THE SANITARY CRUSADER: ARTHUR CRAWFORD AND THE POLITICS OF SANITATION IN BOMBAY CITY

Dr. Madhu Kelkar

Abstract
This article looks at the politics of the sanitary campaign launched in the mid 19th century Bombay when the city was fast assuming significance as a centre of trade and commerce. Modern Victorian sanitary paradigms, imposed on the city, tried to convert it into a hygienic area. One of the most important pillars of sanitation that sought to be foisted on the city was the modern piped water supply system. However, these changes failed to impact the poor of the city due to their inbuilt inequalities. As a matter of fact they heightened the sense of alienation among the natives from the ruling class. Municipal Commissioner, Arthur Crawford’s discriminatory policies, aided in the creation and deepening of these inequalities. Another lasting impact of the institution of the new sanitation paradigms was the gradual change in the municipal structure of the city. This article assumes special significance in view of the ‘Swacch Bharat Campaign’ launched by Prime Minister Narendra Modi on 2nd October 2014. It highlights the basic issues behind the sanitary apartheid inaugurated in the city during the colonial period; a problem which continues to plague us even today.

Key words: sanitation, civilization, nosopolitics, social control

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Although the Swacch Bharat Campaign was launched October 2014, the movement for the sanitary improvement of the city began much earlier in the mid 19th century Bombay city (known as Mumbai today) when the latter was fast assuming significance as a centre of trade and commerce. Its rapid growth however, was threatened by poor sanitation which could be attributed to poor water supply and drainage among other factors. Poor sanitation, at this time, was also associated with crime. Therefore, commercial as well as security concerns drove the process of sanitary development in the city during this period. The city thus came to boast of a modern2 hydraulic water supply system, in the form of Vihar and later a scientific drainage scheme. This article maps the growth and impact of this sanitary reform.

Birth of the Sanitary Crusade

2 David Arnold, The New Cambridge History of India III · 5 Science, Technology and Medicine in Colonial India, UK, Cambridge University Press, 2000, pp 16-17, Hereafter, Arnold, Science and Technology. According to David Arnold modernization is ‘based on advanced technology and the spirit of science, on a rational view of life, a secular approach to social relations, a feeling for justice in public affairs’.

Modernity also came to be identified with new methods of sanitation, based on the hydraulic system of water supply and underground drainage, which required intensive use of technology and heavy expenditure periodically. With reference to this development historian Asa Briggs says, that the hidden network of pipes and drains was perhaps one of the biggest technical and social achievements of the Victorian age and the sanitary system was considered more comprehensive than the transport system. ; This modernity however, did not manifest in the policy of distribution of water towards the natives in the city; a point that this article proposes to highlight. Read Susan Chaplin, “Cities, Sewers and Poverty: India’s Politics of Sanitation” Environment and Urbanization, Vol. 11, No. 1, April 1999. The latter traces the roots of the water distribution problem in Mumbai, to the inbuilt inequality of treatment given to the local people, in the system, created in the city by the British; Also read Colin Mac Farlane, Governing the Contaminated City: Infrastructure and Sanitation in Colonial and Postcolonial Bombay, International Journal of Urban and Regional Research 32 (2), pp. 415-435.
The mutiny of 1857 initiated the process of sanitary reform in India, the consciousness of which had been spreading in England since the publication of Edwin Chadwick’s famous report of 1842. This report had highlighted the importance of improved sanitation among the labouring class of England, via provision of pure water supply and proper drainage; both of which were emphasized as basic prerequisites for economic and commercial prosperity of the country. In India however, apart from commercial considerations, the anxiety for the cause of sanitary reform stemmed from a different source. The germs of the reform lay in the concern for the health of the army. In 1859, it was found that the average annual death rate among the British soldiers in India since the year 1817 had been 69 per 1000. In Bombay city too, the health of the soldiers at Colaba caused acute anxiety to the administrators. In 1863, each soldier cost the government a sum of pound 97 annually, while a sum of 388,000 was spent per annum on sickness. The death rate in the Bombay Cantonment was higher than in any other town in the Presidency. Colaba, it was noted, had few wells which supplied potable water. The troops were supplied with water from the well on the Esplanade, first by the pukhalie bullocks, and later by iron pipes. This shocking discovery culminated in the appointment of the Royal Sanitary Commission for the three Presidencies in 1863, to enquire into the condition of the army, at the instance of Florence Nightingale. The Commission was to advise and assist in all matters related to the health of the army and to supervise the gradual introduction of sanitary improvements in barracks, hospitals and stations as well as in towns in proximity to military stations.

On the basis of the evidence collected by the Commission, it was surmised that the mortality rate was due to the lack of sanitation which could be attributed to faulty water supply and drainage. Surprisingly however, neither Nightingale nor the officials of the Sanitary Commission had ever been to the subcontinent. Consequently, ignorance of the language and Indian concepts and ways of hygiene, and obsession with the fads and fanaticism of the new science led them to condemn Indian villages as dung heaps and Indian waters as befouled by Indian people and cattle.

Thus, provision of sanitation to the army emerged as one of the biggest security concerns of the British at this time. This paved the way for government intervention in these areas. The move, towards the achievement of this objective resulted in the physical separation of the army and British officials from the indigenous people through the creation of cantonments, and the emergence of water supply and drainage systems as vital components in urban planning and the consequent transformation of Bombay.

At the same time, sanitary reform, with the help of science and technology, was also seen by the British as a part of their ‘civilizing mission’, in India. It helped establish their own superiority over, and imperial responsibility for, a land they identified as superstitious and

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4 Rajnarayan R Chandavarkar, History, Culture and the Indian City. Cambridge University Press, New Delhi, 2009, p 42
6 B. K. Thakore, Indian Administration To The Dawn Of Responsible Government 1765-1920, D. B. Taraporewalla and Sons, Bombay 1922, p 273
backward. Science thus served to heighten a growing sense of difference between Britain and India. After the revolt, particularly, the colonial rulers, wished to channelize their vigour and energy to conquer the country by new means viz. Sanitation, which replaced the sword in this era of empire formation. “The observance of sanitary laws should be as much part of the future regime of India as the holding of military positions or as Civil government itself. It would be a noble beginning of the new order of things to use hygiene as the new handmaid of civilization” said Nightingale who emerged as an ardent supporter of this reform.

This, therefore as Foucault says, led to the emergence of noso-politics, where health and sicknesses of the indigenous people were problematised in a way that paved the way for the intervention of the State in the areas of health and disease. “One of the characteristics of noso-politics that emerged as a result was that hygiene emerged as a tool of social control.”

**The Dawn of a Centralized Municipal System**

By 1860s, Bombay was a pivotal Presidency capital that symbolized colonial power and was a crucial connection between India and the larger global network. The cotton boom, expansion of the railways, shipping and other commercial concerns, had rapidly increased its population. The census of 1864 clearly brought out the overcrowded nature of the city, which stood at 816,562 persons. Overcrowding and the ensuing insanitation and diseases, resulted in high mortality rates. Apprehensive of a revolt in the overcrowded parts of the city and desirous of emphasizing their all-encompassing presence led the British government to overhaul the city structure physically and administratively. One of the first moves therefore, was the modification of the municipal law of the city.

The publication of Andrew Leith’s Report on the Sanitary State of Island in 1864, which placed, in a most striking and unquestionable light, the urgent want of more effective measures, for improving the sanitary conditions of Bombay gave the perfect opportunity. In order to achieve the said improvement, greater funds and a body that would effectively manage them were essentially required. This necessitated a modification of the existing municipal law, leading eventually to the passage of the Municipal Act of 1865.

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7 Arnold, Science and Technology, p 15
8 I T Prichard, op. cit, p 341
9 Nightingale, op cit., p 10.
10 Colin Gordon (Editor) Power/ Knowledge: Selected Interviews And Other Writings 1972-1977. Michel Foucault; Pantheon Books, New York, 1980, pp 166-175; Nosopolitics was a way of problematising the health and sicknesses of the indigenous people paving the way for the intervention of the State in the areas of health and disease. Hygiene thus emerged as a tool of social control. “In order to maintain hygiene it was necessary to control urban space in general as it was this space that constituted the most dangerous environment in general for the population. The disposition of various quarters, their humidity and exposure, the ventilation of the city as a whole, its sewage and drainage systems, the sitting of abattoirs and cemeteries, the density of population all were decisive factors for the mortality and morbidity of the inhabitants. The city with its principal spatial variables appeared as a medicalisable object. Several corrective and compensatory measures to control this morbidity and mortality thus became a part of the urban policy.” Ibid.
11 Administration Reports of the Municipal Commissioner for the City of Bombay, The Times of India Press, Bombay for 1866, p 1; hereafter MCR
The Act, portioned off the island for efficient sanitary work, into 11 wards, which were subsequently reduced to 10 by combining Parel and Mahim. Hailed by some as the Magna Carta of local government, the Act theoretically handed over the financial control to the principal representatives of the people but also paved the way for municipal domination in the area of sanitary services.

Crawford: The Sanitary Civilizer

In 1865, when Arthur Crawford succeeded as the first Municipal Commissioner under the new constitution, he was faced with a humongous task of putting municipal administration in order. Arthur Crawford dreamt of a Bombay where “all the railways of Hindustan would converge” and where it would be the “centre of commerce of India” His programme aimed at the improving the “cleanliness, comfort and appearance” of Bombay city.

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<td>27426</td>
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12 RP Masani, Evolution of Local Self Government in Bombay, Oxford University Press, Madras, 1929, p 190; hereafter Masani
13 Ibid, p 163
14 Ibid, p 201
15 Report on Native News papers 1868, Bombay Presidency, pp 10-11, Hereafter NNP
As a first measure towards sanitary improvement, a Public Health Department came into existence on 1st November 1865. Next, attention was devoted towards the beautification of the city. From the grants sanctioned by the Government and a special fund, constituted for the construction off public offices and buildings for Bombay, a fine spectacle of buildings was constructed in the city. When faced with paucity of municipal funds, money from the drainage fund was also borrowed to complete these grandiose schemes. Thus, drainage schemes suffered, even though the elegance of Bombay and the comforts of the European portion of the population were greatly attended to.

In his attempt to sanitize the city Crawford was greatly aided by the Nuisance Laws. Nuisance can be defined as a ‘government controlled land use restraint’. Nuisance laws basically told people how they could and could not use their lands. They regulated the activities of people on land in such a way that no harm was caused to the public. Since they authorized the government to use their police powers to fine or imprison property owners for, or enjoin them from using their property in ways that injured the rights of many people in a community or in neighbourhood they proved to be a powerful regulatory tool.

The presence of the army in Bombay necessitated the use of nuisance legislation with especial rigour. Hence all native towns, villages and bazaars near cantonments were to be brought under the operation of a rigid cleansing police. Naturally, ‘segregation’ via the use of these laws emerged as the hallmark of Crawford’s sanitary administration, from 1865 onwards. Accordingly the Public Health Department formed in that year was empowered to issue a vast array of notices to the people for the removal of huts or filling up and draining ground constructing covered drains; constructing, altering, or repairing privies or urinals etc. Direct summons could be issued on application to the Magistrate for many such offences. The combined notices and summons to people, for sanitary offences, in the years following the passage of the new Municipal Act amounted to 4975 in 1866; 3981 in 1867; 4107 in 1868. However, the colonial powers still lamented the fact that these measures were not stringent


17 Masani, op cit, p185; the University Library, Convocation Hall, High Court, Telegraph Department, Post Office, all facing the sea, were constructed at this time. Others, built on a similar style, in other parts of the city were the Elphinstone College, the Victoria and Albert Museum, the Elphinstone High School, the School of Art, the Gokuldas Hospital; the Sailor’s Home etc.

18 NNP op cit, for 1868, pp 12-13


21 Report on the Sanitary Measures adopted for Sanitary Improvements in India from June 1869 to June 1870 Questions Regarding the Subsoil Drainage and Other Improvements Of Indian Stations laid before the Army Sanitary Commission, by Dr. Cunningham, Sanitary Commissioner with the Government Of India Together With The Replies Of the Commission, pp 205-06
enough to act as deterrents to the offenders. The administrative medical and fraternity demanded the implementation of stronger laws.\textsuperscript{22}

Distressed by the treatment, the natives charged Crawford of partiality towards the convenience and comforts of the Europeans.\textsuperscript{23} Natives felt that nothing had been done for their health and comfort by Mr. Crawford or by his co-adjutor, Dr. Hewlett. In the European quarters of the city, however, streets were kept carefully clean and well watered; the provision of gas light and of Vihar water properly attended to. But the Native quarters were filled with filth.\textsuperscript{24} Consequently, Bombay witnessed during this period, a growth of “localities of pauperization”, that is, quarters deficient in hygiene yet filled with slums and manifestations of poverty.\textsuperscript{25}

**Water Supply: The Dubious Blessing**

As regards the other pillar of sanitation viz. water supply, the picture proved to be likewise iniquitous. Even though the city enjoyed the ‘inestimable blessing’\textsuperscript{26} of a modern water supply system in the form of Vihar, it proved to be of a dubious nature.

To begin with, there were problems related to finance, water rates and usage, duties of the various water works officials, quantity of water, quality of the water pipes and mains and especially the method of distribution of water to be used for the natives which was marked by a pronounced colonial bias. The quantity of water available per head per day in Bombay, even after the construction of Vihar, was only 5 gallons. Leith observed that “were there not many wells of questionable purity, still drawn, and were all the people dependent on Vihar water, the supply, after allowance for wastage, would be by far too little”.\textsuperscript{27}

Great inconvenience was caused to the poor classes of the city whenever the Vihar water supply was cut off on account of repairs or accidents. Storing water for exigencies was not possible as they lived in small rooms, and did not possess a sufficient number of vessels to make such a provision. People therefore clamoured for the preservation of those public wells and tanks which were not ordinarily used, but which were in most requisition when a supply of Vihar water is cut off.\textsuperscript{28}

Waste of water also emerged as a significant problem, since water was more freely available, now than before, it was put to profligate use. In case of house supply, most of the important connections were made to houses having extensive stables, large gardens, or perhaps one or more fountains, where large quantities of water were, used for irrigation, ornamental fountains, and other purposes leading to wastage. Intermittent supply also proved to be a contributory factor.

\textsuperscript{22} T. G. Hewlett, A Paper On The Sanitary State Of Bombay, Read Before The Public Medicine Section Of The British Medical Association, At Leeds, On The 30th July, 1869, pp 13-14; Hereafter Hewlett
\textsuperscript{23} NNP op cit 1868, p 14
\textsuperscript{24} Ibid, pp 11-12
\textsuperscript{25} Ian Morley, City Chaos, Contagion, Chadwick, and Social Justice Yale Journal Of Biology And Medicine 80 (2007), pp 61-72
\textsuperscript{26} PWD General 1868-89, Vol. 423, Minutes of Evidence, Bombay Drainage and Water Supply Commission. 1869, p 58; Hereafter, MBDWS
\textsuperscript{27} A.H. Leith, Report On The Sanitary State Of The Island Of Bombay, Education Society Press, Byculla, 1864. p23
\textsuperscript{28} NNP op cit, 1869, p12
Street watering, which was believed to be conducive for health, however emerged as one of the important causes of waste. Streets, which had been previously watered by bhistis carrying water in leather pouches, were, after the introduction of Vihar water, watered daily by means of a 100 carts.\textsuperscript{29} Forty watering posts were erected in different parts of the town, at a total cost of 6791-2 rupees to utilize the Vihar water for the working of the public roads in the island.\textsuperscript{30}

Construction and maintenance of roads was a priority with Crawford. Prior to the entry of Vihar water, roads were partly watered by sea water. Under Crawford, who insisted that the latter besides being expensive would make the roads slippery,\textsuperscript{31} watering of the roads became one of the major sources of expense. The total cost in 1865 on this item, along with repairs and scavenging, was in excess of that of 1864 by 14 lakhs.\textsuperscript{32} This was so despite the fact that salt water was used for sprinkling streets, in English cities extensively and was considered excellent on account of its hygrometric properties, which served to keep the air cool and the ground moist for a long time.\textsuperscript{33}

Right up till the end of the decade, at a time when there was an acute scarcity of drinkable water and attempts were being made to augment the existing source, the streets of the city continued to be watered with the lake water, and to such an extent as to make them slippery and dangerous to foot passengers. Economy on this front was strongly urged for by the people\textsuperscript{34} as it marginalized the needs of the natives. Road watering with Vihar water, however continued, as it was felt that there were no added advantages in using sea water for that purpose.

Curiously, while in modern England increased water usage was linked with sanitation and progress; in colonial Bombay the colonial powers criticized the natives for the excessive use of water even though engineers of the time admitted that waste was a structural part of the system. Again, detecting waste was a difficult business. The problem was not a new one in England where both good and bad plumbing was to be found. Even towns which had good water works fittings faced considerable problem of waste. In India however, where fittings could not equal those in England, ½ of the water was wasted.\textsuperscript{35} Contemporary London too faced all these problems of leaky joints and thoughtless consumers.\textsuperscript{36} Even so in Bombay, it was the common native who continued to shoulder the blame for the waste of water.

Intermittent water supply and carelessness displayed in the water works department, also impinged on the fire management which remained ineffective despite new supply systems.

\begin{tabbing}
\hspace{1cm}29 Sharda Dwivedi and Rahul Mehrotra, Bombay Cities Within India Book house Pvt. ltd. 1995, pp 123 \hspace{1cm}30 Annual Administrative Reports of the Bombay Presidency, Government Central Press, for 1861-62, pp 101-02, hereafter AAR \hspace{1cm}31 MBDWS, op cit, p14. \hspace{1cm}32 SM Edwardes, Gazetteer of Bombay City and Island. Cosmo Publications, Delhi, 2001; Vol. III, p19 \hspace{1cm}33 Ernest McCullough, Public Works. A Treatise on Subjects of Interest to Municipal Officers, the Courier Press, California, 1894, p 227 \hspace{1cm}34 NNP 1870, 31\textsuperscript{a} December 1870, p9 \hspace{1cm}35 MBDWS op cit, pp 16-17 \hspace{1cm}36 Anne Hardy, Parish Pump To Private Pipes: London’s Water Supply In The Nineteenth Century, Medical History, Supplement No. II, 1991: 76-93, p 79
\end{tabbing}
Notwithstanding this and notwithstanding the repeated complaints against this negligence the authorities continued to be indifferent to this matter.\textsuperscript{37} Management of fire also meant denial of water supply to some people. Thus, when the Post Office caught fire there was only a dribble in the water pipes and in order to get a supply for the steam fire engines, water flowing to another district had to be first closed off.\textsuperscript{38}

The creation of the new supply system also created a huge burden of debt for the city which was a continuous source of anxiety to the municipality. It was feared that if no other source of repayment of this liability was sought then probably it would take centuries to repay it by which time England would probably no longer be in possession of India.\textsuperscript{39}

Till this period a general water rate had not been applied since the water was not distributed all over the island from the mains. But it was the common colonial perception that water was a legitimate source of income and any person who made use of this water, whether from a tap or a dipping well, must be made to pay for it.\textsuperscript{40} Thus, as a means of repaying the debts, water rates were favoured overwhelmingly by the colonial state which argued that the inhabitants were getting water very cheap. The service provided, they felt, was a burden on the municipality as a large number of people were being supplied water free of cost. It was further contended that when the supply of the inhabitants was obtained from the outskirts of the city, considerable expenses were incurred in carrying it into houses in the Fort and native town. The water procured from tanks and wells could not have been delivered at these houses at a rate less than Rs. 3 per 1000 gallons, where as the rate at which the Vihar water was supplied by meter was but Rs. 1 per 1000 gallon. Despite this liberality they found it hard to believe, that the rate was objected to by many people. They also claimed that it insured property against fire.\textsuperscript{41} Besides, only a small proportion of the population paid anything on their water supply, the greater portion of them obtaining it from dipping wells free of expenses. There was no reason to supply water gratis from works which had cost a large sum of money, and which were expensive to maintain. Therefore, a water rate of 5 per cent was proposed for the new water works, irrespective of who used it.\textsuperscript{42}

Contrary to the expectations of the Government, water rate was universally disliked. House owners particularly grudged it as they felt that the system had been introduced without the least inquiry as to whether occupiers' taxes could be levied in a city like Bombay with its chawl population in thousands\textsuperscript{43} and fought tooth and nail what they regarded as unjust taxation. Resentment against the rigid imposition of taxation ran high during this period.

\textsuperscript{37} NNP op cit for 1869, p 7  
\textsuperscript{38} MBDWS op cit, p13.  
\textsuperscript{39} Surgeon Major Pelly FRCS, Report on the Municipality of Bombay, Times of India Office, Bombay, 1865 pp 47-48; hereafter Pelly  
\textsuperscript{40} Proceedings/Journals of the Bombay Legislative Council, 1872 p 145; Hereafter BLC Procs.  
\textsuperscript{41} PWD General 1868-1889, Vol. 423, Letter no. 1873 of 1868 from Russel Aitkin, Executive Engineer, to Arthur Crawford, Municipal Commissioner for the city of Bombay, dated 15\textsuperscript{th} July 1868, pp 7-10  
\textsuperscript{42} PWD General 1868-1889, Vol. 423, Letter no. 1873 of 1868 from Russel Aitkin, Executive Engineer, to Arthur Crawford, Municipal Commissioner for the city of Bombay, dated 15\textsuperscript{th} July 1868, pp17-18  
\textsuperscript{43} Wacha Dinshaw E, Rise and Growth of Bombay Municipal Government by GA Natesan and Company Madras 1913, p106; Hereafter Wacha
Convinced that the bulk of the taxation rested on them they appealed to the government that it was only 8000 owners who were paying for water which was freely available to the whole population in public wells. 44

There was no one to represent the interest of the common natives; neither the elite Indians nor the Europeans, who were advantageously placed both in the Bench and the Council of the Governor. Mangaldas Nathoobhoy, one of the richest property owners of Bombay argued, on behalf of the rest of his fraternity, that the falling house rents, post the civil war boom, had made the additional house rates rather burdensome. This, he reasoned would deter the people from building the much needed accommodation in the city. Aided by this argument, the house owning section managed to ease their burden by reducing the house rates from 10% to 7 ½ %, in 1867 and further to 6% in 1869 thus creating a deficit of 1 lakh which had to be recovered from some other means.45

To overcome the deficit of 1 lakh Mangaldas Nathoobhoy reiteratated the demand for Town Duties, a proposal which was accepted in 1868 when the legislature passed a Bill allowing the same, due to the poor status of the municipal finance under Crawford.46 The Town Duties were confirmed by the Municipal Act of 1872 thus enhancing the burden of taxation on the poor. Crawford himself was in favour of Town Duties he as felt that they were the best possible method of securing indirect contribution by the mass of the population towards the expenses of the Municipality.47

The argument, for the reimposition of these Duties, was also conveniently premised on the idea that the state of the labouring class was far better in Bombay as compared to elsewhere. Therefore, the tax was allowed to continue.48 The increased taxation coupled with a steady rise in prices of commodities in Bombay, due to the civil war, resulted in strikes in Bombay for a raise in wages.49

Social Prejudices and Strategies of Control

Indeed the new water supply system was not created with the idea of benefiting the masses. The long term objective of the colonial state was to squeeze in economy. As a matter of fact, “the original intention of Vihar Water Works was only to supply water from public sources”. By making water supply ‘public’ the colonial state deliberately attempted to control the consumption of water by the natives. Crawford, for instance, insisted that the poorest class should be supplied only from public sources. He worked on the assumptions that the

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44 Christine Dobbins, Urban Leadership in Western India. Politics and Communities in Bombay City 1840-1885. Oxford University Press. 1972. p 148, hereafter Dobbins. That the taxation under Crawford was grueling in nature could be gauged from the number of distress warrants issued during his administration. In 1870, they were 2,149; in 1871 they stood at 8513 and in the first half of 1872 they were 9299. In order to push the burden on other shoulders indirect taxation such as Town Duties or License tax or Certificate tax on all incomes above Rs. 200 per month was therefore recommended by this class.

45 Christine Dobbins, Urban Leadership in Western India. Politics and Communities in Bombay City 1840-1885. Oxford University Press. 1972, pp133-34

46 BLC Procs op cit for 1872, p 78

47 Masani, LSG pp 238-40

48 BLC Procs op cit for 1872, p163

“demand for water amongst the poorer people is very much greater than we can supply them” and a lot of water would be wasted by them. Therefore, he was completely opposed to the idea of introducing water into the houses of the poorer natives.\textsuperscript{50} Since their houses were built ‘indifferently’ and by custom they were “drawers of water”\textsuperscript{51} house connections were to be avoided. Naturally, the natives were always at a loss as the standpipes were almost always out of order. Besides, they were only suited to places where the population density was low. As a result, as Gandy says, Bombay changed from a “private” to a “public” city where privately organized access to potable water or sanitation was gradually incorporated into a centralized, networked and municipally controlled metropolitan form.\textsuperscript{52}

Water supply to the natives continued to be pitiable. Insufficiently supplied by defective standpipes sent out from England, fixed at different stations in the street they then had to depend on dipping wells. The municipality was driven by the convenient logic that dipping wells or shallow reservoirs, from which a number of persons at a time could fill their vessels for domestic use, were much better suited to the local habits and requirements of the people.\textsuperscript{53} For a long time therefore, these wells which were chiefly old wells, adapted to receive Vihar water, continued to be the chief source of water supply for the natives. Several of them however, owing to original defective construction, leaked considerably and caused a serious waste.

The means of supplying water to these classes continued to be a contentious issue among administrators and the medical fraternity even in the later decades. But more interestingly, charity by the richer natives also showed up as the basis of water supply for the majority of the natives. Nonetheless, this charity too came at a cost. Some individuals showed willingness to bear expenses for erecting fountains for the poor, provided the municipal commissioners were willing to sanction water free of cost. The provincial government however, proposed to establish a meter at all such charitable fountains and put the so called charitable motives of the donor to test by requiring him to pay for the water as well as the fountain, since they wanted to be sure that the water was indeed given to the poor and was not wasted either.\textsuperscript{54} Sir Cowasji Jehangir, a rich Parsee, provided 40 drinking fountains to be placed in the various parts of the city.\textsuperscript{55} Nor were all the fountains, placed by the natives, motivated by philanthropic purposes. David Sassoon, a rich Jewish merchant, who was convinced that the city had been amply provided for by the Colonial administrators, wished to provide one which was meant to be highly ornamental. It was to be such as would add to the attraction of the Esplanade. Anticipating nuisance from such a work, as it would be resorted to in the evenings by crowds of water carriers; Sassoon proposed restricting the use of the fountain to certain hours of the day.\textsuperscript{56} By 1865, the Wellington Memorial Fountain, which provided for 4 drinking basins, was also completed.\textsuperscript{57}

Water supply and diseases

\textsuperscript{50} MBDWS op cit, pp 63-64
\textsuperscript{51} Ibid, pp29-35
\textsuperscript{52} Matthew Gandy, Rethinking Urban Metabolism: Water, Space and the Modern City, City, Vol. 8, No. 3, December 2004, p 8
\textsuperscript{53} AAR, op cit, for 1861-62, pp 101-02
\textsuperscript{54} Pelly, op cit, pp 46-47
\textsuperscript{55} Masani, op cit, p 182
\textsuperscript{56} PWD General 1860, Vol. 49, Letter from David Sassoon to A.D. Robertson, Acting Secretary to Government, 2\textsuperscript{nd} July 1860, p pp E1-E2.
\textsuperscript{57} AAR, op cit for 1865-66, p 217
In spite of the new water supply system, up to 1865, cholera had claimed 37,817 people.\(^{58}\) During the year 1868, 15702 persons died; or one in every 52 of the population, or 19.20 per thousand.\(^{59}\) The only section of the community that enjoyed immunity from cholera, in this period, was European and native troops.\(^{60}\)

The disease was found to appear in a more intense form in damp and wet situations. Girgaum and Chaopatee of the Native Town most affected by the disease had earned the dubious distinction of being “Cholera gardens” of the city.\(^{61}\) Poor surface drainage aggravated the problem of impure water supply. Coombarwada, Khetwady, Chaopatty and Girgaum of the Native Town were especially ill drained. The absence of drainage and contamination of water supply were considered the main cause of cholera. This served as an added excuse for the colonial state to demand the closure of these wells and that they be substituted by Vihar water fountains. Unregulated building construction hampered the drainage system as these were not sufficiently supplied with drainage. However, this poor state was popularly attributed by Health Officer TG Hewlitt, to the habits of the poorer classes people who were “so extremely filthy” in their habits and customs.\(^{62}\)

Disregarding all these facts, the British ascribed the rise in modern times in Bombay to the sanitary developments under Bartle Frere and Arthur Crawford. The Sanitary Blue Book for 1869-70 claimed that, the death rates per 1000 in India, as a result of these sanitary improvements were: Bombay 19.2, London 23.3, Calcutta 31.9, and Liverpool 36.4. It was contended that in four years (1864-8) the death rate in Bombay had fallen from 31.3 to 19.2. The Blue Book similarly stated that “in three years the masses have begun to learn that such scourges as cholera, fever and the like can be prevented by the ordinary processes of sanitation.” A triumphant Crawford wrote to Nightingale in1869, that “the huddled native masses clamorously invoke the aid of the Health Department if but one death from cholera or smallpox occurs; whereas formerly half of them might be swept away and the other half think it all right. Now they attribute these deaths to dirty foul water and the like, and openly declare them preventable.”\(^{63}\)

### Deaths by Cholera in the City 1860-1865

<table>
<thead>
<tr>
<th>Years</th>
<th>Number of Deaths</th>
</tr>
</thead>
<tbody>
<tr>
<td>1860</td>
<td>1687</td>
</tr>
<tr>
<td>1861</td>
<td>1251</td>
</tr>
<tr>
<td>1862</td>
<td>2634</td>
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<tr>
<td>1863</td>
<td>2742</td>
</tr>
<tr>
<td>1864</td>
<td>4588</td>
</tr>
<tr>
<td>1865</td>
<td>2537</td>
</tr>
</tbody>
</table>

Source: L Michael, p 171

**The Municipal Crisis:**

The costly but partial improvement of Bombay, under Crawford, jeopardized municipal finance. Lavish outlays were promoted with inadequate results, at the cost of urgent works of civic improvement, and the people of Bombay, were so disgusted with the very name of municipality that it prompted Dinshaw Wacha, to write “that years must pass before the requisite spirit and confidence of co-operation can again be evoked.”\(^{64}\) Crawford was only successful in improving the appearance of the city but nothing was done to increase its health

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58 Hewlett op cit, pp 4-5  
59 GAR 1868-69, p 309  
60 GAR: 1870-71, pp I-III  
61 MCR op cit, for 1866, pp15-16  
62 Ibid, pp 21-22,  
64 Wacha, op cit p 207
or comfort, and therefore his administration could not be said to have conferred any solid advantages on the city. In his time the municipal expenditure increased five or seven fold, which was as large as that of an ordinary Native State. The principal sources of the municipal revenue were mortgaged and money was borrowed.\(^{(65)}\) His improvidence led to the rise of municipal debt from five to thirty lacs; a sum more than that utilized by many of the municipalities even in England at this time. The municipality of Calcutta, which was considered the metropolis of the whole of India, did not spend even half as much as was spent by the municipality of Bombay, under Crawford; while the expenses of the Madras municipality were only 5 lacs.\(^{(66)}\) Equal blame was placed on the municipal representatives of the people i.e. the Justices of Peace. It was felt that as long as they continued to be appointed by the Governor for life, and regarded their position as honorary rather than as involving duties and responsibilities, they could not be expected to attend to municipal affairs. There was a popular demand for a representative municipal Constitution now. The Act of 1865, having failed to administer the necessary dose of self governance to the citizens of Bombay and a strong and efficient sanitary administration, a new municipal Act was inaugurated in 1872 which was seemingly fulfilled the demand for representative government.

**Conclusion**

A lot of conclusions can be drawn from the above account. The roots of many sanitary problems in contemporary Mumbai can be traced to the policies of the British in the city. Since these services were driven by concerns for the commercial potential of the island and security of the army they were bound to be unequally distributed. The poorer natives were consciously deprived of the benefits of these developments. Water supply distribution proved faulty as well. Thus, Bombay emerged as a divided city and continued to harbour insanitation in its larger parts. Another reason for the failure of this movement was that it merely imposed draconian laws sans sanitary education. Further, Crawford’s attempt to sanitize the city failed because his policy of exclusion and the complete focus on the aesthetic aspect of the city’s development. However, the only silver lining in this dismal scenario proved to be the gradual awakening of the Indians and their demand for representative form of government paving the way for free elections at a later stage. Post independence Bombay and hence Mumbai continues to focus on the aesthetic rather than the social aspect of planning the city. Thus, even after more than a century and a half of these historic developments, it continues to reflect and perpetuate the significant sanitary divide in the form of its insanitary slums juxtaposed against the high rises and the continuous struggle between the former island city and its extended suburban region for sanitary attention. Uncontrolled growth and exclusivity of development, lack of sanitary consciousness among people, lax municipal affairs, have shown clearly that the sanitary crusade is far from over.

\(^{(65)}\) NNP op cit, for 1868, pp 10-11  
\(^{(66)}\) Ibid, p 13
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