THE DEVELOPMENT OF PUBLIC HEALTH SERVICES AND THEIR UTILIZATION: A CASE STUDY OF THE BOMBAY MUNICIPAL CORPORATION

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CERTIFICATE

This is to certify that the dissertation entitled "THE DEVELOPMENT OF PUBLIC HEALTH SERVICES AND THEIR UTILISATION: A CASE STUDY OF BOMBAY MUNICIPAL CORPORATION" submitted by NARENDRA KAKADE is in partial fulfillment for the award of the degree of MASTER OF PHILOSOPHY (M.Phil.) of this University, is his original work. This dissertation has not been submitted for any other degree of this or any other University. We recommend that this dissertation should be placed before the examiners for evaluation.

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Dedicated to my Parents & Mahendra

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Narendra Kakade

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PREFACE

PREFACE

India has some of the most sophisticated Medicare institutions, one of the largest pool of doctors and a fairly advanced medical education system. Yet over seventy per cent of the population has little access to the most routine of curative facilities.

This scenario is typical of most ex-colonial countries. Gaining independence in the Fifties and the Sixties these countries adopted welfarist models with state planning. In the health sector the entire focus was on developing the state services which grew rapidly in the first two decades. The sharp growth of the private health sector towards the end of the sixties was prompted by several factors: the falling state spending of health, the continuing production of medical personnel, who could not find adequate employment in the health institutions, a growing middle class dissatisfied with the public sector and willing to pay for private care. While there are only varying estimates of the size of the private sector, everybody agrees that it is much larger than the public sector. By the Nineties, the per capita private out-of-pocket spending on health care was a whopping Rs.240 or 75 per cent of the total national health expenditure, according to a survey conducted by the National Council of Applied Economic Research.

Ironically enough, this deepening crisis in health care has been rather oddly affected by the new economic policy and the structural adjustment programme. Health is a state subject. Federal funds support national disease

control programmes and family welfare, but not infrastructure development. Funding for this comes from the state coffers. But state funds are again dependent on financial transfer from the centre. Since the Nineties, the states are receiving decreasing financial transfer. So, although some critical disease control programmes have off and on received large funds from international institutions, primary care has suffered, especially the curative component.

The situation is worse in the villages. More than 73 per cent of the allopathic doctors in India practise in cities. 60 to 80% of state health services are confined to the towns and cities that account for only 20% of the population. The state spending is also skewed towards urban areas.

Public health investment is still concentrated in urban areas. Health infrastructure development data clearly establishes where public health resources are being consumed. Rural areas get allocations for family planning programmes and public health programmes. The latter concerns the conduct of the various national diseases control programmes (malaria, TB, leprosy, blindness etc., in which the administrative expenditures to support the huge health bureaucracy, from the central level to the district level takes away a highly disproportionate share of the resources. By contrast, the urban areas get most of the medical care resources i.e., hospitals and dispensaries. For the 75% rural populace, are available 18% of hospital beds, 31% of hospitals and less than 30% of allopathic doctors. The Primary Health Centres (PHCs) and sub-centres do not make effort to provide basic health care in the rural areas.

So, despite not having monetary privileges the rural folk flock to the urban hospitals and strain the already overburdened resources of the latter.

The problem is further accentuated by the fact that the migratory workers who constitute a major segment of the urban labour force, comprise a shifting population and so it is difficult to get proper data on their health. Such people are a burden from the economic point of view and vulnerable from the health point of view.

The government hospitals are overburdened with two types of patients, those requiring primary level care and good diagnostic skills and those whose illness conditions have been neglected and the cost of care is now high with the chances of full recovery diminished. For example, about 40% of those who attended the general medicine OPD in one of Mumbai's largest public teaching hospital needed only primary level care. This means that public hospital services that constitute, secondary and tertiary level care, are both overburdened and under utilised. And unfortunately, these are the institutions that account for increasingly larger share of expenditure on health care. As the Mumbai study by the Foundation for Research in Community Health shows, more than two-thirds of public hospital users belonged to households with a per capita income of less than Rs.500 per annum. Another irony is that out of 37,000 public hospital beds in Mumbai more than two-thirds are in the southern tip of the island making a mockery of bed-population ratio.

The following study analyses the development of public health services provisioning of the BMC since independence. The distribution of health services are uneven, where the well-off citizens enjoy it more and the poor marginalized.

The Introductory Chapter focusses on the problems of Indian cities. The Second Chapter traces the historical progression of public health of the BMC both in its spatial and economic contexts. The focus of the Third Chapter is on the kind of health services provided by the BMC, the rate of utilization of these services by the concerned populace and the ward level differences regarding the above hypothesis. The concluding observations deal with the fact that though the BMC's efforts to provide adequate health services are laudable, it is not really benefiting the target population. People are opting for the private sector since the quality of service is much higher. Also, the thrust is more on curative aspects than preventing the outbreak of diseases. Not much attention is paid to educate the public on better health and hygiene.

CHAPTER I

Chapter I

INTRODUCTION: THE URBAN HEALTH SCENARIO IN INDIA

The development of health is a holistic process related to the overall growth and development of social, cultural, economic, educational, political and environmental factors. Health also depends on many supportive devices, such as water supply, sanitation, nutrition, public health and medical services and human resources. Health policies are, directly and or indirectly, influenced by the policies concerned with these areas. For instance, development policies to eliminate poverty and inequality are directly linked to the Health Policy, Population Policy, and other social developmental policies. (*The Independent Commission on Health in India*, VHAI, 1997, p.36).

Health services comprise of medical care and public health services and are a function of the political system of a community. Political forces/ideologies play a major role in determining the health policies of the country through decisions or resource allocation, manpower policy, choice of technology and the degree to which health services are to be made available and accessible to the population. Health policies can also be used as a political lever to promote certain vested market interests.

The history of the Indian sub-continent provides an example of the influence of various social, political and economic forces in giving shape to the health system. The Indus Valley people had devised public health facilities

superior to that of other ancient civilizations. Even the pharmacology which Ayurvedic Medicine developed is colossal and is significant for giving directions even to current pharmacological research. Medical details were a part of the Buddhist metaphysical text, the Milindapanha (1st Ad). The famous decree of Emperor Ashoka (279-236 BC) in his 2nd Rock Edict (257-256 BC) speaks of celebrating the organization of social medicine shaped by the Emperor along the lines of Buddhist thought and kindred ethics.

During the subsequent centuries, a series of political, social and economic developments disturbed the ecological balance in the society. Much damage was done to the already stagnant indigenous system by the colonial policy which patronised western medicine.

The East India Company had instituted a medical service, the Indian Medical Service (IMS) in 1764 & a medical officer was required to be attached to every company ship and to the permanent trading outposts (factories) with their small standing garrisons. The army, the main instrument of the East India Company's political consolidation, was primarily composed of Indian soldiers, the European component being outnumbered by roughly eight to one. [Imperial Gazetteer of India, vol.IV, 1909]. Mortality, sickness, and invalidating in the European army was due mainly to four major diseases: fevers, dysentery, and diarrhoea, liver diseases and epidemic cholera which assumed a virulent form when the troops were on march. And the troops were constantly on the march due to the unsettled conditions of the country. [K. Ballhatchet, 1980].

The frequent outbreaks of fevers and cholera suffered by the troops led Sir James Martin, physician to the council of India, to propose to the government of India in 1835, a scheme whereby all medical officers would be required to send reports on the medical topography and sanitary stations of the districts, stations and cantonments (permanent military station) under their care. A better understanding of the various regions occupied by the army, their climate and environment and disease pattern, was to provide a basis for a more scientific selection of sites for camps and cantonments, while regular reports on the sanitary condition of barracks, hospitals and transportation would help in the formulation of guidelines for sanitary improvements in the camps and cantonments under Indian conditions. As Martin argued, unsuitable sites and unsanitary conditions "could destroy armies and tender courage useless". [J.R. Martin]. The government of India approved the scheme and a number of such reports were compiled. The sanitary perspective of J.R. Martin, the main force behind these moves, was influenced by the growing recognition in England of the importance of sanitation and a clean environment.

The European civil population was concentrated in the three Presidency Towns of Calcutta, Bombay and Madras which were centres of government as well as the major ports. Here, European residential areas were secluded from Indian areas and along with the cantonments in these towns, were fully self contained. By the mid-19th century, these areas were relatively well-planned and drained and vaccination against small pox (the only effective prophylactic known) among the European civilian residents and among the

residents of the cantonments was almost universal. [Bengal Small Pox Commission Report, Calcutta 1850].

The 1857 events highlighted the importance of the British soldier's health and efficiency. Army health which became the primary concern of colonial health policy remained an abiding concern as with the expansion of the British empire, the army in India increased in importance as the largest single force in the empire, and as a key instrument in the security of Britain's Eastern possessions. "The main enemy of the British solder in India was not the Indian enemy but disease". [Royal Sanitary Commission Report].

The mid-19th century marked a watershed in colonial health policy. Most parts of the country which could be brought under direct British administration had already done so, and now a more systematic plan of urbanization and army stationing could take place.

The Royal Commission on Colonisation and Settlement in India, appointed in 1857 to go into the question of whether "given the peculiar desirableness of applying European capital to India and Colonisation, in other countries such as Australia and Canada". The Commission concluded that the pattern of colonisation in India would be different. It would be through the settlement of "upper ranks", i.e., capitalists who would employ Indian labour, rather than through the settlement of labourers from England. The settlers of who, in the 19th century were mainly (apart from missionaries) merchants in the seaports and indigo (and later tea planters), and who were a `morally and

socially' inferior group in the eyes of the official population), did not figure directly in the colonial health policy. The application of medical ideas for the control of disease currently prevailing in the metropolis, was for a long time directed exclusively to the European civil servants and army establishments in India. [Ramasubban, 1982, p.15].

The keynote of metropolitan sanitary science, which grew out of the compulsions of urbanization in England in the 18th and 19th Centuries was the environmental control. The means through which this was accomplished were mainly town planning, housing and sanitary engineering. These measures required administrative and government institutions embodied in 'local governments', which were responsible for investigation of local unsanitary conditions and their control, and given the force of legal sanction to these public health sanctions. [Ibid.].

The physical placement of the European population in India was, as far as possible, based on the principles of this sanitary science. Using criteria of soil, commission on the army in India laid down elaborate norms for the creation and development of distinct areas of European residence and the 'cantonment', 'civil lines', 'civil station' & 'hill station', regulated by legislations, developed into a colonial mode of public health and sanitation based on the principle of social and physical segregation. From the time of the Royal Commission Report of 1863, location and layout of European civil and military areas were decided by criteria of health laid down by the prevailing medical scientific theories of miasma and environmental control rather than by

political and strategic criteria. According to the Cantonments Manual of 1909, "it should be carefully borne in mind that the cardinal principle underlying the administration of cantonments in India is that cantonments exist primarily for the health of British troops and to considerations affecting the well-being and efficiency of the garrisons, all other matters must give place". [King AD, 1976, p.118]. Earlier, the 'native lines' i.e., the residential areas of Indian soldiers, had been left outside the pale of colonial planning and construction activity for troops. European fears of miasma emanating from them had even led to the construction of walls between Indian and European troop locations to keep the miasma out. The Royal Sanitary Commission voiced concern for the health of the Indian troops and recommended that cantonment planning should also be extended to the 'native lives'.

While segregation was an effective tool, at least in the three Presidency towns, contact with the native population was unavoidable. Native servants often lived in the native areas and native dealers and tradesmen serviced cantonments and civilians. Grossly unsanitary conditions prevailed in these large and unplanned urban centres and the native population could well serve as secondary sources of infection. To understand the disease among them, in his dispatch to the Government of India, the Secretary of State for India pointed out, "The determination of the effects of local causes on the mentality of the native population, besides its intrinsic value in connection with the welfare of the people of India, cannot fail to have an important bearing on the

health of the European resident among them". [Military Dispatch, No.297, 1863].

The health service system at the time of independence projected the political, economic and social values of the colonial rulers. Medical services were needed to support the British army and the British civilian personnel living in India. Later on, medical services were made available to the native gentry who constituted a tiny fraction of the total population. Among the rest, more than 90 percent of the population, only very few could get some form of medical care from the extremely limited number of hospitals and dispensaries run by government agencies, missionaries, philanthropic institutions and private practitioners. Similarly, public health services were provided only when there were massive outbreaks of epidemic diseases such as plague, cholera and small pox [Government of India, 1946b, 35-49). Personnel of the Indian Medical Science (IMS) of the British Indian Army played a key role in framing this colonial pattern of health services of India.

The IMS embodied all the shortcomings of colonial medical services. [Roy 1982, pp.31-33]. Firstly, its backbone was the Army Medical Corps which, in any case, did not attract the cream of the profession. The army being a colonial one, it probably inducted even more mediocre personnel than were recruited for the home army. Secondly, and most important, this set of second rank professionals, held, in effect, complete sway over the Indian medical and health services. And within their ambit of influence also came the native professionals many of whom they patronized and modelled to their own

prototypes to carry forward the tradition of the colonial medical services. [Bannerji, 1975b].

Some of India's most eminent medical professionals like Dr. B.C. Roy, Dr. A.R. Ansari, Dr. Khan Sahab, Hakim Ajmal Khan, Dr. Jivraj Mehta, and Dr. N.M. Jaisoorya, occupied leadership positions in the national struggle. [Roy 1980a, National Planning Committee, 1948]. Inspired by the welfare state movement in Britain and socialised health services in the Soviet Union, they demanded a more egalitarian health service system and made this demand an important plank in the anti-colonial struggle.

The NPC also endorsed the findings and recommendations of the Bhore Committee [Government of India, 1946a] which had submitted its report in 1946. Many of its proposals and recommendations continue to be pertinent and valid to this day.

The guiding principles adopted by the Bhore Committee were [Government of India 1946a, v-vi]: (1) No individual should be denied adequate medical care because of inability to pay for it. (2) The health services should provide, when fully developed, all the consultant, laboratory and institutional facilities necessary for proper diagnosis and treatment. (3) The health programme must, from the beginning, lay special emphasis on preventive treatment. (4) Medical relief and preventive health care must be urgently provided as soon as possible to the vast rural population of the country. (5) The health services should be located as close to the people as

possible to ensure the maximum benefit to the communities served. The active cooperation of the people must be secured in the development of the health programme. The idea must be inculcated that ultimately, the health of the individual is his own responsibility. (7) Health development must be entrusted to ministers of health who enjoy the confidence of the people and are able to secure their cooperation.

In the long term [Government of India 1946c: 17-34] the smallest service unit was to be a Primary Health Unit serving a population of 10,000 to 20,000. Some 15 to 25 of the primary units were to be assisted and supervised by the Secondary Health Unit and 3 to 5 of these would be placed under the District Health Organization, serving a population of three million and a Health Centre was to be established at each district headquarters. To achieve active participation of the people, the plan recommended setting up of village Health Committees of 5 to 7 voluntary workers who, after training would help promote specific lines of health activity. [Government of India 1946c: 14].

On the question of training physicians, the Bhore Committee was of the view [Government of India 1946c: 340] that 'on the whole, having regard to the limited resources available for the training of doctors, it would be to the greatest ultimate benefit of the country if these resources were concentrated on the production of only one and that the most highly trained type of doctor, which we have termed the basic doctor'.

The Bhore Committee also recommended the setting up by the Central Government of at least a few high quality, advanced institutions to: (1) to bring together all educational facilities of high order for training of the more important type of health personnel. (2) promote the highest type of research in all branches. (3) Coordinate training and research, (4) Provide advanced post-graduate training in an atmosphere fostering the true scientific outlook and spirit of initiative. (5) Inspire high ideals of the profession, and (6) Promote a community outlook. The setting up of the All India Institute of Medical Sciences was a response to this recommendation. [Government of India 1946c: 431-37].

The Committee emphasized that in drawing up a health plan certain primary conditions essential for healthy living must, in the first place, be ensured: suitable housing, sanitary surroundings, and a safe drinking water supply, elimination of unemployment, a living wage for all workers, improvement in industrial and agricultural production and in means of communication, particularly in the rural areas. [Government of India 1946c: 22]. This intersectoral approach to health service development required the coordination of all spheres of development activity at both local and higher levels.

The Bhore Committee recommended an integrated health services systems which would have a well established infrastructure for rural and urban health care along with a proper referral system. It emphasized an intersectoral

approach to health services development which implied viewing health services in the context of socio-economic development in other spheres.

Given the size and diversity of India, the Bhore Committee had recommended that health services was to be a state subject. While the centre was to provide the policy direction and some amount of financial assistance, the states had full authority with respect to resource allocation, location and administration of institutions.

Although the Bhore Committee had recommended the establishment of a strong primary health care system and intersectoral approach to health services development, the experience of the last fifty years has shown the inadequacy of the structure of health services that has evolved in this country. Several studies and even government committees have pointed out that health services in this country are essentially curative oriented, capital intensive, hospital based and biased towards urban areas. Given this sort of lopsidedness in the development of health services it is not surprising that, "two type of subsystems exist simultaneously. One consists of the ill-equipped primary Health centre network for the rural areas which is starved of resources and other is the better equipped hospital network in urban areas which gets the lion's share of the total resources". [Rama 1987]

The issue of rural-urban dichotomy has been discussed extensively in academic circles. What also needs to be taken into account is accessibility to the existing institutions in both rural and urban areas. Accessibility to health

care institutions is determined not only by spatial distribution of services but also determined by the social position that the person seeking treatment occupies in the community.

No data is available on the division of health expenditure between rural and urban areas in India.(The Central Bureau of Health Intelligence Reports). Nonetheless, the relative priorities between rural and urban areas can be gauged from the distribution of health care services between the two areas. Only 27% of hospitals and 13.5% of hospital beds are located in the rural areas. The few beds provided in the rural areas are ill-equipped and ill-financed. Again only 20% of the total doctors in India, practice in rural areas, where majority of the people live. [Narayan, M.Phil. Dissertation, 1993].

While talking about the pronounced disparities in public health care provisions, as well as expenditure, between the rural and urban sectors. Duggal (1995) shows that health care provisions measured in terms of the availability of hospital beds and doctors, are heavily biased against the rural sector and in favour of the urban sector. The extent of disparity varies from state to state. States with a high disparity in health provisions also displays a high disparity in health expenditure between rural and urban sectors. (See tables 1.1 to 1.3) for further clarification).

The provision of health care services in India is both by the public and private sector. Of the two, the weight of the private sector is much larger given the fact that 75 percent of the docto rs are in private sector, 56 percent of

hospitals and 55 percent of dispensaries are privately owned and 30 percent of hospital beds are in the private sector. The bulk of care by the private sector takes the form of curative services for routine illnesses. On the other hand, the public health services account for a larger share of hospitalization cases. The only nation-wide data available on this is the NSSO's 42nd round survey in 1987. The data reveals that for non-hospital cases only 24.88 percent in rural areas and 27.15 percent in urban areas where treated through public health services, whereas for hospital cases 59.74 percent of the patients received care in public institutions (State Sector Health Expenditure, 1992, P.11).

Public Health investment and expenditure in India has increased substantially since Independence, but this has not been enough to secure a minimum decent standard of health care services in the country. As a consequence, the private health sector has seized the opportunity and established its market in the profitable sub-sectors of health, namely, curative care and drug manufacture and distribution. The public health sector has been saddled with preventive and promotive services, medical education and urban hospital services; the former mainly in rural areas and the latter in urban areas. Whether or not this private-public and rural-urban divide is a deliberate policy, one can assuredly establish that it is a planned one! (Ibid.)

Having a historical look on the public health investment shows the state's role in the hospital sector was very prominent and grew further upto independence. Thus 75 percent of medical institutions (hospitals and dispensaries) in 1910 were state financed. By 1940 this share had increased to

92 percent. Between 1880 and 1945 the share of health services in total government expenditure moved from 3 percent to 5.5 percent, and as a proportion of GNP from 0.30 percent to 0.85 percent. Of course, over four-fifths of these health services were at the district headquarters and in metropolitan areas.

Even after Independence public health investment is still concentrated in urban areas. Though rural-urban public expenditure is not available separately, health infrastructure development data clearly establishes where public health resources are being consumed. Rural areas get allocations for family planning programmes and public health programmes. The latter concerns the conduct of the various national diseases control programmes (malaria, TB, leprosy, blindness etc.) in which the administrative expenditures to support the huge health bureaucracy from the central level to the district level, takes away a highly disproportionate share of the resources. In contrast the urban areas get most of the medical care resources (i.e., hospitals and dispensaries).

Rural areas even today continue to be highly under-served. For the 75 percent rural population only 18 percent of the hospital beds, 31 percent of hospitals and less than 30 percent of allopathic doctors are located in rural areas. The Primary Health Centres (PHCs) and sub-centres which were an effort at reducing this gap have not helped to improve health care services access and use for the underprivileged majority. They do not provide the medical care that the rural people expect and hence the villagers crowd at

urban public hospitals or go to private practitioners and hospitals if they can muster resources to use the latter – even if it means a heavy debt burden for a life time (Ibid., 1992).

Urban Health

It is estimated that India's urban population of around 217 million is one of the largest in the world. As people come together for security and a better life, the urbanization process in India and other parts of the world constitute a major demographic issue of the 21st century. In absolute numbers, the urban population has nearly quintupled over the last fifty years, from 44 million to 217 million. The pace of urban growth in India was high during 1951-91, the number of towns increased from around 2,843 in 1951 to 4,689 in 1993 [Sivaramakrishnan, 1993]. The number of cities with over one million population has nearly doubled since 1980, from 12 to 23, with the urban population rising from 26.8 percent to over 35 percent. For the past several decades, the decennial rate of urban growth is much higher than the corresponding rural state. A direct result of this urban population explosion has been a tremendous increase in the urban slum population, with inadequate access to basic health facilities.

At the national level, trends in the 1990s indicate that while rural poverty is declining, urban poverty is increasing. Estimates place urban poverty between 35 percent and 40 percent. In 1991, 28 percent of the estimated 20 million living in 23 major metropolitan areas, resided in slums.

Between 39-43 percent of India's slum population is distributed in the metropolitan cities of Calcutta, Mumbai, Delhi and Chennai. By the year 2000 AD, India faces the increasingly grim challenge of providing primary health care to millions of slum dwellers. Based on the existing urban growth rate, the Task Force of the National Institute of Urban Affairs has projected that by the end of the century, 62-78 million people will reside in slums, of an estimated 310 million urban population.

The health status of the urban poor is influenced by several factors, such as urban economy, urbanization and urban environment. [VHAI 1997, 86] The contribution of India's urban sector to the net domestic product, which rose from 29 percent in 1950-51 to 41 percent in 1980-81 is likely to cross 60 percent by 2001 AD. Almost two-thirds of the employment in manufacturing trade, transportation, and commerce, is concentrated in the urban areas. However, the benefits of this urban growth are not shared by all living in the urban areas. Many urban slum dwellers remain marginally employed in unproductive work. In the large cities around 15 percent of the male workforce and 25 percent of the female workforce have no regular employment [Mathur 1993]. Such persons are concerned a burden from the economic point of view and are vulnerable from the health point of view.

Urbanization is influenced by the pull forces of economic opportunity in the cities and the push factors of rural poverty and unemployment. As such, urbanization can be perceived as a positive phenomenon, when it leads to the resettlement of workers in urban areas, where non-agricultural opportunities

are available. In reality, however, it tends to be more a transfer of rural poverty to the urban poverty.

The link between urbanization, a degraded environment, inaccessibility to health care and a deteriorating quality of life, is particularly significant. Large-scale unplanned rural-urban migration and the continuous growth of towns and cities have resulted in overloaded public facilities, scarcity of housing, inaccessible health facilities and a negative impact on the environment. Some characteristics of urban areas are overcrowding, squatter settlements pavement dwellers and slums. Studies on urban migrants have also shown higher rates of mental morbidity [Chakrabarty 1990, Shethi et al. 1972].

Unplanned growth of Indian cities has resulted in the deterioration of the urban environment. Unfortunately, most of these problems are beyond the perceived or real mandate of municipalities. Thus, interventions which may have impact on the health and quality of life of the people, and avert further damage to the urban environment, are jeopardised [Sivaramakrishnan 1993].

Slum densities are around a national average of 243 persons per hectare. According to the 1983 Task Force [Government of India 1983], Kanpur slums had the highest density of 1210 persons per hectare while Delhi and Hyderabad had an average density of 638 and 525 respectively.

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Sanitation

Major problems that arise in such a context are unhygienic accommodation, inadequate water supply, sanitation and solid waste disposal, rights over land tenure, inadequate food supply and the increasing demand for employment and social services.

In 1985, nearly 27.1 percent of the urban population did not have access to safe water and 71.6 percent were without basic sanitation. It is estimated that about 47 million people in the urban areas area not covered by safe water supply, and about 124 million are without basic sanitation [VHAI 1997, p.87].

With the population density of slum areas rising, more than 90 percent of slum households do not have access to individual latrines. A study by the Centre For Science & Environment in 1985 showed that more than 40 percent of the drains in slums are waterlogged, giving rise to intestinal, respiratory and skin diseases. Arguably, the lack of safe water and appropriate sanitation are the leading causes of mortality and morbidity in this group.

It is a well-known fact that only the better off population in some metropolitan & class I cities (with a population of over one lakh) of India manage to have access to sewerage facilities. Although an underground sewerage system is the most hygienic method of disposing sewage and sewage water, only 12.18 percent of the towns in selected states have this facility. [1981 Census]. According to the survey conducted in 1988, by the Central

Pollution Control Board, only 71 of the 218 Class I cities [1981 Census] had a sewer system. Even in cities with a sewer system, sewerage was provided to only about 60 percent of the population. State capitals like Lucknow and Jaipur did not have any sewer system. Most towns depend on open face drains for the disposal of waste water, which in the absence of proper maintenance poses a major threat to environmental health [Kundu 1993]. According to one study, of the 6.5 billion litres of sewage generated daily in the 12 major metropolitan cities, only 1.5 billion litres were collected and disposed [Central Pollution Control Board 1991].

Housing

The urban people have a very low paying capacity, and thus, the provision of housing, water supply and sewerage facilities would involve large government subsidies. However, subsidies are non-existent, an important reason being the shortage of resources. The Planning Commission [GOI, 1980] pointed out that,

> In view of the severe constraints of public resources, the resources of institutions like HUDCO and State Housing Boards will need to be augmented, to enable them to provide infrastructural facilities, as a means of encouraging housing in the private sectors.

The illegal occupation of public unproductive land and legal rights over land tenure characteristic the growth of squatter settlements. Housing of the lowest quality is generally found in slum communities; the threat of eviction reduces the incentive to invest in maintenance.

For new migrants, the traditional extended family is replaced by the nuclear family. This changed family structure increases their vulnerability. Single-parent households headed by women produce limited child care - - children are often pressed to work at a very young age, or to take care of younger siblings while the mother is at work.

Thus, urban policy issues pose serious challenges to planners in developing countries. The complexity and rapid growth of urban poverty, accompanied by deteriorating environmental conditions, need serious attention. Long term planning must replace ad hoc decisions.

The Indian Scenario

India has one of the largest urban population among the countries of the world. In terms of the absolute number of people, it ranks second after China. Over the past four decades, the number of people living in India has more than doubled from 350 million in 1947 to over 900 million in 1996. During the same period the urban population has been growing almost twice as fast and has in fact quadrupled from 50 million in 1947 to over 217 million in 1991. By the year 2001, it is expected to reach 301 million. This has serious repercussions on the civic infrastructure and services [Mathur, 1996]. Along with the increase in India's population the Indian mega cities have also expanded. The growth rate of Indian metropolitan cities – Bombay 33.4 percent, Calcutta 18.7 percent, Delhi 46.1 percent, Madras 25.0 percent, Hyderabad 67 percent [Bose, 1991]. There were 12 million plus in the Cities

in the country in the year 1981, this number increased to 23 by 1991. Between 1951 and 1991, there has been a marked shift in the percentage of urban population from small and medium towns to large cities [Anand 1993: p-1]. This shift has contributed to the growth of urban slums. In India emergence of slums started during the last two decades of this century because of fragmentation of land in rural areas and galloping population growth which in turn led to unwarranted unemployment, famine, floods, pestilence, push and pull factors of urbanization social class conflicts and caste tensions have been equally responsible for the emerging of slums. Slums, as described by the social scientist is a by-product of the modern era, it is like the wasted filth of the affluent society like backwaters, mostly neglected by the governments and industrialists alike. According to the Planning Commission of India, about 32 to 40 million people comprising 20 to 26 percent of the total urban population lived in slums in 1983. The slum population is concentrated in the 12 metropolitan cities, which account for 40 percent of the Indian population. Around three quarters of the metropolitan slums' population is concentrated in only four cities, i.e., Bombay, Calcutta, Madras, and Delhi. In many metropolitan cities, it is estimated that, 40 to 70 percent of their population live in slums or slum like areas. In Greater Bombay, out of an urban population of 8.2 million, more than half i.e., 4.2 million people live in slums and pavements. A recent survey conducted by a Bombay based NGO called SPARC pointed out that there are about 0.13 million pavement dwellers in Bombay (Parmar, 1992). According to the 1981 Census the slums population of various metropolitan cities, such as Bombay, Calcutta, Madras, Delhi,

Hyderabad, Ahmedabad, Kanpur, Poona, Nagpur and Jaipur ranges between 40 to 17 percent.

Let us reflect on the quality of life in slums. Sivaramakrishnan and Mathur in their field study point out that low income households suffer large scale deprivations in water supply, sanitation, primary health and primary education. Approximately 27.1 percent (1985) of the urban population live without access to water supply, but for the low income households the figure is 38 percent in 1988. A study of the recently growing slums in Bangalore shows that the per capita water consumption was between 16 to 13 litres per day and the number of persons per tap varied between 40 to 428 [Anand, 1993: p.3]. Amitabh Kundu observed that about 66 percent of the people below the poverty line are covered by piped water supply which is significantly below the figure for the total population i.e., 72 percent. The disparity comes out more sharply if we draw the per capita of water by people in different consumption fractals. The survey regarding this indicates that the majority of the poor do not get the minimum quantity of water necessary for their daily use. This is primarily because the existing organizations structural policy making etc., have not been designed to provide this minimum quantity of water to all sections of the population [Kundu 1992, p.282].

The situation of the Calcutta *bustees* are equally worse. The public taps and hand pumps are the major sources of drinking water for the inhabitants. Some *bustees* have individual tap water connections but they are shared by many families. A few *bustees* face shortage of water because the pressure in

the mains, remains low throughout the year and taps are over crowded. In few *bustees* in central Calcutta water often acts contaminated due to nearby sewage pipes. [Ghosh 1996].

For Delhi inhabitants, safe drinking water is a serious problem. A large number of the inhabitants of unauthorised colonies, slums and squatters depend on shallow hand pump water which in most cases is contaminated. An assessment of water quantity shows that Delhi's present population of 94.21 lakhs requires about 535 million gallons of water per day (MGD),against an installed capacity of 470 (MGD). However the actual availability is restricted to 425 MGD only after deducting the operational losses. According to an estimate, the shortfall of water supply in Delhi is about 110 MGD per day. This shortfall again is unequally distributed between the rich colonies which have no shortage even for watering lawns, whereas the slum dwellers on the other hand have to install handpumps for their survival. According to the National Institute of Communicable Diseases about 50 percent of the water supplied in 929 *jhuggies* in Delhi was not potable or fit for drinking purposes. [Ali, 1996: pp.26-28].

As like other basic amenities the sanitation and sewerage system organized by the local government has not benefitted the poor as much as the other sections of the urban population. In relation to environmental sanitation, private toilets are limited to 15 percent of the households and community toilets to another 21 percent whereas more than 60 percent of the households resort to open space for defecation [Anand, 1993: p.3]. The present condition

in the Delhi slums indicates that more than half of the population defecate in open areas like parks, on the roadside etc. The garbage piles may be seen in almost every area. The open drains by and large are choked with garbage, sewage and often with human excreta from defecation by children directly into drains. The drains do not seem to have adequate slop and as a result remain full with Filthy water and continues to overflow [Ali 1996: pp.26-28]. The *bustees* of Calcutta are facing similar problems. These *bustees* do not have dustbins inside, the garbage is dumped into an open area. There is no regular cleaning of garbage in any of the *bustees*. This problem is not there where regular cleaning is done by municipal workers. There are many *bustees* which have individual latrines connected to the city sewage system. However choking is the main problem faced by the inhabitants. These sewage lines pass through the *bustees* which often get choked during the monsoon and the dirty water often enters into the houses, creating not only inconvenience but also causing a great health hazard. This is a very common problem to the inhabitants of these *bustees* in the monsoon.

The basic indicators of human development point to the relatively better status of the urban residents in poor countries such as India as compared to the deprivations faced by the vast majority residing in the rural areas. The basic chances for survival and development are reflected in the higher infant mortality, illiteracy of the huge numbers below the poverty line lag far behind the conditions in India's urban areas.

The emerging social class system in the cities of India has created inequalities, based mainly upon the socio-economic status thus producing disparities in all walks of life including the standard of living, educational and occupational achievements and access to various services available in the community. Access to health in services is no exception to this.

With other growing metropolises Bombay too shares similar features. Paradoxically most of the people in the commercial capital of Mumbai are grossly underprivileged when it comes to housing. At least 52 lakh or 50 percent of Bombay's estimated 1.06 crore population live in slums and a significant number on pavements and along railway tracks. About 30,000 families 1.5 lakh people live on the pavements. And around 80 percent of households in the city occupy less than 100 square feet in slums, chawls and dilapidated or gong structures with inadequate civic amenities. The remaining twenty percent live in single bedroom apartments which barely meet their minimum need. [Arun Kumar Bhatt, 1996: p.101].

The first census of the slums in Bombay was conducted in 1976 but for long successive state Government have used electoral rolls to estimate the number of slum-dwellers in the city. Based on a government estimate made in 1990, the Afzalpurkar Committee assumes that around 40 lakh people live in slums in Bombay. [Ibid., 1996] While expressing the condition of the slums people in Bombay, Madhura Swaminathan of the Indira Gandhi Institute for Development Research, Bombay says, in Bombay today, over one-half of the people live in slums or are homeless. They live in run-down tenements and

huts on pavements, by the side of railway tracks, undertracks, underbridges and in any other spaces available to them. The homeless and slum-dwellers of Bombay live in conditions of terrible poverty, squalor and deprivation. Certain aspects of poverty and deprivation among Bombay's homeless and slum population are not captured satisfactorily by standard measures of income poverty. Specifically, the homeless and slum householders are deprived of proper housing, they lack access to clean water and hygienic systems of waste disposal (including the sanitary disposal of faeces) and in general live in polluted and degraded environments not suited for human habitation. [Swaminathan, M., 1995: p.21].

There are very few estimates of income – poverty for the city of Bombay. In 1983, based on data from the National sample survey NSS on consumer expenditure and the Dandekar-Rath income norm of Rs.22.50 per person per month at 1960-61 prices for urban India, 16 percent of Bombay's population fell below the income poverty line. Data from a mega-city survey conducted by the International Labour Office showed that in 1980, 15.7 percent Bombay's population was below an income-poverty line. More recently, a survey of 8047 households in the Bombay Metropolitan Region, conducted by the Operations Research Group (ORG) in 1989, found that 27 percent of households in the Bombay Metropolitan Region had an income that was less than Rs.1290 a year (at 1991 prices), the income level used as a cut-off to identity in 1989.

There are three estimates of income poverty among slum households in the city. First data from a census of slum households conducted in 1976 showed that 40 percent of slum-dwellers had incomes below the poverty line. Secondly, 30 percent of slum households and 55 percent of the homeless had incomes below the poverty line, according to a survey of 2000 slum households conducted by the Tata Institute of Social Sciences in 1977-78. Thirdly, the ORG survey estimated that 45 percent of slum households in Bombay had incomes below the poverty line in 1989. In ORG's survey of 1492 pavement dwellers, 70 percent reported a household income below the income-poverty line.

While the incidence of income-poverty, using official norms and data from the NSS, is lower in Bombay than in other urban areas of India, there is no doubt that in respect of incomes and consumer expenditure, on an average, people who are homeless or live in hutments are substantially worse off than the rest of the population. Further data on incomes and expenditure also indicates substantially economic differentiation among slum-dwellers and homeless persons. [Ibid., 1995].

In Bombay, slum-dwellers and the homeless account for over fifty percent of the city's population but the occupy only six percent of the city's land area. In these circumstances, people live in cramped, overcrowded and unventilated dwellings. It is not surprising then that a large number of micro-organisms and disease vectors are present in homes in overcrowded settlements. Indoor air pollution and dampness are important factors in the

occurrence and spread of respiratory infections. There is evidence to suggest that mortality due to respiratory diseases is increasing faster than that due to diarrhoeal disease in Bombay.

Slums are located in areas that are not fit for human habitation, for instance, in low-level areas, on hill-sides on marshy land, near garbage dumps and under high tension wires. Slums in low-level areas collect stagnant water, slums on slopes are seriously affected by landslips in the monsoons. In many low-level coastal areas such as Mankhurd in the north-east of Bombay, where land has been allocated by the Municipal Corporation for resettling homeless households, the high tide causes flooding and when it recedes it leaves behind all kinds of toxic waste, including animal carcasses. The use of slums shelter as workplaces can become a major health hazard. In Dharavi, the huge slums settlement in central Bombay, there are about 400 leather processing units, which are a major source of air and water pollution. [Ibid., 95]. Moreover, wherever water is available, it is in short supply and people have to spend time in queues to get water. This shortage of water makes it difficult to maintain reasonable standards of personal hygiene. According to a census of notified slums, undertaken in 1981, there were on an average 203 users for every tap in the slum settlements surveyed in Bombay and in some settlements there were as many as 8600 users for every tap. An observation of homeless households in Central Bombay showed that most families consumed about 15 litres per person per day (the Government of India's norm is 125 to 200 litres of water per person per day). Women from these households had to get up early at 3 a.m. or 4 a.m. and spend the next few hours collecting water for the daily

needs of their family. Moreover, as is well-documented, slum-dwellers, pay more than other city residents for water and other services.

One of the biggest health hazards of slum life comes from the fact that slums lack systems of disposal of excreta, sewage, water from washing and bathing and solid wastes. In particular, the disposal of human waste is a major environmental and health problem in all slums. A census of 619 notified slums in Bombay, undertaken by the census of India in 1981, found that there were no toilets in 174 settlements. Further, on an average, one toilet was shared by 998 persons. In 1985, in Dharavi, there were 800 toilet seats for a population of six lakhs and of these, as many as 570 were not in working condition. The lack of sanitation is a critical problem for women, as their health suffers from the lack of hygienic facilities and they are particularly affected by the absence of privacy. When women have to defecate in the open, they leave their homes between 2 a.m.to 5 a.m. [Ibid., 95].

About the city's waste and sewage systems Carmel Joshi says over 10 million inhabitants of Bombay generate 5000 tonnes of garbage (5500 tonnes during the peak season from April to October) and about 2000 million litres a day (MGD) of sewage (Joshi S., 1995: p.107).

A report based on a study done by the Associate Industrial Consultants, a city firm, in June 1994, estimated that at least two million persons in Bombay had no access to any toilet facility. In 1986 a UNDP-India study had said that about three million Bombayites had no toilets and hence defecate in

the open. The existing public toilet blocks in Bombay are highly inadequate. According to the Slum Improvement Department of MCGB, in 1985, there were 11 lakh people living in slums on municipal land for whom the Corporation had constructed 7877 toilet blocks (with about 10 seats in each). Mr. Anupam Dasgupta, Additional Municipal Commissioner, estimates that there are now about 12000 such toilet blocks in the city. But often, these toilets are choked, dilapidated and impossible to use. [Ibid., 1995].

Thus this is general civic condition of Bombay. The case of health services is not different in the city. It is a well known fact that Bombay municipal corporation, the oldest corporation in India has the municipal area of 437.71 sq.km. which is divided into 23 wards and grouped into five administrative zones and serves the civic needs of over 9909547 citizens by employing a work force of about 198,000 with budgetary outlay of Rs.3143.1 crores for the year 1996. Bombay is developing as per the Western trends as a commercial metro with modern equities and contributing in a large proportion to the Indian economy.

As for the year 1997-98, Bombay has 163 general dispensaries, 18 general hospitals, 27 maternity homes, TB hospital, ENT, EYE, Leprosy, and hospital for infections disease is one-one each, three medical colleges, 18 Ambulances, 6 Hearses and 10,566 beds in municipal medical institutions including 337 paying bed. In the year 1989 out of 1,01,85300 population of city about 45,41,431 patients attended only in 13 general hospitals of BMC. And average cost spent on per patient in these hospitals Rs.143.48.

Yet there has been poor utilization of health services by the lower masses. Stating the reason for this Dr. Yesudian observes in his study of Naignan and Deonar communities of Bombay that people of these communities have predominantly used private health services in spite of the less expensive public sector health services available to them. The reasons he gives: (1) Out patient department timing in municipal hospitals are quite inconvenient to the people, (2) Hospitals are far away from their homes and this has a direct implication on their income.

The upper middle class and elite of the city could optimize the use of these health services of municipal corporation. With other growing metropolises Bombay too shares similar features where these class differentials are predominantly observed. The city reveals spatial differentiations in mortality. Radhika Ramasubhan in her study of Bombay explores the dynamics of mortality in the city of Bombay and their changing patterns of locations as the city developed over a period of time. It has been found that mortality rates varied as per the administrative wards of Bombay over a period of time. And it has direct link to the locality, environmental conditions and the kind of services available in these wards. It has been found that the wards which predominantly belong to the upper class are better equipped, with good environmental conditions and have less mortality rates and such well off groups are segregating to avail better facilities. [R. Ramasubban, & Nigel Crook, 1996: pp.159-63].

Thus the Bombay Municipal Corporation in spite of being the major provider of public health services with a wide services has not been able to reach the poor masses.

With this basic understanding it is very important to study the Municipal Corporations of Bombay with regard to its development efforts in public health services provisioning for its citizens over a period of time. How effectively the corporations would be able to provide these health services to the growing demands of its citizens. To which section of its population the health services are actually benefiting?

Objectives Of The Study

Our hypothesis is health services distributed in Bombay city are uneven, where well off citizens enjoy it more and the poor are marginalized. In order to examine this, the study would examine:

1. The development of public health services provisioning of BMC since Independence.
2. The nature of curative health services available in the City.
3. The differences in terms of health services offered by BMC across its administrative wards.

Methodology

In order to achieve the aforesaid objectives the following method for data collection has been followed.

Data Collection:

Since BMC is the main source of data, the pilot visit was undertaken during the month of September and October 1997 to Bombay particularly to the Public Health Department of BMC to find out what kind of information was available. This helped us to organize the study systematically to depend on what is available and develop the guidelines for actual data collection. We found that we cannot get ward-wise data and information for certain years was not available.

During the actual data collection visit i.e., December to January more thrust was given on to see the health services (preventive and curative) of the people of Bombay city as a whole and efforts being made by BMC to increase the quality of these services after independence.

(1) How health services (preventive/curative) developed in Bombay city since Independence, provisions at BMC level for preventive services – Housing conditions of people, safe drinking water, drainage system, collection of garbage etc.

Curative services – Medical services available across the wards:

a) Budgetary outlays for the above services

b) Services offered under above heads:

- Development of medical institutions over a period of time
- Total number of Hospitals/ dispensaries during the year 1989.

- Total number of patients treated/ attended to during that year

The emphasis were made to collect the data in regard to above mentioned aspects with the decadal difference since Independence. It was not possible for a researcher to study 50 years, all together just because of time constraint and some of the records were quite decayed and some records were missing.

On the basis of this information, the general health status of people in wards were drawn i.e., mortality rate in wards, causes of mortality, services made available in the wards and budgetary provisions for it.

(2) To find out the variations of health services in the wards, three different wards were observed, one of them was relatively developed and comprises of upper class population, another of middle class and third one was lower class. To select these wards the following criteria were used: mortality in the wards, number of slums and it's population and total labour population in that ward. To have better understanding about the wards in terms of health services, small localities were selected within those wards, like from 'D' ward – Pedder Road as Upper Class area). From 'L' ward – Santacruz (Middle Class), and Dharavi (two slums) as lower class. Where quality of services available was seen and also simultaneously had dialogues with people about the kind of services they get. Thus, D L & H/E administrative wards were chosen – for the study. Emphasis was made to see and study the actual structure and functioning of these services at ward level and how distribution takes place.

The entire study is based on the secondary data, for which the information collected through the various reports of Municipal Corporation of Bombay especially Public Health Department and Administrative Department of BMC. Also some of the informal interviews of the Health officers and Medical officers from different wards were conducted. The visits were paid to various wards to collect ward level information. Also progress reports of three medical hospitals were studied.

Various studies have been conducted by NGO schools on the health conditions of Bombay. Beside these, books, records, other relevant documents, sources were studied and a review of relevant literature was done to have the proper understanding of the problem under study. There are two main units of analysis one -- BMC as health services provider and second – it's citizens especially the poor of the city.

CHAPTER II

Chapter II

PUBLIC HEALTH: THE CASE OF BOMBAY

With rows of high-rise buildings along Cuffe Parade and Colaba, the business towers at the Back Bay, the vehicular streams whirling around Flora Fountain, the lights of Marine Drive, the fantasies of the film world, and numerous others, ostensible symbols of modernization, Bombay, though not the nation's capital, is India's premier metropolis often described as the most 'city like city' in India.

Bombay island was gifted as dowry to the English King, Charles II when he married the Portuguese princess Catharine of Braganza in 1661. It was later leased to the East Indian Company, seven years later at an annual rent of £10 only. The second Governor of the island Gerald Aungier, filled the beaches between the island and Bombay became a compact mass of land except for Colaba which was brought in much later. The opening of the Suez Canal established Bombay as the principal 'Gateway of India' [Dossal, 1991]. Originally, the island was composed of only 7 villages – Mahim, Parel, Varella (Vadala), Syva (Sion) under the Cacabe of Mahim and Mazzagon, Bambain and Varal (Worli) under the cacabe of Bambain. [Gazetteer, vol.17].

The first suburbs date back to the 18th century and were developed by reclamation in Mahim and Sion. Large scale reclamation of the marshes helped to wield the seven islands together into one mass and a large area was made available for development in response to the burgeoning population. The

beginning of the 19th century saw the urban expansion of Bombay outside the Town. Fort to the native Town beyond the Esplanade. The original Native town was an Indian commercial residential area like North fort, but more densely populated. The extension of the Native town housed non-commercial Indian population. The European residential growth outside the fort was confirmed largely to the suburb of Colaba in the South, and to Parel and its vicinity in the north. The latter suburb was to be abandoned in favour of Malabar Hill in the mid-19th century. The European events were located in wooded sparsely populated areas, offering a scenic view.

The pattern of generalised functional land use observed in Bombay about 1900 was obviously affected by the restrictions imposed by the shape of the island, its natural growth. It is highly probable that in the absence of site restrictions, the city would have grown in a large semicircle around the harbour, and a somewhat different spatial pattern would have emerged. This hypothetical pattern still shows concentric development, but within two ethnically segregated halves, European and Indian, separated by an open green space a continuation of the green belt surrounding the original town. These two halves are largely the mirror images of each other, composed essentially of the same functional areas: the commercial residential section closest to the harbour and the docks, encircled by an open space also accommodating army troops; which in turn is surrounded by the extension of the commerce-residential section, followed by residential areas near the periphery, bordering on agricultural land. The only variation is the industrial area, which is located

in the Indian part of the city, surrounded by working class residential areas. This spatial pattern hypothesised for Bombay also characterized Calcutta and Madras and therefore it is described as the 'colonial port city pattern' in India. [Dossal – 1991].

In 1920, the Bombay suburban District was formed. This included the towns of Bandra, Santacruz, Kuela, Ghatkopar-Kiral as well as the surrounding rural areas and it constituted a separate administrative unit. However, suburbanization on a large scale is characteristic of the post-Independence period. The Greater Bombay Municipal Corporation was constituted in 1950 and the six municipalities of Bandra (including Santacruz), Parel, Andheri, Juhu, Kurla and Ghatkopar along with the village Panchayat of Chembur, plus 34 revenue villages from Bombay suburbs and Thane district were incorporated in it.

Between the years 1845 & 1875, Bombay's urban environment was significantly restructured and it emerged as the leading port city within the British Empire. The ending of the East India Company's monopoly of Trade with India in 1813 had led to the growth of private European firms of agency houses. Bombay served as their headquarters in Western India. In 1819, after the defeat of the Marathas in the 3rd Anglo-Maratha war, Bombay was mode the capital of the newly cheated Bombay Presidency.

The expansion of Bombay demanded the destruction of Maratha power in 1819 so that trading links could develop in the Deccan and support the

development of communications abroad. The Bombay business class pushed for extended and improved land transport and regular shipping services. Until this was accomplished, Bombay could never rival Calcutta's control of the great Ganges waterways. And unless the second was developed, Bombay's primary advantage – proximity to Europe [Bombay was half the distance from Aden to Calcutta] could never be fully exploited. Already, there was pressure for a regular Red Sea steamship service to Europe in the 1820s. The first regular road through the ghats to the Deccan was opened in 1830 and in 1838, a monthly mail carrier service to London, creating Bombay Post Office, in those times the most important one in India. The political conquest of the Deccan formed the Kolaba district in 1841, Satara in 1848 and Kolhapur in 1842 which further opened up the cotton growing tracts to the export trade. And the Bombay merchants took the opportunity to expand into cotton. The conquest of the cotton growing areas, the opening of communications and the increasing price of American cotton coincided to the advantage of Bombay businessmen. In 1853, the first rail link was established to Thane and then after extended through the Bhor Ghats to the Deccan. It was now possible to channel raw cotton for its major growing areas particularly Nagpur to foreign markets through Bombay. Later the old established weaving centres of Gujarat-Ahmedabad was connected by the railways. The transportation to the North had always been bad, and the sea route was inoperative during the monsoon. But by this time Bombay had a direct and all weather connections to the Northern trade routes i.e., to the Punjab & and the heartlands of India in the Gangetic Plains. Thus, Calcutta's monopoly in trade was reduced.

Bombay also competed with Calcutta to secure the lion's share of the external services. Its traders lobbied with the government for the profitability of steamship communication. In 1865, a weekly mail service to Aden prepared the ground for securing the regular service through the Suez Canal, which was opened in 1866. Henceforth, Bombay's advantage was the closest port to Europe was secured in terms of man-made communication need.

Trade was the basis for the growth of Bombay from a small fortified settlement to a city of some significance within the British Empire. And cotton trade was the heart of Bombay in the 19th Century.

The industrialization of Bombay followed an important substitution patterns still a powerful motive in the city. This was the main factor in the development of cotton manufacturing. In 1860, about ten mills employed some 7000 workers. And during the 1880s, 30 to 40 mills provided some 30,000 jobs. By the end of the century, there were 82 mills and nearly 73000 jobs were provided. In the early 20s, some 11 percent of the population were said to be employed in the cotton industry. India had become one of the world's largest cotton manufacturing countries in the number of spindles, fifth in the quantity of raw cotton consumed, fourth in the size of its labour force, third in the size of raw cotton production. The industry locked Bombay much more securely into the Indian economy and made more difficult the city's earlier role as an intermediary/broker between the Indian farmer and the London market. [Nigel, 1974: p.8].

The residential pattern and the attendant spatial distribution of disease and mortality was shaped by the rapid expansion of the textile industry. With some variation this holds true even today. The municipal health officer, at that time (2nd half of the 19th century), T.S. Weir, would have heated debates regarding water supply and sanitation, with other members of the municipal corporation. [See, for example, Health Officer's Report for Bombay Municipality, abstract in Report on Sanitary Measures in India, House of Commons, Accounts & Papers, 1889 & 1892].

Bombay's first textile mill was set up in 1857 at Tardeo (in D ward bordering on E ward). Subsequent growth of the industry covered the area from Byculla to Parel (E to F ward south) with 82 mills employing 73,000 men by 1900, with 40 percent of the city's work force. The implications for residential location were important. Prior to this, middle class Indians had been settling in the Girgaum area, while the Europeans & Parsis were colonizing Byculla. Further, movement in this direction was now foreclosed and indeed, the Parsis began to shift to Malabar Hill. For the time being the mills constituted the northern border of the city, and so long they remained confined to the outskirts of the city.

Apart from the industrial expansion which influenced the health of Bombay, years of famine added to the steady drift into the city of destitutes from the countryside. In 1877 there was a major movement of people into the city to escape the famines that spread over much of Western India. The localities to which these people came were Khara Talao & Kumbharwada

(today's C ward). The chief medical officer drew attention to caste differentiation in mortality in this locality at a time of crisis, when different classes found themselves forced into juxtaposition by the force of events. [Health Officer's Report 1877. Abstract in House of Commons, Accounts & Papers]. The crude death rate among Hindus in general was 58.8 per thousand, but among lower caste Hindus it reached 94.0. Weir also commented on the high mortality among destitute migrants in the city. [Ibid., 1889-90]. This issue is debated even today: Do migrants arriving in the city for treatment or for subsistence `bring their own mortality with them', so to speak or is it the case that migrants are forced to live in overcrowded or marginalized localities where environmental conditions are at their worst? We can see the early signs of the creation of the modern C ward as a kind of ghetto. [R. Ramasubban & N. Crook, 1996, p.146].

In the 1880s, Weir commented in some detail on Bombay's spatial mortality differentials. The highest mortality in the city as it then was (the modern Island city) were to be found in certain localities within the modern C & E wards. The TB mortality was highest in these two wards also, still the highest in E ward today. Weir comments on the fact that Cholera was widespread among lodging house dwellers in Kurla and even in parts of D ward. Ward A had lower mortality from Cholera. Mortality has much to do with one's ability to withstand the worst onslaught on the body from fearful environmental conditions: Nutrition and access to health care are crucial in determining the mortality outcome. The social composition of the Fort area

(which included the cantonment) was on the whole more likely to represent a better nourished population than in the neighbouring C & E Wards, whatever the environment. [Ibid., p.147].

It may have been the case that the mill workers living in the Parel area also enjoyed lighter mortality as a result of fairly stable employment conditions at the time of economic boom. But by the 1890s Parel was also referred to as one of the high mortality localities and Weir concluded that the very rapid residential expansion here during the previous decade was responsible. There were 30,000 mill workers in the 1880s, and 73,000 by the end of the century. He noted that the new residential areas had no sewerage connections. [Health Officer's Report, 1889-90, Op.cit.]

By the end of the century the mills were no longer located on the fringes of the city. Areas such as Sion, Mahim and Worli had lower mortality rates than those further south (until you reached South Fort at Malabar Hill). The elites were still resident in some of the new frontier regions (to the north of the mills) and were able to colonize the western seabard, a location that 'filled up' much more rapidly before the advent of the luxury high rise apartments. The middle classes could no longer move gradually northwards to less crowded areas as such a move by that time required leap frogging the polluted area of the mills. Hence there was a considerable degree of juxtapositioning of poor and middle-income groups south of the mill area. In 1892, the South Fort locality returned a mortality rate of 8.6 per thousand,

compared with 46.2 in Kamatipura. In nearby Mahalaxmi, the rate was only 15.3 [Ibid., 1892].

The noted technical debate on the advisability of flooding the city with water from additional sources while the drainage system remained inadequate to take it away seemed to miss the important class and economic dimensions influencing the level of Bombay's mortality not only during the late 19th Century, but for the whole of the 20th Century as well. However, at the same time, the debate did reflect the formation of class formations on public health, with property owners opposing the raising of taxes and the disruption that public works expenditure would entail, an opposition that culminated in hostility towards the establishment of the City Improvement Trust in 1898. [R. Ramasubban & N. Crook, 1996, p.148].

Bombay was a prey to catastrophe whether famine in the countryside, which drove cultivators to the city, or epidemics in the city itself, which drove out its inhabitants to the rural areas. For example, the droughts of 1802-3 and 1899-1900 prompted major flights from the land to the city.

The 1897 bubonic plague forced out it is said, some 10,000 in the first week; at the peak of the epidemic, over half of the inhabitants had fled the city. [J.K. Condon, *The Bombay Plague*, Bombay, 1900, p.130]. No sooner was the plague curbed than rural famine generated a reverse flow until the epidemic returned in 1900. Economic fluctuation stimulated similar – if less large and panic stricken reactions. The authors of the 1931 census estimated

that, because of the flight from the slump their enumeration of the city's population was possibly 200,000 below what it might have been.

The city was always ill prepared either for disaster or even simple growth. Its settlement and extension was haphazard even when, as in 1803, a catastrophe laid waste a major part of the inner city, making possible systematic replanning. Once the danger of attack from sea as land disappeared, the richer inhabitants moved away from congested and extremely unhealthy conditions within the front area – covering part of what is today the central business district and southern area of the docks. Continuous efforts throughout the 18th century to consolidate the land mass by drainage and to exclude the tide with dykes made more land steadily available. The Sion causeway was completed between 1798 and 1803, and the last gap – the southern extremity at Colaba was spanned in 1838. New settlements were created at the beginning of the 19th century at Dongri Hill and Backbay. In the 1830s, country houses established on Malabar Hill near the Governor's summer-time residence on Malabar Point (1835). With the slow improvement in transport and the growth of population, the 'native town' also moved outwards from the walls – to Byculla, Mazagaon, and Kamathipura and then to Dhobi Talao, Girgaum, Choupatty and Khetwadi. Beyond what was becoming the island (i.e., the consolidated land area of the original seven islands) Salsette peninsula, there were market gardens and the country estates of wealthy Paris and Britons.

In the middle of the century, the danger of epidemic and the growing wealth of the city promoted the final destruction of the fortification and the

filling in of ditches, yet there was little sanitation or safe water supply. Improvements depended upon a tangible danger; otherwise the restless pursuit of self-interest that had created the city continued undisturbed. Even the monumental status symbols of a rich business class – the town hall, the university, the railway station, the post and telegraph office – waited for their creation upon the great prosperity of the 1860s. Bombay's pride was in achieving the first elected Municipal Corporation (in 1873), India's first stock exchange (1875), private telephones (1881), and tramways (1877), rather than in the use of its wealth to improve the welfare of the majority. [Report on the Development Plan for Greater Bombay, Bombay, 1964, pp.24-31 & Town Planning in Maharashtra 1914-64, Poona 1964].

Even without periodic disasters, conditions were appalling, although possibly not worse than those existing in London or other major European cities in the first half of the 19th century. The 1814-15 Census recorded that some 27 percent of the enumerated population was 'floating' and that there were some 20,000 'houses' for the rest, or 7.8 persons per house. The rich might flee the inner city, but in their wake came the chanty towns, which soon reached Malabar Hill, Breach Candy, and Mahalaxmi, still high income residential districts. In most areas, the city was as foul as some medieval slum. [For a detailed account, see S.M. Edwards, 1902, p.170]. At the beginning of the 20th century housing statistics came to be seen as one of the indices of squalor. The 1911 Census receded that 69 percent of the population lived in one room dwellings. A 1921-3 survey noted that 97 percent of working class

families lived in single rooms which housed between 2 and 8 families. The 1931 Census calculated that on an average 4.4 people lived in each of the quarter of a million tenements (and over 80 percent of the tenements consisted of one room). By 1951, the average had risen to 6 people per room. [H. Nigel, 1974, pp.10-11.]

In the second half of the 19th century, the growth of industry, almost surrounded the native town, in a semi-circular belt, accompanied by new working class residential areas, the extensive development of the docks, and the continuation of the European commercial residential area into lower Colaba (former old women's island). The fort ramparts were demolished at this time and the area was occupied by a row of public buildings; but the Esplanade was left largely untouched. On the whole, the physical expansion did not affect the character of the older urban areas. [Kosambi, 1991: p.160.]

Giving further details about the early residential patterns Dossal points out that, around the mid 18th century, the wealthy Indian merchant & financiers, such as the Wadia, Camas and Jejeebhoys, who acted as intermediaries in the European-dominated overseas trade, had their own houses in the northern fort as well as the outlying suburbs of Parel, Lalbaug, Byculla and Malabar Hill. This was because the need was felt for more residential space and healthy surroundings. These localities were primarily for the British, though some Indian families, emulating British life-style also lived there.

In the Indian town, residential patterns based on occupation and caste were common, for instance, the *julahas* or weavers lived mainly on Duncan Road, at Byculla and near Babula Tank. Carpenters were found mainly in Khetwadi; Mandis southern section was the business quarter of the richest cloth merchants while the northern portion contained the Sona-Chandi or bullion bazaar. The granaries and major warehouses were grouped along the eastern foreshore. Wholesale trade in copper was concentrated at Paidhuni, in drugs at Ganeshwadi and Sugar and Ghee at Mandvi. Bazaar Gate street was the headquarters of the Hindu shroffs, indigenous financiers, crucial to the coastal and local needs of Bombay. Mandvi and Chakla were the most important commercial areas in the Indian quarter, fronted by docks, with warehouses and wholesale shops in the close proximity, they constituted the heart of the Indian town. [Dossal 1991, 19-20).

Bombay's industry, modernised on a large scale than elsewhere in India, supports many ancillary enterprises. Maharashtra has the largest share of small scale industrial units than any other state i.e., 14.4 percent of the total number of registered units in 1968-69. About a third of the state's total industries are located in Bombay, around 59 percent, if we include Greater Bombay and the neighbouring district of Thana and 67 percent if we consider the Bombay division as a whole. The share of capital invested in small scale units, registered and unregistered, probably favours the Bombay area even more. Some 43 percent of Maharashtra's employment in the small scale is said to be in Greater Bombay. It has roughly 31 percent of India's looms, 29

percent of the loom production and 23 percent of the spindles. Bombay's 59 mills (out of India's 680) are among the most modern and productive, but there is a demand ceiling on the traditional lives of production. There are some 2000 diamond firms in Bombay, dealing in gems, organizing, polishing, (mostly by cottage polishers in neighbouring Gujarat state), setting and export. Bombay is important in creating the relatively high consumer expenditure in the city i.e., 60 percent above the all India average, the highest of any major city and nearly double the average for other large towns in Maharashtra.

The per capita income in Greater Bombay is substantially higher than any other major city in India. But it is also nearly four times the average level for Maharashtra state (excluding Bombay) in 1964-65, Greater Bombay's income per head was estimated at Rs.1500, and the rest of Maharashtra at Rs.400. The Bombay Metropolitan Region has an overwhelming preponderance of large scale factories, for example, 87 percent of basic metals, machine and transport, and 85 percent of rubber chemicals and petroleum. [Nigel, 1974].

The city expanded from the initial area of less than 27 sq. miles and the limits of the corporation was expanded thrice, successively, in 1950, 1957 and again in 1965, which brought about 160 sq. miles within the municipal ambit. With tax revenue exceeding Rs.40 crores per year and a per capita tax incidence of Rs.89.13 (probably the country's highest), the BMC provides a wide variety of services to its citizens.

So, in 1951, Greater Bombay had an area of 235.2 sq. km. and a population of 2.8 million and out of this Bombay city accounted for an area of 65.5 sq.km. and a population of 2.3 million, while the Bombay suburban district located in Saistte comprised 169.7 sq.km. area and 0.5 million population. Hence in 1951, the northern municipal boundary of Greater Bombay was Versowa, Oshivari and Majas villages in the West and Paspoli, Kanjur and Bhandup in the east, In 1957, the administrative and jurisdictional limits of the Corporation was extended in the West upto Dahisar and in the East up to Mulund. [M.C.G.B. 1964].

In recent years, Bombay has been receiving a daily stream of several thousand immigrants. It is pointed out that the number of job seekers available in Bombay are no more than those who have gone to other parts of states. It was generally assumed that the population of the metropolitan area (as a whole) would increase from 7.2 million in 1971 to 9.9 million in 1981, 11.6 million in 1988 and 13.5 million in 1991 and that in the absence of some conscious and forceful policies to deflect growth from the BMC limits, Greater Bombay itself would account for 7.8 million in 1981. and 10.6 million in 1991 as against 5.97 in 1971. Time and again the idea of setting a ceiling on the population of Bombay city has been mooted. [Sivaramakrishnan, 1993].

The History Of Public Health

The need for establishing a hospital in Bombay was felt by the East India Company as early as in 1668. The Bombay Office of the Company wrote

to the headquarters at Surat in October of that year stating that many soldiers were ill and that medicines were urgently required `especially marmalade of Bussora for the flux; the epidemical disease of their place. [Kala K., 1985-86: p.17]

As a result of this during the governorship of General Aungier that a representation to the Court of Directors ultimately got the erection of a hospital sanctioned in 1675. But this proposed building was never erected. Inspite of that the old court building in Esplanade to the South-east of the present cooperage was transformed into a hospital in 1677. It was Bombay's first established hospital and continued to be used up to 1773. Later a new hospital was built on Herby Road, this was used until 1860 when the medical authorities closed it and the Government decided to sell it. But the medical services were available only for military and European civilian population. No state medical aid was provided to the local people till the beginning of the 19th century. But the activities of the public department of the BMC had started much earlier, it can be traced to the conservancy service. The office of the scavenger appears to be one of the most ancient civic offices and the office in charge at times, took charge of the primary functions of the conservancy – the duty of collecting the ground rents. In those years the conservancy of the city was the only problem, the scavengers had to deal with. But since 1757, public health appears to have received the constant attention of the government. During those days, the public had nothing between them and the `Angel of Death', except one medical man. Going back to the 18th Century serious

efforts were made by the public health department in order to stop the ravages of small pox. During the later part of 18th century, the action seems to have been taken by the demolition of the houses from the point of nuisance. The town was gradually cleaned and a new town began to rise.

Soon after some changes caused by the order issued by the Board of Directors in September 1785 under which the entire administration of the city was carried on by different Boards. Since there were no special department to look after the problems of public health and conservancy. These Boards were authorized by the Institution of Justices of Peace for the municipal Administration of the City. The statute instituting this change forms an important landmark in the municipal government of Bombay as far as the autocratic regime of the scavenger and other officers it substituted a corporate control. The most interesting functions attached to the Justice of Peace were what of looking after the cleaning, repairing and watching of the streets and levying assessments.

In 1809, a kind of native general hospital, provisioned by the government, came into existence which treated about twenty patients daily, mainly destitutes. The citizens of Bombay held a public meeting for the establishment of a dispensary and one was started in the fort area in 1854, followed by several other private dispensaries on the persistent demand of the local people. To cater to the requirements of the city, JJ hospital was constructed by Dr. James Burn in 1843. The construction cost of the hospital

was met by the East India Co., and Sir Jamshedjee Jeejeebhoy the first Baronet.

Other large hospitals were constructed in 1882, including Cama hospital, three hospitals providing medical facilities for women were included in this group and this move was initiated by Sir Sorabjee Shaporjee Bengali. The third group of hospitals centred around the Gokuldas Tejpal General Hospital on Carnac Road, This was established in 1865. This hospital became the second main center for Indians as the existing hospital facilities were inadequate.

The initial task of establishing hospital in the city was taken up by the Europeans for their own welfare but increasing interest among the aristocrats as well as elite Indians for providing health services to the local people led to the development of a number of other hospitals like:

1. In 1985 establishment of a temporary hospital for the women at Khetwadi by the Bombay Committee of the medical fund.
2. B.E. Albless Obstetrics hospital opened on 1890 on the premises of Cama hospital.
3. Location of an infectious disease hospital at Grant road at the outbreak of epidemic in 1891.
4. Replacement of obstetrics ward from JJ hospital, Mohitibai Wadia Hospital, reopening of Infections disease hospital at Arthur Road, building of Ackworth Leprosy home at Wadala.
5. Establishment of Nair hospital in 1920.
6. In 1926 K.E.M. Hospital is established as a memorial to King Edward VII, to which was the Goverdhandas Sunderdas Medical College attached later.
7. Nair Dental college opened in 1933.

8. In 1941 Tata Memorial Cancer hospital was established.
9. Transfer of Nair Hospital and Dental College and Topiwalla Medical College to the Corporation, acquisition of Military hospital at Dharavi to make it Lokmanya Tilak Hospital.
10. Brought all T.B. hospitals of the Corporation (Ramesh Premchand, Maratha, Turner) to Sewri [Verma, 1985].

Thus a series of hospitals were opened in the Bombay city as per the demand of the local peoples to provide health services, though it is a different matter reached to the needy people of the locality. On the other hand the public health department also developed its infrastructure to serve its citizens. Under the Act.XI of 1845 the Board of conservancy was authorized to make appointments of officers without any limitation subjected to the sanction of the justices in session. Another important landmark in Bombay history is the establishment of the Bombay Municipality under the Municipal Act 1861, which is further converted into Bombay Municipal Corporation under an act to govern the city.

The Board of Conservancy was superseded by Act.XXV of 1858 and was supplanted by a triumvirate of commissioners. As this experiment was unsuccessful of same was superseded by the Municipal Act of 1865 which forms a very important milestone in the history of local Self-Government in Bombay. This Act changed completely the executive machinery of the municipality and introduced a consulting officer of health as one of the principal functionaries. A part time officer was created for services of conservancy in the BMC. Hence the Commissioner cancelled the contract and

organized the Public Health Department under which the following establishments were incorporated in it.

1. Scavenging establishment
2. Drain cleaning establishment
3. Road sweeping establishment
4. Town sweeping *Bunder* establishment
5. Market and slaughter houses establishment
6. The night soil and Halalkhore establishment
7. Foreman, carpenter and store-keeper's establishment.

For the convenience of sanitary administration ten wards were created which were further divided into number of sections and subsections. In charge of each ward was an European Inspector whose duty was to conduct daily rounds to ensure cleanliness. Towards the end of 1863 Dr. Leith was commissioned by the government to report on the sanitary conditions of the city. He came up with some striking findings in his report. Mostly based on his report the municipal reforms as embodied in the Act II of 1865 was planned. The Act came to be implemented on 1st of July 1865 and the health department was formed by the end of that year.

The constitution of the Municipality was then subsequently altered and finally settled under the Municipal Act of 1888 which also gave the city a full time health officer. At the end of the 19th Century i.e., in 1896. The presence of Plague in Bombay forced the Municipal Commissioner as well as the Public Health Department to take special measures. The patients were admitted to hospitals but they did not get proper services. Therefore, to over come the drawback the authorities had to come up with some strong steps – one the

government had appointed a Committee for the abolition of Plague. Secondly, allotted seven Deputy Health Officers for the seven words of the city in 1896. The appointment of these officers caused some resentment and heart burning on the part of old staff. These Deputy Health Officers had chiefly to look to the removal of plague cases to the hospital and secure the disinfection of the houses. With regard to medical relief to the poor, although efforts were made to put the work of registration of Births and Death on a sound basis, the system was still unsatisfactory. Barring the statutory obligation of the corporation for making a contribution towards the maintenance of the three Government hospitals, the JJ, GT and Cama Hospital, practically no provision for medical relief to the poor existed in the city. Thus until the beginning of the 19th century no medical aid provided by state to the poor. [Manual, BMC]. After independence, due to the rapid growth of population and urban-rural migration the city started expanding greatly towards the immediate hinterlands. The expansion of Bombay Municipal Corporation areas in the 1950s was mainly to provided adequate facilities and services to the expanding population. The problem of medical relief was also entrusted to the care of medical relief and public health committee of the Bombay Municipal Corporation and it was made responsible for the maintenance of the public hospitals and health care centres.

Spatial pattern of Public Hospitals in Greater Bombay in 1986

Hospitals in Greater Bombay can be viewed on the basis of control. Accordingly public and private hospitals are identified by the presence or

absence of governmental control over the distribution of health care facilities. Private institutions have a larger share of the hospitals in Greater Bombay. In total, there are about 189 hospitals in Greater Bombay of which only 24 are managed by state government and local government. The maternity hospitals run by the municipality and 87 out of 189 hospitals are non-maternity. The city center, being the initiating point of growth of hospitals, continues to remain the focus of medical activities. 42 hospitals, both private and public which is nearly 50 percent of the total number of General Hospitals in Greater Bombay are located in the old city.

The areas with one hospital are central and lower Colaba, Fort North, Market, Bhuleshwar, Umere Khadi, Dongri, Fanaswadi, Mazagaon, 1st Nagpada, Sewri, Matunga, Naigaum, Prabhadevi, Chinchpokli, Lovegrove. Where the areas unserved include upper Colaba, Fort South, Chakala, Mandvi, Khara Talao, Kumbhar Wada, Tardeo, Dhobi Talao, 2nd Nagpada, Kamathipura.

The private hospitals are mainly concentrated in the western part of Bombay city. In the old Central Business District area, there is a marked absence of hospitals. The eastern areas also show an absence of hospital development. The areas in the east have a larger area/extent than some of the areas in central Bombay which have three to four hospitals. Of the 42 hospitals found in the City, 11 hospitals are public hospitals. Now reflecting the dominance of private capital and demand for care provided by private

institutions and also the ability of the population to pay the required charges for availing the expensive treatment.

Compared to the city proper where concentration of hospitals are found to occur, the pattern in the suburbs is more dispersed. 45 hospitals are located in 85 percent of the total area of Greater Bombay which is in the suburbs. These hospitals serve 61 percent of the total population of Greater Bombay residing in the suburbs. Here again areas with and without hospital facility can be identified.

Areas with hospitals: Bandra, Khar scheme, Santacruz (W), Santacruz Central, Santacruz (E), Vile Parle (W), Juhu, Vile Parle (E), Andheri (E), Eksar, Aavey, Malvani, Malad (E) & (W), Kandivli, Borivili, Posar in western part and Kurla, Chembur, Govandi, Ghatkopar, Kirol, Panjarapol, Vikhroli, Bhandup, Mulund (E) & (W) in eastern and Central suburbs.

Areas without hospitals: Palli Hill, Danda, Khar and Palli, Slaughter House, Hill Road, Jogeshwari (E) & (W), Goregaon, Madh, Erangal, Manori Island, Gorai, Kanheri, Magathane, Dahisar among Western suburbs, Kurar & Dindashi, Vihar, Bazar and 7 villages, New Mills Kurla, in the Central suburbs, Chunabatti, etc., in eastern suburbs.

The pattern that is emerging from the spatial distribution reflects a larger concentration of hospitals in the western part than in the central and eastern. Of the 45 hospitals located in the suburbs, 13 are run by the public organization and the rest are private. Since the suburbs cover a larger area.

Vikhroli, Bhandup are served by one or two hospitals, which is inadequate compared to the size of the population. Absence of hospitals in certain areas like Palli Hill, Khar accounts for the growth of clinics and nursing homes which provide proper care at a high cost. The areas with public hospital facility are Bandra, Santacruz (E), Vileparle (W), Malad (E), Kandivli, Borivli, Kurla, Chembur, Govandi, Ghatkopar, Panjarapol, Mulund (E) and (W), of which the first six are in western suburbs while the rest in the eastern suburbs. There is no hospital in the central part of the suburbs.

Locational Characteristics

The existing spatial pattern of the public hospitals induces one to look into their locational characteristics. Accordingly, location of each hospital has been associated with population, nodal points of the city, city-center and the socio-economic status of different areas. It has already been pointed out that the city center (core) emerges as the dominant zone with a maximum number of seven hospitals. Bycalla which borders the core in its northern part alone has four hospitals.

The city of Bombay has a linear extension resembling an inverted triangle. The apex of the triangle is lying to the south with limited area/extension. The south has been the initiating point for urban growth and concentration of population. With urbanization, the population of the city started multiplying and there was a pressure on land, initiating the process of migration to the immediate peripheries. The horizontal expansion of the city

was thus initiated. Today the city of Bombay comprises 88 sections that are different in their sizes as one proceeds from the city center to the suburbs. The migration to the suburbs was not uniform in all directions through the major trend was to the north-migration of the original city inhabitants together with increasing population due to high birth rates has produced anomalies in population distribution over space. There occurs a high concentration of population in the city – center and a relatively lesser concentration in the suburbs. The following spatial pattern of population density emerges in Greater Bombay.

Description	Areas
Very High density areas	Market, Dhobi Talao, Fort North, Mazagan, Central Bombay, Dadar, Sion, Prabhadevi in City proper and Chembur and Kurla in eastern suburbs.
Areas with medium density	Colaba, Walkeshwar, Sewri in the city, Santacruz, Eksar, Vile-Parle, Andheri (W), Jogeshwari (E) and Bandra in the Western suburbs, and Mulund (W), Ghatkopar in eastern suburbs
Areas with low density	Govandi, Mulund (E), in eastern suburbs, Juhu, Versova, Posar, Magathane in West, Fort South in South.

[K. Kala, 1985]

Functions Of The Public Health Department

The following functions are performed by the staff in the wards under the supervision and guidance of the Executive Health Officer, the Dy.

Executive Health Officer, 4 Zonal Assistant Health Officers, and Epidemiologist.

1. Prevention and control over communicable diseases
2. Maintenance of vital statistics regarding births, deaths and occurrence of diseases
3. Maternity and child welfare services
4. Medical relief through dispensaries including mobile dispensaries
5. Regulation of the places for the disposal of the food
6. Prevention of adulteration and misbranding of articles of good.
7. Licensing and controlling trades dealing in food and coming under the purview of sections 394 and 412 A of BMC Act and Maharashtra Prevention of Food Adulteration Rules 1962.
8. Licensing and controlling trades (other than Food establishments) involving nuisance or danger to public health
9. Controlling places of public amusement from public health point of view, namely cinema houses, drama theatres etc.
10. Registration and inspection of nursing homes
11. Licensing of nurses establishments
12. Expansion programme of public health and medical relief services
13. The other miscellaneous functions, such as enquiries about proper lunatic cases, control over Dhobiwada at Mahalaxmi, control of VD clinic and laboratories, life guard services at Juhu beach, seizure and impounding of stray cattle etc.

Thus, today the Municipal Corporation of Greater Bombay and the State Government runs 23 general hospitals and 20 maternity homes in different parts of the city. This number is quite small as compared to the size

of the area and population of Bombay city. The corporation runs 20 general hospitals with 3 specialized hospitals i.e., eye, ENT and TB. The bed strength of the municipal hospitals is 4436.

CHAPTER III

Chapter III

SITUATING HEALTH SERVICES IN BOMBAY

In the post-independence period saw Bombay's population shot up rapidly due to rising migration from the rural to the urban areas. Within the City the population shift to the suburbs makes it essential to examine to what extent the City's healthy services expanded to cover the new areas/rising population?

Population Shift

The 1971 Census showed that a large section of the people lived in the heart of the city, we may call it downtown. But later the population began to shift to the suburbs as per the 1981 Census. During the 1971 Census, the population of the downtown was 51.45 percent which came down to 39.60 percent in 1981. On the other hand, suburbs population had gone up to 42.82 percent from 36.29 percent. Likewise, the proportion of the population living the extended suburbs had gone up from 12.28 percent in 1971 to 17.57 percent in 1981 (Yesudian, 3, p.10).

Growth Rate

The growth rate of Bombay during the decade 1961-71 was 43.8 percent which came down to 37.8 percent during 1971-81. The downtown (old city), suburbs and extended suburbs show a wide variation in growth rates.

The city population rose by 67 percent during 1971-81 and has reached a saturation point. The intra-household divisions and rural-urban migration led to population rise in the suburbs and extended suburbs. The suburbs grew at a rate of 60.6 percent and the extended suburbs, 97.2 percent. The least congested wards of the city registered the maximum growth rate of 138 percent, while it was 20.57 per in the most congested ward of Ward-C, called Mega Thane, it was 344 percent (Yesudian Report No.3).

Most of the migrants to the city, are unskilled labourers from the rural areas. Unable to afford good housing, they occupy the open land owned by the railways, state and central governments and municipal corporation. The unauthorised occupation of the land without any basic amenities, is a cause of concern for the health authorities. This problem becomes acute since population densities are gradually rising in the suburbs and extended suburbs.

Water Supply

Being a growing industrial city, Bombay has a high demand of water and the BMC has to depend on various other sources to fulfil its water need. (See relevant **Table 1**).

In 1969, about 3432 megalitres of water was supplied to Bombay, the average per day being 940 megalitres (210 million gallons). This per capita consumption works out to 169 megalitres (37.18 gallons) taking the 5.5 million population as the basis. The ratio domestic and industrial supply was 4:1. In 1997-80, Bombay's population was 81.10 lakh (mid year estimate 1979

and received total average water supply of 1587 million litres per day. The average per capita works out to 123 litres as against 182 litres per capita per day, which is essential for Bombay's climate. In 1983, according to the BMC sources, Bombay received 2000 million litres of water daily, while the actual requirement of Greater Bombay was 2500 million litres.

The estimation of Gonsalves, show that the water consumption needed is 800 million gallons, the city receives only 210 million gallons. He points out that according to the World Bank 50 percent of the water supplied does not reach the concerned consumer due to leakage and illegal diversion (Yesudian Report No.3). A majority of the households do not have independent taps but have to depend on public taps. This affects the city's sanitation.

Even the inadequate water is not properly distributed. Affluent areas get excess water which is wasted. The BMC sources show that from the water supplied through the Bhandup plant in 1997 half of the water supply is provided to ward T, which also has the highest consumption (See **Table No.2**).

Sewage System

Built with World Bank assistance, the modern sewerage system does not serve any purpose since the slums (which comprise 45 percent of the population) are not connected. Being unplanned structures, the slums lack proper sewage and are a fertile breeding ground for communicable diseases.

Latrine Facilities

The slums cannot afford independent latrines and the public latrines are inadequate. Moreover, since they are not properly maintained, they are a health hazard. With the limited latrine facilities available, a large portion of the population defecate in the open spaces, which again creates a problems.

Solid Waste Disposal

The city has the major task of collecting and disposing off more than 3000 tons of solid waste everyday. The Municipal Corporation employed nearly 20,000 persons and 250 lorries for this purpose before 1989 (Yesudian Report No.3, Details in **Table-3**).

However, the disposal of the collected waste is not satisfactory. Often, it is dumped in the open spaces where rats, flies and other insects pose a threat to the people living around. The common man is unconcerned about keeping the city clean and not much has been done to properly educate the citizens, by the BMC.

BMC's Health Services – Post Independence

The budget estimates of the BMC of a year is equal to the budget estimate of Kerala. There is a continuous decrease in the health budget of the country and Bombay is no exception. Reviewing the budgets for the last three decades indicate that the amount spent on health is declining over the period of time. The expenditure of the BMC has declined by about 10% from 1960 to

1985 as compared to other megacities. During the same period, Delhi's expenditure on health slowly increased. One reason could be that BMC started investing in health at least a century back especially in the recurring and non-recurring investments in health care, whereas Delhi's health investments are comparatively recent. Calcutta spent the least on health, amount decreasing by one-fourth in a span of 35 years 1960-1985. [Details in **Table No.4**]. Despite this decrease, Bombay, spends one-fourth of its budget on health which has to be considered. **Table 5** gives the health expenditures of the major cities of Maharashtra.

The BMC spends more on health than any other corporation in Maharashtra The public health section of the BMC divides its outlays under two heads. One is superintendence which includes the expenditure on supply of milk for malnourished and needy children attending municipal schools, malaria eradication programmes, impounding stray cattle, census, filaria programme etc. The other major area of expenditure is medical relief and education which concerns hospitals, maternity homes, dispensaries, statutory contributions to government medical institutions, clinics for leprosy treatment, grant-in-aid to public institutions etc. This table shows that the allocations to the hospitals are higher than those of maternity homes and dispensaries, which provide primary health services. However, the table reveals that the budget expenditure of three divisions of Greater Bombay City, western suburb and extended suburbs, where in general, most of the labouring class resides are being marginalized as against the western suburbs where the population is

more prosperous, in terms of budget expenditure during the decade. Dispensaries show a slight increase (7.36%) than the city's (1.95%) and western suburbs (1.10%). One reason could be that the number of hospitals in the City is more than the number of hospitals in the City is more than that of the suburbs and extended suburbs.

On the decadal increase in the health expenditure of the BMC, it can be said that the expenses on general superintendence of hospitals, maternity homes and dispensaries had either doubled or tripled in the years 1979-1989. It is also applicable to the total budget expenditure on health of the BMC. **(Table-6).**

Table-7 indicates that a few general hospitals were well favoured by the financial allocations in the years 1969-89. For example, K.B. Bhabha General Hospital, Bandra, Rajawadi General Hospital in 1969, Cooper General Hospital and Rajawadi again had highest spending among the list of the hospitals, in 1979 and 1989. Various reasons could be cited for this...variations in the strength of the hospitals – indoor/outdoor capacity, staff, infrastructure, bed strength and catchment area, etc.

The highest budgetary expenditure of a hospital does not mean that the hospital has the highest spending on the patients. As far as the high spending on indoor patients is concerned, hospitals like Maa General Hospital, Haji Bapu, Mulund (East), Muktabai etc., spent the highest on inpatients, in spite of the least budget allocation.

The teaching hospitals follow more or less a similar pattern, regarding inpatient/outpatient expenses. During the decades 1969 to 1989, the maximum and minimum spent on inpatients were Rs.15 to Rs.231.87 in 1989. With regard to outpatients, it was Rs.2.80 to Rs.11.07 in 1969 and it went up to Rs.28.3 to Rs.108.55 in 1989. However, the expenditure on diet, medicine, drugs, equipments, essential aspects of medicare, drugs, equipments, essential aspects of medicare, were significantly low as compared to the establishment costs of the hospitals. Less than 50% of the budget was on patient amenities.

One important point to be noted is that the amount spent on indoor patients is much higher than the amount spent on outdoor patients, which varies in each hospital (**Tables-8, 9, 10**).

Health Status of Bombay City

Let us see the data available to understand the health situation of the city. The total live births registered in the city in year 1969, 1979, 1989, were 1.59 lakh, 2.04 lakhs, 2.09 lakhs and the birth rates were 38.4, 34.3, 25.4 respectively. Compared to the year 1969 the birth rate in 1989 had come down considerably. (BMC Sources).

The ward level data gives an interesting picture. It is found from the table that within the city the birth rate differs from ward to ward. In the year 1976, it were ranging from 16.7 birth per 1000 population in ward C to 106.3 in ward %. Ward T had birth rate three times higher than the city average birth

rate of 31.0. It was noticed that the birth rate increases from the proper city (P, R, T wards) with suburbs (H, K, L, M, N, Wards) falling in between (Yesudian Report No.1).

This, scenario we see over all in the decades 1969-1989. There is similar sort off variations of birth rates in wards (D, L, M/E, N). The birth rate of ward D had come down to less than half in year 1989 than that of 1969. Overall birth rate in other words had also come down. In the year 1969 ward N had showed the highest births, in 1979 it was in Ward (L, H/E) and in 1989 it was registered in ward L again. The ward D had registered lowest births in all decades. **(Table 11).** To understand the health status of Bombay one would need to focus on: (a) the health status of the population and the prevailing illness-pattern in the City. To clarify these factors there are a number of indicators like mortality an morbidity which need to be studied. Reliable and systematic information on disease conditions and morbidity is almost lacking for Greater Bombay.

Mortality: The death-rate during the last three decades had decreased but did not change appreciably. During the year 1969, 1979, 1989 the total deaths registered were 54,831, 712,000, 73,469 persons and the deaths per 1000 population were registered 13.2, 12.1, 9% respectively. This shows there is not much change in the mortality rate in Bombay city during the last three decades. [Ex-Health Officer, Annual Reports]. According to Yesudian, the total number of deaths for the year 1979 was 72,002 persons. It was 6636 deaths more than the total average of deaths during the last five years (1974-

78). There is not much change in death rate during the last one decade. While the death rate for the year 1971 was 9.8, it had come down marginally to 8.9 in the year 1979, which was higher than the death rate of 1978 (8.6). In spite of tremendous development, mortality rate had remained more or less the same. [Yesudian-1984, p.84). A comparison with other districts of Maharashtra state would reveal the clear-picture of the health problems in Bombay. Comparative data for the year 1975 reveals that among the 26 districts of Maharashtra state, Greater Bombay had the twelfth highest infant mortality rate and the highest still birth rate. The death rate, infant mortality rate and still birth rate were higher than that of the total of Maharashtra state. This reflects the acute lacunae in the field of child health care.

About the situation of mortality in recent years F.R.C.H. highlights that the mortality has been declining over the past three decades but is currently higher (7.6 per 1000 population in 1990-92) than the urban all India (7 per 1000) and urban Maharashtra (5.7) levels. [FRCH 97].

The birth rates and death rates show wide variations ward-wise. For example in 1969 the death rate per 1000 population of D Ward had 10.30 persons where N ward had 17.40 and Ward L & M/E had about 16.40 and 16.10 persons. The highest death rate were registered in H/E ward 14.20 while the N ward was having the lowest death rate of 8.56 in the year 1979. The other two wards L & D registered death rates were 10.46 and 11.56 which had significantly higher than ward N. During the year 1989 the lowest death rate was registered in ward L 6.60 which has predominantly high labour

population. And Ward D where the upper class majority area had the death rate of 8.98. The middle class area like H/E ward had death rate of 9.00. Thus we can see that there is wide variations in the death rate of ward in the same year [**Table-12**].

Causes of Deaths

The trend in deaths due to degenerative conditions, specifically heart diseases and 'heart attacks' have been increasing. At the same time, deaths caused by major infectious diseases of the respiratory track – pulmonary tuberculosis, pneumonia and bronchi-pneumonia have hardly shown any decline in the last decade. These diseases together are responsible for the higher than average mortality in the city zone [10.5 per 1000 in 1990-92] as against the suburbs [7/1000] and extended suburbs [6/1000] [F.R.C.H. 1996].

The percentage distribution of each disease to the total number of death in Bombay for four decades 1949 to 1979 is as follows. **Table-13** indicates that in general there were six major causes of deaths in the above decades in city i.e., Asthma + Bronchial disease, and among infants causes of pre-natal mortality which are 48 per 1000 live births is lower than the urban all India (65 in 1990-92 period) and urban Maharashtra (52/1000) levels. However, this is high for the country's premier industrial city. It, in turn, reflects the vast disparities between different social classes. This is evident from the large variations in the IMR among different localities.

Higher than average infant deaths continue to take place in the highly congested industrial wards such a Chembur (M/E) in the eastern suburbs with a rate of 65 per 1000 in 1993 and Parel (F/S) in the City zone (60/1000). In contrast, the elite western suburb of Bandra (H/W S and Malabar Hill (D)in the city has a low rate of 31 infant deaths. At present the focus of public health concern in the BMC appears to be almost exclusively on child (and family planning) as a result of the IPP-V project funded by the World Bank. The socio-economic Review also argues that any improvement in mortality levels in Bombay will depend upon reductions in infant and maternal mortality (0.5 per 1000 live births) (BMC unpublished data).

In Bombay out of fifteen wards in the city seven wards had highest percentage of deaths due to respiratory diseases like pneumonia, bronchitis, cancer, gastro-enteritis and dysentery, I.H.D., Tuberculosis, pneumonia, poliomyelitis, liver, etc. The highest deaths caused by pneumonia in the period of 1949 to 1979 but the percentage of pneumonia deaths to total number of deaths in that year were decreased by almost half. As opposed to the former, deaths due to other disease increased significantly in these decades. For example, cancer deaths had increased by more than four times in 1979 than that of 1969. Similarly about the increase in deaths by gastro-enteritis and dysentery by (1.00%), I.H.D. (6.92%), liver (1.02%), TB-pulm (6.71%) etc.

The disease pattern resembles in certain aspects with lot of Western countries, as there were many deaths due to heart diseases. On the other hand, it resembles any other developing country, as they were many infant deaths

especially due to prenatal problems and still births. There is a minimal decrease in communicable diseases.

In Bombay there has been a decline in deaths due to diarrhoeal emphysema and asthma. Tuberculosis took the highest toll in the E ward. The highest percentage of deaths in C and D wards were due to heart ailments. These two wards especially D ward were predominantly inhabited by upper class and upper middle class who are susceptible to these kind of diseases. Another four wards (F.L.N. and T) had highest proportions of deaths due to prenatal problems and still births. Especially in the T ward where infant mortality was highest, had more than one fourth of (26.72%) of the total deaths caused by prenatal problems and still births. Also deaths due to tuberculosis, pneumonia, bronchitis, asthma these diseases are called disease of the poor. Ward A was the only ward having the highest percentage of deaths due to accidents and injuries. This ward consists of the central city area (Colaba, Fort and Esplanade) where vehicular traffic is maximum and the possibility of deaths due to accidents is also maximum. (Yesudian, KEM Hospital, Report No.1, p.87).

A much greater focus on the health needs of the urban poor is required from public health authorities. As pointed out by Ramasubban et.al., the decline in the mortality has not led to an equalizing in the different mortality levels in different localities. Large differentials exist in TB and heart disease mortality. In 1991, the deaths due to TB were four to five times higher in the worst affected inner city E (Byculla) and F/S (Parel) wards compared to the

less affected localities on the western seaboard (H/W, P/S & R/S wards). Even in the case of heart diseases considered as a disease of affluence, the industrial wards (E, F/S, F/W) had mortality levels comparable to the elite localities CD, K/U and H/W). The range in infant mortality between the worst and the best wards is about two to one [FRCH, 1996, p.27].

The acute and complex problem of health in Greater Bombay calls for extensive health services. The various agencies are involved in providing health services in Bombay. In the city the health services are provided by public bodies like Central and state governments and municipal corporations as well as other organizations/agencies which are either totally private institutions or aided institutions. There are health centres exclusively for certain diseases etc. In comparison to the State Government and municipal corporation the role of central government is restricted to employees working in Central Government establishments and their families. State Government runs a good number of hospitals which include the ESI hospitals meant for workers and their families. Some of the state government hospitals are attached to medical colleges. The municipal corporation has been playing a major role in providing health services to Greater Bombay. It runs medical collages, general hospitals, special hospitals, dispensaries and maternity homes. In the year 1976, more than one third (35.0%) of the hospital beds in the city was provided by municipal corporation. Besides that municipality runs many dispensaries at the ward level which provide the basic health services.

The role of the private health services providers is also predominant in the total health services system of Greater Bombay. They basically dominate the maternity health services and dispensaries of the city. A majority (68%) of the total maternity beds available in maternity homes belonged to private sector during the year 1976. Along with maternity homes, nursing homes too provide maternity health services. This shows that the contribution of private sector in providing health services is very significant in the city of Greater Bombay. But the poor cannot afford these private maternity homes. They have to depend on the public maternity homes where the number of beds are relatively small. However the private dispensaries cater to different sections of the population depending on the location of the dispensaries. Few of these dispensaries are located in slum areas which are affordable and suit the pocket of the poor. Generally, the private hospitals are very expensive, that even the middle class also can hardly afford.

During the last three decades the number of these medical institutions have gone up considerably. The year 1969 had only 65 general dispensaries which tripled during the year 1997. The number of general hospitals also increased from about five in the year 1969 to 18 in 1997. The number of teaching hospitals had remained same but the quality and quantity of services provided by these hospitals has increased. This is also the case of specialized hospitals ENT, Eye and dental college (**Table-14**).

Along with the increase in the number of medical institutions, the number of beds also increased. In 1969 there were only 57- beds in the 5

municipal general hospitals, by the year 1989 the number went up to 3294 beds in 18 general hospitals which is about 17.30 percent rise. **(Table-15).**

The Ayurvedic and Unani health centres also exist beside the Allopathic health centres in the city. But they play an insignificant role. During the year 1976 as a whole in Greater Bombay, health centres including Ayurvedic and Unani centres provided about 25336 hospital beds which would not only be much higher than Maharashtra but also formed one-third (34.5%) of the total hospital beds available in the state. As per the mid-1976 estimate the population was 7344000 and the population per bed calculated was 290 persons. By excluding the private institutions beds then the number goes to 434 persons. But this does not mean that these services are merely used by citizens of Bombay alone, rather it has been used by people from different districts of Maharashtra and even from other states for specialised treatment in hospitals.

Municipal Health Services

1. ***Medical College Hospitals***: There are three teaching hospitals run by the municipal corporation. They are K.E.M. Hospital, B.Y.C. Nair Charitable trust Hospital and LTMG Hospital.

These three hospitals mostly provide highly specialised services. They are well equipped and are managed by highly qualified health personnel.

These three hospitals are not only utilised by the citizens of Bombay but also outsiders from other districts, states as well as foreigners.

Table-16 which is about the services offered over a period of three decades to the citizens of Bombay. The total bed strength in these hospitals had increased from 2406 in the year 1969 to 3264 in 1979 i.e., increased by 24.83 percent and during the next decade increased by 7.67 (3535 beds in 1989). The overall attendance of the inpatients in wards of the hospitals is more or less in the same range. In the year 1969, about 130 lakh inpatients covered by these three hospitals, about 22 thousand inpatients increased in the coming decade i.e., 1.52 lakhs in 1979 and which more or less remained constant in the following decade.

Regarding the outdoor patients attendance (old and new) during the decade 19698-79 had doubled i.e., 1.65 crore in 1969 increased to 2.78 crores in 1979. But the next decade the attendance had increased by only 70 thousand in the three teaching hospitals.

In the year 1969 on an average 1647 outpatients had attended these hospitals which increase by 18.92 percent in the following decade 22.88 OPD patients in 1979. During the next decade it had again increased by 32.41 percent i.e., 33.894 daily out patients in the year 1989.

The number of persons per bed was reduced during the last three decades due to an increase in the hospital beds in the teaching hospitals. In the year 1969 there were about 54 patients per bed which was then reduced to 46

persons per bed in 1979. During the year 1989 it was again reduced to 44 persons per bed.

GENERAL HOSPITALS: Today there are 18 general hospitals run by Bombay Municipal Corporation to cater to the health needs of people living in suburbs and extended suburbs. Apart from these general hospitals the corporation has reserved certain number of beds in the private hospitals. These hospitals have a major role in order to provide health services.

The number of patients who attended these hospitals obviously has increased over a period of time. During the year 1969 around 1.92 lakhs inpatients had attended in six general hospitals. This attendance had significantly increased in the year 1979 (9.63 lakhs) in eleven general hospitals. But in 1989, the patient attendance in 13 general hospitals was 7.90 lakhs, a shortfall of about 1.72 lakh.

The daily average attendance of inpatients in these hospitals were 89 patients in 1969 where as it increased to 257 in year 1979 and had reduced to 172 patients in 1989. The actual attendance in these hospital ranges from about 746 patients to only 9 patients in a day.

The utilization of the beds in these hospitals during the three decades shows that the number of persons per bed has come down during the year 1989. There were about 338 persons using one bed in 1969. The number has

increased significantly in the year 1979 i.e., 440 per bed. But the year 1989 this number had gone down to 240 persons per bed. [**Table-17**].

Table-18 indicates the overall health services infrastructure in Greater Bombay. It shows that downtown has one-fourth of the total bed. The old city including private, state/central government and public sector undertakings in the Greater Bombay has a wider network of health services delivery institutions managed by BMC than that of the State Government. As far as the distribution of these institutions is concerned all teaching hospitals are located in the city zone. The eastern suburbs has lowest number of dispensaries, health posts, as against the western and the central. In general the maximum health services delivering institutions are centralised.

Regarding the bed availability, the number of patients per bed is considerably higher in Eastern suburbs than the western and the city. This proves that the latter are more privileged in this case.

We have seen that the corporation is providing various kinds of services to the citizens of Greater Bombay. These services broadly fall under the categories water sewerage, conservancy, electric supply, bus services, health services, primary education improvement schemes, maintaining of roads and bridges etc., among many others. It is well acknowledged that as compared to any other part of the country Bombay city is highly privileged. Though a city of wide ranging contrasts and the contradictions, where pockets of affluence exist among extreme poverty best reflected in the public health

care and other social infrastructure in the country, both the state and municipal. Corporation has invested vast sums for the health care of Bombay's citizens. The BMC as expected, plays a much larger role than the Government. But whether it actually works out or not is another matter.

So far we have seen the health needs of the people of Bombay and growth of services provided by BMC to cater to the needs of the people, during the last three decades. In the next section, we shall examine the utilization pattern of health services by people particularly the years after 1989. How far these services are adequate? To whom it is benefiting? Are the people satisfied with the services? Do all the administrative wards have equal potential to render services effectively? etc., questions will be dealt with. To understand this we need to study the break-up of health services provided by BMC like financial allocations of BMC to its various delivery institutions, number of patients covered and kind of services provided through the delivery institutions. This will be dealt with at the ward level and city level as a whole then at the delivery institution level. And in the end the pattern of utilization by the people will be studied.

FINANCIAL AVAILABILITY

Let us see the overall health budget of BMC. The health expenditure budgeted by the BMC in 1993-94 was Rs.227 crores which was more than twice that the BMC spent in 1990. However this is not exceptional because BMC's total expenditure also doubled during this period. Besides this, the state government is spending Rs.50 crores on the health care services of

Bombay city. This means an availability of over Rs.275 crores for public health care in Bombay city. **Table-19.**

Health expenditure of BMC on public health and medical relief include expenditure for hospitals, dispensaries, medical education, maternity homes etc. Since the overall health expenditure of BMC during 1990-93 have increased so the allocations for public health and medical relief has also increased. **Table-20** indicates that the expenditure on public health of BMC has more than doubled in 1994-95 Rs.320 crores (12.65) than that of 1988-89. During the same year the expenditure of medical relief and education has increased more than three times than the previous year 1988-89. The expenditure spent on hospital, medical education and dispensaries has increased from Rs.579 crores, Rs.77 crores and 33 crores in 1988-89 to 1450 crores, 176 crores and 75 crores in 1994-95 respectively. The money spent on the maternity homes has increased five time more in 1994-95 than 1988-89. This shows that the more importance was given to the curative services than the preventive. About 80 percent of the health expenditure was spent on the medical relief among that the highest amount 57.3 percent spent on the hospitals and only 3.0 percent spent on the dispensaries in the year 1994-95.

Table-21 parents information on expenditure on the medical colleges, municipal general hospitals and specialized hospitals like eye, Ear, Nose & Throat (ENT), infectious diseases hospitals etc. It shows that nearly half the expenditure was in three teaching hospitals. Among the peripheral hospitals (general hospitals). Rajawadi and Cooper hospitals spent on an average 5

percent each of the expenditure from the medical account. The expenditure on the other hospitals was very insignificant. Of the total expenditure about five percent was on maternity homes and dispensaries. It can also be said that these three teaching hospitals accounted for around 37 percent health expenditure over the years and as much as two-third of expenditure on all hospitals. This means that 14 peripheral and one dental teaching hospital account for only 20 percent of the health expenditure. That is the expenditure on three teaching hospital is at the cost of other programmes.

Dispensaries and maternity homes which provide primary health care have a very low share of finances, hence necessary facilities are inadequate. These hospitals are always overcrowded with patients, majority of whom are seeking primary care in these hospitals. The differences between the patients covered by teaching hospitals, peripheral hospitals and dispensaries will be studied in the later part.

Now let us see the break up of the expenditure by teaching hospitals and general hospitals. As data is not available for all hospitals, we will see one hospital from each category.

The expenditure of LTMG hospital for the period of 1989 to 1992 shows that out of total expenditure about three-fourth 62.56 percent was spent on establishment in all years. The expenditure spent on medicine was 14.42 percent which is about one-fourth to the establishment expenditure. Money spent on diet was of 5.77 percent in 1988. It was reduced to 2.00 percent in

1992. The expenditure on equipment and apparatus was very insignificant around 0.90 percent **(Table-22)**.

The expenditure on various departments of LTMG hospital shows that the maximum expenditure, nearly half was spent on general administration of the hospital in 1992. The expenditure of orthopaedic, surgery, medicine department had come down in all years and remained very insignificant amount as compared to the general administration. The expenditure spent on the dispensary was very small about 1.76% in 1992 than the year 1988. **(Table-23)**.

The case of Rajawadi municipal General Hospital was also not much different. During the year 1992 about 62.01 percent expenditure spent on establishment which was three times more than the medicine and instruments. While the diet claims only 2.57 percent which is a very small amount than the establishment of medicine. **(Table-24)**.

Coming down to the spending of the various departments of Rajawadi hospital where we can see that nearly half of the expenditure was spent on three departments namely, Gynaecology, paediatrics, ENT, Skin VD, including general administration. Though overall expenditure for OPD looks high, 19.48 percent in year 1992 a collection of finances for medicine and surgery is low, almost one-third of the total. **(Table-25)**.

These budgetary allocations in all sections highlights that there is uneven provision of finances under different heads. Larger portion goes to

large hospitals and very little is provided to dispensaries where the poor go for their day-to-day illness. Consequently, primary health care is marginalized. As a result of it there is high loading of patients on big hospitals like teaching hospitals and peripheral hospitals. Secondly the share of medicine/equipment in the expenditure of health services delivering institutions is very insignificant.

While expressing their views about the financial availability for health Sunil Nandraj and Ravi Duggal say that the overall expenditure on health care by the BMC is inadequate to meet fully or even the current demand levels for public health services (which is estimated to be between 30-40 percent in Bombay city). Secondly, the composition of the existing level of expenditure is itself very highly skewed. Establishment/administration cost take away sixty percent of the expenditure and this shows an increasing trend. On the other hand expenditure on medicine has declined in real terms during the last five years, especially in the case of dispensaries where the allocation for medicine has been halved. And finally, this inadequacy of services gets reflected in the declining number of both inpatient and outpatient cases being treated in the public health institutions.

Since there is a high amount spent on big hospitals also as there is increasing number of in and out patients in big hospitals. Therefore, it will be very interesting examine: What kind of services offered through these hospitals? What are the priority areas of the hospital? The data available from two hospitals LTMG and Rajawadi in presented in the (**Table-26**). It provides

a picture of patient covered by municipal general hospitals in the year 1987-1989. The 13 general hospitals of BMC had the total attendance of 438 crore patients out of which 182 crores patients newly attended. The inpatient in that year were about 1.62 crores among which 8.29 lakhs were treated in that year. On an average around 194 patients daily attended these thirteen hospitals.

In the case of LTMG hospital out of the total out patient attendance the highest patient attendance was in by dispensary OPD 4.03 lakhs in 1992. And about one-third of the OPD patients attended the department of medicine, surgery, no trta OT/PT OPD and patients Soc. Serv. OPD. The department of gynaec and obstetric, paediatric casualty, orthopaedic covers about 11.34% (**Table-27**).

Table-28 talks about the OPD patient attendance in Rajawadi hospital. During the year 1992 more than half of the OPD patients of Rajawadi hospital had attended by dispensary OPD. And around 14.24% outpatients were attended by the departments of medicine, surgery, gynaecology; paediatric and casualty OPD, among which the highest patients had attended casualty OPD in the same year.

With regard to patients of Rajawadi hospital, the departments of medicine, surgery and gynaecology, OPD attended around 67.43 percent patients which almost one-third of the total patients within which 23.38 percent had attended by the gynaecology IPD.

So from the above table it is possible to say that the highest number of patients is attended by the dispensary OPD in both LTMG and Rajawadi hospital. Secondly the significant number of one quarter load of the OPD is barred by medicine, surgery and gynaecology departments. But the budgetary allocations, for the above departments is comparatively less. This has implications on the kind of services provided to the people.

USERS OF THE HOSPITAL

Since BMC has a wide network of specialized hospitals, peripheral hospitals, dispensaries and maternity homes to cater to the health needs of its citizens, it will not be possible to study all institutions together due to time and data constraints. Hence two hospitals from the teaching hospitals and one dispensary functioning are considered for the understanding the utilization of health services provided by delivering institutions for the local people.

Who are the main users of the crowded public hospitals in a metropolitan city? What are their socio-economic characteristics? Hospitals handles the larger load of routine patient in the public health system. Are these clinics serving a larger proportion of the cities poor?

1. ***EMPLOYMENT STATUS***: The economic status of those who are coming to consult in specialized hospitals is very poor. In the K.E.M. hospital around 46 percent of the users were economically active as wage workers or self-employed. Over half the economically active users 54 percent worked in

the urban unorganised sector as wage workers. A major metropolitan economy such as that of Bombay is nevertheless heterogeneous and unequal. It has groups most vulnerable to poverty by virtue of an insecure and irregular labour force status that predominantly benefit from the hospital OPD services (FRCH 1996, p.18).

While in LTMG hospital at least four out of five in patients lived mostly in the urban areas (including 70.9% who lived in Bombay and the 11.4% who lived in urban Maharashtra) so non-agriculture occupations featured in the occupational profiles of nearly two fifths of the sample. This includes 14.9 percent who worked in the organized industrial or white collar sector, 10.5 percent were self employed as skilled workers of petty traders and finally 13.2 percent who were manual labourers.

Apart from the urban workforce, a small but significant proportion of the OPD users (13%) belonged to the cultivating groups. Even among them the low income and vulnerable sections of small and marginal farmers and to a lesser extent, agricultural labourers largely utilised the city's public hospital (FRCH, 1996, p.20).

Income-level of the user households

The official definition of poverty based on the income norm is inadequate as a measure of deprivation experienced by low-income groups of Bombay. Poverty lines estimate purchasing power or expenditure levels that

only just allow households to meet their survival need. As Swaminathan points out this excludes any discussion or estimate of expenditure on other basic needs such as housing, clothing education and health. Apart from these essential expenditures, urban poverty has the added dimension of environmental degradation that poses serious health hazards for people residing in slums and congested neighbourhoods. Even though incomes show wide differentials among the labouring groups. The small surpluses are hardly sufficient to change the quality of their housing or the insanitary and polluted conditions of the environment. Moreover, there is no job security and social benefits in the growing unorganised sector.

According to Amar Jesani the average monthly incomes earned by the LTMG patients rose appreciably from the agricultural to the non-agricultural sector. There were vast differences between the unorganised and organized sectors, manual labourers earned an average income of Rs.1667 artisans and petty traders Rs.2008 and industrial and white collar earned Rs.3212.

In KEM hospital almost two-thirds of the users belonged to households with per capita income of less than Rs.500 and per month. Among these 11 percent constituted the abject poor with monthly per capita income less than Rs.150. The padiatric medicine OPD handled a much larger share of the very poor households (FRCH, 1996).

But in his study Yesudian found that the KEM Hospital was predominantly used by a group whose income or expenditure was between Rs.500-999 in 1977. This group he calls as a middle class. (Yesudian – I).

Residence of the OPD users: While speaking about the housing condition of the LTMG patients , Jasan reports, in his study that a majority of patient (71.4%) lived in slums, chawls or on the pavements, mainly in the city. Patient dwelling in flats or independent dwellings were (15.1% and 13.5%) respectively. There appears to the some congruence between housing and economic status. Half of the patients were living in slums, chawls and on pavements earned less than Rs.2000/- while than half of these living in flats earned more than Rs.2000.

In KEM most of the patients who lived under poor housing conditions and low household income and expenditure attended to the general department especially OPD. Though these public hospitals were established to serve the poor only few of them utilised the services. Even these few restricted it to the OPD where basic health care was given. In a city like Bombay were almost a majority of them lived in poverty conditions and had tremendous health needs of various kinds only one-tenth of the patients visited this hospital (OPD). On the other hand a good number of upper middle class patient utilised the special departments such as super nephrology unit and cardiology department.

Sonia Gill observes that the low income group is using the particular kind of health services provided in OPD. She does not examine their housing

conditions, but gives the locational directions of the patients residence. About three-fourth of the users were from Greater Bombay. Another twenty percent had come from other districts in Maharashtra with the adjacent Thane district contributing 9% of them. A small proportion (4%) belonged to other states, particularly UP, Bihar, MP, Rajasthan and some southern states, all of which have contributed considerably to the work force in Bombay. Among the basic specially clinics, general surgery had a higher utilization by non-Bombay users.

About the catchment area of the KEM hospital out patient clinics.

The majority of the users (around 58 percent) were from the city zone of Greater Bombay, while 17 percent belonged to the suburbs and extended suburbs. As a specialist clinic the gynaecology OPD had the widest catchment with an equal proportion of utilization by women residing in the suburbs. Within the city zone the four municipal wards surrounding the hospital contributed 54 percent of the users of these out patient clinics are the residents from near by localities. The later are the low-income labour areas in the F and G wards which historically have had a large concentration of the Bombay working class, Parel, Lalbaug, Sewri Wadala, Kalachowki, Worli-Prabhadevi, and Naigaum are the locus of the early labour tenements built for the textile mill workers around 1920s. The E, F/s and G/s wards were favoured for the location of the textile mills in the early phase of Bombay's industrialisation. The need for a captive labour force encouraged the building labour tenements

close to the mills thereby effectively segregating labour class areas from the better ventilated, elite residential localities along the western see board. These wards E and D including the B&C wards institute to the old inner city localities. They have a higher proportion of decaying tenements; while the hutment colonies are more widespread in the suburbs.

Department wise break-up of Patients

We have seen that both the hospitals are overcrowded but not all the departments of the hospitals are equally crowded. In the hospital there are some departments where the number of patients are more as compared to the other. In the KEM Hospital OPDs are handling a large load of poverty related infectious and parasitic disease. In the range of disorganized conditions diseases due to infections took up over one fourth of all OPD cases. These ranged from about 40 percent in the medicine and paediatric medicine OPD to 20 percent in surgery OPD and 12 percent in the gynaecology OPD. TB was by and large the most common disease among the infections conditions. It was confirmed in as many as 20 percent of the patients who were given a diagnosis. It Was also the most frequently investigated condition (17 percent of all provisional diagnosis). This points to the magnitude of TB cases being diagnosed and treated in the public hospitals. Among the diagnosed conditions it ranked first in medicine (31%) and paediatric mercine (26 percent) and third in general surgery (11 percent) (FRCH 1996).

While in the LTMG hospital the four departments that accounted for 68.3 percent of all patients in the sample were obstetrics and gynaecology (22 percent) medicine (21.1 percent) surgery (16.3 percent) and orthopaedics (8.9%). These four departments have substantially large allocation of beds in the hospital too. When you include all non-paying and paying beds in the regular and emergency words (and exclude the Dharavi urban health centre, then this number works out to 807 out of a total of 1278 beds or 63.1 percent. Further 6.5 percent of the patients from their sample were in the ophthalmic department, even though this department has only 3.4% of all the hospital bed.

ACCESS TO THE OPD

The procedure explained by the FRCH about access to the treatment is self-explanatory.

The patient starts queuing up from early in the morning in order to get a quick turn with the doctor. For the medicine, surgery and gynaecology OPDs, the registration starts at 8.00 a.m. Stamped case papers were issued. The housemen, registrars and lecturers came in by 8.30 a.m. followed by senior doctors. Periodically bunches of case papers would be collected by the ward ,attendant and distributed randomly on the desks of the Doctors. By 10 a.m. with only half an hour left for the registration desk to close, the OPD attendance was at its peak strength.

The paediatric OPD starts in the afternoon. Mothers started arriving at 1 p.m. The OPD officially worked for 3 to 4 hours between 8.30-12 in the morning and 1.30-4.30 in the afternoon. The medicine & surgery OPD continued for at least an hour longer due to the heavy rush of patients. In 1994, the average daily attendance here was 350 outpatients in medicine, general surgery had 200, paediatrics 70-90 children, while gynaecology/obstetrics visited by 80-100 women each day. (FRCH).

In LTMG, about 83.3 percent of all patients perceived no problems while seeking admission in the wards nor delay in the registration process. However, 20.8 percent reported delays in being assigned a bed while 19.2 percent reported some difficulties in the obtaining information about the process being followed.

Physical Facilities In The Main Hospital

To the indoor patients, so many things are essential, example, bedpans, urinepots, spittoons, lockers, stools, stretchers, wheelchairs, bedsheets, pillows, covers, blankets, towels and laundry arrangements, apart from the availability of medicine and other equipments. The study of CEHAT in LTMG throws light on this. The study conducted by the hospital concluded that admissions were below its bed capacity, so the facilities available per patient was better than availability per bed. So, on the whole, the availability of per patient per bed mattresses, towels, bedsheets and pillow covers were more than one. But in the case of blankets and lockers, it was less than one. This

information is collected from the Sister Incharge, Matron and other hospital staff. The other facilities in short supply were bedpans, urinepots, and spittoons, with ratios of one to 0.28, 0.38 and 0.45 respectively, at least one out of two patients was made to do without them. Stools were more easily available per bed and per patient but not to everyone. The stretchers, wheelchairs and oxygen cylinders, the three supportive facilities in each ward were supplied and available at the rate of 1:10 patients average.

Towels and bedsheets were more readily available. Ironically, the hospital supplied 7 bed sheets per patient, the actual number was less than three. Also towels per patient, per bed was less than one. The laundry and replacement needs have to be assessed. Some of the wards reported that sheets given for cleaning had not been replaced for more than three months. Items like bedpans, urine pots, spittoons, well below requirement were further rationed by the ward managers.

Bed linen and clothes were not routinely provided to all patients after admission example, 3.2% beds and 19.5% linen and 16.3% clothes were made to do without these facilities. But 66.7% beds, 55.3% linen and 71.15% clothes were provided immediately after admission. Lying between these two extremes, were patients who were provided facilities after admission. The data on time is by a fairly large proportion of no responses: 23.6% (in the case of facilities for sleeping(, 11.4% (Linen & 4.1% hospital clothes).

Once provided, how often are linen & clothes changed – about 21.1 percent of the linen & 27.6 % of the hospital clothes have never been changed,

till the time of interview. The proportion of patients whose linen & cloth were changed daily was 13.8 percent & 4.9 percent respectively. The quality of the linen & clothes left much to be desired – torn and ill-fitting with missing buttons and drawstrings. About 59.3% of the clothes provided by the hospital were of poor quality, only 13 percent were certified as good by the interviewers.

The experience of living in a hospital ward can never be complete without food and water. Since, thirty out of 123 patients were having home cooked food, it was not possible to assess the quality of hospital food. Of the 93 patients who were actually eating hospital food, less than half – 47.3% approved it. 37.6% labelled it as tolerable & for 9.7% it was bad. The data on adequacy is somewhat better since 77.4% felt that the food was sufficient. Thus, 24.39% as one fourth patients were not eating hospital food. So, diet expenditure is incurred only on one third of the patients. Drinking water too was provided without their asking for it. Roughly one in ten patients (9.8%) reported that water was provided when they asked for it.

Medical Facilities

The provision for drugs and medical diagnostic tools and the attendant expenditure has also to be considered. The study clearly shows that the patients have to bear the brunt of inadequate provisions. As against inpatients (19.5%) who were provided all medicines by the hospital, some 68.1% had to purchase drugs from outside pharmacies. The diagnostic scenario was much

better since two out of three (64.2%) were able to get the required tests done at the hospital. The average expenditure incurred by patients on medicines was Rs.802.93 (when calculated as a mean) and Rs.200 (when calculated as a median). The average expenditure incurred by patients on diagnostic tests were Rs.721.61 (as mean) and zero (when computed as a median). Except for a few, most patients had to incur some expenses for medical facilities. This is so even if hospital provisions are complete. While it is true that the median expenditure for these patients is zero, the mean costs were Rs.327.38 (medicines) and Rs.330.49) diagnostic, respectively. The price went up if medicines and tests were provided by outside agencies. For medicines it was Rs.1052.22 (mean) and Rs.300 (median) and for the tests this was Rs.3217.06 (mean) and Rs.500 (median).

Interpersonal Relations

Integral to the treatment in institutions (hospitals) is the quality of relationships between patients and their caretakers.

The availability of personnel like nurses, *ayahs*, ward boys and sweepers who are assigned to specific wards. The information is collected from the Sister in charge. The ratios have been calculated on the number of staff sanctioned, appointed and available on a particular day. Out of this, the availability ratios are most appropriate from the patients side. Approximately 1:5 patients (for nurses), 1:12 patients (for *ayahs*), 1:11 patients for ward boys), and 1:8 patients (for sweepers). But even these ratios do not truly

represent availability since the unit of time is a day and not a shift which is a better indicator. Hence, some of the recuperative functions of the nurses are taken over by relatives.

The patients are uncritical about the doctors and nurses. Their competency is vouched by the fact that 88.6 percent believed that doctors are efficient and for nurses it was 91.91 percent. This appreciation is extended to their behaviour too. 90.4 percent listed the doctors as good, kind, helpful, polite, patient etc., while for the nurses it was 94.3 percent.

Health Services At Ward Level

We have seen the wards health status which varies ward to ward. Let us have a look at the health services infrastructure of ward (D, H/E, L & N). And its utilization by the poor people. Due to data constraints we will be concentrating on the Municipal general hospitals coming under these wards. The D ward does not have any municipal hospital, whereas the N ward has two general hospitals and the remaining wards have one each.

Table 29 gives the details about the budget allocation to these general hospitals. The Rajawadi municipal general hospital has the highest budget allocation as compared to the other hospitals during the year 1998. On an average about 19.12% budget is allocated for medicines and instruments. Where only 3.82% allotted for the diet of the patient in all hospitals. Higher amount is kept for the establishment and contingencies of the hospital. This

phenomenon we have seen in the case of specialized medical teaching hospitals of Bombay.

The **Table 30** gives the break-up of the budget allotted to the specialized department of the hospitals in general almost fifty percent budget amount goes for the departments like medicine, surgical, gynaecology, paediatric. The similar trend is reflected in the other municipal hospitals.

Hospital staff plays a very important role in providing health services and its adequacy matters on the utilization of the services by the masses. Coming to the **Table 31** which gives details about the medical staff available in the general hospitals in the wards under study.

The **Table 32** gives information about the patient covered by the hospitals. Almost 50% patients are covered by the specialized departments like gynaec, surgery, medical and paediatric. If we draw the doctor patient ratio of these hospitals then it comes to 1:1500 and sister patient comes 1:525 on an average in these hospitals.

Dr. C.K.A. Yesudian studied the utilization pattern of the Health Services by the poor of Naigoun and Deonar community. He found that most of the households had to take treatment from the private practitioners available in their community though the municipal corporation has a wide network of health care institutions in the city, which provide health services at a very nominal cost. Especially, the municipal dispensaries which were meant for treating minor-illnesses were very poorly utilised by the sample households.

However, nearly one-fourth of the sample households had used municipal hospitals. It shows that these household do not have faith in the municipal dispensaries. They felt these dispensaries lack experienced doctors, and adequate medicines. Therefore the out-patient departments of the major municipal hospitals were overcrowded with patients having minor ailments which could be treated at the dispensary level and hospital resources could then be fully used for major illnesses.

The higher utilization of the private clinics tended to point out that income was not the only barrier for the urban poor to seek health services, as far as short-term illnesses were concerned. There were other factors that too influenced the decision to select a place of treatment. Further, free treatment or treatment at nominal cost alone could not break the economic barrier, as there were other expenditures related to illness, which would reflect the correct economic burden of the household in relation to short term illnesses.

Reasons for not using the public Health Care facilities

Though the sample households belonged to the lower socio-economic group they had predominantly used the private sector health services. One-third of the sample households had more than one reason for not using public sector health services provided by BMC. The major reasons for not using the health services were that these centres were very far away from their home as also the services were provided at odd timings which did not suit the sample households. There were private practitioners in and around the slums and who

were providing services till late in the evening which was convenient for the people.

Summary

Thus, the above discussion shows that though the BMC is taking great pains to improve the accessibility of its services, the target population still has to rely on whatever medicare is available. This is borne out by the data which gives details of hospitals in each ward and the corresponding health status, which in turn reflects the class differences of the people availing these services.

Corporate health care is beyond the majority. While the badly run and equipped public hospitals do not have the wherewithal to provide adequate services. So, often the patient is at the mercy of forces beyond his control.

CHAPTER IV

Chapter IV

CONCLUDING OBSERVATIONS

"Friday – 12 March 1993 – Blasts rock City

Saturday - 82% attendance at Office.
SALAM BOMBAY!

It's my Bombay. I am proud of it"

This slogan on one of the buses plying on the city streets, epitomizes the spirit of Bombay. On that fateful day, the nation watched aghast, held its breath as its premier metropolis struggled to ward off terrorist attacks. Defying dire predictions, Bombay rose like a phoenix from the ashes of its rubble to provide hope to its denizens.

Tracing Bombay's phenomenal growth from a series of tiny fishing villages, during the colonial era, to post-Independent India's industrial powerhouse one thing is amply clear, the city has been unable to provide a decent habitat to all those who flock to it, chasing the `Great Indian Dream'. Bombay exhibits all the characteristics of a flourishing metropolis, home to India's stock exchange, the glamorous tinsel town, gleaming skyscrapers, where people enjoy lifestyles comparable to the best in the West (at least a section of the population does) in short, Bombay, is a microcosm of India, `the most happening city'.

Various panegyrics have described Bombay `as the city on the move', `the city that never sleeps' etc. But the reality behind such mystifying epithets

is very depressing indeed. For a person, migrating from the periphery to strike it big, finds that it is easy for him to get work but for shelter, he might have to pay rent for sleeping space on the pavement, to the local gangster, has no protection against disease and eventually would land up as a statistic on the Municipal Records. For example, Dharavi, the largest slum in Asia, eluded efforts for decades to improve its living conditions. It could have stepped right out of Dicken's novels of the early days of industrialization. This is because the fruits of urbanization have not been evenly shared. The policy implementation, especially, the provisioning of health has neglected the marginalized sections. The spatial dimensions of health provisioning studied over a period of time favoured the urban areas and is not effective at the suburbs or extended urban areas. This phenomena is widely prevalent not only in a developing country like India, but also in Africa, Asia, Latin America, where rapid, unplanned urban growth is taking place.

The post-Independence health policies in India are based on the framework of the National Planning Committee, (NPC) 1948, which in turn was inspired by the welfare state movement in Britain and socialised health services in the Soviet Union. This led to a more egalitarian health service system.

The NPC also endorsed the findings of the Bhore Committee (GOI, 1946a) whose proposals remain valid to this day. The Report stressed on the need to provide adequate medical care to those unable to pay for it. More emphasis was laid on preventive care. Proper institutional framework for

diagnosis and treatment was given priority. It was decided to pay more attention to rural health and community participation to resolve health issues.

The local governments were instructed with the task of investigating local unsanitary conditions and their control, and given the force of local sanction to those public health sanctions.

The BMC budget estimates are equivalent to the annual budget of Kerala state. Comparing the BMC's spending on health with the provisions of other metro city corporations, what is more important is that in spite of the overall decrease, one fourth of the BMC's budget is spent on health. Initially, the BMC was concerned with the conservancy services, to keep the city streets clean, now it runs numerous hospitals, nursing homes and specialized care centres.

A large amount of the BMC funds are spent on nutritional supplements, to children attending municipal schools, malaria eradication programmes, impounding stray cattle etc. The other major area of expenditure covers medical relief and education. Evaluating the health status of the population and the prevailing illness-pattern in the city, one finds the ward level differences, regarding birth and death rates which disprove the uniform reach and efficacy of the health services.

Further, the BMC has the responsibility to provide adequate potable water, sanitation, sewerage etc., corollary inputs to health care. However, despite efforts to supply water, 50 per cent of the water is lost due to seepage

and broken pipes. Majority of the slum population relies on public taps as they do not have independent connections. The statistics show that the ratio of domestic to industrial consumption is 4:1.

Though the BMC's allocations to hospitals and maternity homes has increased, s the data shows, the hospitals are more favoured than the dispensaries which are basically providing primary health care, predominantly benefiting the poorer sections. Another significant aspect deals with the issue of individual hospital spendings. More money is spent on establishment charges than on diet or other equipment for the patients. The figures work out to less than 50 per cent to the establishment charges.

During the decades, 1969-89, the birth rates decreased but here is a marked variation across different wards. Similarly, the case with death rates. For example, in 1969, ward N showed the highest birth rate, in 1979, it was in ward L & H/E and in 1989 it was again in ward L had the lowest birth rate in all the decades.

Formerly, the major causes of death included respiratory and preventable diseases. Now, heart attacks and cancers are increasing as the potent killers. At present, the major concern of the BMC is to take steps to reduce infant and maternal mortality, which at present stands at 0.5 per cent 1000 live births. In the highly congested industrial wards of Chembur M/E in the eastern suburbs it is 65 per 1000 in 1993 and in Parel (F/S) in the city zone, the rate is 60/1000. The rates are very low for the elite localities of

Bandra (H/W) and Malabar Hill (D) where it was 31/1000. Its found that the industrial areas are more prone to TB and heart diseases, a major cause of death like E (F/S, F/N). Here, the health amenities are also not adequate.

This is not surprising since the BMC pays more attention to the curative services than the preventive side. About 80% of the health expenditure was spent on medical relief. 57.3% was spent on hospitals and only 3% on the dispensaries in 1994-95. Moreover, this leads to the centralization of health services in the hospitals, especially teaching hospitals. Dispensaries and maternity homes providing basic health care are flooded with patients and not much cash to improve their infrastructure.

But the historical contribution of public hospitals of Mumbai in setting high standards of medical education and medical care is indisputable. Their genesis show that these hospitals combined voluntary private initiative, philanthropy, social commitment and the nationalist spirit on the pre-Independence period and for some time after that. The very fact that they embodied excellence made them centres of attraction for doctors and patients alike. This provided them with a wide social base: the cross section of people using them expecting better services and those providing it responding to people's expectations. However, the popular perception and expectations of the quality of care in public hospitals have undergone a sea change.

One premise of quality improvement is centred on user-provider interaction. When the user asks for better services, a pressure and demand for

improvement is created. But such a pressure is non-existent since the social base of public hospitals is shrinking. The middle classes who are vociferous in demanding better services have abandoned public hospitals. It is the poor who are the major hospital users, who show a preference for private providers in the first instance and come to public hospitals only when their condition shows no improvement or their finances are low. So, they accept whatever care comes in their way. And there is no corresponding pressure on the institution for improvement.

Public hospitals face a stiff competition from the private sector. Due to their negative public image and indifferent quality a large section of the poor would be disinclined to use them. Hence, the assumption that public hospitals are meant only for the poor would be detrimental to them in the long run.

Not much publicity is given to the excellent breakthroughs in medical research in the public hospitals and only negative facts are made available to the people. The dubious money making techniques of the private hospitals for example, unnecessary investigations, useless therapies, the public hardly is aware of the track record of the private sector.

Even though there is not much pressure on the public hospitals to be quality conscious, this aspect has to be stressed else, their reputation will nosedive and their space taken up by corporatised health planning. The system works in a manner calculated to cause the maximum possible revulsion for it, in the patient, who end up shelling a few rupees more at the private clinic.

Right from the time, a patient queues up for registration as an outpatient or an inpatient, to his/her getting a bed and other diagnostic facilities, medical attention etc., a huge investment of time and money is needed. One positive feedback reflects on the selfless caring of the health personnel.

Huge funds are invested for infrastructural facilities, not much efforts are made to educate the people on simple ways of maintaining health. As a result, every seasonal change, brings an epidemic in its wake which stresses the prevailing health administration to its utmost. Health should not remain a matter of governmental concern alone. A bureaucratic management which holds on tightly to the purse strings and dispenses cash as favours would be able to provide cure to the people but not create the circumstances that keeps ill health away. After all, there is much value in the old adage, 'Prevention is better than cure'.

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WATER SUPPLY DAILY TO CITY BY SOURCES (IN MLD)
TABLE 1:

Source	1969	1979	1989	Total
Tansa	954.00 (57.62)	294.6 (17.79)	407.00 (24.58)	1655.6
Vaitarna	954.0 (31.16)	*1069.9 (34.95)	*1037.00 (33.87)	3060.9
Vihar	90.00 (31.67)	123.1 (43.32)	71.00 (24.99)	284.1
Tulsi	13.00 (26.58)	17.9 (36.6)	18.0 (36.80)	48.9
Ulhas	-	81.9 (45.52)	98.00 (54.47)	179.9
Dhatsa	-	-	630.00 (100)	630.00
	201.1 (34.32)	1586.9 (27.08)	2261.0 (38.58)	5859.4

Figures in Brackets are %
*including Modaksagar
Source : Year Book of BMC 1969,1979,1989.

NUMBER OF HOSPITALS AND BEDS ACCORDING TO RURAL/URBAN AREAS
AS ON 1 JANUARY 1993 IN MAJOR STATES
TABLE 1.1

State	Rural		Urban		Total	
	Hospitals	Beds	Hospitals	Beds	Hospitals	Beds
Gujarat	189	6800	2181	52184	2370	58984
Maharashtra	469	10209	2646	68711	3115	78920
Tamil Nadu '90	89	4235	319	44545	408	48780
West Bengal	113	7486	279	47281	392	54767
Delhi	4	252	78	18518	82	18770
Total	4310	122109	9382	474094	13692	596203

Source Health Information of India, 1994

HEALTH CARE FACILITIES

Table : 1.2

Year	Hospitals		Dispensaries		Beds #		PHCs	Subcenters	Drugs availability (Rs. Per Capital Per Year)
	Urban	Rural	Urban	Rural	Urban	Rural			
1951	NA	NA	1358	5229	*117000	-	0		0.55
1956	2059	1315	1154	6292	116952	35936	725	-	1.35
1961	2203	1131	1917	7623	170204	51430	2565	-	1.93
1966	2668	1314	2056	8175	234611	60919	4631	-	3.55
1971	3862		*12180		*348655		5112	28489	5.47
1976	4465		*11695	11590	*448866		5328	34088	6.92
1981	4984	1821	5164	13761	417781	86757	5740	51405	20.87
1986	6131	1633	12110		489970	104777	8496	90317	27.79

Source : FRCH.

Includes both Hospitals and Dispensary Beds.

* No separate urban and rural break-up is available for 1951, 1971 and 1976 figurs.

AGE-SPECIFIC DEATHS FOR CHILDREN 0 TO 4 YEARS, INDIA

Table : 1.3

Year	Rural			Urban			Combined		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
1970	55.5	61.0	57.8	32.3	32.3	32.3	51.7	55.1	53.0
1978	54.0	54.3	54.1	30.0	31.1	30.7	50.0	50.2	50.1
1984	44.2	48.2	46.2	22.6	23.8	23.2	39.5	43.0	41.2
1985	41.4	45.3	43.3	19.4	22.1	20.7	36.64	40.4	38.4
1986	38.6	43.3	40.8	20.3	21.5	20.9	34.7	38.6	36.6
1987	37.8	41.8	39.7	18.1	18.2	18.2	33.6	36.8	35.2

Source : Registrar General, Census Operations.

DAILY WATER SUPPLY THROUGH BHANDUP COMPLEX TREATMENT PLANT IN WARDS IN 1997
TABLE 2:

WARDS	PER HEAD WATER AVAILABILITY IN GALLON	WATER SUPPLY IN MGD	PERCENTAGE	POPULATION 1991 CENSUS (000')
T	780	226.29	41.14	288
S	47	27.00	4.90	567
M\E	51	24.20	4.40	470
M\W	120	43.00	7.81	352
L	36	22.00	4.0	610
R	49	49.00	8.90	980
P	44	41.00	7.45	924
K	55	68.00	12.36	1247
H\E	40	21.00	3.81	519
H\W	71	23.00	4.18	322
G	59	63.00	11.45	1054
F	68	58.00	10.54	847
A	99	20.00	3.63	202
(BCDE)	55	65.00	11.81	1169
	112.42	550 MGD	100%	9776

Sources : Records of BHANDUP TREATMENT PLANT.
Census 1991

*MGD - Million Gallons Per day.

SOLID WASTE MANAGEMENT (CONSERVANCY SERVICES)
(COLLECTION, TRANSPORTATION AND DISPOSAL OF TOWN SOIL WASTE)
TABLE 3

Year	Average Solid Waste collection		Staff		Expenditure in Crores		Total No.of Vehicle Used For Refuse Collection
	Refuse tonnes	Debri Tonnes	Conservanc y	Transport	Conservancy	Transport (Approx)	
1989	3600	1500	30589	2816	-	44.08	804
1996	4000	2000	26848	3613	127	31.13	1440
1997	4000	2000	32960	5160	219	46.10	1840

Source - Year Book BMC 1969,1979,1989

MUNICIPAL CORPORATION'S HEALTH EXPENDITURE OF MEGA CITIES
TABLE 4

	1960-61	1965-66	1970-71	1975-76	1980-81	1985-86
Bombay	54565 (34.45)	95654 (31.62)	168511 (31.48)	223365 (19.28)	509870 (27.22)	931961 (25.84)
Madras	10444 (23.60)	14514 (18.18)	22331 (17.54)	-	-	158232 (29.21)
Calcutta	15638 (21.42)	27676 (30.29)	48727 (32.96)	64908 (32.42)	84176 (24.07)	35925 (6.60)
Delhi	17571 (26.24)	30119 (26.79)	60022 (22.60)	133145 (32.62)	221699 (30.80)	452489 (30.84)

Source: State Sector Health Expenditures (FRCH)
% to the total expenditure in brackets

MUNICIPAL CORPORATION HEALTH EXPENDITURE (MAHARASHTRA)
TABLE 5

(Figures in '000)

	1960-61	1965-66	1970-71	1975-76	1980-81	1985-86
Bombay	54565 (34.45)	95654 (31.62)	168511 (31.48)	223365 (19.28)	509870 (27.22)	931961 (25.84)
Nagpur	11812 (50.59)	9126 (46.93)	18256 (47.04)	26181 (34.37)	71164 (45.08)	113327 (38.70)
Poona	5019 (28.52)	8424 (29.94)	11410 (20.24)	28808 (23.59)	38647 (19.60)	76472 (17.46)
Solapur	1544 (14.21)	967 (40.49)	6552 (33.18)	11431 (35.62)	20398 (35.84)	43393 (28.07)

Source: State Sector Health Expenditure (FRCH)
Total Expenditure of Maharashtra on Health
Figures in Brackets are Percentage

BMC'S BUDGETARY ALLOCATIONS FOR HEALTH

TABLE 6

(Figures in'000)

	1979				1989			
	Div I	Div II	Div III	Total	Div I	Div II	Div III	Total
Public Health Department								
A. General Superintendence	1889	985	415	3289	5790	3240	1921	10952
B. Supply of Milk for Undernourished Children	488	186	202	877	688	789	822	2299
C. Malaria Eradication Programme	20	36	2	54	157	263	82	503
D. Empounding Stray Cattle	38	-	-	38	55	194	-	250
E. Census	2	-	-	2	-	-	-	-
F. Filaria Programme	-	26	11	38	-	63	41	104
G. Debt Charges	74	53	22	150	328	503	186	1017
Others	18	3	2	24	-	-	-	-
Total	2532 (8.04)	1290 (4.09)	651 (2.06)	4474 (14.20)	7020 (7.33)	5054 (5.28)	3054 (3.19)	15128 (15.81)
Medical Relief And Education								
A. Hospitals	13938 (44.26)	4835 (15.35)	1875 (5.95)	20650 (65.58)	41265 (43.13)	12952 (13.53)	10108 (10.56)	64325 (67.23)
B. Maternity Homes	608 (1.93)	294 (0.93)	404 (1.28)	1306 (4.14)	2845 (2.97)	1888 (1.97)	1063 (1.11)	5798 (6.06)
C. Dispensaries	796 (2.528)	507 (1.61)	231 (0.73)	1535 (4.87)	1870 (1.95)	1057 (1.10)	7044 (7.36)	9971 (10.42)
D. Statutory Contribution to Govt. Medical Institutions	41 (0.13)	-	-	4.1 (0.13)	-	-	-	-
E. Clinic for Leprosy Case Treatment	56 (0.17)	2	1	60	412 (0.43)	11	3	427 (0.44)
F. Grant in Aid to Public Institutions	1773 (5.63)	46 (0.14)	17 (0.05)	1836 (5.83)	2500 (2.61)	-	-	2500 (2.61)
G. Provident Fund Charges	42 (0.13)	5	2	50 (0.15)	-	-	-	-
H. Debt charges	1992 (6.32)	709 (2.25)	546 (1.73)	3247 (10.3)	7079 (7.39)	2032 (2.12)	883 (0.92)	9995 (10.44)
I. Medical Education	2758 (8.75)	-	-	2758 (8.75)	8989 (9.39)		-	8989 (9.39)
Others	22006 (69.89)	6400 (20.32)	3079 (9.77)	31486	64963 (67.90)	17942 (18.75)	12763 (13.3)	95668

DIVI I - City DIVI II - Western Suburbs DIVI III - Eastern Suburbs

SOURCE - ADMN. Report 1979-1989

DAILY EXPENDITURE SPENT UNDER VARIOUS HEADS OF ACCOUNT ON PER INPATIENTS AND OUTPATIENTS FOR THE YEAR 1969 IN TEACHING HOSPITALS
TABLE 8

Year	Hospital	Diet	Medicine Drugs Equipments	Stores & Linen	Heating and Lighting	Miscell-aneous	Repairs to Buildings	Establishment	Total
Inpatients	LTMG Hospitals								
1968-69		1.70	3.80	4.45	-	0.45	0.10	9.75	20.25
1969-70		1.92	5.40	1.55	0.10	1.50	0.15	10.75	21.37
Outpatients									
1968-69		-	0.76	0.89	-	0.09	0.02	1.95	3.71
1969-70		-	1.08	0.31	0.02	0.03	0.03	2.15	3.89
Inpatients	NAIR Hospital								
1968-69		2.40	6.06	0.71	0.51	-	-	10.75	20.43
1969-70		2.39	7.82	0.88	0.88	-	-	11.88	23.85
Outpatients									
1968-69		-	1.21	0.11	0.09	-	-	1.39	2.80
1969-70		-	1.95	0.22	0.12	-	-	1.08	3.37
Inpatients	KEM Hospital								
1968-69		1.57	3.30	0.68	0.31	0.69	0.36	8.80	15.71
1969-70		1.75	4.82	0.97	0.34	1.30	0.37	8.92	18.47
Outpatients									
1968-69		-	1.89	0.50	0.04	0.14	0.18	4.60	7.43
1969-70		-	2.20	0.56	0.03	0.33	0.26	7.69	11.07

Sources: ADMN Report of Commissioner BMC, 1969

DAILY EXPENDITURE SPENT PER INPATIENT AND OUTPATIENT IN TEACHING HOSPITALS BMC 1979
TABLE 9

Year	Hospital Rs.	Diet Rs.	Medicine Drugs Equipment Rs.	Store & Linen Rs.	Miscellaneous Rs.	Repairs to Buildings Rs.	Establishment Rs.	Total Rs.
Inpatients	LTMG Hospitals							
1978-79		4.01	15.14	2.88	4.78	1.45	26.82	56.52
1979-80		3.53	16.2	4.09	5.01	3.72	32.25	64.82
Outpatients								
1978-79		-	3.33	0.63	0.89	0.32	5.90	11.38
1979-80		-	3.30	0.83	1.02	0.76	6.58	12.49
Inpatients	NAIR Hospital							
1978-79		7.00	6.11	1.91	11.95	-	15.21	42.18
1979-80		5.89	3.34	3.70	15.97	-	18.79	47.69
Outpatients								
1978-79		-	1.34	0.48	0.32	-	3.88	6.02
1979-80		-	1.61	0.64	0.72	-	4.01	6.97
Inpatients	KEM Hospital							
1978-79		3.40	17.12	3.49	2.54	2.49	25.43	54.47
1979-80		3.17	16.98	3.69	2.46	3.00	26.17	55.47
Outpatients								
1978-79		-	4.68	1.35	0.92	1.31	7.56	15.82
1979-80		-	5.48	1.49	0.59	0.98	10.89	19.43

Sources: ADMN. Reports of Commissioner of BMC, 1979

DAILY EXPENDITURE SPENT ON PER INPATIENT AND OUTPATIENT IN TEACHING HOSPITALS-BMC-1989
TABLE 10

Year	Hospital	Diet Rs.	Medicine Drugs Equipment Rs.	Store & Linen Rs.	Miscellaneous Rs.	Repairs to Buildings Rs.	Establishment Rs.	Total Rs.
Inpatients	LTMG hospitals							
1988-89		7.86	24.66	8.69	15.06	9.19	128.83	194.29
1989-90		7.15	28.33	8.39	12.47	11.53	146.34	214.21
Out patients								
1988-89		-	4.33	1.52	2.64	1.61	22.61	32.71
1989-90		-	5.23	1.55	2.33	2.13	27.04	28.3
Inpatients	Nair hospital							
1988-89		7.85	28.52	11.40	12.01	-	120.37	180.1
1989-90		7.33	34.36	2.04	7.43	-	190.03	241.19
Out patients								
1988-89		-	5.15	2.70	2.55	-	21.80	33.20
1989-90		-	5.67	0.34	1.23	-	32.18	39.42
Inpatients	KEM hospital							
1988-89		7.98	37.67	28.06	2.22	3.11	152.23	231.27
1989-90		8.48	44.97	29.46	0.84	7.38	139.03	230.16
Out patients								
1988-89		-	20.16	14.23	11.40	23.16	20.55	89.50
1989-90		-	24.57	14.93	13.45	28.27	27.33	108.55

Source: Admn. Report of Commissioner of BMC, 1989

WARD-WISE BIRTHS
TABLE 11

Years	D Ward	L Ward	H\E Ward	N Ward
1969	13367 (37.9)	5195 (36.56)	13216 (45.63)	10598 (63.98)
1979	8889 (23.2)	11636 (42.2)	10824 (42.5)	14772 (30.8)
1989	6839 (15.5)	13756 (31.6)	10041 (24.1)	11503 (25.7)

Source: Annual Reports of Ex. Health Officer, 1969, 1979, 1989
Figures in Bracket indicate births per thousand

WARDWISE MORTALITY (TOTAL DEATHS)
TABLE 12

Years	D Ward	L Ward	H\E Ward	N Ward
1969	3632 (10.30)	2330 (16.40)	4663 (16.10)	2882 (17.46)
1979	4426 (11.56)	2862 (10.46)	3616 (14.0)	4108 (8.56)
1989	4000 (8.98)	2866 (6.60)	3741 (9.00)	3344 (7.47)

Source: Ex. Health Officer, 1969, 1979, 1989
Figures in bracket indicates CDR

CAUSES OF DEATHS
TABLE 13

Diseases	1949	1959	1969	1979
Asthma and Bronchitis	1477 (3.69)	843 (2.27)	701 (1.27)	2650 (3.68)
Cancer	477 (1.19)	1274 (3.44)	2112 (3.85)	3064 (4.25)
Diabetes	82 (0.20)	217 (0.58)	262 (0.47)	236 (0.32)
Diphtheria	93 (0.23)	120 (0.32)	123 (0.22)	10 (0.01)
Gastro-ENT and Dysentery	1 617 (4.04)	2375 (6.41)	3559 (6.49)	4092 (5.68)
Influenza	4 (0.01)	30 (0.08)	–	–
IHD	428 (1.07)	1597 (4.31)	3294 (6.00)	5758 (7.99)
Liver Cirrhosis	224 (0.56)	320 (0.86)	779 (1.42)	1144 (1.58)
Measles	182 (0.45)	108 (0.29)	201 (0.36)	90 (0.12)
Pneumonia	8995 (22.52)	6291 (16.99)	7510 (13.69)	8123 (11.28)
Poliomyelitis	65 (0.16)	27 (0.07)	37 (0.06)	65 (0.09)
Small Pox	563 (1.40)	182 (0.49)	25 (0.04)	–
T.B Pulm	1709 (4.27)	2087 (5.63)	4793 (8.74)	7911 (10.98)
T.B Others	619 (1.55)	764 (2.06)	761 (1.38)	845 (1.17)
Typhoid (E.F)	1121 (2.80)	279 (0.75)	78 (0.14)	79 (0.10)
Other Deaths	22279 (55.78)	20492 (55.37)	30367 (55.38)	37188 (51.64)
Total Deaths	39935	37006	54831	72002

Source: R.V.S. Rao, Studies on Mortality patterns of some common diseases during the period 1931 to 1980 in Bombay, Bombay 1989.
Bracket figures are Percentage to the total deaths

INFANT MORTALITY (WARDWISE)
TABLE 13A

Years	D Ward	L Ward	H\E Ward	N Ward
1969	624 (46.68)	661 (127.23)	1110 (83.98)	974 (91.90)
1979	564 (63.44)	924 (79.40)	711 (65.68)	1098 (74.32)
1989	266 (38.33)	741 (53.86)	487 (48.50)	589 51.20

()
Source: Ex. Health Officer, 1969, 1979, 1989
Figures in bracket indicates number of death per thousand

MEDICAL INSTITUTIONS
TABLE 14

Years	1969	1979	1989	1997
General Dispensaries	65	141	150	163
General Hospitals	5	11	13	18
Teaching Hospitals	3	3	3	3
Maternity Homes	17	22*	25	27
Hospital For Infectious Diseases	1	1	1	1
ENT Hospital	1	1	1	1
T.B Clinics	4	16	16	16
Eye Hospital	-	1	1	1
Leprosy Clinic	1	1	1	1
Leprosy Clinic	9	10	10	-
STD Clinic	1	1	1	1
Dental College	1	1	1	1
Ambulance	2	-	18	18
Hearses	-	-	-	6
Paying beds	-	-	116	337
Total Beds				10239
Mobile Health Units	12	22		

Source: Ex. Health Officer Reports, 1969, 1979, 1989
Year Book, 1969, 1979, 1989, 1997
*Excluding 12 wards

TOTAL NUMBER OF BEDS IN MUNICIPAL GENERAL HOSPITALS OF BMC
TABLE 15

K.B. Bhabha Hospital Bandra	Municipal General Hospital Santacruz	Cooper Mun. Gen. Hosp. Vile Parle	K.Bhabha Hosp. Kurla	MHA Hosp. Chembur	Rajawadi Gen. Hosp. Ghatkoper	Hajibabu Rd. Mun. Gen. Hosp. Malad	Bhagwati Mun. Gen. Hosp. Borivli	Agarwal Mun. Gen. Hosp. Mulund (W)	Mun. Gen. Hosp. Mulund (E)	Muktabai Gen. Hosp. Barue Nagar Ghatkopar	Centenary Hosp. Kandiwali (w)	Centenary Hosp. Govandi	Total	Year
165	NA	50	82	NA	145	NA	50	78	NA	NA	NA	NA	570	1969
204	104	520	178	70	548	110	300	128	100	100	NA	NA	2362	1979
484	251	520	256	74	570	136	375	128	100	100	120	180	3294	1989

Source: Annual Report of Ex. Health Officer of BMC, 1969, 1979, 1989

SERVICES OFFERED IN TEACHING HOSPITAL OVER 3 DECADES
TABLE 16

	1969			1979			1989		
	KEM	LTMG	NAIR	KEM	LTMG	NAIR	KEM	LTMG	NAIR
Expenditure ('000) on In-patients	-	-	-	3752	2437	-	10601	8941	-
On Out-patients	-	-	-	725	487	-	4638	1730	-
Rage Cost/Inpt./Day	18.47	-	23.85	230.16	214.21	241.19	55.47	64.82	51.42
Rage Cost/Outpt./Day				8.74	12.49	-	-	36.30	39.42
Scheduled Bed Strength	1232	507	667	1450	984	830	1615	1048	872
Total In-patients attended Wards ('000)	62	40	27	58	48	45	63	54	39
Total Out-patients attended New Wards ('000)	345	368	45	383	372	247	317	54	160
Total Out-Patients New and Old	671	368	617	918	936	932	1485	921	451
HLY Out-patients Old and New	2207	1714	1022	2517	3047	2600	4984	1501	3667

Source: Admn. Report of Commissioner of BMC for the year 1969, 1979, 1989.

ANNUAL ATTENDANCE OF IN-PATIENTS IN THE GENERAL HOSPITALS OF BMC
TABLE 17

K.B. Bhabha Hospital Bandra	Municipal General Hospital Santacruz	Couper Mun. Gen. Hosp. Vile Parle	K.Bhabha Hosp. Kurla	MHA Hosp. Chembur	Rajawadi Gen. Hosp. Ghatkoper	Hajibabu Rd. Mun. Gen. Hosp. Malad	Bhagwati Mun. Gen. Hosp. Borivli	Agarwal Mun. Gen. Hosp. Mulund (W)	Mun. Gen. Hosp. Mulund (E)	Muktabai Gen. Hosp. Barue Nagar Ghatkopar	Centenary Hosp. Kandiwali (w)	Centenary Hosp. Govandi	Year
46608 (128) [36.85]	NA	-	38350 106.53 [30.32]	NA	20903 (58) [16.52]	NA	-	21295 (58.34) [16.83]	NA	NA	NA	NA	1967
49618 (136) [34.27]	NA	-	37595 (103.00) [25.97]	NA	24377 (67) [16.83]	NA	11246 (42.00) [7.76]	21921 (60.00) [15.14]	NA	NA	NA	NA	1968
55216 (151) [28.61]	NA	11946 (38.5) [6.19]	36308 (100.86) [18.81]	NA	48853 (134) [25.32]	NA	17199 (47.00) [8.91]	23409 (64.13) [12.13]	NA	NA	NA	NA	1969
57810 (159) [8.28]	28236 (74) [4.04]	238740 (650) [34.20]	65331 (177) [9.35]	23670 (66) [3.39]	168152 (460) [24.08]	2484 (10) [0.35]	71776 (197) [10.28]	41647 (114) [5.96]	206 (4) [0.02]	-	NA	NA	1977
54590 (149) [5.46]	45703 (125) [4.57]	278925 (764) [27.92]	59362 (163) [5.94]	21306 (60) [2.13]	162376 (519) [16.25]	216012 (748) [21.62]	100509 (275) [10.06]	40358 (110) [4.03]	19857 (54) [1.98]	-	NA	NA	1978
57267 (157) [6.31]	50778 (139) [5.59]	200579 (670) [22.11]	62130 (183) [6.84]	24480 (68) [2.69]	167256 (508) [18.43]	243769 (677) [26.87]	106225 (291) [11.71]	43174 (118) [4.75]	4081 (12) [0.44]	3390 (9) [0.37]	NA	NA	1979
79489 (310) [9.85]	42240 (116) [5.23]	163665 (520) [20.28]	74706 (202) [9.25]	18225 (51) [2.25]	167570 (459) [20.76]	29394 (82) [3.64]	92742 (254) [11.49]	30947 (85) [3.83]	20772 (56) [2.57]	22522 (62.0) [2.79]	31921 (88) [3.95]	32752 (29) [4.05]	1987
91665 (345) [11.82]	55394 (152) [7.14]	170252 (523) [21.96]	74245 (204) [9.57]	19351 (54) [2.49]	171116 (4481) [22.07]	32322 (83) [4.16]	18032 (49) [2.32]	29783 (82) [3.84]	24789 (67) [3.19]	21394 (59.0) [2.75]	30255 (83) [3.90]	36678 (131) [4.73]	1988
139795 (383) [17.68]	58582 (161) [7.41]	164157 (491) [20.76]	62721 (171) [7.93]	18668 (51) [2.36]	147421 (404) [18.64]	29837 (82) [3.77]	16394 (44.92) [2.07]	40072 (110) [5.06]	24292 (66.5) [3.07]	19319 (64.0) [2.44]	31399 (86) [3.97]	37922 (132) [4.79]	1989

Source: Annual Reports of Ex. Health Officer, 1069,1979,1989.
Figures in Brackets indicate daily average attendance of in-patients
Figures in square Brackets indicates percentage to total attendance of that year.

HEALTH SERVICES INFRASTRUCTURE IN GREATER BOMBAY
TABLE 18

Sector	City Zone		Western suburbs				Eastern suburbs				Greater Bombay	
			Suburbs		Extended		Suburbs		Extended			
	No.	Beds	No.	Beds	No.	Beds	No.	Beds	No.	Beds	No.	Beds
Public												
Municipal Corporation of Greater Bombay (MCGB)												
Teaching Hospitals	4	4305	-	-	-						4	4305
Infectious Diseases and other Special Hospitals	5	2160									5	2160
General Hospitals	-	-	3	1207	4	747	5	1366	2	413	15	3733
Maternity Homes	8	317	6	248	4	136	4	92	3	162	27*	993
Special Clinics											7	
Dispensaries											159	
Ordinary	38		15		17		15		8		93	
Upgraded	34		15		5		9		3		66	
Dental Clinic	4										4	
Health Posts	51		35		36		38		16		176	
GOVT. of Maharashtra												
Teaching Hospitals	1	1352									1	1341
Special/ General Hospitals	6	1715	1	30							7	1833
ESIS Hospitals	2	1150	1	400	1	400			1	500	5	2450
ESIS Dispensaries	-										14**	
Central Government/ Public Sector Undertakings												
Hospitals	5	2033					4	299			10	2011
DGHS Dispensaries											36*	
Total Public		13032		1885		1283		1757		1075		19147
Private (1994)												
Hospitals/ Nursing Homes	307	7725	234	3676	273	3114	170	2683	81	1109	1065	18307
Grand Total		20832		5561		4397		4440		2184		37454
Bed: Population Ratio		1:152		1:367		1:434		1:418		1:434		1:265

Source: FRCE

EXPENDITURE BY BMC
TABLE 19

	1990	1991	1992	1993	1994
Expenditure on Health	1114351	1340289	1554004	1998633	2275753
Total Expenditure by BMC	4811487	5828762	6846229	8525741	9513242
Health exp. to total exp. by BMC	23.16	22.99	22.70	23.44	23.92

Note : Figures are in Rs. Thousands
1994 Revised Estimates

BOMBAY MUNICIPAL CORPORATION - REVENUE EXPENDITURE ON PUBLIC HEALTH : 1990-91 TO 1994-94
TABLE 20

(Rs. '000)

Sr. No.	Heads of Expenditure	Actuals						Revised Estimates
		1988-89	1989-90	1990-91	1991-92	1992-93	1993-94	1994-95
I.	Public Health	130740 13.1	151293 13.6	172666 12.9	199938 12.9	244106 12.2	269898 12.1	320110 12.6
II.	Medical Relief & Education	862185 86.3	956689 85.9	1160520 86.6	1345904 86.6	1744931 87.3	1939574 87.2	2198230 86.8
	(a) Hospitals	579625 58.0	643505 57.8	778208 58.1	906130 58.3	1193398 59.7	1285863 57.8	1450600 57.3
	(b) Medical Education	77673 7.8	89645 9.0	122394 9.1	126260 8.1	149346 7.5	160738 7.2	176350 7.0
	(c) Maternity Homes & Child Welfare (Including Family Welfare)	48399 4.8	57981 5.8	84628 6.3	119426 7.7	163534 8.2	208785 9.4	245630 9.7
	(d) Dispensaries	33170 3.3	36327 3.6	41409 3.1	48867 3.2	63136 3.2	87236 3.0	75720 3.0
	(e) Others	123319 12.3	129231 11.6	133881 10.0	145221 9.4	175517 8.8	226953 10.2	226953 9.9
III	Environment Air Pollution Control	6549 0.6	6369 0.6	7103 0.5	8162 0.5	9596 0.5	14223 0.6	13729 (0.5)
	Total (I+II+III)	999474	1114351	1340289	1554004	1998633	2223699	2532069

Sources: (1) Municipal Corporation of Greater Bombay, Outline of Civic Finance: 1994-95, Mumbai, December, 1994.

(2) Municipal Corporation of Greater Bombay, Budget Estimates:1995-96, Mumbai, January 1995.

Expenditure on Hospitals by BMC (as % to Total)
TABLE 21

Hospitals	1986	1988	1990	1992
KEM Hospital	19.62	19.18	20.26	20.08
Sion Hospital	14.82	14.17	14.10	15.27
Nair Hospital	12.21	12.08	11.48	12.19
Kasturba Hospital	4.16	3.89	3.39	3.41
T.B. Hospital	3.73	4.05	4.57	4.67
T.B. Hospital	0.49	0.83	0.89	0.84
Bhajrekar Hosp.	0.21	0.23	0.18	0.14
ENT Hospital	0.76	0.63	0.81	0.71
EYE Hospital	0.49	0.43	0.41	0.42
Babha (Kurla) Hosp.	2.53	2.40	2.22	2.16
Rajawadi Hosp.	5.37	5.22	5.01	5.11
Bhagwati Hosp.	4.67	4.17	3.42	3.51
NTA Mulund (W) Hosp.	1.58	1.45	2.11	2.17
Cooper Hospital	5.64	6.38	5.56	5.76
KAA Hospital	1.27	1.25	1.12	0.99
V.N. Desai Hosp.	2.26	2.78	2.31	2.28
M.W. Desai (Malad) Hosp	1.37	1.30	1.25	1.19
Mulund (E) Hospital	1.20	1.06	0.97	0.98
Bhabha (Bandra) Hospital	2.97	3.88	3.58	4.10
Muktabai Hospital	1.01	0.97	0.95	0.91
G.K Patil Hospital	-	-	0.04	0.22
CENY Hospital (Kandavi)	0.99	1.08	0.95	0.95
Dispensaries Allopathy	6.41	4.69	0.18	4.53
Dispensaries Ayurvedic	0.05	0.04	0.14	0.10
STD	0.49	0.17	0.28	0.20
Nair Dental Hospital	-	1.67	2.05	1.50
Maternity Homes	5.58	5.92	5.76	5.60
Unani	0.02	0.03	-	-
Mobile Dispensaries	0.10	0.08	-	-
Total (in Rupees)	459760969	562292574	739340720	1074423000

Source: FRCH, 1996.

EXPENDITURE OF LTMG HOSPITAL
(BY OBJECTIVES, AS % TO TOTAL)
TABLE 22

	1986	1988	1990	1992
Establishment	61.72	59.18	63.85	62.56
Contingency	4.67	4.96	4.59	3.68
Equip & Appar	0.40	1.20	0.65	0.90
Medi & Inst	13.73	13.75	12.59	14.42
Diets	5.77	3.23	2.54	2.00
Stores	4.22	3.97	3.72	4.53
Repairs & Maint	6.34	6.85	5.53	5.80
Transport Charges	2.55	2.08	2.09	1.84
Lumpsum Provisions	0.07	1.94	1.24	0.18
New Works	0.05	0.13	0.16	0.32
Others	0.48	2.72	3.04	3.77
Total (in Rupees)	68137089	79674577	104283574	154086995

Source: Ibid., 1994, p.41.

EXPENDITURE ON LTMG HOSPITAL
BY DEPARTMENTS, AS % TO TOTAL)
TABLE 23

	1986	1988	1990	1992
General Admin.	17.08	23.13	39.49	58.67
Medicine	7.45	6.40	5.75	4.35
Surgery	7.34	6.05	5.75	4.35
Ob % Gynaecology	6.06	4.95	2.88	2.73
Paediatrics	5.93	4.91	2.88	2.73
Radiology	6.05	3.39	2.88	2.73
Casualty	1.83	2.40	1.44	1.42
Orthopaedic	10.10	7.12	6.71	4.35
Ear, Nose & Throat	2.05	1.96	1.15	0.58
Ophthalmic	1.52	1.29	1.15	0.58
Skin & V.D	1.88	1.99	1.15	0.45
Blood Bank	1.60	1.31	1.15	0.58
Psychiatric	1.21	0.13	1.15	0.58
Pharmacy	4.27	2.33	1.92	1.42
Inta Care Unit	3.67	3.37	2.88	1.75
O.T.P.T	1.75	1.94	1.73	1.10
Dental	0.31	0.34	0.38	0.39
Cardiology	0.74	1.05	1.15	0.59
Dispensary	3.41	3.21	2.40	1.76
Drugs for Munc Staff	0.76	1.67	1.73	1.11
Ambulance Service	1.95	2.20	1.73	0.78
Laboratory Serv.	1.83	1.78	1.73	0.78
Social Services	1.00	1.98	1.73	0.78
Nursing school	0.56	1.38	1.15	0.59
Aneasthasis	0.91	2.46	1.92	1.11
Operation Theatre	3.01	6.64	4.32	2.60
Paying Wards	5.65	2.63	1.73	1.11
Total (in Rupees)	68137079	78732874	104283574	153086915

Source: Ibid., 1994, p.42.

EXPENDITURE ON RAJAWADI HOSPITAL
(BY OBJECTIVES, AS % TO TOTAL)
TABLE 24

	1986	1988	1990	1992
Establishment	56.36	65.0	61.66	62.01
Contingency	10.48	8.04	9.72	6.47
Medic & Instru.	19.41	15.00	17.42	18.60
Diets	5.31	3.93	2.89	2.57
Stores	4.22	4.33	4.60	3.74
Repairs & Maintain	1.27	1.16	2.15	5.18
Transport Charges	2.94	2.45	1.56	1.41
Others			0.10	0.01
Total	24683255	29333292	37009558	51615394

Source: Ibid., 1994, p.42.

EXPENDITURE ON RAJAWADI HOSPITAL
(BY DEPARTMENTS, AS TO TOTAL)
TABLE 25

	1986	1988	1990	1992
General Admin	20.80	20.62	20.62	16.83
Medicine	6.09	6.14	6.14	7.34
Surgery	6.65	6.59	6.59	6.02
Ob & Gyn	9.16	9.08	9.08	11.32
Paediatric	8.64	8.57	8.57	10.00
Casualty	3.81	3.78	3.78	4.48
Optho, Ortho, ENT Skin VD	12.37	12.27	12.27	11.68
ICCU	3.71	3.68	3.68	4.53
Ambulance Service	2.09	2.07	2.07	3.78
Operation Theatre	3.84	3.81	3.81	4.53
OPD	22.84	23.41	23.41	19.48
Total (in Rs.)	24686255	29333292	37009558	51615394

Source: Ibid., 1994, p.42.

WORK DONE AT MUNICIPAL GENERAL HOSPITALS, 1989
TABLE 26

	K.B. Bhabha Hospital Bandra		V.P. Desai Gen. Hospital Santacruz (E)		Dr. R.N. Cooper Hospital Juhu		K.B.H.K.B. Bhabha Hospital Kurla		D. Mohanlal Mun. Gen. Hosp. (Mun) Chembur		V.C. Gandhi & M.A. Vora Mun. Gen. Hospital Rajawadi		Sk. Mehtabul Mun. Gen. Hospital Barvenagar		Sri M.W. Desai Mun. Gen. Hosp., Malad (E)		Horilal Bhagwati Mun. Gen. Hospital Borivali		Smt. Agarwal Mun. Gen. Hosp. Malad (W)		Mun. Gen. Hosp. Malad (E)		Centenary Mun. Gen. Hospital Kandivali (W)		Centenary Hospital Govandi	
	New Cases	Total Attended	New Cases	Total Attended	New Cases	Total Attended	New Cases	Total Attended	New Cases	Total Attended	New Cases	Total Attended	New Cases	Total Attended	New Cases	Total Attended	New Cases	Total Attended	New Cases	Total Attended	New Cases	Total Attended	New Cases	Total Attended	New cases	Total Attended
OPD in 1989	269542	764969	122748	283	196614	590442	110120	472336	79215	910791	177150	797175	62575	157162	49554	129042	463090	127980	59982	268494	48839	154308	53220	215195	99405	304680
Patient remaining on																										
31 Dec 1986	235	--	130	--	534	--	201	--	42	--	418	--	52	--	84	--	264	--	93	--	58	111	111	--	82	--
31 Dec 1987	338	--	095	--	491	--	176	--	36	--	376	--	60	--	84	--	289	--	90	--	68	--	89	--	96	--
31 Dec 1988	343	--	145	--	441	--	144	--	48	--	398	--	63	--	86	--	250	--	92	--	58	--	78	--	87	--
Admitted in																										
1987	14233	--	9701	--	20021	--	11576	--	3565	--	28279	--	4980	--	7232	--	15984	--	4190	--	4447	--	6987	--	7511	--
1988	16874	--	12386	--	31899	--	12726	--	3992	--	29094	--	5004	--	7989	--	14032	--	4634	--	4980	--	7685	--	11662	--
1989	10496	--	13035	--	28096	--	11814	--	3699	--	29068	--	5380	--	8490	--	16394	--	6037	--	4970	--	8185	--	13644	--
Total Treated in																										
1987	79489	--	9831	--	168665	--	74708	--	18225	--	167570	--	28482	--	29094	--	92742	--	30947	--	20772	--	31921	--	32882	--
1988	15449	--	12386	--	170252	--	74245	--	19351	--	171118	--	56339	--	32322	--	18490	--	29783	--	173734	--	30255	--	38878	--
1989	16074	--	13192	--	184157	--	62721	--	16858	--	147421	--	60300	--	29837	--	64314	--	40072	--	154308	--	--	--	37822	--
Discharged		--																								
1987	12990	--	9613	--	27948	--	11400	--	3392	--	22138	--	5755	--	7100	--	14731	--	3908	--	3904	--	6578	--	7100	--
1988	15393	--	12533	--	30015	--	12582	--	3852	--	23081	--	5775	--	7405	--	970	--	4329	--	4125	--	7685	--	13382	--
1989	16989	--	12927	--	25782	--	11674	--	3540	--	22301	--	5479	--	7823	--	15782	--	5645	--	2384	--	7878	--	13280	--
Died																										
1987	360	--	218	--	2045	--	396	--	89	--	1475	--	48	--	226	--	982	--	179	--	125	--	185	--	250	--
1988	419	--	283	--	1887	--	302	--	76	--	1498	--	41	--	223	--	256	--	164	--	125	--	164	--	232	--
1989	543	--	205	--	1885	--	261	--	67	--	1381	--	37	--	179	--	1514	--	173	--	110	--	137	--	221	--
Patients remaining		--																								
In 1987	338	--	95	--	491	--	176	--	35	--	386	--	48	--	84	--	280	--	50	--	58	--	69	--	86	--
1988	343	--	145	--	441	--	144	--	48	--	398	--	41	--	88	--	256	--	52	--	68	--	78	--	87	--
1989	383	--	161	--	438	--	140	--	70	--	404	--	37	--	72	--	1514	--	59	--	45	--	110	--	129	--
Daily Average																										
1987	310	--	116	--	610	--	202	--	51	--	450	--	62	--	82	--	44	--	85	--	56	--	58	--	89	--
1988	365	--	152	--	642	--	204	--	54	--	498	--	50	--	88	--	49	--	82	--	57	--	53	--	101	--
1989	383	--	161	--	648	--	171	--	51	--	404	--	53	--	82	--	4301	--	110	--	42287	--	88	--	132	--

Source: Annual Report of the Executive Officer, BMC, for the year 1989.

OPD PATIENTS IN LTMG HOSPITAL
(By Departments, in Actuals)
TABLE 27

Departments	1986	1988	1990	1992
Pts. Medicines OPD	55019	52646	40602	56616
Pts. Surgery OPD	50442	51776	48627	44817
Pts. Gyn & Obst OPD	17377	17158	17859	12543
Pts. Paediatric OPD	34708	31519	22853	22815
Pts. Casualty OPD	25151	22892	34759	29736
Pts. Ortho OPD	19637	28852	21823	20610
Pts. ENT OPD	8872	11185	11073	10818
Pts. Opthalmic OPD	8262	8440	9712	11057
Pts. Skin & VD OPD	9578	11022	7819	10818
Pts. Psychiatric OPD	1812	2683	2044	2724
No. trtm OT/PT OPD	83571	96612	71265	70016
Pts. Dental OPD	18308	14559	6714	2757
Pts. Disp OPD	232007	304732	281689	403985
Pts. Soc. Serv. OPD	18376	30733	25035	30791
No. Operations OPD	33864	33688	22304	25103
Pts. Cardiology OPD	545	577	682	503
Total	617559	719074	624290	755709

Source: Ibid., 1994, p.43.

OPD PATIENTS IN RAJAWADI HOSPITAL
(BY DEPARTMENTS, IN ACTUALS)
TABLE 28

	1986	1988	1990	1992
Pts. Medicine ODP	13097	14425	15117	17800
Pts. Surg & Barna OPD	8191	8043	6815	9042
Pts. Obe & Gynaec OPD	12286	12063	12134	10673
Pts. Paediatry OPD	7083	12786	15022	13781
Pts. Casualty OPD	69120	68664	68673	74419
No. of X-ray OPD	44798	24217	39215	52085
No. Samples Patho OPD	127038	190000	61400	82355
Pts. Psychiatric OPD	792	806	690	892
Pts. OTPT OPD	90516	57354	83000	64751
Pts. Dental OPD	2768	3125	4434	4543
Pts. Dispensary OPD	558361	461733	555317	527301
Pts. TB Clinic	374	316	416	97
Pts. Ortho, ENT, Optho & Skin OPD	16644	19943	21914	23033
Total	951068	873475	886147	880772

BUDGET ALLOCATION TO THE FOUR MUN. GEN. HOSPITALS OF FOUR WARDS FOR THE YEAR 1989 & 1996

TABLE 29

Sr.No	V.N. Desai Mun. Gen. Hosp. Santacruz (E)		K.B. Bhabha Mun. Hosp. Kurla (W)		Rajawadi Mun. Gen. Hosp. Chembur		St. Muktabai Mun. Gen. Hosp. Ghatkoper		Ward D
	1989	1996	1989	1996	1989	1996	1989	1996	NIL
1. Establishment	11087 (58.88)	34042 (62.70)	13151 (71.08)	28921 (69.80)	2293 3 (58.8)4	66432 (69.67)	4471 (63.01)	12246 (69.68)	
2. Contingencies	1980 (10.51)	4000 (7.83)	1125 (6.08)	3500 (8.44)	3256 (8.35)	6500 (6.81)	405 (5.70)	900 (5.12)	
3. Medicines & Instruments	3600 (19.12)	7400 (14.50)	2925 (15.80)	5600 (13.51)	7200 (18.4 7)	13996 (14.67)	1305 (18.39)	2536 (14.43)	
4. Diet	720 (3.82)	1379 (2.70)	459 (2.48)	900 (2.17)	1494 (3.83)	2376 (2.49)	180 (2.53)	328 (1.86)	
5. Stores	720 (3.82)	1850 (3.62)	450 (2.43)	600 (1.44)	1890 (4.84)	3285 (3.44)	247 (3.48)	406 (2.31)	
6. Repairs & Maintenance	360 (1.91)	1583 (3.10)	067 (0.36)	1456 (3.51)	1295 (3.32)	2025 (2.12)	162 (2.28)	827 (4.70)	
7. Transport	360 (1.91)	600 (1.17)	324 (1.75)	456 (3.22)	855 (2.19)	733 (0.76)	315 (4.43)	330 (1.87)	
8. New Work		180 (0.32)			050 (0.12)				
Total	18827	51034	18501	(41433)	3897 3	95347	7095	17573	NIL

Source : (a) Performance Budget Estimate of BMC, 1989
(b) Budget Estimate "A" 1995-96
Figures in brackets indicates percentage to the total of that year

BUDGET ALLOCATIONS FOR THE SOCIALISED WARDS OF HOSPITALS FOR THE YEAR 1987-1988
TABLE 30

	Rajawadi Mun. Gen. Hosp. (N. Ward)	St. Muktabai Gen. Hosp. (N. Ward)	V.N. Desai Mun. Gen. Hosp. (H\E ward)	K. B. Bhabha Mun. Gen. Hosp.(L Ward)
1. General Adminstration and Supervision	6047576 (20.61)	741160 (13.53)	1500000 (9.61)	8403350 (62.35)
2. Medicines	1795836 (6.12)	890430 (16.26)	1800000 (11.53)	721259 (5.35)
3. Surgical and Burns Ward	1934095 (6.59)	886580 (16.19)	1800000 (11.53)	458388 (3.25)
4. Obstetric and Gynaec. Dept.	2662502 (9.07)	964500 (17.61)	2590000 (16.59)	226429 (1.68)
5. Paediatric Dept.	2512813 (8.56)	771000 (14.08)	1510000 (9.67)	566738 (4.20)
6. Ophthalmology, Orthopaedic, ENT & Skin # OSP	3598549 (12.26)	-	1505970 (9.64)	601824 (4.46)
7. Casualty, Intensive Care & Cardiac Dept.	2187646 (7.45)	-	650000 (4.16)	-
8. Ambulance, Hearse & Operation Theatre	1723339 (5.87)	-	250000 (16.01)	222524 (1.65)
9. OPD including - Radiology, Pathology, Blood Bank, Psychiatry, OTPT, Immunization, Dental Clinic, Dispensary and T.B clinic	6866938 (23.41)	1213975 (22.17)	3850000 (24.67)	2245828 (16.66)
Total	29333292	5475693	15605970	13477440

Source: Performance Budget Estimates, BMC, 1989-90.

Figures in brackets indicates percentage to the total budget of hospitals.

TOTAL MEDICAL STAFF AVAILABLE IN FOUR MUNICIPAL GENERAL HOSPITALS OF FOUR WARDS FOR THE YEAR 1989
TABLE 31

	Medical	Nurses	Technical	Labour	Others	Total
V.N. Desai Mun. Gen. Hosp.	12	158	98	235	16	519
St. Muktabai Mun. Gen. Hosp.	17	44	11	80	21	173
K.B. Bhabha Mun. Gen. Hosp.	52	135	5	201	14	407
V.C. Gandhi & M.A. Vora Mun. Gen. Hosp. Rajawadi	122	216	80	243	226	887
Total	203	553	194	759	277	1986

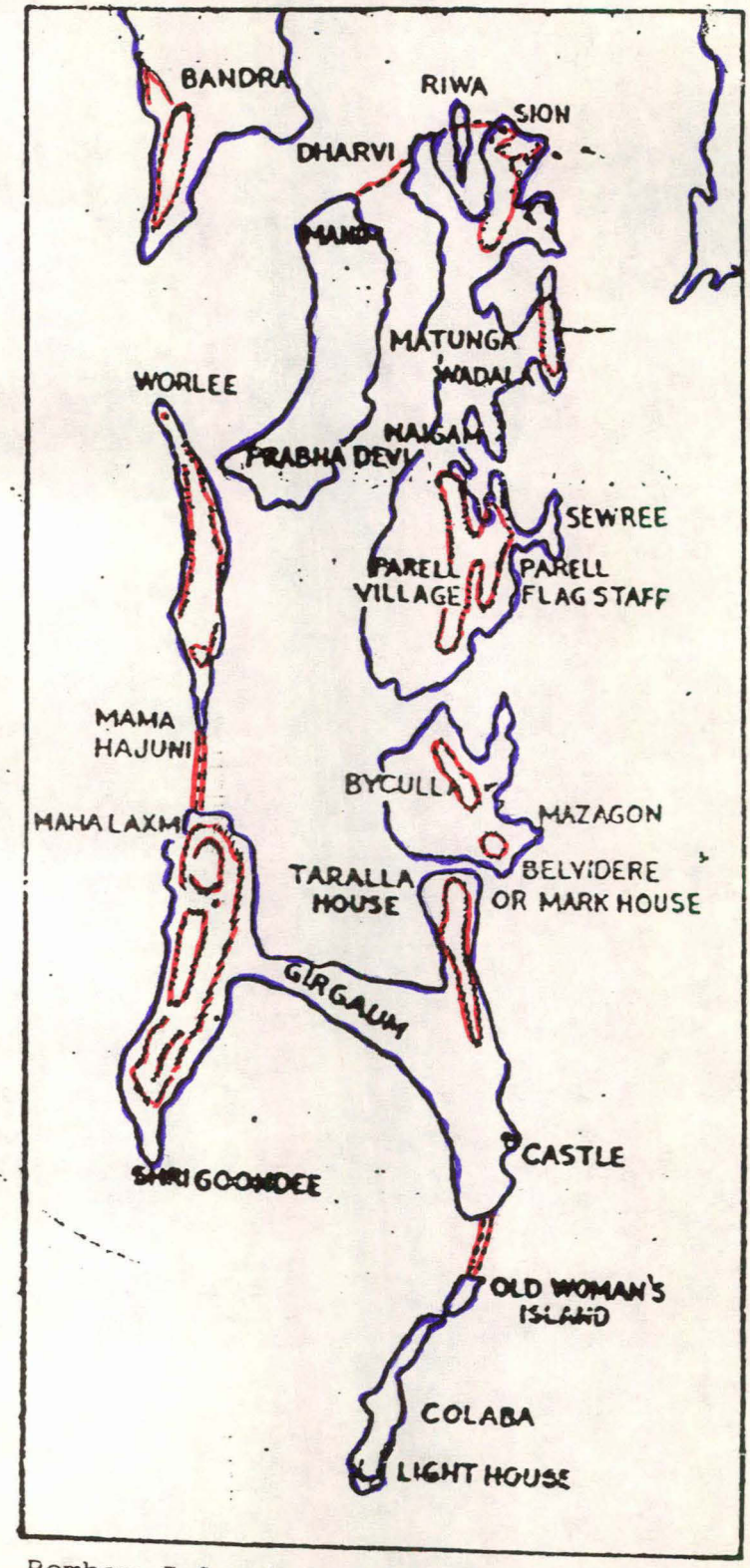
Source: Performance Budget Estimates, BMC, 1989-1990
Note: H/E Ward V.N. Desai Mun. Gen. Hosp. Santacruz (E)
L-Ward K.B. Bhabha Hospital Mun. Hosp. Kurla (w)
N-Ward V.C. Gandhi & M.A. Vora Mun. Gen. Hosp. Rajawadi
N-Ward St. Muktabai Mun. Gen. Hosp.

PATIENTS COVERED BY THE MUNICIPAL GENERAL HOSPITAL 1987-1988
TABLE 32

	V.C. Gandhi & M.A. Vora Mun. Gen. Hosp. Rajawadi N-Ward		St. Muktabai Mun. Gen. Hosp. N-Ward		V.N. Desai Mun. Gen. Hosp. Santacruz (E) H/E Ward		K.B. Bhabha Hospital Mun. Hosp. Kurla (W) L-Ward	
	Indoor	Outdoor	Indoor	Outdoor	Indoor	Outdoor	Indoor	Outdoor
1. Medical	23766	14425	1011	14509	8000	100000		
2. Surgical and Burns	33161	8043	677	2744	5000	250000		
3. Obst & Gynace	43470	12063	2537	7106	10500	52000		
4. paediatric	13726	12786	866	12493	4500	60000		
5. Ortho., ENT, Optolmic & Skin	38385	19943	-	-	2800	41500		
6. Casualty and Intensive Care Unit	2222	68664	-	-	1800000	-		
7. Operation Theatre	16077	-	-	-	9900			
8. Radiology and pathology	107108	214217	-	62066	-			
9. Blood Bank	12825	-	-	-	7000			
10. Immunization	-	41381	-	21000	-			
11. Dental Clinic	-	-	-	-	-			
Total	290740	391522	5091	119918	1847700	503500		

Source: Performance Budget Estimates, BMC, 1989-90.

Figure-1.



Bombay Islands as they existed in 1670

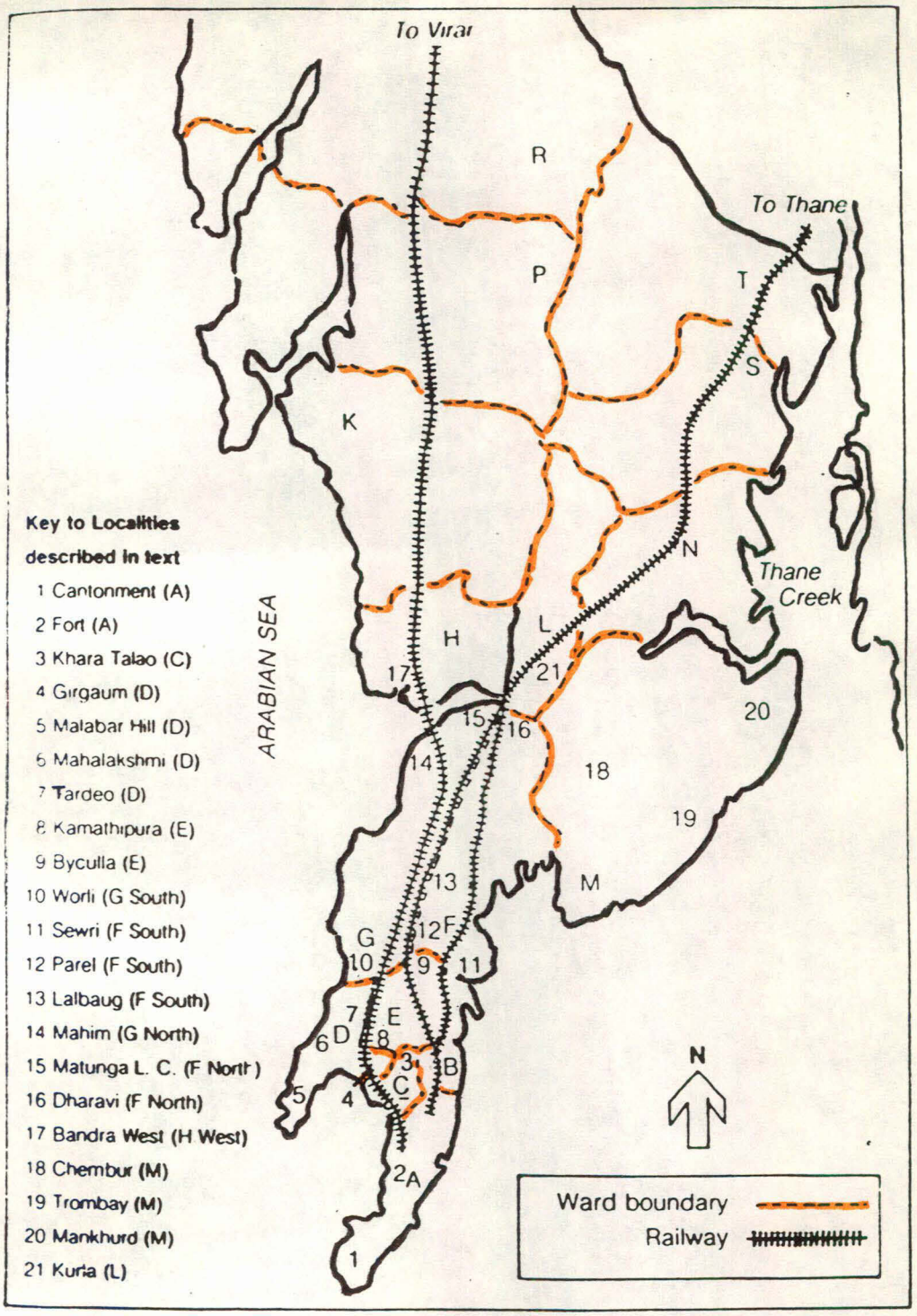


Figure-2. Map of Bombay showing location of wards in the 1980s

LOCATION OF PUBLIC AND PRIVATE HOSPITALS IN GREATER BOMBAY

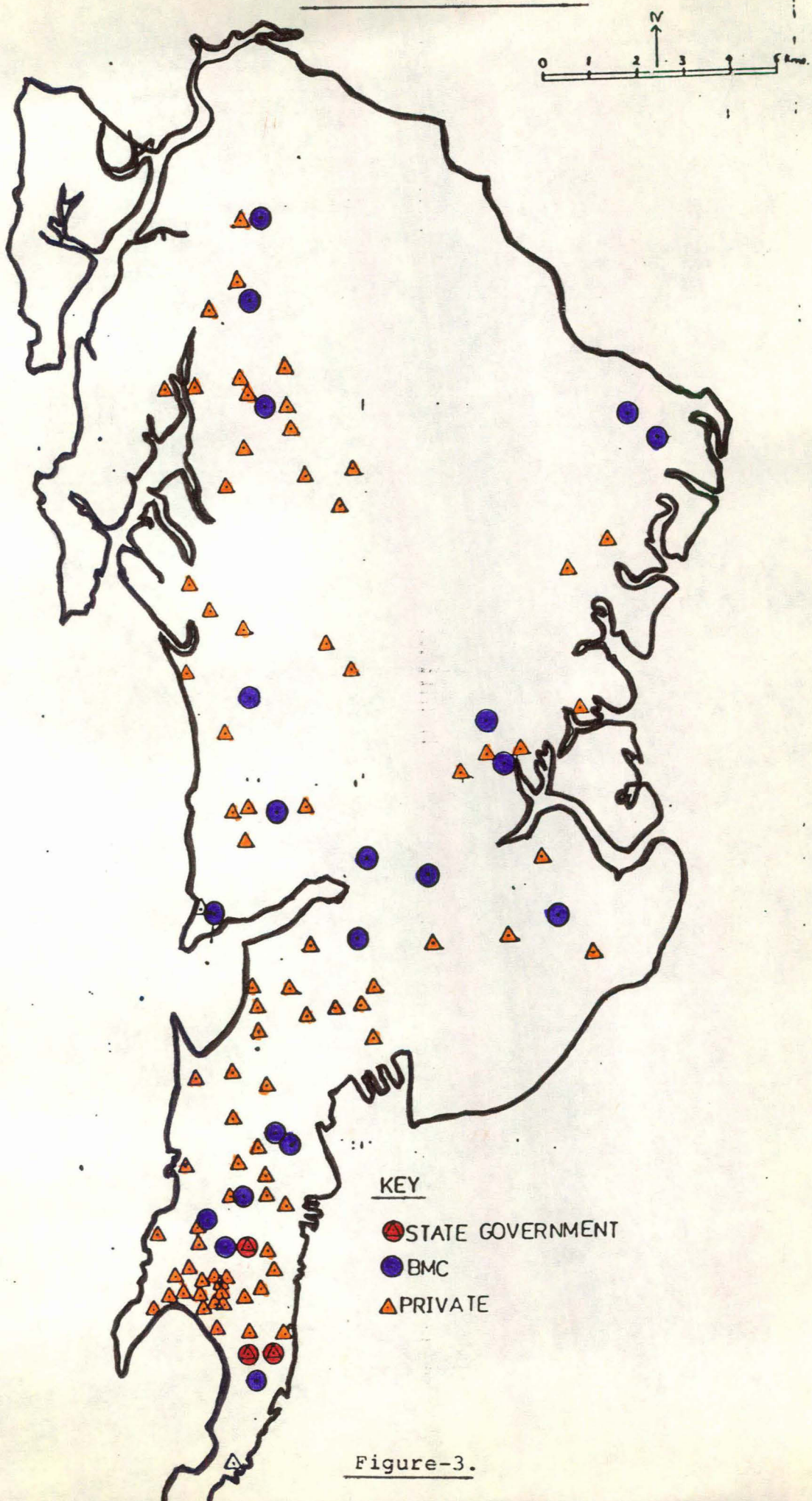


Figure-3.

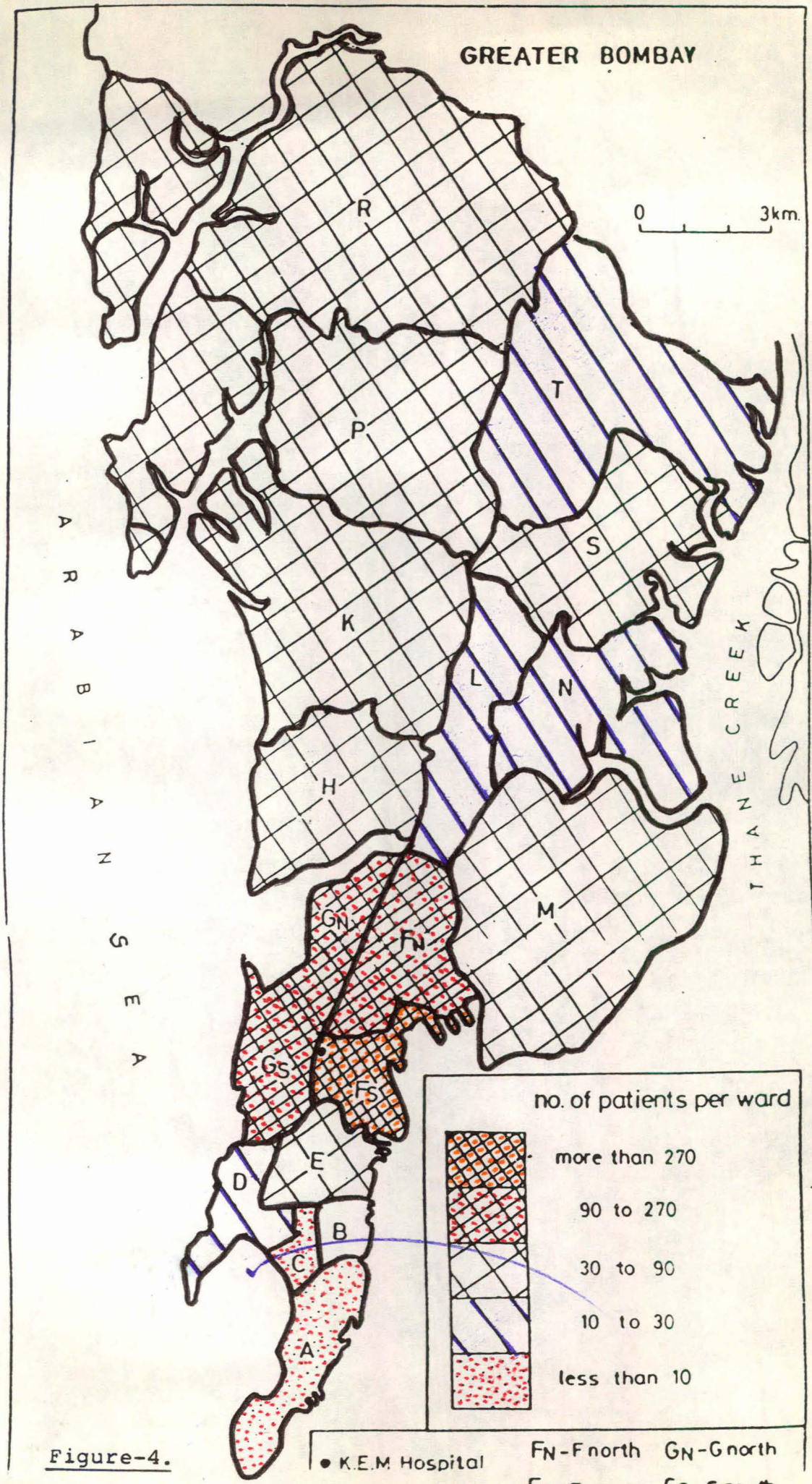

GREATER BOMBAY
0
3km.
R
P
T
S
K
L
N
H
M
GN
FN
GS
FS
E
D
B
C
A
ARABIAN SEA
THANE CREEK
no. of patients per ward
more than 270
90 to 270
30 to 90
10 to 30
less than 10
• K.E.M Hospital
FN-F north GN-G north
FS-F south GS-G south

Figure-4.

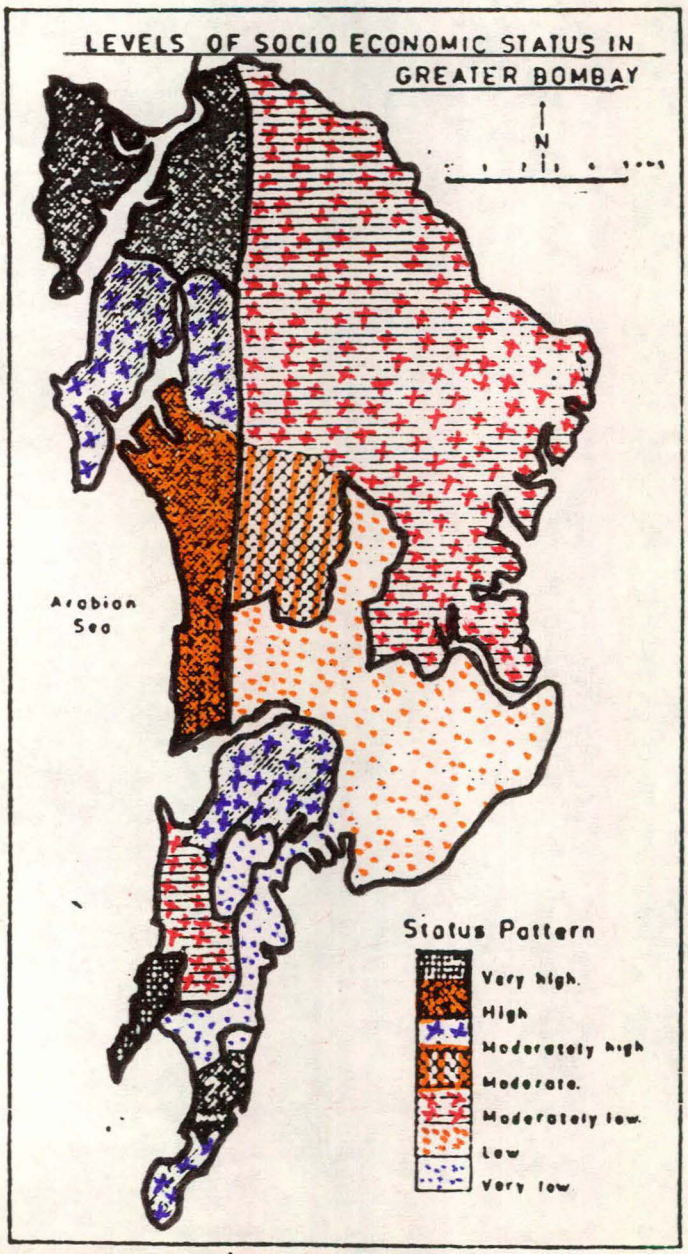

LEVELS OF SOCIO ECONOMIC STATUS IN
GREATER BOMBAY
N
Arabian
Sea
Status Pattern
Very high.
High
Moderately high
Moderate.
Moderately low.
Low
Very low

Figure-5.

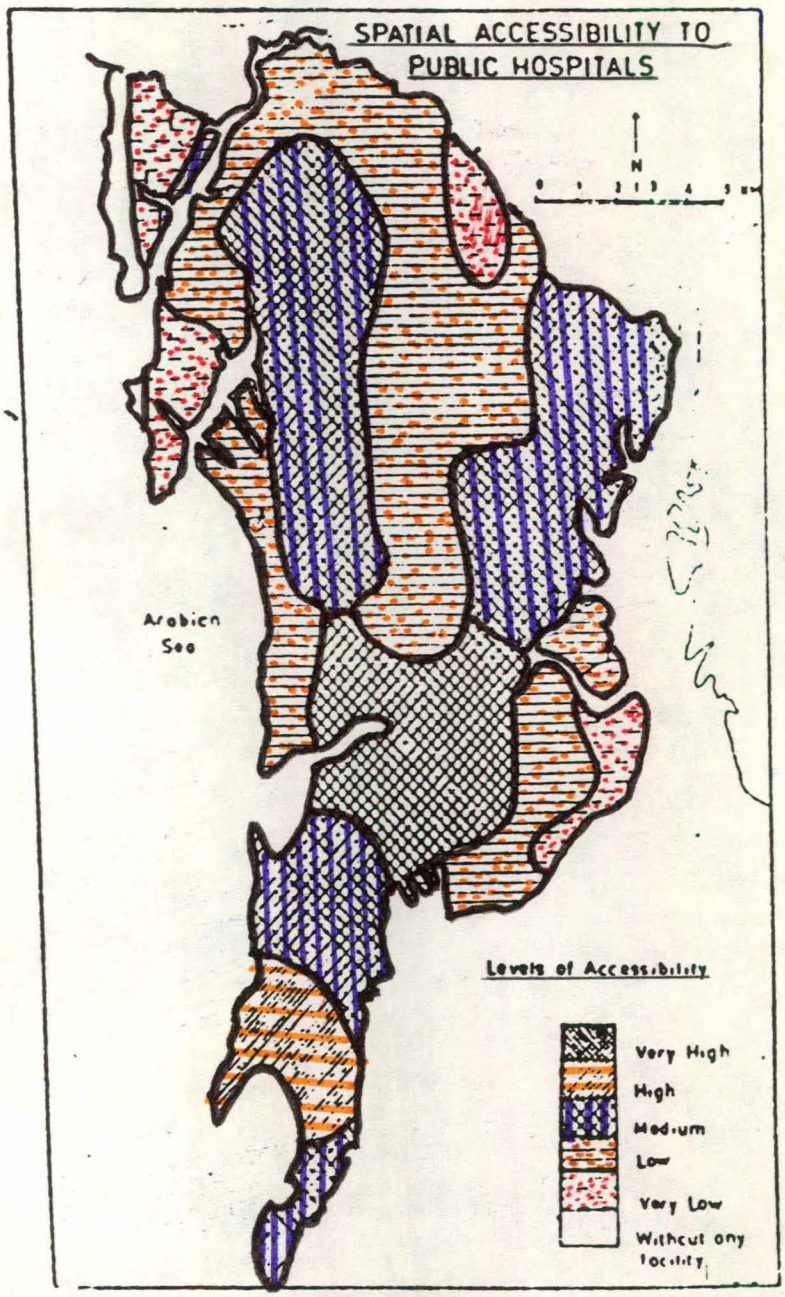

SPATIAL ACCESSIBILITY TO
PUBLIC HOSPITALS
N
Arabian
Sea
Levels of Accessibility
Very High
High
Medium
Low
Very Low
Without any
facility

Figure-6.

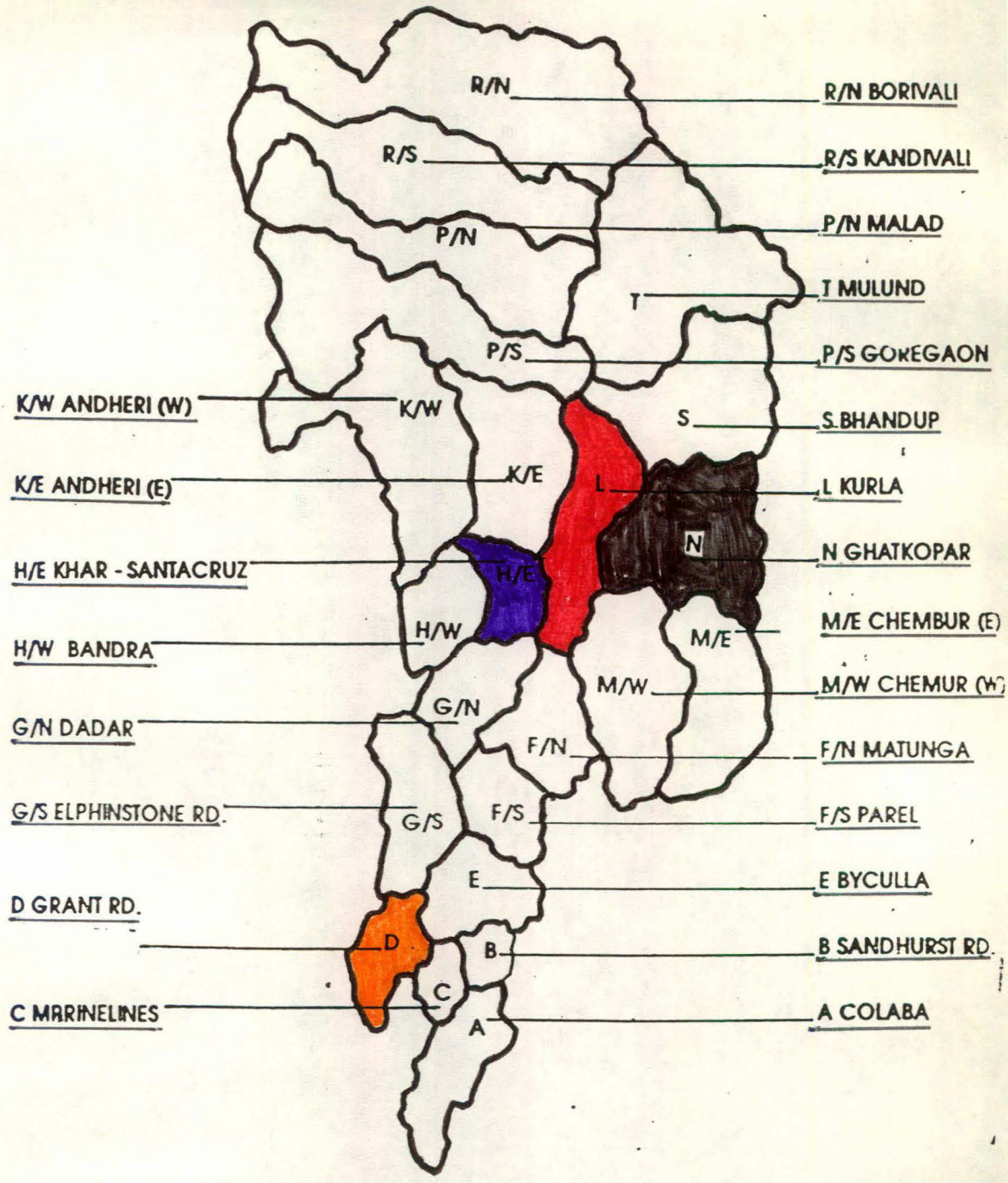


Figure-7. Mumbai, Wards & Localities

Map Sources

Fig.1 *Bombay Islands As they existed in 1670,* Bombay, New Bombay, and Metropolitan Region, Growth Process and Planning lessons, M.S. Verma, Concept Publishing Co., New Delhi, 1985.

Fig.2 *Location of wards in the 1980s*, Sujata Patel and Alice Thorner, Bombay, Metaphor for Modern India, Oxford, 1996, p.145.

Fig.3 *Location of Public and Private Hospitals*, K. Kala, The Geography of Public Hospitals, Facilities in Greater Bombay, department of Geography, University of Bombay, 1985-86. (M.A. Dissertation).

Fig.4 *Spatial Reach of KEM Hospital*, Hospital. "Hospital Based urban Health Care Services", Sonya Gill, Dina Patel etc. al., The Foundation for Research in Community Health, 1996, p.22.

Fig.5 "*Levels of Economic status in Greater Bombay*, Geography of Health Care: Socio Spatial Accessibility of Hospital Facilities in Greater Bombay", S.B. Guha & M. Thomas, Health Care Planning in the Developing World, (ed.), Jayati Hazra, Department of Geography, Calcutta University, April 1994.

Fig.6 *Spatial Accessibility to Public Hospitals*, S.B. Guha & M. Thomas, Health Care Planning in the Developing World, (ed.), Jayati Hazra, Department of Geography, Calcutta University, April 1994.

Fig.7 Mumbai, Wards & Localities, Civic Health Bulletin, 1995, BMC Health Department.