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**CAUSES OF UNDER-NUTRITION IN MUKURU AND  
VIWANDANI URBAN INFORMAL SETTLEMENTS**

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## CAUSES OF UNDER-NUTRITION IN MUKURU AND VIWANDANI URBAN INFORMAL SETTLEMENTS

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### Abstract

**Purpose:** The objective of the landscape analysis was to identify the causes of under-nutrition in mukuru and viwandani urban informal settlements

**Methodology:** The analysis was largely based on literature review from previous surveys, program reports and internet search on secondary information relating to the urban sector in Kenya having been undertaken to establish and collate a wide range of baseline facts on nutrition, poverty and vulnerability. In addition to a range of secondary sources, some primary data was collected through key informant interviews.

**Results:** The study found out that the main causes of Malnutrition in Mukuru: Lack of knowledge on child feeding practices, Poor weaning practices-Children refuses to eat due to lack of taste and diversity in food intake, Social economics problems- Most families don't afford the necessary diet due to poverty, Poor health seeking behavior leading to late identification and diagenisation of malnourished children, Day cares-There is very minimal attachment between the mother and the child as most of the time the child is in the day care centre. In some cases children are locked in the house all day long, Diseases- Mukuru could be having high prevalence of diarrhea, pneumonia and rickets

**Unique contribution to theory, practice and policy:** Training should be extended to the care givers on child feeding practices. Emphasis on diversity of food intake so as improve on the children's appetite. Lastly, encouraging maximum attachment between the mother and the child.

**Keywords:** Nutrition, Malnutrition, Poverty, Diseases, Mukuru, Viwandani, mortality, morbidity

### 1.0 INTRODUCTION

Extreme hunger and malnutrition remains a huge barrier to development in many countries. 795 million people are estimated to be chronically undernourished as of 2014, often as a direct consequence of environmental degradation, drought and loss of biodiversity.

Globally, about 2.2 million children die due to poor nutritional status and over 90 million children under the age of five are dangerously underweight. One person in every four still goes hungry in Africa. Under nutrition is not only linked to child mortality but also poor functional development to the child. Undernourished children are highly susceptible to common childhood ailment such as diarrhea, respiratory infections and worm infestations. The recurrence of these ailments compromises the child's health and functioning in adulthood.

The Kenya Vision 2030 that aims to transform Kenya into a globally competitive and prosperous nation with a high quality of life by the year 2030.

The Kenyan constitution guarantees children the right to nutrition as a fundamental human right. Children have the right to access safe and nutritious food, and nutrition is a universally recognized

component of the child's right to enjoyment of the highest attainable standard of health. These goals directly relate to and depend upon improvements in the nutritional status of women and children. The damage malnutrition has to the first 1,000 days of life is irreversible. Malnourished children are less likely to go to school, to stay there, and more likely to struggle academically; they earn less than their better-nourished peers over their lifetimes.<sup>1</sup> Intervention is critical to avoid such outcomes.

Viwandani is 7 km from Nairobi city center, is located in Makadara division (now Madaraka district), and has seven villages and 34 census-enumeration areas. Most structures in Viwandani are made of iron sheets and tin as walls with iron roofing sheets. Houses are built in rows with an average of six dwelling units (rooms) per structure. The Ngong River, which is heavily polluted by industrial waste, is situated to the south of Viwandani and the industries are situated to the north of Viwandani. Viwandani represents a more transient community which highly mobile population seeking job opportunities in the nearby

Child malnutrition is a serious concern in developing countries due to the high mortality and morbidity with which it is associated. Preschool-age children under the age of 5 are particularly susceptible to the adverse effects of malnutrition as they are in a vulnerable growth period with high growth requirements (Blossner & de Onis, 2005). It is estimated that 54% of deaths in children under 5 are associated with malnutrition (Gordon, Mackay & Rehfuess, 2004), and that approximately 5 million children die each year due to causes that are directly or indirectly related to malnutrition<sup>3</sup>. Morbidity related to malnutrition can occur in infancy and childhood, as well as in adulthood, and includes adverse effects on health, cognition and behavior (Grantham-McGregor & Baker-Henningham, 2005, The Partnership for Child Development, 1999).

Indicators of malnutrition include wasting, stunting and underweight, which represent different aspects or measurements of malnutrition (WHO, 2006). Wasting as measured by low weight-for-height represents lower than expected body mass (tissue or fat) and is a good indicator of existing nutritional deficits. Stunting, or low height-for-age is an indicator of a reduced linear growth rate and represents a chronic state of malnutrition as it takes longer for impaired skeletal growth to become apparent. Underweight, which is measured by low weight-for-age, represents a combination of both wasting and stunting.

### **1.1 Problem Statement**

Nutrition is critical for survival, health and development. The role of optimal nutrition in health and development warrants increased commitment and investment in Kenya. The anticipated gains in investing in nutrition will enable the country make significant progress in achieving targets for Sustainable Development Goals (SDGs) aim to end all forms of hunger and malnutrition by 2030, making sure all people – especially children and the more vulnerable – have access to sufficient and nutritious food all year round.

The Child Survival and Development Strategy (2009-2013) indicate that 50% of all under-five mortalities in Kenya are associated with malnutrition. Malnutrition in urban locations can take a number of forms. These include stunting, wasting and micronutrient deficiency. In many instances, different types of malnutrition overlap. Stunting is the predominant form of malnutrition found in urban informal settlements. Stunting results from a child having a poor diet, either from too few calories, too little nutritious food, or both, for a number of years, or an infection leading to mal-absorption of nutrients. The high malnutrition rates are associated with inadequate dietary intake,



morbidity, and unhygienic practices and microbiological quality of food and water. Wasting and underweight are prevalent. While severe and global acute malnutrition rates are lower than rural areas, the case load is greater in the urban slums owing to the high population density.

## **1.2 Research Objective**

The objective of the study was to identify the causes of under-nutrition in mukuru and viwandani urban informal settlements

## **2.0 LITERATURE REVIEW**

More than half of the world's population live in cities and the majority of them reside in cities in developing countries. Urban populations are projected to double in African and Asian cities over the next 30 years. The poor make and will continue to make up a large part of urban growth settling in informal urban slums. As a result, the number of slum dwellers has almost doubled in the last 20 years with over 70% of the urban population living in the slums. This number is projected to double by 2020. Urban slum growth in Kenya parallels the global pattern. The Nairobi slum development has been just one part of the wider economic and social development of the city and of the society as a whole.

The significance of the growth of Nairobi slums is due to the fact that the people who lived in them during the colonial, period constituted the majority of the city population also, that the development of these urban slums was directly related to the character of economic development in the rest of the society of Kenya. This pace of urbanization exceeds the rate at which basic infrastructure and services can be provided with dire consequences for the urban poor. In Kenya, as in most parts of developing countries, urbanization is increasing at a rapid pace. A UN Habitat (2008) report showed that urban growth rates in Kenya are 1.2% and cites the case of Nairobi whose population in 2008 is estimated to be 3,125,000 up from 1,380,000 in 1990. Kenya's urban poor currently constitute over 4 million people and this number is set only to increase in the coming years as 50% of the country's population is expected to reside in urban centres by 2020.

Slum dwellers depend upon employment in the informal sector characterised by low pay and poor working conditions. Slum settlements are often located on hazardous land prone to the effects of natural disasters including landslides, flooding, and earthquakes. Due to the illegal nature of slum settlements, the urban poor are excluded from governments' development and service delivery plan limiting the urban poor from accessing schools, health clinics, water and sanitation, drainage, sewerage, or garbage collection services. They are made highly dependent on private providers for basic social services who charge exorbitant fees in comparison to public providers. Consequently, informal settlements in Kenya are characterized by poor environmental conditions predisposing inhabitants to poor health outcomes.

## **3.0 RESEARCH METHODOLOGY**

Secondary data collection through desk reviews using the literature was carried out to assess the current situation of under-nutrition in urban slums and more specifically in Mukuru and

Viwandani. The literature was mainly drawn from reports(e.g., ProPan report, SMART survey 2014, Kenya Demographic Health Survey, Urban Nutrition strategy document, Urban Poverty and vulnerability in Kenya etc), search engines, and websites (e.g. International Food Policy Research Institute [IFPRI], World Health Organization [WHO], Food and Agriculture Organization (FAO), UNICEF)

## **4.0 RESULTS AND DISCUSSIONS**

### **4.1 Causes of Under-nutrition in Nairobi informal settlements**

#### **4.1.1 Poverty**

Urbanization rate in Kenya is one of the highest in the world with an annual urban population growth rate of 4.4%. Poverty in Kenya's urban slums is high with more than half of the residents living on meagre incomes and in crowded conditions with poor or no sanitation. Generally, urban poverty is characterised by a lack of employment, lower wages and returns from informal employment, and extremely poor levels of basic services such as housing, sanitation, health care, and education.

Poverty and vulnerability are some of the main characteristics of informal settlements in urban areas including the slums in Nairobi. In most cases, expenditure for food predominate household expenditures with many households having very little cash incomes leading to high levels of poverty which result in the inability of most households to purchase nutritious foods or engage in health-seeking behaviours. Major aspect of vulnerability relates to the dramatically increased cost of food in recent years, which has led a majority of slum dwellers to decrease the frequency and size of their meals as well as pushing people into high-risk livelihood activities in order to meet their basic needs

Although there hasn't been any significant shocks like fires, political unrest, and disease outbreaks in Mukuru and Viwandani in the last five years. However, the prices of food vary throughout the year. The community health volunteers reported that whilst the price of a bunch of kale remains at five shillings throughout the year, the number of stalks vary with the seasons. A market survey carried out in 2014 showed that the animal sources of foods are more expensive compared to the plant sources in Viwandani. This affects the affordability by the households with under 5 children. This could also attribute to the low intake of the animal sources of food as reported in ProPan Report.

#### **4.1.2 Food availability, consumption and access**

Food access is one of the main sources of food insecurity among the urban poor settlements particularly due to a lack of purchasing power. Food takes usually consumes the largest percentage of the urban poor's income. For example in Mukuru slums, poor households will spend up to 70% of their income on basic foods, buying 90-100% of their household food. As a result poor urban households are more vulnerable to food price increases.

In most cases, urban populations rely on markets for all their goods, services and employment and are very vulnerable to any unfavourable changes in the market system. Food markets in poor urban areas tend to be inefficient in terms of providing adequate quantities, quality and competitive. (Martine et al., 2012).

In urban households including informal settlements, there is a tendency to consume foods with a greater energy density with potentially fewer micronutrients. This is leading to the 'double burden' of malnutrition whereby overweight and obesity co-exist with undernutrition. Households where overweight adults and underweight children co-exist are increasingly common in some developing countries.

Findings from the field visits show that there is a variety of food sold in the slums. However the cost of preparing the food is high given that the cost of kerosene has gone up by 7.7% in 2016 compared to the price same time 2015. This is despite the price of petrol and electricity coming down according consumer price indices and inflation rates for August 2016.

#### **4.1.3 Child stunting, wasting and underweight**

The causes of undernutrition in the study area (Viwandani and Mukuru) are multiple, with complex interrelationships between the immediate causes of inadequate dietary intake and infection; the underlying causes of household food insecurity, suboptimal feeding and care practices, and poor access to health and hygienic environment; and the basic causes around education, infrastructure, economic factors, and socio-cultural norms.

The landscape analysis identified particular drivers of the high burden of undernutrition in the study area. In terms of immediate causes, the rates of child morbidity from respiratory infection and diarrhoea are high due to sanitation and environmental issues, while dietary intake is inadequate in terms of both quantity and quality in many cases due to high levels of poverty. The underlying causes lead to severe food insecurity at the household level, low access to safe water and sub-optimum caregiving practices where not all children between 0 – 6 months are breastfed exclusively. There is a strong linkage between maternal education and children's health. Children born to educated women suffer less from malnutrition which manifests as underweight, wasting and stunting in children. (proPan, 2014).

The basic causes of undernutrition in the study area can be attributed to underlying societal issues such as poverty which is prevalent. The availability of nutrition resources at the household level is a function of how society operates in terms of livelihood opportunities and economic structure.

#### **4.1.4 Child Feeding Practices**

Feeding practices play a critical role in child development thus poor feeding practices can adversely impact the health and nutritional status of children consequently affecting their mental and physical development.

Early initiation of breastfeeding is important for the child. Colostrum the first liquid to come from the breast is highly nutritious and contains antibodies that provide natural immunity to the infant. It is recommended that children be fed with colostrum immediately after birth (within one hour) and they continue to be exclusively breastfed for six months as recommended by WHO. Introduction of solid/semi-solid food to infants is recommended after six months because breast milk alone is not sufficient to maintain a child's optimal growth. The appropriate infant and young child feeding (IYCF) practices include breast feeding through age 2 years, introduction of solid and semisolid foods at age 6 months and gradual increases in amount of food given frequency of feeding as the child gets older.

Evidence from ProPAN assessment (conducted in Viwandani slums) indicated none of the children 0 – 5 months was on exclusive breastfeeding. More than half of the children 6 -23 months

did not receive minimum acceptable diet and yet none in the whole group were fed on the recommended nutrient density.

The high cost of fuel deters many mothers from giving children healthy foods such as pulses in the study area, they instead rely on prepared street food or easy to cook starches. This leads to widespread poor child feeding and care practices, malnutrition and stunting growth affecting more than one in two children in urban slums. Wasting and underweight were found to be prevalent in the study area.

#### **4.1.5 Health seeking behaviour**

Nutrition and health are closely related, since disease contributes to malnutrition, while malnutrition makes an individual more vulnerable to disease. Most cases of child mortality result from disease aggravated in a vicious circle by malnutrition. High levels of infections such as malaria, diarrhoea, intestinal parasites, and acute respiratory infections impact on individual's nutritional status because of the vicious cycle between infection and malnutrition.

The conditions in which the urban poor live in predispose them to poor health, these include poor hygiene and sanitation, poor environmental sanitation, poor housing, and low income levels. There is a high prevalence of communicable diseases such as TB, diarrhoea, malaria and other water borne diseases, contributing to high levels of malnutrition. This is in addition to poor maternal health and rates of HIV which are estimated at double the national average. The high rate of maternal mortality in the slums is associated with pregnancy complications arising from anaemia, maternal morbidity and low weight in pregnancy, all closely linked to malnutrition. More than half the pregnant women in Kenya are iron deficient (KDHS, 2008/09).

One of the most worrying indicator of vulnerability amongst informal settlement populations is child health. High the prevalence of disease at the individual level, leads to loss of appetite, reduced food intake, malabsorption, and increased nutrient needs. Prevention or prompt treatment of these disease episodes that cause weight loss can reduce the incidence of malnutrition that is not caused by lack of food. Therefore, reducing barriers to accessing preventive and curative health care can potentially have a positive impact on nutrition through the reduction of incidence of communicable diseases.

#### **4.1.6 Micronutrient deficiencies**

Micronutrient deficiencies are associated with increased risk of morbidity and mortality through their effect on the immune system. Micronutrient deficiencies result from poor quality diets and high rates of infection, which negatively affect nutritional status by increasing nutrient requirements and reducing nutrient absorption.

Micronutrient deficiency is a major contributor to childhood morbidity and mortality, it remains a major problem facing Kenya's poor. The condition has severe consequences leading to stunted growth, high maternal mortality, miscarriages to name a few. The 2014 KDHS indicated that 72% of children aged 6-23 months consumed food that were on Vitamin A supplements.

According to the 2014 proPan study, micronutrient deficiencies were found in Viwandani where 72% of children were on Vitamin A supplements. The study also mentioned the existence of multivitamin, mineral supplement and micronutrient powder programs in the same community. The presence of these program in the study area are a pointer of micronutrient deficiency. In low resource settings, supplementary food is often nutritionally inferior.

#### **4.1.7 Access to Health, Water and Sanitation**

Recent surveys have shown that between 70 and 75% of slum dwellers are poor with limited access to water and sanitation, compared to 46% of the national population as a whole. Access to health, water and sanitation is one of the underlying causes of undernutrition in the Mukuru and Viwandani.

Access to quality and affordable water in the study area is a challenge. Majority of informal settlement dwellers pay exorbitant prices (eight times) for water compared to other communities. Often times the available water is not safe resulting to a high prevalence of waterborne diseases. A study conducted by APHRC concluded that informal settlement children are likely to experience fever and diarrhoea more frequently than children in other parts of country, and they also linked the IMR to poor access to sanitation and safe water (APHRC, 2005). Another study conducted by Oxfam (2009) indicated that bloody diarrhea incidences in the informal settlement is three times higher than the national average of 17%. The study area has poor hygiene and sanitation practices with a few residence having access to latrines. Due to low hygiene and sanitation cover, the study area population experience a vicious cycle of infection and malnutrition, where repeated infections lead to negative consequences on the absorption of nutrients by the body resulting to undernutrition.

#### **4.1.8 Infant, child, and maternal mortality**

Nairobi, the Capital City of Kenya has experienced an exponential growth in the past 60 years where the current population of 3.5 is almost 29 times higher than the 1948 population which was 120,000. This is despite the fact that the area in kilometers squares has remained the same at 696.1 and hence the current population density is 5028 which is quite high and still increasing. As a result of the skyrocketing population in Nairobi, majority of the people live in the informal settlement which according to estimates house approximately 60% of the Nairobi population and cover only 5% of the city's residential land.

Emerging evidence reveals that the urban population explosion in the region has been accompanied by increasing rates of poverty and poor health outcomes. It has been documented that the urban poor face worse health indicators than their rural counterparts or their counterparts in the urban non-poor settlements. Despite the urban population enjoying easy access to health services (Essendi et al, 2011), the incidence of child under nutrition, morbidity and mortality has been shown to be higher in slums and peri urban areas than in more privileged urban settings or, sometimes, even rural areas<sup>2</sup>. Life in these slum areas is associated with poor health indicators due to inadequate access to clean water, electricity and health facilities, and generally poor sanitation. Slum conditions create greater exposure to violence (often sexual and gender based), unwanted pregnancy and adverse health and nutrition outcomes, particularly for women and their children. Maternal and child outcomes are intimately linked. Poor maternal health affects the development of the foetus, the likelihood of a healthy pregnancy and birth outcomes. Maternal caring practices, including sub optimal maternal, infant and young child nutrition (MIYCN) practices from gestation up to two years of life, also contribute to poor and often irreversible child health outcomes. Poor nutrition in mothers and young children leave both vulnerable to opportunistic infections and diseases such as diarrhoea, malaria and acute lower respiratory infections.



A study conducted in Nairobi's informal settlements (African Population and Health Centre 2002) found that children living in unhygienic environments indicated by poor drainage systems, inadequate or non-existent toilets and piles of uncollected garbage suffer higher levels of morbidity and mortality (Caldwell & Caldwell, 2002). The study further reveals that only 24% of all households within Nairobi have access to piped water in form of public water taps and 75% purchase water for domestic use (Wasao & Bauni, 2001). In terms of child health the rate of diarrhoea was 31% for children under five years while the infant mortality rate (IMR) was 91/1000 compared to 39/1000 in non-slum parts of Nairobi (APHRC, 2002). Malnutrition also a major cause of child morbidity and mortality can, therefore, be related to environmental degradation (APHRC, 2002). This study linked child malnutrition, morbidity, hygienic practices, food and/or water safety in impoverished Mukuru slum in Makadara division, and the poorest in Nairobi City (GoK, 2005).

## **5.0 CONCLUSIONS AND RECOMMENDATIONS**

### **5.1 Conclusions**

The following were highly mentioned as the main causes of Malnutrition in Mukuru:

- 1) Lack of knowledge on child feeding practices
- 2) Poor weaning practices-Children refuses to eat due to lack of taste and diversity in food intake
- 3) Social economics problems- Most families don't afford the necessary diet due to poverty
- 4) Poor health seeking behavior leading to late identification and diagnosis of malnourished children
- 5) Day cares-There is very minimal attachment between the mother and the child as most of the time the child is in the day care centre. In some cases children are locked in the house all day long
- 6) Diseases- Mukuru could be having high prevalence of diarrhea, pneumonia and rickets

### **5.3 Recommendations**

1. Training should be extended to the care givers on child feeding practices
2. Emphasis on diversity of food intake so as improve on the children's appetite.
3. Encourage maximum attachment between the mother and the child.

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