Chapter I

Introduction, methods and materials

1.2 Introduction

Attention to the problems of slum dwellers’ has been largely a matter of inaction, inappropriate or insufficient action. Many government policies over the past forty years have either ignored the slums or paid little attention. Various programs have been implemented since late 1960s. The most common among them were programs related to slum upgrading and housing finance systems. Slum up gradation was usually for a short duration and limited in extent. Further, only a few slum dwellers were benefited due to poor implementation of the program. Housing finance systems often included inappropriate financial condition for slum dwellers and always forced evictions remained common (UNCHS, 1996).

The new millennium is reported to witness not only sustained population growth but also more urbanization. Economic vibrancy of large urban centers which offer diverse employment opportunities and lack of means of livelihood in rural areas are the chief causes of migration to urban areas (Census of India, 2001). Most of the people who migrate to cities for seeking employment purpose would end up in slums. In India, one of the most imperative and persistent problems of urban life is inadequate housing facilities i.e slums. They are widely regarded as a sinks of social disorganization and have aroused alarm, particularly among the more affluent city-dwellers and government authorities.
Determined efforts have been made by authorities and urban planners to stop their growth, but the much sought solution is nowhere in sight. Desai and Pillai, (1972) observed that slum studies in India have been conducted mostly by social scientists – economists, sociologists, social workers and administrators either for the purpose of counting the heads, and improve the physical condition of the slums or with an urge to bring about social reform and improve the living condition of the poor. Wiebe, (1975) presented the statistics in term of the sights, smells, feelings and tastes which characterize slum life. These studies have tried to project the picture of slum areas and defined it in terms of number of lavatories, availability of water taps and reasonably high prevalence of crime rate

Slum studies present a picture of slum dwellers’ physical, demographic, economic and health condition along with crowding condition and distribution of residents according to place of origin and duration of residence. Piece meal efforts to improve the condition of slums in the past have brought about some improvement in the lives of the slum dwellers.

The living condition of slum dweller still is far from satisfaction. Slums have not received due attention in urban planning and have largely remained an area of neglect. Comprehensive information on slums is essential for formulation of effective and coordinated policies for improvement / rehabilitation of slum dwellers. One should not discount the fact that slum dwellers have been contributing significantly to the economy of any city by providing affordable labour for formal as well as informal sectors of the economy.
The National Sample Survey Organization (NSSO) has also discussed in length about the condition in slums. The first nationwide survey on the socio-economic condition of slum dwellers in class 1 cities in India was conducted by the NSSO in its 31st round (July 1976 – June 1977) for each city with a population of 100,000 and above as per 1971 census. The second survey was conducted in 49th round (1993) which covered rural as well as urban areas having collection of poorly built tenements, mostly of temporary nature, overcrowded by inhabitants and with inadequate sanitary and drinking water facilities. The third in this series was in the 58th round (2002) and focused only on slums in urban areas (Edelman and Mitra, 2006).

1.2 Literature review

There is no denying of the fact that slums have become an integral part of urbanization and in a way manifestation of overall socio-economic policies and planning in the country. Hence, comprehensive information on the slums covering their different aspects of life is essential for formulation of effective programs and policies. Keeping this in mind, this section reviews the empirical literature on various aspects of the slum dwellers including their living condition, life style and health status to have a broader understanding of the situation of slums.

Chaplin (1999) concluded that the environmental condition in Indian cities is continuing to deteriorate because the middle-class is actively participating in the exclusion of large sections of population from access to basic urban services. There is a need for community participation when non-governmental organizations and state agencies, implementing their development projects.
Information on behavioral risk factors for communicable and non-communicable diseases was collected by health workers during the annual health census from December 2003 to February 2004. The study indicated that it is feasible for health workers to do behavioural surveillance by using the routine healthcare system (Nongkynrih et. al. 2010). Gandhi, (2007) has agreed that since 1971, there have been various attempts to remove the slums in Mumbai, but the only consistent result has been an increase in their number. The condition in which slum dwellers live are dehumanizing and these in turn become a strong source of support for crime and corruption.

Daramola and Ibem’s (2010), paper highlighted the three-fold effects urban environment on the human health, the economy and ecological system and suggested that the application of planning, economic, legal, institutional as well as educational tools will address the situation.

Yuko’s (2009) study on basic educational status of slum children between 5-14 year old tells us that attendance ratio of slum children are much lower than that of other children in Delhi as a whole. The paper suggests that existing various government incentives can be improved to reach slum households.

1.2.1 Living condition

In general, the living condition refers to the condition or environment in which a person resides which includes materials used in the constructions of house, the surroundings areas, availability of sanitary facilities etc. It is well known fact that the health status of the slum people is greatly influenced by living condition they live in. Slum congestion, homeless families, street children, severe water shortages, air pollution, stinking water
bodies, heaps of garbage, unhygienic work condition, are all unique to the urban environment. A number of studies on living condition of slums found that the lack of safe drinking water, unhygienic environment; poor and unhygienic food etc lead to various kinds of diseases among the slum people. *Bapat and Agarwal (2003,)* studied the water and sanitary condition of Mumbai and Pune slums. They also found that slum dwellers live in a variety of circumstances – on pavements, beside railway tracks, in swampy and on steep slopes and lack of income become the major factor for poor housing.

The overall situation of sanitation is too alarming. The degraded environments in which they live take toll on the physical, mental and moral health of the slum dwellers. Poor living environments in urban slums therefore, call for greater attention of service providers and coordinated action by the *Integrated Child Development Scheme (ICDS)* providers and other concerned departments.

The housing problem has become acute in most industrial regions of the world since the Second World War. There is a strong association between housing and health/well-being of the people. The heavy shift of population from the rural areas have occurred on account of the lack of opportunities for employment in the villages and growth of industry and business, relatively high wages and various kinds of amenities in towns. Certain trusts of Mumbai, Kolkata, Chennai and Kanpur have undertaken scheme to house them to some extent. Some municipalities have also constructed a number of houses but generally for their own essential staff and occasionally for other low-income groups as well.
Many studies (Mony, et. al. 2006, Moraes et. al. 2003, Nijama. et. al., 2003 and Gasem et. al. 2001) show that due to lack of proper living condition i.e. absence of sanitation, water, poor garbage disposal and drainage system, unhygienic food, the children in slums are vulnerable to diarrhoea, typhoid, malaria and other types of diseases. Hence, to improve the living condition of slum dwellers, the priorities such as better sanitation, access to safe water and health education need attention to reduce the incidence of various types of diseases suffered by the slum dwellers.

In this context, Buttenheim, (2008) stated that improved sanitation also affect child’s nutritional status by limiting the exposure to diarrheal disease burden. According to Curtis, et. al, (2000) improving domestic hygiene practices is potentially one of the most effective means of reducing the global burden of diarrhoeal diseases in children. The study also pointed that the hygiene promotion should focus on the elimination of human stools from the domestic environment and effective hand washing after stool contact.

The draft of National Health Policy (NHP-2001) recognizes the need to provide basic primary health care services to the underserved population. It recommends the establishment of one urban health centre for a population of 1,00,000 in urban areas. There is an urgent need for the state government to develop health plans for rapidly expanding urban population.

1.2.2 Life style and food habits

Life style is a term which describes the way a person is living that was originally coined by an Austrian psychologist (Alder, 1929). A lifestyle is a characteristics bundle of behaviours that make sense to both others and oneself in a given time and place,
including social relations, consumption, entertainment and dress. The behaviours and practices within lifestyles are a mixture of habits, conventional ways of doing things, and reasoned actions. Similarly, the food habits include the food pattern or the food an individual takes on a regular basis. The studies conducted on health status of the children as well as the youth in slums show that they are greatly affected by the life style as well as the dietary pattern.

Turin et. al. (2007) found that diets of the school children in urban slums were inadequate for macronutrients and micronutrients, which would be significant in nutritional development. The study conducted in Delhi, documents the various unhealthy practices such as inappropriate dietary practices (fast food consumption and low fruit consumption), low physical activity, higher level of experimentation with alcohol, a lesser extent smoking, high prevalence of obesity and hypertension among school children (Singh, et al. 2006).

Similarly studies by Mackeown and Faber (2002) and Ross and Chaloupka, (2004) show the effect of tobacco and cigarette on health status of youth. According to IIPS and Macro International (2005-06), 58 percent of men use any kind of tobacco. Further while four in every 10 men in the highest wealth quintile use tobacco, seven in 10 men in the lowest wealth quintile also do so. Twenty-two percent of women in the lowest wealth quintile were also found to be using tobacco. Only two percent women were reported as consuming alcohol. Alcohol consumption is observed to be more common among Scheduled Tribes women while one third of Tribes men also used to drink alcohol reportedly. There seemed to be no urban rural differential in case of alcohol use. Alcohol use is negatively related with wealth status. Food has priority over other requirements of
life in slums and lack of proper food is found to be the main cause of under nourishment among children. A survey of 805 students attending junior high schools in Okinawa prefecture was carried out during the autumn 2001. The results suggested that sleep health is closely related to both physical and mental health and the habits such as exercise, and regular sleeping and eating, are important for maintaining and improving students’ sleep health (Tanaka et. al, 2002).

1.2.3 Some studies on youth

The life style and pattern of living varies according to age and sex. It is much more different for the youth than that of other age groups. Around the world, the term ‘YOUTH’ generally refers to a time of life that is neither childhood nor adulthood, but rather somewhere in between. Youth also identify a particular mind set of attitudes. Youth is an individual from 15 through 24 years of age.

In order to assess the knowledge, attitude and behavior towards pre-marital sexuality among youth, there is an urgent need for programs on the aspects of practicing safe-sex targeting not only the youth but also their peers and parents who would be able to guide them properly in this direction (Kumar and Tiwari, 2003). The IIPS Youth Study (2010) shows that youth participation in civil society and political life is increasingly recognized as an important development objective. A study by (Rhule-Louie et al. 2008), examined how substance abuse is associated with the health and safety of homeless youth using cross- sectional, self-reported data from 285 homeless adolescents. The study also discussed the implications of interventions on homeless adolescents. “Youth in India: Situation and Needs Study”, (2007) covered a total of 8,330 married and unmarried
young men and women. The study tells us that youth participation in civil society and political life is increasingly recognized as an important development objective.

Examination of specific drugs revealed the relationships between psychological distress and use of alcohol, cocaine, and amphetamines, and also a specific association between housing risk and use of heroin. None of the measures of substance abuse was significantly related to youth’s medical problems. The study also discussed the implications of interventions on homeless adolescents. Ross and Chaloupka (2004) have tested the effect of various tobacco control measures on youth cigarette demand, using a 1996 nationally representative survey among US High School students which indicates that youth access to law has a negative effect on smoking probability. Relatively strong clean indoor air laws may also reduce the probability of smoking.

Verma et al. (2001) study in a Mumbai slum, examines the vocabulary men use to describe issues such as sexual health problems, cultural views about categorization, and the views of local health practitioners etc., The study suggests that a comprehensive reproductive health program should address the male health problems in order to motivate men to play more active and positive roles in reproductive health and family planning.

Visaria (1998) suggested that multi-disciplinary dialogues and discussions on the ways and means of raising the capacity of the Indian society to confront and alleviate the problems of poverty and unemployment need to be organized on a priority basis to tackle the problems of youth as well. This is only a beginning which highlights the need for a comprehensive analysis of all the evidences on the subject.
1.2.4 Health status of slum dwellers

A majority of the inhabitants of slum are exposed to water borne diseases. More so children and women are more susceptible to such diseases. Another major hazard of slum life is the lack of systems of disposal of excreta, Water shortage for regular washing and bathing. The disposal of human waste is a major environmental and health hazard. Lack of sanitation facilities is the major factor contributing to burden of diahrroial diseases and which would eventually result in malnourishment. According to the National Commission of Urbanization, 85 percent of children below six years of age living in urban slums in India are malnourished. Though urban health infrastructure such as availability of doctors and hospitals is better in urban areas, poor accessibility and affordability of these services by the slum dwellers has a direct bearing on their deteriorating health condition. Slum dwellers are unable to pay the hefty fees charged by the private practitioners and nursing homes. The industrial revolution, which brought massive migrations of impoverished rural workers to the cities, along with a rapid increase in the number of factories, exacerbated the existing environmental problems. Totally inadequate sanitation and water supply systems have turned rivers into sewers and have contaminated ground water supplies. The recurring endemic diseases such as gastroenteritis, dysentery, diarrhoea and malaria have devastating and long term impact on the health of poor and slum dwellers.

Various studies on health status of slum dwellers show that, people living in slums have poor health status as they are affected by various types of diseases due to their vulnerable living condition. Studies by *Nayak et.al. (1996) and Karunakaran, (2000)* on slum children show that slum environment have a serious negative impact on their health
status. Further, it is a well known fact that in slum environment children would be experiencing hardship, denial, deprivation, cruelties, injustice and neglect which have added impact on their ability to live satisfactorily in their adulthood and hence the foundation of future society is weakened. A study on Mumbai slum by Verma et al. (2001) found that males usually face sexual health problems. Further, their health status is also influenced by poor economic status of the household, awareness, availability and accessibility of health facilities etc.

A study by Taffa and Chapngeno (2005) on Nairobi slums shows that household income is significantly associated with health care seeking up to certain threshold levels. Sarode, (2010) examined utilization of health services available to the women in the slums on hilly area in Mumbai and suggests that awareness is very much required at every stage of ANC particularly among illiterate women with low SLI category in the slums in order to ensure reproductive health during pregnancy. Agarwal and Taneja, (2005), indicated that child health condition in slums with inadequate services are worse in comparison to relatively better served slums. Kapadia-Kundu and Kanitkar, (2002) studied Maharashtra, the state with highest number of slum dwellers and found that primary healthcare for slums remains in a state of neglect. A study in Brazil revealed that chronic non-communicable and communicable diseases like hypertension, diabetes, intentional and unintentional injuries, tuberculosis, rheumatic heart disease, and HIV infection were recognized to exist in slums because of the late complications of these diseases (Riley, et al., 2007).
Sclar, *et al.*, (2005), noted that if we neglect the environmental and urban causes of the growing health burden on the urban poor, national governments and global society in general will simply accumulate a massive ‘health debt’.

The health status of the slum dwellers suggests that an integrated health care system is required to address these problems. In view of vulnerabilities faced by the slum dwellers comprehensive health programmes are needed to deal with health related problems to improve the health condition of the poor slum dwellers.

Poverty and deprivation among Mumbai’s slum population are not captured adequately by measures of income poverty. Specifically, slum households are deprived of good housing. They do not have access to clean water, hygienic systems of waste disposal (including the sanitary disposal of faeces) and, in general, they live in degraded environments not suited for human habitation. In Mumbai’s slums, people cannot afford medical treatment and they often neglect healthcare. Most importantly poor hygiene and sanitation, lack of safe drinking water contribute to the health problem of the slum dwellers (*Sijbesma, 2006*).

New York-based Trikona Capital will invest one billion dollars in slum redevelopment projects in Mumbai city. Trikona will develop a total of 100 million sq ft of residential space as part of its "city rejuvenation project" and has tied up with Lokhandwala Builders for its first project in central Mumbai, company managing director and co-founder Aashish Kalra said. Mumbai has a shortage of around 950,000 such housing units, according to a McKinsey report (*Ramanathan, 2006*).
1.3 Definitions of slum

The origin of the word slum is thought to have come from the Irish phrase 'S lom é (pron. slum ae) meaning "it is a bleak or destitute place." An 1812 English dictionary defined slum as "a room" (Cassidy, 2007). In legislation, slums are defined as areas that are “environmentally and structurally deficient” (GOI, 1988). The 1981 Census of India, in the light of slum area act 1956, defined slums as areas where buildings are unfit for human habitation for reasons such as dilapidation, overcrowding, faulty arrangement of streets, and lack of ventilation, light or sanitary facilities. In other words, slums are group of buildings, or areas characterized by over-crowding, deterioration, unsanitary condition or absence of facilities or amenities which because of these condition or any of them endanger the health, safety or morals of its inhabitants or the community (Census of India, 2001). The Encyclopedia Britannica (1978) further defined a slum as a congested urban or suburban residential district characterized by deterioration and unsanitary housing, boarding and social disorganization. According to Ford Foundation, a slum is a residential area in which the housing is so deteriorated and substandard or as unwholesome as to be a menace to the health, safety, morality or welfare of the occupants (Rathor, 2003).

1.4 The slums worldwide

The world’s urban population is projected to grow by more than two billion by 2030, while the rural population will stabilize and then decline by an estimated 20 million. More than 924 million or 31.6 percent people in the world can be classified as slum dwellers, most living under life- and health-threatening circumstances (UNHABITAT 2003).
A major characteristic of the slums is that they resemble rural centers in urban milieu. They appear as ‘entry points’ for in-migrants to the city and tend to duplicate the closeness and structuring of social life in the village, even reflecting the earlier occupational background of the slum dwellers. Despite the insanitary condition and crowding in these ‘BUSTEES’, life is generally well organized, relatively free of serious crime and cooperatives (Siddiqui, 1969).

Slums are part of the city in many developing countries. But some countries used to deny their existence. The reasons behind the nonexistence of slums may be the basic ideology held by these countries (Kaldate, 1989). The acute housing problem/condition and poverty are supposed to be major reasons for the mushrooming growth of the slums all over the world.

Slums are addressed with different names in the different parts of the world. In the United States the old ethnic slums are known as the Kerry patch, the Ghetto, Little Italy, etc. In the cities of Southeast Asia, slums are referred as India quarter in Rangoon, Chinese quarter in Singapore, Samphonthawang in Bangkok and Kampong in Indonesia. In India, slums have variety of names. They are known as “Jhopadpatti” in Mumbai, “Jhuggi” in Delhi, “Bustee” in Kolkata, “Cheris” in Chennai and “Keris” in Bangaluru.

The slums have been described as chaotically occupied, unsystematically developed and generally neglected. They are over populated, overcrowded, ill repaired and insufficiently equipped with communication and physical comforts. Indian slums have inadequate social services and welfare agencies to deal with the needs and social problems of families who are victims of the biological, psychological and social environment.
Shortage of water, electricity and sanitary facilities are common in these slums. Slums are frequently swept by various diseases such as epidemics of cholera, gastroenteritis, typhoid and diarrhoea. Poor personal hygiene is reflected in their clothing and unkempt appearances. Even babies are quite dirty, covered with scabies or suffering from other skin diseases that result from un-cleanliness. Their poverty is reflected in the quality and quantity of food which in turn affect the poor slum dwellers that live with hunger and under-nourishment. The problems in Indian slums are mainly those of malnutrition, poor sanitary condition, poverty, crime, indebtedness, prostitution and unemployment (Kaldate, 1989).

1.5 Mumbai, its population growth and housing

Mumbai (formerly Bombay) had been fashioned by British Imperialism (Patel, 2003) as an important port city and as a business point right from its inception and has always been connected with the world market. On one hand, Mumbai seems to be attractive to many business and industrial houses and on the other hands to the poor migrant labourers from nearby rural districts (and eventually from the whole country). New waves of migrants arrived from both north and south India especially after independence. The city has always experienced a phenomenal increase in its population, which was added extensively just after independence (Patel, 2003). The governance, including the public health system in Greater Mumbai is said to be the best in the country (Rama Rao, 2005). The Municipal Corporation of Greater Mumbai (MCGM) presently renamed as Brihan Mumbai Municipal Corporation (BMC) was founded in 1872. The corporation operates an annual budgetary outlay in excess of Rs. 3,300 crore (US $720 million approximately) (Rama Rao, 2005).
Currently, Mumbai is facing its biggest problem from the public health point of view (Rama Rao, 2005). Population growth, mainly due to unemployed migrants to the city has put a tremendous strain on the basic infrastructure and transport facility in the city (Patel, 2003). Nearly half of the population lives in the slums without proper housing, health, educational and potable drinking water facilities. In fact, Mumbai is about to replace Tokyo, the world most populous city in terms of its population density (Rama Rao, 2005).

In Mumbai one finds a high negative correlation between density and inter-censal rate of growth of population in different wards. The less densely populated eastern suburbs have gained population at a faster rate than the western suburbs and in proper Mumbai island, growth has been relatively higher in areas with a scope for vertical growth of buildings (Visaria, 1969). Mumbai can no longer keep pace with its burgeoning population, particularly slum dwellers. However, such growth had slowed down in recent years (Patel, 2003). “At present, only about forty families enter the city everyday and not three hundred families as estimated earlier” (Das, 2003). The pattern of population growth in the city is now fairly stable and clear. Census 2001 recorded a decadal growth rate of 21 percent during the period of ten years from 1991 to 2001 which was much lower (38 percent) than the previous decade (Census, 1991).

Housing has always been a vital problem for Mumbai and a report of the study group on Greater Bombay appointed by Government of India documented that, “…it is inevitable that the sustainable portion of the slum dwellers will have to be housed outside the island” (GOI, 1959). Provision of pucca accommodation to all slum dwellers with properly laid out grounds and amenities of conservancy, drainage and water supply at
modest rents were suggested by this committee as early as in 1959. However, numerous problems were encountered while re-housing these slum dwellers. The government had also tried to make low cost houses to clear the existing slum dwellings through private construction (Das, 2003). Chawl houses are described as one room tenements with a central corridor of eight feet; seems to be ventilated and bright with nominal rents. According to David (1995) to solve the problem of housing, especially for low income groups, the Kolkata Improvement Trust (KIT) became a pioneer in Chawl House constructions.

1.6 Mumbai slums

As mentioned earlier, the term ‘slum’ is interpreted in various ways depending on the observer’s point of view. For the dwellers, it is their place of residence where they find their shelter and share life with people in same situations. Frequently, these dwellers consider slum as a good solution, given their miserable poverty and homelessness in its existence. Although there are variations from place to place there are slums that have been consolidated and have a strong social and political life and identity. There are dynamic slums where improvement is constant, and there are also places in continuous degradation with no hope.

Poverty is a part of Mumbai’s slum life though Mumbai is regarded as financial hub. Slums exits side by side with wealthy neighborhoods’, middle class suburbs, commercial centres and service areas. Greater Mumbai like any other metropolis in India and abroad attracts large number of persons from different parts of the country. Presumably many of these persons are drawn from the lower socio-economic group of the country. It is also
observed, that many of them have low priority for housing. Both involuntarily or voluntarily they tend to gravitate towards poor quality housing and, not infrequently, ‘into no housing/dwelling’ i.e. slums and pavements.

Generally, slum dwellers are looked down upon as mere marginal, the prostitute, the unemployed, the illiterate and a plethora of inadequate characters. Those living in slums and pavements are a few and do not attract the attention of civic authorities and society at large. They not only form a large number, but more importantly are conspicuous and obstruct the general flow of traffic and life in the metropolis in Greater Mumbai. This is in the notice of social workers and civic authorities alike. Apart from violating the laws by their way of living, they are also said to endanger the social and physical health of the city. At present around one-half of the population of Greater Mumbai are slum dwellers; who live in tenements and huts, on pavements, along railway tracks, under bridges and in other spaces available to them. The slum dwellers of Mumbai live in condition of terrible poverty, squalor and deprivation.

The government made several attempts to address the issue of housing the slum dwellers and to specifically address the problem of Dharavi, the largest slum pocket of Mumbai, which now occupies the most precious land in the city next to (Bandra - Kurla Complex) BKC in its north, new Bandra-Worli sea link to its west and in between the two expressways leading out of the city and to the existing airport. With the BKC housing all the financial institution of the country, this part of city has become the central business district (Mahadevia, 2006).
According to *Census of India 2001*, 640 cities/town in 26 states/Union Territory in 2001 have reported slum population. Andhra Pradesh has the largest number of town (77) reporting slums followed by Uttar Pradesh (69) Tamil Nadu (63) and Maharashtra (61). There are 42.6 million people in India who reside in slums. This constitutes 15 per cent of the total urban population of the country. Eleven million slum populations reside in Maharashtra followed by Andhra Pradesh 5.2, Uttar Pradesh 4.4 and West Bengal 4.1 million. Million plus cities, Greater Mumbai has the highest slum population (6.5 million) followed by Delhi (1.9 million), Kolkata (1.5 million) and Chennai (0.8 million).

**Table 1.1**: Percentage of Slum Population and Infant Mortality Rate (IMR) in Mumbai and its Administrative Wards, 2009

<table>
<thead>
<tr>
<th>Wards</th>
<th>Ward Name</th>
<th>Slum Population (%) 2001</th>
<th>IMR 1998</th>
<th>IMR 2006</th>
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<tr>
<td>City</td>
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<tr>
<td>A</td>
<td>Fort</td>
<td>28.88</td>
<td>38.53</td>
<td>33.88</td>
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<td>B</td>
<td>Dongri</td>
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<td>34.95</td>
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<tr>
<td>Western Suburbs</td>
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<tr>
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Table 1.1, shows the level of infant mortality rate (IMR) in Mumbai and its 24 wards during 1998 and 2006 along with percentage of slum population in the census 2001. Out of total 24 wards, there were around 10 wards in Mumbai where the infant mortality rate was found to be above 40 in the year 1998. It is also observed that there were only three wards in Mumbai (M/E- Chembur East, F/N-Matunga and C-Marine Lines) where IMR was more than 50 in the year 1998. The number of wards having IMR more than 50 has been increased to six in the year 2006. It is also observed that these wards have high percentages of slum population.

1.7 Slum rehabilitation

Sustainability of governance is today’s need. Sustainability of support from government and willingness to mobilize funds for the poor are necessary pre-requisites. National and citywide recognition of the validity of upgrading, together with facilitation and scheduling is necessary, even where projects become self funded and do not require government funds. Several organizations support slums and plead for their regularization and provision of basic amenities for them. They express sympathy with the slum dwellers that are unable to procure better housing because of its exorbitant prices.
Several social workers help to up-lift them and exert pressures on the government agencies to recognize their existence. Certain parties/organizations also work for the slum dwellers though in their own interest, and try to win their confidence in the bargain of achieving their goals. They exert pressure on the government to provide slum-dwellers with basic amenities. Many slum-dwellers now have photo identity cards and ration cards, which ensure them greater security and stability. They now resist the demolition of squads and also exert pressure on the authorities to provide educational and health facilities.

The government is unable to do the needful because of lack of funds. The government is aware of the magnitude of slum problems and has taken various policy measures for the last several years to improve their plight. While reviewing/assessing these measures, it has been observed that these measures are grossly inadequate in improving the living condition of the slum dwellers as well as in resolving the vicious problems of slums, resulting in an unhealthy development of the city.

1.8 Need for the study

The importance of metropolitan cities in the urban system can be gauged from the fact that they comprise a significant proportion of urban population. It has been observed in India that metropolitan cities have grown rapidly over time. In 1981, there were 10 metropolitan cities which accounted for 20 percent of the country’s urban population. According to the 2001 Census, 35 towns/cities of India’s census account for 28 percent of urban population (Census of India, 2001). Over the years, the metro cities have been getting congested because of the rapidly growing slum population.
Further, congestion in slums results in occurrence/spread of diseases, burdening of infrastructure, endangering gender development and environment. Environmental pollution has been putting peoples’ health at risk demanding better facilities from the government. More than half of the Mumbai population resides in slums (MCGM, 2010), which are over loaded with several problems. Hence, there is a need to look into the problems, the slum dwellers of Mumbai face. Improving the health status of the poor/ slum population has often been considered to be one of the most important objectives of the health system in urban India. These slum dwellers lead a haphazard life style and live in inhuman condition. There are hardly a few authentic studies that have dealt with the life style, living condition, prevalence of diseases and treatment seeking among the slum dwellers of Mumbai. Hence, there is a pressing need to carry out a study in Mumbai slum to understand their living condition, life style and the health status. It is hoped that the study will highlight the problems that the slum dwellers of Mumbai facing in their day to day life. Further, there are hardly a few studies about the youth living in Mumbai slum, as such and hence it become necessary to study the life style and other particulars of the youth living in Mumbai slum to understand the health condition of the slum dwellers.

1.9 Objectives

The basic objectives of the study are as follows:

- To study the socio-economic and demographic profile of slum dwellers
- To understand the living condition and life style of the slum dwellers
- To examine the impact of living condition and life style on health status of slum dwellers
- To understand the life style and decision making among youth in slums
1.10 Hypotheses

- Slum dwellers have low socio-economic and demographic profile
- Slum dwellers do not have healthy living condition and lifestyle
- Unhealthy working condition, lifestyle and food habits make them prone to certain diseases and slum dwellers often neglect minor ailments and postpone health seeking

1.11 Data and methodology

1.11.1 The location of the study

This study is carried out in Greater Mumbai (Municipal Corporation), the capital of Maharashtra state. This area is densely populated and highly industrialized urban location is situated at the west coast of India. Greater Mumbai (Municipal Corporation) constitutes a geographical area of 437, 77 sq. km, (Rama Rao, 2005). According to Census 2001, 11.9 million persons, 6.6 million male (55.2 percent) and 5.3 million females (44.8 percent) reside in Greater Mumbai. The sex ratio is 811 females/1000 males and population density is found to be 272.16 persons per sq. km. This capital city of Maharashtra holds 12 percent population of the entire state and 1.1 percent of the country’s population, (Census 2001).
1.11.2 Design of the study

Around half of Mumbai population lives in slums which are spread throughout the city. Some localities have very high population density. Multi stage sampling design has been adopted for selection of representative localities and households. Primary data have been collected from slums which are representative of the entire Mumbai city and cover different segments of the slum population. The Mumbai Municipal Corporation has administratively divided Mumbai city into 6 zones, viz, zone 1, 2…6. Each zone is divided into a few wards and the wards are further divided into sections.

Three zones are selected randomly. The selected zones are: zone 2, zone 3 and zone 5. Once the zones are selected, in the second stage of sampling, one ward with slum inhabitants is randomly selected. The wards selected from the different selected zones are:

Zone 2------Ward G/North
Zone 3------Ward K/East
Zone 5------Ward M/East

The next stage of sampling consists of selection of sections. One section is randomly selected from each of the selected ward. The sections selected from above mentioned wards are:

Ward G/North -----Mahim
Ward K/East ------Andheri
Ward M/East ------Mankhurd
We have selected three slums from three different parts of Mumbai. Mankhurd slum, which is in the eastern part of Mumbai, is dominated by Muslims. Dharavi slum, the biggest slum in Asia is located in the central part of the city. The slum of wards K/E is located in the western suburb of Mumbai which is better off than the other two. Keeping in mind the disparity in economic status of the slum dwellers, three slums from different areas of Mumbai have been selected. It appears from the analysis also that the ward K/E has better water and sanitation facilities than the other slums.

**Table 1.2: Some selected indicators of three different wards of Mumbai, 2009**

<table>
<thead>
<tr>
<th>Wards</th>
<th>IMR per 1000 live births</th>
<th>MMR per 1000 women</th>
<th>No. of Dispensaries</th>
<th>No. of Hospitals</th>
<th>No. of Anganwadi</th>
<th>No. of Schools</th>
</tr>
</thead>
<tbody>
<tr>
<td>G-North</td>
<td>35.70</td>
<td>0.37</td>
<td>246</td>
<td>93</td>
<td>270</td>
<td>93</td>
</tr>
<tr>
<td>K-East</td>
<td>25.99</td>
<td>0.26</td>
<td>799</td>
<td>113</td>
<td>274</td>
<td>141</td>
</tr>
<tr>
<td>M-East</td>
<td>57.93</td>
<td>0.53</td>
<td>16</td>
<td>39</td>
<td>492</td>
<td>106</td>
</tr>
</tbody>
</table>

Source: Human Development Report, 2009

The IMR of K/E ward is the lowest (26 per 1000 live births) in comparison to any other wards of Mumbai. Further, the health care infrastructure in the K/E ward is better than other two wards. For example, the number of hospitals (public and private) is 113, which is one of the highest figures with regard to different wards of Mumbai. These findings clearly pointed out that K/E ward has better health facilities.
1.11.3 Sample size determination (*in terms of individual with an ailment*)

A. Expected incidence of Diarrhoea 22 Percent

(NFHS-II)

B. Confidence interval 1 Percent

C. Absolute precision (17% - 27%) 5 Percent

Point

\[ d = \frac{5}{100} = 0.05 \]

\[ C I (99 \%) Z_{1 - \alpha/2} = 2.58 \]

\[ P = \frac{22}{100} = 0.22 \]

\[ n = \frac{Z^2 \alpha}{2} \frac{P (1-P)}{d^2} \]

\[ n = (2.58)^2 (0.22) * (1-0.22) / (0.05)^2 \quad n = 459 \]

Total sample size with considering design effect of value 1.5 = 459 * 1.5 \textbf{n =688}  

Three slums have been selected for the present study. Since it was proposed to collect information from 688 households located in the selected slums for the study the total number of households selected per slum would out to be 229 (688/3 = 229 approximately). The households were listed clockwise starting from the N-E corner. Slums that had more than 300 were segmented. After listing all the households of a particular locality, households have been selected by systematic random sampling procedure. Information has been collected from 676 households and response rate is 98.3 percent. The respondent for this study is head of the household or a responsible member of the family aged 18 years and above.
Six hundred and thirty six were found to be youth from 676 households selected for the study. Since households had more than one youth, using KISH Grid only 427 youth aged 15-24 years were interviewed to know their life style and other aspects. The rationale behind selecting only male members is to reduce clustering effect due to the high prevalence of substance abuse (tobacco and alcohol use was 41 and 33 percent respectively in Mumbai males (IIPS and Macro International, 2005-06). Hence it was felt appropriate that the number of respondents who would provide information about household and life style is around 688.

1.11.4 Methods for data collection

The data collection involves both of quantitative as well as qualitative techniques. Quantitative data was collected to get information about the households, its members, life style, food habits, and prevalence/occurrence of disease during the last six months through a well designed pre-tested interview schedule. All the information was collected either from the head of the household or from a responsible adult member. The qualitative data was collected through in-depth interviews of at least two key informants or stake holders in the selected slum areas to have first hand information about the locality, the demographic profile, food habits, life style, living condition and prevalence of diseases, if any. The incidence of illness to any member of the household during last six months was collected. The reference period was fixed as last 6 six months in view of the recall lapse error of the head of the households. Male youth aged 15-24 years provided information about their life style and involvement in household decision making. At least one Focus Group Discussion (FGD) was conducted separately among males and females from the each slum under study.
1.11.5 Period of data collection

Both quantitative and qualitative information was collected from three slums of Mumbai viz. Mankhurd, Andheri and Mahim during December 2008 to February, 2009.

1.11.6 Quantitative techniques

- A semi-structured household questionnaire was prepared for the household survey in the slums.
- Another questionnaire was used to elicit information from unmarried males 15-24 years old in Mumbai slum to know their life style and involvement in decision making process.

1.11.7 Qualitative techniques

- Focus group discussion (FGD) is an important qualitative tool to collect data. In FGD the discussion (question /answer) hovers around some specific points which are quite often not captured in the quantitative data analysis.
- Similarly in in-depth interviews of certain persons are selected for interview who hold some position in the locality often called as stake holders. The selected stakeholders in three slums of Mumbai were (Private Doctors, Bhojpuri Film Maker and Social Activist etc.) who provided information about general status of housing and living condition.
- Focus Group Discussions were also conducted among males and females separately to understand the housing and living condition of Mumbai slum dwellers using an already a pretested interview guide.
1.11.8 Computation of wealth index

The study has followed the standard procedure of construction of wealth index similar to third round of National Family Health Survey of India or Demographic Health Survey of other countries. We have used Principle Component Analysis (PCA) to construct the wealth index as it is the standard method largely used in above mentioned surveys. The index is constructed using a set of selected consumer durables, household amenities and housing qualities. For example sources of drinking water, type of toilet facilities, ownership of – mattress, chair, television, refrigerator, mobile, phone etc. After selecting the variables, the PCA is used to compute the wealth index. As a first step, all the selected variables are re-coded into binary forms (1= yes and 0=No). In the second step, the PCA is used to derive the factor score and for generating eigenvalue (variance). The derived factor score is used as weight for each selected variable in computing the wealth index. In the third step, quintile (five equal divisions) is obtained from the score.

The latter two indicators – household assets and wealth index are closely related as the households assets are used in the construction of wealth index. And in cumulative sense wealth index reflects household economic status based on the assets in the households. On the other hand income is not so closely associated with wealth index or assets. Income of household only concerns the current economic status. Though there may be a chance that higher is the income more the number of households assets. But this is not true always, sometimes all households income may not be converts into assets as it may be expend on other domain such as education, health etc. As such this study has used income as an independent variable along with wealth index.
In general income and expenditure are related to each other, as one cannot expend more than income. However in some cases expenditure may exceed the income in case of health and educational expenditure. In this study we have found that in most of the cases expenses are less than the economic status of income.

Though, BPL is a good indicator of capturing the household economic status. It is commonly used to identify the poverty level in the community or society. At the same time the focus of the study is to just understand the socio-economic status of households across different domain not to measure the poverty level.

1.11.9 Analysis of data

Bi-variate tables are prepared to understand the characteristics of population under study.

Logistic regression is carried out to study the impact of various socio-economic variables on life style/ tobacco consumption,

To analyze the results of qualitative data, Anthropac and Atlas-Ti are used

1.11.10 Odds ratio

Results of logistic regression are presented in terms of odds ratio. Logistic regression model are commonly estimated by maximum likelihood function. For each selected variables, logistic model takes the following general form:

\[
\text{logit } P = \ln \left( \frac{P}{P-1} \right) = b_0 + b_1 x_1 + b_2 x_2 + b_3 x_3 + \ldots + b_i x_i + e,
\]
Where \( b_1, b_2, b_3 \) and \( b_i \) represent the coefficients of each of the predictor variables included in the model, while \( e \) is an error term. \( \ln \left( \frac{P}{P-1} \right) \) represents the natural logarithm of the odds of the outcome. The STATA statistical package utilized yields odds ratio which indicates the magnitude of the predictor variable’s on the probability of the outcome occurring. The odds ratios are measure of the odds of outcome variables (dichotomous in nature) as indicated by the independent variables.

For example: as regard to the direction of the logit coefficients, odds greater than one indicate an increased in probability in dependent variable while those less than one indicate a decreased probability in dependent variable of concern. On the other hand, lack of effect or absence of a relationship between the independent variables and the outcome is suggested by equaling one.

1.12 Organization of the thesis

*Chapter One:* Introduction, methods and materials

This chapter deals with introduction about Mumbai slum and the data collection procedure.

*Chapter Two:* Profile of the respondents

This chapter deals with household characteristics of the slum dwellers their work profile, household amenities, household items and problem faced about water and sanitation.
Chapter Three: Living condition and life style of the respondents

This chapter deals with head of the household’s (duration of) stay in Mumbai, monthly income, and expenditure and the mode of entertainment and socialization, some details about visit to native place and food habit of the Mumbai slum dwellers.

Chapter Four: Living condition and life style on health status

Chapter four deals with morbidity pattern, ignoring minor ailments, and precautions taken while ignoring minor ailments, and money borrowed for the treatments.

Chapter Five: Impact of Living condition and life style on sexual and reproductive health

Chapter five deals with substance abuse and consumption of alcohol and its impact on reproductive and sexual health problems, knowledge about RTI/STI, HIV/AIDS and family planning.

Chapter Six: Life style and decision making of youth in slums

This chapter deals with involvement of unmarried males aged 15-24 years living in slum in decision making about their household works, food habit, and their life styles.
Chapter Seven: Findings from qualitative analysis

This chapter describes the Focus Group Discussion conducted among males and females living in Mumbai slums. In addition to FGDs this chapter also contains in-depth interviews conducted with stake holders living in different slums.

Chapter Eight: Summary and conclusions

This chapter summarises the rational for the study, approach and methodology as well as key findings and conclusions emerging from the study.

1.13 Analytical framework

This study makes an attempt to understand the living condition, life style and it linkages with health status of Mumbai slum dwellers. It is believed that the variables like age, sex, marital status and caste/religion etc affect the life style and living condition of an individual. As such life style variables considered are consumption of tobacco/alcohol, mode of entertainment, socialization and knowledge of sexual and reproductive health. Living condition very much depends on surrounding, housing condition, water and sanitary condition. Consumption of food is a part of life style which along with all the variables affect the health condition such as prevalence and occurrence of diseases. The slum dwellers are poor. They need to develop health/treatment seeking behavior. Due to various reasons they try to ignore ailments because health facilities are not easily accessible or proper health facility is far off. The figure 1.1 provides a detailed frame of the study.