



# Social determinants of child under-nutrition in urban informal settlements in Kenya

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Pathways to Better Nutrition Series: No. 1



NICK

Nutritional Improvement for  
children in urban Chile and Kenya

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Urbanisation can bring many benefits but in many cities the rate of change has been so fast and so dramatic that local and national governments have been unable to cope. Urban growth has outpaced their ability to build essential infrastructures leading to widespread social inequity and social stratification environmental degradation, heavy migrant inflows, and a breakdown of the social support systems and networks. In these poor urban areas there is a strong and well established link between the various dimensions of disadvantage and child malnutrition (both undernutrition and overnutrition).

NICK (Nutritional Improvement for children in urban Chile and Kenya) is a three year study that started in October 2010 with funding from the UK Government Department for International Development (DFID) through the Economic and Social Research Council. This study helps the cities of Mombasa in Kenya and Valparaíso in Chile reduce child malnutrition using participatory action research to broaden stakeholder participation at municipal level to change the social determinants. These determinants control the everyday conditions in which people are living and include education, income, working conditions, housing, neighbourhood and community conditions, and social inclusion. It is envisaged that this study will contribute to existing knowledge and also serve as a useful guide for action not only in Kenya and Chile but also in other countries with high levels of child malnutrition.

#### The partners

The research team is led from the Department of Humanities and Social Science, Institute of Education, University of London and the research is being developed collaboratively with partners in Chile and Kenya.

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#### Disclaimer

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## **Abstract**

The purpose of this literature review is to identify the social determinants of child malnutrition in urban slums in Kenya and to review evidence for the impact of interventions that seek to reduce child malnutrition through changing its social determinants. The review will also draw out the implications of these findings for the further development of the NICK (Nutritional improvement for children in urban Chile and Kenya) Project in Kenya.

The findings indicate that the main intermediate social determinants of the high levels of child under-nutrition (underweight, stunting, and wasting) in the urban slums in Kenya are poverty, lack of access to enough nutritious food or health services (including antenatal care and birth spacing), low levels of maternal education and poor child care practices. Specific interventions aimed at tackling malnutrition in informal settlements have yet to be systematically documented. These findings suggest that the NICK Project in Kenya should seek to facilitate multisectoral actions to improve access to food, health services and education especially for mothers.

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## List of abbreviations

AIDS	Acquired Immunodeficiency Syndrome
ASAL	Arid and Semi-Arid Areas
BMZ	Federal Ministry of Economic Cooperation and Development
CBO	Community-based Organisations
CCC	Comprehensive Care Centre
DHMB	District Health Management Board
DHMT	District Health Management Team
DHS	Demographic Health Survey
FAO	Food and Agriculture Organisation
GB	Great Britain
GOK	Government of Kenya
HIV	Human immunodeficiency Virus
HSSP	Healthcare Services Specification Project
IMCI	Integrated Management of Childhood Illnesses
INGO	International Non-governmental Organisations
IYCF	Infant and Young Child Feeding
IPV	Intimate Partner Violence
ITN	Insecticide-treated bed nets
KDHS	Kenya Demographic and health Survey
KEPH	Kenya Essential Package for Health
KFFSG	Kenya Food Security Steering Group
KfW	Kreditanstalt für Wiederaufbau
KHPF	Kenya Health Policy Framework
KNBS	Kenya National Bureau of Statistics
MDG	Millennium Development Goal
MNDC	Micronutrient Deficiency control
MOE	Ministry of Education
MOH	Ministry of Health
MOPHS	Ministry of Public health and Sanitation
MSF	Médecins Sans Frontières
NCAPD	National Coordinating Agency for Population and Development
NCC	Nairobi City Council
NGO	Non-governmental organisation
NHSSP	National Health Sector Strategic Plan
NSSP	Next Steps in Strategic Partnership

OR	Odds Ratio
PAR	Participatory Action Research
PHMT	Provincial Health Management Team
PLWHA	People living with HIV/AIDS
RUTF	Ready-to-Use Therapeutic Food
UNICEF	United Nations Children's Fund
WFP	World Food Programme
WHO	World Health Organisation

## 1. Introduction

The purpose of this literature review is to identify what is known about social determinants<sup>1</sup> of malnutrition in Kenya, with special reference to informal urban settlements and to identify which interventions are most effective in addressing them through a broadened stakeholder participation. It will also draw out the implications of these findings for the further development of the NICK Project (Nutritional Improvement in children in urban Chile and Kenya).

Kenya is among the 22 countries globally characterised by food insecurity and identified by the UN Food and Agricultural Organisation (FAO, 2010) as being in 'protracted crisis' because 'a significant proportion of the population is acutely vulnerable to death, disease and disruption of livelihoods over a prolonged period of time' (p.12) and governance is very weak with 'the state having a limited capacity to respond to, and mitigate, the threats to the population, or provide adequate levels of protection (p.12).

UNICEF points out that in countries such as these (UNICEF, 2009) there is a need to address the underlying causes of child undernutrition

In countries where policies do not directly address the wide ranges of influences on nutrition – education, rights of children and women, water, health and labour laws, the impact will ultimately be seen in the levels of malnutrition. Unfortunately, it is this very complexity – the absence of simple solutions - that leads governments and partners to focus on the effects of malnutrition – even those already malnourished – rather than on the complex range of underlying factors that cause malnutrition. (p.1)

UNICEF also stresses that malnutrition reflects the failure of the government to meet the basic human right of its people to adequate food and nutrition and that inadequate investment in human capital reduces economic development.

According to the Head of the Division of Nutrition in the Ministry of Health, (Wefwafwa, 2011), Kenya and its development partners now recognises that relatively more attention has been given to nutrition in emergency settings as compared to nutrition in chronic settings (such as informal urban settlements). However this trend is gradually changing as indicated by the fact that the government and the development partners have recently formed urban nutrition working groups which are now active in the city of Nairobi, and hopefully will extend to other areas.

*Searching the literature:* The literature to inform this review was identified through electronic searches of the following databases; African journals online, Campbell library, EBSCO, Google Scholar, Medline, Mendeley, Web of Knowledge and Zetoc using the key words and derivatives 'determinants', 'informal settlements', 'urban slums', 'malnutrition', 'under-nutrition', and 'Kenya'. In addition 'grey literature' and policies and papers relating to informal settlements was assembled from Kenyan Ministries of Health and Ministry of State for Planning and National Development and reviewed.

*Organisation of the review:* The review is organised into five further sections. Section 2 describes the political environment in Kenya as it relates to child nutrition in informal urban settlements health and the potential for influencing its determinants Section 3 describes the extent and distribution of child malnutrition in Kenya. Section 4 then summarises what is known about the status of child health and malnutrition and its determinants in the country and in informal urban settlements. Section 5 describes some of the interventions aimed at influencing social determinants of malnutrition in Kenya, and summarises key findings. The

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<sup>1</sup> The social determinants of child malnutrition control the everyday conditions in which people are living and include education, health services, income, working conditions, housing, neighbourhood and community conditions, and social inclusion.



final section highlights the implications of findings and the potential for further development of the NICK project

## **2. The political environment in Kenya and its relevance to child nutrition**

### **2.1 The new constitution as it relates to children and nutrition**

Kenya adopted a new Constitution in August 2010, in which children are specifically referred to. Article 21 (3) explicitly states that:

All State organs and all public officers have the duty to address the needs of vulnerable groups within society, including women, older members of society, persons with disabilities, children, youth, members of minority or marginalised communities, and members of particular ethnic, religious or cultural communities.

In the application of the Bill of Rights, part 1(c) of Article 53 declares that every child has the right to basic nutrition, shelter and health care. Part 2 of the same article goes on to state that 'A child's best interests are of paramount importance in every matter concerning the child' (GOK, 2010).

The constitution therefore gives a framework within which issues of child health and rights can be approached. However, the framework needs to be translated into actionable policies and guidelines that can guide the implementation of child health interventions. Attention is therefore turned to what is contained in the health system in Kenya and some of the policies and guidelines that relate to children and their welfare.

### **2.2 Ministries relevant to child nutrition**

The social determinants of child malnutrition are cross-sectoral and cannot be addressed by any one sector. The Line Ministries that have the greatest influence on child nutrition are health, agriculture, education, water and sanitation and social development. The health sector is frequently used as an entry point for interventions and therefore a review of the health system in Kenya is presented in Appendix 1.

### **2.3 National School Health Policy and Guidelines**

In 2009, Kenya developed and published a National School Health Policy (MOH and MOE, 2009) and Guidelines (MOE and MOH, 2009), which focused attention on nutrition and its importance in child growth and development. The policy and guidelines relate good nutrition to overall good health and personal child outcomes, and state that every effort shall be made to promote good nutrition practices in schools by integrating nutrition interventions. The policy and guidelines also link the community and the school in the realisation of good child nutrition.

The policy and guidelines also deal with potential determinants of poor general child health as well as malnutrition, by specifying interventions towards tackling some of the commonly known determinants of child malnutrition such as water, sanitation and hygiene, immunisation, general disease prevention and control as well as other environmental determinants.

The guidelines form a basis for working towards sustainability of any intervention programme tackling pre-school malnutrition, and some of the determinants are expected to be handled at the school level as children grow and enrol into schools.

## 2.4 Other policies, guidelines and reports relating to children, health and malnutrition

Kenya has national guidelines for integrated management of acute malnutrition (GOK, 2009), a national strategy on Infant and Young Child Feeding (IYCF) covering the period 2007–2010, (GOK, 2007b), technical guidelines for micronutrient deficiency control and various training and facilitation guides to use with these documents. However while a National Food security and nutrition policy has been prepared, this policy is yet to be discussed and approved by parliament and is therefore not yet available to the general public (Wefwafwa, 2011).

The national strategy on IYCF was developed following a national assessment in 2004 of IYCF, policies, programmes and practices, which established that key indicators of ICYF have been on the decline as a result of lack of operational targets on IYCF and a national strategy. There were also weak coordination, few partners implementing IYCF programmes, poor monitoring systems and limited capacity at all levels of implementation. This strategy therefore addresses these gaps, identification of specific IYCF goals, objectives and targets as well as monitoring frameworks. The ministry of health has also developed a trainers' guide to IYCF (GOK, 2007a) to accompany the national strategy

The technical guidelines for micronutrient deficiency control were developed in 2008 in recognition the micronutrient deficiency control (MDNC) is not only a major impediment to socio-economic development but affects already underprivileged groups of the population such as infants, young children and women of reproductive age. The guidelines include important components of communication and Monitoring and evaluation, which are critical even for the upcoming project because these can be used to gauge the extent to which grassroots providers monitor issues related to MNDC in informal settlements.

The Kenya National Guidelines on nutrition and HIV (MOH, 2006) recognise the relationship between nutrition and HIV, and gives recognition to children with HIV or born to mothers with HIV. The guidelines therefore give direction on nutritional support to PLWHA and to vulnerable groups such as children and pregnant or lactating women. These guidelines specify the extra energy needs for the HIV infected Kenyan child, and therefore form a useful reference for interventions and especially with reference to those determinants that might aggravate HIV, including poor sanitation and prompt treatment of opportunistic infections.

The country introduced integrated management of childhood illness (IMCI) in 1999, as one of the strategies of ensuring child survival. One of the three key components of IMCI is community IMCI, where family and community health practices are improved by increasing community involvement and awareness of measures to improve child health. However IMCI implementation has not worked as well as anticipated for a number of reasons including low health worker training coverage, barriers at community level, and that health workers do not comply to guidelines- mainly because client patient time is too short (Mullei et al., 2008), (Mushi et al., 2010). Despite these challenges, the framework for interventions is in place and health workers are aware of it. The challenge would be how best to improve community involvement in the management of childhood illnesses, as part of the strategies for interventions.

Diarrhoea is one of the factors that is closely related to malnutrition. However, correct management of diarrhoea among children below five years has been on the decline in the last ten years, according to the Ministry of Health. The MOH therefore, in consultation with other stakeholders, developed and published policy guidelines on management of diarrhoea among children under five years of age (MOPHS, 2010). Among the useful strategies to achieve the policy objectives are capacity building, home-based case management and prevention, which can be built upon in tackling diarrhoea as a specific determinant of malnutrition within informal settlements.

The status report for Kenya 2009, (GOK, 2010) on the Millennium development Goals (MDGs) states that these MDGs have been incorporated into various strategies including the Vision 2030 Strategy. However there is still much to be done to achieve these and the report also acknowledges the potential masking of regional disparities in the status of specific MDG target indicators through the use of national averages.

The policies, papers, guidelines and reports have indicated where the country is with respect to frameworks that have the potential for facilitating interventions on determinants of child health and malnutrition. Attention will now be turned to the extent and distribution of malnutrition in Kenya.

### **3. Extent and distribution of child malnutrition in Kenya**

The 2008-09 Kenya Demographic and Health Survey (KDHS), (KNBS and Macro, 2010) collected data on the nutritional status of children by measuring the height and weight of children less than six years of age, but reported only for children below five years. Age and sex disaggregated data were collected on stunting (height-for-age), underweight (weight-for-age), and wasting (weight-for-height).

Data from the KDHS indicates that 35% of children < 5 years are stunted while 14% are severely stunted, and that children aged less than 6 months were proportionally less stunted/severely stunted than older ones. Male children are reportedly proportionally slightly more stunted than female (37%: 33%). Children living in rural areas are moderately and severely stunted to a greater extent (37%), when compared with rural children (26%). At the provincial level, Eastern province (42 %) has the highest proportion of stunted children, while Nairobi province has the lowest (29 %).

Overall, 7% of children are wasted and 2% are severely wasted. Wasting is highest (11%) in children age 6-8 months and lowest (4%) in children age 36-47 months. North Eastern province has extraordinarily high levels of wasting: 20% of children under 5 yrs of age are wasted and 8% are severely wasted. These levels may reflect food stress in the province, which is traditionally a region with food deficits. In the arid and semi-arid areas (ASAL), where food insecurity and natural disasters have affected the population the rates of acute malnutrition among children under 5 years range between 15–20% (GOK, 2009).

Sixteen per cent of children under 5 in Kenya are underweight (low weight-for-age) and 4 % are severely underweight. The proportion of underweight children is highest (19%) in the age groups 24-35 and 48-59 months and lowest (8 %) for those less than six months of age. Female children (15 %) are slightly less likely to be underweight than male children (17%).

Rural children are more likely to be underweight (17%) than urban children (10%). North Eastern province has the highest proportion of moderate and severely underweight children (25 %), while Nairobi province has the lowest proportion (8%).

#### **3.1 Regional distribution of child malnutrition**

Little appears to have been done on regional child nutritional status, unless this status was related to disease. However, (Bloss et al., 2004) assessed the health and nutritional status of children under 5 years and in three villages in Siaya District, Nyanza Province in Western Kenya through cross sectional surveys among 121 adults and 175 children in July 2002. Primary caretakers were interviewed during home visits to assess agricultural and sanitation resources, child feeding practices, and the nutritional status of children up to 5 years old. Anthropometric measurements of these children determined that 30% were underweight, 47% were stunted, and 7% were wasted.

In Kwale District in the Coast of Kenya, Adeladaza (2009) did a survey of 300 households and 300 children and found that averages of 34% of children in the study area were

underweight, and 51% stunted. Specifically, he established that of the sampled children, 7.3% were wasted, 33.7% were underweight, 9.3% severely underweight, 51.3% stunted and 21.7% severely stunted.

Fotso (2007) also compared data from Demographic Health Surveys (DHS) collected from 15 African countries and established that socioeconomic inequalities in child malnutrition by area of residence in Kenya were higher in urban (OR 3.4) than within rural (OR1.8) areas.

Abubakar et al. (2011) report that in Kilifi District in the Coast of Kenya, 40% of children under five years show anthropometric signs of under-nutrition, while 47% present with biochemical markers of iron deficiency. The local district hospital records also indicate that there are approximately 500 admissions for severe malnutrition annually.

### 3.2 Relationship between malnutrition and other conditions

Kwena et al. (2003) conducted a survey to examine the nutritional status and disease in children less than five years of age in an area in rural western Kenya with intense malaria transmission, a high prevalence of severe anaemia and HIV, and high infant and under five mortality (176/1,000 and 259/1,000). No information was available on the prevalence of malnutrition in this area. Three cross-sectional surveys were conducted between 1996 and 1998 to monitor the effect of insecticide-treated bed nets on child morbidity. Anthropometric indices are presented for 2,103 children collected prior to and during intervention (controls only). The prevalence of stunting was 30%, wasting 4% and underweight 20%. They conclude that malnutrition is likely to interact with infectious diseases, placing children 3–24 months of age at high risk of premature death in this area (Kwena et al., 2003).

Friedman conducted a study in Western Kenya, to evaluate whether under nutrition is associated with increased or decreased malaria-attributable morbidity. Three cross-sectional surveys were conducted using insecticide-treated bed nets (ITNs) among children aged 0–36 months living in an area with intense malaria transmission. Data was collected on nutritional status, recent history of clinical illness, socioeconomic status, current malaria infection status, and haemoglobin. Their findings suggest that the presence of under nutrition, in particular chronic under nutrition, places children at higher, not lower risk of malaria-related morbidity (Friedman et al., 2005)

Malnutrition and infection may have a circular relation in causality and episodes of malaria may precede growth faltering. However, in considering the acute event, it seems more likely that the direction of causality is from malnutrition to the acutely acquired infection precipitating hospital admission, irrespective of the original causality of the child's malnutrition' (Bejon et al., 2008). The researchers conducted a study of all admissions of children below 60 months of age admitted in Kilifi District Hospital, Kenya. They analysed data from children between 6 and 60 months of age, comprising 13,307 admissions, 674 deaths, 3068 admissions with severe diseases, and 562 community controls by logistic regression, using anthropometric, z scores as the independent variable and admission or death as the outcome. They conclude that malnutrition is still a major contributor to childhood death in rural Kenya and underlies half of the inpatient morbidity and mortality rates among children in rural Kenya.

### 3.3 Economic and social consequences of child malnutrition

Evidence from literature in Kenya indicates a relationship between malnutrition and increased morbidity. Disease results in malnutrition and malnutrition exacerbates the potential and severity of specific diseases. Friedman et al. (2005) conducted a survey in Western Kenya where they evaluated the relationship between the presence of stunting and wasting and risk for malaria-specific outcomes among preschool children. This study found that being stunted was associated with significantly increased odds for concurrent malaria, high density parasitaemia, and severe malarial anaemia.

Malnutrition is also associated with poor school learning and dietary supplementation reverses increased school children's cognitive function (Gewa et al., 2009). Similar findings were found in a study by Grillenberger et al. (2007).

## **4. The social determinants of child malnutrition in the local context**

### **4.1 Overview**

In this section, some of the available literature relating to social determinants covers the wider aspect of health, and may not be specific to child malnutrition. This literature is included to indicate what is available and has been researched on.

Various studies from Kenya (KNBS and Macro, 2010, Kabubo-Mariara et al., 2009, Marinda, 2006) and elsewhere in Africa (Apodaca, 2008) identify the main factors determining health and nutritional status. These factors are:

- Poverty
- Water and sanitation
- Mothers' ages and educational levels
- Ante-natal care and Birth spacing
- Child care practices
- Disease
- Low level conflicts that lead to displacement

Kabubo-Mariara et al. (2009) did an analysis of the determinants of children's nutritional status in Kenya using the pooled samples of the 2003 and 2008 KDHS. Their findings indicated that

- Maternal education is an important determinant of children's nutritional status.
- Household assets are also important determinants of children's nutritional status
- The use of public health services, more so modern contraceptives is a determinant of child nutritional status

Poverty is one of the greatest determinants of malnutrition (Kristjanson et al., 2010, Ohiokpehai et al., 2007a). Kristjanson conducted a study to understand the dynamics of poverty in Kenya, and specifically reasons for falling into or escaping from poverty over time, according to livelihood zones (and by extension livelihood opportunities available). Their study indicated that in urban areas, the main reasons for falling into poverty were having many dependants needing care, ill health and expenses related to health and the loss of regular employment in the formal sector.

The factors related to poverty are especially relevant to slum area (OxfamGB, 2009). Oxfam points out that

While some urban dwellers have seen their position improve due to impressive levels of economic growth in recent years, poverty has been deepening for the majority of the urban poor who have become trapped in downward spirals of deprivation and vulnerability (p.2).

Marinda (2006) also argues that because there is a strong link between malnutrition and poor health in children and women and poverty interventions should focus on reducing male-female inequalities in society.

Water usage and availability is also a determinant of health and malnutrition (Hayanga, 2007, KNBS and Macro, 2010). Even when it is available the water is sometimes contaminated (Kimani-Murage and Ngindu, 2007) and can lead to diseases including diarrhoea which has been known to correlate with malnutrition.

Fotso et al. (2008) found an overall low rate of appropriate utilisation of maternal health services among the urban poor and this rate was worse among women with higher parity and lower levels of education within the urban slums.

Child nutritional status has also been found to vary with the change of seasons (Kigutha et al., 1995) and those living in the urban slums may experience periods of especially elevated food deficit during the rainy season when levels of unemployment are also at their highest.

#### 4.2 Family breakdown and child malnutrition in informal settlements

There is very little that has been documented with respect to family breakdown as a social determinant of child malnutrition in Kenya.

Domestic violence against women is a serious and widespread problem in Kenya. This is mainly due to traditional culture permitting a man to discipline his wife. The majority of the cases remain unreported or at least unpunished. Therefore precise data on the extent of domestic violence in Kenya is difficult to secure, and statistics are available from cases that are reported to authorities. Even then, some of the cases are withdrawn as parties prefer to settle matters out of court using other mechanisms.

However, Jaoko conducted a study to explore the correlation between wife abuse in Nairobi (urban area) and Maseno (rural area). His data indicates that the use of alcohol and drugs by either the participant or her husband and a history of family violence in the husband's family were found to be significantly associated with wife abuse. Additionally, educational levels and the employment status of the participant and her husband were found to be significantly associated with wife abuse. Partner violence in urban settlements is likely to be associated with alcohol and drug use, which are common (Jaoko, 2010).

Work done by NGOs in Kenya especially in relation to urban areas indicate that a larger number of reported cases of intimate partner violence occur in urban informal settlements, characterised by high levels of unemployment, poverty and physical insecurity (Crichton et al., 2008), (OxfamGB, 2009).

#### 4.3 Effects of family breakdown on children

Emily Rico (2010) used DHS data to conduct an analysis of the relationship between intimate partner violence and child nutrition and mortality in Kenya, Egypt, Honduras, Rwanda and Malawi and established that intimate partner violence (IPV) plays a role in child malnutrition and mortality, especially for children below two years of age. They found that the strongest relationship between 'any' IPV and the mortality of children under 2 yrs of age was observed in Kenya (adjusted odds ratio (OR) 1.42, 95% CI 1.18 to 1.71). In attempting to explain such findings they suggest that 'A plausible explanation could be that the physical or psychological consequences of IPV may impair maternal ability to cater for her unborn child's or infant's nutrition, health and other needs (p.4).

#### 4.4 Social determinants within specific geographic and socio-economic contexts

The determinants of slum health are too complex to be defined by any single parameter. Yet, they arise from a common physical and legal pedigree that concentrates the ill effects of poverty, unhealthy environments, and marginalization from the formal sector (Unger and Riley, 2007). (Muchukuri and Grenier (2009) conducted a situational analysis of the social determinants of health in Nakuru municipality, Kenya as part of WHO Kobe Centre's Healthy Urbanization Project, "Optimizing the Impact of Social Determinants of Health on Exposed Populations in Urban Settings", and in collaboration with the WHO Regional Office for Africa and the WHO Country Office for Kenya. Their findings indicate that in Nakuru, the key identified underlying social determinants of health included water supply, sanitation, solid

waste management, food environments, housing, the organization of health care services and transportation.

In Northern Kenya, an area characterised by frequent droughts, (Grobler-Tanner, 2006) suggests that the underlying determinants of malnutrition among the general population, but especially among women and children include

- Inadequate food security – this is the result of a combination of factors which include droughts, degrading environment, security and conflict issues
- Poor household hygiene.
- Poor child care and feeding practices
- Lack of access to public health and environmental services.
- Lack of social safety nets.
- Disease due to lack of access to medical services

## **5. Interventions aimed at influencing social determinants of malnutrition in Kenya**

This section highlights what has been done as a direct response to child health (and malnutrition) as well as on women's health to the extent that these interventions have a residual impact on determinants of child health, for example education, reproductive health, gender based violence among others.

Many of the direct nutritional interventions for children have been done either i) in areas where there are refugee camps ii) as part of medical interventions or iii) as part of primary school feeding programmes (Bwibo and Neumann, 2003, Edith Mukudi et al., 2010, Gewa et al., 2009, Grillenberger et al., 2007, McLean et al., 2007, Murphy et al., 2007, Neumann et al., 2003, Neumann et al., 2007, Siekmann et al., 2003, Whaley et al., 2003).

This section reviews literature with a view to synthesising approaches that have the potential of adaptation for intervention among children less than 5 years old in slum areas.

In March 2009, Oxfam GB, Concern Worldwide and CARE International in Kenya commissioned a technical review of available data on the status of food security, livelihoods, nutrition and public health in the Nairobi slums/informal settlements (Oxfam et al., 2009). These organisations were faced with the challenge of limited data sources specifically focussing on informal settlements. However from the information available, they established that rates of malnutrition (wasting, stunting) among children in Nairobi's informal settlements are higher than those in other parts of Nairobi.

As a result of the realisation that informal settlements have severe nutritional needs, and as a response to the post-election violence of late 2007/early 2008, the Ministry of Health, Nairobi City Council (NCC) and community-based organisations, initiated Ready-to-Use Therapeutic Food (RUTF) interventions, by Concern and by UNICEF. In 2008, 1,262 children were admitted to outpatient services in the 21 centres throughout Nairobi. This underestimates the full caseload as it excludes children admitted to inpatient therapeutic care at hospitals, those treated by agencies including MSF and the private sector (p. 18).

In 2008, the Kenya Urban Nutrition Working Group (Slums/Informal settlements) was set up with terms of reference to provide a coordination role; to provide technical leadership on urban nutrition issues and to advocate and provide a voice for urban nutrition issues. Members of the group include international non-governmental organisations (INGOs), national non-governmental organisations, community-based organisations (CBOs), Ministry of Health, UNICEF, WFP and WHO.

Some examples of the nutrition activities ongoing within the slums are summarised below – most of these address immediate causes rather than social determinants:

- Certain Nairobi slums – school feeding programme
- Outpatient therapeutic programmes for moderate and severe malnutrition in 21 MoH/NCC/CBO supported health facilities in Nairobi East, West and North and Médecins Sans Frontières (MSF) in 3 sites in Kibera.
- In patient therapeutic care for severely malnourished with complications.
- In Mathare slums – MSF France focuses on provision of care, food and drugs to HIV/TB patients, quarterly nutrition sentinel site surveillance.
- Kibera slums – MSF Belgium, provision of primary health care services, TB and HIV services, management of moderate and severe malnutrition, food by prescription, multi-storey gardening.
- Provision of Comprehensive Care Centre (CCC) services, HIV services and food (Oxfam et al., 2009)

In Nyanza Province, Kenya, the acceptability of micronutrient supplementation (Sprinkles) was explored in 2007 with potentially encouraging results (Jefferds et al., 2010). Other studies have also pointed to the potential benefit of supplementation (Ohiokpehai et al., 2009, Ohiokpehai et al., 2007b).

A new approach, Vouchers for Health, was launched in Kenya to improve access to reproductive health care services for economically disadvantaged populations in June 2006. One of the slums in Nairobi was targeted as a pilot. This is a joint initiative of the Government of Kenya and its German development partners, the Federal Ministry of Economic Cooperation and Development (BMZ) and the KfW Banking Group. This approach, implemented in five Kenyan districts, jointly targets two of the declared MDGs: Goal 4 - reducing child mortality; and Goal 5 - improving maternal health. The overall programme objective was to give poor women access to quality reproductive health care services by widening access to reproductive health services for a target population and simultaneously bypass low-quality health services structures (by rewarding those of higher quality). By giving clients a choice in health care providers, the voucher approach gives the consumer leverage, and aims to initiate provider competition through voucher service reimbursements. Preliminary results of this approach indicate an increase in uptake and utilisation of reproductive services by slum residents, indicating the potential of similar strategies in tackling some of the determinants of malnutrition in informal settlements (Janisch et al., 2010).

### 5.1 Networks, policies and initiatives aimed at reducing family breakdown

There seems to be little documentation available on policies aimed specifically at reducing family breakdown but addressing issues that lead to family conflict such as intimate partner violence, unemployment, norms and beliefs, can also reduce family breakdown. The review will therefore focus on initiatives that have the potential of adaptation as strategies to reduce family breakdown.

Weru (2004) describes how the population in slum settlements met, discussed and agreed on issues of concern to them before seeking external intervention. This was with respect to housing and ownership in slums. What the article highlights however is the inherent community capacity to problem solve, reach consensus, take action and follow-up, and the strategy/approach has the potential of being adapted as part of the strategies in addressing social determinants of malnutrition in informal settlements.

Slum residents in Kisumu, Kenya surveyed the felt needs of their households with minimal support from two local NGOs (Karanja, 2010). Of interest here is that the data from the survey helped inform the residents of each settlement about their needs, and supported their collective discussions about priorities. This indicates the potential for exploring the use



of 'felt need' as a pathway in tackling social determinants of health and malnutrition in informal settlements.

A study conducted in Nairobi slums aimed at establishing the relationship between various social support mechanisms and self-reported health outcomes among the elderly, the study used baseline data of an ongoing longitudinal study of older (50 years and above) men and women (2606) in two informal settlements in Nairobi. The data collection effort, which began in 2006, and is part of a 5 year research programme titled "Urbanization, Poverty and Health Dynamics," is being implemented by the African Population and Health Research Centre. Besides questions covering demographic and socioeconomic backgrounds and living arrangements, the older respondents were asked various questions requiring self-assessments of their health and wellbeing. Results indicated that a number of close friends, social support, and frequency of community participation were positively and independently related to self-reported health. (Kodzi et al., 2010) There is potential for exploring existing social support mechanisms as entry points in tackling determinants of health and malnutrition.

## 5.2 Summary of findings

The review has indicated that there are systems, policies and structures that are already in place in Kenya, through which the NICK project interventions can be initiated. These include the new constitution, the health system in Kenya as indicated by the NSSP II, as well the policies and guidelines that relate to child health. The government has also identified, through the review of the status of MDGs, some of the strategies that need to be put in place in order to reach targets. These strategies include community and external involvement in various interventions.

Literature also indicates that levels of under-nutrition (underweight, stunting, and wasting) are high in the urban slums of Kenya and that the key intermediate social determinants are poverty, lack of employment, low levels of maternal education, ante-natal care and birth spacing as well as poor child care practices and poor household sanitation and access to safe drinking water. Some of these determinants take longer than others to change, and the list is by no means exhaustive.

There is very little that has been written on the specific relationship between family relationships specifically gender based violence, and malnutrition and this is an area that needs further research.

This review also indicates that specific interventions aimed at tackling malnutrition in informal settlements have yet to be systematically documented. However the literature on interventions in slum areas, and strategies used has been summarised because these strategies could inform the work of the participatory action research groups in the NICK project interventions.

## 6. Implications for the further development of the NICK project

This review has shown that there are policy frameworks, policies and guidelines already in place to support the future development of the NICK Project. While these may not explicitly refer to urban slums/informal settlements, they provide the mandate needed for action. The rights of the child are enshrined in the constitution of Kenya, and specifically the right to nutrition, and shelter. The constitution also states that the best interests of the child shall be paramount in any issue involving the child's welfare. This makes it possible to hinge the NICK project within the 'implementation plan' of the constitution that aims to ensure that the Kenyan child enjoys the full benefits of growth and development.

There has also been a paradigm shift in the reasoning behind development of the National Health sector strategic plan. There is a move within the MOH towards encouraging

community involvement in and responsibility for one's own health, potentially through priority setting of intended interventions, learning and adaptation to the changing environment focusing on the needs of various age groups and equal responsibility. The strategy therefore lends itself to the creation of an environment where the multisectoral stakeholders in the participatory action group that will be established by the NICK Project can freely discuss, agree upon, implement and evaluate interventions aimed at improving the health of children – in this case children between ages 0 - 5 years. The IMCI strategy also encourages the community to take responsibility for child health but what needs to happen now is to energise collective, multisectoral action taking.

There may also be potential for involving children through the school system building on the recently published school health policies and guidelines so that schools and their communities can work towards the same goal of improved child nutrition. There are also policies to support the nutritional status of children living with HIV. Public awareness has been raised on some of the social determinants using documented experiences and this provides a starting point for communities to make their own plans to improve child nutrition.

In summary, although it appears no effective interventions have yet been put in place to tackle the complex multisectoral social determinants of malnutrition, the frameworks, policies and guidelines, as well as the political backing through the constitution, are already in place to support the further development of the NICK project at the municipal level.

## Appendix 1: Map of Kenya by province



## Appendix 2 Overview of the Health System in Kenya

The Government of Kenya (GOK) approved the Kenya Health Policy Framework (KHPF) as a blueprint for developing and managing health services. It spells out the long-term strategic priorities and the agenda for Kenya's health sector. To operationalize the document, the Ministry of Health (MOH) developed the Kenya Health Policy Framework Implementation Action Plan, aimed at responding to the decline in health sector expenditure, inefficient utilisation of resources, centralized decision making, inequitable management information systems, outdated health laws, inadequate management skills at the district level, worsening poverty levels, increasing burden of disease, and rapid population growth (NCAPD et al., 2004).

Kenya then formulated the first National Health Sector Strategic Plan (NHSSP-I 1999-2004) to operationalize the Ministry of Health's policy objectives, taking into account constraints identified in the Kenya Health Policy Implementation Action Plan. However, an external

independent review of the first strategic plan indicated that its implementation did not meet expectations for a number of reasons including

- Absence of a legislative framework to support decentralisation
- Lack of well-articulated, prioritized and costed strategic plan
- Inadequate consultations amongst MOH staff themselves and other key stakeholders involved
- In the provision of health care services
- Lack of institutional coordination and ownership of the strategic plan leading to inadequate
- monitoring of activities
- Weak management systems
- Low personnel morale at all levels
- Inadequate funding and low level of resource accountability(NCAPD, 2004)

The second Health Sector Strategic Plan (NHSSP II 2005-2010) was developed and aims at addressing challenges identified in the evaluation of the first strategic plan by

- Increasing equitable access to health services
- Improving the quality and responsiveness of services in the sector
- Improving the efficiency and effectiveness of service delivery
- Enhancing the regulatory capacity of the Ministry of Health
- Fostering partnerships in improving health and delivering services
- Improving the financing of the health sector(MOH, 2005)

The goal of NHSSP II is to reduce health inequalities and to reverse the downward trend in health related outcome and impact indicators. It places human rights 'at the core of its interventions' and encourages community involvement. This strategic plan shifted its focus from the burden of disease to the promotion of individual and community health through the promotion of healthy lifestyles throughout one's natural life. This is done through the Kenya Essential Package for Health (KEPH), which focuses on the health needs of individuals at different stages of the human life cycle, each with specific needs and intervention plans, namely

- Pregnancy, delivery and the newborn child (up to 2 weeks of age)
- Early childhood (3 weeks to 5 years)
- Late childhood (6 to 12 years)
- Adolescence (13 to 24 years)
- Adulthood (25 to 59 years)
- Elderly (60 years and over)

The successful operationalization and implementation of this strategic plan required a shift in focus as indicated in the table below (MOH, 2005).

**Table 1: Differences between the first and second Health Sector strategic plans**

Strategy shift from NHSSP I to NHSSP II	
From (NHSSP I)	To (NHSSP II)
Develop and implement a single “master plan” and adhere to its implementation.	Build a system of coordination and allow annual priority setting of the intended interventions.
Ideas and solutions are fixed and can only be changed in the next period, implying one-off	Embrace a continuous process of learning and adaptation to the changing environment, including MOH itself.
Management is based on evidence only, no risk taking.	Management is based on piloting, and managing risks and uncertainties.
Narrow and structured participation in well defined activities, little collaboration and information sharing.	Multi-stakeholder approach, continuous review of plans and interventions; solicitation of participation of all on equal basis.
Services are provided on the basis of vertically organized programmes	Services focus on the needs of various age groups (cohorts).
Focus on projects and activities	Focus on outputs and outcomes.
Ministry alone takes responsibility.	All actors are equally responsible.
In setting priorities, use only criteria of technical and effective interventions.	Priority setting also includes political criteria of access to and redistribution of power and resources within the country.
Continue the expansion of infrastructure at all levels.	Scale-up community based interventions and link them with the referral system.
Public sector fills the poverty gap through an essential health package; pro-poor targeting, but little change	Public sector ensures redistribution of resources and social solidarity; structural change to bring everybody on board.

**Source: (MOH, 2005 NSSP II 2006-2010)**

The system has also decentralised governance from the central government to the provincial and the district levels. The Provincial Health Management Team (PHMT) provides supervision and management support to the districts and sub-districts within the province.

At the district level public health services are managed by the District Health Management Team (DHMT). The DHMT and District Health Management Board (DHMB) provide management and supervision support to rural health facilities (sub-district hospitals, health centres, and dispensaries).

The strategic plan introduced performance-based monitoring grounded in specified and time-bound outputs for both service delivery and support systems, with indicators monitored and reviewed during joint annual reviews and the annual summits. Each district is expected to develop a five year strategic health plan, complete with targets and indicators. These district plans feed into provincial health plans, on the basis of which part of provincial monitoring is conducted.

In line with the aspirations of the HSSP II, there are different levels of public health facilities, with increasing levels of integrated service provision as one moves to the community level: National referral hospitals, provincial hospitals, district hospitals, sub-district hospitals, health centres and dispensaries. There are two public national referral hospitals which provide sophisticated diagnostic, therapeutic, and rehabilitative services. Provincial hospitals provide specialised care and act as referral hospitals to their district hospitals. The provincial level acts as an intermediary between the national central level and the districts. District hospitals concentrate on the delivery of health care services and generate their own expenditure plans and budget requirements based on guidelines from headquarters through the provinces. Health centres generally offer preventive and curative services, mostly adapted to local needs. Dispensaries are meant to be the system's first line of contact with patients, but in some areas, health centres or even hospitals are effectively the first points of contact. Dispensaries provide wider coverage for preventive health measures, which is a primary goal of the health policy.

There are also non-governmental, faith based, community based, and private sector health facilities that provide health services at various levels equivalent to the ones described above. These non-public health facilities provide up to 40% of health services in Kenya.

At ministry and organisational sector level, the MOH has four main departments; Preventive and Promotive, Curative and Rehabilitative, Standards and Regulatory, and Provincial Health Services. The Child Health and Nutrition sections are managed by the Division of Family Health within the Preventive and Promotive Department of the Ministry of Health. The Child Health Section undertakes child health activities aimed at promoting and maintaining the optimal growth and development of children age 0-18 years, and specifically:

- To ensure survival, growth and development of children age 0-5 years
- To promote health in all children, pre-school and school-age, including adolescents (up to 18 years) both in and out of school
- To promote good nutrition to children, expectant and nursing mothers, the sick, and the general population, including elimination of micronutrient deficiencies
- Promotion of child's rights and child protection

Among the selected strategies the section adopts to ensure quality child health includes:

- Integrated Management of Childhood Illnesses (IMCI) 0-5 years
- Promotion of exclusive breastfeeding for six months and timely intervention of complementary feeding
- Immunisation
- Growth promotion and nutrition rehabilitation
- *Promotion of family/household practices that have greatest impact on child health;*(Emphasis added)
- Child rights promotion

### Appendix 3: Nutritional status of children in Kenya (KDHS 2008-2009)

Background characteristic	Height-for-age			Weight for height				Weight for age				Number of children
	% below - 3 SD	% below -2 SD	Mean Z-Score (SD)	% below - 3 SD	% below -2 SD	% above + 2 SD	Mean Z-Score (SD)	% below - 3 SD	% below -2 SD	% above + 2 SD	Mean Z-Score (SD)	
<b>Age in Months</b>												
<b>&lt;6</b>	4.4	11.2	-0.2	5.1	9.7	11	0	2.9	7.9	4.2	-0.2	470
<b>6 - 8</b>	9.1	22.8	-0.7	1.3	11.4	10.9	-0.1	1.5	12.6	3.2	-0.6	319
<b>9 - 11</b>	14.6	30.5	-1.1	1	10.6	7.3	0	3.4	14.5	1	-0.6	271
<b>12 - 17</b>	15	41.8	-1.6	2.5	6.3	6	0	3	17.1	1.2	-0.8	542
<b>18-23</b>	21.9	45.7	-1.7	0.6	4.9	5.6	0.1	1.9	12.2	1.4	-0.7	545
<b>24-35</b>	20.3	45.4	-1.8	1.6	6.6	3.3	-0.1	5.5	19.4	1.1	-1	1143



<b>36-47</b>	12.6	35	-1.5	1.1	3.8	2	-0.1	3.4	15.8	0.3	-1	1085
<b>48-59</b>	10.5	31.8	-1.5	2.2	7.3	2.4	-0.3	4	19.4	0.2	-1.1	1094
<b>Sex</b>												
<b>Male</b>	16	37.4	-1.5	2.1	7.8	4.3	-0.1	4.2	16.8	1.4	-0.9	2,787
<b>Female</b>	12.3	33.1	-1.4	1.6	5.6	5	-0.1	3	15.4	0.9	-0.8	2,682
<b>Birth interval in months</b>												
<b>First birth3</b>	9.8	32.4	-1.3	1.7	5.7	6.6	0	2.8	13.4	0.9	-0.7	1,083
<b>&lt;24</b>	20.3	42	-1.7	1.2	6.9	4.1	-0.1	4.5	19	1	-1	875
<b>24-47</b>	14.2	35.6	-1.4	2.5	7.7	3.8	-0.2	3.7	17.5	1	-0.9	2,077
<b>48+</b>	12	31.8	-1.3	1.2	4.7	4.9	0.1	2.4	12.9	1.5	-0.7	981
<b>Residence</b>												

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<b>Urban</b>	8.7	26.4	-1	1.3	5.3	5.4	0.1	1.2	10.3	2.3	-0.5	912
<b>Rural</b>	15.3	37.1	-1.5	2	7	4.5	-0.1	4.1	17.3	1	-0.9	4,557
<b>Province</b>												
<b>Central</b>	9.4	32.4	-1.3	1.1	4.9	5	0.1	1.8	12.1	0.5	-0.7	442
<b>Coast</b>	14.3	39	-1.4	3	10.7	3.3	-0.3	5.4	23.5	0.8	-1	485
<b>Eastern</b>	17.1	41.9	-1.7	1.4	7.3	4.7	-0.1	4.2	19.8	0.7	-1	881
<b>Nyanza</b>	13	30.9	-1.2	1.5	3.9	5.9	0.1	2.2	10.6	1.7	-0.6	991
<b>Rift Valley</b>	14.9	35.7	-1.5	2.1	8.9	3.5	-0.3	3.9	19.1	0.9	-1	1,541
<b>Western</b>	14.8	34.2	-1.5	1	2.3	5	0.1	3.9	11.8	1.4	-0.7	733
<b>North Eastern</b>	17.7	35.2	-1.1	8.3	19.5	6.2	-0.6	8.1	24.5	2.6	-1.1	133
<b>Mother's education</b>												

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<b>No education</b>	17.3	38.6	-1.5	5.2	14.9	3.2	-0.6	7.5	28	0.9	-1.3	639
<b>Pri. incomplete</b>	15.9	40.2	-1.6	1.8	6.3	3.9	-0.2	3.9	17.9	0.8	-1	1,698
<b>Primary complete</b>	14	35.8	-1.5	1.3	5.5	4.4	0	2.5	15.2	0.9	-0.8	1,520
<b>Secondary+</b>	9	25.5	-1.1	0.9	3.8	6.8	0.3	1.6	7.6	1.9	-0.4	1,159

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