

Water, Wastewater and Drainage Policy Consultation

November 2023

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Ministerial Foreword

Across Scotland, and the world, we are increasingly being reminded that the climate crisis is not a far off threat but something that is happening now. Even as recently as October 2023 we have experienced extreme flooding events that damaged critical infrastructure impacting on the ability to supply essential drinking water and wastewater services. We must take action now to adapt to the impacts of the climate emergency to protect our services.

Most of us take these services for granted, available 24 hours of the day. Few of us consider where our water comes from and how it gets to our tap, the work it takes to treat it to ensure it is safe to drink. Nor do we think of the effort that it takes to clean and return safely to the environment our waste. Scottish Water is a high performing public body, delivering these vital services to the people of Scotland. We have invested consistently in our water and wastewater since the formation of Scottish Water in 2002, and continue to do so.

However, this is becoming increasingly difficult with the impacts of the climate emergency being keenly felt. Increasing temperatures are impacting the quality and amount of the water we take from the environment for drinking water. Intense periods of rain mean we need to consider how we drain our towns and cities to address flooding and reduce the knock-on economic impacts. We also need to support the circular economy by considering how we can use our bioresources from wastewater and reduce our need to use new natural resources.

We are seeking your views about how we and the water industry need to adapt to the impacts of climate emergency, both today and in the long-term. This includes what Scottish Water, Local Authorities and we, as individuals, can do. This will help us to develop the way we can work together to approach this challenge.

This is a collective endeavour and I am appreciative of the time you spend in responding to this consultation.

Màiri McAllan MSP

Cabinet Secretary for Transport, Net Zero and Just Transition



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1. Introduction & Background

1.1 Overview

This document sets out the Scottish Government's proposed strategic principles, and considerations in developing policy for the future of the water industry in Scotland in response to the climate emergency. Water is a precious resource – it is essential for life and for Scotland. It supports our lives, agriculture and businesses and supports our environment. 'Our aim is to help protect Scotland's environment and water resources so we can all continue to rely on them for generations to come.'

1.2 Why your views matter

Your views will inform the development of policy for the future of the Scottish water industry and how it can respond to the impacts of the climate emergency. The policy proposals are designed to protect our water, wastewater and drainage services; better prepare for the impacts of climate change on these services; and, maximise the benefits that we can deliver for the people of Scotland.

1.3 Changing climate

Climate induced events both at home and around the world this summer and autumn are a stark reminder we are in the middle of a climate crisis – it is not in the future or somewhere on the horizon, it's happening now.

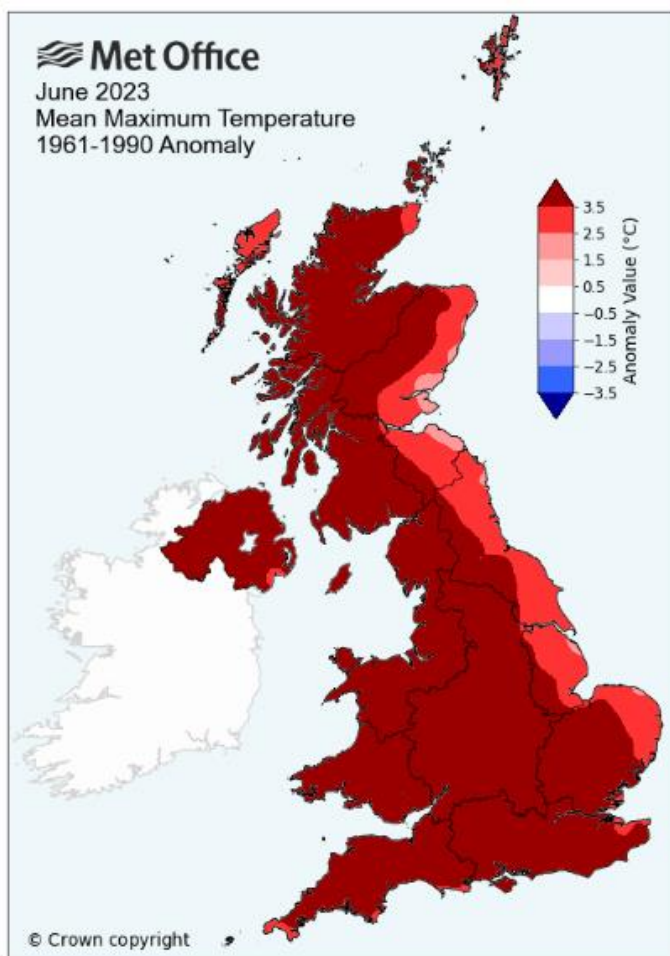


Figure 1: Mean Maximum Temperature in June 2023. This diagram shows the mean maximum temperature in June 2023 compared with the mean temperature in 1961-1990 which shows significant increases of 3.5°C across the UK.

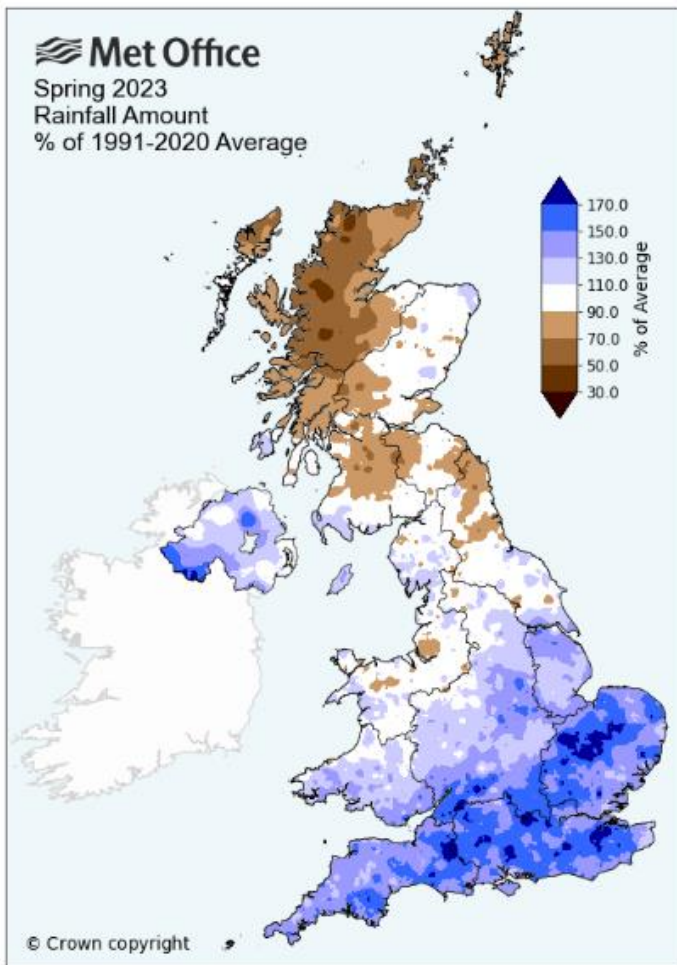


Figure 1: Rainfall Amount Spring 2023. This diagram shows that in Spring 2023 rainfall was 30% of the average of 1991-2020.

We are seeing extremes in temperatures and rainfall events that indicate a worrying trend. Temperatures in Scotland have risen over the past few decades, resulting in drier summers and associated deterioration in the quality of the water abstracted for drinking water. Shifting rainfall patterns are leading to more intense and shorter periods of heavy rain. Winters will become milder and wetter. Sea levels are expected to rise, adversely impacting vital infrastructure located on or near the coast.

10 of the warmest years on record have occurred since 1997. The average temperature in the last decade (2010-2019) was around 0.7°C warmer than the 1961-1990 average. In June 2023 temperatures across the UK were higher than normal and parts of western Scotland were more than 4°C warmer compared to the average for 1961-1990¹.

The Met Office's UK Climate Projections predict warmer, wetter winters, and drier summers. There has been an increase in winter rainfall over Scotland in the past few decades. The average year in the last decade (2010-2019) was 9% wetter than the 1961-1990 average. We will experience rainfall volumes during more intense storms that will likely lead to localised flooding and damage to infrastructure.

¹ [LOW_RES_4656_Climate_Projections_report_FINAL.pdf \(adaptationscotland.org.uk\)](#)

This summer, the equivalent of 10 days of rain fell in an hour at Hampden Park on 20 June 2023. Just weeks before this happened, we saw those living in Broadford being impacted by a dry period resulting in emergency supply measures being taken to ensure they had enough drinking water.



Figure 3: Whiteadder Reservoir



Figure 4: Ballater Water Treatment Works 2022

The health of Scotland’s economy, society and environment is increasingly reliant on how effectively we respond to the impacts of climate change. As the climate continues to shift, life in Scotland may look different to how it looks today. The demand for water will continue to grow as the weather gets warmer and this will affect many aspects of our lives including our crop management and food supply. There will also be pressure on our drinking water supply, affecting not only the amount of water available but also the quality of the water that we take from the environment to use for drinking water.

As the intensity of storms increases, so does the risk of flooding in people’s homes, businesses and other essential services which will impact the way we live. As we have described above the climate has already changed. We need to adapt the way in which we plan, deliver and use our essential water, wastewater and drainage services to cope with these changes now. This will ensure that our environment is protected, drinking water is secured and rainwater is managed in a way that reduces the impact on society for future generations.

To protect lives and livelihoods, we need to give the people of Scotland the tools they need to prepare for – and adapt to – the growing impacts of climate change.

1.4 Scotland’s approach to adapting to climate change

In March 2022 the Climate Change Committee (CCC) set out a series of recommendations in its independent assessment “[Is Scotland climate ready? 2022 Report to Scottish Parliament Recommendations \(theccc.org.uk\)](https://www.theccc.org.uk/reports/2022/is-scotland-climate-ready-2022-report-to-scottish-parliament-recommendations/)”. In this report the CCC identified key areas where Scotland could make improvements as to how it could better adapt to climate change. For the water industry it recommended the need to remove rainwater (often referred to as surface water) from sewers. It also recommended the need to become more efficient with the water that we use every day and the amounts that we lose through leaking pipes. Another recommendation asked that we look at the impacts of water scarcity, particularly for those who use

small burns and streams for their drinking water, which are not part of Scotland's wider public water supply, and are more likely to dry up.

The CCC also provided evidence for the UK Climate Change Risk Assessment (UKCCRA) (2022) which details the key climate risks facing Scotland now and in the future. This includes risks to businesses from water scarcity and flooding, risks to health from poorer water quality and availability, risks to water infrastructure and public water supplies. The Climate Change (Scotland) Act 2009 stipulates that Scottish Ministers must set out a programme to respond to these risks through a Climate Adaptation Plan which is currently in its second iteration ([Climate Ready Scotland: climate change adaptation programme 2019-2024 - gov.scot \(www.gov.scot\)](https://www.gov.scot/Topics/consultations/ClimateReadyScotland/ClimateReadyScotlandClimateChangeAdaptationProgramme2019-2024)).

In this consultation document we have considered how we address the risks highlighted and recommendations made by the CCC. These are set out as choices that Scotland needs to consider in adapting to the impacts of climate change. The choices weigh up the advantages and disadvantages of acting now versus later. They also consider the impacts of changing behaviours compared to the cost of building new structures and facilities such as reservoirs, bigger sewers and drains so that we can continue to use water services in the way that we do today.

The principles also seek to support the aims of the Circular Economy Bill, in a drive to reduce our impact on Scotland's resources, providing opportunities to promote the economy. Within the water industry we can do this by generating energy, recovering resources from wastewater, reducing chemical use, managing rainwater separately and using water wisely. In addition to setting out the changes required to be made by the water industry we also need to support the people of Scotland to play their part in taking care of the water resources upon which we depend.

We will also be consulting on a new Scottish National Adaptation Plan early next year. This will set out a wider response to the risks set out in the UKCCRA across the natural, coastal and marine environments, communities, public services and businesses.

2. Water resource planning

Water is a precious resource – it is essential for life. It supports our lives, agriculture and businesses (including distilleries and manufacturing etc.) and supports our environment. As the climate gets warmer, the demand for water will grow. We will need to consider the water needed to water crops to maintain food supplies, or make different choices about the crops we grow, support tourism and to support new lower carbon industry, such as hydrogen production. At the same time, we must ensure we have enough water to provide drinking water supplies which are essential for public health and to protect Scotland's environment. We need to be able to make choices as to whether we need to store more water or be more efficient with the water we have.

Scotland has been fortunate. Apart from the occasional prolonged period of dry weather, there has in the past been enough water to enable those that take water directly from our rivers and lochs to access what they want. However, in recent years

Scotland has seen the impacts of climate change, as differing parts of Scotland have seen prolonged dry weather and there has not been an unlimited supply of water. In 2022 and 2023 we have seen farms and businesses have water restrictions placed upon them to reduce their usage and protect water resources. Increased pressure on these resources and changing availability due to climate change means we need to understand what our water resources are now and what will be available in the future. Do we need to store more, or use less? How do we share fairly what water is available? What do we need to leave in rivers to ensure our natural environment can flourish? How do we ensure a focus on managing demand as well as understanding what sources of supply we may need? We need to understand the position today as well as make plans for the future.

There is currently no legal requirement for us to plan for our water resources. As a consequence, there is a limited understanding of changing needs, future demands and continued availability of water. To protect the future of Scotland's environment and economy, this needs to change. We need to understand what we need to do to ensure that we have a balance between what supply is needed to meet the demands placed upon our water resources, where those demands are and have a system for allocating it fairly. Planning for our water resources can enable us to respond better in times when there are greater pressures, such as in times of warmer, drier weather. Public bodies, Non-Governmental Organisations, farmers, energy companies, businesses and communities all need to play a role in creating these plans.

Questions

1. Do you agree that Scotland needs to set out a plan to manage our water resources, for now and into the future?
 - Yes/No

2.1 Catchment management

Your water for drinking originates in the environment from rainwater and collects underground, in rivers and in reservoirs². It can travel long distances through farms, cities and towns before it reaches the water treatment works and then your tap. Throughout its journey, the quality of the water may be affected by pollution. Pollution can be caused by human and natural factors, like agricultural and urban runoff or natural erosion. These pollutants then need to be removed at a treatment works to deliver the high standard of water we expect.

The impacts of climate change and changes in the way that we use our land can increase the risks to water quality and water availability. This makes water more difficult and expensive to treat so that it is safe to drink. It also increases the carbon costs. To reduce the need for expensive and carbon-hungry treatment, we need to make sure that catchments are monitored and managed at a national level. This national view will highlight key areas of concern and will help to minimise the risk of new and existing pollutants reaching drinking water sources. It will put greater focus on the activity around catchments and will promote greater cross sector working.

² Catchment – The area of land and the water collected in it, especially the collection of rainfall over a natural drainage area.

Question

2. To what extent do you agree that taking a national view of catchment risks will help better protect drinking water sources from pollutants?
- Strongly agree
 - Agree
 - Neither agree nor disagree
 - Disagree
 - Strongly disagree

3. Drinking water

Safe drinking water is important to our health. Being able to turn on the tap and trust that you will have a safe, plentiful supply of water is often taken for granted in Scotland. A lot of work and your money goes into collecting, treating and distributing water taken from reservoirs, rivers and lochs to make sure that it is safe to drink.

The changing climate makes the availability and quality of water in the environment less reliable. Drought and flood make it harder to collect, treat and distribute water for drinking purposes. During floods or droughts some of the substances that usually stay in the mud at the bottom of our water sources go into the water making the quality worse. Similarly, if there is very heavy rain, pollutants can be washed into lochs, rivers and reservoirs. When the weather is warmer, algae is produced in the water. Algae can produce chemicals that make water smell musty and taste earthy. This makes the water more expensive to treat.

In addition to impacts from climate change there are other factors that impact on the quality of drinking water in homes. There are some areas across Scotland where it is likely that there are still lead pipes within homes that are taking drinking water to their taps. The lead can be released into the drinking water.

We need to make sure that we are able to provide a reliable supply of water during dry periods and act to protect the water supplies quickly during these times. We also need to make sure that the water that reaches our taps remains safe to drink, which requires us to consider all the possible risks. Whilst most of Scotland is served by a public supply of water there are some homes across Scotland that have private water supplies, which are especially vulnerable and we need to make sure that they are protected too.

3.1 Water availability

We rely on water for everything we do whether that be drinking, washing, cooking, watering our gardens, hygiene, growing food, building homes and businesses and making things. Forecasts suggest that, by 2050, during particularly dry periods, more than half of Scotland's population will be at greater risk of water shortages. Some parts of Scotland may be more affected than others and at different times. The impacts of climate change, the trend in movement of population from west to east and economic growth, mean that there is a risk that there will not be enough drinking water to go around if we do not make changes.

In Scotland, the average person uses over 180 litres of tap water every day. This is higher than any other UK country and many European countries. In Germany, for example, the average person uses 125 litres every day. In Denmark they use 105 litres. Using less water in these countries is normal. This water is treated to a high standard for drinking, but we often use it for other purposes too. To reduce the amount of drinking water we use it could mean: showering for less time; installing a water butt³; using a watering can or bucket instead of a hose; installing products that do the same thing with less water (e.g. dishwashers); changing processes that might

³ A container for storing rain water which can then be used to water gardens or clean driveways etc.

use more water than is needed; and building new homes and communities that use water more efficiently.

If we want to continue to use water at current rates, we will need to find an extra 2.3 million bathtubs' worth of water every day. Most of this demand is projected to be in the east. This is the equivalent to the amount of water used in the Greater Glasgow water supply area. Treating water requires lots of energy to deliver the high quality water people expect in Scotland. To meet these future demands this would mean building new reservoirs, pipelines and treatment works, which is expensive, uses lots of carbon and is harmful to the environment. Alternatively, we can mitigate the impact of building to meet water demand by helping people and businesses to make better use of water. This may be in the appliances they use, or by considering how to be more efficient with the water they are using. These actions are already being taken but on a smaller scale than they might need to be in the future.

Currently, if we need to take emergency action to restrict water use (e.g. a hosepipe ban) during dry periods, to make sure everyone has enough water to drink, we need to consult the public for 21 days before the restrictions can apply. This means valuable time can be lost. An alternative would be to agree and publish a plan of pre-consulted actions that can be introduced swiftly when water supplies are low. With this option action could be taken more quickly to restrict water use and to conserve stocks. It would better protect rivers, help those who rely on using rivers to water crops, and protect the public water supply for essential use.



Figure 5: Tankering water to Arran 2022



Figure 6: Emergency measures to maintain water supply in Broadford 2023

Questions

3. To what extent do you agree or disagree that everyone in Scotland needs to use less drinking water?
 - Strongly agree
 - Agree

- Neither agree nor disagree
 - Disagree
 - Strongly disagree
4. How do you think people and businesses could use less drinking water?
 - [Free text]
 5. Would you like to know how much water you use in your home?
 - [Yes, No box]
 6. Would you seek to reduce your water usage if this avoids building expensive new reservoirs and water treatment works?
 - [Yes, No box]
 7. Would you know where to find information on using less water?
 - [Free text]
 8. To what extent do you agree or disagree that the process for responding to water shortages should be changed so that appropriate action can be taken as soon as it is needed?
 - Strongly agree
 - Agree
 - Neither agree nor disagree
 - Disagree
 - Strongly disagree

3.2 Water quality

In addition to the impacts that climate change can have on water quality there are other factors; in every property the plumbing materials can impact the quality of the water that comes out of the tap. Owners of the property are responsible for this. A particular issue in some areas of Scotland is the presence of lead within pipes in people's homes, but it's not the only risk that may arise now and in the future. Action is needed on a national scale to understand what and where these risks might be so that property owners can make informed decisions about their plumbing and how it impacts their water quality (a national assessment of risk).

Drinking water that contains lead can have a negative impact on a person's health, particularly for children. Lead can be found in lots of different places, such as old paint, old water pipes, fixtures and fittings. Much has been removed from water systems today, but some still remains. Scottish Water adds a chemical, known as orthophosphate, to stop the lead dissolving in drinking water. Whilst orthophosphate is safe for human health it is a scarce resource, is not an environmentally friendly approach, and it will become more expensive as chemical supplies are limited. Replacing lead pipes, fixtures and fittings would fix this problem but it is expensive.

Questions

9. To what extent do you agree or disagree that all of Scotland's plumbing should be made lead-free?
 - Strongly agree

- Agree
- Neither agree nor disagree
- Disagree
- Strongly disagree

10. Would you know where to get information on how to ensure that your pipes are not affecting your drinking water?

- [yes /no]

3.3 Private water supplies

Private water supplies are drinking water supplies which are owned and managed by their users. There are 22,000 private water supplies which provide drinking water to 3% of Scotland's population, plus many more visitors. Often these supply more rural properties. Unlike public supplies provided by Scottish Water, which are carefully monitored from catchment to tap, these smaller supplies are particularly vulnerable to the impacts of climate change (affecting the amount and quality of the water) and the way in which we use our land or any changes that we make to the land. We don't always know where they are located. This could mean that damage can happen to pipework without the private water supply user knowing or it may be that changes to land use increase the risk of pollutants. A better understanding of how water sources are impacted by the changing climate and human activities is required to protect these supplies.

Private water supplies are owned by their owners and users. They can supply a single house, or even a whole community. There are currently two categories of private water supplies⁴, based on the health risks they may pose to the people that use them. Each type is subject to different water quality checks requirements. This means that some 18,000 small supplies are rarely inspected by Local Authorities or monitored to check that the drinking water is safe.

Questions

11. Do you agree that all drinking water supplies, regardless of size or ownership, should be tested and inspected to ensure that drinking water is safe?

- Strongly agree
- Agree
- Neither agree nor disagree
- Disagree
- Strongly disagree

12. What support do owners and users of private water supplies require to ensure that drinking water is safe?

- [Free text]

13. Do you have any further views on public and private drinking water supplies?

- [free text]

⁴ Regulated Supplies – supplies serve a variety of premises, e.g. holiday lets, B&Bs, hotels, caravan parks/campsites, schools, community halls and a range of other facilities. Type B supplies are all other domestic private water supplies, many of which serve single properties.

4. Drainage of rainwater

In Scotland⁵ wastewater⁶ from homes and businesses is collected by a network of public sewers⁷ (also known as sewerage) and is treated at wastewater treatment works where it is cleaned, treated and returned safely to the environment (rivers, lochs and the sea). Most of the sewer pipes are 'combined sewers'. This means that one pipe collects sewage from our homes and businesses (toilets, sinks, showers, baths etc) and rainwater from roofs and paved areas around properties. Many roads, especially in our towns and cities, also drain into the combined sewer network. In some parts of Scotland there are separate systems for sewage and drainage.

The changing climate means we are seeing more extreme weather events such as periods of very heavy and/or intense rainfall which can lead to spills from drainage systems to the environment and/or cause flooding to homes and businesses. We need to make greater changes in the way we manage the consequences of extreme weather events as their frequency increases.

The increased area of 'hard surfaces' from new developments, roads and pavements, plus paving over of gardens for driveways and patios, as well as replacing grass with artificial alternatives, means when it rains more rainwater runs off these hard surfaces and down the drains more quickly than it would on natural surfaces like grassed areas. With the combination of changing rainfall patterns and more hard surfaces, it has become more important than ever to collect and manage rainwater in a way that can easily be adapted to current and future conditions.

Building bigger sewers to accommodate this increased rainfall is disruptive and expensive and is not always the best solution. Unlike sewage, rainwater doesn't need to be taken to a wastewater treatment works for treatment. We need to keep rainwater close to where it falls, ensure that it takes longer to get into drains and sewers, and where possible drain it directly to a river or the sea. There is also the opportunity to collect it in a way that means it could be used such as a resource for watering green spaces, gardens or to support hydrogen production.

We need to take a combination of actions, both large and small, to better manage rainwater, and to reduce the risk of flooding and spills from combined sewer [overflows](#) into the water environment. This means bigger pipes (known as "grey infrastructure") where necessary, but also installing water butts, building raingardens, ponds, basins, wetlands, and increasing the areas of green spaces within the built environment that can absorb rainfall and prevent it from ever entering the wastewater system, as well as providing attractive features that enhance public amenity and support greater biodiversity. These networks of natural and semi-natural features are often known as "blue-green infrastructure".

⁵ 93% of Scotland have wastewater services provided by Scottish Water

⁶ Wastewater describes used water from households, businesses, industrial and agricultural settings as well as surface water from our environment.

⁷ Sewers are the systems of pipes and drainage structures which carry wastewater from its origin to a treatment centre where pollutants are removed before the treated effluent is safely discharged into water bodies.



Figure 7: Wellhouse Community Centre, Glasgow – SUDS Planter



Figure 8: Craigie Street, Dundee - Pocket Park (SUSTRAN Scotland, Dundee City Council and Scottish Water Project)



Figure 9: Craigie Street, Dundee – Pocket Park (SUSTRAN Scotland, Dundee City Council and Scottish Water Project)

Blue-green infrastructure helps to ensure that our wastewater and drainage networks can work properly and brings other benefits to our towns and cities. They enhance our neighbourhoods by providing attractive places that support nature where we can spend our leisure time. They also offer other benefits such as providing shade in hot weather and improving air and water quality.

We have made some progress already in Scotland. Since 2003, all new developments must install basins and ponds to drain rainwater, more commonly known as Sustainable Urban Drainage System (SUDS). In addition, to protect the current combined sewer network, Scottish Water does not allow new rainwater drainage connections to be made to it unless there is no alternative.

Currently a SUDS pond is built for each development. After 20 years of experience we have learned that we need to improve how we deliver SUDS and make these parts of blue-green infrastructure networks so they can serve a bigger area and manage more rainwater.

We need to better plan and fund our drainage services to be able to cope with more rainwater and avoid the much greater costs associated with the impacts of flooding on our communities. We need to ensure that the drainage of rainwater separately from wastewater is seen as a vital service that is planned for when we consider how land should be used and what services will be needed – like we already do for water and wastewater. We need to consider how we can bring blue-green infrastructure into existing communities by making the best of our existing greenspace whether they are small or large to help us manage rainwater. We also need to take all opportunities to bring in new blue-green infrastructure and reduce our hard surfaces, for example, by introducing rain gardens at the street scale and replacing paved areas such as driveways with permeable surfaces.

It is necessary to ensure that any new infrastructure to collect and manage rainwater is delivered efficiently, effectively and are designed and built to drain both new developments and existing urban areas. To do this they need to be planned and built in partnership with Local Authorities, Scottish Water, developers, landowners, communities and other partners. This will also ensure that they are operated and maintained so they continue to work properly over the long term. It is also necessary to consider how blue-green infrastructure can be located in places to deliver wider benefits that green spaces bring to future and existing communities and the environment.

Questions

14. Who do you think has a role in changing how we manage rainwater in Scotland to adapt to the impacts of climate change? (Please select all that apply)

- Individuals,
- Homeowners,
- Businesses,
- Scottish Government,
- Scottish Water,
- Local Authorities,
- Scottish Environment Protection Agency (SEPA),
- Land owners,
- Farmers,
- House builders,
- Community groups
- Others [Free Text]

15. To what extent do you agree that you/your organisation have/has a role in changing how we manage rainwater in communities to adapt to the impacts of climate change?

- Strongly agree
- Agree
- Neither agree nor disagree
- Disagree
- Strongly disagree

16. What would you/your organisation be willing to do in your home/property to manage rainwater differently? For example, disconnect your down pipes from the sewer, have permeable driveways, install water butts and/or rain gardens.
- [Text box]
17. Would you know where to find information on how to best manage rainwater in your property?
- Yes / no
18. To what extent do you agree that there is a need to plan, build, maintain and make room for drainage infrastructure to better manage rainwater in our villages, towns and cities?
- Strongly agree
 - Agree
 - Neither agree nor disagree
 - Disagree
 - Strongly disagree
19. What should Scotland's drainage systems look like in the future?
- Grey infrastructure only (drains, pipes, tanks)
 - Blue-green infrastructure (rain gardens, green roofs, SUDS ponds, basins, wetlands, swales, etc)
 - A combination of both grey and blue-green infrastructure
20. Do you have any further views on how Scotland should manage rainwater in the future?
- [Free Text]

5. Wastewater collection and treatment

With the changing climate more extreme weather events such as periods of very heavy and/or intense rainfall can lead to spills from our wastewater network to the environment and/or flooding to homes and businesses. Many of Scotland's wastewater treatment works are located along the coast and are vulnerable to sea level rises. This means that we need to change our approach to managing our wastewater network. Unless we respond to the changing climate by adapting our sewage services now, the costs to households, businesses and the environment arising from floods from sewers will be much higher. We also want to maximise the opportunity to use resources from wastewater and to make it easier to adopt new and future technologies.

Additionally, to further reduce the impact on the environment from spills we need to prevent blockages in our sewer systems by making sure that we correctly dispose of our household items in bins, such as wet wipes, cotton buds, sanitary products etc. rather than flushing them down our toilets. We also want to maximise the opportunity to use resources from wastewater to support a circular economy and to make it easier to adopt new and future technologies.

5.1 Overflows⁸

One of the most important things Scottish Water does is protect public health by taking away wastewater and rainwater from homes and businesses through a network of combined or separated sewers. During heavy or intense rainfall, more rainwater can get into the combined sewers than they can cope with, so they have been designed with an overflow mechanism which acts to safely relieve the pressure on the network and reduce the risk of flooding homes and businesses.

These overflows allow storm water (a mix of rainwater and very dilute toilet waste (usually less than 1% of the total volume)) to enter the environment. Usually, this only happens when there's been a heavy rain downpour or prolonged wet weather, so the stormwater that is released into rivers or the sea is unlikely to cause lasting environmental damage. SEPA checks the water quality of our rivers, lochs and seas and has found that 87% of Scotland's water environment can be classed as being in good or better condition⁹. Where investigations confirm that overflows are not working as they should and/or causing problems for the environment, they will be prioritised for improvement by Scottish Water¹⁰.

Overflows play an important role within the wastewater network, and are required to allow the wastewater system to function in times of high rainfall. Removing them would require widespread rebuilding of our wastewater network to separate rainwater from the wastewater flows from our toilets, sinks, washing machines, dishwashers etc. This would be very expensive and not the best and most

⁸ Overflows are an essential part of Scotland's combined drainage and wastewater system as these provide a 'release valve' during periods of intense heavy rainfall, to prevent sewer flooding of properties. They permit a proportion of wastewater to be released, with little or no treatment, into rivers, lochs, estuaries or the ocean. Often these releases are screened to remove sewage related debris and sometimes stored first in tanks so that solid matter can settle and then receive treatment.

⁹ [SEPA - River Basin Management Plan for Scotland 2021-27](#)

¹⁰ [Improving Urban Waters - Route Map \(scottishwater.co.uk\)](http://scottishwater.co.uk)

sustainable option in many cases. We have set out some of these challenges in the drainage of rainwater in an earlier section of this consultation. We must therefore consider more sustainable and affordable alternatives such as using new drainage infrastructures to remove rainwater from the existing combined systems and targeting problematic overflows where they have a negative impact on the quality of the water in the environment. Delivering new drainage infrastructures will take time. In the shorter term, we need to identify those overflows that are not operating correctly and that have a negative impact on the environments so we can address them.

Question

21. Should investment be prioritised to address overflows that have a negative impact in the environment?
- Yes/no

5.2 Substances / matter not to be discharged into a sewer or drain

Items incorrectly flushed down the toilet such as wet wipes, cotton buds, nappies and sanitary products, or fats and oils poured down the sink can block sewer pipes. They result in over 36,000 blockages every year that Scottish Water needs to remove. Blockages can lead to sewage spilling into the environment, or worse, into people's homes. If the blockage causes the sewers to spill, then sewage and other items can spill into a river, loch, or the sea. These then wash up on our beaches, along the edges of our rivers and get caught in trees and plants that grow on the edges of our water environment. It is very hard to pick up this litter and it is unpleasant to look at. It costs Scottish Water more than £7 million every year to unblock the sewers and to clean up the mess, which could be used to fund other needs.

People can be fined if Scottish Water can identify who caused the blockage. Fines are imposed by a court. Prosecution is a last resort and is therefore seldom used as it is not always proportionate to deal with this problem.

Question

22. To what extent do you agree or disagree that more should be done to stop items being disposed of down toilets or drains?
- Strongly agree
 - Agree
 - Neither agree nor disagree
 - Disagree
 - Strongly disagree
23. How do you think we can change behaviours to avoid the disposal of substances or matter in the toilet/sewer (e.g. wet wipes, cotton buds, nappies and hygiene products etc.)?
- [Free text box]
24. It is already an offence for non-household properties to discharge fats, oils and greases to the sewer. Do you agree that offences should be extended to:
- include other pollutants, and specifically plastic? [Yes / No]

- extend the offence to household premises? [Yes / No]
- [Free text box]

5.3 Treatment

Wastewater is treated at a wastewater treatment works, to remove items such as wipes and plastics, solids and pollutants so that the remaining water (called effluent) is safe to put back into a river, loch or the sea. The amount of treatment depends on the numbers of people who live in the town that the treatment works serves, and the sensitivity/ classification of the river, loch or sea where the treated water will be discharged. Wastewater treatment requires energy and can involve the dosing of chemicals depending on the standards that the treated wastewater must meet, the requirements for which are set out in law.

5.3.1 Wastewater monitoring

Wastewater contains much more than human waste. It contains everything that we wash down the plughole. This includes cosmetics, soaps, disinfectants, fabrics, coatings from pans and much more. It also includes medicines that our bodies haven't managed to absorb and germs from illnesses, like flu, that we may have. Some chemicals that we find in wastewater are problematic because they don't breakdown in, or are harmful to, the environment such as microplastics and medicines. Wastewater treatment works are not designed to remove some of these chemicals, so we need to think of other ways to manage them. There may also be new pollutants in the future that will require different types of treatment and we need to be able to manage these too.

Monitoring at wastewater treatment works can improve our understanding of the types and extent of contaminants that are making their way into the wastewater system. Depending on what the monitoring tells us, we can take appropriate action. We can also look for pathogens that indicate diseases, such as COVID, that are in the community. This helps our health service to know whether a disease is present in a community and whether it is a big problem or not.

Question

25. We currently undertake some monitoring of pollutants, do you agree that we should extend our monitoring of wastewater to look for new pollutants, and monitor pathogens in the community?

- Strongly agree
- Agree
- Neither agree nor disagree
- Disagree
- Strongly disagree

5.3.2 Resource recovery

The solids, known as sludge, that are leftover from the treatment process contain many useful resources. Sludge is no longer seen as a waste product but as a valuable bioresource (a renewable natural resource that is derived from living organisms or organic matter). This bioresource can currently be applied to agricultural land as a circular economy alternative to chemical fertilisers or can be used to produce renewable energy. Other potential resources are lost to the

environment. Recovering materials from bioresource can help to compensate for the growing use of natural resources reducing future supply risks of those that are increasingly hard to find.

There are opportunities to safely recover resources from wastewater before, during and after it is treated, helped by rapid development in technology, these include: the generation of energy; capturing heat from sewers; extracting useful chemicals, pharmaceuticals, metals and nutrients (phosphorus) etc; and reusing appropriately treated wastewaters (e.g. for irrigation or to generate hydrogen). In the future we will need to consider recovering other useful materials. Scottish Water already invests in technology to generate renewable energy and recover heat to deliver on its commitment to reach net zero emissions by 2040.

However, they can only invest in resource recovery facilities if there is an economic benefit to customers and they can continue to provide the same level of service. Any money made from these activities is reinvested in the water, wastewater and drainage services.

There are currently restrictions on using customer charges to cover upfront costs of activities that are not considered essential therefore these activities must be self-funded. This makes it difficult to explore new ideas and potential opportunities, to ultimately deliver more benefits to society.

While there currently is a limited market for recovered materials, investing in these activities would support Scotland's circular economy ambitions and support the growth of this market.

Questions

26. Do you agree that resource recovery is something that Scottish Water should be undertaking?

- [Yes/No]

27. To what extent do you agree that Scottish Water should be able to use the money it receives from customer charges to invest in resource recovery hubs? This could include use of scarce resources and increase recycling of reusable materials that might otherwise be sent to landfill.

- Strongly agree
- Agree
- Neither agree nor disagree
- Disagree
- Strongly disagree

5.4 Private wastewater systems

Private wastewater systems are waste collection systems not connected to the public sewer, for example septic tanks. Not all properties are able to connect to the public sewer because of their location. However as new development has led to the extension of the public sewer network, it might now be feasible and desirable for some properties to connect to the public network.

Owners of properties with private systems are responsible for their maintenance and emptying. If poorly maintained, untreated sewage may enter the local environment. Whilst well-maintained systems may cause little impact on the environment, the preference is for connection to the public network to manage possible future risk, for example, poor management when properties are changing hands.

Private wastewater systems are often shared between multiple properties, making sharing maintenance difficult. There is no formal support or agreements available for householders to enable shared private wastewater systems to be maintained as necessary. However, there is provision in legislation for an owner of a shared, authorised private wastewater system that allows them to recover a proportionate share of the cost from any other owners to properly maintain the private wastewater systems.

The absence of a complete register of private wastewater systems limits consideration of where a connection to the public sewer network is feasible and cost-effective, and can also restrict the ability of authorities to check that the system is functioning well and is properly maintained. It is therefore very challenging to see where some systems may be negatively impacting the environment.

Question

28. Do you agree that all wastewater treatment systems, regardless of size or ownership, should be tested and inspected to ensure that they do not impact negatively on the environment?

- [Yes/No]

29. What support do owners and users of private wastewater systems require to best protect the environment?

- [Free text]

30. Do you think that owners of existing private wastewater systems should be required to connect to the public system where connection is possible, beneficial and not expensive?

- Strongly agree
- Agree
- Neither agree nor disagree
- Disagree
- Strongly disagree

31. Do you have any further views on public and private wastewater systems?

- [free text]

6. Paying for services

In this document we have set out the changes that will be necessary to ensure that Scotland continues to benefit from high quality services whilst adapting to the changing climate. We have set out the problems the industry faces together with the possible solutions.

Overall, as we adapt to climate change and better protect our environment, we will need to invest more to protect and enhance our services. Alongside greater investment we all have a part to play by using less water, thinking about what is flushed down into the sewers and taking actions to reduce the amount of rainwater that we put into the sewer.

We need to collect and drain rainwater differently from wastewater to reduce the impacts of climate change. We need a combination of new blue-green and grey infrastructure to be built and maintained in partnership with Local Authorities and Scottish Water. To ensure that there is greater clarity in how customers charges are used, we propose that we define three services: water, wastewater and drainage of rainwater with each service cost being clearly shown. This would make it clearer how we are investing your money.

In Scotland, 97% of people are connected to the public water supply and 93% to public wastewater services provided by Scottish Water. Payment for these services is billed separately but collected alongside your Council Tax. The charges are based on Council Tax Bands not the amounts of water used, or wastewater removed. This means that charges are based on a rising scale depending on your house band and a range of discounts can be applied to protect certain groups of people, including those on the lowest incomes.

Businesses pay for water and wastewater services by reference to meters. This is because different types of businesses use different amounts of water. Businesses already pay for drainage services, this includes draining rainwater from their premises and a general charge for draining roads. This is calculated based on their Rateable Value.

Questions

32. To what extent do you agree that changing our behaviours is essential to limit charge rises?

- Strongly agree
- Agree
- Neither agree nor disagree
- Disagree
- Strongly disagree

33. Do you agree that we should recognise that there are three services (water, wastewater and drainage)?

- Yes/No

34. Do you agree that using Council Tax Bands is the fairest way to charge for services used by households?
- Yes/No
 - Other [free text]
35. In your view, how do we incentivise households/businesses to reduce water usage to levels that are sustainable for Scotland?
- [free text]
36. In your view, how could we incentivise households/businesses to manage rainwater differently to reduce rainwater entering the sewer system to levels that are sustainable for Scotland?
- [free text]
37. To what extent do you agree that all households and businesses should pay for roads to be drained?
- Strongly agree
 - Agree
 - Neither agree nor disagree
 - Disagree
 - Strongly disagree
 - [free text]

7. Next steps

We have set out the challenges that we face as part of the climate emergency. Your views will help shape which direction we take to address these challenges. Taking a Team Scotland approach of ensuring collaboration and consensus with partners and stakeholders we will continue to develop the best ways to approach these challenges. In addition to engaging with you through this public consultation we have developed an engagement programme to capture the views of interested parties in specific areas.

This engagement will enable us to develop a greater understanding of how we can address these issues in a way that not only protects our services now, and in the future, but also allows us to maximise the benefits to the people of Scotland.

8. Conclusion

It is important that we capture your views to inform the development of policy for the future of the Scottish water industry and how it can respond to the impacts of the climate emergency.

There is a need for us all to play our part in how we protect our services for current and future generations. This consultation allows us to understand the views of those who use water, wastewater and drainage services across Scotland.

We want to ensure that people value the water we have and create great places for the people of Scotland to live in. Please support us in providing your views on the

best ways to continue to protect these services from the impacts of the climate emergency.

Responding to this Consultation

We are inviting responses to this consultation by 21 February 2024.

Please respond to this consultation using the Scottish Government's consultation hub, Citizen Space (<http://consult.gov.scot>). Access and respond to this consultation online at <https://consult.gov.scot/energy-and-climate-change-directorate/water-wastewater-and-drainage-policy-consultation>. You can save and return to your responses while the consultation is still open. Please ensure that consultation responses are submitted before the closing date of 21 February 2024.

If you are unable to respond using our consultation hub, please complete the Respondent Information Form to:

Water Policy
Scottish Government
Victoria Quay
The Shore
Edinburgh, EH6 6QQ

Handling your response

If you respond using the consultation hub, you will be directed to the About You page before submitting your response. Please indicate how you wish your response to be handled and, in particular, whether you are content for your response to be published. If you ask for your response not to be published, we will regard it as confidential, and we will treat it accordingly.

All respondents should be aware that the Scottish Government is subject to the provisions of the Freedom of Information (Scotland) Act 2002 and would therefore have to consider any request made to it under the Act for information relating to responses made to this consultation exercise.

If you are unable to respond via Citizen Space, please complete and return the Respondent Information Form included in this document.

To find out how we handle your personal data, please see our privacy policy: <https://www.gov.scot/privacy/>

Next steps in the process

Where respondents have given permission for their response to be made public, and after we have checked that they contain no potentially defamatory material, responses will be made available to the public at <http://consult.gov.scot>. If you use the consultation hub to respond, you will receive a copy of your response via email.

Following the closing date, all responses will be analysed and considered along with any other available evidence to help us. Responses will be published where we have been given permission to do so. An analysis report will also be made available.

Comments and complaints

If you have any comments about how this consultation exercise has been conducted, please send them to the contact address above or at waterindustry@gov.scot.

Scottish Government consultation process

Consultation is an essential part of the policymaking process. It gives us the opportunity to consider your opinion and expertise on a proposed area of work.

You can find all our consultations online: <http://consult.gov.scot>. Each consultation details the issues under consideration, as well as a way for you to give us your views, either online, by email or by post.

Responses will be analysed and used as part of the decision making process, along with a range of other available information and evidence. We will publish a report of this analysis for every consultation. Depending on the nature of the consultation exercise the responses received may:

1. indicate the need for policy development or review
2. inform the development of a particular policy
3. help decisions to be made between alternative policy proposals
4. be used to finalise legislation before it is implemented

While details of particular circumstances described in a response to a consultation exercise may usefully inform the policy process, consultation exercises cannot address individual concerns and comments, which should be directed to the relevant public body.

Definitions

Bioresource – A term used to describe any resource of a biological origin.

Blue-green infrastructure – This refers to incorporating landscape and water design into, often, urban spaces. It refers to incorporating blue elements, like rivers, ponds, water treatment facilities, and green elements, such as trees, parks and land-use planning.

Catchments – The area of land and the water collected in it, especially the collection of rainfall over a natural drainage area.

Combined sewers – A combined sewer connects wastewater from properties and surface water from the premises to the public sewer. Although roads drainage is the responsibility of the local authority, historically many road drains have been connected to our combined sewers.

Drainage ponds – A process of diverting water to a pond.

Flood defences – These are systems put in place to reduce or prevent damage by flood water, they are typically hard structures such as flood barriers and seawalls.

Lead – Lead is a hard and resistant material that was historically used in water service pipes during the 1960s.

Net zero – This means the amount of greenhouse gas emissions we put into the atmosphere and the amount we're able to take out will add up to zero.

Orthophosphate – This is used to effectively prevent any lead from reaching the drinking supply.

Overflows – Allow excess storm water to spill in a controlled manner from the sewerage system into watercourses in the event of prolonged or heavy rainfall.

Phosphorus – This is used to effectively prevent any lead from reaching the drinking supply.

Pipelines – Pipelines are used to transport water for drinking or irrigation over long distances.

Pollutant – A water pollutant is a substance that contaminates the water. It may be caused by human or natural activities.

Private wastewater systems – If a pipe leaves a property and does not connect to the public sewer network at any point, then it would be considered to be a private sewer.

Public bodies – A formally established organisation that is publicly funded to deliver a public or government service.

Public sewers – are the systems of pipes and drainage structures which carry wastewater from its origin to a treatment centre where pollutants are removed before the treated effluent is safely discharged into water bodies. Includes foul, combined and surface water sewers in the ownership of Scottish Water.

Rain gardens – A garden that lies below the level of its surroundings, designed to absorb rainwater that runs off from a surface such as a patio or roof.

Rateable Value – Unmeasured charges, such as property and roads drainage, are calculated by reference to rateable values. These charges relate to the costs of dealing with rainwater that enters Scottish Water's sewers from private property and public roads across Scotland.

Regulated Supplies – supplies serve a variety of premises, e.g. holiday lets, B&Bs, hotels, caravan parks/campsites, schools, community halls and a range of other facilities. Type B supplies are all other domestic private water supplies, many of which serve single properties.

Reservoirs – a large natural or artificial lake used as a source of water supply.

Resource recovery – This is the process of obtaining material or energy resources from discarded solid waste.

Run-off – the draining away of water (or substances carried in it) from the surface of an area of land, a building or structure.

Septic tanks – A means to treat wastewater from your property which is not connected to the public wastewater system. It is usually either a large rectangular box made of brick, stone or concrete, or a bottle-shaped plastic tank buried underground not far from the property it serves.

Sludge – This is the material left over from the water treatment process, specifically the clarification and filtration processes. This is currently disposed of either to landfill, or by passing it directly to the sewer where it can be treated in a wastewater treatment works.

Surveillance monitoring – the act of tracking and measuring pathogen levels in wastewater.

Sustainable Urban Drainage System (SUDS) – a natural approach to managing drainage in and around properties and developments. They work by slowing and holding back water that runs off from a site. They help manage and control surface water.

Treatment works – the infrastructure which removes contaminants from water.

Wastewater – Wastewater describes used water from households, businesses, industrial and agricultural settings as well as surface water from our environment. Wastewater can include waste from toilets, sinks and showers and rainwater from roofs and gardens.

Water butt – A container for storing rain water which can then be used to water gardens or clean driveways etc.

Water courses – A natural or artificial channel through which water flows. This could be a river, canal etc.

Water Resilient places – this is the ability for places to adapt to changes in the availability of water resources.

Water resource planning – the process of planning, developing and managing water resources. This could include infrastructure, incentives and institutions that support and guide water management.



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