combinations to resolve the supply deficit within each water resource zone (WRZ) and across the study area as a whole. Six approaches are compared which are the combinations rated as the best within the six categories summarised in Table 4.3. This process contributes to assessment of alternatives to meet plan objectives. Consideration of reasonable alternatives is an important part of meeting SEA regulatory requirements. The terminology used to describe options/approaches at each spatial level of the Framework Plan is shown in Table 4.3.

Table 4.3 The Six Study Area approaches

SA Approaches Tested	Description	Policy Driver
Least Cost (LCo)	Lowest Net Present Value (NPV) cost in terms of Capital, Operational, Environmental and Social costs, and carbon.	Public Spending Code
Best Appropriate Assessment (Best AA) (BA)	Lowest score against the European Sites (Biodiversity) question. Options scoring -3 are given a high-risk score and better approaches for these options are identified where possible.	Habitats Directive
Quickest Delivery (QD)	Based on an estimate of project lead in time (including typical feasibility, consent, and construction durations) as identified at Fine Screening. May be required for urgent Public Health issues.	Statutory Obligations under the Water Supply Act and Drinking Water Regulations

SA Approaches Tested	Description	Policy Driver
Best Environmental (BE)	Best score across all environmental criteria focusing on sum of negative scores as the key indicator and also considering high-risk scores (-3 scores) and long-term impacts.	SEA Directive and Water Framework Directive
Most Resilient (MR)	Best resilience score against resilience criteria.	National Adaptation Plan
Lowest Carbon (LC)	Lowest embodied and operational carbon cost.	Sectoral Adaptation Change

These six approaches focus on different plan or environmental objectives. These approaches address environmental objectives (highlighted green above), and these are:

- Best AA;
- Best Environmental; and
- Lowest Carbon approaches.

These are all focused on environmental criteria and are based on the environmental information and scoring undertaken for the MCA.

The approach assessment process is undertaken through structured workshops involving relevant environmental expertise and information on the feasible options; including the environmental assessment against SEA criteria in the MCA and the option costings. This provides stepped testing of the six approaches to identify the best overall options at the WRZ, study area and regional levels.

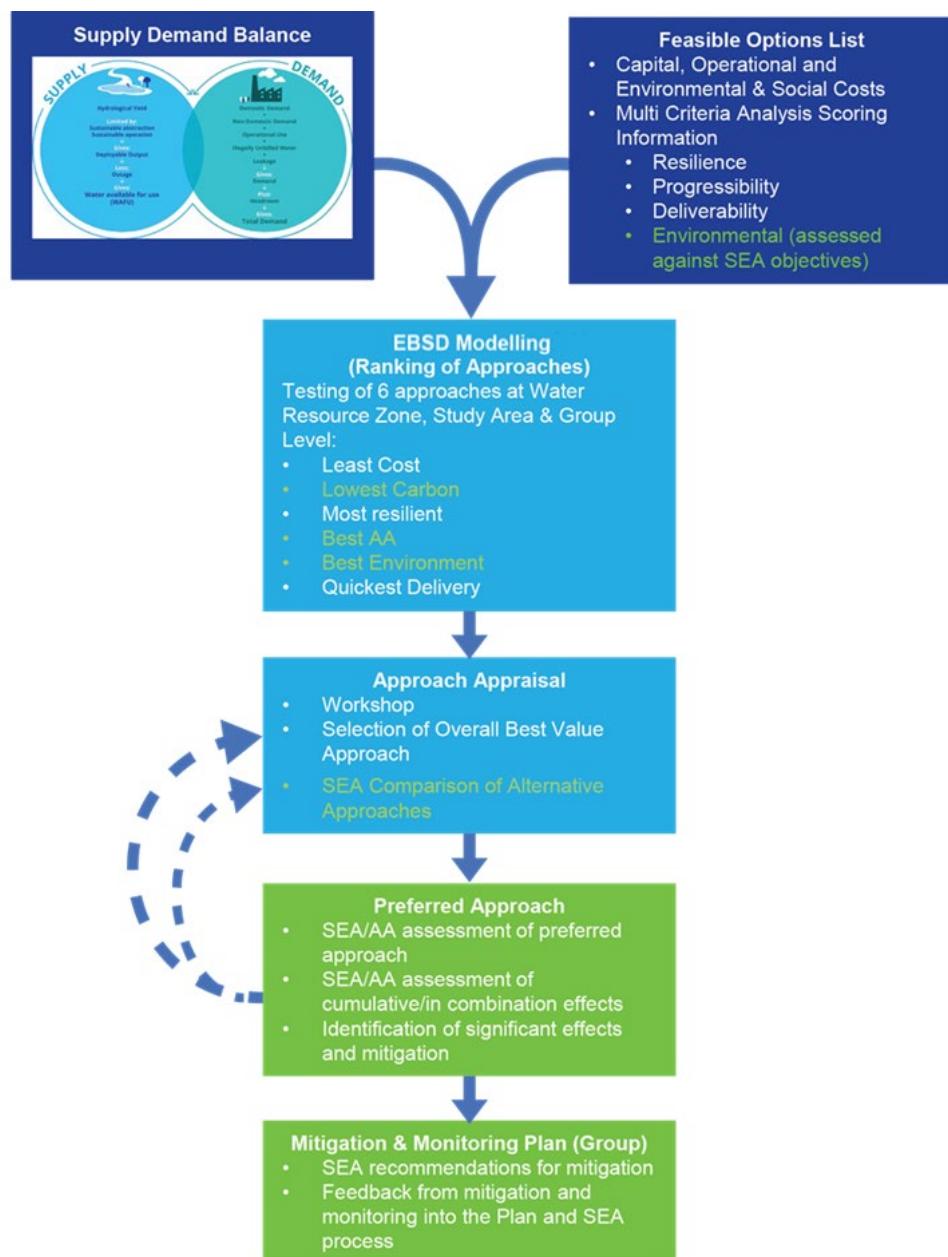


Figure 4.1 Approach Development Process

Stage 8 Monitoring and feedback – will include the implementation of the SEA recommendations for mitigation and monitoring and influencing downstream actions and providing the basis for feedback into future plans and assessments.

4.3.1 Environmental Assessment through the option and approach development process

A summary of the key elements of the environmental assessment process is provided below:

- 1) **Option level assessment:** all feasible options will be assessed as part of the MCA and scored against the SEA objectives set out in Table 4.2. These are used to inform the selection of options and the approach comparisons.

SEA option assessment summaries, which will record assessment against SEA objectives using a matrix-based approach, will be provided for all Preferred Approach options for each Study Area and also for any regional level preferred options or alternatives. The nature of effects (temporary short term or long term, permanent), significance of effects and level of certainty in assessment outcomes will be recorded as shown in Table 4.4. The significance of effect is determined in accordance with Table 4.5 and moderated by professional judgement where required. The assessment takes into account the value/sensitivity of affected receptors, as well as the magnitude of the impacts anticipated.

Table 4.4 Significance of effect and assessment certainty (option level assessments)

Type of effect		Potential significance of effect			
Long term (>15 years)	L	Major beneficial	+++	Major adverse	---
Short term (<5 years)	S	Moderate beneficial	++	Moderate adverse	--
Permanent	P	Minor beneficial	+	Minor adverse	-
Temporary	T	Neutral	0		
Assessment certainty		Low/Medium/High			

Table 4.5 Determination of significance

Magnitude of impact		Baseline value/sensitivity				
		Low		Medium		High
Major loss or change to receptor(s)		Minor adverse	-	Moderate adverse	--	Major adverse
Moderate loss or change to receptor(s)		Minor adverse	-	Moderate adverse	--	Moderate adverse
Minor loss or change to receptor(s)		Minor adverse	-	Minor adverse	-	Moderate adverse
No impact or impact does not affect		Neutral	0	Neutral	0	Neutral
Minor enhancement to receptor(s)		Minor beneficial	+	Minor beneficial	+	Moderate beneficial
Moderate enhancement to receptor(s)		Minor beneficial	+	Moderate beneficial	+	Moderate beneficial
Major enhancement to receptor(s)		Minor beneficial	+	Moderate beneficial	+	Major beneficial
Value/sensitivity of receptors						
Low value receptors(s) = locally important and/or resilient to losses and substitution and/or limited capacity for enhancement						
Medium value receptor = regionally important and/or with some resilience or capacity to accommodate losses of substitution or enhancement						

Magnitude of impact	Baseline value/sensitivity		
	Low	Medium	High
High value receptor = nationally important and/or with very limited resilience or potential to accommodate losses or substitution or substantial capacity for enhancement			

- 2) **Study area level assessment:** an assessment of each approach, including the ‘Do Minimum’ approach, will be prepared for each study area. Differences between the approaches will be explained and justification for the selected Preferred Approach will be set out. Mitigation measures associated with the individual options in the Preferred Approach will be provided.
- 3) **Study area level cumulative effects:** the potential for cumulative effects against the SEA objectives will be considered. This will include ‘within plan’ cumulative effects (i.e. between options or groups of options included within the Preferred Approach) and ‘with other developments’ cumulative effects (i.e. with other developments within the study area).
- 4) **Regional level assessment:** an assessment of the potential positive and negative cumulative effects arising from the Preferred Approaches identified for at study area level, as well as any regional level options, will be undertaken. The assessment will be presented in matrix format, with the significance of effect recorded against each SEA objective as per Table 4.6.

Table 4.6 Significance of effects (regional level assessment)

Key			
Likely to have a positive effect	+	Likely to have a mixed positive and negative effect	+/-
Likely to have a negative effect	-	Likely to have mixed neutral and negative effect	0/-
Effects are uncertain or not applicable	? or N/A	Likely to have mixed neutral and positive effect	0/+
Likely to have a neutral effect	0		

- 5) **Regional level cumulative effects** - the SEA Environmental Report for the Framework Plan also refers to a further step which involves assessment of potential cumulative effects associated with either i) inter-regional options (such as transfers between regions) or ii) cumulative effects between Regional/Group Area Preferred Approaches. The draft RWRP-SE is the fourth Regional Plan to be developed, and therefore the information from the Eastern and Midlands and South West regions which are adjoining the South East region, and North West region, which is in the proximity to South East, will be taken into account. An inter-regional level assessment will be carried out to the extent possible, based on information currently available regarding approaches for the other regions. As subsequent Regional Plans are developed, the Environmental Report which accompanies them will consider the inter-regional cumulative effects with all preceding Regional Plans including the draft RWRP-SE.

4.3.2 Transboundary environmental assessment

Transboundary effects on the environment in Northern Ireland are scoped out of the assessment as explained in section 3.12.2.

4.3.3 Appropriate Assessment

A Stage 1 (Screening) Assessment for the draft RWRP-SE has been undertaken and is available to view at www.water.ie/nwrrp and concludes that a Stage 2 Appropriate Assessment is required. The SEA assessment will be informed by the Appropriate Assessment for the draft RWRP-SE, as illustrated within Figure 1.4 which shows how the SEA and AA processes are integrated with each other and with development of the Plan.

4.4 Structure of the Environmental Report

Table 4.6 sets out the proposed structure for the SEA Environmental Report for the Regional Plan. The Environmental Report will summarise the findings of the SEA assessment at regional level, provide the assessment of regional level cumulative effects and set out the proposed approach for mitigation and monitoring. The main report will be supported by an individual Environmental Review report for each Study Area which will provide detailed baseline context for each Study Area, assessment of the options screening process and feasible approach, assessment of the Preferred Approach and alternatives at Study Area level (including ‘within plan’ and ‘with other development’ cumulative effects) and Study Area specific mitigation and implementation recommendations.

Table 4.7 Draft RWRP-SE SEA Environmental Report Structure

Structure
Chapter 1 - Introduction and Background
Chapter 2 - Overview of South East region
Chapter 3 - Consultation
Chapter 4 - Review of relevant Plans, Policies and Programmes
Chapter 5 - Overview of draft RWRP-SE Strategic Area – summary of baseline
Chapter 6 - Options and Approach Assessment Methodology
Chapter 7 - Study Area Assessment Summaries
Chapter 8 - Assessment of Alternatives at Regional Level
Chapter 9 - Preferred Approach and Cumulative Regional Level Assessment
Chapter 10 - Mitigation and Monitoring Plans
Chapter 11 - Next Steps
Glossary and Acronyms
References
Appendices (including Environmental Reviews for each Study Area) and Policy and Plan review

4.5 Limitations and Assumptions for the SEA

Given the high-level nature of a regional plan will be uncertainties and limitations for the environmental assessment. These are recognised and summarised below:

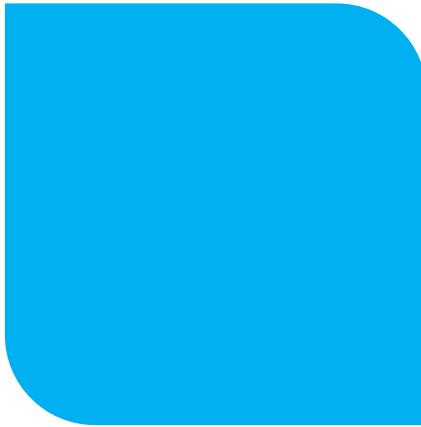
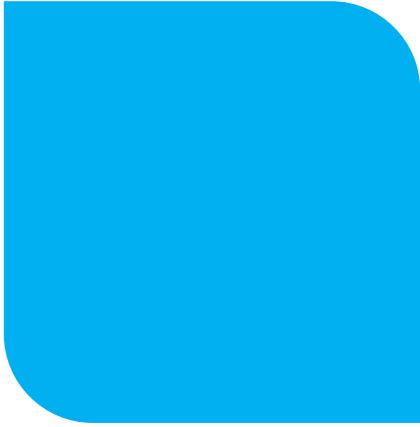
Limitations include:

- High level nature of the assessment based on preliminary option concepts where locations of sites and routes for infrastructure are not defined and will be subject to further detailed studies and design.
- Yield assessments are based on estimated flows which will require further assessment at project level. Furthermore, at Plan level information on all other non-Irish Water abstractions may not be available therefore yield assessments undertaken as part of the Plan are based on the best information available to Irish Water.
- The EPA may have relevant information on other significant abstractions in various catchments which would need to be assessed at the project level in relation to in-combination effects. This information may be provided by the EPA when consultation on the Preferred Approaches outlined in the draft RWRP-SE, is undertaken.
- For many of the groundwater abstractions potential impacts from existing abstraction are not known or fully understood, while guidance for allowable abstraction limits from groundwater sources do not currently exist therefore more uncertainty remains around the potential impacts from such options. An initial assessment on the potential cumulative impacts on groundwater bodies from groundwater abstractions proposed as part of the draft RWRP-SE, will be undertaken. The assessment will consider the likely cumulative effects of groundwater abstractions on meeting WFD objectives; In-combination effects on European sites from groundwater abstraction will be considered as part of the SEA and NIS is based solely on the information available at Plan level.

Assumptions include:

- Application of standard and accepted good practice mitigation through design and construction management and these will be outlined in the SEA Environment Report.
- Detailed site assessments will be required at the project level in the future for all options where groundwater abstractions are proposed, to identify and define the ZOC and potential impacts on the ground water.
- Environmental assessments will be required to be undertaken on all options taken forward for feasibility studies and to inform detailed siting and routing and design options and then to meet licensing and consenting requirements as well as commitments for performance and feedback identified through this SEA.

These limitations and uncertainties will be addressed and built into the recommendations for mitigation and monitoring and will feed into the monitoring and feedback process for the implementation of the RWRP-SE.



5

Next Steps

5 Next Steps

The next stage of development of the draft RWRP-SE will be the options development process, including the identification of potential options, coarse and fine screening and completion of the approach appraisal process alongside the environmental assessment as outlined in Section 1.3.4. The draft RWRP-SE Regional Plan, SEA Environmental Report and NIS are currently anticipated to be published for consultation early 2023.

Glossary

Term	Definition
Abstraction	The process of taking water from any source, including rivers and aquifers
Appropriate Assessment (AA)	An assessment required under the Habitats Directive when a plan or project has the potential to affect a European site
Aquifer	A water-bearing rock that groundwater can be extracted from
Baseline condition	The state of the environment in the absence of the NWRP Framework
Catchment	The total area of land that drains into a watercourse
CSO	Central Statistics Office
Cumulative effect	The combined effects from several plans, programmes, or policies
Deficit	The amount of water shortage between supply and demand
Environmental Report (SEA Environmental Report)	The SEA report that documents the effects of measures outlined in a plan
EPA	Environmental Protection Agency
Gross Domestic Product (GDP)	Gross Domestic Product is a monetary measure of the market value of all goods and services produced in a period (in this case annually)
GSI	Geological Survey Ireland
IGH	Irish Geological Heritage
Invasive species	Non-native species that out-compete native species to the detriment of an ecosystem
LI aquifer	Bedrock which is Moderately Productive only in Local Zones
Lm aquifer	Bedrock which is Generally Moderately Productive
LSEs	Likely Significant Effects
MCA	Multi-Criteria Analysis
Mitigation	The implementation of measures designed to reduce the predicted effects of a plan or project on the environment
National Climate Change Adaptation Framework	National Climate Change Adaptation Framework
National Water Resources Plan (NWRP)	A plan developed by water companies to deliver a long-term provision of water to accommodate the impacts of population growth, drought, their environmental obligations and climate change uncertainty in order to balance supply and demand for water. These are produced cyclically, at least every five years, with a minimum 25-year planning horizon.
NHA	National Heritage Area

Term	Definition
Natura Impact Statement (NIS)	The statement prepared following AA of European sites as required under the Habitats Directive, which presents information on the assessment and the process of collating data on a project and its potential significant impacts on European sites.
NIAH	National Inventory of Architectural Heritage
NPWS	National Parks and Wildlife Service
Pl aquifer	Bedrock which is Generally Unproductive except for Local Zones
pNHA	Proposed National Heritage Area
Pu aquifer	Bedrock which is Generally Unproductive
Ramsar site	An international designation for an important wetland site under the Ramsar Convention
Rf aquifer	Fissured bedrock
Rg aquifer	Extensive sand & gravel
Rk aquifer	Karstified bedrock
River Basin Management Plan (RBMP)	A key element to the WFD, taking an integrated approach to the protection, improvement, and sustainable use of the water environment; including all surface water and groundwater bodies
RMP	Record of Monuments and Places
RPS	Record of Protected Structures
Special Area of Conservation (SAC)	An international designation for habitats and/or species under the Habitats Directive
Special Protection Area (SPA)	A site of international importance for birds, designated as required by the Birds Directive
Strategic Environmental Assessment (SEA) Objectives	Methodological measures against which the effects of the NWRP can be tested
Supply Demand Balance (SDB)	The SDB is the deficit or surplus between the supply and demand both now and over the 25-year horizon
UNESCO	United Nations Educational, Scientific and Cultural Organisation
WFD	Water Framework Directive
Water resource management	The management of water sources and demands to minimise any deficit between the two
Water Resource Management Plan	A plan designed to identify water deficits and outline measures that can reduce the deficit
Water Resource Zone (WRZ)	The largest possible zone in which all resources, including external transfers, can be shared and all customers experience a similar risk of supply failure from a resource shortfall

Term	Definition
WTP	Water Treatment Plant

References

- Carlow County Council. 2019. *Climate Change Adaptation Strategy 2019-2024*. [Online]. [Accessed: 01/09/22]. Available from: <https://www.carlow.ie/wp-content/documents/uploads/Climate%20Change%20Adaptation%20Strategy%202019.pdf>
- Carlow Tourism. 2020. *Discover Carlow*. [Online]. [Accessed: 27/09/2022]. Available from: <https://carlowtourism.com/>
- Central Statistics Office (CSO). 2016. *E2014: Population Density and Area Size 2016 by Towns by Size, Census Year and Statistic*. [Online]. [Accessed: 06/01/20]. Available from: <https://www.cso.ie/en/releasesandpublications/ep/p-cp2tc/cp2pdm/pd/>
- Central Statistics Office (CSO). 2017b. *Regional SDGs Ireland 2017: Poverty & health*. [Online]. [Accessed: 13/12/21]. Available from: <https://www.cso.ie/en/releasesandpublications/ep/p-rsdgi/regionalsdgsireland2017/ph/>
- Central Statistics Office (CSO). 2019. *Labour Force Survey Quarter 4 2019* [Online]. [Accessed: 13/12/21]. Available from: <https://www.cso.ie/en/releasesandpublications/er/lfs/labourforcesurveylfsquarter42019/>
- Central Statistics Office (CSO). 2020a. *County Incomes and Regional GDP*. [Online]. [Accessed: 13/12/21]. Available from: <https://www.cso.ie/en/releasesandpublications/er/cirgdp/countyincomesandregionalgdp2017/>
- Central Statistics Office (CSO). 2020b. *Labour Force Survey Quarter 4 2020*. [Online]. [Accessed: 13/12/21]. Available from: <https://www.cso.ie/en/releasesandpublications/er/lfs/labourforcesurveylfsquarter32020/>
- Central Statistics Office (CSO). 2020c. *Physical activity of persons aged 15 years and over*. [Online]. [Accessed: 13/12/21]. Available from: <https://data.cso.ie/table/IH292>
- Central Statistics Office (CSO). 2020d. *New Dwelling Completions: Quarter 3 2020*. [Online]. [Accessed: 13/12/21]. Available from: <https://www.cso.ie/en/releasesandpublications/er/ndc/newdwellingcompletionsq32020/>
- Central Statistics Office (CSO). 2021. *New Dwelling Completions: Quarter 3 2021*. [Online]. [Accessed: 13/12/21]. Available from: <https://www.cso.ie/en/releasesandpublications/er/ndc/newdwellingcompletionsq32021/>
- Cork County Council. 2019. Climate Change Adaptation Strategy - Cork County Council. [Online]. [Accessed: 06/09/22]. Available from: <https://www.corkcity.ie/en/media-folder/environment/final-cork-city-council-climate-change-adaptation-strategy-30-sept-2019-.pdf>
- Department of Communications, Climate Action and Environment. 2018. *Local Authority Adaptation Strategy Development Guidelines*. [Online]. [Accessed: 06/01/20]. Available from: <https://www.dccae.gov.ie/documents/LA%20Adaptation%20Guidelines.pdf>
- Department of Culture, Heritage and the Gaeltacht. 2020. *Historic Environment Viewer*. [Online]. [Accessed: 06/01/20]. Available from: <http://webgis.archaeology.ie/historicenvironment/>
- Department of Housing, Local Government and Heritage. n.d. *Nature Reserves in Ireland*. [Online] [Accessed: 11/01/2022]. Available from: <https://www.npws.ie/nature-reserves>.

Department of Housing, Planning and Local Government (DPHLG). 2018. *River Basin Management Plan 2018-2021*. [Online]. [Accessed: 22/03/2021]. Available from: <https://www.gov.ie/en/publication/429a79-river-basin-management-plan-2018-2021/?referrer=http://www.housing.gov.ie/water/water-quality/river-basin-management-plans/river-basin-management-plan-2018-2021>

Department of Housing, Planning and Local Government. 2019a. *Public Consultation on the Significant Water Management Issues for the third cycle River Basin Management Plan for Ireland 2022-2027*. [Online]. [Accessed: 06/01/20]. Available from: <https://www.housing.gov.ie/water/water-quality/water-framework-directive/public-consultation-significant-water-management>

Department of Housing, Planning and Local Government. 2019b. *Water Quality and Water Services Infrastructure: Climate Change Sectoral Adaptation Plan*. [Online]. [Accessed: 06/01/20]. Available from: <https://www.dccae.gov.ie/documents/Water%20Quality%20and%20Water%20Services%20Infrastructure%20Climate%20Adaptation%20Plan.pdf>

Department of Transport, Tourism and Sport. 2019. *People, Place and Policy - Growing Tourism to 2025*. [Online]. [Accessed: 06/01/20]. Available from:

<https://assets.gov.ie/15792/8b462712683748e7bcec6c7d5c7ecd2a.pdf>

Discover Ireland. n.d. *Discover Ireland*. [Online]. [Accessed 11/01/2022]. Available from: <https://www.discoverireland.ie/>

Discover Kerry. n.d. Kerry Tourism Industry Federation. [Online]. [Accessed 01/10/21]. Available from: <https://www.discoverkerry.com/en/#/>

Environmental Protection Agency (EPA). n.d. *Environmental Sensitivity Mapping*. [Online]. [Accessed: 23/03/21]. Available from: <https://gis.epa.ie/EPAMaps/>

Environmental Protection Agency (EPA). 2018. *Corine Landcover - EPA Geoportal*. [Online]. [Accessed: 06/01/20]. Available from: <https://airomaps.geohive.ie/ESM/>

Environmental Protection Agency (EPA). 2020. *Ireland's Environment: An Integrated Assessment 2020*. [Online]. [Accessed: 13/12/21]. Available from: <https://www.epa.ie/our-services/monitoring--assessment/assessment/irelands-environment/>

Fáilte Ireland. 2020a. *Ireland's Hidden Heartlands*. [Online]. [Accessed: 06/01/20]. Available from: <https://www.failteireland.ie/IrelandsHiddenHeartlands.aspx>

Fáilte Ireland. 2020b. *The Wild Atlantic Way*. [Online]. [Accessed: 06/01/20]. Available from: <https://www.failteireland.ie/Wild-Atlantic-Way.aspx>

Government of Ireland. 2018. *Project Ireland 2040: National Planning Framework*. [Online]. [Accessed: 06/01/20]. Available from: <http://npf.ie/wp-content/uploads/Project-Ireland-2040-NPF.pdf>

Government of Ireland. 2020. *Regional Assemblies*. [Online]. Accessed 06/10/21]. Available from: <https://www.gov.ie/en/publication/7e3f8-regional-assemblies/>

Kilkenny County Council. 2019. Climate Change Adaptation Strategy - Kilkenny County Council. [Online]. [Accessed: 06/09/22]. Available from: <https://www.kilkennycoco.ie/eng/Services/Environment/Climate-Change/Climate-Change-Adaptation-Strategy-2019-2024/Climate-Change-Adaptation-Strategy.pdf>

- Laois County Council. 2019. Climate Change Adaptation Strategy - Laois County Council. [Online]. [Accessed: 06/09/22]. Available from: <https://laois.ie/wp-content/uploads/draft-laois-county-council-climate-change-adaptation-strategy-2019-2024.pdf>
- Laois Tourism. 2020. You're Welcome to Laois. [Online]. [Accessed: 26/09/22]. Available from: <https://laoistourism.ie/>
- Limerick City and County Council. 2019. Offaly Climate Action Strategy. [Online]. [Accessed: 06/01/20]. Available from: <https://www.limerick.ie/sites/default/files/media/documents/2019-09/Limerick-City-and-County-Council-Climate-Change-Adaptation-Strategy-2019-2024.pdf>
- Limerick City and County Council. 2020. Experience Limerick. [Online]. [Accessed: 06/01/20]. Available from: <https://www.limerick.ie/discover/visiting/experience-limerick>
- Met Éireann. 2019. *Climate of Ireland*. [Online]. [Accessed: 06/01/20]. Available from: <https://www.met.ie/climate/climate-of-ireland>
- myProjectIreland. 2022. *myProjectIreland Mobile*. [Online]. [Accessed 03/10/22]. Available from: <https://www.arcgis.com/home/item.html?id=749b87eef77445fd886b387cd66b2db0>
- National Biodiversity Data Centre. 2021. *National Invasive Species Database*. [Online]. [Accessed 13/12/21]. Available from: <https://maps.biodiversityireland.ie/Dataset/66>
- National Parks and Wildlife Service (NPWS). 2019. *Protected Sites in Ireland*. [Online]. [Accessed: 06/01/20]. Available from: <https://www.npws.ie/protected-sites>
- National Tourism Development Authority. 2016. Tourism Development & Innovation: A strategy for investment 2016-2022. [Online]. [Accessed: 06/01/20]. Available from: <https://www.failteireland.ie/FailteIreland/media/WebsiteStructure/Documents/Irelands%20Ancient%20Ea st/FI-Tourism-Investment-Strategy-Final-07-06-16.pdf>
- Nelson, B., Cummins, S., Fay, L., Jeffrey, R., Kelly, S., Kingston, N., Lockhart, N., Marnell, F., Tierney, D. and Wyse Jackson, M. 2019. *Checklists of protected and threatened species in Ireland*. Irish Wildlife Manuals, No. 116. National Parks and Wildlife Service, Department of Culture, Heritage and the Gaeltacht, Ireland. [Online]. [Accessed: 06/01/20]. Available from: <https://www.npws.ie/sites/default/files/publications/pdf/IWM%20116%20Checklists%20Protected%20and%20Threatened%20Species%202019.pdf>
- Northern Ireland Environment Agency (NIEA) Draft 3rd cycle River Basin Management Plan: For the South Eastern, Neagh Bann and North Eastern River Basin Districts (2021 – 2027) [Draft 3rd cycle River Basin Management Plan for Northern Ireland 2021-2027 .PDF \(daera-ni.gov.uk\)](https://daera-ni.gov.uk/)
- Office of Public Works. 2018. *Catchment Flood Risk Assessment and Management Programme*. [Online]. [Accessed: 06/01/20]. Available from: <https://www.floodinfo.ie/map/floodplans/>
- Pure Cork. n.d. Official tourism website for Cork, Ireland. [Online]. [Accessed: 01/10/21]. Available from: <https://purecork.ie/>
- Tipperary County Council. 2019. Tipperary Climate Action Strategy. [Online]. [Accessed: 06/09/22]. Available from: https://www.tipperarycoco.ie/sites/default/files/Publications/Climate%20Adaptation%20Strategy_final.pdf
- Tipperary Tourism. 2020. *About Tipperary*. [Online]. [Accessed: 06/09/20]. Available from: <https://tipperary.com/about-tipperary/>

Visit Dublin, 2022. Visit Dublin. [Online]. [Accessed 27/7/2022]. Available from:
<https://www.visitdublin.com/>

Visit Kilkenny, 2022. Welcome to Kilkenny. [Online] [Accessed 26/09/22]. Available from:
<https://visitkilkenny.ie/>

Visit Waterford. n.d. Explore Waterford. [Online]. [Accessed: 01/10/21]. Available from:
<https://visitwaterford.com/>

Visit Wexford, 2022. Wexford So Old, So New. [Online] [Accessed 26/09/22]. Available from
<https://www.visitwexford.ie/>

Visit Wicklow. 2020. *Welcome to County Wicklow*. [Online]. [Accessed: 06/01/20]. Available from:
<https://visitwicklow.ie/welcome-to-county-wicklow-the-garden-of-ireland/>

Waterford City and County Council. 2019. *Waterford City and County Council Climate Change Adaptation Strategy 2019 – 2024*. [Online]. [Accessed: 06/09/22]. Available from:
<https://www.waterfordcouncil.ie/media/environment/WCCC%20Climate%20Change%20Adaptation%20Strategy.PDF>

Wexford County Council. 2019. Wexford County Council: Climate Change Adaptation Strategy. [Online]. [Accessed: 06/09/22]. Available from:
https://www.wexfordcoco.ie/sites/default/files/content/Environment/Noise/Final-Draft-Wexford-Climate-Change-Adaptation-Strategy_Lo-Res-WEB.pdf

Wicklow County Council. 2019. Wicklow County Council: Climate Change Adaptation Strategy. [Online]. [Accessed: 06/09/22]. Available from:
<https://www.wicklow.ie/Portals/0/Documents/Climate%20Action/Adaptation%20Strategy/Climate%20Adaptation%20Strategy.pdf>

Appendix A Figures

- Figure 3.3 Water Context: Groundwater – Overview
- Figure 3.4 Water Context: Surface Waterbodies - Overview
- Figure 3.5 Water Context: Surface Water and Groundwater Flooding
- Figure 3.6 Biodiversity Context: Overview
- Figure 3.7 Material Assets (Natural Assets) Context - Overview
- Figure 3.8 Population, Health and Material Assets (built) Context – Overview
- Figure 3.9 Hydrogeology

SACs		SAC name	Label
SAC name	Label		
Cahore Polders and Dunes SAC	1	Hugginstown Fen SAC	17
Kilmuckridge-Tinnaberna Sandhills SAC	2	Cullahill Mountain SAC	18
Carnsore Point SAC	3	Spahill And Clomantagh Hill SAC	19
Raven Point Nature Reserve SAC	4	Helvick Head SAC	20
Lady's Island Lake SAC	5	Comeragh Mountains SAC	21
Screen Hills SAC	6	Glendine Wood SAC	22
Tacumshin Lake SAC	7	Nier Valley Woodlands SAC	23
Slaney River Valley SAC	8	Lower River Suir SAC	24
Saltee Islands SAC	9	Ardmore Head SAC	25
Ballyteige Burrow SAC	10	Kilduff, Devil'sbit Mountain SAC	26
Bannow Bay SAC	11	Anglesey Road SAC	27
Blackstairs Mountains SAC	12	Galtee Mountains SAC	28
Hook Head SAC	13	Philipston Marsh SAC	29
Tramore Dunes and Backstrand SAC	14	Moanour Mountain SAC	30
River Barrow And River Nore SAC	15	Blackwater River (Cork/Waterford) SAC	31
Thomastown Quarry SAC	16	Glen Bog SAC	32
		Lower River Shannon SAC	33

SPAs	
SPA name	Label
Slievefelim to Silvermines Mountains SPA	1
River Nore SPA	2
Cahore Marshes SPA	3
The Raven SPA	4
Wexford Harbour and Slobs SPA	5
Bannow Bay SPA	6
Ballyteigue Burrow SPA	7
Tacumshin Lake SPA	8
Lady's Island Lake SPA	9
Tramore Back Strand SPA	10
Blackwater Callows SPA	11
Mid-Waterford Coast SPA	12
Dungarvan Harbour SPA	13
Helvick Head to Ballyquin SPA	14

Appendix B Policy, Plan and Programme Review

B.1 National and regional level

Theme	Policies, Plans and Programmes
All aspects	<ol style="list-style-type: none"> 1. EU Sustainability Policy 2. UN Sustainable Development Goals 3. Our Sustainable Future, a Framework for Sustainable Development for Ireland 4. Strategic Environmental Directive (2001/42/EC) 5. European Communities (Environmental Assessment of Certain Plans and Programmes) Regulations 2004 S.I. No. 435/2004 (as amended 2011 S.I. No. 200/2011) 6. Planning and Development (Strategic Environmental Assessment) Regulations 2004 S.I. No. 436/2004 (as amended 2011 S.I. No. 201/2011) 7. Environmental Impact Assessment Directive (2014/52/EU) 8. European Union (Planning and Development) (Environmental Impact Assessment) Regulations 2018 S.I. No. 296/2018 (as amended S.I. No. 646/2018) 9. Environmental Liability Directive (2004/35/EC) 10. European Communities (Environmental Liability) Regulations 2008 S.I. No. 547/2008 (as amended 2015 S.I. No. 293/2015) 11. European Green Deal 12. Water Services Act, 2013 (as amended 2017) 13. Ireland 2040: Our Plan, National Planning Framework 14. Water Services Policy Statement 2018 – 2025 15. National Spatial Strategy for Ireland 2002-2020 (Department of the Environment and Local Government, 2002) 16. Regional Spatial and Economic Strategies 17. Planning and Development Act 2000 (as amended) 18. Planning and Development Regulations 2001 (as amended) 19. Capital Investment Plan 2016-2021 20. Climate Action Plan 2019 (2021 revision due to be published very shortly) 21. Ireland's Environment - An Integrated Assessment 2020
Population, economy, tourism and recreation and human health	<ol style="list-style-type: none"> 23. Aarhus Convention 24. Drinking Water Directive (2020/184) 25. European Union (Drinking Water) Regulations 2014 S.I. No. 122/2014 (as amended 2017 S.I. No. 464/2017) 26. EPA Drinking Water Advice Note No. 8: Developing Drinking Water Safety Plans (2011) 27. Groundwater Protection Schemes (1999) 28. World Health Organization Guidelines for Drinking Water Quality (4th edition, 2017)

Theme	Policies, Plans and Programmes
	<p>29. Water safety plan manual: step-by-step risk management for drinking-water suppliers (2009)</p> <p>30. Irish Water - Water Services Strategic Plan 2015</p> <p>31. Irish Water - National Wastewater Sludge Management Plan</p> <p>32. Irish Water - Lead in Drinking Water Mitigation Plan</p> <p>33. Healthy Ireland Framework 2019-2025</p> <p>34. Draft Agri-Food Strategy 2030</p> <p>35. Food Vision 2030</p> <p>36. Food Wise 2025</p> <p>37. Food Harvest 2020</p> <p>38. Fàilte Ireland's 10 Year Tourism Strategy</p> <p>39. Fàilte Ireland Visitor Experience Development Plans</p> <p>40. EU Tourism Policy</p> <p>41. National Countryside Recreation Strategy</p> <p>42. Tourism Policy Statement</p> <p>43. Tourism Development and Innovation. A Strategy for Investment 2016-2022</p> <p>44. Tourism Action Plan 2019-2021</p>
Water environment	<p>45. Water Framework Directive (2000/60/EC)</p> <p>46. European Communities (Water Policy) Regulations 2003 S.I. No. 722/2003 (as amended 2010 S.I. No. 326/2010)</p> <p>47. European Union (Water Policy) (Abstractions Registration) Regulations 2018 (S.I. No. 261/2018)</p> <p>48. River Basin Management Plan 2018 - 2021</p> <p>49. Draft River Basin Management Plan for Ireland 2022-2027</p> <p>50. General Scheme of the Water Environment (Abstractions) Bill 2020</p> <p>51. Bathing Water Directive (2006/7/EC)</p> <p>52. Bathing Water Quality Regulations 2008 S.I. No. 79/2008 (as amended 2016 S.I. No. 163/2016)</p> <p>53. Floods Directive (2007/60/EC)</p> <p>54. European Communities (Assessment and Management of Flood Risks) Regulations 2010 S.I. No. 122/2010</p> <p>55. Nitrates Directive (91/676/EEC and derogation 2018/209)</p> <p>56. European Union (Good Agricultural Practice for Protection of Waters) Regulations 2014 S.I. No. 31/2014 (as amended 2020 S.I. No. 529/2020)</p> <p>57. Urban Wastewater Treatment Directive (91/271/EEC as amended 98/15/EEC)</p> <p>58. Urban Waste Water Treatment Regulations 2001 S.I. No. 254/2001 (as amended 2010 S.I. No. 48/2010)</p> <p>59. Marine Strategy Framework Directive (2008/56/EC)</p>

Theme	Policies, Plans and Programmes
	<p>60. European Communities (Marine Strategy Framework) Regulations 2011 S.I. No. 249/2011 (as amended 2018 S.I. No. 648/2018)</p> <p>61. Groundwater Directive (2006/118/EC)</p> <p>62. European Communities Environmental Objectives (Groundwater) Regulations 2010 S.I. No. 9/2010 (as amended 2016 S.I. No. 366/2016)</p> <p>63. Catchment Flood Risk Management (CFRAM) Programme</p> <p>64. Flood Risk Management Plans</p> <p>65. Draft Fourth Nitrates Action Programme</p> <p>66. National Marine Planning Framework</p> <p>67. Maritime Spatial Planning Directive 2014/89/EU</p> <p>68. Marine and Coastal Access Act 2009</p> <p>69. UK Marine Strategy</p>
Biodiversity, flora, and fauna	<p>70. International and European Council Conventions</p> <p>71. EU Biodiversity Strategy for 2030</p> <p>72. The Habitats Directive (92/43/EEC)</p> <p>73. The Birds Directive (2009/147/EC)</p> <p>74. European Communities (Birds and Natural Habitats) Regulations 2011 S.I. No. 477/2011(as amended 2015 S.I. No. 355/2015)</p> <p>75. Green Infrastructure: Enhancing Europe's Natural Capital Strategy</p> <p>76. Creating Green Infrastructure for Ireland: Enhancing Natural Capital for Human Wellbeing</p> <p>77. Wildlife Act 1976 (as amended including 2010)</p> <p>78. Fisheries Consolidation Act, 1959</p> <p>79. Other National Biodiversity related regulations</p> <p>80. National Biodiversity Action Plan 2017-2021</p> <p>81. All-Ireland Pollinator Plan 2021-2025</p>
Material assets	<p>82. Waste Framework Directive (2008/98/EC)</p> <p>83. Infrastructure and Capital Investment Plan 2016-2021</p> <p>84. Waste Management Acts 1996 – 2005</p> <p>85. Ireland 2040: Our Plan, National Planning Framework</p> <p>86. National Peatland Strategy</p> <p>87. Forestry Programme 2014-2020</p> <p>88. Waste Action Plan for a Circular Economy</p> <p>89. National Hazardous Waste Management Plan 2014-2020</p> <p>90. Draft National Hazardous Waste Management Plan 2021 – 2027</p>
Landscape and visual amenity	<p>91. European Landscape Convention</p> <p>92. National Landscape Strategy for Ireland 2015-2025</p>

Theme	Policies, Plans and Programmes
Air quality	93. Ambient Air Quality Directive (2008/50/EC) 94. Air Quality Standards Regulations 2011 S.I. No. 180/2011 95. Industrial Emissions Directive (2010/75/EU) 96. European Union (Industrial Emissions) Regulations 2013 S.I. No. 138/2013
Noise	97. Environmental Noise Directive (2002/49/EC) 98. European Communities (Environmental Noise) Regulations 2018 S.I. No. 549/2018
Climate change	99. The Kyoto Protocol 100. Paris Agreement 2015 101. EU Energy and Climate (2020) Package 2009 102. The Climate Action and Low Carbon Development Act 2015 103. Climate Action and Low Carbon Development (Amendment) Bill 2021 104. National Climate Change Adaptation Framework including the Sectoral Adaptation Plans including the Climate Change Adaptation for the Health Sector 2018-2024 105. Ireland's National Policy Position on Climate Action and Low Carbon Development (2014) 106. National Mitigation Plan, 2017 107. Energy White Paper: Delivering a Sustainable Energy Future for Ireland – The Energy Policy Framework 2007-2020 108. National Renewable Energy Action Plan (Directive 2018/2001) 109. European Union (Renewable Energy) Regulations 2020 S.I. No. 365/2020 110. Offshore Renewable Energy Development Plan (2014) and Interim Review (2018) 111. Irish Water Sustainable Energy Strategy 112. National Climate Action Plan 2021 113. European Green Deal
Cultural heritage (archaeological and architectural)	114. EU Conventions on Archaeological, Architectural and Cultural Heritage 115. Planning and Development Acts 116. Heritage Act 2018 117. National Monuments Act 2004 (as amended) 118. Architectural Heritage and Historic Monuments Act 1999
Geology and soils	119. Planning and Development Act 120. Action Plan for Rural Development
Transboundary	121. Planning Act (NI) 2011 122. Regional Development Strategy: Building a Better Future, 2035 123. Northern Ireland's Climate Change Adaptation Programme 2019 - 2024 124. The Water Environment (Floods Directive) Regulations (Northern Ireland) 2009

Theme	Policies, Plans and Programmes
	<p>125. Water Abstraction and Impoundment (Licensing) (Amendment) Regulations (Northern Ireland) 2007</p> <p>126. The Water Supply (Water Quality) Regulations (Northern Ireland) 2017</p> <p>127. NI Water (2020) Our Strategy 2021-2046</p> <p>128. NI Water (2020) Water Resource and Supply Resilience Plan</p> <p>129. Fisheries Act (NI) 2016</p> <p>130. NI Draft Flood Risk Management Plan 2021-2027</p> <p>131. Marine Act (Northern Ireland) 2013</p> <p>132. UK Marine Policy Statement</p> <p>133. Draft Marine Plan for Northern Ireland</p> <p>134. Draft 3rd cycle River Basin Management Plan: For the South Eastern, Neagh Bann and North Eastern River Basin Districts (2021 – 2027)</p>

B.2 Local level

Theme	Policies, plans and programmes
All aspects	<p>135. Limerick Development Plan 2022-2028 (emerging)</p> <p>136. Limerick City Development Plan 2010-2016 (adopted)</p> <p>137. Cork City Development Plan 2022-2028(emerging)</p> <p>138. Cork City Development Plan 2015-2021 (adopted)</p> <p>139. Cork County Development Plan 2014 (adopted)</p> <p>140. Waterford City and County Development Plan 2022-2028 (emerging)</p> <p>141. Waterford County Development Plan 2011-2017 (emerging)</p> <p>142. Waterford City Development Plan 2013-2019 (adopted)</p> <p>143. Tipperary County Development Plan 2022-2028 (emerging)</p> <p>144. County Tipperary Local Development Strategy 2014- 2020 (adopted)</p> <p>145. Wicklow County Development Plan 2021-2027 (emerging)</p> <p>146. Wicklow County Development Plan 2016-2022 (adopted)</p> <p>147. Wexford County Development Plan 2021-2027 (emerging)</p> <p>148. Wexford Development Plan 2013-2019</p> <p>149. Carlow County Council Development Plan 2015-2021(adopted)</p> <p>150. Laois County Development Plan 2017-2023 (adopted)</p> <p>151. Review of Laois County Development Plan 2017-2023 (emerging)</p> <p>152. Kilkenny County Development Plan 2014-2020 (as varied) (adopted)</p> <p>153. Kilkenny City and County Development Plan 2021-2027 (emerging)</p>

Theme	Policies, plans and programmes
Population, economy, tourism and recreation and human health	<p>154. Limerick Tourism Development Strategy 2019-2023</p> <p>155. Limerick 2030 Vision: An Economic and Spatial Plan for Limerick</p> <p>156. Cork Healthy Cities Action Plan 2020-2030</p> <p>157. Waterford City and County Council Tourism Statement of Strategy and Work Plan 2017-2022</p> <p>158. Tipperary Tourism Marketing, Experience and Destination Development Plan 2016-2021</p> <p>159. A Strategy for a healthy Tipperary 2018-2020</p> <p>160. Tourism Strategy for County Laois 2006-2010</p> <p>161. Ireland's Ancient East Path to Growth</p>
Biodiversity, flora, and fauna	<p>162. Limerick City Council Biodiversity Plan</p> <p>163. Limerick Heritage Plan 2017-2023</p> <p>164. County Cork Biodiversity Action Plan 2009-2014</p> <p>165. Cork County Council Environmental Awareness Strategy 2016-2020</p> <p>166. Cork City Heritage and Biodiversity Plan 2021-2026</p> <p>167. Waterford City Biodiversity Action Plan 2010</p> <p>168. County Waterford Local Biodiversity Action Plan 2008-2013</p> <p>169. North Tipperary Local Biodiversity Action Plan 2007</p> <p>170. South Tipperary Biodiversity Action Plan 2010-2015</p> <p>171. County Wicklow Heritage Plan 2017-2022</p> <p>172. Wexford County Council Biodiversity Action Plan 2013-2018</p> <p>173. Tipperary County Development Plan 2022-2028 (emerging)</p> <p>174. Tipperary County Heritage Plan 2017-2021</p> <p>175. Laois Heritage Plan 2014-2019</p> <p>176. Laois Heritage Plan 2020-2025 (emerging)</p> <p>177. Kilkenny County Council Cultural Strategy. Arts, Heritage and Libraries</p>
Material assets	<p>178. Southern Region Waste Management Plan 2015-2021</p> <p>179. Southern Region Waste Plan 2014</p>
Landscape and visual amenity	<p>180. Cork City Landscape Study 2008</p> <p>181. Draft Landscape Character Assessment of Tipperary 2016</p> <p>182. Tipperary Landscape Character Assessment 2006</p>
Noise	<p>183. Limerick City and Council Noise Action Plan 2018-2023</p> <p>184. Cork County Council Noise Action Plan 2018-2023</p> <p>185. Waterford City and County Council Noise action Plan 2019-2023</p> <p>186. Tipperary County Council Noise Action Plan 2018-2023</p> <p>187. Wexford County Council Draft Noise Action Plan 2019-2023</p>

Theme	Policies, plans and programmes
Climate change	<p>188. Noise Action Plan 2018</p> <p>189. Kilkenny Noise Action Plan 2019-2023</p> <p>190. Tipperary Renewable Energy Strategy 2016</p> <p>191. Tipperary County Council Climate Adaptation Strategy 2019-2024</p> <p>192. Tipperary Sustainable Energy Action Plan 2017-2020</p> <p>193. Cork County Council Climate Adaptation Strategy 2019-2024</p> <p>194. Cork City Climate Change Adaptation Strategy 2019-2024</p> <p>195. Cork City Sustainable Energy and Climate Action Plan</p> <p>196. Cork County Council Environmental Awareness Strategy 2016-2020</p> <p>197. Limerick City and County Council Climate Change Adaptation Strategy 2019-2040</p> <p>198. Waterford City and County Council Climate Change Adaptation strategy 2019-2024</p> <p>199. County Wicklow Climate Change Adaptation Strategy 2019-2024</p> <p>200. Wexford County Council Climate Change Adaptation Strategy 2019-2024</p> <p>201. Carlow County Council Climate Adaptation Strategy 2019-2024</p> <p>202. Kilkenny County Climate Change Adaptation Strategy 2019-2024</p>
Cultural heritage (archaeological and architectural)	<p>203. Limerick City Walls Conservation Management Plan (2008)</p> <p>204. County Cory Heritage Plan 2005-2010</p> <p>205. Draft Cork City and Heritage and Biodiversity Plan 2021-2026</p> <p>206. Tipperary heritage Plan 2017-2021</p> <p>207. Limerick heritage Plan 2017-2030</p> <p>208. Tipperary Town Heritage Action Plan 2021-2022</p> <p>209. Waterford Heritage Plan 2017-2022</p> <p>210. Waterford City Heritage Plan 2006-2010</p> <p>211. County Waterford Heritage Plan 2006-2010</p>

Note: there are no local level plans specific to the water or geology and soils topic areas. Plans of this nature tend to be regional or national level.

Appendix C SEA Screening Statement

C.1 Legislative Requirements

This report is the Strategic Environmental Assessment (SEA) Screening Assessment for Irish Water's forthcoming Regional National Water Resource Plan, (hereafter referred to as the NWRP or the 'Plan'). The Plan will require a Strategic Environmental Assessment under both the European Directive (2001/42/EC) on the Assessment of Certain Plans and Programmes on the Environment (hereafter referred to as the SEA Directive).

Article 3(2) of the SEA Directive makes SEA mandatory for plans or programmes which;

- are prepared for agriculture, forestry, fisheries, energy, transport, industry, tourism, land use, telecommunications, waste management, or water management; and
- set a framework for future development consents that could require Environmental Impact Assessment; or
- in view of the likely effect on protected sites, have been determined to require an assessment under the Habitats Directive.

Article 2 of the SEA Directive requires SEA is undertaken for '*plans and programmes*', which are

- subject to preparation and/ or adoption by an authority at national, regional or local level or which are prepared by an authority for adoption, through a legislative procedure by Parliament or Government, and
- which are required by legislative, regulatory or administrative provisions

Therefore it needs to be determined if the Plan is required by legislative, regulatory or administrative provisions, and if so, whether they are subject to the provisions of the SEA Directive.

In deciding whether a particular plan is likely to have significant environmental effects, regard is given to the criteria set out in Annex II of the SEA Directive. This is reproduced in Schedule 1 of the European Communities (Environmental Assessment of Certain Plans and Programmes) Regulations 2004 (S.I. No. 435 of 2004).

C.2 Competent Authority

A competent authority for the purpose of SEA is defined under S.I. No. 435 of 2004 as *the authority which is, or the authorities which are jointly, responsible for the preparation of a plan or programme, or modification to a plan or programme*. Irish Water is therefore the Competent Authority with respect to this Plan and is obliged to determine whether this could give rise to significant effects on the environment.

C.3 SEA Process

The SEA Process is a 5-stage process as follows:

- Stage 1 – Screening: deciding whether or not SEA is required;
- Stage 2 – Scoping: establishing the spatial and temporal scope of the SEA and a decision-making framework that can be used to evaluate impacts;

- Stage 3 Assessment of potential environmental impacts – within the context and parameters identified at the Scoping Stage, identification and assessment of likely environmental impacts of the options identified in the WRMP is carried out: including consideration of alternatives to the Plan;
- Stage 4 – Consultation: Consultation with statutory consultees and the public. Changes may occur to the draft Plan and Environmental Report in light of this;
- Stage 5 – Monitoring and Implementation: Monitoring Data which will aid in any future review / revision of the SEA.

C.4 Statutory Consultation

Certain designated environmental bodies must be consulted on screening and scoping of the SEA. This SEA Screening Statement is issued to the following Environmental Authorities⁷ with the scoping report:

- The Environmental Protection Agency (EPA);
- Department of Housing, Local Government and Heritage (DHLGH);
- Department of the Environment, Climate and Communications (DECC);
- Department of Agriculture, Food and the Marine (DAFM); and
- Department of Tourism, Culture, Arts, Gaeltacht, Sport and Media – Development Applications Unit (DAU).

C.5 Transboundary Consultation

The SEA Screening Statement and Scoping Report are also issued to Northern Ireland's Department of Agriculture, Environment and Rural Affairs to confirm if transboundary environmental effects are to be considered for the Regional Plan for the South East.

C.6 Regional Plan for the South East (RWRP-SE)

The Water Services Strategic Plan (WSSP), completed in October 2015 as required under Section 33 of the Water Services No. 2 Act of 2013. The WSSP forms the highest tier of asset management plans to be prepared by Irish Water and sets the overarching framework for subsequent detailed ‘Tier 2’ implementation plans including the National Water Resource (Plan NWRP). The NWRP is being provided in two phases: Phase 1 Framework Plan has been completed and adopted; and Phase 2 Regional Water Resources Plans are in progress. The Regional Plan for the South East (RWRP-SE) is part of Phase 2.

The RWRP-SE applies the Options Assessment Methodology presented in the Framework Plan to the national water supply and develop a programme of preferred short, medium- and long-term solutions and/or groups of solutions to address identified needs for this region of the supply network.

⁷ Governmental changes may require amendments to the exact name convention of these environmental authorities

C.7 Strategic Environmental Assessment Screening

Pre-Screening Check

A pre-screening check has been undertaken to determine if RWRP-SE is considered to be a plan/programme under the legislative provisions stipulated in Article 9(1) of S.I. 435 of 2004. A pre-screening check, using the decision tree, as set out in the EPA guideline report *Development of SEA methodologies for plans and programmes in Ireland (2003)* which reflects the requirements of Article 9(1), has been applied as illustrated in Figure 3.1 below.

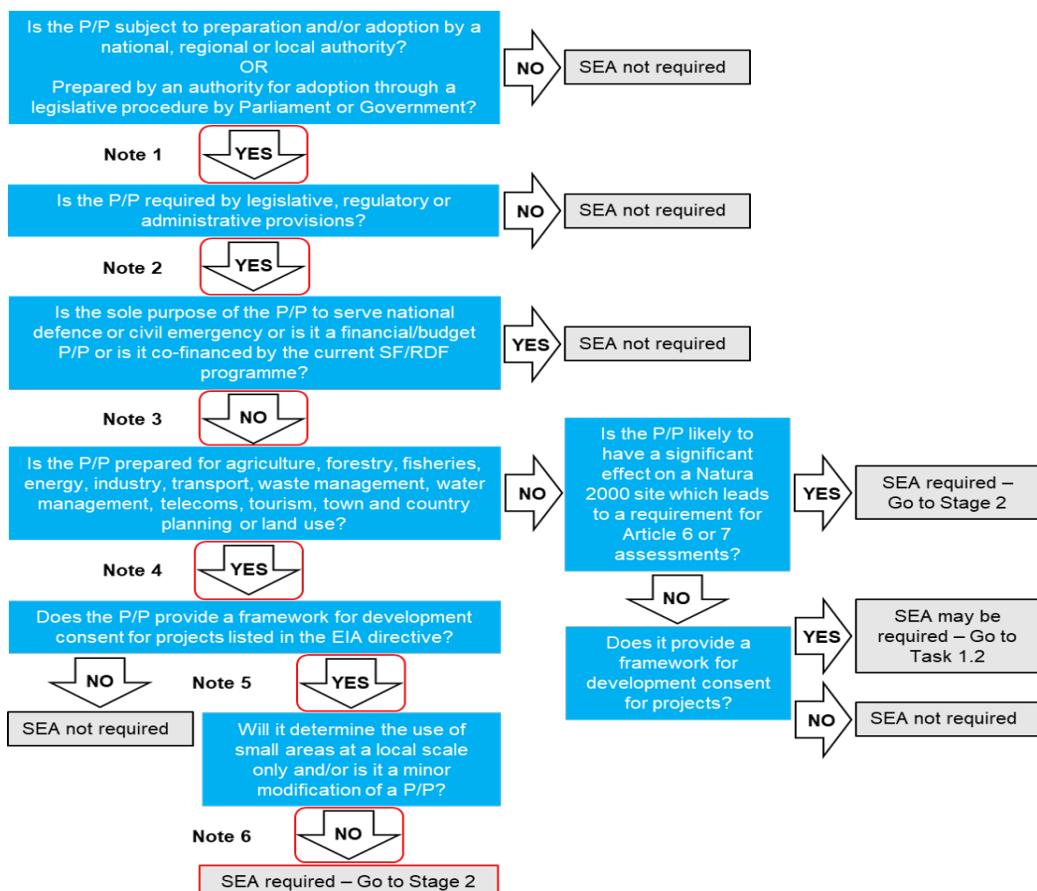


Figure 5.1 Pre-Screening check list (adapted from the EPA guideline report *Development of SEA methodologies for plans and programmes in Ireland (2003)*)

Notes on the Screening Checklist

1. Is the P/P subject to preparation and/or adoption by a national, regional or local authority OR prepared by an authority for adoption through a legislative procedure by Parliament or Government?

Yes. Irish Water is a semi-state company under the Water Services Act 2013. Irish Water is accountable to two regulatory bodies; the Commission for Regulation of Utilities (CRU) who is the regulator for the water industry and the Environmental Protection Agency (EPA) who is the environmental regulator.

Irish Water is responsible for the development and implementation of the Plan. The Plan will be subject to public consultation prior to “approval” and “adoption” by Irish Water.

2. Is the P/P required by legislative, regulatory or administrative provisions?

Yes. The Plan is a regulatory requirement for Irish Water under the Water Services Strategic Plan (WSSP) as detailed in Section 33 of the Water Services Act 2013.

3. Is the sole purpose of the P/P to serve national defence or civil emergency or is it a financial/budget P/P or is it co-financed by the current round of SF/RDF?

No. This does not apply to the proposed Plan.

4. Is the P/P prepared for agriculture, forestry, fisheries, energy, industry, transport, waste management, water management, telecoms, tourism, town and country planning or land use?

Yes. The main function of the Plan is in relation to water resource planning. The plan also includes strategy for the management of sludge from the water treatment plants.

5. Does the P/P provide a framework for development consent for projects listed in the EIA Directive?

Yes. According to the EPA guideline report *Development of SEA methodologies for plans and programmes in Ireland* (2003) a “framework for development consent” occurs:-

“when the P/P would lead to or give guidance for the consent of development projects. This may be observed as the demarcation of areas zoned for specific types of development, measures which identify circumstances under which development will be encouraged or allowed, criteria which may be applied to decisions on development consent or forward programmes which identify certain types of development to be pursued in a particular sector.”

The Plan will identify a range of options, including types of projects that fall within the categories set out in Annexes I and II to the EIA Directive, for example works for the transfer of water.

6. Will it determine the use of small areas at a local scale only and/or is it a minor modification of a P/P?

No. The Plan is regional covering a large part of the Republic of Ireland and is part of a national plan and is not a modification to an existing Plan.

C.8 Conclusion

Screening Decision

In conclusion on the basis that the provisions of Article 9(1) of the European Communities (Environmental Assessment of Certain Plans and Programmes) Regulations have been met, the RWRP-SE has been ‘screened in’ as requiring SEA, and therefore the SEA process should move to Stage 2 – Scoping Stage.