

# Migration and living conditions in urban slums: implications for food security

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## Abstract

Migration to urban areas is a regular phenomenon but climate induced displacement forced to migrate to cities over the recent years is a matter of concern. Increased frequency and severity of natural disasters by climate change over the past recent years are not only displacing people physically but also exposing to enhanced poverty by threatening their livelihoods temporarily and permanently. Growing number of people rush to city's slums creates urban crisis. Climate change threatens peoples' access to food as they become socioeconomically susceptible. Displaced people living in urban slums are in search of better and secure life. But urban slums located mostly in low lying environmentally hazardous area coupled with inadequate facilities like food, shelter, sanitation, health care make their life even worse. Growing number of people in urban slums over the recent past creates extra pressure on existing systems and challenge to government development activities like slum development and poverty reduction strategy. This paper depicts socioeconomic condition of slum dwellers and their consumption pattern, while it has been found that majority of them can't afford nutritious food which is expensive to them. Planned migration and secured socioeconomic factors are suggested through this paper to lessen exposure to further poverty and food insecurity of urban poor.

## Introduction

Poverty reduction and access to food, government's important development agenda at all time, are under threat due to climate change. Environmental displacement has already become intense in geographically and environmentally vulnerable areas in Bangladesh. Thus, climate induced migration to big cities or nearby places is getting spontaneous over the last few decades. For instance, frequent exposure to natural disasters makes coastal people often bound to migrate in search of secure lives and livelihoods. Therefore, increased slum settlements in western and eastern periphery of Dhaka city indicate physical manifestation of growing urban poverty. Slums are supposed to be potential target for the habitation of displaced people. But planned migration of displaced people in urban slums is yet to consider reducing their vulnerabilities.

Potential displacement every year due to some environmental events like erosion (coastal and riverine chars), salinity, storm surge and water logging is estimated as 60,000, 10,000-15,000, 100000-120000 and 30,000 respectively (Ahmed and Neelormi, 2008). By analyzing population displacement in major natural events like flood and cyclone over 40 years (1970-2009), it has been found that on an average 25% (39 million) and 2% (3 million) populations in each major flood and cyclone are displaced. Besides, coastal area is under threat because of sea level rise. As coastal people constitute 28% of total populations, about 43 million people from coastal area will be dislocated if 88 cm sea level rises and proper adaptation measures are not taken to contain people in their own land. It is expected that frequency and intensity of natural disaster will be increased due to extreme climatic events. A major flood used to happen in every 4 years from 1970-1989, while the frequency of major flood occurrence has been increased in every 3 years from 1990-2009. Though, frequency of one or more severe disasters in a year has already been experienced in Bangladesh like the year 2007 (Cyclone Sidr and flood) and 2009 (Cyclone Aila and Cyclone Bijli), but in future occurrence of major natural events in every year might not be a surprise.

Friedman, 2009 writes in “A city exploding with climate migrants” that about 500,000 people move to capital city, Dhaka in every year from the banks of the Buriganga River mainly from coastal and rural areas. According to International Organization for Migration (IOM), about 70% of slum dwellers in Dhaka experienced some kind of environmental shocks. Slums in Dhaka city have been growing rapidly since 1971. Several surveys on slum growth in Dhaka, conducted by Centre for Urban Studies (CUS) recorded slum populations 275,000 in 1974, 718,143 (2,156 slums) in 1991, 1.5 million (3007 slums) in 1996 and 3.4 million (4,966 slums) in 2005 (CUS, 2005). Trend of growth shows that slum population increased two times more than previous count and it has been increasing since 1991.

According to Richard Odingo, climate change will increase poverty and worsen food security (cited in Davis et al. 2009). Urban poverty will increase if environmentally displaced people keep moving to city, while slum is their potential target for habitation. Such people create pressure on limited natural resources like land, water. Also, the poor are often compelled to live in environmentally hazardous area like low lying flood prone area occupying swamps, natural lakes.

Poor living conditions and unsanitary environment have been substantiated in the elements of food security. In national food policy, 2006, food security has been defined as availability of and access to sufficient, safe and nutritious food that meets their dietary needs. The other essential element of food security is biological utilization of food emphasizing environmental sanitation, clean water, and adequate diet. Availability does not ensure food security at specific level like household or individual level. Household or individual's access to food and more specifically, to absorb diet properly lead to food security.

This study particularly depicts living condition and its implications for food security of urban poor (slum dwellers). Children being one of the vulnerable groups in society in terms of climate change, movement, haphazard growth and unhealthy environment are the target group for this research. Slum settlement has been considered in this study focusing planned migration of displaced people as one of the adaptation measures of climate change can reduce vulnerability of the poor.

## **Data and method**

The study is based on both primary and secondary data. The trend of environmental displacement and population growth in slums is supported by secondary data. Living conditions of slum dwellers is depicted using primary data. Mohammadpur slum which is oldest and one of the largest slums in Dhaka city has been selected for sample survey. The survey questionnaire includes household's socio-economic, physical environment, health behavior and health outcome. For this study, total 385 samples were collected to investigate household's food security by collecting information on selected factors. The target group of questionnaire survey is mothers of the children who are supposed to be well informer about children's food intake and health status.

Socio-economic factors characterizing living conditions, physical environment (mode of waste disposal), households' health behavior particularly dietary practice and health outcome (disease occurrence) have been analyzed by applying statistical technique, frequency distribution.

## Assessment of food security

Measurement of food security is an integration of many factors like agro-ecological, environmental, socio-economic, political and biological factors. The concept is generalized into three main aspects like (WFP, 2002):

- Availability of food
- Access to food
- Utilization of food

Availability of food is examined through sufficient supply of food to satisfy domestic need. Food availability is determined by supply and demand oriented approach while supply of food is integrated with domestic production, imports (public, private, food aid) and changes in national stock. But the issue of food aid in food availability is often being questioned. Also, it is found that availability of food can not often measure what people actually obtained. In this case access to food depicts people's purchasing power to buy food. Poverty is one of the main obstacles affecting people's purchasing power.

Access to food is not only enough in food security, while utilization of food guarantees one's capacity to absorb and utilize nutrients in food consumed. Utilization of food is determined through caring practices, eating habits, hygiene, access to health and sanitary facilities (WFP, 2002).

Assessment of food security is a complex phenomenon as it is interrelated with many factors. This study investigates second and third elements of food security in terms of living conditions of slum dwellers through field survey. A set of indicators is used to analyze living conditions and the situation of food security of urban poor living in slums. Socio-economic factors including income, expenditure and education influence food habit and knowledge about hygiene. Socio-economic factors entail individual's ability to have adequate and nutritious food as well as water treatment practice for safe drinking water. Environmental sanitation is characterized by household's latrine type and waste disposal system, while children are easy victim of unhygienic environment. Following figure depicts conceptual framework of assessing food security integrating inter-related factors.

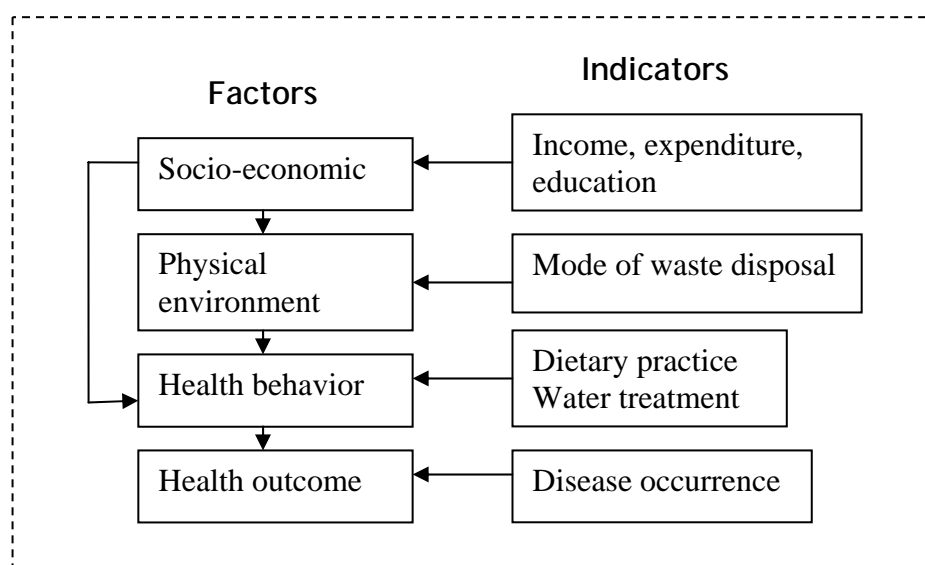


Figure 01: Conceptual framework (Adapted from Cohen et al., 2003)

Children's health status measured by water-borne disease occurrence well depicts their exposure to sanitation. Children's health status is a good indication of food security as it is said that healthy children can recover diarrhea quickly.

## **Factors influencing children's food security in slums**

Children's food habit and health status are directed by household's socio-economic condition. Also, children are susceptible to environmental sanitation while they are found most of the time playing around or spending outside environment which is very unhygienic. Socio-economic factors like income, expenditure and education are analyzed to depict households' ability and knowledge about dietary practice and prevalence of disease occurrence among children.

### **Education**

Education has significant influence on knowledge about food habit, nutrient contents and hygiene. Thus parent's educational attainment has important implications for children's diet, sanitation and health status. Based on survey data, 60% female and 56% male parents have no education. Though, only 4% female and 10% male parents have higher education and 36% female and 34% male parents have some sort of primary education. Also half of the children don't go to school.

### **Income**

According to survey data, 63% of households have income less than Tk. 5000 and 37% have income Tk. 5000-<10,000. The sampled populations in survey area represent lower income group according to income group categorized in urban area which is mentioned in study by Yousuf and Rahman (2007).

### **Expenditure**

A major portion of households' income is spent on food items following expenditure on non-food items and house rent. Survey data reveals that a major share of their income is spent on food (average monthly expenditure Tk. 3232) followed by house rent (Tk 933 on average) and non-food items (Tk 872 on average) respectively.

### **Consumption pattern**

According to respondents, children are provided with three meals in a day. But inadequate quality and lack of diversity of food are matter of concern in food habit. Consumption pattern of slum dwellers depict that rice, potato, vegetable and edible oil are consumed on daily basis. Food composition sometimes is only rice with potato or peas or fish (figure 02) which are cheap to them. But access to protein rich animal product (milk and milk product, meat or poultry, eggs) is very low among the poor. They can consume them mainly on monthly basis or sometimes on special occasion like Eid festival. According to households these are expensive food item and most of them can not afford it. Though, a large number of households can manage fish in weekly basis, but the quality of fish is relatively low. Also, most of them replied eating fruits on weekly basis. In this case, they can afford mainly banana which is relatively cheaper than other seasonal fruits



Figure 02: Lack of diversity in food item

### Case study

Mariam Begum, a 35 year old mother of three children, came from Bhola, while she lost her home in land erosion. Now she lives in single room called Jhupri house elevated above the water body and shares hanging latrine with 30 more households. But she gets food for family by brick breaking. She was asked if egg, milk, meat, fruits are brought in. But she replied with hopeless smile and said those are rich people's food, where we will get to eat? Also she was asked if she were a powerful person in Dhaka City, what she would do. She wants to have good house at good place with hygienic surrounding, to eat good food, and to send children at school. Also she wished to go back to her original place as she doesn't like to stay in Dhaka.

Protein energy intake is widely low in urban slums. According to experts, protein is one of the key components of proper diet and more than half of Bangladesh populations suffer from malnutrition. Protein deficiency hinders physical growth of children and their brain development. As milk is expensive, 20 amino acids can be obtained in eggs and 10 of them are important for children. Poultry and eggs are first class sources of protein. A large amount of vegetable protein can be found in some food items like peas, beans, pulses, but 20 amino acids are not available in them (Zannat, 2008).

Table 01: consumption pattern of households living in slums

Food consumed	Daily	Weekly	Monthly	Special occasion	Never	Others
	Number of households					
Rice	376	-	-	-	-	9
Bread	128	75	65	29	79	9
Cereal	16	6	49	59	246	9
Vegetable	373	2	1	-	-	9
Edible oil	376					9
Potato	371	5	-	-	-	9
Peas	64	248	52	12	9	
Fish	34	212	103	21	6	9
Egg	3	98	127	102	46	9
Milk and milk powder	17	18	46	91	204	9
Meat/poultry	-	35	234	92	15	9
Fruits	12	207	71	34	52	9

### Water treatment

There are limited water treatment practices which are applied at household level for safe drinking water. In this case, a large group of respondents (88%) answered, no treatment practices are taken, while only 12% households do treat water before drinking. The most common water treatment practices applied by households are boiling and filtering. On the other hand, the reasons of not treating water before drinking are lack of affordability in buying fuel for boiling water and in some cases, lack of knowledge.

### Physical environment: waste disposal

According to the households in study area, there is no fixed place for waste disposal. Generally wastes are disposed wherever they live like on the ground or above the water body. Therefore, scattered wastes are found visible in open place. It indicates that adequate facilities of waste disposal as well as collection are almost non-existent in slum area. From the sample data, it has been found that a large number of households (57%) dispose wastes into the water body, while 42% of households dispose on the ground, mainly on the street. Though, only 1% of households have been found to dispose wastes in dustbin. Exposure to such dirty environment is very risky for children as they spend most of their time playing outside.



Figure 03: Scattered disposal of wastes



## Health status: disease occurrence

Almost half of total 856 children are reported sick due to different types of water-borne diseases. 67% of affected children have been reported as suffering from diarrhea. The higher prevalence of disease among children reveals inadequate education or lack of consciousness among parents to give proper care to the children. Most of the time mothers are busy with household works; therefore children are not given enough care by them. Also unhealthy environment and mother's lack of knowledge about hygiene and dietary practice make children more vulnerable. Even though parents have some kind of primary education but lack of affordability to consume healthy food indicates poor dietary practice among children living in slums. It is said that nutritious food prevents chronic disease as it helps children to recover disease quickly like diarrhea. But majority of households can not afford healthy food items like protein food, not even in weekly basis.



Figure 04: diarrhoea patient

## Conclusions

Living condition of urban poor is considerably poor in socio-economically according to the survey findings. Socio-economic status of slum dwellers can be characterized as mainly low income group with inadequate education (for both parents and children). Also, poor physical environment with non-existent solid waste disposal system is very common phenomenon in slum areas. Therefore, high prevalence of disease (water-borne) among children living in slums indicates leading unhealthy environment. In such circumstance, to ensure food security of urban poor is a challenge if their socio-economic condition remains bleak.

Huge migration in Dhaka city throughout the year is regular phenomenon. But climate induced displacement added into urban migration is very alarming for city dwellers as it creates increasing pressure on existing system and challenges to government. Slum improvement not only uplifts living quality of urban poor but also supports adaptation measure of climate change, while planned migration of climate induced displaced is a present-day concern. Design of built environment including infrastructure, sanitation facilities will advance healthy living removing effects of haphazard growth, effects of environmental degradation. Decentralization of some slum settlements to nearby cities can be considered if located elevated above the water body like natural lakes, ponds.

The poor living in slums contribute to urban economy in many ways. To secure their living standard socio-economically, their income (daily or monthly) should be stable. According to survey data, most of them are daily laborer like rickshaw puller, brick breaker. Thus, their income is very much susceptible to some natural or man-made events like water logging in Dhaka city. According to respondents, they often stay hunger until they earn something to eat. Sufferings of such people considering recent and future urban hazards need to be integrated during policy preparation.

Education can play vital role in influencing parent's knowledge about nutrition, hygiene and health. Sometimes respondents are found to be conscious about food habit but can't afford healthy food which is expensive to them. As slum dwellers do not own any land and stay in public and private land, so they can not grow food in their own land. Consequently, they are

mostly dependent on market price of food. However, market price fluctuates without considering their ability to buy. So this state of price fluctuations has to be given priority in case of household level to make them food secure. Moreover, integration of personal and environmental sanitation should be part of comprehensive food security. Thus this effort will reduce disease burden facilitating healthy and productive life.

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