Managing your water supply in a drought

A summary of our Drought Plan

Introduction

Water is essential for all our lives. Every day we use water for drinking and routine activities such as washing, cooking, and recreation. It's also vital for running schools, hospitals, and services such as the Fire Service. And for businesses too – not just those associated with water use, such as car washes, brewers, and hairdressers, but all businesses. It's our job to provide a reliable supply of safe drinking water to around 10 million household customers and 215,000 businesses in London and across the Thames Valley.

We plan ahead to make sure we can provide a secure and sustainable supply of water to our customers during periods of dry weather and take into account changes to our climate. However, we can't plan for all eventualities. During extended periods of low rainfall our water supplies can become depleted, and we may need to take actions to continue to provide essential supplies of water, while protecting the environment.

Our Drought Plan sets out the actions we would take, and when we would take them during and after periods of prolonged dry weather. It outlines:

- What we'd do to inform customers about a drought
- How we'd work with customers to reduce their water use
- The restrictions we'd place on households and businesses
- How we'd maintain customers' drinking water supply by using additional sources of water as well as taking more from the environment and other sources
- Why we're promoting water saving and increasing the numbers of leaks we fix.

This document is a summary of our Drought Plan. In it we explain:

Page 4 What is a drought?
Page 5 Your water supply and how it could be affected in a drought
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Page 7 What happens in a drought?
Page 8 Actions we'll take in a drought

You can find our full Drought Plan here: thameswater.co.uk/droughtplan.

How we've developed our Drought Plan

Our last Drought Plan was published in 2020.

We've refreshed our Plan, taking account of revised government guidelines, and updated information on our supply schemes. We've consulted stakeholders and worked closely with other companies in the South East.

We submitted our draft Drought Plan to the Secretary of State (Defra) on 1 April 2021.

We held a public consultation on our draft Plan for 8 weeks, from early June 2021. Thank you to everyone who responded to the consultation.

We've reviewed the feedback received to the consultation and in September 2021 we published our Statement of Response. This sets out our consideration of the representations, changes made to our Plan and further work required.

We also sought feedback from customers on how we communicate with them during a drought.

Defra review all the information and when satisfied, approve our Plan.

What's new?

Here is a summary of the main changes we've made to our Drought Plan:

- We've tested our Plan to understand how we can cope in more severe droughts than we've experienced in the past.
- We've updated our levels of service – the frequency that we expect to need to apply water use restrictions. Temporary Use Ban (TUB) restrictions (see page 8) will now be implemented at the same time as applied by the other water companies in the South East.
- We've agreed to take a coordinated approach with the other water companies in the South East if water use restrictions are needed, including aligning, as far as possible, any exemptions that may be applied.
- We've reduced the amount of water that can be provided by our Thames Gateway Water Treatment Works (the desalination plant) to 100 Ml/d, a reduction of 50 Ml/d. We've made sure that we can still provide enough water to customers in a drought using other measures including demand management.
- We've developed additional measures for the most serious droughts, referred to as 'More Before Level 4 measures', these include significant reductions in water use and the use of alternative water sources for non-drinking water purposes.

The Thames Gateway Water Treatment Works is a desalination plant located in East London next to the Thames Estuary. It takes water from the estuary, the water is then treated, using advanced technology, to produce high quality drinking water for homes and businesses in London.

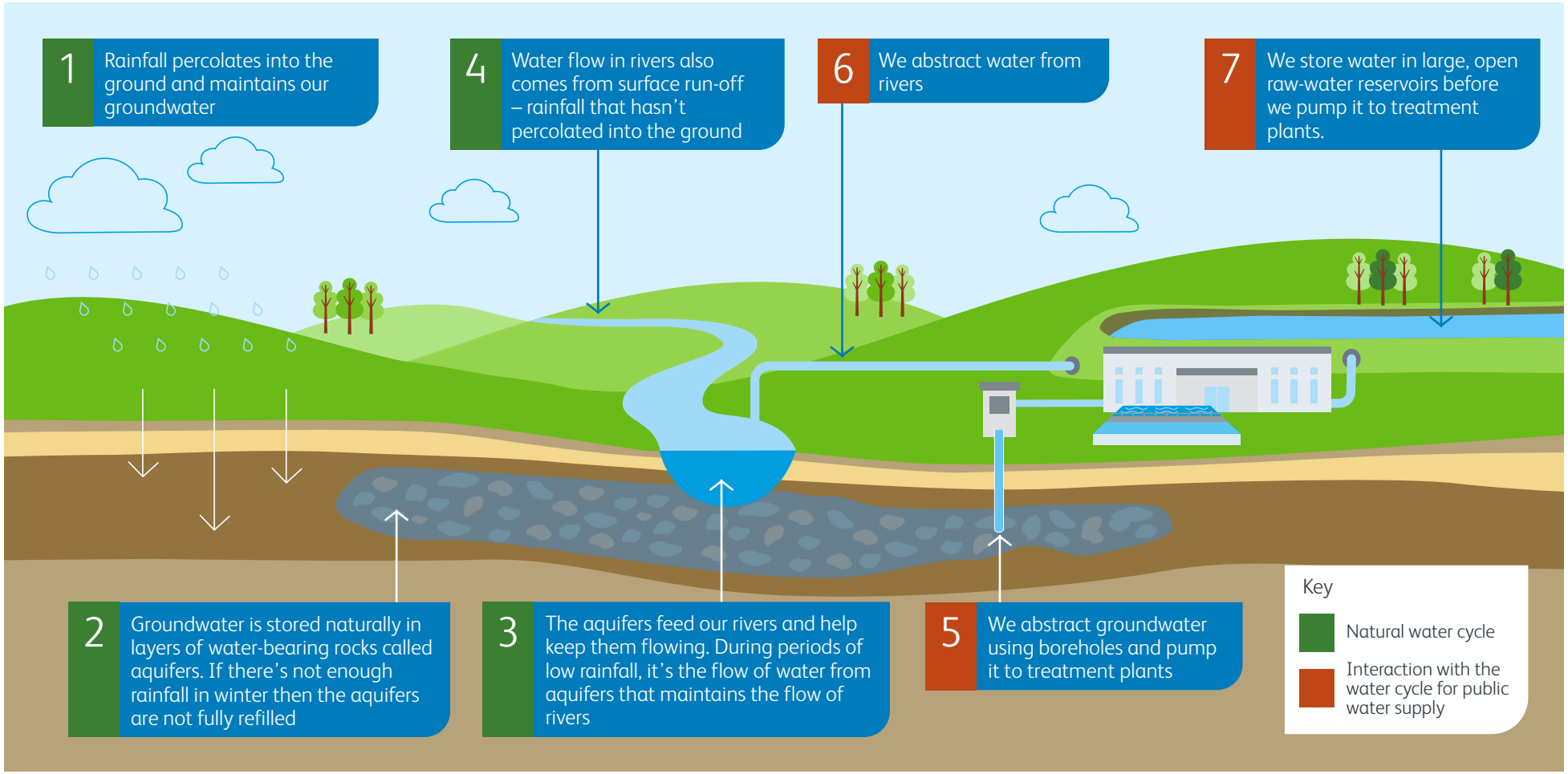
What is a drought?

The water we use for public water supply relies on the weather, specifically rain. Most people think we have plenty of rain, but it actually rains less in London than in Istanbul, Sydney, or Barcelona.

A drought is a prolonged period of abnormally low rainfall. Droughts aren't caused by a few dry weeks, and they can't be solved by a few wet ones. We need regular rainfall throughout the year to make sure we always have enough water. Winter rainfall is really important, as it refills the natural underground aquifers that provide flow to the rivers. Summer rain is largely taken up by plants and lost through evaporation leaving very little available to recharge groundwater sources.

Every drought differs in terms of how long it lasts, how intense it is and the areas it affects. In our area, the worst droughts have followed two consecutive winters of below average rainfall. The last major drought in our supply area was in 1975-76.

The diagram below explains why such weather patterns cause problems.



Droughts can affect different water users in different ways and happen at varying times. For farmers, a drought can occur after just a few weeks of dry and sunny weather during the growing season, whereas a drought that affects public water supply can take many months of below average rainfall.

Your water supply and how it could be affected in a drought

We supply safe drinking water to more than 10 million customers from Gloucestershire in the west, to areas of Kent and Essex in the east. We take the water from rivers and the ground, and it is either stored in large reservoirs until needed or treated and put directly into supply. The water is always treated to a high standard before it reaches your tap.

Thames Water's supply area is divided into six water resource zones: London; Swindon and Oxfordshire; Kennet Valley; Guildford; Slough, Wycombe and Aylesbury; and Henley. Water can be moved around in each zone and, in some cases, between zones.

The map shows our water supply area, the water resource zones and the main sources of water in each zone.

A drought can affect each zone differently, depending on where the water comes from and how those sources respond to different types of droughts. This is why during a drought one area may have different usage restrictions to another.

London – Water is mainly taken from the River Thames and the River Lee and stored in reservoirs in south-west London and the Lee Valley. The remainder (roughly 20 percent) comes from groundwater. We also have a desalination plant in London for use in drought.

Swindon and Oxfordshire – Water is mainly groundwater (60 percent) taken from the upper Kennet Valley and the Cotswolds, and we have a water main from Gatehampton near Goring in Oxfordshire. We also take water from the River Thames and have a reservoir at Farmoor, near Oxford.

Kennet Valley – Some water is pumped directly from the River Kennet to treatment works, and other supplies are from groundwater.

Guildford – Some water is pumped directly from the River Wey to treatment works, and other supplies are from groundwater.

Slough, Wycombe and Aylesbury – All water comes from groundwater.

Henley – All water comes from groundwater.

How do we know when a drought is developing?

Droughts develop over a period of months, during which time river flows, groundwater levels and the amount of water stored in reservoirs fall below the normal levels for the time of year. We constantly monitor water levels in our region – this gives us early warning of when a drought might develop and, once it's begun, how severe it could become. Every drought is different in terms of how long it lasts, how intense it is, and the areas it affects. We use scenarios of different patterns of rainfall and water usage to help us decide on what we need to do.

To identify a potential drought, we monitor:

- groundwater levels
- rainfall
- the amount of water stored in reservoirs
- river flows
- customers' demand for water

In a drought we follow a series of 'protocols', these are decision-making steps that guide the actions we need to take – before a drought happens, as a drought develops, during a drought and after levels have recovered. The protocols are designed to make sure we have enough time to plan and take action and to help us avoid or minimise the need for emergency measures. An important part of the protocols is clear and timely communications with customers to explain the situation and how it might evolve and to ask for their help and support.

We've analysed historic weather records, equivalent of many thousands of years of weather data, to assess how vulnerable our system is, or parts of it are, to drought.

The assessments show that all our water resource zones are resilient to drought, but we'd need to use Drought Permits and Orders for extended periods of time in a very severe drought. This reliance on Drought Permits for long periods would have a significant adverse impact on the environment, and Drought Orders could impact businesses.

In order to meet the challenge of potentially very severe droughts in the future, we need to develop additional water sources, to help to protect our customers' water supply and also the environment. Investment in new sources of water, as set out in our Water Resources Management Plan (WRMP) – our long term plan to ensure we can provide a secure and sustainable water supply to 2100, will enable us to become resilient to droughts of a severity of 1:200 years by 2030/31 and droughts of 1:500 years by 2040. We are currently resilient to droughts of a severity of 1:100 years.

Drought Permits are granted by the Environment Agency to allow us to take more water from the environment.

Drought Orders allow us to restrict water use by businesses, such as use of water for cleaning windows on commercial buildings.

What happens in a drought?

We keep our customers informed

Good communications with our customers are more vital than ever in a drought. We need to keep everyone informed and let customers know what they can do to help and if water-use restrictions are likely. We'll start our drought communications campaign well before restrictions are needed and we'll work closely with water retailers.

We use water wisely

Because long-term weather forecasts aren't fully reliable, we'll need to explain the degree of uncertainty and the need to plan responsibly for the worst case. To reach as many people as possible, we'll use newspapers, radio, and TV as well as our website and social media, providing regular updates on the drought situation and advice on saving water. If the drought continues, we'll extend our activity and use adverts and other methods to raise the profile.

We take action to increase water stores

We'll also try to reduce the amount of water that we and our customers use – taking actions often referred to as 'demand measures'. As part of our normal day to-day operations, we aim to use our water resources efficiently. For instance, we work hard to reduce the amount of water lost through our water pipes and our customers' pipes through leakage. We encourage our customers to use water wisely, providing a range of free water-saving devices and giving advice on how to conserve supplies. And we also install free water meters, which encourage people to use water sparingly and help reduce their bills. In a drought we would step up some of these activities.

We'll also take actions to increase the amount of water we have

These actions include:

- Using existing water sources that are more resilient to drought. For example, in London and the Swindon and Oxfordshire water resource zones, we might use more groundwater to conserve the water stored in reservoirs.
- Starting up drought schemes, such as using the desalination plant located in East London, which takes water from the tidal part of the River Thames and removes the salt to produce drinking water, and the North London Artificial Recharge Scheme, which stores surplus winter supplies in the deep chalk aquifer beneath the capital for use in a drought period.
- Seeking permission from the Environment Agency to take more water from the environment, via Drought Permits. Because of the potential harm to the environment, we need to have done everything else we can before asking to use Drought Permits. We aim to prioritise the Permits we use, selecting those with a lesser impact on the environment first, whenever possible.

A drought is unlikely to be limited to the Thames Water area, so we'll work with other water companies in the South East to ensure consistent messaging and coordination of water use restrictions as well as sharing resources as far as possible.

Watering the garden or washing your car with a hosepipe can use a massive 225 litres of water in just 15 minutes.

That's like flushing the toilet 25 times

Actions we'll take in a drought

Our Drought Plan is based on our levels of service to customers. These set out how often, and to what extent, customers should expect restrictions on their water usage. We have escalating levels – these levels and the actions that we'll take at each one are explained below. We would make sure we supported all vulnerable customers during a drought, for example we would prioritise supplies to hospitals.

1 Impending drought

Frequency: once every 5 years on average

Begin an awareness campaign – typically via radio, newspapers, social media and other online channels – to tell customers about an impending drought, let them know how serious it is and ask them to use water sparingly. We'll work with a wide range of organisations to spread the message, including water retailers. The campaign will be continued throughout the drought.

2 Early stages of a drought

Frequency: once every 10 years on average

- Step up the awareness campaign and encourage customers to reduce their water use through advice and installing water efficiency gadgets in customers' homes.
- Restrict the use of sprinklers and hosepipes in and around the home for uses including watering gardens, topping up ponds, filling paddling and swimming pools, cleaning cars – this is referred to as a Temporary Use Ban. Some vulnerable customers, such as blue badge holders, would be granted exemptions.

3 Severe drought

Frequency: once every 20 years on average

- Restrict non-essential water use. This would affect businesses, and restrict activities such as cleaning windows at industrial plants and suppressing dust on construction sites. The government would have to grant a Drought Order to allow us to introduce these restrictions. We'd notify customers at least ten weeks before introducing these measures.
- Apply to the Environment Agency for Drought Permits to allow us to take more water from certain sources.

More before 4 Additional measures for the most serious droughts

Frequency: once every 50 to 100 years on average

Step up actions to reduce demand and provide additional supplies to try to avoid reaching emergency restrictions (Level 4). Actions would include:

- Widespread communications asking customers to make significant reductions in their water use, aiming for around 80-100 litres/person/day. (On average our customers use around 140 litres/person/day)
- Bring online additional supply, such as emergency raw water pipeline transfers, temporary desalination units and alternative sources for non-potable use.

4 Extreme drought

We plan never to reach this level, which would involve a drought worse than any on record (since 1920).

Extreme measures to reduce water use, such as rota cuts (when water usage is restricted at certain periods of time) and standpipes in the street for customers to collect water. This would have a massive impact on society and the economy, and the government would need to grant an Emergency Drought Order.

Thank you for taking the time to read this document. If you'd like to read our full Drought Plan, please visit thameswater.co.uk/droughtplan

Our Drought Plan has 3 parts:

1. Summary (this document)
2. Main Report – Executive summary and Sections 1-10
3. Technical appendices A to M – These include environmental assessments of our Plan: Strategic Environmental Assessment and Habitats Regulation Assessment

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