CHAPTER-1

INTRODUCTION and REVIEW OF LITERATURE
CHAPTER-1

1.1 Introduction:

Achieving environmental sustainability is one of the global agendas after the declaration of the Millennium development goals (MDGs). The target 7d of MDG particularly aims to achieve a significant improvement in the lives of at least 100 million slum dwellers by 2020 (UNMDG, 2008). As per the Registrar General of India census (2011), 65.4 million people are living in slum areas, whereas over a third of (38%) Indian’s slum population lives in 46 Million plus cities. Share of urban population is highest in four metropolitan cities i.e. Greater Mumbai (41.3%), Kolkata (29.3%), Chennai (28%) and about 15% in Delhi (Census 2011). According to NSSO 65th round (2008-09), about 49 thousand slums are estimated to be existing in urban India, 24% are located along ‘nallahs’ and drains and 12% are near railway lines.

According to the Census 2011, a slum is defined as a ‘residential area where dwellings are unfit for human habitation by reasons of dilapidation, overcrowding, faulty arrangements, design of such buildings, narrowness or faulty arrangement of street, lack of ventilation, light or sanitation facilities or any combination of these factors which are detrimental to the safety and health’. There are three types of slum identified by the Registrar General of India; notified slums, recognized slums and identified slums.

One of the main aims of Maharashtra state government slum redevelopment scheme is to provide a clean environment for living with provision of basic minimum requirement of shelter, water and toilet and improvement in the hygiene and health (SRA-2012). According
to SRA norms, the slum dwellers whose names appear in the voter list as on 01.01.1995 and who is the actual occupant of the hutment is eligible for rehabilitation. Each family is/will be allotted a self-contained house of 269 sq. ft (earlier 225 sq. ft) carpet area free of cost (SRA).

To improve the living environment of slum dwellers, the ministry of housing and urban poverty alleviation, Government of India is also implementing various policies and programmes such as ‘Rajiv Awas Yojna’, Jawaharlal Nehru Urban Renewal Mission (JNNURHM) that aimed to provide the basic amenities and affordable housing and improve the health and standard of life (Slum Committee Report 2001).

The nexus between environment and health is an established fact. According to UN-Habitat (2010), children living in the slum are vulnerable to infectious diseases because slum settlements have deplorable living and environmental conditions, which are characterized by inadequate water supply, squalid condition of environmental sanitation, breakdown or non-existence of waste disposal arrangement, overcrowded and dilapidated habitation, hazardous location, insecurity of tenure, and vulnerability to serious health risks. Literature review shows that poverty is a major reason for child morbidity and health seeking behaviour in slum communities. However, the poor environmental and housing condition is the source of heavy disease burden on locality, particularly on children because they are vulnerable to infectious diseases (Ndugwa and Zulu 2008).

Literature on health inequality among slum and non-slum dwellers suggest that household hygiene and health seeking behaviours are important factors for minimizing the infectious disease and overall morbidity rates among children in poor urban settlement (Harrison et. al. 1995; Iyun & Tomson 1996). Care practices such as feeding practices, traditional timing of first breastfeeding and duration of breastfeeding, umbilical cord care are important factors for
survival of the neonatal (Beser et. al. 2010). Some studies have also found that child nutritional status and the effect of community level infrastructure (hygiene, health service delivery) also play a significant role (Sahn 1997, and Fotso & Kuto 2005). Children living in the clean neighbourhood may have better health than the children living in the unclean neighbourhoods (Pongou, et al. 2006). According to the department of women and child development, Government of India (2007) malnutrition in children is more an interplay of female illiteracy, ignorance about nutritional needs of infant and young children and poor access to health care. Research shows that mortality rate among children with severe or acute malnutrition is 5-20 times higher than it is among well-nourished children (UNICEF, 2008). According to the Human Development Report (2006), India has the highest proportion of undernourished children in the world, along with Bangladesh, Ethiopia and Nepal. As per the National Family Health Survey in India almost half (48%) of the children under five years of age are stunted and 43% underweight. In Maharashtra, 47.4% children below five years of age in the slums are stunted and 36.1% are underweight (NFHS-3 2005-06). Malnutrition continues to be an important risk factor for child death in developing countries, including India.

1.2: Review of Literature:

1.2.1: Housing Environment and Health: As per the World Health Organization (WHO 2009) within and around the household, hazards such as drinking water, poor sanitary condition, and distinctive physiological factors are associated with the risk of mortality and morbidity among children below the age of five. Rutstein (2000) have mentioned that in developed countries intervention related to safe drinking water, adequate sanitation reduced the infection and mortality among children. Household environment reduce morbidity and
improve the nutrition among children by UNICEF 2008 reported that if sanitation facility could improve it alone reduces one third of diarrhoea and other morbidity among children (UNICEF, 2008).

Children living in poor sanitary condition ingest have high concentrations of faecal bacteria, colonise the small intestine and induce tropical neuropathy through a T-cell mediated process. Jean Humphrey (2009) suggested that toilet facility, drinking water, hand washing are the preventive approach to improve the nutrition status among children. The relationship between prolonged breastfeeding and nutrition status of young children has been subject to debate, many studies have shown lower under nutrition among children. Caulified et al. (1996) reported that breastfeeding provides all the nutrition to children therefore for the first six months children should take only mother’s milk. As per the World Health Organization (2009) variety of environmental hazards, such as chemicals, indoor and outdoor air pollution, road traffic, contaminated food and water, noise and unsafe buildings generate or trigger a wide range of negative health effects. Not only this but they also generate respiratory diseases, injuries, neuro developmental disorders, cancer, food borne and waterborne diseases, in the settings where children live, learn and play (WHO 2009). Sridhar and Kumar (2013) described that growing urbanization is a serious environmental concern in India, in terms of changing land use pattern, increasing carbon emission, solid waste generator and disposal, air and water pollution, and poor sanitation amenities. A study by Checkley et al. (2004) mentioned that inadequate water and sanitation facility affect height and lead to more diarrheal episodes among children. Living environment not only affects the health status of the children but it also influences the physical, mental, and behavioural development of a child.
1.2.2 Knowledge, Care Practices and Nutrition: Knowledge about proper breastfeeding, nutritional and care practices are also associated with child health and development. One of the hospital based studies argued that medical expert should also have proper knowledge on breast feeding. If experts have proper knowledge then they may suggest the mothers and thus will improve the awareness. Chaudhary et. al. (2011) also analyse that knowledge plays an important role to improve the nutritional status of mothers as well as children. Daba et. al. (2013) describes that among mothers who have knowledge about nutrition and care practices are significantly associated with the better nutritional status among children. The children living in ‘kachcha’ slum areas pose more vulnerable to health. Study by Rode (2009) on slum reported that preschool children in slum found that after demolition of ‘kachha’ slums children are two times more severely malnourished as compared to non-demolished households. Feeding practice is also a matter for child health, school performance and daily activities of the child. Similar finding reported by Ernesto (1984) result found that children who are attending class with healthy breakfast they have better understanding where as children do not maintain the class behaviour who are without breakfast. In India cultural factors are strong and it differs across the country, in north India due to son preferences chances of gender difference is possible among children for the care and practice. However, large scale survey by National Family Health Survey 2005-06 estimated that there is no male female difference among child under nutrition. By Osmani and Sen (2003) it is evident that malnutrition and gender varies by socio-economic status of the household.
1.2.3 Socio Economic Factors and Nutrition: Child development is not only related to household environment but other factors are also important. According to Singh (2014) there are three possible reasons for weak correlation among economic growth and under nutrition. First the possibility that the household income is not spent effectively on nutrition, second perhaps an unequal distribution of growth within countries paves to poorer household, third rising national income might be poorly correlated with the public investment that improves the nutrition. Endogenous factors such as education of the parents, income of the family, health, caretaking arrangement, dietary intake determine the child schooling and performance.

Som et al. (2006) found that children from household with better economic condition have nutrition that is lower as compared to those of the poor household condition. Several studies also point out that demographic characteristics of child also play a major role for health status of children. Study by Mishra (2004) demonstrates that demographic factors such as child’s age, birth order, mother’s education and age at first birth are the strong predictors of child as well as mother nutrition. This study also argued that nuclear and joint family also matter for child health. In a nuclear family the mother have less time for care and responsibility as the household work is more where as in the joint family children get more care therefore chances of under nutrition is less. In another study by Kimani et al. (2014) it is found that household food-Insecurity is significantly associated with underweight status among children. Study by Burns (2004) suggests that poverty and food insecurity are complex phenomena. Poverty is one of the reasons for food insecurity but other factors such as ill health, disability, sudden job loss, high expenses may also be one of the factors for food insecurity of the household.
1.2.4 Morbidities and Child Nutrition: Nandy et al. (2005) tries to investigate the relationship of morbidity, poverty and nutritional status among Indian children. He reported that severe diarrhoea is more likely to be associated with multiple anthropometric failure. Water, sanitation and hygiene practices are also related with child health. Checkley et al. (2004) describe the inadequate water and sanitation affects child height and increases diarrhoeal prevalence among children. Studies have also focused that diarrhoeal disease and respiratory infection are the two most important causes of morbidity. A number of studies have demonstrated that it is a cause of malnutrition among children (Puhani and Mahajan, 1989; Martorell, 1984). Rao (2004) observed that short interval of birth is associated with lower height among children. Ejrnæs & Portner (2004) stated that child nutrition is also related to short and long term birth intervals. Birth interval is not only related with child but it’s also related to mother’s health. Study found that children whose birth interval is less than 24 months are more stunted than that of more than 24 months.

Educational status of parents is an important endogenous factor for child health. Study by Bhavsar et al. (2012) described that higher education, exclusive breastfeeding, proper weaning, immunization, environmental condition, birth order and number of children are related nutritional status of children. Study by Checkley et al. (2004) on water and sanitation in association with child health found that nutritional status is a useful measure for improvement of water and sanitation facility. It discussed that morbidity, particularly diarrhoea is more predominant for a child health than nutrition, Inadequate water and sanitation services associated with an increased diarrheal frequency reflects the importance of water storage practices on childhood health.
Kimani et. al. (2014) indicates that low socio-economic status is the main contributing factor for the food insecurity feeding practices during infancy and are critical for the growth, development and health of child during the first two years of life and important for the early prevention of chronic degenerative diseases. Socio economic status is one of the important indicators for the strength of knowledge and care practices. Strength of maternal nutritional knowledge and child care practices is greater among higher socio economic status but lower with low socio-economic status of household. Chaudhary (2011) found that Initiation of early breastfeeding knowledge is affected by several factors. Proper ANC, knowledge and child care practices reducing maternal and child morbidity and mortality Laishram et. al (2013). Integrated management of neonatal and child illness (IMNCI) have suggested that mortality among children can be reduced if child is taken immediately to a health worker. Child care seeking behaviour could contribute significantly to reducing child mortality in developing countries, delay in seeking appropriate care and not seeking any care contribute to the large number of child death (Mane et al. 2012).

1.3 Housing and Urban Policies in India: As per the slum committee report (2001), the policy of urban development and housing scheme is not new, to understand the pressure of urban population and lack of housing and basic services government of India took the first step in the First Five Year Plan (1951-56). Slum Clearance, Rural Housing and Sweepers housing scheme were announced in the second five year plan (1956-61). Similarly master plan prepared in the third five year Plan (1961-66) for major cities such as Gandhi Nagar and Bhubaneswar. The Fourth Five year Plan (1969-74) emphasized to prevent further growth of population in large cities and need for decongestion or dispersal of population. This was
envisaged to be achieved by creation of smaller towns and by planning the spatial location of economic activity.

A scheme for environmental improvement of urban slums was undertaken in the central sector from 1972-73 with a view to provide a minimum level of services like water supply, sewerage, drainage, street pavements in 11 cities with a population of 8 lakhs and above. The scheme was later extended to 9 more cities. The Integrated Development of Small and Medium Towns (IDSMT) was launched in the Sixth Five year plan (1980-85) provision of roads, pavements, minor civic works, bus stands, markets, shopping complex where population was below one lakh. The Seventh Plan (1985-90) stressed on the need to entrust major responsibility of housing construction on the private sector. A three-fold role was assigned to the public sector, namely, mobilisation for resources for housing, provision for subsidised housing for the poor and acquisition and development of land.

The National Housing Bank was set up to expand the base of housing finance. National building organization (NBO) was reconstituted and a new organisation called Building Material Technology Promotion Council (BMTPC) was set up for promoting commercial production of innovative building materials. A network of Building Centres was also set up during this plan period. The Seventh Plan explicitly recognised the problems of the urban poor and for the first time an Urban Poverty Alleviation Scheme known as Urban Basic Services for the Poor (UBSP) was launched. For the first time it explicitly recognised the role and importance of urban sector for the national economy in the eight plan (1992-97).

National slum development programme was launched in 1996 for improving the living condition of slum dwellers. The objective of this programme was to upgrade the urban slums by providing physical amenities like water supply, storm water drains, community bath,
widening and paving existing lanes, sewers, community latrine, street lights etc. These programmes also included community infrastructure and social amenities like preschool education, non-formal education, adult education, maternity, child health and primary health care including immunization etc. After that Jawaharlal Nehru Urban Renewal Mission (JNNURM) was launched by Government of India in year 2005-06. The Rajiv Awaas Yojana (RAY) launched in 2009-10 under the Ministry of Housing and Poverty Alleviation (MHUPA). It emphasized that each state would prepare a state wise slum-free plan of action (POA). The State POAs have holistic approach to prepare for the up gradation of all existing slums, notified or non-notified in each identified city. Within a city, in each slum taken up for redevelopment, a holistic coverage would be required, with provision of all basic civic infrastructure and services as well as decent, housing, with emphasis on land layouts (after reconfiguration of plots based on existing/modified building bye-laws wherever necessary) and on total sanitation (by provision of individual toilets and water supply to each household).

**Pradhan Mantri Awas Yojana- Housing for All (Urban):** This mission seek to address the housing requirement of urban poor including slum dwellers. Basically this mission Honourable Prime Minister envisioned housing for all by 2022 when the nation completes 75 years of its Independence (MHUPA-2014). There are some following program implemented to complete the mission:

1. Slum rehabilitation of Slum Dwellers with participation of private developers using land as a resource
2. Promotion of Affordable Housing for weaker section through credit linked subsidy
3. Affordable Housing in Partnership with Public & Private sectors
4. Subsidy for beneficiary-led individual house construction /enhancement.
**Smart City:** The Government of India conceptualised the mission as smart city across the country. There is no universal definition for this new concept it varies from city to city and country to country, depending on the level of development, willingness to change and reform, resources and aspirations of the city residents. The main objective is to promote cities that provide core infrastructure and give a decent quality of life to its citizens, a clean and sustainable environment and application of ‘Smart’ Solutions. The focus is on sustainable and inclusive development and the idea is to look at compact area, create a replicable model which will act like a light house to other aspiring cities (Ministry of Urban Development 2015).

**Atal Mission for Rejuvenation and Urban Transformation (AMRUT):** The main objective of this mission is to improve the quality of life with providing the basic services to the households and build amenities in the city especially for poor and disadvantage group (MoUD 2015). The purpose of Atal Mission is to:

- Ensure that every household has access to a tap with assured supply of water and a sewerage connection.
- Increase the amenity value of cities by developing greenery and well maintained open spaces (e.g. parks).
- Reduce pollution by switching to public transport or constructing facilities for non-motorized transport (e.g. walking and cycling).
Figure 1.1 Conceptual Framework

- **Parent and child Characteristics**
  - Age, Caste,
  - Religion,
  - Education,
  - Age at child birth
  - Marital Status, Working status
  - Economic Status,
  - Body mass index of mother
  - Birth order, Sex, Birth spacing, birth weight
  - Parents chronic disease

- **Domestic Environment and Food security**
  - H. H. Crowding, ventilation
  - Garbage disposal
  - Cooking fuel, Cooking place
  - Drainage system, Toilet facility
  - Water facility
  - Sun Light
  - HH. Food Security

- **Neighbourhood Environment**
  - General impression
  - Accessibility
  - Safety
  - Pollution
  - Food environment

- **Nutritional Status**
  - Knowledge & Practices
    - Natal care
    - Feeding Practices

- **Child Morbidity**
1.4 Conceptual Framework: The conceptual framework shows that how individual, household and community level indicators are related to each other. All these basic indicators have linkages with nutrition and morbidity among children (figure1.1). Place of residence influences many attained parental and child characteristics, domestic and neighbourhood environment. Social, economic and demographic indicators, with household food security, household crowding, ventilation, garbage disposal, cooking fuel, water and sanitation also influence the child nutrition. Further knowledge and care practices of mother are related with nutrition and morbidity among children.

1.5 Need for the Study: Mumbai is well known for its skyscrapers and squatters. Large numbers of people live in slums where living environment is very poor. The poor sanitation and environmental conditions in the slums make their health vulnerable. Understanding this fact, the Slum Rehabilitation Authority (SRA) rehabilitates slum dwellers to better places, so that they can live in an improved environment. The question is whether difference exists in nutritional status of children living in rehabilitated areas and slums (notified and non-notified)? Slum clusters of Mumbai often hit headline news. Mankhurd is one among these clusters where sixteen children died of severe malnutrition within a span of nine months (Times of India, July 6, 2011). In October 2012 report compiled by the Maharashtra government revealed that Shivaji Nagar of Mankhurd had as many as nine percent cases of severe malnutrition (Deccan Herald, Dec 18, 2012). The Human Development Report of Greater Mumbai of 2009 showed that the M-East ward of Mumbai, where Mankhurd slum is located, had the highest rate of infant mortality (66.47 per 1,000 live births). It is double the rate of Maharashtra as per the Mumbai Human Development Report (2009) Mumbai human
The proposed study is based on comparison of slum and rehabilitation areas in terms of living environment, mother’s knowledge, child care practices, child health, nutritional status in M (East) ward of Mumbai. The need for this study pops up in mind because of the following reasons:

It is being said that cleanliness in household is crucial for healthy living. Rehabilitated areas can be expected to have cleaner household environment than slums. Thus we can expect better child health in SRA buildings. Again it is seen that surrounding environment plays important role for child health. Child and elderly are in the closest contact with the surrounding neighbourhood. The surrounding of slums is unclean, but we do not have clear idea about surroundings compound of rehabilitation areas which needs exploration. Whether housing environment or neighbourhood plays important role for child health and nutrition is important to explore.

According to Indian State Hunger Index, Maharashtra’s score was 22.8, which places the state in the 10th position in India and the state comes in the category of “alarming hunger” at par with the less developed state of Orissa (23.8) (IFPRI, 2009). The urban population of the coastal region, which includes the country’s commercial capital Mumbai, has the highest prevalence of calorie deficiency (43%) in Maharashtra. The coastal region is home to 44% of Maharashtra’s urban population, yet has 51% of the state’s calorie poor population (NSSO, 2007). Household food security is one of the very important issues related to child nutrition, though less explored for paucity of data. As per the recent data on nutrition among children 0-23 month stunting is 23%, wasting is 15.5% and underweight is about 22% by Comprehensive Nutrition Survey in Maharashtra (2012).
It is also argued that even if environment is clean, if the household members do not have proper knowledge and practices about child care and if quality health care facility is not available, the child may have a poor health and nutritional status. So, whether the knowledge and practices of mothers related to child care differ in slums and rehabilitation areas, the study mainly tries to understand, whether the rehabilitation slum are serving the purpose of providing better environmental and a consequent rippling effect on child health?

1.6 Research Questions: The study seeks to answer the following research questions:

1. What is the nutritional status of children living in slums and rehabilitation areas? Are they markedly different?

2. Whether living environment differs in slums and rehabilitation areas?

3. Whether household food insecurity is mainly concentrated only among the ‘poor’ residing in slums?

4. What is the association of living environment and household food security with child nutrition?

5. What is the level of mother’s knowledge on child care? How much gap exists in knowledge and practices? Whether they are playing an important role in child nutrition?

6. What is the prevalence of common diseases among children in slums and rehabilitation areas?

7. What are the significant factors determining child nutrition in the study area?
1.7 Objectives of the study: The main focus of the study is to explore the living environment, mother’s knowledge on child care and nutritional status of children below the age of five years in notified slums, non-notified slums and rehabilitated areas of M (East) ward of Mumbai. Specific objectives are as follows:

1. To understand the nutrition level of children in notified slums, non-notified slums and rehabilitation areas.
2. To study the living environment, food security and their association with nutritional status of children in slum and rehabilitation areas.
3. To explore mother’s knowledge about child care, morbidity pattern among children and its linkages with nutritional status.
4. To understand the determinants of nutritional status of children with individual, household, and community level characteristics.

1.8 Hypotheses:

1. There is no significant variation in child under nutrition by notified slums, non-notified slums and rehabilitation areas.
2. There is no significant difference of living environment (household environment and neighbourhood environment) in slums and rehabilitation areas.
3. Household food security does not vary by standard of living, and has no association with nutritional status of children.
4. There is no difference in the gap of knowledge and practices of child care in slum and rehabilitation areas.
5. Child nutrition does not have significant association with living environment, household food security, child care practices and child morbidity.
1.9 Organization of the thesis and chapter plan: This section briefly discusses the chapters and contents of the thesis in the light of how the thesis is organized. The thesis consists of six chapters. To fulfil the objective of this study, the result has been demonstrated in three working chapters (three to five). First two chapters describe about introduction, data and methodology and last chapter elaborates summary and policy implication.

**Chapter 1** is ‘Introduction and Review of Literature’ an introductory chapter and it starts with presenting brief scenario about environment, slum situation and child nutrition. In the next step, this chapter demonstrates about relevant literature in the area of present study. Further rational of the study, research question, objectives and hypotheses of the thesis is described. In the last part the conceptual framework is demonstrated.

**Chapter 2** ‘Data Source and Methodology’ discusses the data source and methodology used in the study. This chapter also starts with introduction and rational behind the data used in the study. It explains about profile of the study areas, sampling frame and survey design, tools about data collection and methods which is used to ensure the quality of data. Experiences and difficulties in the field are also discussed in details in the chapter. Further, which type of technique is used in the study, scale and index, variables definition are also described briefly.

**Chapter 3** explains about ‘background of sample households and Status of child Nutrition in Slum and Rehabilitation areas’ briefly discussed about profile of the study respondents, socio-economic status of the household and nutritional status among children. Basically this chapter has two sections, the first section deals with basic background characteristics of the respondent, working status and economic status of the household. In the next step measurement of nutrition among children as stunting, wasting and underweight
prevalence in the localities is described. Composite index of Anthropometric failure is also described in this section to see the separate failure of under nutrition among children.

Chapter 4 titled as ‘Living Environment, Food Security and Child Nutrition’. This chapter starts with basic amenities in the study areas. Further, household, and neighbourhood environment is measured. Food security status and how food security varies by localities are observed. How all the above factors affecting the child nutrition is also analysed in this chapter.

Chapter 5 elaborates about ‘Mother’s Knowledge, Health Care Practices and Child Nutrition’ this chapter deals how knowledge varies by selected background characteristics, whether child nutrition differs by women’s furthermore morbidity among children, food pattern and linkages with child nutrition are demonstrated in the chapter. Knowledge gap about initiation of breastfeeding practices, colostrum milk, exclusive breastfeeding, complementary feeding practice and knowledge gap is described separately in this chapter.

Chapter 6 This is the last chapter of the study which presents the Summary, Conclusion and Policy Implication of the study. This chapter summarizes the key findings of each working chapters. Possible policy, recommendation and limitation of the study are described in this chapter.