

## **Title of the project: Poverty and under-nutrition among children and adults of slums in Mumbai Metropolitan Region**

### **Summary of project report**

Under-nutrition is an important issue among adults and children in all developing countries. In India, malnutrition is observed among all age groups in urban and rural areas. Malnutrition among children retards brain, physical and functional development. In long term, it effects on schooling and work productivity of adults. Malnourished adults end up with low standard of living and poverty. Mumbai Metropolitan Region is economically well developed region in India. Due to high urbanisation, many people migrate from inside and outside of state. They come in search of employment, health care, education and business. Therefore population of metropolitan region is continuously increasing. The infrastructural facilities such as water supply, sanitation, electricity, roads, transportation and housing are inadequate with rising population in region. Such inadequate infrastructural facilities are adversely affecting on standard of living and health status of population. In region, unaffordable housing is forcing people to stay in slums. The slums are considered as a problem in regions development. In order to make Mumbai Metropolitan Region as a modern world-class region, the government has urged the policy of slum eradication. Most of the squatters do not have residential proof such as ration cards, voting cards, adhar card etc. The Government of Maharashtra and the Municipal Corporations have been consistently involved in giving notification for slum demolition. Therefore slum eviction is a constant threat to urban *katcha* slums. The massive demolition of kutchha slums by bulldozing them is a regular phenomenon in Mumbai Metropolitan Region. The poor of the urban *kutchha* slums have questionable access to basic facilities like water, electricity, health, sanitation, market, school and transportation, etc. This is because of the slum's unauthorized status; the municipal authorities have not provided any basic facilities. Depending on their purchasing capacity, the residents of the unauthorized areas buy these essential services from slumlords or local leaders. People of *katcha* slums are also inclined to improve basic facilities and their houses. Thus given lower levels of income, any improvement program like water supply or sewage facility could lead to increase in the property value of such slums. Simultaneously they refrain from improvements since their slums can be destroyed at any time. The municipal authorities have stopped all basic facilities to slum dwellers and their houses have been demolished. Such activity could make the poor people of any *katcha* slum to live in perpetual fear and tension. In order to examine the health status of adults and children in region, we conducted

primary survey of 3002 households. Such survey was conducted during November 2015 to January 2016. Under this primary survey, we collected primary data of eighteen slums settlements in Mumbai Metropolitan Region. The primary data is analysed for incidence of malnutrition among adults and children. We have used the Z score method to classify a child as underweight, stunted and wasted. If the child's weight for age, height for age and weight for height falls below two standard deviation of reference population then we have classified such child as underweight, stunted and wasted.

The results of the survey shows that incidence of malnutrition among below five age group children is high in suburbs. In Govandi, all below five age group children are underweight. Incidence of stunting among male and female is high in Bhandup. Incidence of wasting is very high among female of Koparkhairane. Such incidence is high among male in Byculla. The incidence of stunting, wasting and underweight is high among below one age group. As age of the children increases, the incidence of underweight, stunting, wasting declines fast. Parent's education is an important determinant of child health. We found that as mothers and fathers education increases, the incidence of malnutrition among children declines fast. We found the highest incidence of malnutrition among children with parent's primary education. With college education of parents, the incidence of malnutrition among children is very low. Age at marriage of parents is important determinants of child malnutrition. We found the highest incidence of malnutrition among children with parents below fifteen ages at marriage.

Per capita income is one of the indicators of malnutrition among children. We found higher incidence of malnutrition among children with lower per capita income of households. As income increases, we found higher incidence of malnutrition for female children. Physical asset holding in house is an important determinant of child malnutrition. We have not found physical asset holding such as cooker, bed, watch, sewing machine, radio, telephone, refrigerator in houses of malnourished children. The mobility related assets holding such as bicycle, bike, car is lower among houses of malnourished children. Women in various slums of suburbs do not read magazines and newspapers. Therefore children are underweight, stunted and wasted. Most of the parents said that they have knowledge of nutrition and they eat vegetables, pulses. They also eat fruits, milk and curd also. Many eat non vegetarian food once or twice in week such as eggs, chicken, meat, fish etc. But instead of eating vegetarian and non-vegetarian food, the children are underweight, stunted and wasted. The contraceptives prevalence among couples is very low in slums of region.

They use traditional methods of contraceptives. The use of modern methods of contraceptives such as pills, condom, IUD is very low. They do not get such contraceptives

methods near to their location. Therefore the use of modern contraceptives is very low. For side effects of contraceptives, they do not get immediate health care treatment. Most of the women perform family planning operation to stop fertility. It is limiting method of family planning. Nearly half of the pregnant women get the antenatal care. Total one fourth pregnant women get the iron folic acid tablet and injections during pregnancy. Around one fourth births of malnourished children are attended by doctor. The coverage of institutional deliveries is very low in slums. We found that three fourth of deliveries are normal deliveries. Maximum newly mothers in slums have started the breastfeeding immediately after delivery. The awareness about breastfeeding is good among newly mothers of slums. Few children got the anganwadi food in slums. This is because of unauthorised nature of houses of slums. The Integrated Child Development Services (ICDS) program is well focused and functioning in Mumbai Metropolitan Region but it has a lower coverage of supplementary feeding, and immunization against childhood diseases, health check-ups, referral health and nutrition education to adult women or preschool children of 3-6 years. In urban *kutcha* slums, the density of population is very high. Therefore the total number of children below five years, pregnant women and lactating mothers are also very high. A single overburdened anganwadi worker could not be able to provide supplementary feeding as well as home visits for the younger children. This is because of time constraints and also because of perceived knowledge limitations regarding health and nutrition. Most of the *kutcha* slums in region are neglected and without supplementary feeding.

Urban slum dwellers do not have access to safe, regular and convenient supply of good quality water at an affordable cost. The people of *kutcha* slums have to wait in a long queue, simply because water is available only for a few hours of a day. If the distance to the water tap from the house is considerable, then it is also an onerous and time-consuming task. Typically women and children are assigned to carry water, signifying a high level of drudgery and physical hardship. In order to make repeated trips, women suffer a high opportunity cost in terms of childcare, income generating activities and household chores. It is imperative to remain present on time at the work place; women either transfer their responsibility of carrying water to older children or they wake up early in the morning to collect water. Urban *kutcha* slum households are paying an extravagant price for water supply. The water in the *kutcha* slums is unsafe for drinking. Reliable drinking water can be brought in but at a substantial cost. The amount drinking water, which a family uses, depends on average earning of family, the distance of the water and tap price of water and how it has

to be carried. The low-income families are spending comparatively larger proportion of their incomes on water, that too just few liters of water every day. Irregularity of water supply forces the urban poor to store water in iron, plastic drums or large earthenware pots. Every day is a struggle to obtain just few liters of water for the whole family. Inadequate water is a major cause of water borne and water washed diseases. The water borne diseases occur by drinking contaminated water. Water washed diseases occur when there is a lack of water and sanitation in household hygiene. Young children become more vulnerable to water related diseases as a result of weak body defences, higher susceptibility and greater exposure from an inadequate knowledge of how to avoid risks. The *kutchra* slums do not have access to sanitation services. Those slums that do have access to public latrines, they are far away, overused and poorly serviced and rarely well maintained. Similarly, most of the latrines are badly constructed and therefore in dilapidated condition. Absence of universal sanitation and limited access to water supply is another cause of infections and diseases.

Public health care facilities in the urban area are heavily demanded, which results in longer waiting periods. Therefore facilities like pre-post natal care, immunization, family planning, control of communicable diseases and curative medical care have a lower coverage. As far as children's treatment is concerned, mothers have to go early in the morning, wait in long queues to meet a doctor. The amount they pay for medicine and transport, besides losing their salary for the day proves expensive, thereby reducing the demand for healthcare through the substitution effect. Such households may rely more on self-medication, buying across the counter medication, traditional home remedies or simple inaction. The cost associated with the utilization of public health services includes direct and indirect monetary costs. The direct cost is low but the indirect (monetary and non-monetary) costs such as forgone income, the possibility of losing the job and costs associated with not performing normal activities, that is, paid and unpaid work, tending to children and transportation costs, are much higher for such mothers. The mother's opportunity cost of time seems to play more of a role than user fees although both waiting time and travel time are less elastic. The requirement of mothers to remain present at the work place often prevents them from using the public health facilities. Mothers cannot frequently visit such health facility because the characteristic of urban informal labour market is that the workers can easily be replaced, consequently the job can be lost through even an occasional absence. In addition, mothers involved in the causal labour market do not have time to prepare daily necessary meals, which are required for the family. Therefore the children of urban slums grow up without hygiene, medical care,

exclusive breast-feeding or a balanced diet. The supplementary feeding is not provided on time. We have used Body Mass Index (BMI) to examine the health status of adults in Mumbai Metropolitan Region. We found high incidence of severe malnutrition among male in Kalwa. Among female, incidence of severe malnutrition is found higher in Koparkhairne. At lower age, incidence of malnutrition is higher among adults. The lower education and income are the primary determinants of malnutrition among adults of slums in Mumbai Metropolitan Region. The physical, electronic and mobility asset holdings are lower among malnourished adults of slums in region.

We have used the logit regression model to examine the socio-economic and demographic factors behind the incidence of malnutrition among adults and children in region. We have used separate models for underweight, stunting and wasting for below five age group children. The incidence of underweight is positively co-related to water from private source, bed, radio in house, curd and beans eaten in diet, condom purchased from hospitals, time for ante natal care, anganwadi food and fever among children. The incidence of underweight is negatively co-related to age, mothers education, time required to carry water, women's trips for water, water purified, cooker, bicycle, television in house, pulses, fruits eaten, condom and other methods of family planning, condom bought from chemists, normal delivery, birth weight of babies, hours of breastfeeding, supplementary food and cough. The incidence of stunting is co-related to different socio-economic factors. The incidence of stunting is negatively co-related to age, per capita income, time required to carry water, telephone, television, bike in house, age at marriage, pulses, sterilisation, other methods of family planning and injections during pregnancies. We also found the incidence of stunting which is positively co-related to sex of child, bed in house and curd eaten and home deliveries. The wasting among children is negatively co-related to age, electricity in house, fruits eaten, total sons, normal delivery, birth weight of baby, immediate breastfeeding to child. The wasting among below five age group children is positively co-related to fan in house, preference for boys, home deliveries. We found the malnourishment among children is co-related with different socio-economic factors. Age of the child is negatively co-related to stunting, wasting and underweight. Sex of the child is positively co-related to stunting. Per capita income is negatively co-related to underweight. Time required to carry water is negatively co-related to underweight and stunting among children. Telephone connection in house is positively co-related to underweight and it is negatively co-related to stunting among below five age group children. The bed in house is positively co-related with stunting. Television in house is negatively co-related to underweight, stunting and wasting. The bike in house is negatively co-related to stunting. Eating curd in diet is positively co-related to underweight, stunting and wasting. Eating pulses is negatively co-related to underweight, stunting and wasting of children. The other methods of family planning are negatively co-related to underweight and stunting among children. The injections during pregnancies are negatively co-related to stunting, wasting and underweight. Age at marriage is negatively co-related to stunting among children. Sterilisation method of family planning is negatively

co-related to sterilisation method. The home deliveries are positively co-related to stunting among children. All the above socio-economic variables give diverse picture of child malnutrition in region. Therefore we decided to classify child malnutrition based on all three indicators such as underweight, stunting and wasting. Such simultaneous incidence of malnutrition is regressed on different socio-economic variables. We found that simultaneous incidence of malnutrition among children is positively co-related to boys, home delivery and fever among children. It is negatively co-related to age of child, mother's trips for water, per capita income and birth weight of baby and fruits consumption.

The malnutrition among adults is negatively co-related to age, income, education, read magazine and curd in diet. Adult malnutrition is positively co-related to sex of child, trips of women for water, purification of water, private electricity connection, cooker, bike, television in house and preference for boys. There is need of long and short term comprehensive policies to tackle malnutrition among adults and children of slums in Mumbai Metropolitan Region. Health care staff must visit to slums in region. An iron folic acid tablets, injections and counselling must be provided to pregnant women. They must be encouraged for institutional deliveries and newly mothers must provide exclusive breastfeeding to children. Health care staff must provide health care on priority basis to children who have fever, cough and diarrhoea. Health care staff must monitor growth of the children of various slums in region. They must provide suggestions on modern contraceptives such as condoms, pills, IUD to couples. The modern contraceptive method, contraceptive method related counselling, suggestions on problems of contraceptive method must be provided to couple of slums at free of cost. Such steps will reduce the sterilisation rate among women and it will provide spacing among children. It will also help to reduce fertility among couples and improve the quality of children in slums of region.

Government can start number of programs for the poor people of slums. The specific skills, training and self-employment to women and children can improve their income. Government should encourage commercial banks to provide loans to poor people at lower interest rate. It will help them to start their own small scale business. Government must ensure and force private sector to provide maternity leave to pregnant women those are working in informal sector. Government must establish day care centres at different slums. The malnourished children must be feed properly in day care centres. The day care centres must be connected to anganwadi's and health care centres in region. The comprehensive coverage of anganwadi and health care facilities are required on urgent basis. Government must establish infrastructure facilities in slums of metropolitan region. The water supply, sanitation, electricity, roads, transportation must be provided in slums. Government must prepare short stories and episodes of maternal and child health related programs and they must be broadcast on television and radio. Most of the women and household members will listen such programs while working. Such efforts will help to reduce the incidence of malnutrition among adults and children.

Government must provide rice, wheat, sugar, oil through public distribution system to poor people of various slums. It will help to improve calorie intakes and nutritional status of people. For slums, NGO's, researchers, social workers and politicians must suggest various policies related education, health care, income, skills, employment, water and power supply, roads and transport. Such steps will help to reduce malnutrition incidence among adults and children.

Government is required to work for poor adolescent girls of different slums in suburbs. They must be provided scholarship for education. The age at marriage of adolescent girls must be increased through enhancing education and government must make strict law related to underage or illegal marriages. The educated girls must be given preference in government jobs. If the economic status of such girls is improving then child malnutrition incidence will decline automatically. Government must regulate and legalise houses of the poor people in region. Demolition of houses is not the solution to eradicate poverty and malnutrition among adults and children.

There should be political commitment to improve nutritional status of adults and children of slums in region. Local leaders must come forward to implement various policies for poor people. There is need of active involvement of households, leaders, social workers in various programs for poor people of slums. For economic development of any region and country, qualitative human resource is required. Therefore every child and adult must be seen as window of opportunity for future human resource of region. All the policies will certainly reduce the incidence of malnutrition among adults and children in region at some extent.

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