Chapter: 6

Conclusions
The following are the major findings of the study:

- The English East India Company established Calcutta during the last decade of the seventeenth century. The main purpose for the establishment of a settlement on the eastern part of India was to control the rich natural resources of the Bengal, Bihar, Orissa and Assam plains.

- The site chosen by the Company consisted of three small hamlets or villages on the left bank of river Hooghly. These were located on a comparatively higher level than its surrounding areas.

- The English settlement known as Calcutta, gradually expanded on the eastern side of the original site along the riverbank. This led to the clearing of the jungles, uplifting of the marshy areas and filling up of the ponds and ditches.

- Physiographically, this site was low lying and was traversed by numerous rivers and channels like the Hooghly, Bidyadhari and their tributaries. The general slope of the land was to the eastern side towards the Salt Lake area instead of the river in the west.

- Geologically, the city rested on a clay bed deposited by rivers forming the lower plains of the Gangetic delta overlying a thick pile of alluvial sediments. The subsurface consisted of a thick layer of sandy soil that trapped huge quantity of water and served as a water reservoir.

- Climatologically, the area lies within the tropical zone and experiences a hot and humid climate for most parts of the year. Rains are heavy and temperatures are very high. Winter is mild and short.

- Calcutta's physical expansion had been more or less continuous from the seventeenth century. The area of the town increased from 1692 acres in 1717 to 20,714 acres in 1941 and the population increased from 12000 in 1717 to 2108891 persons in 1941. Thereby, the density of population also increased over time. The main or the core area of the town was the area in and around
the Fort William and Burra Bazaar – that included the wards of Burra Bazaar, Waterloo Street, Fenwick Bazaar, Park Street, Hastings and Alipore.

- With the establishment of the city, people from different parts of Bengal as well as from other parts of the country moved into Calcutta mainly in search of a livelihood. Most of the migrants into Calcutta during the early part of the nineteenth century hailed from Bihar, Orissa, Punjab and Rajputana. The migration stream was male selective.

- The sex ratio was 500 females per 1000 male population in the city. It was lowest in the Port-Fort-Canal areas, followed by the wards which formed the main business town i.e. in the wards of Waterloo Street, Baman Bustee, Park Street, Fenwick Bazaar and Burra Bazaar inhabited by the White population. The outer wards had a comparatively higher sex ratio than the above-mentioned wards in the town.

- Hindus were the dominant religious community in the city followed by the Muslims, Christians and “Others” which mainly included the Jew, Parsi, Sikh, Buddhist, and Jain communities. The foreigners who inhabited the city during the period under study, were not only English, but also Irish, Scots, Armenians, Chinese, Africans, and many others.

- The city was clearly divided into three major zones based on the pattern of settlement of the people of different communities. The northern zone i.e. the ‘Native Town’, the southern zone i.e. the ‘White Town’ and in between, the ‘Intermediate Town’ accommodating the Armenians, and other Eurasians who served the English East India Company.

- The density of population was high and gradually increased in the original town area comprising of the main eighteen wards.

- The housing situation also underwent major changes. Initially most of the houses consisted of small huts. Later the ‘White Town’ was planned and
palatial brick houses were constructed. The ‘Native Town’ also had multi-storied brick buildings but the poor people, both native and foreigners, lived in small congested huts. The housing density was high in the non-European wards of the city. In most of these houses, the average number of people residing was more than five. The number of people per house in the European Town was much more than the city average but the houses in the ‘white town’ were very big and could conveniently accommodate a large number of people. It is difficult to calculate the ‘crowding index’ in the city because systematic data is not available for the period under study.

Thus, within two centuries, the City of Calcutta grew into a major port town of British India. This rapid growth, however, made it a very unhealthy city.

- Various diseases that were associated with bad environmental conditions engulfed Calcutta. The most persisting and devastating diseases of the period were cholera, diarrhea/dysentery, fevers – influenza, malaria, typhoid, kala-azar –, smallpox, plague, measles, and tuberculosis. Throughout the period under study, these diseases were epidemic in the city at various points of time viz. – smallpox in the 1850s, plague in the late nineteenth and early twentieth centuries, and influenza in 1918-1919. Apart from the epidemics that claimed quite a large part of the population of the city, ‘famines’ caused malnutrition and affected the health of the city population by making it vulnerable to disease.

- The standing army, consisting of both European and the Indian soldiers stationed in various cantonment areas in Calcutta were attacked by cholera, dysentery and diarrhea, smallpox and various fevers. These diseases proved very fatal for the soldiers as well as for the seamen who landed in the port of Calcutta during the period under study.

- The colonial authorities became conscious of the danger of poor health of the population and took preventive and curative measures to combat disease and death in the city. Female death rate was higher in the city during the period.
under study. Among the different religious communities in the city, death rate was highest among the Christian population mainly among the Europeans because of their inability to adjust to tropical climate and their unwillingness to change their living habits to suit local conditions. The death rates amongst the native population were highest among the Hindus, followed by the Muslims and 'other religious' communities.

The ward wise analysis of crude death rates show that they had been lower in Waterloo Street, Park Street, Fort William and to some extent in Bow bazaar and other areas where the European and Eurasians resided. Death rates were higher in the new areas except in 1901 when plague attacked the population residing in the main town area. The most affected wards during the period under study were Hastings, Burra Bazaar, Watgunge-Ekbalpur, Koomartooly, Entally, Beniapukur, Ballygunge-Tollygunge, Bhowanipore and Port area. These wards were either located along the River Hooghly or Tolly Nullah or occupied the reclaimed marshy areas of Salt lakes in the eastern side.

The disease specific death rate in the different wards of the city shows some consistency over time. Cholera, dysentery, diarrhea, fevers and malaria constantly inflicted the city.

Most of the policies adopted by the British authorities for colonial India and mainly for Calcutta were focused on the health of the Europeans and Eurasians residing there. The policies adopted for better health care facilities also favored the army cantonments and were discriminatory against the native town. Although measures were taken to protect the public health in the city, local finances inhibited the execution of these measures.

The East India Company had no interest in its initial years, to provide improved civic amenities. They only imposed taxes, levied duties and issued licenses. The developmental activities included clearing of jungles, bridging watercourses and surveying lands and other such affairs. By 1703 the Europeans had engaged some sweepers to clean the White Town. In the
'native town' no such measures were taken. The Calcutta Police was set up to check the misconduct of the local inhabitants and levy fines on them. They were later also entrusted to maintain law and order.

- Various travelers who visited the city during this period made comments on the then existing unhygienic condition of the city. With the growth of the population and unhygienic habits of the native population, the streets and roads had become filthy with overflowing cesspools, decomposing animal matter, and scattered dead bodies. Contemporary London was no better.

- Provision of civic amenities became the responsibility of the Municipal Administration in 1727 and the first scavenger in Calcutta was appointed in 1782. In 1785 the Commissioner of Police issued a notice and divided the town into 31 divisions or thanas and bullock carts were commissioned to remove garbage.

- Lord Wellesley initiated major steps to improve the sanitary conditions in the city in 1803. It was under his initiation, that an Improvement Committee was set up in 1804 to make sanitary improvement in the city. This committee was later known as the 'Lottery Committee'.

- Until the late eighteenth century, the common people of Calcutta applied very rudimentary methods for disposing off dirty water, garbage, refuse and dead bodies of both human beings and animals. The most important aspect of health, i.e. drinking water also depended upon its natural supply i.e. on the river, rain and the tanks. Night soil from all European and rich 'native' houses was collected manually and moved in carts and baskets early in the morning and deposited in depots located in various parts of the city. It was dumped into the river Hooghly at night. Most of the native population in the city used common privies that flowed into the open drains causing nuisance on the streets. Various plans were made to drain the northern and central part of the city with 'underground drainage system'. The 'Water Carriage System' for the city of Calcutta was finally sanctioned in 1859. This scheme covered a
total area of 4730 acres and it took 16 years to complete the main sewers. By 1875 only 38 miles of brick and 37 miles of stoneware pipe sewers were constructed with pumping station at Palmer’s Bridge in the eastern part of the city. The main drainage works of the southern division were completed by 1878. By 1881-82, the numerous canals of the city were legally banned to be used as a part of the drainage system causing difficulties in the flow of the sewerage from the city towards the Salt Lake area. The main sewer lines ran from the Hooghly River to the circular road.

- The ‘added’ and fringe areas of the city were incorporated in the main town in 1889 and the improvement of these areas was entrusted to the Suburban Improvement Committee. Between 1891 and 1906 some of the new areas developed and the drainage was pumped to the Salt Lake area through new pumping stations at Ballygunge and Topsia. The drainage of the new areas was divided into 3 blocks.

- A number of wells and tanks were constructed by the Improvement Committee in the town mainly along the arterial road of College Street/Wellington Street/Wellesley Street. It was only in 1820 that a small pumping plant was set up at Chandpal Ghat for lifting river water into open masonry aqueducts. It was distributed by gravitation over a small portion of the ‘white town’. The first water works for the supply of filtered water to Calcutta was built at Pulta with pumping stations at Pulta, Tallah, and Wellington Square between 1867 and 1870. All the principal streets and lanes were piped and supplied with filtered water. Even with the growing consumption of filtered water, the supply did not increase till 1872. Considerable extensions of filtered water mains were carried out between 1891 and 1900. The supply of filtered water increased manifold as pipelines were extended to supply filtered water to different parts of the city between 1922 and 1936. The supply of ‘unfiltered water’ in the city began in 1820. This water was mainly used for watering roads and flushing of sewers and privies.

- Garbage of the city was dumped near the Writer’s Building before 1766 and
the Maratha Ditch before 1780. It was also dumped in many tanks and ditches in the city. In 1864, the Corporation acquired a square mile of land at Dhapa in the Salt Lake area for garbage disposal and constructed a railway line from Theatre Road to Dhapa between 1868 and 1911. Incinerators were also constructed to destroy the refuse and garbage near Dhapa.

- Municipal burning ghats, burial grounds and cemeteries came into existence in the city in the late eighteenth and early nineteenth century.

- The contemporary scene in England was no better. The British Government gave little attention towards sanitation and water supply system in England as they were engaged in expanding their markets. Development of piped water supply system in London was initiated only during the mid nineteenth century. The sanitary condition of London was extremely bad till the nineteenth century. The city was honey combed with cesspools, some of them like lakes. The sewage of London was emptied directly into the River Thames until 1864. It was only in 1847 that Legislation was passed on Adoptive Acts for town improvement, water works, cemeteries, town police and other issues. In 1855 the Metropolitan Board of Works was set up in London and by 1865, 82 miles of main intercepting sewers were constructed and four pumping stations and outfall works were constructed at the northern and southern parts of the river.

- It was only in the second report of the Royal Sanitary Commission in 1871 that due attention was given to the supply of wholesome and sufficient water for drinking and washing, provision of a sewerage system, removal of refuse, provision of burial for the dead without injury to the living and regulation of markets. The River Pollution Acts were passed in 1876. The Housing Act of 1890 raised the housing standard and gave local authorities the power to recondition the existing houses and to clear the slums.

- Water supply in majority of the cities in Britain during the first half of the eighteenth century was obtained from wells or from nearby rivers. London faced an acute water problem during the eighteenth and nineteenth century.
Underground water was never sufficient to meet the need of the growing population in the city. Water was therefore drawn from River Thames. But the supply was made to limited households that had pipelines. Private and competing water companies supplied water in the city. Quality of water was never tested and this led to the cholera outbreak in the city in 1854-1855. No steps were taken to meet the acute water problem in the city. The Metropolitan Water Board was formed only in 1902 to carry out further developments in water supply in the city.

- These improvements in London were almost as inadequate as those carried out in Calcutta. As far as the sanitary conditions were concerned, the Imperial metropolis and the colonial capital city were not different from each other.

- The Indian Medical Service (IMS) and the Bengal Medical Service (BMS) provided medical aid to the Europeans in India until the eighteenth century. In the initial years of these services recruitment of the medical professionals was done in England but gradually indigenous Europeans and Eurasians were also appointed in this service. For a considerable period of time these surgeons were assigned more of non-medical jobs than medical jobs. Contemporary Britain also did not have consultants and medical practitioners, as we know them today. The trained physicians catered only to the wealthy clients. The so-called “surgeons” were only apprentices and performed surgeries along with midwifery and medical dispensation.

- Indians were allowed to join the IMS or BMS only after 1855 but under European supervisors. Participation of Indians in the service was limited because recruitment examinations were conducted in England. The main branch open to the Indian doctors and other medical professions was the ‘subordinate medical service’. Their pay was very low and they were not allowed to treat the Europeans. Their promotional avenues were also restricted.
• Most of the hospitals opened in the eighteenth century in Calcutta were meant for the Company’s soldiers and sailors, and other Europeans in the city. The first ‘hospital’ for Europeans in Calcutta was opened in 1708 and it was only eighty years later, in 1792, that the first hospital for the local Indian population was opened on Chitpore Road and the second in 1794 at Dhurramtolla. In terms of establishment of hospitals, Calcutta was not worse off than contemporary London. Most of the ‘hospitals’ in London until the end of the seventeenth century were either religious institution caring for the destitute or else provided medical services to Royalty. Specialized hospitals for the infected and for women and children were opened only in the middle of the eighteenth century. Hospital services provided by the National Health Services were geographically unequal with a concentration in London.

• Many hospitals and dispensaries were opened in Calcutta in the nineteenth century in different categories under Provincial, Private and Local initiations. Category I, III and IV i.e. State Public, Local Funded and Private Aided hospitals and dispensaries served the common people and provided ‘indoor’ facilities in Calcutta. Nearly 80–90 per cent of the total patients treated in different categories of hospitals and dispensaries were ‘outdoor’ patients.

• More than 80 percent of the total beds available for ‘indoor’ patients in different categories of hospitals and dispensaries were in category I, III, and IV. Only 10 to 30 percent of the total patients treated in these hospitals and dispensaries were admitted for diseases associated with bad environmental conditions i.e. for diseases like malaria, smallpox, cholera, and dysentery/diarrhea.

• Though the smallpox vaccine was discovered in 1790s, it was made compulsory in England only in 1853. Various social stigmas and beliefs led to slow progress of the operation in India as well. Vaccination against ‘smallpox’ was introduced in Calcutta and also in India in 1802.
• The vaccination rate in Calcutta increased from 15.1 per cent in 1881 to 315.2 percent in 1946-47; i.e. nearly 30 times. Vaccination rate was higher in the female population in the city. The Christians recorded the highest vaccination rate followed by the Muslims, Hindus, and ‘Others’.

• The ward wise analysis of vaccination rate in the city also shows an increase in the number of vaccinations over time with some variations. This could be attributed to the fact that people were not willing to take the vaccination on a regular basis. It was only at times of epidemics that they opted for it.