



National Audit Office

Report

by the Comptroller
and Auditor General

Department for Environment, Food & Rural Affairs

Water supply and demand management

Key facts

14bn litres

daily demand for water in England and Wales in 2018

20%

proportion of water lost to leakage, equivalent to 3 billion litres each day

4bn litres

additional water supply needed per day by 2050 to counter the growing risk of drought from climate change

1.08 billion litres per day of supply lost by 2045 to climate change and the need to restore abstraction to sustainable levels

4% proportion of water supplied by trading between water companies

£469 million value of fund established by Ofwat in July 2019 to allow water companies to work together to develop strategic water resource solutions

16% reduction in leakage Ofwat expects water companies to achieve between 2020 and 2025

12% average reduction in consumer bills that Ofwat expects by 2025

143 litres average daily consumption of water per person for England in 2018-19: this has increased each year since 2014-15

Summary

Introduction

1 Water shortages are an impending risk for the UK. Parts of the country face a significant risk from drought, while neighbouring regions have surplus water. In its 2017 climate change risk assessment, the Committee on Climate Change highlighted shortages in water supply as one of five priority climate change risks that needed stronger policies and urgent action. Research commissioned by the Committee estimated the demand for water in England will exceed supply by between 1.1 billion and 3.1 billion litres per day by the 2050s, depending on the extent of climate change and population growth.

2 The Department for Environment, Food & Rural Affairs (Defra) has overall responsibility for setting the policy and regulatory framework for water in England. Its policy has one overarching objective: “to ensure clean and plentiful water”. It expects water companies to provide resilient water supplies supported by robust water resource management plans. To deliver this, it oversees a complex delivery landscape of multiple regulators and privately owned water companies. The Water Services Regulation Authority (known as Ofwat) regulates the water services that the water companies provide, with the role of ensuring consumers get value for money. It also has a statutory duty to further resilience and consumer interests. The Environment Agency (EA) regulates abstraction licences to ensure that abstractors do not impinge on other abstractors’ rights and leave enough water for environmental needs. The government’s objectives and the delivery landscape are described in more detail in Part One.

3 Water companies are responsible for developing and maintaining an efficient and economical system for providing secure water supplies to consumers and are required by statute to set out how they intend to balance supply and demand over the next 25 years through a water resource management plan. The companies must identify all the options available to them and show how they have decided which options to take forward. In its 2019 report to Parliament, the Committee on Climate Change was positive about the public water supply infrastructure planning system, stating that the water resource management plans set out how water companies have committed to more ambitious targets and considered options for new water supply infrastructure. In their plans, water companies forecast what future demand and supply would be if they took no action. These forecasts show that total demand would start to exceed supply in 2034-35.

4 In parallel to the water resource management planning process, Ofwat carries out a review every five years based on business plans submitted by each water company. In their business plans, water companies seek agreement for the level of funding needed to implement their water resource management plans. Ofwat's review determines the price and service package water companies must deliver. In doing so, Ofwat must balance consumers' interests with the need to ensure companies can finance the delivery of water services and to meet other legal obligations, including their environmental and social responsibilities. Ofwat sets the price controls for water companies every five years. In December 2019, it published the outcome of its price review for 2019, setting price controls for water companies for the period 2020 to 2025.

5 The gap between supply and demand can be tackled through a variety of measures for increasing supply and reducing demand. The most significant contribution between now and 2045 is expected to come from leakage management, which is due to contribute additional supply of more than one billion litres per day. Currently, nearly three billion litres of water (20% of the total supply) are lost through leakage each day.

Scope of this report

6 In this report, we set out the challenges facing the water industry in England and assess how Defra is tackling them through its oversight of water regulators and the water companies. The report is both retrospective, looking at how effectively the government has achieved its objectives up to now, and forward-looking, examining how prepared it is for the greater challenges it faces in the future as a result of climate change and population growth.

7 In Part One, we set out the policy and delivery landscape that governs how water is delivered in England and assess how effectively Defra uses its influence to deliver its strategic policy objectives. In the following parts, we assess how well the government is delivering its key objective of improving the resilience of the water supply by setting the framework for water companies to increase supply (Part Two) and reduce demand (Part Three). Our methodology is set out in Appendix One.

Key findings

The overall system for managing water resources

8 The government is not yet able to reliably forecast total water demand as water resource management plans only cover the public water supply. Water companies' current supply and demand forecasts only give a partial picture of overall water resources as nearly half (49%) of freshwater abstraction is outside the public water supply. This is mainly water abstracted directly for use in the power sector, for agriculture, and by industry. Abstraction is the process of taking water from ground or surface water bodies. Like the water companies, these other water users must obtain licences from the EA but have not been included in the water companies' resource forecasts. Water companies will now be required to engage with these other users as part of a new national framework drawn up by the EA, enabling a wider understanding of total water need, but most companies have little experience of doing so (paragraphs 2.3 and 2.4).

9 Defra does not provide guidance for water companies on the different types of intervention available to improve the resilience of the water supply. Defra's role in the water resource management process is to provide strategic direction, and the Department publishes guidance on the methodology water companies should use for option appraisal, but it does not offer advice or guidance on different types of intervention or facilitate the sharing of good practice between water companies. In other policy areas, Defra recognises the value of a central government supporting role. For example, it has a policy objective to gather evidence and develop options to inform its future flood and coastal risk management investment programme. Defra believes this is appropriate as the floods programme is largely publicly funded, whereas it is for water companies, as private entities, to make their own investment decisions, considering all the options available to them. However, this does not need to preclude Defra providing useful guidance and, in 2015, the EA advised Defra that work was needed to provide a clear evidence base to support the water planning process and that a lack of knowledge of the costs and benefits of actions to mitigate water shortages was a barrier to progress (paragraph 1.15).

10 There is a risk that the fixed-term planning cycle could delay potential improvements in water companies' performance. The five-year cycle has the advantage of providing certainty to investors, companies and their customers. However, more urgent action may sometimes be needed to improve system resilience. Defra expressed an ambition in 2016 to minimise leakage, a significant change from its 2013 position that water companies should balance their efforts to reduce leakage against their impact on customer bills. Despite this shift in Defra's position, leakage has remained at roughly the same level since the start of the five-year planning cycle in 2014-15 before more ambitious targets come into force in 2020. Ofwat told us that it was not aware of evidence that imposing revised performance commitments in the middle of a planning cycle would have resulted in meaningful gains sufficient to outweigh the potential destabilising impact of doing so. However, it is considering whether to take some performance issues out of the price review cycle, either to develop longer-term processes where appropriate, or to facilitate more rapid action where there are acute performance issues or more urgent policy imperatives. The Office of Gas and Electricity Markets (Ofgem) oversees a similar price control for electricity networks and is looking to adopt dynamic targets that are updated throughout the price control period as new evidence emerges (paragraphs 1.21 to 1.24).

11 Water companies have found it difficult to determine what level of infrastructure investment the government will deem acceptable. Ofwat scrutinises companies' investment proposals and considers the need for and efficiency of company proposals through the price review process, setting prices and its system of incentives accordingly. Neither Defra nor Ofwat has an explicit policy to reduce prices, and water companies told us that the government had not provided a sufficient steer on how to balance the need for investment with maintaining affordable bills, particularly where they have evidence that their customers are prepared to pay more to finance infrastructure investment. In December 2019, Ofwat reported that it expects household bills to fall by 12% before inflation over the five-year period 2020–2025. Ofwat also announced that it expected water companies to increase investment over the period by reducing the return on capital it allowed them and challenging them to increase their efficiency (paragraphs 1.18, 1.25 and 1.26).

Increasing the supply of water

12 Total water supply is forecast to decrease by 7% by 2045 as a result of climate change and the need to reduce abstraction to restore sustainability.

Almost all the water in the public water supply is obtained through abstraction from ground or surface water sources but abstracting too much water can lead to physical changes that reduce biodiversity. Reducing unsustainable abstraction is a key objective in the government's 25-Year Environment Plan and the EA is currently reforming its licensing strategy, with a focus on restoring sustainability. A reduction of 480 million litres per day is needed nationally by 2045 to restore existing abstraction to sustainable levels. Drier weather is forecast to further reduce supplies by 600 million litres per day. Water companies only expect a modest supply increase through new abstraction, which means that nationally the total amount of water sourced each day through abstraction is set to decline by 1.08 billion litres over the next 25 years, and water companies will need other measures to ensure resilience in the water supply (paragraph 2.7).

13 Bulk water transfers are a major part of water companies' plans but the government is only now starting to address barriers to progress. In 2008, the government instructed water companies to consider the full range of options for sharing water resources with other companies, including bulk transfers, but these still only make up 4% of total water supply (600 million litres per day). Water companies plan to use them to increase supply by more than one billion litres per day by 2045. Ofwat introduced financial incentives for transfers in the 2014 price review but reported disappointing progress to the Environment, Food & Rural Affairs Select Committee in 2018. There are still significant barriers to investment: transfers are technically challenging, present planning difficulties and require water companies to work together. The government is now only at the early stages of identifying and addressing these barriers. In July 2019, the regulators set up a joint initiative to seek to remove regulatory barriers to infrastructure investment and established a fund of up to £469 million to allow companies to work together to investigate and develop strategic water resource solutions. This is expected to enable companies to develop solutions that are ready to start construction by 2025 (paragraphs 2.13 to 2.17).

14 Other means to source more water require significant investment by water companies and are energy-intensive. Abstraction is the cheapest way for water companies to source water. Another significant way water companies can add to total supply is through desalination, a process that turns seawater into drinking water. Currently, desalination is energy-intensive and plants are costly to build. Thames Water currently has the only desalination plant in England, but it has been beset by long-term operational issues. Although total water supply is set to decline nationally, the severity of water shortages varies over time and by region. Connecting regions with surplus to regions of deficit and storing water in reservoirs during times of the year when water is more plentiful are effective ways to boost resilience without increasing total supply. Both options require significant investment by water companies and do not easily fit within Ofwat's five-year price review cycle because of the time needed for construction. At the end of 2019, Ofwat agreed to a proposal from Portsmouth Water to construct a reservoir to serve customers of Southern Water, the first reservoir to be built in the south-east since the 1970s (paragraphs 2.8 to 2.12).

Reducing the demand for water

15 Defra has yet to announce a target for personal water consumption despite a commitment to do so by the end of 2018. In its 25-Year Environment Plan, published in January 2018, the government undertook to work with industry to determine appropriate targets for water companies for the average personal water consumption of their customers and the measures needed to achieve them. In 2018-19, average domestic water consumption rose to 143 litres per person per day, an increase of 3% since 2014-15. Ofwat reported in June 2018 that some companies' ambitions in this area were "modest", and this was particularly the case for companies with already high consumption rates. Defra launched a consultation on measures to reduce personal consumption in July 2019, but this did not specifically solicit views on ways to work with industry to set a target (paragraph 3.5).

16 The government has relied on water companies to get its message across about the importance of reducing water consumption. Water companies have a statutory responsibility to promote the efficient use of water resources to their customers. They include advice to consumers with their bills and in social media, but there is no evidence this has any impact on consumers' behaviour, and average consumption continues to rise. Defra's July 2019 consultation urged water companies to be more ambitious and sought views and evidence on measures that could be taken forward to reduce personal water use, such as compulsory water metering. Nevertheless, there is little public awareness of the need to reduce personal consumption or understanding of how to do so. In July 2019, a group of organisations, including the EA and Water UK, the trade association for water companies, launched the 'Love Water' campaign to raise awareness of the importance of water and the need to protect it but, other than a Twitter feed, there has been no further activity since its launch (paragraphs 3.22 to 3.25).

17 The government has not succeeded in its attempt to reduce non-household water consumption through increased competition. Defra has relied mainly on the business retail market, launched in April 2017, to reduce non-household water usage. It is designed to allow non-household customers to choose the water company they want to deliver their water services. Ofwat expected it would deliver a modest 2% water efficiency saving, as new retailers would offer customers advice and support on water efficiency measures, but it does not know if these savings have been achieved. Awareness of the market and take-up have been lower than anticipated. In July 2019, almost half (47%) of eligible businesses, charities and public sector organisations were unaware of the market and 4% switched or renegotiated a deal during 2018-19, with 3% doing so the previous year. Hardly any organisations said they received water efficiency advice or leakage control services as part of their package. Defra told us that Ofwat and the EA intended to write a joint letter to retailers in March 2020 to encourage further efforts on this (paragraphs 3.12 to 3.15).

18 Defra has not been sufficiently influential to ensure water efficiency is a priority across government. As the policy lead on water resources, Defra should ensure that it is effectively influencing other public bodies and departments to reduce their own water consumption and introducing wider policies that could impact water consumption:

- The Greening Government Commitments set out the actions government departments and their agencies will take to reduce their impacts on the environment, including water use reduction, but these do not apply to local authorities and other public buildings that are major consumers of water. Defra could work more with departments such as the Department of Health & Social Care and the Department for Education to encourage water efficiency in hospitals and schools (paragraph 3.16).
- Other government departments have policies that could have a major impact on water consumption, for example building and planning regulations, product labelling and product standards. Energy efficiency has been embedded in each of these, but water efficiency is yet to be regarded in the same way. Defra told us it is starting to work with other government departments to explore how water can be given greater prominence within building and planning regulations, product labelling and product standards and is using the responses from its July 2019 consultation on reducing water consumption to help shape this work (paragraphs 3.17 to 3.21).

19 Water companies' plans to tackle leakage are ambitious but there is a risk of them not being achievable. In the most recent price review, Ofwat challenged water companies to reduce leakage by at least 15% in the period 2020 to 2025. However, half of the water companies presented initial water resource management plans that failed to meet this challenge, and Defra put pressure on them to increase their ambition. As a result, most companies signed up to reduce leakage by 15% or more, which meant that several companies committed to leakage reduction levels that were more than double their original targets. Ofwat acknowledged that, for some companies, meeting the revised targets will rely on adopting as yet unknown or untested approaches (paragraphs 3.8 and 3.9).

Conclusion on value for money

20 Tackling water resource issues is one of the five priority risks the Committee on Climate Change identified in its 2017 climate change risk assessment. If more concerted action is not taken now, parts of the south and south-east of England will run out of water within the next 20 years. Reducing demand is essential to prevent water shortages as water companies are running out of low-cost options for increasing water supply. Defra has left it to water companies to promote the need to reduce household water consumption, and yet it continues to increase. Defra committed to announcing a personal water consumption target by the end of 2018 but has not yet done so, while the introduction of the business retail market has not led to the expected reductions in non-household water usage.

21 Water companies' long-term progress on tackling leakage and reducing water consumption has stalled over the past five years, and companies are only now starting to develop bulk water transfer solutions at the scale required. The government has been grappling with these issues for more than a decade but rapid progress is now vital for Defra to deliver on its objective of a resilient water supply. Defra has taken positive steps to give a more strategic focus to water resource planning. But it must make sure that its new national framework and Ofwat's new funding for companies to develop strategic solutions produce the collaboration and prompt action from water companies that is now needed. Defra will not be able to achieve value for money unless it provides stronger leadership across government, and a much clearer sense of direction to water companies, the water regulators and water consumers.

Recommendations

22 Defra should build on the steps it is already taking through the national framework, and:

- a** provide guidance for water companies and facilitate sharing of information between them to support them in improving long-term resilience;
- b** fulfil its commitment to set a target for water companies for average personal water consumption;
- c** consider ways of promoting the need for water efficiency more coherently to ensure there is a coordinated and credible message, and develop plans to monitor and evaluate the impact of existing and new awareness-raising activities;
- d** review the business retail market to identify barriers to achieving improvements in water efficiency and how to overcome them;

- e** identify all opportunities to influence and work with other government departments to reduce usage by hospitals, schools and other large public sector users, and influence policies that have an impact on water consumption and long-term resilience; and
 - f** provide a stronger steer to Ofwat and the water companies on the expected levels of investment by water companies, informed by better and more consistent evidence on customers' willingness to pay, commissioning new research, if necessary.
- 23** Defra, Ofwat and the EA should:
- g** regularly review water companies' progress during the coming planning cycle on tackling leakage and reducing consumption, and ensure that water companies have robust contingency plans ready if progress is slower than anticipated; and
 - h** review the business and resource management planning processes to ensure the need for a long-term strategy and targets does not cause delays to potential improvements in water companies' performance.