



Why Does Britain Have a Water and Sewage Crisis?

Professor Martin Daunton

Tuesday 11 February 2025

Current problems will be well known to Londoners in the hall and those from further afield online:

- Failure to invest in maintaining the infrastructure of water supply and sewers.
- Surfers against Sewage and campaigns against excessive discharge of raw sewage into sea and rivers.
- Thames Water fined £104m in August 2024 for discharges and then another £18.2m in December 2024 for paying unjustified dividends.
- Financial problems: in March 2024, shareholders in Thames Water refused to provide £500m to stabilise finances because of lack of agreement by Ofwat – the office of the water regulator - to plans. Eventually secured a loan of £3bn in October to keep afloat into 2025. Crisis not over.
- Granted permission in December 2024 to raise prices by around a third by 2030 – asked for 59 per cent.
- Considered to be a critical risk to the country.

How have things become so serious?

Let me start by looking at some general concepts that can shape our thinking about the provision of utilities – not only water and sewage but also gas, electricity, railways.

CONCEPTS

Natural monopolies

Utilities such as water and gas are natural monopolies:

- High initial capital investment, but each additional customer involves little or no marginal cost.
- If suppliers compete, price will move towards that marginal cost of supply – which leaves nothing to cover the initial investment.

Solution: companies supply districts and only compete at their boundaries. This is what happened with gas in London: the competing companies agreed to 'district' the metropolis south of the Thames in 1853 and north in 1857. As we will see later, also applied to water.

But then the issue arises of how deal with quality and make sure not increase charges to consumer.

Possible solutions:

- Regulation of prices or dividends. Initially in gas, imposed dividend restriction of 10 per cent and maximum price; subsequently, some companies moved to a sliding scale, in London under pressure from consumers – if dividend went up, price had to go down and if raised price, dividend would fall. Argued this system obliged companies to improve efficiency: it was the only way to allow higher dividend plus lower price.
- Threat of public ownership – see John Stuart Mill writing in 1848 and 1851. Britain had ended the old monopolies of the East India Company that imposed higher costs on consumers, but now a threat of new monopolies. If a consumer did not like the products of a baker, could go to a competitor or make own bread at home – not possible with gas supply, railway service, telegraph etc. He assumed that 'delegated management' would be 'jobbing, careless and ineffective' compared with personal management by the owner of a business whose personal reputation was at stake – shareholders were disconnected from responsibility. He did not like powerful state bureaucracies, but thought they were more accountable than companies. The threat of private ownership of water and gas was huge:

A government which concedes such monopoly unreservedly to a private company does much the same thing as if it allowed an individual or an association to levy any tax they chose for their own benefit, on all the malt produced in the

country, or on all the cotton imported into it.

He saw private utility companies as a threat to a freely competitive market: as he said in 1851 on 'The regulation of the London water supply.'

The question is not between free trade and a Government monopoly. The case is one in which a practical monopoly is unavoidable; and the possession of the monopoly by individuals constitutes not freedom but slavery; it delivers over the public to the mercy of those individuals.

Mid-Victorian period worked through these issues of regulation and ownership. One outcome was the emergence of 'gas and water socialism' – in reality not socialist, carried out by Liberals and Conservatives who took municipal utilities into public ownership, and also national telegraphs (1870) and telephones (1912). It was about preserving free-market capitalism from monopolies – to Joseph Chamberlain in Birmingham meant making the city corporation into a joint stock company owned by the citizens who shared in the dividends – better health, use profits to reduce rates and to invest in art gallery. As Chamberlain said in 1892:

The leading idea of the English system of municipal government is that of a joint Stock or co-operative enterprise in which the dividends are received in the improved health and the increase in the comfort and happiness of the community. The members of the Council are the directors of this great business, and their fees consist in the confidence, the consideration, and the gratitude of those amongst whom they live. In no other undertaking, whether philanthropic or commercial, are the returns more speedy, more manifest or more beneficial.

Externalities

- A chemical works pouring toxic waste into rivers did not include the cost imposed on others within its own balance sheet.
- Neither did a city emptying its sewers into the river which then killed fish, cattle and polluted water supply downstream.
- Problem of free-riding – a polluter did not pay for costs to society as a whole; no point in one firm acting if others did not.

How to solve this mismatch between private and social costs? Principle of 'polluter must pay' – issue that also arises now with carbon emissions. Possible solutions:

- **Bargaining** – idea of the economist Ronald Coase. Owners of different property rights would negotiate so that the person affected paid the polluter to desist, or the polluter paid compensation to the person affected.
- **Tax** – idea of Arthur Pigou. Set at the point where the social marginal cost was equal to the social marginal damage, bring private and social costs into line.
- **Regulation** – set rules and then fine the polluter if breached. Need to establish a standard of water quality or illuminating power of gas – or complete ban as with coal fires in London.

Boundary between private and public ownership

Collective ownership would be one way to protect the consumer and to make large-scale investment with a long time-horizon – what may be called 'patient capital'. Takes many years to cover costs and make a return over expenses – also uncertainty over costs and benefits. Not suitable for private enterprise unless

- **Mania** ie irrationally thought that make a huge profit such as railways in 1830s and 1840s. Britain had the only truly private system in Europe as a result of this miscalculation.
- Award a **franchise**, allow company to operate with support from government of subsidies, bailouts, regulated market. Government ensures a secure income stream – basis for borrowing at lower rate of interest, which is tax deductible.

This public support for private provision took a new form from 1990s: public private partnerships or **private finance initiatives** – overcome long timescale for private investment to build a road, hospital etc with guaranteed revenue from government.

PFI was introduced by Conservatives in 1992 but really developed by new Labour after 1997. A public agency commissions a project from a special purpose vehicle; then borrows, builds the project. Public authority pays a fee to cover loan service, repayment of principal and service charges, for the life of the project. Protects company from

liabilities – if SPV fails, parent company can walk away. Public bodies can borrow more cheaply but assumed benefits for public agency in efficiency of private enterprise – and kept the investment off the public balance sheet.

- **Public ownership** – case as argued by John Stuart Mill. Other attractions: access to lower interest rates; and could make a profit to cover other expenses of the local authority – a major motivation for public ownership of gas companies as by Joseph Chamberlain in Birmingham. For water, not about profits but social benefits both in public health and industrial processes which used large volumes of water.

How to deal with these issues first appeared on a large scale in the second quarter of the nineteenth century as Britain experienced industrialisation and urbanisation – by 1851, the first country ever to have half of its population living in cities.

It was the world described by commentators as various as Friedrich Engels in *The Condition of the Working Class in England* (1845), Edwin Chadwick's *Report on the Sanitary Condition of the Labouring Population* (1842), and Charles Dickens in *Hard Times* (1854). The situation was captured by Alexis de Tocqueville comments on Manchester in 1835:

From this foul drain the greatest stream of human industry flows out to fertilize the whole world. From this filthy sewer pure gold flows. Here humanity attains its most complete development and its most brutish; here civilisation works its miracles, and civilised man is turned back almost into a savage.

The 'condition of England' provoked serious concern – a crisis of public health.

THE CRISIS OF PUBLIC HEALTH

The rapid growth of British cities in the late eighteenth and early nineteenth century led to a crisis of public health.

Life expectancy fell to 30 in large cities in the 1840s. For England and Wales, life expectancy at birth in London in 1851 was 35, in towns over 100,000 34, compared with rural areas at 45. In 1851, the infant death rate per 1000 live births was 153.

Water borne diseases were amongst the greatest killers: typhoid, cholera, and diarrhea.

In many towns, sanitation was still provided by common privies and ashpits – and supply of water was limited. Even where water was piped, it was intermittent.

In London, the issues came to a head with the Great Stink of 1858, though had appeared earlier. The temperature rose in June 1858 – little had been done about pollution of the Thames by various bodies that put their financial interests first or fought over whose responsibility it was.

Responsibility for drainage in London lay with the Commissions of Sewers under the Act of Sewers of 1531 – did not cover what we would call sewage which was largely dealt with by cesspits and 'night-soil men'. There were five Commissions north of the Thames and two on the south, as well as a separate Commission for the City of London. They were merged into a single Metropolitan Commission of Sewers in 1849 which passed to the new Metropolitan Board of Works in 1856.

Serious difficulties of finance, for only houses with a connection to the sewer were liable to pay; they were treated as individual consumers of a service rather than as contributing through local taxation to collective investment in the health of the metropolis.

The system was only designed to deal with surface drainage and not with foul water which was increasingly entering the system with the growing use of water closets by 1840s – meant needed more capacity to handle the volume. Outfalls now polluted the Thames.

In June 1858 the stench was so bad that Commons was disrupted, with MPs fleeing with handkerchiefs on noses. As *The Times* said, parliament was 'all but compelled to legislate on the great London nuisance by the force of sheer stench'. Bill was presented by Benjamin Disraeli as Chancellor of the Exchequer to deal with the 'calamity' of the state of the river which 'has really become a Stygian pool, reeking with ineffable and intolerable horrors'. Disraeli's bill soon passed.

Investing in London's sewers: Joseph Bazalgette

The construction of the London sewer system was one of the great achievements of the Victorian era. The Metropolitan Board of Works secured permission in 1858.

It was taken for granted that the task was a public responsibility. The question remained of how the public investment should be financed, and who should pay.

Disraeli remarked that the issue was whether it was 'a local or a national business', given that London was the capital and so many national institutions were based in the metropolis. He insisted that it was a local issue, and that any other approach would undermine the 'municipal principle ... of which we are all so proud, as one of the chief characteristics of our constitution'. In his opinion, the principle of self-government could not be abandoned with the costs handed to the country at large.

He also admitted that the MBW did not have the resources needed for the expensive new sewers: the capital cost could not come from its income; and an annual rate did not provide sufficient security to borrow large sums, and any loans would incur high interest.

Disraeli cut through the dilemma: parliament should impose a new sewage rate of 3d in the pound on all inhabitants of London to be used only for this purpose and without any right of appeal, for a period of 40 years; the income would go to the MBW which would also be given a guarantee from the government which would allow it to borrow £3m at 4 per cent with a sinking fund to pay off the loans at the end of the period.

In Disraeli's view, this approach helped the MBW without breaching the principle of self-government. It was unlikely that the Treasury would incur any charge, and the MBW would be 'perfectly unshackled and untrammelled', allowed to carry out its plans without interference from the Treasury.

The scheme was a combination of financial prudence, debt redemption, and economy to borrow private funds for public purposes. Further £1.3m authorised in 1863.

The task was carried out by Joseph Bazalgette:

intercepting sewers across London - one from Hampstead, another from Paddington and a third along the Thames in the new embankment. Further lines south of river to Crossness.

Capture foul water before it entered the river, with massive pumping stations at Abbey Mills and treatment plants down-stream to take the sewage far from London.

It ended the 'great stink' and removed the threat of cholera – and cost the huge sum of £4.1 m.

Statutory regulation of pollution

Outcome of Royal Commission and Edwin Chadwick's Sanitary Report was the Public Health Act, 1848. Established Local Boards of Health – optional but if set up, had power to oversee water supply and sewers. Power might be taken by an existing town council or a new ad hoc body. They faced lethargy, reluctance to spend.

The major issue was in inland towns where sewers discharged into rivers – less of a problem on coast where discharge of raw sewage into the sea did not lead to disputes. In river systems, led to disputes between different users.

Royal Commission on the Sewage of Towns reports in 1857, 1861 and 1865 found that condition of major rivers was poisonous.

Another Royal Commission on Rivers Pollution Prevention was set up in 1865 to gather evidence on best way of reducing pollution and keep sewage and pollutants out of rivers without 'risk to public health or serious injury to manufactures'. Note the logic here: stopping pollution might harm health and economies of towns.

The Royal Commission saw the major problem as untreated sewage from towns: reported in 1867 that

The principal offenders are the governing bodies of large towns. They are rarely prosecuted by private persons because few are willing to bear the expense... To instigate legal proceedings against a large town with a view to compel it to adopt a different mode of disposing of its sewage, at a cost of many thousands of pounds, is to provoke a wealthy adversary to a conflict in which every step will be contested.

The Commissioners thought there were effective and cheap solutions – and also that defined standards should be set before sewage was allowed into streams. Also proposed river conservancy boards to cover entire river systems.

Two Acts follow from these debates:

Public Health Act, 1875 consolidated and specified powers over sewerage, authority to impose taxes (rates) and borrow, and building regulations to ensure adequate sanitation.

River Pollution Prevention Act 1876 was more limited than Royal Commission proposed:

- Forbade discharge of 'solid or liquid sewage matter' into any river or stream. BUT
- No offence if 'using the best practicable and available means to render harmless the sewage matter'.
- And Local Government Board could suspend the provision to allow time to adopt those methods.

These terms of 'best practicable' and 'harmless' were not defined – and 'available methods' did not yet make sewage harmless. The processes relied on mechanical and chemical means of filtration or precipitation. Only from around 1900 were biological methods developed that are now the norm.

Enforcement was lax: no definition of water quality standards; and not set upriver conservancy boards, other than in a few cases such as the Lee valley in 1868. Instead policed by sanitary authorities who were the worse culprits.

The impact of the Act was disappointing. In 1901, the Royal Commission on Sewage Disposal found it 'has not resulted in the general purification of our rivers' because of reluctance to put it into force. But it remained the only general measure until the Rivers Pollution Prevention Act of 1951.

Nuisance law and pollution

Public authorities were more wary of being sued under nuisance law than the statutory law of 1876. The common law of nuisance was interpreted by judges on the basis of precedent and equity.

Different legal principles:

- Doctrine of **prior appropriation**: who arrived first?
- Doctrine of **natural flow**: user downstream had a right to water undiminished in quality.

Issues facing judges: did the owner of a land downstream from a large town have a right to pure water (natural flow), or was pollution by industry and sewage justified by the long existence of the town (prior appropriation)? The two principles could act in different directions.

Basic principle laid down in case of *Embrey v Owen* in 1851 which established

The right to have a stream of water flow in its natural state, without diminution or alteration, is an incident to the property in the land through which it passes; but this is not an absolute and exclusive right to the flow of all the water, but only subject to the right of other riparian proprietors to the reasonable enjoyment of it; and consequently it is only for an unreasonable and unauthorised use of this common benefit that any action will lie.

The question then was – what was on unreasonable use that would prevent others from having a reasonable enjoyment of the water? Was it reasonable to discharge sewage that benefited the health of towns even if it harmed enjoyment of the water downstream?

In common law, the argument of **balance of convenience** – that greater benefits to some allows harm to others – was not permitted. General welfare did not provide a defence against a nuisance. The test was whether the nuisance was material. If it was material, the complainant could either be awarded damages or an injunction to stop, with the threat of sequestration. It was clearly a serious matter if a town had to stop discharging sewage.

The issue arose most significantly in a case brought in 1858 by Charles Adderly, a local landowner and politician who complained that his property on the river Tame was suffering from pollution by Birmingham corporation's sewers. The case dragged on to 1895.

Adderly did not want to ban discharge – he had been Chair of the Sanitary Commission. But he wanted a guarantee that the corporation would use the most effective available means to abate the nuisance – he would seek an injunction only if it failed to do so.

The Corporation argued that rights of one person should not have precedence over the 250,000 inhabitants of the city. The judge rejected arguments based on balance of convenience: 'so far as this court is concerned, it is a matter of almost absolute indifference whether the decision will affect a population of 250,000 or a single individual... I am not sitting here as a committee of public safety'.

No question that Birmingham corporation was responsible for pollution; and that Adderly had a right to natural flow – up to corporation to discover how to drain the town without causing a nuisance. The court granted an injunction against new outfalls which would be extended to the current outfall if not stop the nuisance.

The corporation took some action – but issue returned in 1871-2. Corporation had been lethargic, little investment. Adderly now sought injunction against discharge with a threat of sequestration of the assets. Led to a crisis in local politics.

Corporation tried negotiations with Adderly to buy him off on the lines of Coase – failed. Adderly was accused of misuse of his power as an MP; the corporation felt the price he was demanding was above value of the land. In 1872, Adderly secured an injunction and sequestration – but suspended.

Now appearance of Joseph Chamberlain as lord mayor of Birmingham - ambitious schemes, willing to spend. Series of renewals and suspensions of the injunction followed. Corporation diverted outfall; spent on new treatment works; and adopted privy pan system – ie collect human waste without being discharged. From 1900, coming of water supply from new corporation scheme - rapid switch to water closers, with massive investment in new treatment plant.

Dispute with Adderly finally resolved in 1895 when the injunction was finally removed. But still not ideal – admitted in 1900 that only 90 per cent of impurities were removed, and a new case followed in 1908. Judge found corporation was liable and granted an injunction – but not put into effect at once:

the defendants deserve gentle treatment.... The court would be extremely reluctant to allow process to issue unless and until the defendants have had a reasonable time for remedying the present state of affairs and have neglected to use the opportunity this afforded to the best advantage.

What these legal actions in Birmingham and elsewhere show is that the courts at no time stopped the discharge of sewage, despite being clear about liability.

Judges allowed delays to injunction and sequestration– corporation should be allowed reasonable time to deal with the problem, trying the various means of treatment that were available.

Compensation was paid to Adderly at various points, and some corporations did buy off complainants as Coase suggested – but this was not the major outcome.

In principle, courts rejected the balance of convenience; in practice, they did see the need to consider the balance and refused to enforce decisions that would be harmful for welfare and economic efficiency.

Courts were acting as the supervisor and guarantor that sanitary authorities were doing their best within the available technology to abate nuisances. In some cases, the courts even specified what action had to be taken. The courts argued that it was feasible or reasonable to purify the sewage which then turned-on definitions:

- What is natural?
- What is economically reasonable?

Decisions were not easy and were contested.

New statutory powers against pollution

Statutory powers were changed after the Second World War.

In 1948, River Boards were created to look at the whole water system.

The Act of 1951 then gave them power to repair damage and minimise future pollution by attaching conditions to consent or licences to make discharges.

Problems did not disappear, as was apparent in the Lee Valley where new towns being built.

Before the Act of 1951, officials from the Ministry of Health were concerned about the impact of development on water quality – but the Minister of Health (Nye Bevan) sided with the Minister of Housing. More housing was needed, and

industrial growth was vital to deal with postwar economic problems.

Slow progress continued under Conservatives – the Minister of Housing and Local Government asked his officials in 1957 why so little had been done to reduce pollution of the river Trent. He was told there was no money to meet a proper standard.

The next reform came in 1963 when the Water Resources Act replaced River Boards with 27 river authorities; introduced permits for all discharges, both new and old.

In 1974, in turn replaced by ten regional water authorities – including the Thames Water Authority - for supply of water, sewage disposal, river pollution. Finally implemented the idea of river catchment areas as unit that had been around since 1860s. Some private companies remained under agency agreements.

Water

Sewers were always provided by public bodies until privatisation in 1989. What about water?

At the beginning of the nineteenth century, water supply was usually from wells, storage of rainwater, and from streams and rivers.

Few towns had a piped system - one was Cambridge where the university and town agreed with the lord of the manor of Trumpington in 1610 to construct a conduit to bring water from springs outside the city – in 1614 extended to the marketplace.

But for growing cities of the industrial revolution, provision of water emerged as a major issue. In Manchester in 1846, of 46,517 houses only 10,918 had a piped supply with another 12,937 sharing a tap in street or courtyard; the remaining 22,722 relied on shallow wells or streams, polluted by cesspits. Customers of the water company used around 12.4 gallons a day.

Issues arose in these growing towns:

- **Who was to provide water?**

In most cases, left to private enterprise. In the early nineteenth century, London's water was supplied by a number of private companies. Largest was New River Company chartered in 1619 – works already completed by 1613 to bring water from Ware in Hertfordshire, arose from efforts of City corporation, Hugh Myddleton and James I who agreed to fund half the works. Needed royal engagement to force agreement by landowners on route: needed government intervention. Charles I sold his share in 1631 for a perpetual annual payment.

Other companies: divided up London so non-competing districts. Drew water from Thames – some up-stream such as West Middlesex, but others down-stream such as Southwark and East London companies.

Cholera in London in 1848/9 and 1854. Death in area served by New River Company and West Middlesex Company which drew water upstream were lower than Southwark, East London.

But also, increasingly a public initiative. Many other councils did municipalise – such as Manchester. The Corporation secured powers in 1847 to take over the private company, transferred in 1851. Brought water from the Peak District – mainly piped to middle-class districts. By 1880-2, customers of the waterworks used around 82 gallons per day.

Not want water closets which both increased pressure on water supply and led to problem of disposal of sewage. Retained pails for most working-class areas.

Responded to pressure on supply - 1879 Act to secure water from Thirlmere in Lake District, opened in 1894 – huge expense of damming the lake, constructing an aqueduct, and buying land to preserve quality.

This investment and new sewage treatment plant allowed the use of water closets – 1890 all new houses to have a water closet; 1892, landlords to retrofit in existing properties.

Joseph Chamberlain followed with municipalisation in Birmingham. As he said in 1875:

It seems to me absolutely certain that ... 'the power of life and death' should not be in the hands of a commercial company, but should be entrusted only to the representatives of the people. I think the supply of water should not be directly or indirectly dependent on the profits of a private association.

He bought the water company, and the corporation subsequently embarked on a scheme to bring water from the Elan valley in mid-Wales. Work started on reservoirs in 1893, on aqueduct in 1896, and was completed 1906.

Share of waterworks in England that were publicly owned rose from just under 40 per cent before 1860 to 62 per cent in 1910 – since many were in large cities, proportion of consumption would be higher.

Why?

- Access to long-term investments – could borrow from government Public Works Loan Board and also bonds on the money market with security of taxing powers.
- Reduce price of water which allowed access by poorer residents and reduced spread of disease – social benefits.
- Fire-fighting – externality. Think LA.
- ‘Liquid politics’ – consumer action. Note three sources of tension:
 - o Payment to companies was not on basis of consumption but tied to the local tax on value of property which was periodically reassessed. Question of who set the value, on what basis – favoured large users.
 - o ‘Non-domestic charges’ or extras for bath, water closet, stable, greenhouse, upper floors. A fixed charge was levied for each item – led to conflict over intrusion into privacy of home; issues of whether baths and wcs were ‘domestic’ – a shift in what was needed for comfort.

These disputes were leading to pressure for public ownership in 1870s and 1880s.

London was later in taking water into public ownership in 1904.

Some improvements were made even before the Great Stink

- Metropolis Water Bill 1851 proposed companies should be consolidated and under control of a government department. Defeated.
- Metropolis Water Act of 1852 was more modest: private provision with government regulation. Companies drawing water from Thames to move intake above the city; to filter water; and cover reservoirs. Led to large investment and improvement in water quality. Not perfect: East London Co illegally connected an uncovered and unfiltered reservoir so a much higher death rate in cholera outbreak of 1861: West Middlesex death were about 3 in 10,000; in East London area served by offending reservoir, 79.
- Royal Commission on the Water Supply of 1868 recommended amalgamation and public ownership: ensure constant supply; supply to poor; lead to savings; ensure quality by proper filtering.
- In 1869, a Royal Commission went further and recommended public ownership. Not adopted: instead, tighten up regulation in the Metropolis Water Act 1871 retained private ownership in existing companies with more oversight.

Attempts were made by Metropolitan Board of Works between 1878 and 1886, and by its successor the London County Council which sponsored bills to take water into public ownership, but fear of powers from neighbouring county councils – LCC seen as a threat, too large. LCC pressure led to Royal Commissions in 1892 and 1897 which reported again in favour of public ownership.

- Given new force by droughts of 1890-1909: had moved from intermittent to regular supply but now interrupted. The issue had moved from the politics of taxation to politics of provision and definitions of cleanliness. The Metropolis Water Act of 1902 created a new, single purpose Metropolitan Water Board that first met in 1903 and took over supply in 1904. Members were drawn from existing local authorities which dealt with problem of LCC control. Covered water and sewage as an integrated system for the first time. The existing companies were bought out with water stock – bonds paying 3 per cent.
- **Water for whom?**

Water is used in industrial processes which might have different needs from households. Textile industries used large quantities of water and needed to be soft, from rivers and rainwater – not hard from aquifers.

In Wakefield, a town dependent on spinning worsted yarn, the private water company drew water two miles downstream from the sewage outfall. When it proposed to draw pure water from wells, industrialists objected that it

was not suitable.

Purchase of the company in 1876/7 was designed to block the scheme and provide alternative pure soft water from the Pennines – but as soon as company was bought, little enthusiasm for spending money on a supply of water that was suitable for both industry and domestic use. Similar disputes in other towns between users.

- **How to charge?**

This is part of liquid politics mentioned above. In Wakefield, industrialists hoped they would have a preferential rate as large users. The company claimed to be helping the working class against industrialists both in quality and price – against which the industrialists argued that soft water reduced costs and allowed more and better paid work.

Despite all the problems of improving sewage and water supply, increased levels of investment did resolve the crisis in public health. The fall in mortality rates at the end of the nineteenth and early twentieth century was more a result of this activity than medical intervention.

According to Simon Szreter, water borne diseases accounted for around 30 per cent of the decline in mortality in the second half of the century – the other major cause was a fall in TB, in response to improved housing. By 1911, life expectancy in London was 52, in cities above 100,000 51 and in rural areas 55. By 1913, infant mortality was down to 108.

What we have seen so far is a growing role for public investment and ownership. This was reversed in 1989 with the privatisation of the water authorities.

- The regulatory function of granting abstraction and discharges was passed to new National Rivers Authority – in turn replaced by under-resourced Environmental Agency in 1996.
- The new privatised companies were regulated by the Office of Water Services (Ofwat).

What went wrong?

THE WORLD OF PRIVATISATION

In 2001 Thames Water was bought by RWE, a German utility company Rheinisch-Westfälisches Elektrizitätswerk Aktiengesellschaft.

This firm provided a different model of ownership of utilities. It was founded in Essen in 1898 to generate electricity, expanded in Ruhr. Before 1914, municipalities bought shares which extended in 1920s when they held the majority; in 1925, stake by Prussian state. It was a mixed private and public company.

In 2006 RWE announced it would sell – bought by Kemble Water Holding, a consortium formed in late 2006 by the Australian-based Macquarie Group European Infrastructure Fund with major shareholders including the Abu Dhabi Investment Authority and China Investment Corporation. The consortium was based in Luxembourg which allowed it to use a tax haven and pay large dividends.

Borrowed large sums against assets to increase dividends rather than invest in infrastructure. Of course, Macquarie denies neglect and claims it invested more than £11 billion in the network which was more than before and after its ownership.

In 2017, sold. New shareholders shown in table.

Ontario Municipal Employees Retirement System [OMERS]	31.8 per cent
University Superannuation Scheme	19.7
Infinity Investment	9.9
Hermes GPE	8.7
British Columbia Investment Management Corporation	8.7
China Investment Corporation	8.7
Queensland Investment Corporation	5.4

Aquila GP

5.0

Stichting Pensioenfonds Zorg en Welzijn

2.2

These holdings have been written down, and shareholders refused to provide more capital: company hit by rising costs of debt service, failure to meet standards. Announced in default on debt. Back to liquid politics like before public ownership by Metropolitan Water Board:

- Water bills have risen steeply since privatisation – and announcement of large increase in December 2024 will stoke anger.
- Perception of corporate greed with high dividends.
- Poor service with leaks, failure of supply – fear that parts of infrastructure will fail.
- Environmental degradation with spills. Fergal Sharkey and others complain of blatant failure to comply with environmental law. Thames Water pumped 14.2bn litres of sewage into Thames in central London in 2023.
- Chris Whitty said sewage pollution a public health priority that had to be taken seriously.
- Polls find majority support for nationalisation – and contingency plans being devised in case of insolvency.

Environmental Secretary Steve Reed said people have a right to be angry, that fault of last government and irresponsible diversion of customers' money to bosses and shareholders. The problem is not going away.

There is one major investment that will help. The Bazalgette scheme needed to be augmented by a new London 'super sewer' along the Thames. The new scheme was given parliamentary consent in 2014, and a financial deal was awarded in July 2015. Cost of £4.5bn. It diverts effluent from outflow pipes in central London to treatment plant.

But note how Tideway has been funded. It takes us back to a stark contrast between Benjamin Disraeli in 1858 and the approach of PFI.

The terms were radically different from 1858:

It is not a public investment, but the responsibility of Thames Water, a private concern – something not even considered in 1858. Ian Byatt, a former economic adviser to the Treasury and regulator of the water industry, argued that 'it should be financed directly by government borrowing, which would be much cheaper than special project finance'. He pointed out, and even bankers associated with the project agreed, that governments can borrow cheaper than anyone. But this was not done.

The Treasury argued that public responsibility would be poor value and rejected the option, against the view of the National Audit Office that a private sector solution would be poor value for the taxpayer. The political attraction of a private-sector solution was that the investment would be kept off the public balance sheet.

Not funded from the balance sheet of Thames Water. It does not own Tideway – Macquarie argued that risks too high and debts too large. Set up a new company privately financed – currently owned by Allianz, IPP, Swiss Life and Dalmore. initially and ironically called Bazalgette, now Tideway. Initially owned by concerns like Allianz.

This company would 'own, finance and deliver' the sewer, and then supply sewerage services to Thames Water on a 125-year concession. Guaranteed by government – not as in 1858 to allow public sector to borrow cheaply but to underwrite the risk of private investors. Tideway borrows at 8 per cent and pays generous dividends and directors' pay.

Covered by a surcharge on bills – argued that paying over the odds.

The role of the government is to act as the insurer of the project, bearing the brunt of any cost overruns – in other words, its role is to take on the risk of the private sector and not, as in 1858, to assist the public sector in securing private funds on good terms.

Of course, Thames Water argues that the approach has the virtue of 'balancing the interests of customers, investors and taxpayers'.

An alternative way of looking at the deal is that taxpayers or customers are involved in providing guarantees against risk of cost overruns, accidents, and financial risks from credit crashes which 'the government hope will not be needed but if they are they could be very expensive'. In other words, the costs are borne by the consumers, the state covers the risks, and the benefits are taken by financiers.

CONCLUSION

This comparison between 1858 and 2015 brings out some of the major changes in the relationship of the state and market.

- The state ceased to provide infrastructure on any scale. In the past, the state provided infrastructure up-front at low interest rates, issuing bonds to finance fixed capital investment.
- Public sector net investment continued to rise after war, from 2 per cent of GDP in 1949/50 to a peak of 6.1 per cent in 1969/70. A major change then occurred in the 1970s, with a retreat of the British state from fixed capital investment. Public sector net investment was down to 0.6 per cent in 1999/2000.
- Divestiture of existing stock. Privatisation of water, gas, electricity and the railways produced a one-off payment to the government which was not used to reinvest in fixed capital; it also removed any obligation for future investment. Public sector net worth as a percentage of GDP fell from 41.7 per cent in 1970.1 to 15.6 per cent in 1991/2000.
- The state was unwilling to pay for up-front financing of capital projects. Now the state underwrites private risk.

This system has failed in the railways which are being returned to public ownership. Is it time to do the same for water?

© Professor Martin Daunton, 2024

References and Further Reading

Brian Beach, Werner Troesken and Nicola Tynan, 'Who should own and control urban water systems?' NBER WP 22553, August 2016.

Martin Daunton, *State and Market in Victorian Britain: War, Welfare and Capitalism*, Woodbridge, 2008.

Joshua Getzler, *A History of Water Rights at Common Law*, Oxford, 2004.

Stephen Halliday, *The Great Stink of London: Sir Joseph Bazalgette and the Cleansing of Victorian London*, Stroud, 1999.

Christopher Hamlin, 'Muddling in Bumbledom: on the enormity of large sanitary improvements in four British towns, 1855-1885', *Victorian Studies* 32, 1988.

Christopher Hamlin, *Public Health and Social Justice in the Age of Chadwick: Britain, 1800-1854* Cambridge, 1998.

J A Hassan, 'The impact and development of the water supply in Manchester, 1568-1882', *Historic Society of Lancashire and Cheshire* 133, 1983.

Avner Offer, *Understanding the Private-Public Divide: Markets, Governments and Time Horizons* Cambridge, 2022.

Leslie Rosenthal, *The River Pollution Dilemma in Victorian England: Nuisance Law versus Economic Efficiency* Farnham, 2014.

John Sheail, "'Never again': pollution and the management of watercourses in postwar Britain', *Journal of Contemporary History* 33, 1998.

Vanessa Taylor and Frank Trentmann, 'Liquid politics: water and the politics of everyday life in the modern city', *Past and Present* 211, 2011.

© Professor Martin Daunton, 2025