

# Learning from the past

## Delivery of water and sanitation services to the poor in 19<sup>th</sup> century Britain

Background Report for WELL Briefing Note 9  
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## 1. Summary of contextual issues

This report identifies the potential for learning lessons for developing countries from the historical development of financing water and sanitation in the UK. The main focus of this report is 19<sup>th</sup> century Britain, which is characterised as a period of unprecedented rapid population growth in the newly developing industrial towns, together with political change and the emergence of the institutions of local government.

### 1.1 Urban migration

Urbanisation was not solely a response to industrialisation as rural settlements had been growing in size into something classified as 'urban' throughout the 18<sup>th</sup> and 19<sup>th</sup> centuries.<sup>i</sup> Both changes in agricultural livelihoods due to the enclosure of common land and the system of poor relief, which encouraged large families, contributed to rural to urban migration.<sup>ii</sup> However, there was a distinct and rapid migration of workers from the country to the new manufacturing towns with the introduction of the factory system.

This led to unprecedented population growth, with an average increase of 2.5% per annum in English and Welsh cities between 1821 and 1831. The population of Bradford rose from 29,000 to 77,000 between 1801 to 1831. In Huddersfield this was from 15,000 to 34,000 and in Leeds from 53,000 to 123,000.<sup>iii</sup> By 1840, most towns had reached their maximum growth rate.<sup>iv</sup>

Although builders, landlords and factory owners built accommodation in response to this increased demand, living conditions for working people were very poor, concentrated in tenements, back-to-back and cellar dwellings.<sup>v</sup> Properties were frequently sub-divided and additional accommodation was crammed into backyards. In Liverpool in 1840, about a quarter of the population lived in cramped, unventilated courts and ten per cent lived in cellars. In 1854, an investigation into a cholera outbreak in Newcastle-upon-Tyne found that half of all working families lived in a single room, without an independent water supply or toilet.<sup>vi</sup>

### 1.2 The national concern with public health

From the 1830s, there were several forces raising national concern with the state of working class living conditions and public health.

Firstly, there were the reports from both formal and informal investigations into the sanitary conditions in which the poor were forced to live. These include the work of Royal Commissions, journalists, social commentators and writers such as Dickens, Gaskell and Engels.<sup>vii</sup> In addition, improved record keeping and the availability of records from doctors, parishes and county councils<sup>viii</sup> provided statistical evidence that the numbers of poor were increasing and that they were dying younger.

Finally, more was becoming known and accepted about the causes of water and sanitation related disease and illness, such as the work of John Snow<sup>ix</sup> linking cholera to contaminated water. This new scientific approach was popular with the public and is illustrated by the many Health and Sanitation Associations which emerged in the 1840s, which had the purpose of raising public awareness about sewerage, drainage, water supply, air, light and housing and to perform an advocacy and propaganda role. The Health of Towns Association is an example of this. Many branches of the association were set up around the country, acting as pressure groups, investigating local sanitation problems, were represented at public meetings and petitioned parliament for change.<sup>x</sup> In 1846, the association produced a report on the Sewerage and Drainage of Towns Bill and surveyed water supply and drainage in 67 towns in 1847-8, publishing the 1847-48 Health of Towns Association Survey. Improvements in towns were slow to arrive, but

the information contained in Royal Commission reports resulted in increased interest by the general public in water, sanitation and public health. Their findings informed the Public Health Act of 1848.

### **1.2.1 The role of the Royal Commissions**

A Royal Commission is an ad hoc advisory committee established by the government, though formally appointed by the Crown, to investigate any subject the administration of the day sees fit to refer to it. However, a government is not bound to act on the findings of a royal commission.<sup>xi</sup>

The findings of Royal Commissions and other associations were key to raising public concern and interest in living conditions in Britain's 19<sup>th</sup> century slums. On the strength of these investigations, authorities were increasingly expected by public opinion to take action, where previously, government involvement in people's lives had been opposed.<sup>xii</sup>

#### *1834 Poor Law Commission*

The Poor Law Commission was established to administer poor relief after the passing of the 1834 Poor Law Amendment Act.<sup>xiii</sup> Although this system was criticised as harsh, it was in response to the generally appalling conditions and the public health outcry which had occurred in 1832-33.<sup>xiv</sup> For 1837 to 1842 Poor Law Commissioners enquired into the living conditions of the working classes, linking disease to decomposing refuse, over crowded housing conditions and a lack of safe water supply.

#### *1842 Chadwick's Report from the Poor Law Commissioners on An Inquiry into the Sanitary Condition of the Labouring Population of Great Britain*

The appalling details of living conditions described in this book shocked the general public so much that a commission was set up to inquire further. The report argued for the provision of water supplies, sewerage and better housing for the working classes. It also linked unsanitary conditions to poor health, a link that was commonly ignored. Edwin Chadwick predicted an increased life expectancy of 13 years for the whole of the labouring classes if his recommendations were followed. This report informed richer Victorians about the negative aspects of urbanisation and industrialisation and appealed to their humanitarian instincts to support change. 20,000 copies of the popular abridged version were sold.<sup>xv</sup>

#### *1843 Health of Towns Commission*

Again, Edwin Chadwick acted as report writer for this. He proposed a change from the conservancy system to the water-carriage system as a solution to the unsanitary conditions he documented. This was an arterial system of drainage, providing an integrated service to all households of a pressurised and adequate water supply, water closets, domestic waste waters and solid waste discharging to sewers, which would then convey sewage to agricultural areas for manurial use.<sup>xvi</sup>

#### *1847 Metropolitan Commission for Sewers*

In 1847, the newly-formed Metropolitan Commission for Sewers published a survey of London's sanitary arrangement above and below ground. There was still no unified authority created. This resulted in banning the use of London's cesspits and the provision of flushing devices to the sewers which carried their contents, untreated, into the Thames. Since drinking water continued to be extracted from the Thames, typhoid fever and cholera became major killers in the city. During 1848/49, there were 1.3 deaths per thousand from cholera in south London compared to 0.37 per thousand in the cleaner reaches of the Thames, with the number of deaths reaching some 6,000.<sup>xvii</sup>

### *1867 Royal Commission on River Pollution*

This was an enquiry into the best means of preventing the pollution of rivers. This reported that the water in the rivers Aire and Calder was "poisoned, corrupted and clogged by refuse from mines, chemical works, dyeing, scouring, and fulling, worsted and woolen stuffs, skin cleansing and tanning, slaughter-house garbage and the sewage of towns and houses."<sup>xviii</sup>

#### **1.2.2 New public health legislation**

As a result of the growing Sanitary Reform Movement, Parliament passed a series of acts in an attempt to improve conditions in the thriving urban areas. However, the rate of improvement was slow and inconsistent and it was not until the latter half of the century that notable reductions in mortality and morbidity in Britain's cities could be discerned.<sup>xix</sup> A restricting factor was that although legislation required household connections to be put in place, there was no direct funding from the Treasury, and the costs had to be borne by the householders themselves.

Pre 1830, the main form of town drainage was the open ditch running along the centre line of city streets. These polluted open drainage ditches discharged into the nearest water course. Between 1792 and 1828, these ditches were culverted, but the pollutants were still discharged at a point further downstream. The cost of this had to be met by the owners of the adjoining property. Such development was piecemeal and is not well documented.<sup>xx</sup>

### *1844 Metropolitan Buildings Act*

This required that no building be constructed without being connected to the common sewer, if this was within 30 feet of the building (later amended to 100 feet). Drains had to be 9 inches in diameter and built of brick, tile, stone or slate, set in mortar or cement. Another amendment prevented leaks from cesspools and privies. Most existing buildings were exempt from these regulations however.<sup>xxi</sup>

### *1846 The Nuisances Removal and Diseases Prevention Act*

This act, known as the Cholera Bill, extended the regulations of the 1844 act to existing buildings.

### *1847 Towns Improvement Clauses Act*

This legalised discharge of sewage from sewers into river and sea and allowed its sale for agricultural purposes if it did not cause a public nuisance. It also encouraged paving, drainage, cleansing and lighting and gave large towns the power to appoint full time medical officers.

### *1848 Public Health Act*

This act was the first of its kind and provided a Central Board of Health and Local Boards of Health with powers to supervise street cleaning, refuse collection, water supply and sewage disposal. In municipal corporations, the town council became the public health authority. It empowered the Local Board of Health to construct sewers and to provide a safe water supply, arranged by the Board with a private company, where existing water companies were unable or unwilling to do this. Householders could be obliged to cover the cost it was less than 2d. per week.<sup>xxii</sup> New houses were provided with drains and a water closet, privy or ash pit. Where the house was within 30.5m of a sewer, the owner was required to connect to the drains and bear the costs themselves.

However, the act was only mandatory in towns with a death rate greater than 22 per thousand or where at least 10% of the population petitioned for its adoption. It was permissive rather than compulsory in towns other than governed by municipal corporations, and Boards of Health set up outside the legislation were exempt from inspection and unaccountable. The General Board of Health had a five-year term of office. In 1854 this was not renewed due to opposition by the civil

engineering profession as the Board had undertaken private commissions to plan the water and sewerage works for many towns and cities. With the dissolution of the General Board, the impetus for continued improvements was lost.

There was variable progress towards these goals over the subsequent 30 years, and by 1871, water closets were generally still only found in upper class houses. In Nottingham, for example, only 2,000 of its 18,000 houses had water closets; the majority still had privy-middens or tub closets.<sup>xxiii</sup> Sewering of towns varied, with completion in Ealing by 1864 and in Halifax by 1933.

#### *1848 Sewers Act*

In London, the 1848 Sewers Act allowed the Metropolitan Commission of Sewers to enforce households to connect their drains to public sewers, with the cost borne by the householder.

#### *1852 Metropolis Water Act*

Reports on the Metropolis water supply, under the provisions of the Metropolis Water Act record that the Water Companies in 1850 supplied 44,383,332 gallons to 270,581 houses, but the demand for water had risen to 81 million gallons per day, having nearly doubled in 6 years. The average daily supply of water for all purposes in 1850 was 164 gallons, and in 1856, 246 gallons. The water was now filtered, under the provisions of the Metropolis Water Act of 1852, and the cost of providing the required improvements was £7 million. The reports recommended that attention should be drawn to the contamination of water from towns draining into the Thames.

#### *1866 Sanitary Act*

The Sanitary Act was in response to the failure of the 1848 Act whose permissiveness had failed to bring about the changes required. The Government could take action against local authorities that did not provide sufficient and adequate sewers and their maintenance, water provision and street cleansing. It enforced connection of all houses to sewers and water supply, provided street cleansing, defined overcrowding and set limits to the number of people living in cellars. Every town had to appoint Sanitary Inspectors to ensure that these measures were adhered to.

#### *1872 Public Health Act*

This divided England and Wales into Health Authority districts. It defined responsible sanitary authorities, either town councils (in urban areas) or Poor Law Boards of Guardians (in rural areas). All authorities had to appoint a Medical Officer of Health and Inspectors of Nuisances.

#### *1875 Public Health Act*

This later act consolidated the 1872 act, incorporating the 1848 Act and the local powers granted by local acts. It set up Local Boards of Health and forced the appointment of Health Inspectors and Sanitary Inspectors. It was a highly significant piece of legislation, which formed a complete code of sanitary, self-government law for local administration. It comprehensively encompassed housing, sewage and drainage, water supply and contagious diseases and provided Britain with the most extensive public health system in the world.<sup>xxiv</sup>

It required local authorities to implement building regulations requiring that all new housing should have self-contained sanitation and water services.<sup>xxv</sup> Local authorities could carry sewers through any piece of land providing the owner or occupier received reasonable notice. It also stated that all new sewers within the local authority district should be public sewers and belong to the Local Authority.<sup>xxvi</sup> This coincided with building thousands of bye-law houses from this date in easily inspected terraced rows.

#### *1890 Housing of the Working Classes Act*

The aim of this act was to rationalise existing legislation and to give it greater impact. It succeeded in laying out clearly acceptable standards of housing, and further empowered local authorities to clear slums and build new council houses. Like its predecessors, this act offered no direct Treasury funding. However, as public concern had been fuelled by a string of dismaying reports into squalid housing, the authorities in large towns became more willing to demolish and rebuild.<sup>xxvii</sup>

### *1936 Public Health Act*

The slow pace of change is exemplified by the need for this 20<sup>th</sup> century legislation. It gave local authorities the power to require all privy, pail or earth closets to be replaced with water closets, where water and sewers were available. The householder paid half the cost of conversion by the local authority. The act also required that responsibility should be given to householders to empty overflowing cesspools and to keep water closets supplied with water and free from frost.<sup>xxviii</sup>

### **1.2.3 One-off events leading to political pressure and reform**

A crucial factor in bringing about the political will to change, along with evidence from official and unofficial sources, was people's experiences of death and disease. This also affected the richer classes and those with power and influence, as all were potential victims. The major incidents detailed below strengthened support for the reform movement in Britain's cities.

- *1831, 1848, 1853 and 1866 cholera epidemics*

Cholera had arrived in Britain for the first time in 1831, probably on ships bringing imports from China and became the country's biggest killer. There was a second major outbreak of cholera in 1848, a third in 1853 and a fourth in 1866. Each time thousands of people died. Doctors had little idea about the causes of cholera until the wider acceptance of the ideas of Dr. John Snow (below).<sup>xxix</sup> The Times commented that the disease "is the best of all sanitary reformers -- it overlooks no mistake and pardons no oversight."<sup>xxx</sup>

- *1852 The Grand Experiment*

During 1845-52, the Lambeth Waterworks Company and the Southwark and Vauxhall Water Company supplied people living in the same area with polluted water drawn from the River Thames. In 1852 Lambeth Waterworks moved to a cleaner location upriver, thus creating the conditions for a natural experiment. This involved 300,000 people from all classes. One group drank water contaminated with sewage from the Southwark and Vauxhall water company and the other drank clean water from the Lambeth Waterworks. This allowed Dr. John Snow to compare mortality patterns by water source and strengthen his hypothesis of a link between unsafe water and cholera transmission.

- *1854 Broad Street Pump Incident*

In 1853 cholera outbreaks in Newcastle and Gateshead as well as in London, caused the deaths of more than 10,000 people. In the London cholera epidemic of 1854, 500 people died in Soho in ten days, from across the economic spectrum. Most practitioners at the time accepted the miasmatic theory of disease, which was that diseases were caused by waste pollution in the air. This theory gained credence due to severe outbreaks of disease often occurring in hot summers when there was a great deal of pungent rubbish lying in the streets, thus causing disease. Dr. John Snow argued an alternative theory that cholera was a water-borne disease<sup>xxxi</sup> and provided conclusive proof of this by mapping out the Soho cases, implicating a single, contaminated well on the corner of Broad Street located near to a concentration of victims. When the pump handle was removed, the spread of cholera dramatically stopped. The original source of the outbreak was thought to be due to a sick child's nappies contaminating a leaking cesspool situated three feet from the Broad Street well.

Snow also analysed cholera's incidence in water that was bought from different suppliers, demonstrating that households buying from companies drawing water from the Thames downstream, which many sewers flowed into, suffered a death rate 14 times greater than those buying water from companies drawing upstream. Following on from this research, Snow recommended boiling water before use.<sup>xxxii</sup> Despite this evidence, conditions in Soho remained dangerous, with no reported improvements in living conditions during the following year.<sup>xxxiii</sup>

- *1858 The Great Stink*

By 1853, as a result of the 1848 Sewers Act, only 1000 houses remained unconnected to sewers. However, the sewers discharged into the Thames leading to extreme unsanitary conditions and stench. The wealthy were as vulnerable to the effects of this as were the poor, as their water supply was extracted by water companies from the Thames, into which raw sewage poured. Although the Metropolitan Commission on Sewers had responsibility for this area, it could not impose a high enough level of taxation to solve the problem. Eventually, the Thames became known as the Great Stink. In 1852, the Metropolitan Water Act was adopted, which required that water supply intakes be moved upstream of sewerage outlets and provided the money to build an intercepting sewer system in 1859 on the Embankment along the Thames to improve the flow of water.<sup>xxxiv</sup>

### **1.3 Institutional and administrative structures**

Municipal councils were often the pioneers of social reform. Central government devised new ways of dealing with these urban authorities such as the Central Board of Health and the Local Government Board, representing a move from permissive to compulsory legislation. In the area of public health, the impact of these was to move away from local autonomy to the imposition of duties on local authorities.<sup>xxxv</sup>

#### **1.3.1 Public health and local government reforms**

The internal government of 19th century towns was dictated by whether a town was incorporated or unincorporated. Unincorporated towns had no charter and were under county rule. Many gained some degree of independence from this, becoming governed by a succession of boards, improvement commissions and then a local board of health under the 1848 Public Health Act, a local government board under the 1858 Local Government Act, a sanitary authority under the 1872 Sanitary Act and finally by an urban district council.<sup>xxxvi</sup>

On the other hand, a seventh of the urban population of Britain lived under the rule of corporations in the 1830s. Towns that were corporations had been granted a charter in the Middle Ages; it was nothing to do with their size. Within these corporated towns, there were very varied systems of government. However, all of them were inadequate when it came to meeting the needs of a rapidly changing and growing industrial society. Having a corporation did not necessarily mean they provided effective local government. Corporations were private rather than public institutions, concerned mainly with protecting their members' property interests, far more than the welfare of the town's citizens.<sup>xxxvii</sup> Many municipal corporations were closed bodies, elected by a particular political faction. Such an unaccountable system inevitably resulted in an ad hoc and unsatisfactory response to the problems caused by rapid urbanisation.

Of the two political parties of the day, the Whigs and the Tories, the Whigs were more sympathetic to the idea of very limited political reform. In general terms, the corporations were Tory-led. Due to pressure from support groups and alarm caused by so called "riot groups" in the 1830s, the Whig government introduced a Reform Bill to the House of Commons in March 1831, to which there was fierce opposition from the Tories.

The 1832 Reform Act<sup>xxxviii</sup> redistributed the numbers of representatives over the boroughs and counties and extended the franchise to include those who did not own landed property. However, these reforms did not affect local corporations. The process of reform of municipal and local government only began in 1835 with the Municipal Corporations Act, when corporations were required to be elected. However, those who could vote for them were generally motivated by self-interest and were property owners, which still resulted in low spending on drains and water supply.<sup>xxxix</sup> Further political reform occurred in 1867, increasing the number of electorate further. The Council was now popularly elected, giving citizens some influence in municipal matters.

The 1835 Municipal Corporations Act and the 1848 Public Health Act had little impact on local responsibility for health matters. In 1861, only 3% of the population of Birmingham could vote for town council members and thereby influence investment in sanitation (this figure was 13% for Leeds). Those administering the acts were largely shopkeepers and manufacturers who favoured low rates and supported an inefficient and unjust system of taxation, which resulted in inadequate available sources of revenue.<sup>xi</sup>

### **1.3.2 Local improvement trusts and boards**

In incorporated towns, improvement commissioners acted as a form of rival municipal authority, to counter corruption and inefficiency. In unincorporated towns, they acted as surrogate municipal authorities.<sup>xli</sup> The establishment of trusts and boards was based on the belief that strong central authority was required to supervise local sanitary services.<sup>xlii</sup>

Records show the variety of improvement committees which were established in Nottingham during the 19<sup>th</sup> century. These included the Improvement Committee (dealing with roads, water, land, buildings etc), the Water Bill Committee, the Water Supply Committee, the Waterworks Bill Committee and the Sanitary Committee. These followed the Nottingham Improvement Act of 1867, which allowed specially appointed bodies, initiated by the corporation or devolved on them by government<sup>xliii</sup> to carry out investigations and to report back to the Councils.

## **1.4 Public and private sector roles**

### **1.4.1 Water supply**

Although water companies existed as far back as the 1600s, the turn of the nineteenth century marked the launch of many others, operating as private enterprises, and replacing what provision there had been by the church or by philanthropic individuals. For example, in 1819, Edinburgh's water supply was transferred to the private sector and similarly this occurred in Gloucester in 1836. For the increasing numbers of urban poor, polluted water supply was a growing problem, often being drawn from wells in back yards, from road conduits linked to reservoirs or it was purchased from carts. Contemporary accounts record that one of the worst problems for the urban poor was a lack of regular and sufficient water supply.<sup>xliv</sup> Water for larger houses was supplied from rivers or reservoirs through pipes into cisterns and tanks. By 1851, it was common for these to be run by private companies.<sup>xlv</sup>

Extensions and improvements to the water system were undertaken and financed by private companies. This included experiments converting from wood to cast iron main pipes (Dublin 1809; Lichfield 1805; New River Co., London 1805). The costs for this work in London were estimated at £8 per yard for a 2ft. 6in. diameter pipe. Permission to buy additional<sup>xlvi</sup> land and extend piped water services was given by the corporation,<sup>xlvii</sup> which would take an annual percentage of all profits.<sup>xlviii</sup>

The rate of change varied from town to town, but things began to turn full circle and water companies were bought out by municipalities. This was partly a result of the Municipal Corporations Act in 1835 which gave greater powers to civic authorities. For example, corporation

takeovers took place in Manchester (1847), Leeds (1852) and Bradford (1854). The Edinburgh Water Company was superseded by a Water Trust for the city and district in 1869. The Nottingham Waterworks Company remained in private hands until 1880, when it was compulsorily purchased under the 1879 Improvement Act.<sup>xlix</sup> The nine London water providers remained in place, despite frequent debate about buying them out, and it was not until 1902 that London's water finally passed into the hands of the Metropolitan Water Board.

Private enterprise, however, did not provide an adequate supply for the poor. In Bath, in 1845, there were seven companies supplying water to the city, as well as that supplied by the Corporation. It was recorded that there were only three stand pipes for use by the poor and these were only supplied at certain times in the morning. In York, prior to 1846, water was supplied for two hours on alternate days to different halves of the city.

Prior to the Waterworks Clauses Act of 1847, charges paid to water companies were unregulated. This legislation brought about some standardization of waterworks practice, introduced compulsory supply and fixed annual rateable value as the basis of the normal charge for domestic purposes and gallonage for industry,<sup>i</sup> with base rates subject to additional extras.<sup>ii</sup> For industry, the rates were based on quantities used. Although water meters were installed in the late nineteenth century, universal metering was never carried out. Interest rates to shareholders were fixed by statute, a restriction which was reinforced by the Waterworks Clauses Act 1847. Nottingham Corporation made more than £10,000 profits when they took over the Nottingham Waterworks Company, which increased their reserves.<sup>iii</sup>

#### **1.4.2 Sewerage provision**

The first sewers were only intended for drainage water and were built by adjacent property owners to the land. Over time, there were a succession of developments and improvements to sewer construction, from the conservancy to the water carriage system, which were privately funded. Even the 1848 Public Health Act, which first began to compel local authorities to implement sanitary law and to ensure that property owners build houses with sewer connections, placed the burden of funding on the householder in most cases.

After the 1867 Improvement Act, it was possible for local authorities to take out loans at favourable interest rates to develop services. An example of this was the Nottingham Improvement Act of 1867 which allowed the Council to increase its borrowing for road and sewer construction. In 1880, Nottingham built a sewage farm with money from the Public Works Loan Board.<sup>liii</sup> Regulations concerning local authority borrowing played a major role in financing sewerage developments.<sup>liv</sup> Changes in the capital market from 1860 made this possible<sup>lv</sup> and the level of investment in sewage disposal rose dramatically from 1870.<sup>lvi</sup> However, the difficulties of sewage disposal, the threat of penalties for river pollution and the sheer cost involved meant it was not an easy undertaking. Other historians have suggested that the increased wealth of certain labouring urban groups led to greater spending on their own standard of living, which also contributed to improvements to sanitation.<sup>lvii lviii</sup>

## 2. Paying for improved services

### 2.1 Laissez faire

Until the mid nineteenth century, government involvement in public health was minimal. Laissez faire (leave alone) principles were dominant in Victorian England. These were based on the ideas of the Scottish political economist, Adam Smith,<sup>lix</sup> who advocated free trade, in turn stimulating competitiveness and innovation, leading to economic growth and benefits for all. In terms of social policy, this meant minimal government intervention.<sup>lx</sup> Taxes were raised mainly to fight wars, with any notion of public welfare being the responsibility of the local parish. By the mid-nineteenth century, the ideal of laissez-faire was deeply entrenched in British society and in 1869, only 2.1 % of all state expenditure went on government departments.<sup>lxi</sup>

However, unprecedented population growth outstripped economic growth during the nineteenth century. For this reason, mid-Victorian government began to move towards a more central interventionist stance on social and economic matters, including public health, to mitigate some of the impacts of uncontrolled capitalism. This state intervention was grudgingly conceded and had a limited impact until the later years of the nineteenth century. It came about more due to the need to protect the workings of a free trade economy than out of a concern for public welfare, and such provision as existed lay mainly with local authorities rather than central government.<sup>lxii lxiii</sup>

In addition to this, the Second Reform Act of 1867 gave working class men the vote, thereby weakening the power of the small property owners and offered the potential for an alliance between newly enfranchised workers and industrialists. There was both a fear that the prevailing unsanitary conditions could threaten the livelihoods of the rich and a belief that improvements would make cities not only healthier but more efficient. From 1870, investment in public health increased dramatically, with towns being able to borrow money at favourable rates.<sup>lxiv</sup> By 1872, a comment by Disraeli, who was a prominent politician at the time, reflects this change: “the first duty of a Minister should be the health of the people”.<sup>lxv</sup>

The 1835 Municipal Corporations Act and the 1848 Public Health Act had little impact on local responsibility for health matters. In 1861, only 3% of the population of Birmingham could vote for town council members and thereby influence investment in sanitation (this figure was 13% for Leeds). Those administering the acts were largely shopkeepers and manufacturers who favoured low rates and supported an inefficient and unjust system of taxation, which resulted in inadequate available sources of revenue.<sup>lxvi</sup>

### 2.2 Incentives and penalties

The level of investment in public health was low, relative to what was known about the social benefits/costs. Williamson<sup>lxvii</sup> outlines the incentives given at the time. Firstly, it is suggested that the required expenditure would be worth it to the rich as reductions in Poor Law costs would offset the increase in sanitary expenditure. Also they were themselves at risk of infection. Secondly, Chadwick documented the benefits that would accrue to the poor of improved sanitary conditions. However, they did not willingly pay for the improvements to be made since they were not well informed, and because drainage and water supply required neighbourhood cooperation. Although the initial costs of connecting to a water supply were placed on the householder, many were not prepared to make this investment, knowing their tenancies were short term, and in any case, many were too poor to pay for these services. Thirdly, the benefits for the nation were valued according to the costs of a productive worker and the saving in human life would far exceed the cost of sanitation investment.

As already described, the latter was the real driving force behind much of the support for sanitary reform. Economic benefit<sup>lxviii</sup> from a fit workforce was more persuasive than moral obligation. If the initial investments offered improved health, then this made good economic sense.<sup>lxix</sup> Fewer deaths of labourers also reduced the burden of support to their families. The trade unions were also active in the sanitary reform movement and they too had economic motives which would benefit workers' earning power.

Furthermore, Maxwell in 1898<sup>lxx</sup> explains the reluctance of some local authorities to install arterial drainage systems to be a result of: "the difficulties of sewage disposal, including the probable penalties of river pollution, together with an inherent reluctance to the spending of large sums of money in sewerage operations and in the provision of an improved water supply necessitated by the adoption of 'water carriage'" (p. 51). Economic considerations were central to both the incentives and penalties of improving water and sanitation services.

## **2.3 Financial instruments and systems**

### **2.3.1 Loans**

From the mid-nineteenth century, corporations increasingly began to take over the supply of public services, partly through private Acts of Parliament that gave corporations the borrowing power, which was important for capital intensive projects.<sup>lxxi</sup> Loans from central government were charged at favourable rates to encourage improvements to infrastructure leading to a better water supply and sewerage system. These were repayable over a long period from central government and from commercial banks.<sup>lxxii</sup> These loans served to distribute the tax burden more equitably for improvements.<sup>lxxiii</sup> From 1870, there was a huge increase in the level of investment in public health.<sup>lxxiv</sup> Loans could be secured from the Local Government Board or the Ministry of Health at low rates of interest repayable over periods from 15 to 60 years depending on the work undertaken.<sup>lxxv</sup>

### **2.3.2 Recovery of capital, operational and maintenance costs**

#### ***Direct tax revenue and charges***

From 1835 onwards, several different types of rates became payable, which included payments for 'improvement' and 'main sewer rates', 'lamp rates', 'highway rates' and a 'borough rate' to fund the Police Force. As an example, in Leeds the 'main sewer rate' could be imposed from 1848 onwards on areas designated as drainage districts, served by the main sewerage system.<sup>lxxvi</sup> Only two drainage districts were ever identified and further extension of the sewerage network was recouped from improvement rates. In 1893 these various rates were combined into the 'consolidated rate'.

Some costs were offset by the sale of nightsoil for manorial purposes. However, this became a less economically viable option as the century progressed. In 1842, Chadwick noted that London had two hundred thousand cesspools. The cost of emptying these by nightsoil men was approximately one shilling each, and the waste was then sold as manure. These charges compare unfavourably to the average daily wage of a workman at the time of three shillings. Chadwick's inspectors found night soil in cellars to a depth of three feet, from overflowing privies and cess pools because people could not afford these charges. In a street in Bolton a trench was used at the back of the houses as a toilet, which was cleared out and the mess stacked up against the end wall of the last house. This was taken away every six months.<sup>lxxvii</sup> The high cost was partly due to the fact that the urban mass of cities was expanding, making farms ever more remote, combined with the fact that an alternative fertiliser in the form of guano (solidified bird droppings) was available cheaply from South America.

### 3. Lessons learned

#### 3.1 Parallels and differences

##### 3.1.1 Urbanisation and informal settlements

Every day, 160,000 people migrate from rural to urban locations in developing countries. This is rapidly increasing the existing 600 million people in Asia, Africa and Latin America who live in urban squatter settlements.<sup>lxxviii lxxix</sup> However, the scale of urbanisation is potentially much greater than in 19<sup>th</sup> century Britain, with the emergence of ‘mega-cities’ with more than 10 million inhabitants.<sup>lxxx</sup> As in mid-nineteenth century Britain, poor urban settlers have no means of providing or demanding adequate housing and services,<sup>lxxxi</sup> and governments and the construction industry do not keep up with demand<sup>lxxxii lxxxiii</sup>. Consequently informal low income settlements, slums and shanty towns become the only housing options for many poor people. Most of the dwellings are built by their occupiers. In addition, population densities are high, with households sub-dividing accommodation for friends and family.<sup>lxxxiv</sup>

Other similarities with pre-reform Britain are that residents of informal settlements have no legal status, are excluded from voting, are invisible in statistical analysis and consequently, are outside of public service provision.<sup>lxxxv</sup> They are not usually connected to sewerage systems, leading to unsanitary conditions which impact on public health. The fact that the poor lack services means that they often have to pay more than higher income residents for their water supply.<sup>lxxxvi</sup> A WaterAid example in Bangladesh describes subsidised charging for better off households with piped water connections at 4 Taka per 1,000 litres water, compared to 1 Taka per 10 litre pitcher for the poor.

However, an important difference between developing countries and 19<sup>th</sup> century Britain is that the pattern of infrastructural development for water and sanitation used in the 19<sup>th</sup> century is unsuitable for the developing world. Cheaper and more appropriate technological solutions need to be found to deliver improved services to the urban poor, rather than conventional mains and drains facilities.<sup>lxxxvii</sup>

##### 3.1.2 Health and mortality

Health in developing countries is characterised by high death, disease and infant mortality rates.<sup>lxxxviii</sup> The same diseases that were major killers across Britain in the nineteenth century now kill millions of children in the developing world, such as dysentery, cholera, typhus fever and typhoid. In 1850s Britain, the infant mortality national average was 150 per 1,000 births, although some cities such as Bradford had figures 33 per cent above this.<sup>lxxxix</sup> Almost 12 per cent of Bradford infant deaths were attributable to diarrhoea.<sup>xc</sup> This compares to an average of 121 per 1,000 in 2001 across low income countries.<sup>xci</sup>

These problems are most severe in urban settings and estimates state that 600 million urban dwellers live in conditions which pose threats to health and life due to inadequate water supply, poor sanitation and drainage.<sup>xcii xciii</sup> 80% of all disease in developing countries is attributed to this.<sup>xciv</sup> Diarrhoea is the largest preventable killer of children under five.<sup>xcv</sup> The World Health Organisation states that improvements in hygiene, sanitation and water supply could reduce diarrhoeal deaths by up to two thirds.<sup>xcvi</sup>

##### 3.1.3 Current financing mechanisms

Funding for WSS in developing countries is derived from a variety of sources: public sector expenditure, overseas development assistance (ODA) loans and grants, small-scale domestic private providers, the international private sector, local and international non-profit sectors, households and communities.<sup>xcvii</sup> The main source of financing comes from the domestic public

sector at 70-75% (apart from Sub Saharan Africa). External aid is the next largest share at 20%.<sup>xviii</sup> Domestic private sector accounts for 3-8%. The Global Water Partnership has estimated that an additional US\$30 billion per year is needed to meet international WSS targets for both urban and rural populations, with US\$17 billion allocated to improved sanitation.<sup>xcix</sup>

Financing WSS and particularly, the issue of cost recovery has been a contentious issue since the 1980s. On one side is the ‘water and sanitation for all’ lobbyists, who contend that basic water and sanitation facilities should be provided for all who lack them, out of public and donor funds. Access to facilities is a prerequisite of poverty alleviation and therefore ability to pay will follow. The counter argument states that affordability of services and willingness to pay are prerequisites to success as facilities financed by donor support may not be sustainable.<sup>c</sup>

## 3.2 Public versus private

### 3.2.1 Municipal provision

In many cases municipalities are not willing to provide services to low-income customers and those from illegal or transient settlements, as residents are not deemed capable of paying for them.<sup>ci</sup> Policy may prevent some utilities from serving such customers, while others are mandated by law to provide at least a minimum basic level of supply to all.<sup>cii</sup> There is a perception that poor communities are financially unreliable, transient, difficult to identify and technically problematic to reach.<sup>ciii</sup> Contributory factors are overcrowding<sup>civ</sup> and that they are often located on land that poses environmental dangers such as land slides and flooding.<sup>cv</sup>

These “informal” consumers are more likely to be served by social welfare departments. Evans<sup>cvi</sup> explains that such investment is supply-driven as a demand-responsive approach is difficult to implement in urban settings because individual demand must be set against the technical and financial constraints of the urban system.

A Wateraid case study demonstrates in Dhaka, Bangladesh, that although raw sewage is pumped into rivers in which the poor bathe, a recently drawn up city plan to tackle the problem does not cover the 20% of the population living in urban slums. The reasons given are the lack of permanent residential status and land rights of these people, which is necessary for investment in service provision.<sup>cvi</sup>

### 3.2.2 Small scale independent providers

Involvement of alternative service providers into the market such as community-based organisations and private sector suppliers is increasingly acknowledged to be important, which was not the case in industrialising Britain.<sup>cvi</sup> The role of government then becomes one of facilitation and administration of policy and regulatory frameworks rather than one of monopolistic provider.<sup>cix</sup>

Community-based service provision includes “tanker supplies of water; small scale distribution (e.g. Aquateros); bulk purchase and on-selling of utility supplies (eg. water kiosks and meter batteries); services (e.g. septic tank emptying); and operation and maintenance services (e.g. management of public latrines)”.<sup>cx</sup> Evans (2002) points out that small scale independent providers are regarded with suspicion by utilities. They often operate illegally and are rarely subject to constructive regulation and quality control. This can result in a “cartel” between providers or with the utility, thereby allowing high prices to be charged to the poor for inadequate services,<sup>cx</sup> suggesting that firmer regulatory mechanisms need to be put in place.

## 3.3 Drivers for change

The impetus for change in nineteenth century Britain and the mechanisms for achieving these changes were driven by internal forces eventually resulting in a radical sanitary revolution. The

various catalysts for sanitary reform have been described, such as formal and informal investigations and awareness raising through the media. Much of this was aimed at those with wealth and influence, and changes came about more in a move to protect their economic interests by reducing the burden of supporting the dependent poor, than out of any real sense of social justice.

The origins of the drivers for change in a development context are different. Most vocal is global and international advocacy for change. Constant lobbying by civil society organizations and supporters keep water and sanitation issues on the global agenda and have resulted in the development of targets for water and sanitation that are included in the Millennium Development Goals (MDGs). Global events such as the World Summit on Sustainable Development (WSSD) (in which world governments agreed to halve the number of people without access to improved sanitation by 2015) and the Global Water Forum ensure this. 'Pressure groups' such as the Global Water Partnership and the World Water Council play a similar role to the social reform movement in nineteenth century Britain, although this pressure is externally driven.

High profile support is also important in putting water at the top of the global agenda.<sup>cxii</sup> UN-Secretary Kofi Annan identified the five key themes at the WSSD; former President Nelson Mandela opened the Water Dome at the WSSD; Ronnie Kasrils, South African Minister of Water, Agriculture and Forestry (DWAFF) has promoted the WSSCC WASH campaign globally and at home.

These global initiatives use economic arguments, similar to those used in Victorian Britain. For example, poor sanitation affects national economies as significant funds are required to be spent on health care and medicines, plus there are lost working days due to sanitation-related sickness.<sup>cxiii</sup> Examples given by UNICEF are costs of 73 million Indian working days lost due to waterborne diseases, and US\$1 billion lost in 10 weeks in tourism and agricultural exports due to a cholera outbreak in the 1990s in Peru.

Just as historically in Britain, governments needed to be convinced of the efficacy of these arguments, in the same way support and commitment from governments in developing countries is required in order to achieve the goals set. Pressure also needs to be applied onto municipal and local government authorities to facilitate the provision of services in poor communities.<sup>cxiv</sup> Support from funding agencies is also necessary and is claimed by WaterAid to still be the main stumbling block to the sanitary revolution. However, as it is unlikely that overseas development assistance<sup>cxv</sup> could cover the required costs, there is an emphasis on partner initiatives, where overseas aid leverages private resources for water-related activities<sup>cxvi</sup>.

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- <sup>cviii</sup> Mehta, M. and Virjee, K., 2003. Financing small water supply and sanitation service providers. WSP.  
[http://www.wsp.org/publications/af\\_fin\\_small.pdf](http://www.wsp.org/publications/af_fin_small.pdf)
- <sup>cix</sup> Black, M., 1996. Thirsty cities: water, sanitation and the urban poor. Wateraid.
- <sup>cx</sup> Evans, B. 2002. Issues for paper for the e-conference on serving the urban poor. WSSCC.  
[http://www.wsscc.org/load.cfm?edit\\_id=263](http://www.wsscc.org/load.cfm?edit_id=263) (27.06.04)
- <sup>cx1</sup> Evans, B. 2002. Issues for paper for the e-conference on serving the urban poor. WSSCC.  
[http://www.wsscc.org/load.cfm?edit\\_id=263](http://www.wsscc.org/load.cfm?edit_id=263) (27.06.04)
- <sup>cxii</sup> Agreement on Sanitation: "Jewel in the Johannesburg Summit's Crown" 2003  
<http://www.oneworld.net/external/?url=http%3A%2F%2Fwww.netwasgroup.com%2Fnewsletter%2Farticles%2F2003%2F01%2F11>
- <sup>cxiii</sup> Wateraid and Tearfund, 2002. The human waste report. Wateraid.  
[http://www.wateraid.org.uk/in\\_depth/in\\_depth\\_publications/1498.asp](http://www.wateraid.org.uk/in_depth/in_depth_publications/1498.asp)
- <sup>cxiv</sup> Black, M., 1996. Thirsty cities: water, sanitation and the urban poor. Wateraid.
- <sup>cxv</sup> Black, M., 1996. Thirsty cities: water, sanitation and the urban poor. Wateraid.
- <sup>cxvi</sup> Agreement on Sanitation: "Jewel in the Johannesburg Summit's Crown" 2003  
<http://www.oneworld.net/external/?url=http%3A%2F%2Fwww.netwasgroup.com%2Fnewsletter%2Farticles%2F2003%2F01%2F11>

13 quotes have been tagged as learning-from-the-past: Kilroy J. Oldster: "Living is a process of developing oneself. Without experiencing pain from disco..." The past is still mostly a blank page, so we may be doomed to repeat it. But it's still worth looking into if it brings you closer to the truth. Maybe it's not so bad to dwell in the past, and muddle in the memories, to stem the simplification of time, and put some craft back into it. Maybe we should think of memory itself as an art form, in which the real work begins as soon as the paint hits the canvas. And remember that a work of art is never finished, only abandoned." Academic IELTS Reading Sample 311 - Learning lessons from the past. Details. Last Updated: Wednesday, 06 September 2017 21:14. You should spend about 20 minutes on Questions 27 - 40 , which are based on Passage 311 below. Learning lessons from the past. Many past societies collapsed or vanished, leaving behind monumental ruins such as those that the poet Shelley imagined in his sonnet, Ozymandias. By collapse, I mean a drastic decrease in human population size and/or political/economic/social complexity, over a considerable area, for an extended time.