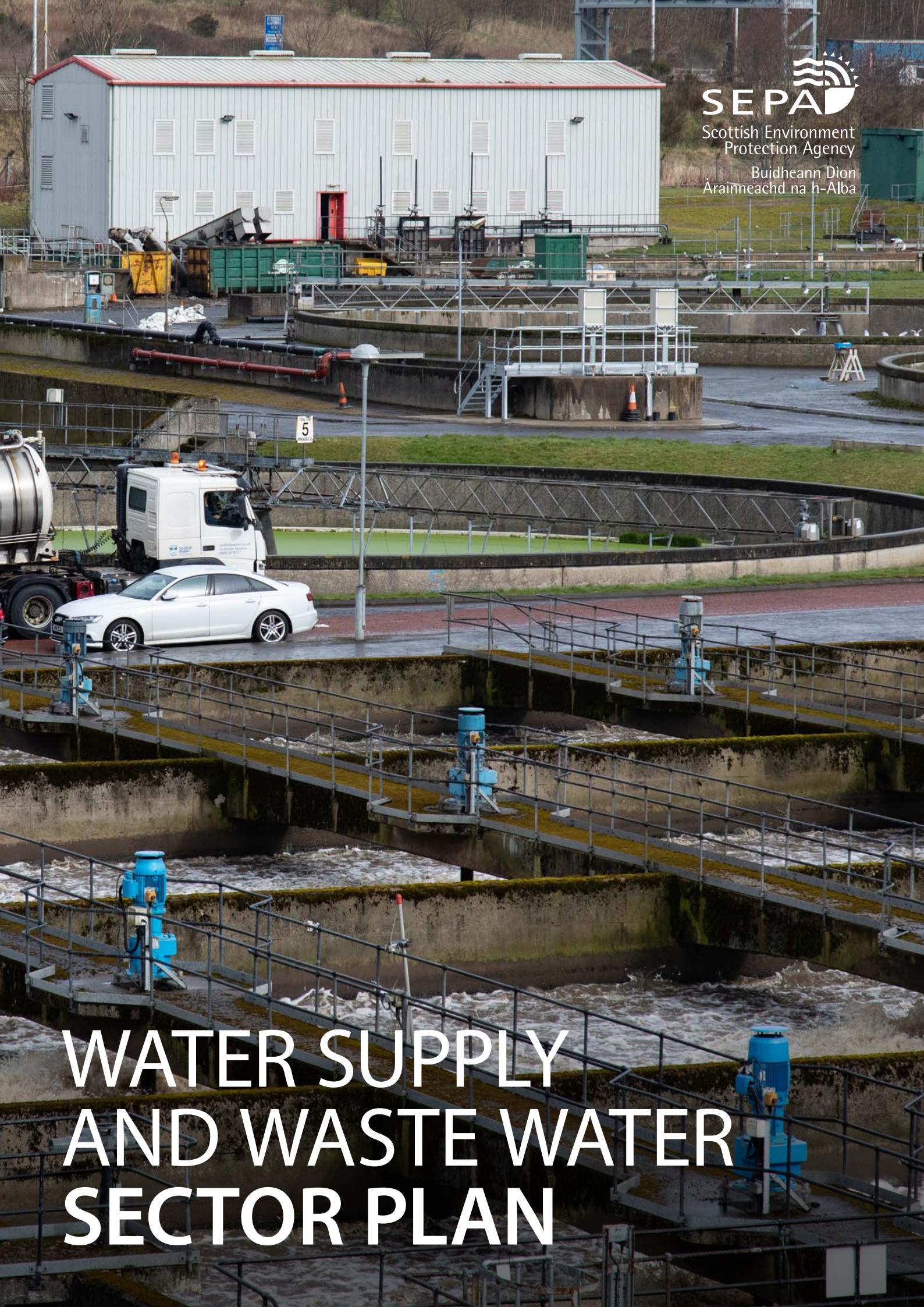

SEPA
Scottish Environment Protection Agency
Buidheann Dìon Àrainneachd na h-Alba

WATER SUPPLY AND WASTE WATER SECTOR PLAN

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http://contactscotland-bsl.org/

May 2019

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Preface

SEPA has a strong track record of regulating to improve the Scottish environment. We are proud of what we have achieved since we were set up just over two decades ago in 1996. We know we need to do more over the next two decades to build on this success. Much more.

The mounting scientific evidence about climate change, plastics in our oceans, the pressure on our freshwater and more shows us that humanity must rise to tackle major environmental challenges. This scientific knowledge underpins SEPA's strategy for how we will regulate - One Planet Prosperity. If everyone in the world lived as we do in Scotland, we would need three planets. There is only one.

So, we will regulate to help Scotland prosper within the means of our one planet. Successful businesses in future will be those that use low amounts of water, materials and carbon-based energy and create little waste. Prosperous societies will be comprised of these businesses. This can be Scotland.

In every sector we regulate, this means we will have two simple aims. We will:

1. ensure that all businesses fully meet their environmental compliance obligations;
2. help as many businesses as possible move beyond their environmental compliance obligations.

Water is essential to life itself as well as every aspect of our society and economy. The global pressures on our fresh water resources are enormous and will continue to grow.

How a society manages the provision of its water supply and its waste water services will be a key determinant of how successful it is. Ultimately, even a water-abundant nation such as Scotland will have to unlock innovation on a grand scale.

So, in the future management of water, what will success look like? In short, we'll use less of it and we'll waste none of it. We are a long way from achieving this, but many people and organisations have made a start and Scotland has a global reputation for its expertise in water management. SEPA is determined that, as Scotland's environment protection regulator, we will support this focus on both excellence and innovation in water supply and waste water management. How we propose to play our role is spelt out in this sector plan.

Our plan is ambitious. It spells out how we will use traditional environmental protection agency (EPA) regulatory tools, such as permits and enforcement, in clearer and more powerful ways. It sets out some completely new ways, such as novel partnerships, that we will develop and use to support innovation in the sector.

Terry A'Hearn
SEPA Chief Executive Officer

1. Introduction

SEPA's statutory purpose is to protect and improve the environment in ways that, as far as possible, create health and well-being benefits and sustainable economic growth. To help create a prosperous Scotland that lives within the means of one planet, we need to radically change the way we work. In the past, our approach to regulation has been grounded in different sets of rules for protecting the environment. This has helped us to deliver, for example, improvements in water quality. However, it will not enable us to make the transformational changes needed to tackle today's problems.

We are moving instead to ground our regulation in working across whole sectors. In this way we can systematically identify the compliance issues that need to be tackled by the sector. But mere compliance and small scale incremental change will not be enough. We want to help operators and sectors to implement successful innovation and support them in their ambitions to do more than they are required to by regulation. We call this **moving beyond compliance:** helping already high performing organisations to do more for the environment because it makes sense for them.

We will identify where the biggest opportunities are for us to help organisations and sectors to go beyond compliance. In both ways, this will help those we regulate operate successfully within the means of one planet.

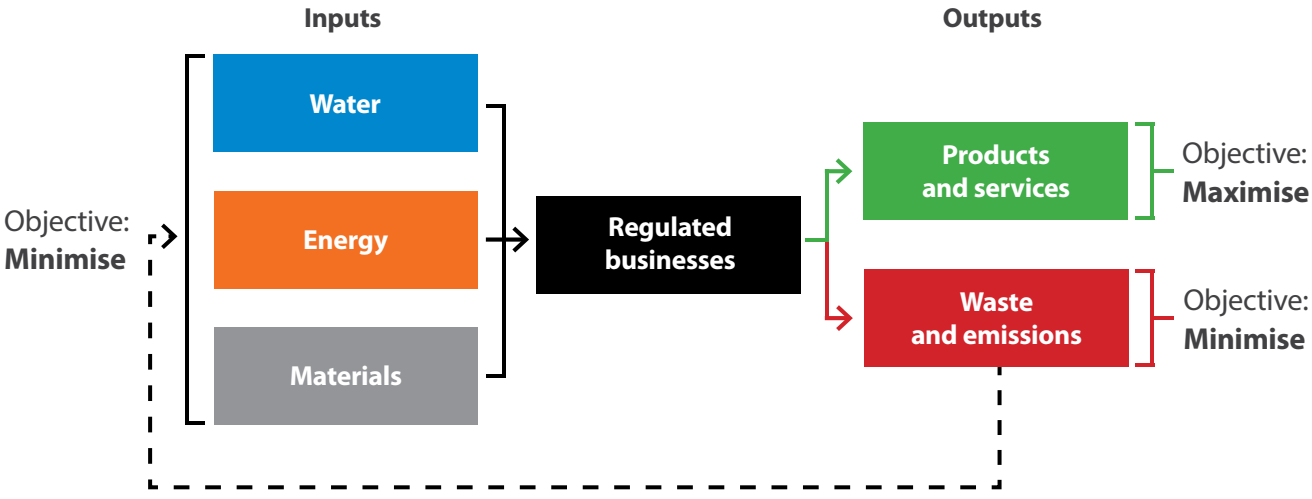
All those we regulate in a sector use water, energy and raw materials to produce their products and services. In doing so, they also create waste and emissions. We can think of these as environmental flows that need to be managed by operators (Figure 1).

We want to help as many operators as possible to manage these flows effectively. Reducing their use of natural resources and reducing the creation of waste will enable them to meet their legal obligations, drive further improvements and be successful. To facilitate this, we are preparing sector plans for every sector that we regulate.

Sector plans are at the heart of everything we do. They are our strategic plans for shaping our interactions with every sector and the operators in them. Through them, operators will get the relationship that their attitude and performance earns. Those that demonstrate a commitment to good environmental performance and to delivering solid outcomes will receive powerful support through guidance and advice. Those that demonstrate behaviour which leads to significant or chronic non-compliance can expect us to use the most appropriate enforcement tools to bring them into compliance.

The implementation of our sector plan actions will be prioritised and phased. We will also co-ordinate work under this plan with the actions we have identified in other sector plans and, where relevant, the actions of other partners, including Scottish Water.

Environmental flows (Figure 1)



Scope of the Water supply and waste water sector plan

This plan is our strategic plan for the water supply and waste water sector. It covers both public and private water supply and waste water treatment. It sets out how we are going to regulate the sector and work with it to protect and improve the environment, including in ways that contribute to the achievement of Scotland's aims and objectives for the water environment[1], soil[2], air quality[3], a low carbon economy[4], waste[5] and flood risk management[6]. Its central focus is on building a circular economy that helps minimise the impact of the sector on the environment and strengthens Scotland's resilience to climate change.

The implementation of our sector plan actions will be prioritised and phased. We will also co-ordinate work under this plan with the actions we have identified in other sector plans and, where relevant, the actions of other partners, including Scottish Water.

Public water supply and waste water

- The abstraction, treatment and distribution via public water mains of drinking water to households and businesses.
- The management of any liquid wastes or solids generated during water treatment.
- The collection in public foul sewers or combined sewers[7] of sewage and other waste waters, including trade effluents.
- The treatment of such waste waters at waste water treatment works.
- The storage, recovery of resources from; recycling; or disposal of solids and liquids generated during treatment.

Private water supply and waste water

- The abstraction, treatment and piping of drinking water by households and businesses not connected to public water mains.
- The management of any liquid wastes or solids generated during water treatment.
- The treatment of sewage by households or businesses not connected to public foul sewers or public combined sewers.
- The recovery of resources from; recycling; or disposal of solids and liquids generated during the treatment process.

[1] Scotland's objectives for the water environment are set out in the Scotland River Basin District and Solway Tweed River Basin District Management Plans: www.sepa.org.uk/environment/water/river-basin-management-planning/

[2] www.gov.scot/policies/biodiversity/soils/

[3] www.gov.scot/policies/pollution/air-quality/

[4] Climate Plan: www.gov.scot/policies/climate-change/. See, also, our Energy Framework www.sepa.org.uk/media/383806/sepa_energy_framework.pdf and our Climate Change Commitment Statement https://www.sepa.org.uk/media/369292/climate-change-commitment-statement.pdf

[5] www.gov.scot/policies/managing-waste/. See, also, our Waste to Resources Framework: www.sepa.org.uk/media/219528/one-planet-prosperity-a-waste-to-resources-framework.pdf

[6] http://apps.sepa.org.uk/FRMStrategies/

[7] Combined sewers are designed to collect rainfall run-off as well as sewage and other waste waters.

Glasgow Avenues Programme (Figure 2): A pioneering project that aims to make the city more attractive, people-friendly, better for local business and manage water more sustainably through a strategic network of blue-green infrastructure.

2. Our vision for the water supply and waste water sector

Our aim is to help Scotland create a truly circular economy for its water supply and waste water sector. Under this vision:

- **Water supplies are being used wisely and efficiently, and not wasted, helping ensure Scotland can reliably meet its water needs in a changing climate and protect its natural environment.**
- **Towns and cities are using nature-based, blue-green solutions to absorb and safely convey rainwater, helping strengthen their resilience to the intense downpours they face under climate change; minimise the risk of polluting sewage spills by keeping rainwater out of sewers; and create fantastic places for people to live and work (Figure 2).**
- **The sector has minimised its use of energy and materials and is converting sewage and other wastes into valuable resources.**

Few other sectors are of such fundamental importance as the water supply and waste water sector to every person in the country's health and well-being; to the quality of large parts of the natural environment; and to Scotland's economic success. And yet it is easy to take water supply and waste water services for granted, whether or not they are public or private.

Over the next few decades, climate change will have increasingly profound effects on water demand; water availability; raw water quality; the risk of sewer and surface water flooding during intense downpours; and the operation of waste water treatment works, including as a result of sea level rise and weather extremes. In parts of the country, some of these effects will be compounded by population growth. The enormity of the challenge these effects pose for the sector cannot be understated.

Our vision is one for addressing these challenges and, at the same time, driving down the sector's greenhouse gas emissions. Realising our vision will be hard; it will take time; and it will involve difficult choices. But realising it is of greater urgency than ever before. Unless action is accelerated now, the country will be left underprepared and exposed as the climate changes. The challenges of the future need to be front and centre of planning and investment decisions today.

The sector has a big and important role to play in delivering the transformation needed. However, it cannot do it alone. To succeed, major change has to happen in other sectors, such as housing, infrastructure and town planning; and in a wide range of business sectors. One of the things we can do is to help bring the different sectors together and help engage with communities whose support, ideas and actions are essential to realise change on the scale needed.

Our vision is for a sector that continues to turn challenges into opportunities. A sector that is generating wealth not waste through maximising the recovery of resources from sewage and cycling them back into a circular economy. It is an ambition that will help Scotland to be a world leading 'Hydro Nation'[8], recognised and valued for its expertise in resilient water supplies; resource recovery from waste waters; 21st century, nature-based solutions for handling rainwater; strong environmental protection; and effective, risk-based regulation.

[8] www.gov.scot/policies/water/hydro-nation/

Our objectives

The objectives of this sector plan are to:

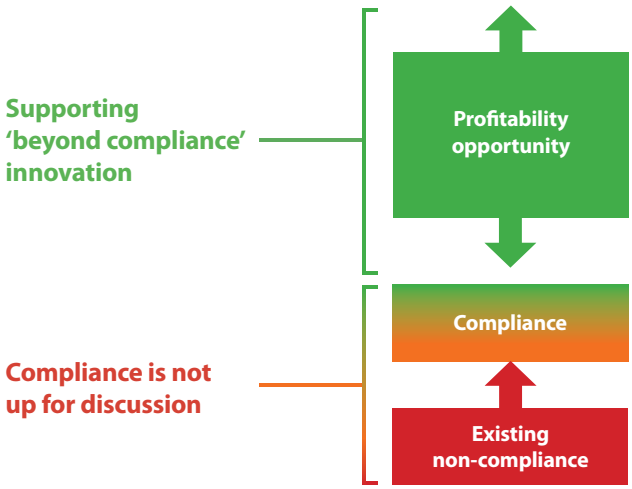
- ensure that all businesses in the sector fully meet their environmental compliance obligations;
- help as many businesses as possible move beyond their environmental compliance obligations.

This is illustrated by the sector roadmap (Figure 3).

This sector plan sets out how we will work with the water supply and waste water sector. For our vision and objectives to be achieved, we will work with partners and facilitate liaison between them and the sector to create opportunities that link the sector's success with environmental success.

We want to bring together skilled, experienced and innovative people from across the sector to understand key challenges and opportunities to create innovative solutions. If we get this right, it will mean that the environment is not seen as a constraint but as a platform on which economic and social success can be built, putting the water supply and waste water sector on a pathway to becoming a 'one planet' sector.

Sector roadmap (Figure 3)



Water supply

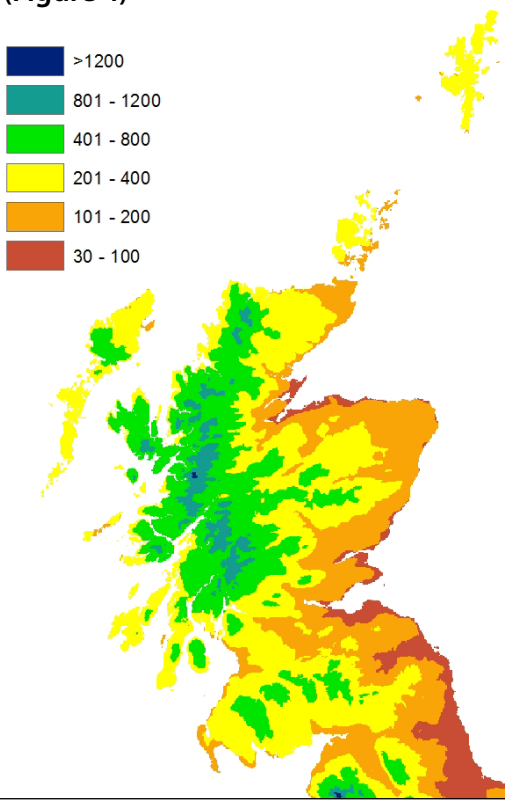
Our overall goals and objectives for water supply are (Figure 14):

- Low pressure on natural environment
- Climate change resilience
- Low energy input
- Low chemical input

Scotland gets more than its fair share of rain. But the quantity that can be used without exhausting reserves and impacting the natural environment (i.e. the renewable water resource) varies considerably across the country. There is much less renewable water resource available in the east because rainfall here is lower and evaporation much higher (Figure 4).

Climate change is expected to result in warmer, drier summers across the country. By the middle of the century, the frequency of droughts severe enough to put water supply at risk is projected to double.

Renewable water resource (mm/year) (Figure 4)



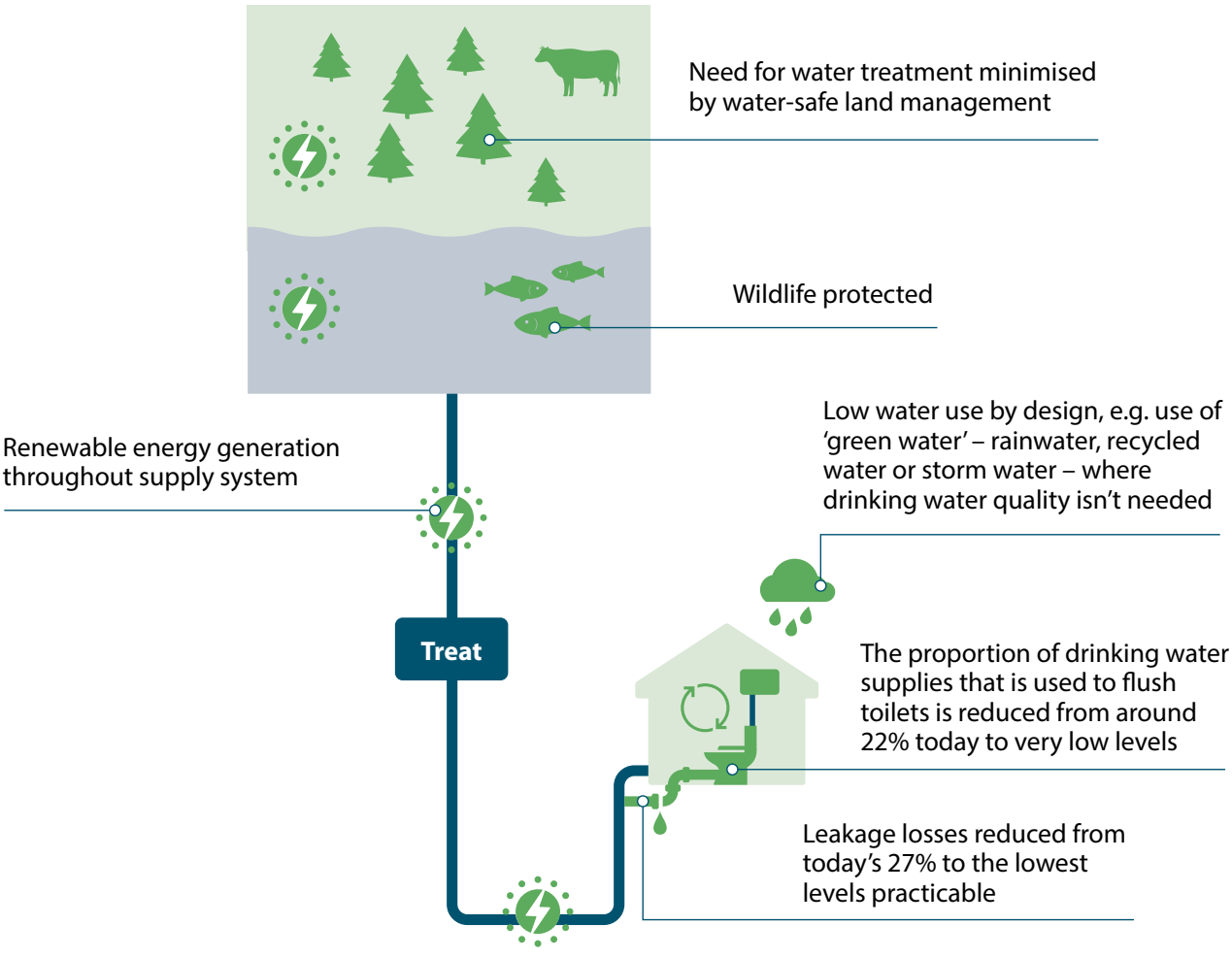
Unless managed, demand for water supply is likely to rise, as water use tends to increase markedly in warm weather. Competition for water sources from other sectors, such as agriculture, is likely to rise.

Demand is also likely to be driven upwards as the number of people living in Scotland grows. A 5% rise in the population has been projected by 2041. People are also expected to move from parts of the west to the east, concentrating population growth in areas of the country with the lowest renewable water resource.

Smaller public and private supplies with limited storage are likely to become increasingly vulnerable as the climate changes, particularly during peak demand in hot weather. During the dry summer of 2018, a number of private water supplies failed and households had to rely on bottled water.

Increasing efficiency and minimising waste of water supplies will mean the status of the natural environment is under less pressure during long, dry periods of weather, such as those Scotland is increasingly likely to experience under climate change; water supplies are much more resilient; and the energy and chemical costs of providing supplies is kept at a minimum (Figure 5).

What might future water supply look like? (Figure 5)



Leakage

Scottish Water has made significant reductions in leakage from public water mains over a number of years and has reduced its carbon footprint as a result. Locating and repairing the remaining leaks is becoming progressively harder. To continue making the same progress in reducing leakage, new innovative ways of finding and fixing leaks will be needed. Costs of fixing leaks can be less if opportunities to find and fix them as part of other infrastructure projects, such as major roadworks, can be taken.

On average, as much as 25-30% of leakage can be from the pipework within private premises rather than leaks in the public distribution network. Many people are unaware of the extent of leakage in homes and business premises. Raising awareness could help stimulate action but new ways of incentivising and enabling action are likely to be needed to bring about major reductions in the scale of these leaks. Action to reduce leakage in private premises could make use of opportunities provided when homes are being refurbished or when lead pipes are being replaced.

Water usage by households and businesses

Information and advice is important in helping communities take action but communities are unlikely to be able to achieve more than a modest reduction in water usage without forms of help that make doing so easy and cost-effective. Low water use building designs, including, for example, designs that use 'green water' (rainwater, recycled water or storm water) where drinking water quality is not required, could deliver substantial reductions in water usage per property. New developments offer a real opportunity to work with developers to encourage them to embed these approaches and help establish new standards for buildings that will stand the test of time.

The immediate benefits of reducing leakage and inefficient usage are going to be greatest in areas that are already water stressed or likely to become increasingly so as the climate changes or their populations rise; and where levels of energy and chemical use in treatment and distribution are highest.

We will work with Scottish Water, local authorities, Scottish Government, the Drinking Water Quality Regulator and other partners to encourage and support the development of a strategy to promote efficient water use.

Raw water quality

More intense rainfall under a changing climate is likely to increase the risk of run-off of pollutants from farmland into rivers and reservoirs with potential consequences for the amount of energy, chemicals and expert management needed to produce clean, safe drinking water. Climate change may also enable an expansion of intensive agriculture into currently low productivity land, increasing risks to some sources of private and public supplies.

We will contribute to protecting supplies from diffuse pollution by working with land managers, other regulators and farm advisors to manage land in ways that protect and improve raw water quality in drinking water supply catchments.

Sewer networks

Our overall goals and objectives for sewer networks are (Figure 14):

- Losses of sewage minimised
- Cityscapes enhanced
- Heat energy recovered
- Climate change resilience

Around 53,000 kilometres of underground sewers carry waste waters from homes and businesses to public waste water treatment works. Around 40% of sewers also carry rainwater drainage.

The sewer network includes around 4,000 outlets designed to allow combined sewers to spill into the water environment during heavy rainfall to prevent the sewers backing up and flooding streets and properties.

Sewer flooding or spills from the overflows can also occur as a result of blockages in the sewers. Blockages are very common and usually the result of businesses or households using sewers to dispose of fats, oils, greases, sanitary products, wet wipes and other products. Scottish Water deals with around 100 sewer blockages every day.

Pollution of the water environment can result from overflows when the proportion of sewage compared to rainwater in the sewer is high. The vast majority of pollution incidents today are due to blockages leading to spills, although some sensitive sites, such as bathing waters, can be vulnerable to otherwise quite minor, rainfall-related spills. Scottish Water has worked hard to clear blockages through cleaning and maintenance.

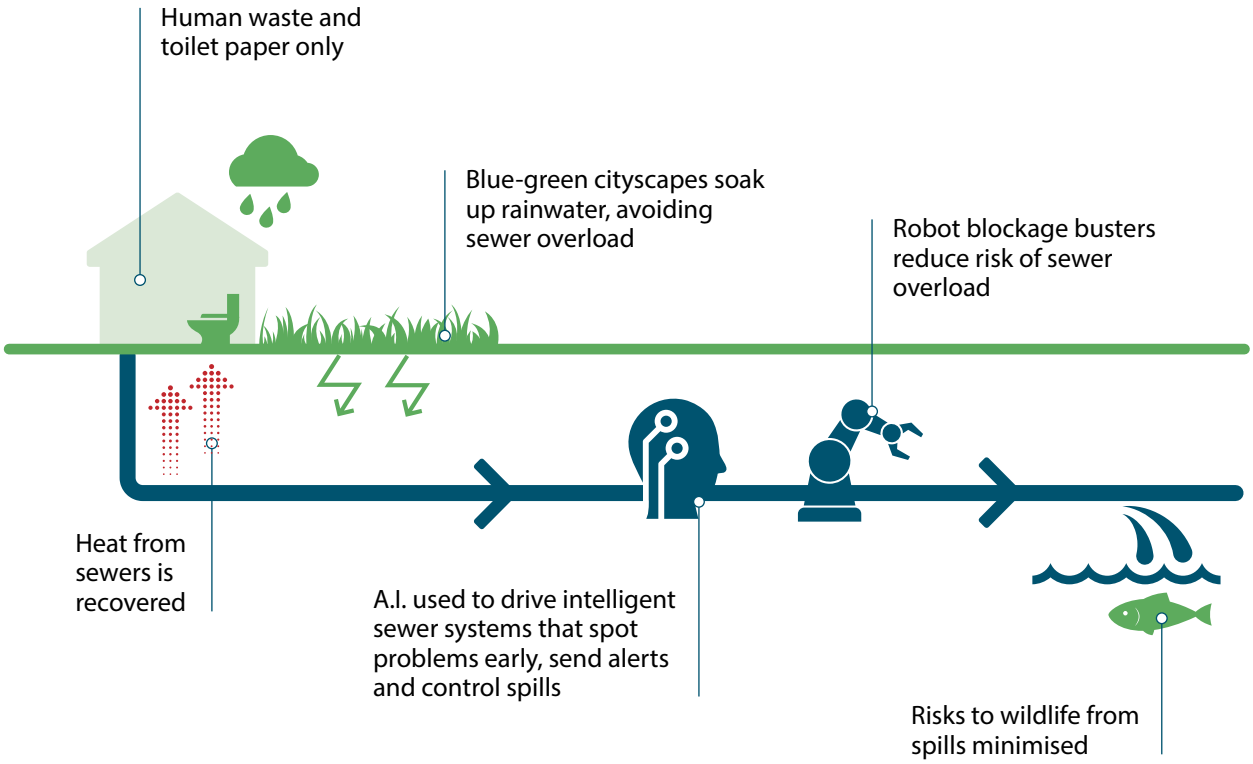
To make a real step change now requires:

- tackling the source of the problem by persuading product manufacturers to adjust product specifications and better inform consumers about safe disposal; and businesses and the public to change behaviours;
- improving network monitoring and understanding, for example, using artificial intelligence to help identify where blockages are developing, so that faster, preventative action can be taken; and spills can be controlled and diverted to where they will have the least impact.

As the climate warms, the air is able to hold more moisture. This means that there is a higher risk of the type of heavy rainfall that can cause flooding of streets and spills of sewage. By 2100, some projections indicate that the quantity of rain falling during downpours could increase by 45-55%. Population growth will add further to the volume of waste water that has to be conveyed in combined sewers. Pollution incidents and chronic pollution problems caused by spills where sewer capacity is exceeded are likely to rise substantially if action is not taken.

Re-designing how towns and cities deal with rainwater is going to be key to protecting the environment where people live and work; and managing the risk of flooding of streets and properties. But it will require a major transformation in how drainage in towns and cities is currently planned, delivered and maintained (Figure 6).

What might future sewer networks look like? (Figure 6)



The proportion of rainwater draining into the sewer network will need to be significantly reduced. To do this, something more akin to the natural water cycle will need to be recreated in towns and cities using 'blue-green infrastructure', such as green roofs (Figure 12), greenspaces, wetlands and porous pavements, to soak up, store and safely convey rainwater (Figure 7). To be effective, towns and cities will need to do this in a systematic and joined-up way across entire sewage networks and rainwater drainage areas.

An important objective and benefit of maximising the use of blue-green infrastructure to soak-up and manage rainwater is that doing so will enrich the biodiversity of towns and cities, and add to their attractiveness for residents and visitors.

No single organisation can deliver this transformation. It will require partnerships and new ways of working between local authorities, Scottish Water, developers and property owners. It is also likely to need new incentives to stimulate and support the scale of change that will need to be made over the coming decades.

We will work with Scottish Water, local authorities, developers and other partners to support, and help facilitate, action to build 21st century rainwater drainage solutions into new developments and into those towns and cities that are at risk of environmental pollution and sewer flooding as climate changes and their populations grow.

Storm water management designs for a city street in Copenhagen, demonstrating how blue-green infrastructure can be used to manage intense rainfall events and enhance biodiversity. (Figure 7)

Waste water

Our overall goals and objectives for waste water are (Figure 14):

- Resource recovery
- Pollution controlled at source
- Value added

Today's waste water collection and treatment systems developed to safely dispose of sewage and other waste waters. They provide a vital role in protecting public health and the environment.

There are over 1,800 public waste water treatment works and an estimated 250,000 private systems in Scotland. The majority of the latter serve domestic properties but include some bigger systems serving caravan parks, hotels, other business premises, and even large workforces, such as at nuclear facilities.

Most of the public waste water treatment works[9] are operated by Scottish Water but 16 large works are run on behalf of the public by private companies under the Private Finance Initiative.

A significant proportion of small, private systems discharge to land via a drainage field. However, nearly all other waste water treatment systems discharge their final effluent to rivers, estuaries or the sea.

Waste water treatment also produces solid, organic waste, called sludge. Up until the late 1990s, around three quarters of the sludge produced was dumped at sea. Today, over 70% of sludge produced at public waste water treatment works is recycled by spreading on agricultural land or re-used in land reclamation. We play a regulatory role in checking that the quality of the sludge meets required standards and is matched to the soil's capacity to beneficially accommodate it.

Water treatment works (i.e. works where water supplies are treated to meet required drinking water standards) also produce sludge. This sludge makes up around 25% of the combined total. Currently, about 99% of sludge from water treatment works is re-used in land reclamation.

To live within the means of One Planet, societies need to maximise the recovery and utilisation of resources. Our vision is for waste water treatment works and sludge works to become resource recovery centres in a circular economy (Figure 8). This will make preventing pollution a value maximisation process. Businesses that discharge trade effluents to sewer also have an important role to play by taking action to minimise waste and maximise resource recovery at source.

Changing focus to minimising waste and to resource recovery will involve making fundamental changes in current infrastructure, and the development and introduction of new technologies.

Ultimately, this transformation has the potential to be cost-neutral and even generate income for the sector and for those businesses that reduce waste in their discharges to sewer.

This will require upfront work and investment to:

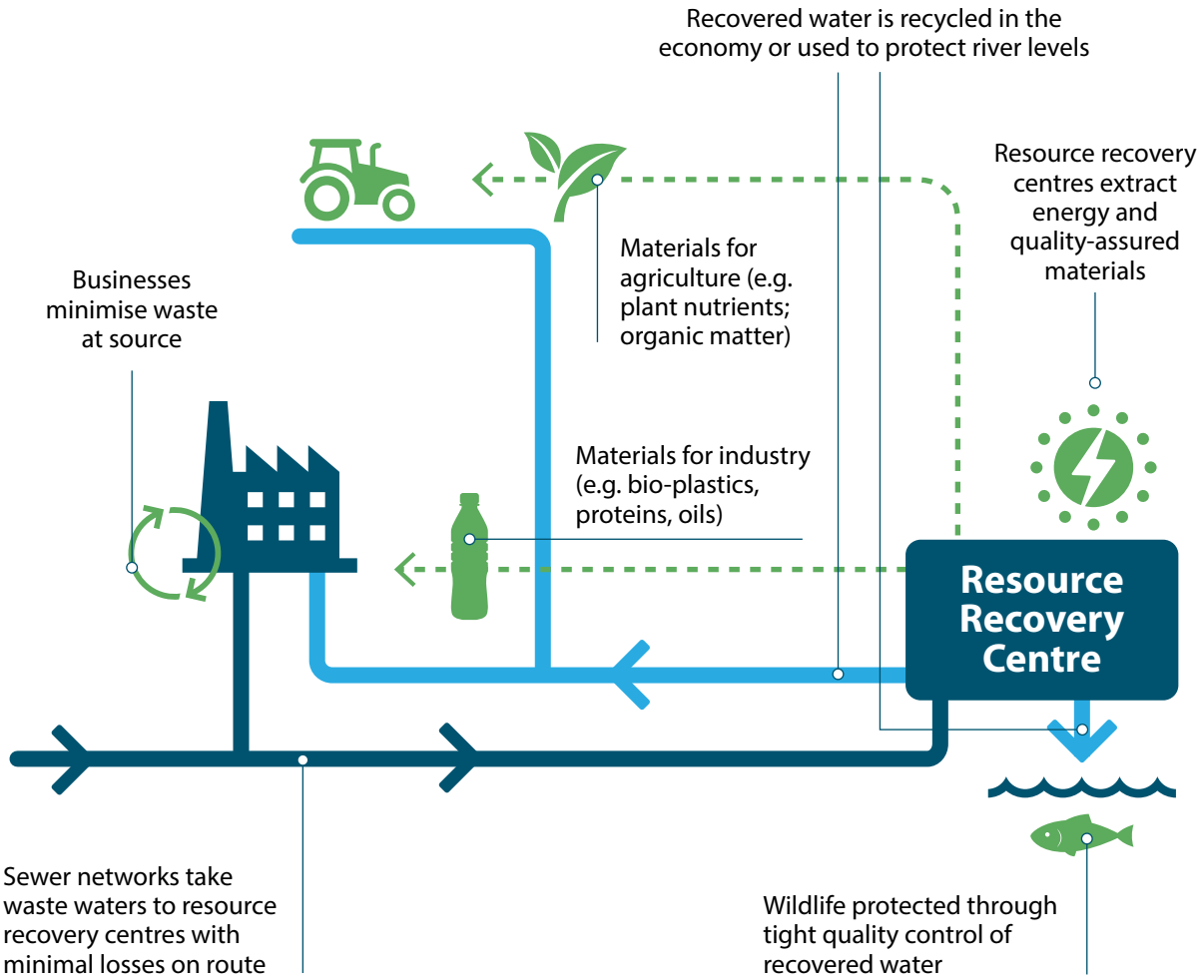
- develop and trial new technologies for recovering different materials from waste;
- retrofit those technologies;
- help develop markets for, and distribute, the recovered materials.

It will also require parallel work to understand the risks posed to the environment by pollutants in sewage that have not been previously investigated or subject to controls but are emerging as a potential threat, such as micro-plastics.

Reducing toxic pollutants at source by working with businesses discharging to sewer, retailers and product manufactures; and raising awareness among communities will help reduce contamination of recovered resources, including soil improvers. This will increase the value, and opportunities for safe use, of the recovered resources.

[9] In December 2018, Scottish Water took over ownership and operation of four works in North East Scotland that had been managed under Private Finance Initiative.

What might future for waste water management look like? (Figure 8)



We will work with Scottish Water to:

- help identify opportunities for it to work with businesses from other sectors in recovering, distributing or utilising resources from wastes, including businesses discharging wastes to the public sewer;
- in so far as consistent with protection of the environment, ensure the way we regulate helps support and facilitate resource recovery.

Appropriate treatment of wastes and protection of the environment will continue to be core requirements. However, to achieve our vision of minimising energy and other resource use, the sector will need to find, and switch to, new ways of treating wastes to high standards using passive or low energy techniques. Where we can help facilitate, for example by bringing parties together, we will work with Scottish Water and other partners to help encourage and support this shift.

Private water supply and waste water systems

Much of our vision for the sector outlined above also applies to private water supplies and waste water systems. However, there are some important differences in the approach needed.

The vast majority of private water supplies and private waste water treatment systems serve individual houses or small groups of houses. In the main, even the larger private systems are managed by operators that lack the breadth and depth of expertise and resources available to Scottish Water and the Private Finance Initiative operators of public waste water treatment works.

Technology

Small private water supplies in the future will ideally rely on well-constructed boreholes to abstract clean, safe groundwater. Use of this source improves resilience of supplies to climate change and reduces the levels of water treatment needed. Novel designs and approaches to establishing borehole sources could help minimise the energy needed to pump water to the surface.

Private water supplies are the responsibility of owners and users and are regulated by local authorities. Many of those on private supplies currently obtain their water from shallow wells or watercourses and have done so for many years. Local authorities provide grants of up to £800 to help owners and users make sure the water they use is up to modern standards[10]. However, switching large numbers of private supplies to mains supply, where available, or, if not, to more resilient and less vulnerable groundwater sources, will take time and require new ways of communicating the benefits of making the switch; and incentivising and supporting it.

Under our vision, private waste water systems will also have transitioned to emerging technologies, such as dry toilets and passive treatment systems. Systems serving small communities and businesses will be making use of technologies[11] that can recover resources such as energy, water and nutrients for local re-use. Many of those operating private systems are likely to need incentives and substantial support before the adoption of new technologies becomes widespread.

Management

The environmental performance of privately operated waste water treatment systems and water supplies tends to be significantly worse than that of the public sector. To achieve effective protection of the environment, we think an entirely new, nationally governed means is needed of ensuring the appropriate design, inspection, maintenance and, where necessary, upgrade of private water supply and waste water systems.

This new system would need to ensure that:

- new or upgraded systems are designed to be as reliable, low maintenance and low resource intensive as possible;
- inspections, maintenance and any necessary upgrades are compulsory and carried out to appropriate standards;
- there is a means of sufficiently and sustainably financing inspections, maintenance and upgrades.

[10] www.mygov.scot/apply-private-water-supply-grant/

[11] www.crew.ac.uk/publication/water-resource-balancing

3. The water supply and waste water sector

Key facts and figures for the water supply and waste water sector are shown below (Figure 9).

Facts and figures (Figure 9)

Sewage sludge

Around 120,000 tonnes

Sewage sludge generated from public waste water treatment (tonnes of dry solids per year)

Over 70%

Proportion of sewage sludge re-used on land (dry solids)

Energy and carbon

440 GWh

Amount of electricity Scottish Water operations consume (2017-2018)

- water network - 14%
- water treatment - 21%
- waste water network - 18%
- waste water treatment - 31%
- sludge - 14%
- admin - 2%

923 GWh

Renewable energy Scottish Water hosts and generates

315,000

Scottish Water's carbon footprint in 2017 (tonnes of CO_2 equivalent/year) – down one-third from 2007

Around 350 GWh

Estimated potential average recovery via anaerobic digestion per year

25 GWh

Amount of energy recovered from sludge via anaerobic digestion per year

Investment

£3.9 billion

Total investment planned by Scottish Water between 2015-2021

£647 million

Total investment made by Scottish Water in 2017-2018


CENTURION
SEPA
Scottish Environment
Protection Agency

4. Pressures on the environment and how they are managed

The following table summarises the pressures on the environment from the water and waste water sector and how they are regulated.

Sector operation	Environmental factors affecting operation	Pressure on environment from operation	Principal regulator of pressure
Water abstraction	■ Climate change reducing available resource. ■ Increased demand due to hotter weather or population growth. ■ Overuse by other abstractors.	**Locally regulated pressures** ■ Reduced river flows, particularly in dry weather. ■ Intake weirs or reservoir dams impeding fish migration. ■ Reservoir safety. ■ Risks of transferring invasive non-native species in transfers of raw water between river catchments.	SEPA
		Other pressures ■ Energy usage in raw water transfers.	N/A
Water supply treatment	■ Land use effects on raw water quality. ■ Pollution incidents. ■ Climate change increasing likelihood of intense, poor quality run-off from land.	**Locally regulated pressures** ■ Discharge of chemicals used in water treatment. ■ Management of sludge from water treatment.	SEPA
		Other pressures ■ Energy use in treatment.	N/A
Water supply distribution	■ Climate change – extreme cold or very dry weather leading to burst pipes. ■ Erosion and land slips leading to pipe breaks	**Other pressures** ■ Energy use (pumping and maintenance).	N/A

Sector operation	Environmental factors affecting operation	Pressure on environment from operation	Principal regulator of pressure
Waste water sewer networks	■ Tree root growth penetrating sewers leading to blockages or pipes fracturing. ■ Land erosion/subsidence damaging sewers. ■ Climate change - increases in rainfall intensity leading to increased combined sewer overflows and sewer flooding, and increased quantities of silt entering and accumulating in sewers. ■ Climate change – hot, dry weather affecting sewer flows and septicity. ■ Population growth. ■ Expansion of the area of impermeable surfaces in combined sewer areas leading to more rainwater entering sewers. ■ Disposal into the sewer of materials that cause blockages, such as fats, oils, greases, wet wipes, sanitary products, etc.	Locally regulated pressures ■ Pollution and littering from combined sewer overflows or sewer leakage. ■ Connections to sewer, including trade effluent discharges.	SEPA Scottish Water
		Other pressures ■ Sewer flooding in properties, roads etc. ■ Energy use (pumping and maintenance).	N/A

Sector operation	Environmental factors affecting operation	Pressure on environment from operation	Principal regulator of pressure
Waste water treatment and subsequent management of liquid and solid wastes, including sludge	■ Climate change – extreme cold or very dry weather affecting treatment process. ■ Climate change - very dry weather affecting available dilution in water environment for discharges. ■ Climate change - sea level rise and more frequent extreme river floods posing a risk of works being flooded. ■ Disposal of wastes (into sewer or into private treatment systems) that impair or knock out treatment systems. ■ Discharge into the sewer of environmentally toxic chemicals (including in household products) that are difficult or very costly to treat. ■ Soil nutrient status etc with respect to acceptance of sludge applications to land.	**Locally regulated pressures** ■ Discharges of effluents and storm overflows to the water environment. ■ Disposal of rags, wipes, sanitary products etc removed in treatment. ■ Emissions to air from sludge processing. ■ Run-off from sewage sludge storage and use on land. ■ Effects of sludge on soil, including level of contaminants in sludge. ■ Disposal of sludge to landfill or incineration. ■ Odour from treatment works; and sludge storage and use.	SEPA Local authorities
		Other pressures[12] ■ Energy use (waste water treatment and sludge transport).	N/A

[12] We are taking part in a project along with Scottish Water and led by UK Water Industry Research aimed at improving understanding of the fate and behaviour of micro-plastics released into the sewers.

Environmental regulation of the water supply and waste water sector

We regulate a wide range of activities carried out by the sector. The main activities are summarised below:

Water supply	
Reservoir safety	Reservoirs (Scotland) Act 2011
Water abstraction; operation of reservoir dams and water intake weirs; borehole construction; water transfers; discharges from water treatment works.	Water Environment (Controlled Activities) (Scotland) Regulations 2011
Waste water collection	
Sewer overflows into the water environment	Water Environment (Controlled Activities) (Scotland) Regulations 2011
Waste water treatment	
Discharges of effluents from waste water treatment systems	Water Environment (Controlled Activities) (Scotland) Regulations 2011 Urban Wastewater Treatment (Scotland) Regulations 1994
Sludge processing and management installations	Pollution Prevention & Control (Scotland) Regulations 2012 Environment Protection Act 1990
Transport and disposal of sewage rags and debris	Waste Management Licensing (Scotland) Regulations 2011 Pollution Prevention & Control (Scotland) Regulations 2012 Control of Pollution (Amendment) Act 1989 Environment Protection Act 1990 (Section 34, duty care[13])
Storage and application to land of sludge	The Sludge (Use in Agriculture) Regulations 1989 Waste Management Licensing (Scotland) Regulations 2011 Water Environment (Controlled Activities) (Scotland) Regulations 2011 Environment Protection Act 1990 (including Section 34, duty of care)

[13] Duty of Care compliance requires good environmental practice at all stages of the waste management chain.

EU exit

Around 80% of environmental legislation in Scotland originates from the European Union. As the UK leaves the EU, changes will, where necessary, be made to domestic legislation to ensure that the standards of environmental protection we enjoy today and the principles upon which they are based are maintained. Therefore, while some of the detail of the legislation we use to regulate may change, our work to protect Scotland's environment will not. Our commitment to tackling non-compliance with environmental laws and, where necessary, taking enforcement action will not diminish as a result of the UK leaving the EU.

Wider influences on environmental performance of the water supply and waste water sector

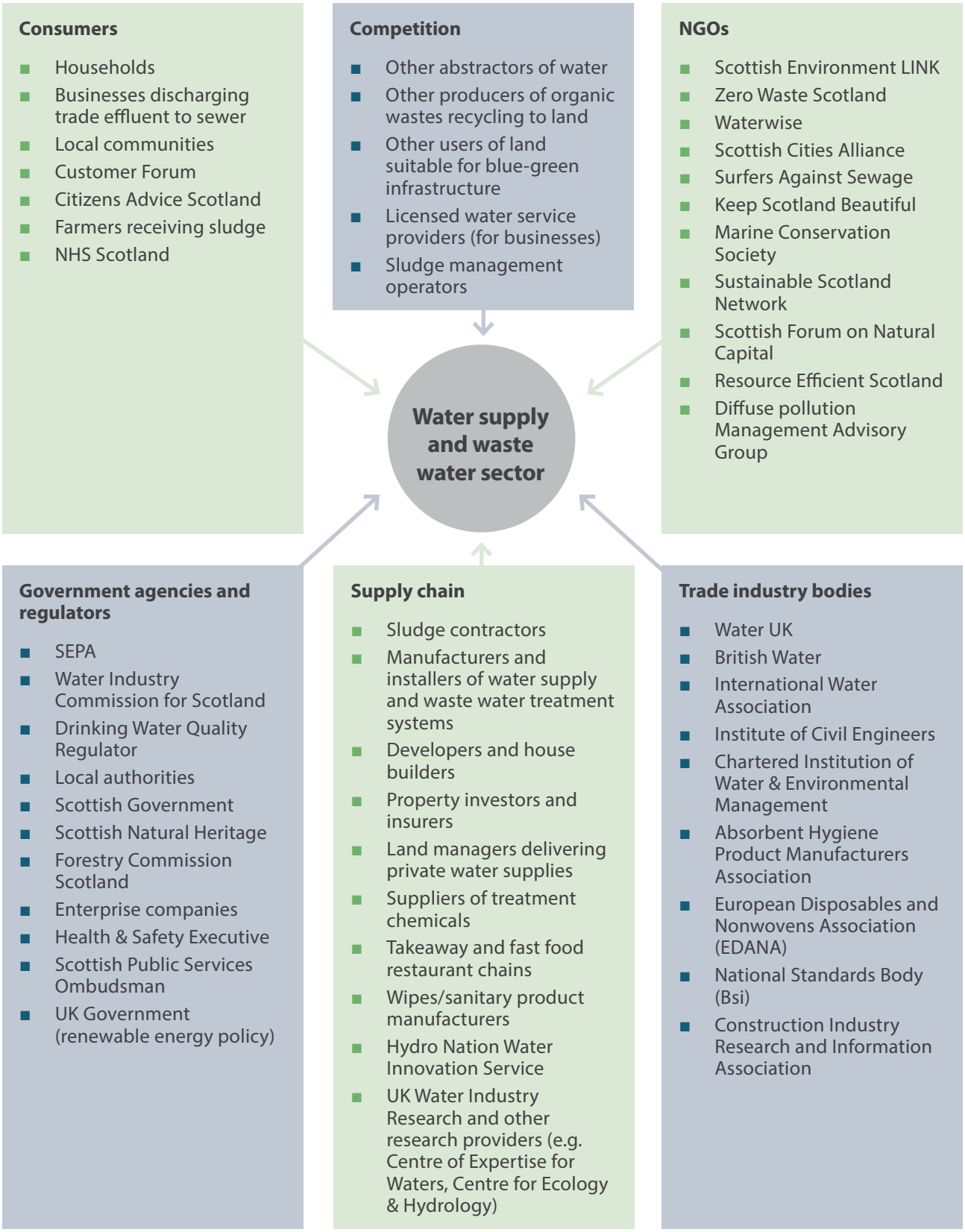
Full compliance with environmental regulations will not, by itself deliver the transformational change required to secure our One Planet Prosperity objectives. The Water Supply and Waste Water Sector Plan needs to further unlock the potential for the sector to gain strengths in resource efficiency and environmental innovation that will help it to develop a circular economy in water supply and waste water collection and treatment.

We need therefore to combine the actions that we can take to influence the behaviour of the sector through our regulatory role with all the other influences. The latter include influence through our role in providing environmental advice in the land use planning process; and our role as Scotland's national flood forecasting and flood warning authority; and the country's strategic flood risk authority responsible for preparing Flood Risk Management Strategies[14]. Doing this will be the most effective way to secure full compliance and to help the sector to move beyond compliance.

Figure 10 summarises the main organisations that influence and are influenced by the sector. It also identifies those that we are likely to work with in both the short-term and longer term. As we implement the plan, we will consider the opportunities these relationships provide and how we would like them to develop.

[14] http://apps.sepa.org.uk/FRMStrategies/

Key influences on the water supply and waste water sector (Figure 10)

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5. Tackling non-compliance and taking opportunities to go beyond

Compliance with environmental law is non-negotiable and all operators in the sector need to comply.

Compliance in the sector

Working in partnership is the only way that we can help achieve our vision for the sector. This includes maintaining, and building on, the strong relationship we already have with Scottish Water. But as Scotland's environmental regulator, we will continue to regulate firmly, fairly, independently and transparently.

Much of this plan is focused on helping the sector make the transformations needed to become a one planet sector. These transformations will take time and hard work but are vital given the pressing need for societies to move to a circular economy, radically reduce greenhouse emissions and build resilience to climate change. At the same time, it is important that the sector does not lose focus on maintaining the standards of environmental protection, and delivering the environmental improvements, required under environmental laws.

Overall, the environmental performance of the sector is good and improving. There is much to celebrate in Scottish Water's environmental performance in particular. It has made considerable progress in protecting and improving the environment and its compliance with licence conditions last year was strong in comparison to many of the sectors we regulate. However, there is still much it needs to do to meet other environmental requirements. Compared with public waste water collection and treatment, environmental performance of private waste water systems is significantly poorer.

This section summarises the performance of the public and private segments of the sector in terms of:

- pollution incidents and intermittent discharges;
- compliance with licence conditions;
- achievement of environmental standards and objectives established under Scottish laws.

Pollution incidents

We expect Scottish Water and other operators to prevent and reduce pollution incidents, and work to minimise damage when incidents do occur. Incidents can lead to the release of harmful substances into air, land or water, and some can cause significant harm to the environment. We categorise all incidents based on their impact. A category 1 incident has a serious, extensive or persistent impact on the environment, people or property and may, for example, result in a large number of fish deaths. Category 2 incidents have a lesser, yet significant impact. Category 3 incidents have a minor or minimal impact on the environment, people or property with only a limited or localised effect on environmental quality.

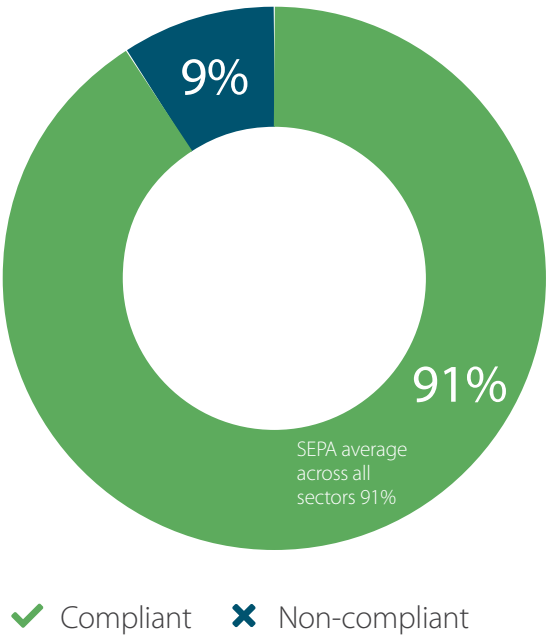
In 2017, for the first time in a number of years, Scottish Water was not responsible for any category 1, serious pollution incidents. This is a welcome improvement but more still needs to be done. There were still five category 2, significant incidents, and over 200 category 3 incidents. Even though the number of significant incidents is very small, any incident can cause distress to local communities, blight rivers and beaches, and damage the sector's reputation.

Compliance with licence conditions

Licence conditions typically include:

- Limits restricting the scale of an activity to the capacity of the environment to accommodate it without deterioration (e.g. limits on the quantities of substances that can be present in treated waste water discharges).
- Actions needed to ensure sites are operated in ways that minimise or mitigate risks to the environment (e.g. provision of a fish pass at a dam; managing and operating storm tanks to prevent the highly polluted, first flush of storm water from combined sewers from bypassing treatment).
- Monitoring and reporting requirements to ensure the performance of the site is understood and issues are being addressed.

Compliance against licence conditions for the sector as a whole (public and private) 2017-2018 (Figure 11)



We routinely assess licence compliance performance where the risks to the environment of non-compliances would be greatest. The results of these assessments are available on our website[16].

For small water supply and waste water sites, we undertake targeted surveys to help identify risks of cumulative impacts, such as to the quality of bathing waters. We also investigate performance where complaints are received from the public.

The size of the sector in terms of the numbers of assets that we regulate, such as waste water treatment works, and the potential risks to the environment mean that we put a considerable amount of effort into working with the sector to ensure it maintains and improves its environmental performance.

Around 32% of our chargeable[17], regulatory effort in 2017-2018, including related environmental monitoring, was concentrated on the water supply and waste water sector. This included assessing around 8,500 influent and effluent samples provided by Scottish Water[18,19], collecting and analysing around 1,300 of our own samples and carrying out risk-based assessments of environmental quality.

[16] http://apps.sepa.org.uk/compliance/

[17] i.e. we recover the cost of the work through our charging scheme for regulated businesses and organisations

[18] Private Finance Initiative operators have been required to provide monitoring data to us from the start of 2018 whereas Scottish Water was required to do so from 2017.

[19] We ensure the information provided to us is robust by requiring Scottish Water and PFI operators to meet the performance standards set out in Measurement Assurance and Certification Scotland (MACS). All those certified under MACS have to be accredited by the UK Accreditation Service.

Achievement of environmental standards and objectives

Water quality in Scotland today is better than at any time in over a century. Much of this is down to the investment over the last few decades in modernising, and improving the management of, public waste water collection and treatment systems.

However, there is still more the sector needs to do to achieve required environmental standards and objectives. The latter include improvement objectives established in Scotland's river basin management plans for bathing waters; other water bodies; and protected areas for nature conservation and shellfish production. The actions the sector needs to take to achieve these objectives will be reflected in licence conditions in due course.

Summary of the sector's performance in 2017			
		Public water supply and waste water	**Private water supply and waste water**
Pollution incidents and unsatisfactory intermittent discharges	Number of recorded significant pollution incidents (Category 2).	5 (0.9 per 10,000 km of sewer)	0
	Number of recorded minor pollution incidents (Category 3).	211 (40 per 10,000 km of sewer)	103
	Number of recorded chronic water quality impacts from intermittent discharges[20].	21 (4 per 10,000 km of sewer)	n/a
	Number of recorded chronic sewage litter impacts from intermittent discharges.	213 (40 per 10,000 km of sewer)	n/a
Licence compliance	Proportion of the number of licences assessed that were non-compliant.	7% (88 out of 1,199)	15% (41 out of 265)
Achieving environmental standards and objectives	Number of water bodies where action by the sector is likely to be needed to achieve the required environmental improvements.	112	2
	Number of designated bathing waters where action by the sector is likely to be needed to achieve the required environmental improvements.	5	8

Scottish Water is responsible for the safety of 265 large reservoirs (reservoirs holding over 25,000m^3). We work closely with Scottish Water to check, and support it to maintain, compliance with safety requirements[21].

[20] Studies are underway to identify if there are water quality or litter impacts from other intermittent discharges from sewer networks.

[21] www.sepa.org.uk/regulations/water/reservoirs/

Where are the opportunities to go further?

We believe that those societies and economies that are low resource use, low energy use, low water use and low waste will be the most successful in the 21st century. Sectors that are the most innovative will best rise to the challenges of our time, such as over use of resources and climate change, and create sustainable economic growth.

In this section, we describe opportunities and our aspirations to help the sector do more for the environment by building on current good practices and choosing to move beyond compliance because it makes sense for its success. Many of these opportunities will also help to improve compliance.

There are a number of important ways that the sector could go further. Many of these can only be realised by building partnerships with other public bodies, developers and businesses.

Water

The sector is highly dependent on the availability and quality of raw water sources; and on the capacity of rivers and the sea to disperse and assimilate waste water discharges.

Flooding caused by lack of sewer system capacity during intense rainfall is a major issue for Scotland. The risk of flooding is anticipated to increase with climate change.

- Working with local authorities and Scottish Government to encourage developers, the construction industry and its suppliers to include low water use designs as standard in developments.
- Encouraging and supporting households and businesses to minimise unnecessary and inefficient use of water.
- Reducing leakage where it makes sense environmentally, with a focus on water supplies that are most vulnerable to climate change or rises in population; or that require particularly large amounts of energy or chemicals to treat and distribute water.
- Working with local authorities and developers to encourage and facilitate the creation and use of wetlands, greenspaces and porous surfaces in towns and cities to soak up and manage rainwater to keep it from overloading sewers and flooding streets and properties - and at the same time create attractive cityscapes for communities to enjoy.
- Using treated waste water in productive ways by returning it to parts of the environment that need more water or by distributing it to support water uses that do not require high quality drinking water.

Energy

Water supply and waste water collection and treatment use large amounts of energy. The sector has made big reductions in its carbon footprints but there is potential to do more.

- Further building on the amount of renewable energy hosted and generated by the sector, including by maximising opportunities to extract energy from wastes, such as utilising waste heat in sewers to help heat homes and businesses, and generating energy from the anaerobic digestion of sludge.
- Saving energy needed to treat and pump water and waste water by protecting waters used as supplies from pollution, reducing leakage and demand for treated water; and developing and installing low or energy neutral water and waste water treatment systems.

Materials

The sector uses chemicals in water supply and waste water treatment. Chemical use in water treatment could be reduced by improving raw water quality. Waste waters contain plant nutrients, organic matter and a wide range of other potentially useful materials. There is potential to recover more material resources from waste waters.

- Maximising opportunities for sustainably recovering resources, such as nutrients, cellulose, proteins, oils, bio-plastics and grit, from sewage and other waste waters and cycling those resources back into productive uses.
- Working with upstream businesses discharging wastes to sewer to encourage them to reduce wastes at source and recover valuable resources.
- Encouraging and investing in the development of water and waste water treatment systems that require no or minimal chemical dosing and, in the case of providers and operators of private water supply systems, reducing chemical treatment needs by switching to good groundwater sources using properly constructed boreholes.

Improved evidence

Working with partners to improve understanding of emerging environmental risks and the opportunities for the sector to help in addressing them, including pollution from micro-plastics and the development of anti-microbial resistance.

Scottish Water

Scottish Water is in a unique position to go beyond compliance and help drive the creation of a circular economy, including by working with others within the sector; businesses discharging trade effluents to sewer, local authorities and housing developers. And it is already involved in a wide range of beyond-compliance initiatives, including working with us:

- on projects supported by Scottish Government to tackle pollution at source by tracking down waste water misconnections[22];
- to find new ways to increase resource recovery from waste water;
- to develop a route map for changing the way towns and cities are drained; and
- on a study investigating the sources and environmental risks posed by toxic substances entering sewers.

We will continue to do everything we can to help and support Scottish Water drive and champion the transformation to a circular economy. The primary influences on Scottish Water are:

- investment planning and prioritisation;
- price reviews;
- key performance indicators.

The investment planning and prioritisation process for Scottish Water is in the process of changing; increasing the opportunity for us and other stakeholders to discuss, and advise on, priorities.

We will continue to actively engage in developing Scottish Water's new investment planning and prioritisation framework with the aim of ensuring investment is sufficient to maintain current environmental protections, deliver environmental improvement priorities and contribute to building a circular economy.

In support of this, we will work with Scottish Water, the Water Industry Commission for Scotland and Scottish Government to help ensure price reviews and the government's budget decisions are able to take account of environmental priorities and investment opportunities that would help transform the sector and build resilience to climate change.

[22] Waste water misconnections are when sewage from properties is connected to drains meant only for rainwater. Misconnections can occur during home improvements when new plumbing is connected to the wrong drain.

An example of blue-green infrastructure: the green roof on the School of Veterinary Medicine at the University of Glasgow (Figure 12). Image courtesy of Glasgow City Council

6. Summary of actions and aspirations

This section describes how we plan to support and facilitate the development of a circular economy in the sector and further improve its environmental performance. It includes a range of actions that we intend to take. These actions will be prioritised and phased over a number of years, and co-ordinated with relevant work under our other sector plans.

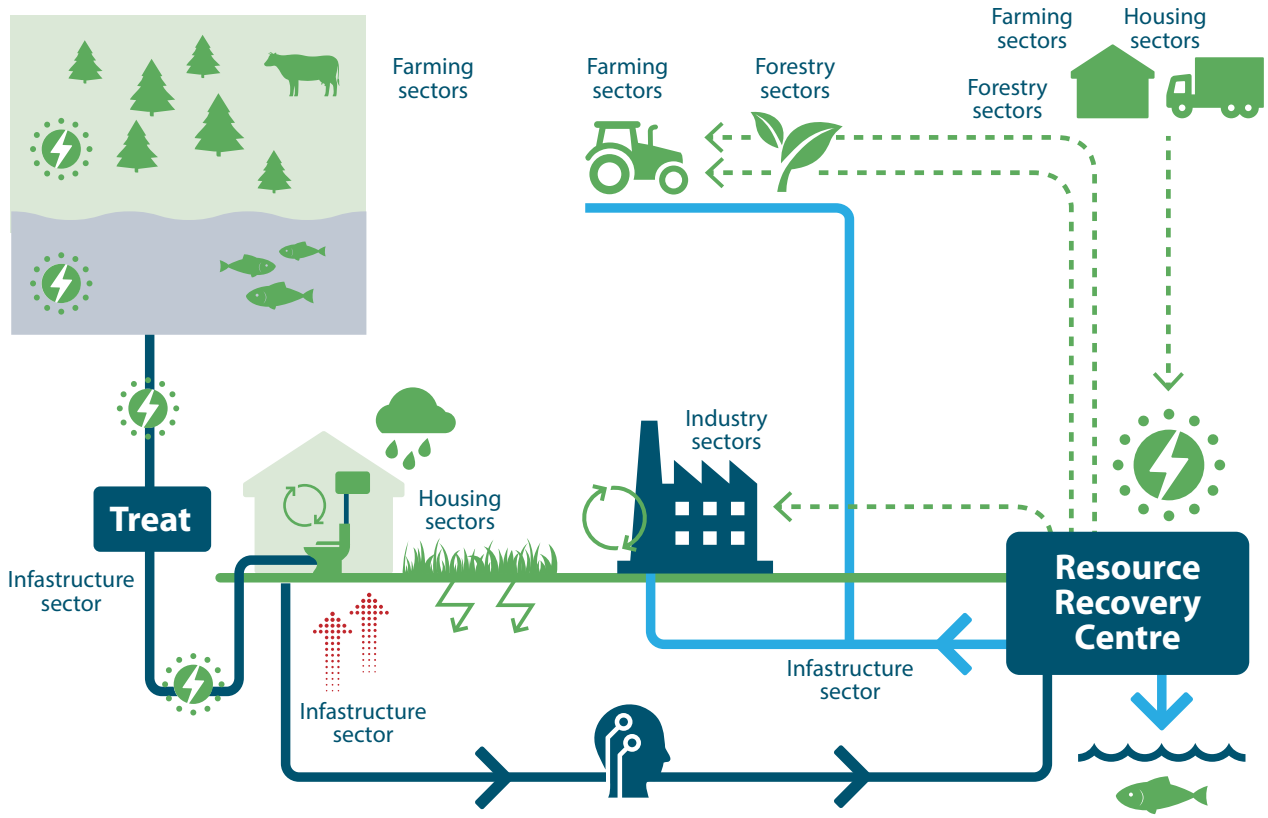
Cross-sector working

Achieving the goals of this plan will require substantial effort by a wide range of sectors beyond the water supply and waste water sector (Figure 13). We have already developed plans for a number of the sectors that we regulate and we are in the process of developing more.

We will co-ordinate our work across all the relevant sectors to help achieve the outcomes we are seeking in this plan.

Realising our vision for the sector will not only require multi-sector initiatives. It will also require the active engagement and support of communities, including Scottish Water customers and, very likely, new policy and legislative mechanisms, including incentives. We will continue to work closely with the Scottish Government to provide advice and evidence to enable it to consider policy and legislative options in due course.

Cross-sector working (Figure 13)



Decision-making

This plan has multiple, overall goals (Figure 14). They include:

- helping achieve a circular economy;
- improve health and well-being;
- increase biodiversity;
- contribute to climate change mitigation;
- build resilience against the effects of climate change.

Achieving all these goals will help Scotland deliver its National Outcomes for the environment[23] and help society live and flourish within the means of one planet. Achieving the overall goals will require a new approach to decision-making, one that ensures that all the objectives necessary to deliver each of them are considered when choices are being made by all sectors.

Overall goals and objectives (Figure 14)

[23] https://nationalperformance.gov.scot/national-outcomes/environment

We will seek to improve how we regulate the sector. Continuing to work with the sector and other stakeholders to enable and encourage choices that reflect the goals of this plan and maximise benefits to people and the environment.

However, we recognise that there will always be some things that need to be done urgently to address serious risks to people or the environment and where win-win solutions are not available.

Making the right choices about investments in long-lived, capital assets, such as treatment works and housing developments, is especially important. Such choices get locked in so they need to stand the test of time. In contributing to the development of the new investment planning and prioritisation framework for Scottish Water, we will help identify, and make the case for, investment choices that take account of all our goals, including maintaining environmental protection and creating a circular economy.

The water supply and waste water sector's on-going environmental performance relies on the operation of a large number of infrastructure assets, including:

- reservoirs;
- water supply pipes;
- sewers;
- water and waste water treatment works;
- sludge processing works.

As these assets age, they require refurbishment or replacement. To maintain environmental protection over time and avoid building up investment burdens for future generations, asset refurbishment and replacement have to be core, on-going components of investment planning and prioritisation. But investment planning for ageing assets will need to be about more than like-for-like refurbishment and replacement. It will need to be a plan for modifying and upgrading the assets or replacing them with alternative solutions if the sector is to build the resilience needed to cope with climate change and develop a circular economy.

We will continue to work with Scottish Water as part of our Sustainable Growth Agreement to develop new ways of making One Planet investment choices. Choices that are the most cost-effective in the long-term because they protect the environment. These should use the least amount of energy and chemicals; and, where possible, make use of nature-based solutions that add to people's quality of life and enhance biodiversity.

The following table summarises the actions to address non-compliance in the sector and aspirations to help businesses take opportunities to go beyond compliance.

We will prioritise these actions alongside those in other sector plans and progress powerful actions that contribute towards achieving our one planet prosperity goal for Scotland.

Outcomes sought	Actions and aspirations
Environmental pollution risks are being avoided or controlled at source wherever possible. **The quantities of toxic chemicals and other pollutants entering the water environment via waste water have been minimised.**	We will work with Scottish Water, PFI operators manufacturing sector businesses, local authorities, retailers, consumer groups and other relevant organisations to promote and encourage actions to minimise pollution risks at source, including: ■ helping target and support work to tackle pollution caused by the misconnection into surface water drains of heavily contaminated rainwater run-off from industrial yards and estates, and waste water from households and businesses; ■ using our influence in company boardrooms to encourage manufacturers to reduce or eliminate the use of environmentally toxic substances in everyday products that end up in the sewer system; and to support efforts by Scottish Water to encourage businesses and organisations, such as the NHS, discharging trade effluents to sewer to minimise those discharges and recover valuable resources; ■ where we can, helping Scottish Water engage with food sector businesses to encourage action to avoid the disposal of fats, oils and greases into drains; and with manufacturers of products that result in sewer blockages, such as wet wipes, to encourage action to avoid the disposal of such products into sewers.
The need for drinking water purification treatment has been minimised through the protection of the reservoirs, rivers and groundwater from which drinking water supplies are drawn.	We will continue to work with land managers, Scottish Water, the Drinking Water Quality Regulator and developers in water supply catchments to ensure action is taken to reduce pollution risks to raw water quality. We will work with Scottish Water, the Drinking Water Quality regulator and owners/users of private water supplies to identify where we can best use our influence to drive changes in land management in water supply catchments that will help reduce discoloration of raw water, impairment of its taste and problems with odour.

Outcomes sought	Actions and aspirations
Sewer networks are well understood, sewer spills are being minimised and heat energy in sewers is being recovered. **Towns and cities have widely and successfully introduced green roofs, porous pavements, greenspaces, wetlands and other blue-green solutions to safely manage rainwater downpours and create attractive places for people to live and work.**	We will work with Scottish Water under our Sustainable Growth Agreement[24], local authorities and other partners to help create and implement a road map for transforming how rainwater and sewage is managed in Scotland's towns and cities, prioritising those towns and cities most at risk of sewer and surface water flooding over the next two or three decades as the climate changes and their populations grow. To help inspire and generate momentum for change and stimulate innovation by the development industry, we will encourage and support the inclusion of blue-green solutions and heat recovery from sewers in major housing and infrastructure developments to deliver fantastic places for communities and businesses. We will work with relevant local authorities, Scottish Government and Scottish Water to help secure 21st century solutions for managing rainwater and sewage in Edinburgh and the Lothians and in the metropolitan Glasgow area. We will review how we regulate sewer networks and implement any changes that would help facilitate the development of intelligent sewer networks; better control of spills; and deliver local management of rainwater outside of sewers in blue-green solutions.
The sector has achieved a circular economy for waste water, with energy and other resources in waste waters being fully recovered and put to productive uses.	We will continue to build on the work[25] we have started with Scottish Water to encourage and facilitate the implementation of new ways of expanding the range and value of resources recovered from the sector's wastes, including by helping where we can to engage the support of local authorities, researchers and businesses in other sectors.

[24, 25] www.sepa.org.uk/media/360985/scottish-water-sga.pdf

Outcomes sought	Actions and aspirations
Scottish Water, Private Finance Initiative operators and private operators are delivering strong, environmental performance.	We will work with Scottish Water, Private Finance Initiative operators, the Water Industry Commission for Scotland, the Customer Forum, Citizens Advice Scotland and Scottish Government to help create the right performance framework; and inform the investment prioritisation, planning and funding decisions necessary, for the sector to: ■ maintain and strengthen compliance with licence conditions; ■ take the actions required to achieve the environmental outcomes set under Scotland's laws[26], including the objectives of Scotland's river basin management plans; ■ develop and implement strategies for building a circular economy in water supply and waste water. We will make sure that: ■ the licence conditions against which we assess compliance are, and remain, relevant and necessary for protecting the environment; ■ how we regulate and work with the sector provides the flexibility and support operators in the sector need to be able to comply with environmental requirements and contribute to achieving environmental outcomes using solutions that minimise resource use, maximise resource recovery and, where possible, build natural assets for communities, such as greenspaces and wetlands. We will work with Scottish Water and operators of private waste water discharges to ensure every effort is made to reduce risks from waste water in those bathing waters that are not consistently meeting required water quality standards.

[26] For example, the environmental objectives of the river basin management plans are established under the Water Environment and Water Services (Scotland) Act

Outcomes sought	Actions and aspirations
Water supplies are not being wasted, they are being used wisely and efficiently. **People understand and appreciate the value of water and seek to avoid wasting it.** **Homes and business premises are designed so that achieving low drinking water use requires no extra effort.** **Alternative sources of water supply and recycled waters are being used for uses that don't require drinking water quality.**	To help inspire and generate momentum for change and stimulate innovation, we will work with Scottish Water, local authorities and the development industry to encourage and facilitate the implementation of low water use designs in major housing development. We will work with Scottish Water, Customer Forum, Citizens Advice Scotland, Scottish Government, the Water Industry Commission for Scotland and other partners to encourage investment and support collaborative programmes of work to: ■ inspire and enable communities and businesses to take action to prevent water being wasted and to use it more efficiently; ■ make low water use designs, including designs involving the use of recycled waters and rainwater, the norm for new developments; ■ ensure opportunities to reduce leakage are taken when buildings are being refurbished or other infrastructure is being maintained or renewed; ■ enable Scottish Water to find new ways of efficiently detecting and fixing leaks, targeting areas where the ability to meet demand for drinking water is threatened by climate change and population growth or where opportunities to reduce energy and chemical use are greatest.

Outcomes sought	Actions and aspirations
Communities, small businesses and the environment are benefiting from well-performing and reliable private water supply and waste water systems.	We will work with Scottish Government, the Drinking Water Quality Regulator, local authorities and other partners, including by assisting in trialling options with communities, to: ■ develop a means of ensuring private water supply and waste water systems are inspected, maintained and, where necessary, upgraded to ensure the environment and human health is protected; and the systems are easy to maintain; use minimal energy and chemicals; and provide for resource recovery; ■ help ensure communities have the information and support they need to act to improve the safety and resilience of their water supplies and enhance protection of the environment. We will strengthen our regulatory framework for new private waste water discharges serving population equivalents of up to 15[27] (e.g. a discharge from three houses with three bedrooms each) to ensure the protection of bathing waters, shellfish waters and watercourses. We consulted on our proposed approach at the end of 2018 and will publish and implement the strengthened framework during 2019. We will work with Scottish Government, local authorities and Scottish Water to support improved forward planning for, and design and future maintenance of, water supply and waste water services for growing communities that are not on the public system.

[27] Such discharges require prior-authorisation from us in the form of a registration: www.sepa.org.uk/regulations/water/small-scale-sewage-discharges/

https://sectors.sepa.org.uk
03000 99 66 99
The Castle Business Park, Strathallan House, Stirling FK9 4TZ

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