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# Fill the Nutrient Gap **Uganda**

KARAMOJA SUMMARY REPORT



March 2019





## Fill the Nutrient Gap **Karamoja, Uganda** | SUMMARY REPORT

### **Malnutrition is widespread in Karamoja**

The effects of malnutrition are globally recognised as being devastating and far reaching. Malnutrition is widespread across Karamoja - 33 percent of children under 5 are stunted, whilst 14 percent are wasted and unlikely to reach their full cognitive and physical potential. The burden varies across the region. Addressing malnutrition has been hampered by several factors including: poor physical infrastructure and social cohesion; poverty; unavailability and unaffordability of nutritious food; gender inequality and; the decline of pastoralism resulting in a transition to agriculture, which is hindered by climatic shocks. Addressing malnutrition in a sustainable manner in the highly changeable environment of Karamoja must be risk informed, responsive to shock, and take a lifecycle approach, with a special focus on children under 2 years of age, adolescent girls, and pregnant and lactating women. It must also include a range of context-specific, targeted interventions that engage stakeholders across multiple sectors as well as individuals and communities.

### **Fill the Nutrient Gap (FNG) in Uganda: Purpose**

The overarching objective of the FNG was to bring stakeholders together to identify and prioritise context specific policies and programmes, aimed at improving the nutrient intakes of target groups across the lifecycle. These groups were defined as the first 1,000 days from conception to a child's second birthday, i.e. including adolescent girls, pregnant and lactating women and children under-two. Stakeholders included academia, the private sector, and sectors such as health and nutrition,

education, social protection and agriculture. At national level the results from the FNG are to be used to inform and complement the Uganda Nutrition Action Plan II. The FNG team of the World Food Programme (WFP) Country Office also identified a need for two additional FNG analyses to be used to inform WFP and stakeholder programmes, these being the Karamoja sub-region of Uganda and the refugee settlement areas.

In Karamoja the analysis will inform the four year DFID funded Karamoja Nutrition Programme (KNP) proposal, developed in conjunction with the United Nations Children's Fund (UNICEF). As part of its findings the FNG analysis identified current data knowledge gaps in the region to support detailed assessments planned to address them. This should ensure that the design of the KNP implementation phase is evidence-based. In addition, the FNG process brought stakeholders together to share their programming experiences within the region and to identify priority nutrition-specific and -sensitive interventions to inform the development of a prevention pilot that will be part of the KNP programme.

This document is a summary of the main results from the Karamoja analysis. More detailed insights can be found in the full report. This summary describes the methods used for the analysis, and provides the findings and recommendations of prioritised actions based on consultations and discussions with stakeholders. A condensed suggestion of recommendations for the KNP proposal can be found in the text box preceding the more detailed recommendations from the stakeholder workshop.



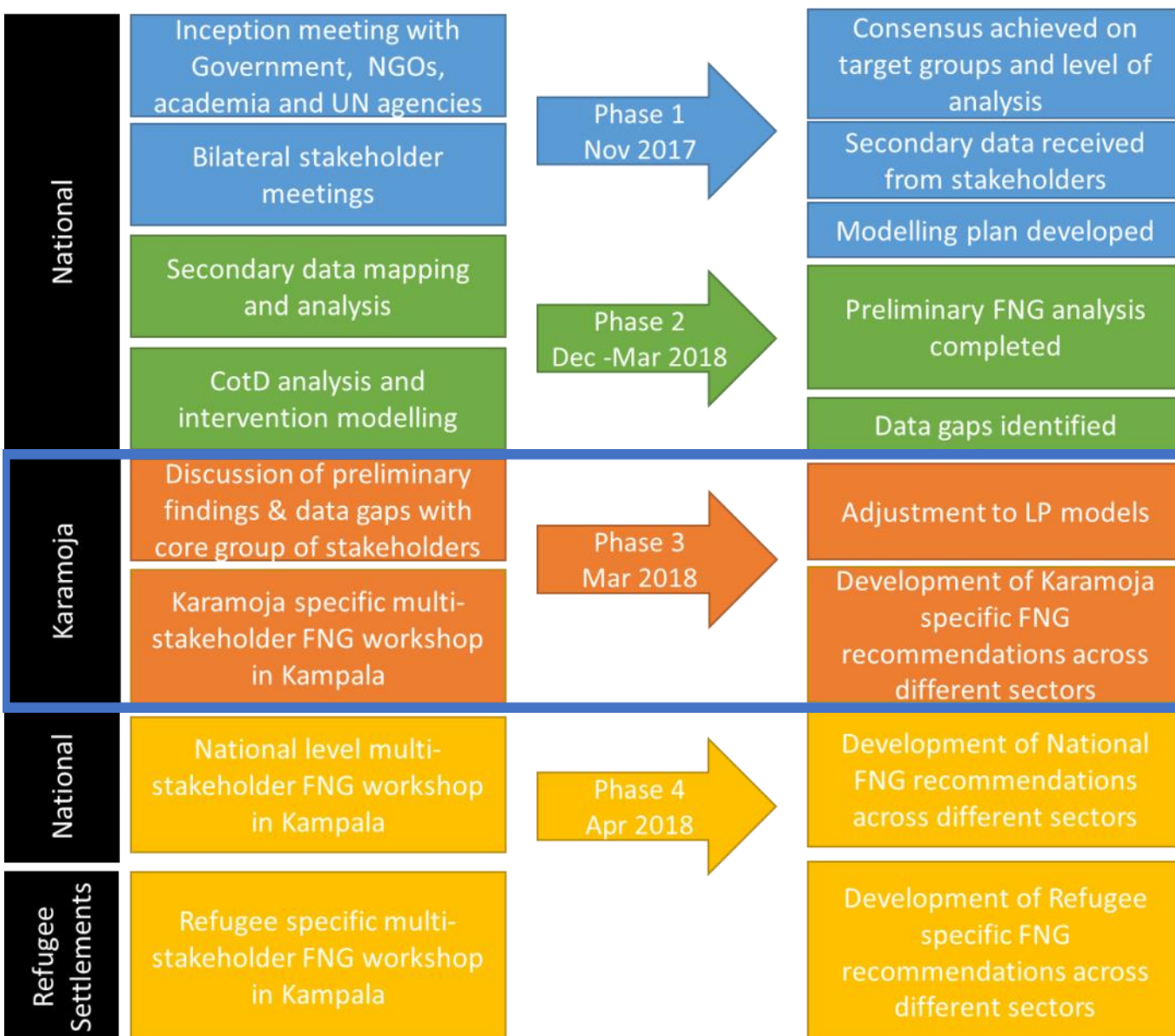
## FNG in Karamoja: Process

The FNG process in Karamoja ran from November 2017 to March 2018. The analysis comprised a comprehensive literature review of available secondary data sources in combination with linear programming (LP) using the Cost of the Diet (CotD) software. The aim was to understand context-specific barriers to adequate nutrient intake and to model potential interventions to improve access to nutrients, particularly from nutritious foods.

At the start of the process, the Uganda FNG team met with non-government, United Nations (UN) and donor stakeholders working in Karamoja to: introduce the FNG process; collate secondary data sources and; identify possible interventions, entry points and transfer

mechanisms to test in the CotD modelling. Over 50 data sources were identified and reviewed, and a number of data gaps were identified, as discussed in the findings and recommendations section. CotD analysis intervention modelling was then carried out and the findings were first presented internally to all nutrition-specific and -sensitive units within the WFP country office, and then to the wider stakeholder group as part of a recommendations workshop in Kampala. The workshop was run jointly by the FNG and Nutrition-Sensitive teams from WFP Headquarters to help identify the priorities for the KNP. The detailed FNG process in Uganda is illustrated in Figure 1.

**Figure 1:** The Fill the Nutrient Gap (FNG) process followed in Uganda, with particular emphasis on Karamoja.



## FILL THE NUTRIENT GAP: SITUATION ASSESSMENT FOR MULTI-SECTORAL DECISION MAKING ON THE PREVENTION OF MALNUTRITION<sup>1</sup>

Malnutrition has two direct causes: inadequate nutrient intake and disease. As its name specifies, the Fill the Nutrient Gap (FNG) assessment focuses on gaps in nutrient intake to inform a country's national policies and actions that can be taken to improve nutrition among their population, with a focus on the most vulnerable.

The FNG assesses the extent to which people have choices. It considers the availability, physical access and affordability of nutritious foods required for adequate nutrient intake. It seeks to understand why households make the food choices they do. Finally, it identifies context-appropriate interventions that can be implemented by different sectors to enable people to choose more nutritious foods, and hence fill nutrient gaps.

The assessment comprises two components:

1. A country-specific review of secondary data and information on factors that reflect or affect dietary intake. This includes malnutrition trends over time, characteristics of the food system and food environment, and population behaviour related to food and feeding.
2. An assessment of the extent to which economic barriers prevent adequate nutrient intake. This uses the Cost of the Diet linear programming software developed by Save the Children (UK),

and includes modelling of the economic impact of possible interventions to increase nutrient intake and fill nutrient gaps.

Malnutrition cannot be addressed by one sector alone. FNG is designed to inform multisectoral decision-making and therefore engages stakeholders from all sectors including food, health, agriculture, education, and social protection systems throughout the assessment.

It is the stakeholders who define the scope and focus of the assessment. They contribute data and sources of information for identification of context-specific barriers and entry points, and develop a shared understanding of the issues and possible solutions. They then identify appropriate nutrition-specific and nutrition-sensitive interventions that can be implemented by different sectors using their existing delivery platforms. These could be social safety nets, food processing and markets, antenatal care, school feeding programmes and others.

The FNG assessment has been developed by the WFP with technical support from: The University of California Davis; the International Food Policy Research Institute (IFPRI, Washington DC); Epicentre (Paris); Harvard University (Boston); Mahidol University (Bangkok); Save the Children (UK); and UNICEF.

At the end of 2018, the FNG had been conducted in 17 countries and started in another 8.

<sup>1</sup> For more information on the concept and the method of the analysis, see Bose I, Baldi G, Kiess L, de Pee S. The 'Fill the Nutrient Gap' Analysis: An approach to strengthen nutrition situation analysis and decision-making toward multisectoral policies and systems change. *Matern Child Nutr* 2019; DOI: 10.1111/mcn.12793

## COST OF THE DIET ANALYSIS

The CotD software uses LP to understand the extent to which poverty, food availability and prices may affect the ability of people to meet their nutrient needs. Using price data collected from markets or from secondary sources, the software calculates the amount, combination and cost of local foods that are needed to provide individuals or households with their average needs for energy and their recommended intakes of protein, fat and micronutrients<sup>2</sup>. These diets are calculated within defined constraints to prevent the inclusion of unrealistic types or amounts of food and the provision of excessive amounts of nutrients.

The FNG approach defines the Staple Adjusted Nutritious Diet: the lowest cost nutritious diet that includes the typical staple foods and excludes foods that are considered taboo<sup>3</sup>. This diet is referred to as the 'nutritious' diet throughout this summary. Population expenditure data is compared to the cost of this nutritious diet and is used to estimate the proportion of the population that would not be able to afford a nutritious diet. This non-affordability can be estimated and compared across different regions, seasons or countries.

As part of the FNG process in Uganda, a separate CotD analysis was undertaken for each of 15 sub-regions as defined by the Uganda Demographic and Health Survey (UDHS). The 2016 Wave 5 Panel Survey was used to calculate food prices and availability, staple preferences, food expenditure and average household size. However, it is important to note that the data are not statistically representative or significant at the level disaggregated (i.e for the 15 sub-regions). As the 2017 Uganda National Household Survey data, which is representative at sub regional level, was made available only after the analysis had been finalised and approved by the Office of the Prime Minister, a recalculation was not feasible.

A nutritious diet was estimated for a model household of five members, which included a child of 12–23 months, a child of 6–7 years, an adolescent girl of 14–15 years, a lactating woman and an adult man. Two portions of the staple foods were included for all household members per day, except for the child aged 12–23 months, who received one portion a day. For Karamoja, the staples foods selected were sorghum and maize flour<sup>4</sup>.

The CotD software is also used to model interventions with the objective of improving the affordability of a nutritious diet for individuals and/or households. The selection of potential interventions for modelling was informed by the secondary data review and stakeholder consultations. The interventions included:

- Increased availability of local nutritious (unfortified) foods and biofortified foods.
- Different types of complementary foods or specialized nutritious foods made available through the market and/or social safety nets.
- Micronutrient supplementation.
- Fortification of staple foods.
- Cash transfers of different values for vulnerable households targeted through social protection safety net programmes to improve dietary diversity

The modelled interventions are theoretical, assume that households have access to markets, and would need to include consider gender dynamics in the design to promote women's empowerment and be accompanied by complementary behaviour change interventions to stimulate buying and consuming nutritious foods.

<sup>2</sup> As defined by the Food and Agriculture Organization (FAO) and the World Health Organization (WHO). Needs for 9 vitamins and 4 minerals are included.

<sup>3</sup> This diet is not intended to reflect what individuals or households are currently eating, nor should it be used to develop food-based recommendations or dietary guidelines.

<sup>4</sup> Please refer to the full report for the list of staple preferences applied.

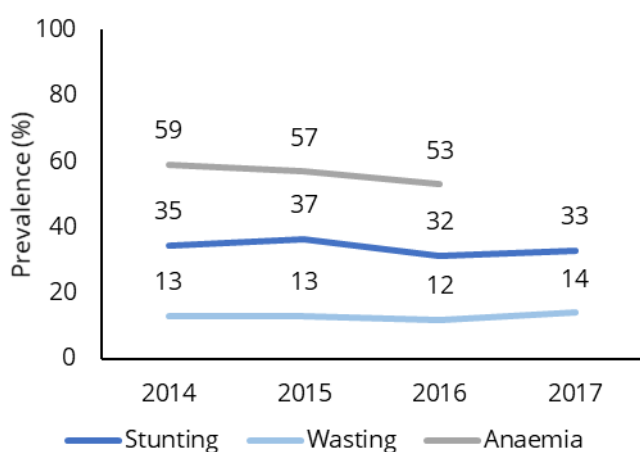
# FNG in Karamoja: Findings<sup>5</sup>

## 1.

### KARAMOJA HAS SOME OF THE HIGHEST RATES OF MALNUTRITION IN UGANDA.

Despite national progress in reducing infant and young child malnutrition over the past 10 years, the improvement has not been consistent across the country. Karamoja continues to have some of the worst child malnutrition rates in the country. According to the 2016 and 2017 Food Security and Nutrition Assessments (FSNA) conducted by WFP and UNICEF, 33 percent of children are stunted, 14 percent are wasted and 53 percent are anaemic. These levels are defined by the World Health Organisation (WHO) criteria as being of high public health significance. Figure 2 shows that the progress in reducing these rates over time has been slow and inconsistent, which reflects the trend of the past 10 years.

**Figure 2:** The prevalence of child undernutrition from 2014 to 2017 (WFP and UNICEF, 2014-2017).

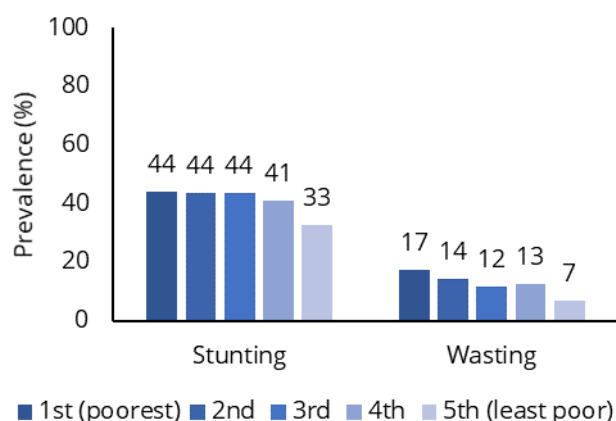


Data from the FSNA shows a strong relationship between stunting and wasting, and the poor educational and nutritional status of mothers. In 2017, almost three quarters (72 percent) of mothers reported having no education and over a third (39 percent) were underweight. There has also been little progress in improving these indicators over time. Figure 3 shows that only in the wealthiest households is there a somewhat lower prevalence of child stunting and wasting. This emphasises the extent of the overall poverty in the region, which is estimated at 61 percent.

Anaemia prevalence is high not only in children, but also in women (40 percent). There is very little data on the causes of anaemia and its associations for Karamoja. While the high prevalence of anaemia could indicate a

high rate of micronutrient deficiencies, this information is not available for the region. The percentage of children who receive deworming tablets is the highest in the country at 80 percent. Around 1 percent of children in the region suffer from sickle cell disease, but this analysis has not been done for women. Malaria-related anaemia affects 6 percent of children nationally, but statistics are not known for Karamoja despite 69 percent of children testing positive for the disease by rapid diagnostic test. Associations between anaemia and wealth quintile, education and nutritional status of mothers could only be found nationally.

**Figure 3:** Stunting and wasting prevalence by wealth quintile (WFP and UNICEF, 2016).



## 2.

### HOUSEHOLDS RELY HEAVILY ON MARKETS TO PURCHASE FOOD AND ARE THEREFORE VULNERABLE TO VOLATILE FOOD PRICES. DATA ON THE AVAILABILITY AND PRICE OF NUTRITIOUS FOOD IS LIMITED BUT WHAT EXISTS SUGGESTS THAT THEY ARE EXPENSIVE AND NOT WIDELY AVAILABLE.

Approximately 65 percent of households in Karamoja rely on markets to purchase more than 75 percent of their food. Households spend a high proportion (59 percent) of their money on food. This dependency makes households vulnerable to recurrent shocks such as drought, flash flooding and livestock diseases that impact food prices and food availability.

Data on the availability and cost of fresh, nutritious food in markets in Karamoja is limited, with price monitoring data focused primarily on staples, pulses and oil. These data show that generally the cost of these commodities increase during the lean season (March – July) and decrease during the harvest season (August – December). However, drought and unpredictable rains over the years have distorted this pattern and resulted in less predictable food prices for these commodities, as discussed further in Finding 4.

<sup>5</sup> Complete details of the findings, a full list of data sources used and references can be found in the full report.

There is little information on whether and how markets might respond if there were an increased demand for nutritious, fresh foods. This information is crucial for programme design if more households were to rely on the market for their food needs, and for social and behaviour change communication strategies that would encourage the purchase and consumption of fresh foods.

The 2016 Panel Survey data suggests that the diversity of food available at markets in Karamoja is low compared to other regions, with only 37 types of food being included in the food list compared to 52 for the South Central region. However, this survey is based on reported food consumption using a closed food list and therefore the inference to food availability should be interpreted with caution. This survey also indicates that nutritious food is expensive, with the price of vegetables, pulses, fish, eggs and meat higher than the national average.

### 3.

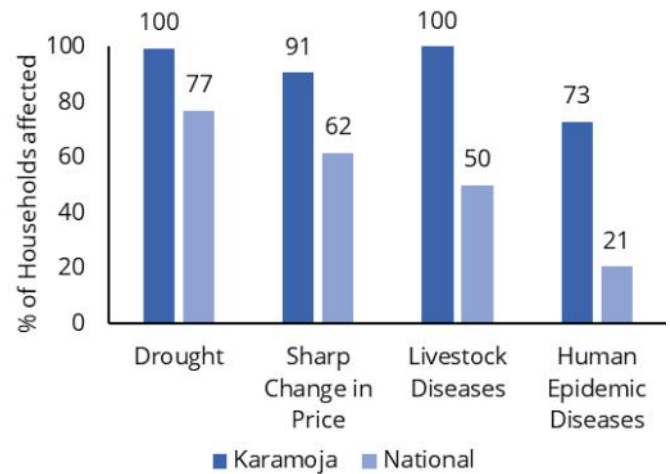
#### FOOD SECURITY, PARTICULARLY THE CONSUMPTION OF NUTRITIOUS FOODS, IS LOW AND DRIVEN BY BOTH ACCESS TO FOOD AND ITS AVAILABILITY.

The food security situation in Karamoja ranges from 'stressed' to 'crisis', depending on the district and the time of year. Figure 4 shows how the percentage of food insecure households has changed from 2009-2015 across the seven districts and in both the harvest and lean season. These figures emphasise how rapidly the food security situation can change across the region, reinforcing instability of the context.

Figure 5 shows that factors that impact food security in Karamoja are much worse than the rest of the country, with 100 percent of households in the region reporting that they experience drought and livestock disease compared to 77 percent and 50 percent of households,

respectively, at national level. To cope, households reported reducing their food intake, particularly adults, and consuming less of their preferred food.

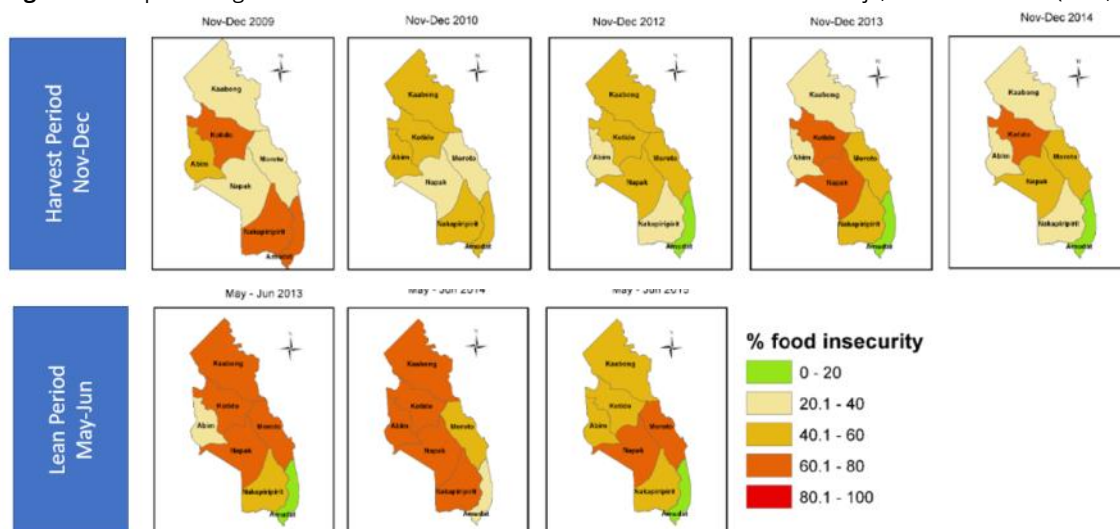
**Figure 5:** Reported events that made people worse off nationally compared to in Karamoja (Uganda Bureau of Statistics, 2017).



The 2016 Uganda National Household Survey reported that 55 percent of households in Karamoja reported low dietary diversity<sup>6</sup>. This ranged from 21 percent in Kampala to 69 percent in Kigezi, with a national average of 34 percent. Reported consumption of animal source food is particularly low at less than once a week. The CotD analysis identified eggs, milk, dried fish and beef as sources of essential micronutrients such as vitamin B12, iron and calcium, indicating that these should be consumed very regularly.

WFP FSNA data suggests that there is an association between livestock ownership and stunting, and found that 37 percent of children were stunted in households with a medium to high presence<sup>7</sup> of livestock, compared to 44 percent of children in households with no livestock. This association was weaker for wasting: 12 percent of children were wasted in households with a medium to high presence of livestock compared to 14 percent of children in households with no livestock.

**Figure 4:** The percentage of food insecure households in the seven districts of Karamoja, from 2009-2015 (WFP, 2015).



<sup>6</sup> Defined as consuming  $\leq 4$  out of 7 food groups.

<sup>7</sup> Defined as 0.5-2 Tropical Livestock Units.





## 4.

### EXISTING LIVELIHOODS HAVE THE POTENTIAL TO IMPROVE NUTRIENT INTAKE AND HOUSEHOLD INCOME, BUT INVESTMENT IS NEEDED TO MAKE THESE LIVELIHOODS VIABLE.

Livelihoods in Karamoja are livestock-based, crop-based or a mixture of both. Pastoralism holds great social and cultural significance. Over the years, policies and interventions that have aimed to resettle the Karamojong have impacted their movement, security and the viability and profitability of pastoralism as a livelihood. This has increased pressure on households in pastoral areas to transition into crop production, which in turn has disproportionately increased the workload of women who are responsible for tending the land.

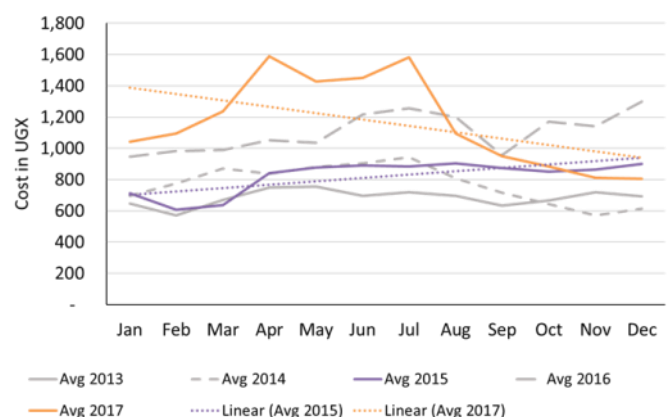
Despite the attempts to transition to crop production and a reported high burden of livestock disease, Karamoja produces a surplus of cattle. However, the supply chain infrastructure is weak and pastoralists are not able to maximise their profits. Slaughter facilities and value-added enterprises, such as butchering and canning, are inadequate and require investment. There is no cold-chain infrastructure to export carcasses. Furthermore, livestock tends to be kept away from the household which limits access to milk for vulnerable groups.

Due to the climate, crop-based livelihoods in Karamoja rely on a single harvest. Reliable weather patterns are therefore essential for households to be able to sustain this livelihood. Figure 5 illustrates the frequency of

drought, which results in low or no yield. In addition, post-harvest losses are also high with an estimated 30 percent of crops being damaged or lost during the growing and production process. It has been estimated that households could save 750,000 Ugandan Shillings (UGX) a year through the reduction of post-harvest losses. Poor yields, coupled with high losses, result in high food price volatility across seasons and over the years, as the sorghum example in Figure 6 shows. This figure further emphasises the unpredictability of staple food prices in Karamoja which, given the reliance on markets for food, leaves households vulnerable to food and nutrition insecurity.

Sorghum, maize and beans are the primary crops produced in the region. To improve the availability of a range of nutritious foods through crop production, investments need to be made in the agricultural system, particularly in water management, storage facilities, processing, and transportation.

**Figure 6:** The average price of sorghum in Karamoja from 2013-2017 (WFP, 2013-2017).



## 5.

### AFFORDABILITY IS A MAJOR BARRIER TO ACHIEVING A NUTRITIOUS DIET.

The CotD analysis found that it costs five times more for a household in Karamoja to purchase a nutritious diet, compared to a diet that meets only energy requirements. When compared against food expenditure, 12 percent of households cannot even afford a diet that meets only energy needs, whilst the vast majority (84 percent) cannot afford a nutritious diet.

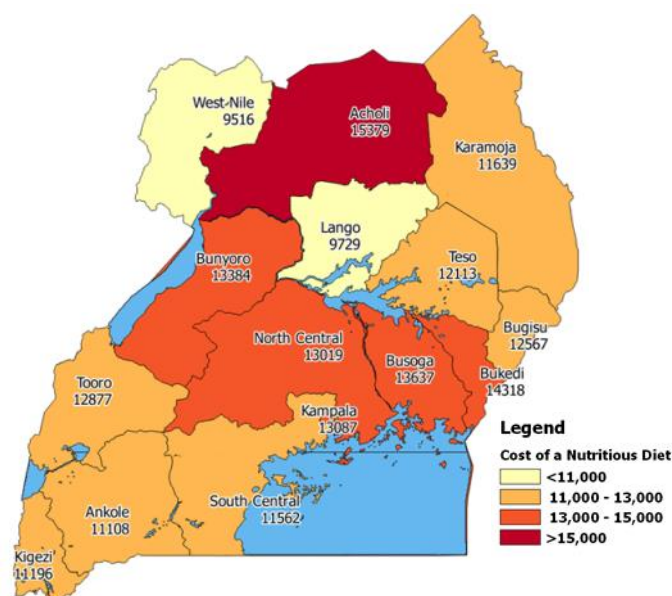
Figure 7 shows that the cost of a nutritious diet in Karamoja is one of the lowest in the country, yet Figure 8 shows that the region has one of the highest percentages of unaffordability in the country. Unaffordability is therefore primarily driven by low food expenditure and purchasing power of households. Other factors include distance to markets, which vary throughout Karamoja (up to 10km), and seasonality which, due to lack of data, couldn't be assessed in relation to unaffordability.

## 6.

### BREASTFEEDING IS WIDELY PRACTICED IN KARAMOJA BUT COMPLEMENTARY FEEDING IS SUBOPTIMAL, RESULTING IN AN INADEQUATE NUTRIENT INTAKE AMONG CHILDREN AGED 6-23 MONTHS.

There is no age data for child malnutrition in Karamoja. Nationally, stunting, wasting and anaemia increase the most between the age of 6 and 12 months. For example, during this period the prevalence of anaemia increases from 16 percent to 36 percent, suggesting that the

**Figure 7:** The cost of a nutritious diet in UGX per household per day for the 15 sub-regions of Uganda (WFP, 2018).



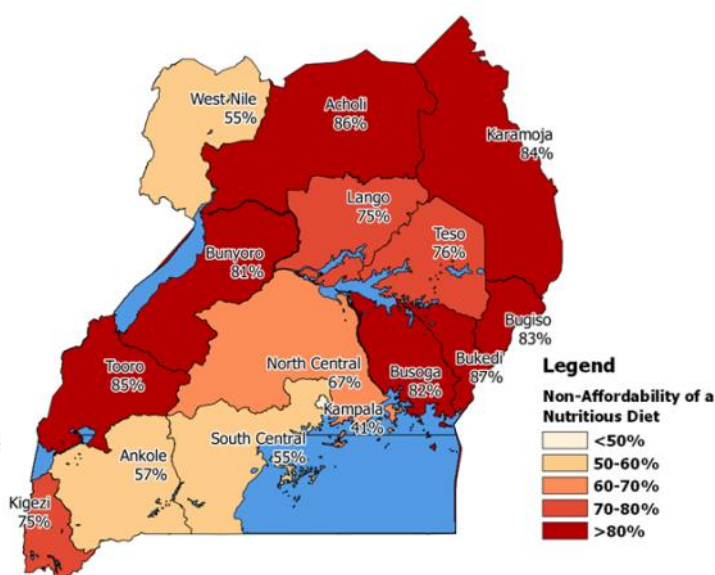
introduction of complementary feeding in Uganda is suboptimal.

Breastfeeding is almost universal in Karamoja, with 94 percent of children being exclusively breastfed to 6 months, compared to the national average of 66 percent. The timely introduction of breastfeeding, and continued breastfeeding up to two years of age, are reported to be 82 percent and 50 percent respectively in Karamoja. Formative research undertaken by UNICEF found that the barriers to the timely introduction of breastfeeding in Karamoja were the delay in the child's naming ceremony and the belief that breastmilk does not come immediately after delivery. Common pre-lacteal food is water with sugar, cow's milk and herbs. The research found that the barriers to continued breastfeeding were maternal workload and limited spousal support, the belief that it is dangerous to breastfeed when pregnant with another child, and poor economic access to nutritious food to ensure adequate breastmilk supply.

Only 4 percent of children under the age of 2 years in Karamoja are fed a Minimum Acceptable Diet, compared to 15 percent of children nationally. Achieving Minimum Dietary Diversity in Karamoja is a greater barrier than achieving Minimum Meal Frequency, but both indicators are very low at 6 percent and 19 percent of children respectively. This reflects the same pattern nationally where 42 percent of children achieved Minimum Meal Frequency and 30 percent achieved Minimum Dietary Diversity.

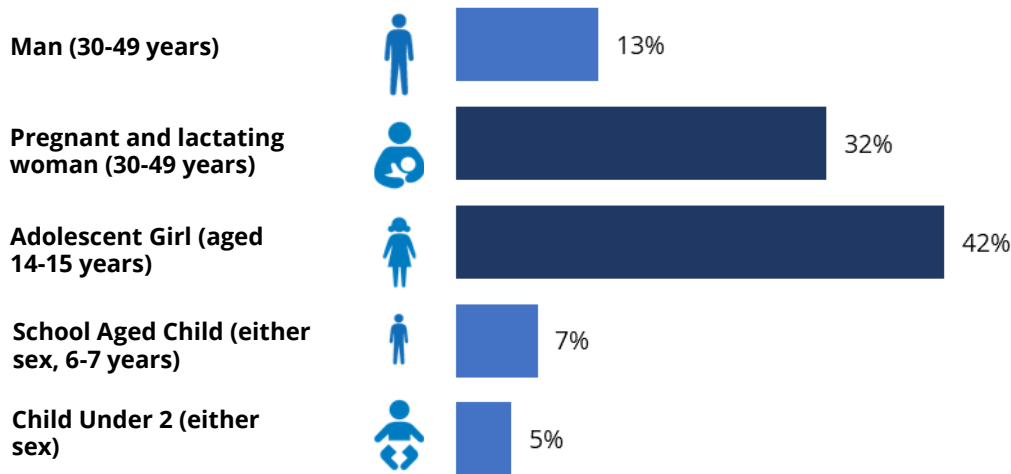
A child's diet reflects the household's diet, with food availability and economic access being the main reported barriers to adequate infant and young child feeding. Another barrier is the mother's workload and empowerment which limits the time available, and control

**Figure 8:** The unaffordability of a nutritious diet for the 15 sub-regions of Uganda (WFP, 2018).





**Figure 9:** The proportion of the cost of a nutritious diet attributed to different household members according to the CotD analysis (WFP, 2018).



over food finances to prepare the necessary meals and food needed for optimal infant and young child feeding. The UNICEF formative research found that knowledge regarding infant and young child feeding practices was high and that parents knew of the nutritious food necessary for their children and the importance of good feeding practices. This makes it even more important to overcome barriers such as limited availability and financial access to diverse food, and time constraints on women.

## 7.

### **THE NUTRIENT NEEDS OF ADOLESCENT GIRLS AND WOMEN, ESPECIALLY PREGNANT AND BREASTFEEDING WOMEN, ARE HIGH AND DATA SUGGESTS THAT THEIR DIETS ARE POOR. THIS CONTRIBUTES TO MALNUTRITION IN WOMEN AND GIRLS DURING PREGNANCY, AND ALSO IN THEIR CHILDREN.**

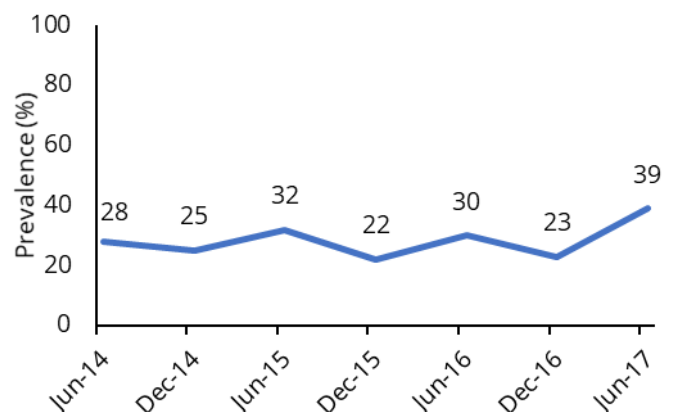
The CotD analysis results, shown in Figure 9, found that meeting the nutritional needs of the adolescent girl and lactating woman were the most expensive. This is due to their increased needs for micronutrients, such as iron, which are typically provided by expensive food such as meat, eggs, and milk in addition to green leafy vegetables.

Little data exists on the diet of women and adolescent girls in Karamoja, but what is available suggests that both dietary diversity and food frequency are poor. Figure 10 shows that mother's underweight follows a seasonal trend, with the prevalence of underweight increasing during the lean season in June. This is indicative of the coping strategies that families employ during this time, such as reducing the number of meals consumed and increasing the women's workload. This is further compounded by social norms which dictate that women do not get priority over food in the household, often eating whatever remains once their husbands and children have eaten.

Data from the UDHS shows that underweight and anaemia are two to three times higher for girls aged 15-19 years in Karamoja (at 33 percent and 43 percent respectively) compared to the national average (12 percent and 23 percent respectively). A recent study on adolescents showed that they were consuming some nutritious food such as dodo leaves, milk, blood and wild fruit, but this data was not disaggregated by boys and girls and the quantities of this food was not reported. The study also inferred that the frequency of food consumption, one to two meals per day, was low amongst adolescents.

Despite their higher requirements, data suggests that women's diets do not change during pregnancy or breastfeeding. This may be because women are not treated or prioritised differently during this stage of the lifecycle in some regions. They would therefore be impacted by the same barriers to adequate nutrient intake (food availability and economic access) as the rest of the household and as dictated by social norms. In addition, they have multiple responsibilities such as caring and providing for the household and contributing to household economy, particularly through agriculture, which leaves little time to rest or prepare extra meals or additional food for themselves and their children.

**Figure 10:** Mother's underweight over time (WFP and UNICEF, 2014-2017).



## 8.

### **ADOLESCENT GIRLS ARE AMONG THE NUTRITIONALLY MOST VULNERABLE. FORMAL AND INFORMAL EDUCATION ARE IMPORTANT ENTRY POINTS TO REACH THEM.**

In Karamoja 23 percent of girls have given birth by the age of 18. Strong associations between child undernutrition and the mother's nutritional and education status are well documented. A higher percentage of adolescent girls are underweight and anaemic in the region compared to the rest of the country.

Girls in Karamoja are less likely to attend and more likely to drop out of school, limiting their future earning potential. The main reasons, as reported by their parents, are the cost of attending school and the need for girls to undertake domestic tasks and contribute to the economy of the household. In addition, the dowry system is still practiced in the region and parents encourage daughters to get married at a young age in order to replenish the household's cattle stock. Thirty two percent of girls aged 6-17 years state they dropped out of school due to marriage and pregnancy.

Education is an important entry point to reaching this target group. As elaborated in the recommendations section, programmes should incentivise the enrolment and attendance of regular schooling in order to encourage girls to remain in school for longer, as well as offering vocational or technical training as a platform for girls who have already dropped out of school to start a family.

## 9.

### **A COMBINATION OF THE CURRENT WFP INTERVENTIONS CAN CONTRIBUTE TO REDUCING THE COST OF MEETING NUTRIENT NEEDS FOR TARGET GROUPS.**

The CotD analysis was first used to assess the potential contribution of the current WFP programme interventions to improving the dietary intake of target groups. Based on this first assessment, potential improvements and adjustments have been proposed with support from various stakeholders through additional interventions modelled. The potential impact on cost and affordability of a nutritious diet has been assessed (see Finding 10). These findings and their implications have been discussed with all local stakeholders to identify and prioritise recommendations by sector, which could inform the DFID-funded WFP and UNICEF joint programme (see Recommendations).

The current WFP programmes that have the highest potential to impact the nutritional status of target groups are as follows:

- A school meal ration of maize, beans and fortified oil.
- A Maternal Child Health and Nutrition programme (MCHN), where pregnant and lactating mothers receive a take-home ration of SuperCereal, oil and sugar, and children aged 6-23 months receive a take-home ration of SuperCereal Plus to supplement their daily nutrient intake.

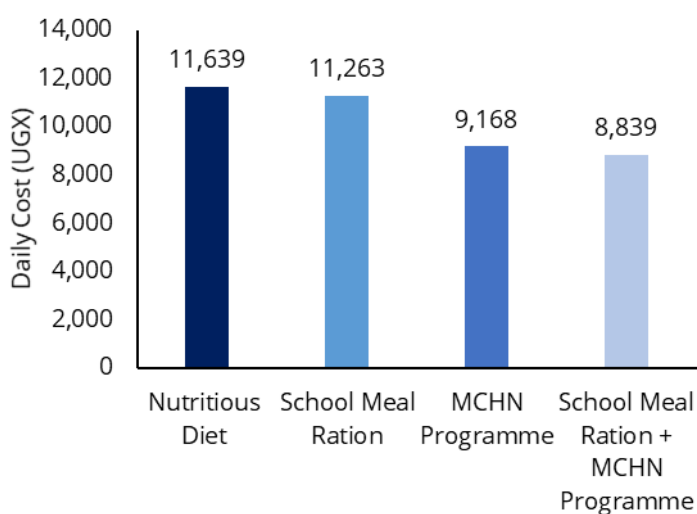




- In districts where a cash transfer is feasible, WFP is exploring the potential of replacing the above general food assistance with an MCHN cash transfer of USD 0.49 per mother or child for 360 days, which equates to 54,190 UGX per month for a household.
- A Food for Assets cash transfer of USD 0.09 per person per day for 135 days of work. For a household of five this equates to 49,500 UGX per month.

Figure 11 shows that the current nutrition programming undertaken by WFP<sup>8</sup> could reduce the cost of a nutritious diet for the household by almost a quarter (24 percent).

**Figure 11:** Impact of the current WFP nutrition programmes on the cost of a nutritious diet for a household of five people (WFP, 2018).

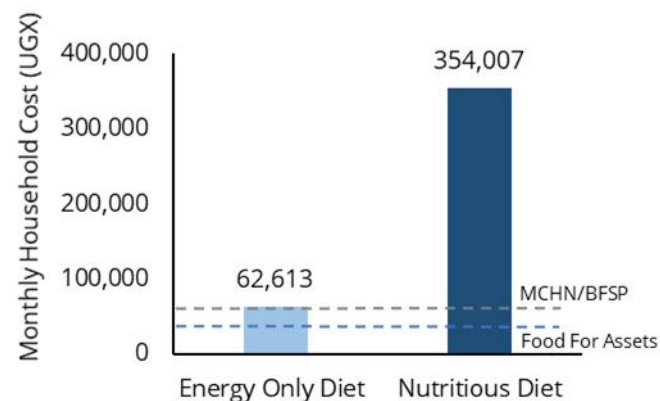


Although the nutritional impact of the school feeding programme is a secondary objective, this analysis shows that the current ration is low in essential micronutrients such as vitamin B12, iron and calcium, and would need to be improved for a greater impact on nutrition outcomes. Figure 12 shows the potential impact that adding additional fresh, fortified and biofortified foods to the standard school meal ration could have on improving access to nutrients for a school aged child. Biofortified foods included vitamin A-rich sweet potato and high-iron beans (which replaced the unfortified beans in the current ration), whilst fortified food included fortified maize flour,

which replaced maize grain in the current ration. The fresh foods included green leafy vegetables, eggs and milk. Figure 12 shows that a combination of the current school meal, milk and a Vitamin and Mineral Powder (VMP) results in the greatest reduction in the cost of a nutritious diet, although a combination of fresh and biofortified food also has great potential. School meals could also be used as a platform to stimulate demand for the local production of nutritious, fresh food in the region.

When compared to the cost of an energy-only diet and a nutritious diet, Figure 13 shows that the current value of the MCHN and Food for Assets cash transfers would enable households to purchase almost all of an energy-only diet, but only a small proportion of the nutritious diet. If these transfers are to have an impact on nutrition outcomes beyond providing kilocalorie requirements, their value would need to be increased to provide a greater proportion of the cost of a nutritious diet.

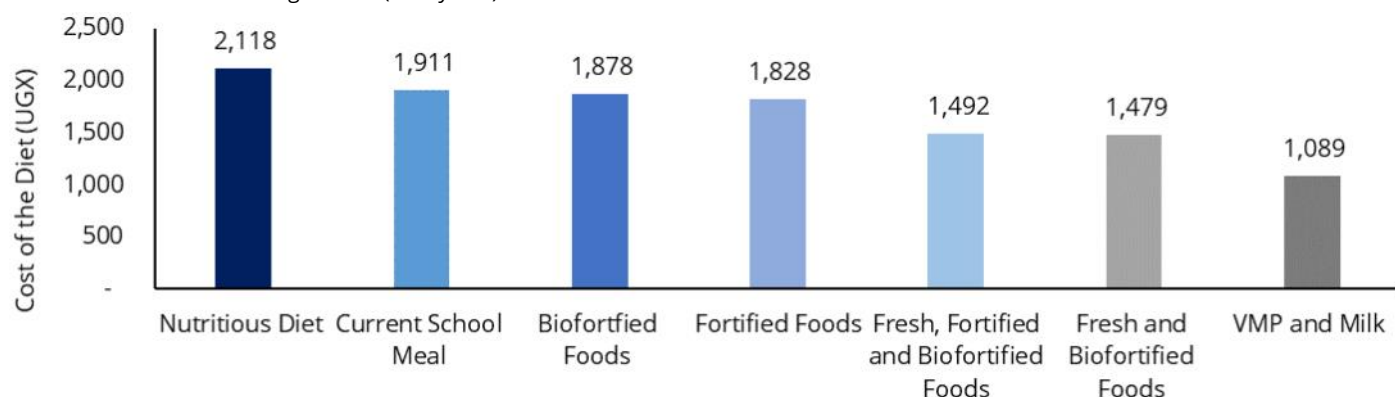
**Figure 13:** A comparison of the current WFP cash transfer values with the cost of an energy only and nutritious diet (WFP, 2018).



In order for the cash transfers are to improve the nutritional value of the diet, the following must be in place:

- A functioning market that is easily reached and sells a variety of fresh, nutritious food;
- A cash transfer value that is large enough to purchase the nutritious foods;
- Social Behaviour Change Communication messages that inform nutritious purchasing choices and encourage feasible and child-appropriate preparation methods and feeding practices.

**Figure 12:** The impact of adding nutritious fresh, fortified and biofortified foods to the WFP school meal ration in reducing the cost of a nutritious diet for a school aged child (3-15 years).



<sup>8</sup> Note the MCHN programme modelled in Figure 11 refers to the food based intervention. The results of the cash based intervention are presented in Figure 13.

# 10.

## A RANGE OF INTERVENTIONS TARGETING INDIVIDUALS AND THE HOUSEHOLD COULD REDUCE THE COST OF MEETING NUTRIENT NEEDS FOR VULNERABLE GROUPS.

A range of interventions outside of what the WFP is currently doing (shown in Table 1), were modelled using the CotD for individual target groups and the household. The decision on which interventions would be modelled was informed by the secondary data analysis and requested by stakeholders as part of the consultation process.

The aim of the intervention modelling is to stimulate stakeholder discussion around the importance of programmes that: apply a lifecycle approach; are implemented across multiple entry points and; aim to improve access to nutritious food. The results below summarise the interventions that reduced the cost of a nutritious diet the most for the nutritionally vulnerable groups and the household. When purchasing power is too low, nutrient needs cannot be met and nutrition will not improve. This analysis shows what it may take to improve nutrition and can enable a prioritisation of efforts. The full set of results is available in the final report.

- Of the non-WFP interventions the provision of VMP was most effective at reducing the household cost of meeting nutrient needs for children aged 6-23 months. However, overall the WFP MCHN programme was most effective at reducing cost (see message 9).
- A combination of the current school feeding ration, a VMP and 200ml of cow's milk a day would be the most effective ration for reducing the cost of meeting micronutrient needs for school aged children.
- A multiple micronutrient tablet would be the most effective in reducing the household cost of a nutritious diet for adolescent girls and pregnant and lactating women.
- Making biofortified high-iron beans available in the market for households to buy at the same price as regular beans would be the most effective way of reducing the cost of meeting nutrient needs for the household.

**Table 1:** The targeted and household interventions modelled using the CotD software to improve nutrient intake.

Intervention	Target Group	Transfer Modality	Entry Point(s)
Vitamin and Mineral Powder (VMP)	Child (6-23 months)	In-kind/voucher	Health Social Protection
Home Grown School Feeding Ration	School Aged Child (6-19 years)	In-Kind	Education
Iron and Folic Acid Supplement	Adolescent Girl Pregnant and Lactating Woman	In-kind/voucher	Health Social Protection
Multiple Micronutrient Tablet (MMT)			
Nutrition Sensitive Agriculture	Household	Own Production	Agriculture Markets
Smallholder Poultry Intervention			
Smallholder Livestock Intervention			
Fortified Maize Flour		Market	Markets
Biofortified Foods (High Iron Beans and Orange Flesh Sweet Potatoes)			
Fresh Food Vouchers <sup>9</sup>		In-kind/voucher	Health Agriculture Markets Social Protection
NUSAF II <sup>10</sup>			

<sup>9</sup> Based upon Action Against Hunger's programme implemented in refugee settlements in the West Nile, which aimed to improve dietary diversity among the beneficiary clients undergoing treatment for acute malnutrition (both moderate and severe). Each beneficiary was kept on the program for 2 to 3 months, receiving a voucher of 40 000 UGX per month split into four food categories (meat, eggs and milk, fruits and vegetables).

<sup>10</sup> Northern Uganda Social Action Fund is a national cash for work social safety net, provided in 18 districts in the north of Uganda. It is managed by the Government and funded by the World Bank. Participants earned UGX 14,000 (about USD 4) for each day worked and work for 3 days each week, for 6 months. This equates to approximately 182,700 UGX a month.

# 11.

## A PACKAGE OF INTERVENTIONS IMPLEMENTED ACROSS MULTIPLE ENTRY POINTS COULD OFFER PROMISING BENEFITS FOR IMPROVING THE NUTRITION OF HOUSEHOLDS.

The most effective interventions for reducing the household cost of meeting individual target group's nutrient intakes were combined into a package, together with the most effective household intervention as shown in Table 2. This analysis not only indicates the food (fresh, fortified or biofortified) and supplements that are the most effective at reducing the cost of a nutritious diet, but also those that should be made available for purchase.

In the absence of data on price points<sup>11</sup>, these interventions were modelled in-kind but stakeholder discussions emphasised the need to move away from in-kind distribution as a way to tackle aid dependency in the region. If price points were to be set for these foods and products, it is essential that research is undertaken to ensure that they are affordable for poor households.

Figure 14 summarises the impact of these packages, separately and in combination, on the affordability of a nutritious diet. The impact of the NUSAF II cash transfer

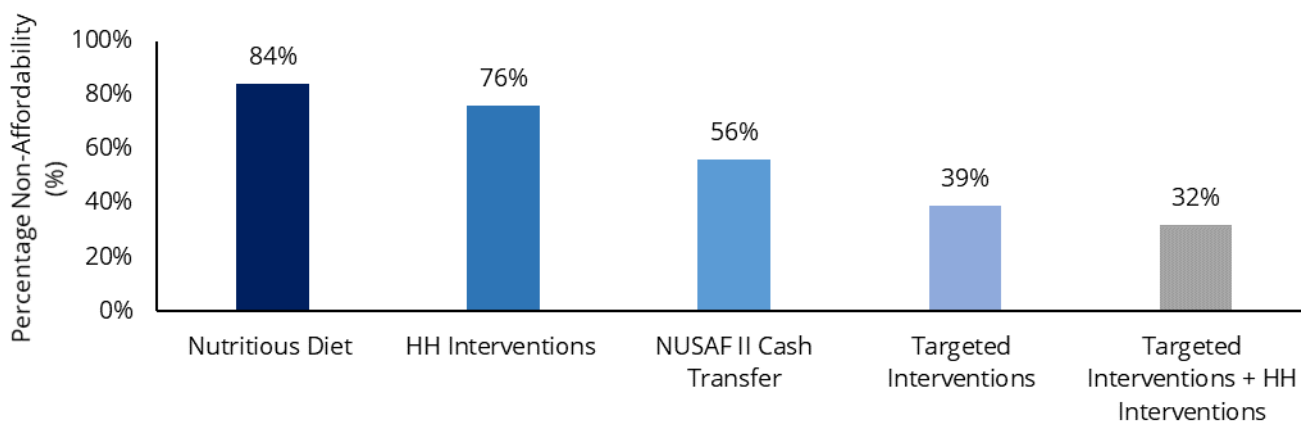
**Table 2:** The most effective interventions in reducing the cost of a nutrition diet, as indicated by the CotD analysis.

Target Group	Intervention
Child 6-23 months	WFP BSFP Programme
School Aged Child (6-19 years)	Basic School Feeding Ration with VMP and Milk
Adolescent Girl Pregnant and Lactating Woman	Multiple Micronutrient Tablet (MMT)
Household	Biofortified High Iron Beans

was also modelled separately and it was assumed that all the money would be spent on food.

These results demonstrate the possible benefits that could be gained by increasing household nutrient access via a package of interventions across multiple entry points and sectors. An important pre-requisite is that adequate demand creation strategies are in place to ensure that any cash transfers or vouchers provided are spent on nutritious food and that gender aspects are considered in the intervention design to enhance women's empowerment and control of resources.

**Figure 14:** The impact that a package of both targeted and household level interventions and a cash transfer could have on improving the affordability of a nutritious diet (WFP, 2018).



<sup>11</sup> Apart from the biofortified beans which were modelled at the same market price as their unfortified counterparts.



# FNG in Karamoja: Recommendations

## RECOMMENDED FOCUS FOR PROPOSAL:

Findings from the Analysis and Recommendations phase of the Fill the Nutrient Gap process are also being used to inform the Karamoja Nutrition Plan Proposal that is developed jointly by UNICEF and WFP.

The opportunities for nutrition-sensitive programming that have been identified and will partially be built on previous experience, will need to be realised through better coordinated multi-sector programming. In previous years, issues with coordination were mainly centred around poor referral mechanisms and weak flow of information. The joint proposal will focus on coordination from the outset, starting with impact pathway thinking to identify the activities from different sectors and partners, and joint preparation of the implementation plan.

Another key recommendation that feeds into the joint proposal is the development of integrated packages to target sustained change and make sure that there is co-location of efforts to reach the same individuals, households or communities with interventions that cover livelihoods, health, water, sanitation and hygiene (WASH), early child development (ECD) and social protection to impact nutrition.

In terms of increasing the scope of existing programmes, to prioritise reaching adolescent girls through coordination of existing efforts and platforms, ongoing programmes should coordinate to reach different groups of adolescents, e.g., those in and out of school, those that are already mothers, etc. This was partly informed by evidence that came out of recent formative research on adolescents by Anthrologica in partnership with WFP.

During the KNP workshop, the main findings of the FNG analysis were shared and discussed. Participants then formed five work groups, each comprised of different complementary entry points for policy and programmatic strategies: food security and livelihoods (agriculture and pastoralism); health and nutrition; WASH; ECD and education and; social protection and safety nets. Each group developed a prioritised set of recommendations which, based on the findings, could contribute to improving the dietary intake of target groups.

## FOOD SECURITY & LIVELIHOODS (AGRICULTURE AND PASTORALISM)

It was recommended that the promotion and production of nutritious and indigenous crops along the green belt area of Karamoja be prioritised. It was emphasised that women's empowerment and workload, seasonality and water access should be considered within any programme design. The group also identified that it was important to improve preservation and post-harvest techniques during production, handling and storage. Linkages with partners such as GIZ and the Water 4 Production programme, and with NUSAF III, the Intergovernmental Authority on Development and the Integrated Disarmament, Demobilization and Reintegration Standards, were suggested to support agriculture infrastructure and income generating activities.

A representative from Harvest Plus recommended that agricultural inputs such as vines should no longer be distributed free of charge but should be sold at a subsidised price. The justification was that paying for

inputs attaches a higher value to them and thus results in greater incentive to use and cultivate them appropriately. Similar findings were presented by Mercy Corps, emphasising the need to push for diverse livelihood portfolios. There was agreement that it was best to use a private sector approach for agricultural inputs, rather than free distribution through an organization, and that there is willingness and capability to pay for seeds, etc.

Regarding pastoralism, the group prioritised the need for better rangeland management that would enable pastoralists to move more freely around Karamoja. It was recognised that this needs to be coupled with investment in water for livestock, access to pasture or fodder production, animal health initiatives, value-added enterprises, cold chain management, market infrastructure development, and improved trade links. Stakeholders also recommended behaviour change communication messaging that encourages livestock to be kept closer to home, where appropriate, so that households have improved access to milk, and to enable pastoralists to think more commercially about their animals. Lastly, studies looking at the impact of changes in livelihood on women's empowerment are recommended to better understand the relationship between the two.

## HEALTH AND NUTRITION

Three main programming areas were prioritised: integration of nutrition into basic health services; more explicitly adolescent-friendly health and nutrition services and; conditional cash transfers for MCHN attendance.

Considered essential were the promotion of optimal infant and young child feeding practices, health-seeking



behaviour, and adequate childcare practices for mothers, together with routine growth monitoring and treatment of severe acute malnutrition for children. It was recommended that those activities could be linked with agriculture through nutrition-sensitive kitchen gardens, education and WASH services, but that a functional health service needed to be in place for interventions to be successful. Although similar programmes existed in the past, lessons learned from implementing partners showed that mother care groups can work even with minimal inputs and by being better aligned with the government system.

With regard to adolescent-friendly nutrition and health services, the group prioritised health promotion, sex education, hepatitis vaccinations, nutrition services, and vocational skills training. It was suggested that programmes be linked with existing platforms that engage adolescents, supported by Mercy Corps and other agencies, to avoid overflow of programmes for adolescent girls and improve coordination amongst partners. It was recommended that MCHN cash transfers should be conditional on antenatal care attendance and include nutrition education and financial planning activities. Linkages should also be made with projects working on market system strengthening for nutritious fresh and biofortified food as well as Village Savings and Loan Associations.

## **WASH**

Hand washing with soap was the main intervention prioritised by this stakeholder group. Activities to be considered included constructing, cleaning and maintaining boreholes to improve community access to safe and clean water; locally constructed tippy taps; distribution of soap and; education regarding appropriate hand washing practices. WASH approaches that have shown success in the past, such as borehole rehabilitation and maintenance for consistent access to safe water in combination with community-led total sanitation, will be continued, with the emphasis on improved coordination among agencies.

The need for these facilities to be in schools was stressed and it was acknowledged that these programmes could also link with other health and nutrition interventions as well as livelihood and income-generating interventions during the borehole construction and monitoring process. Sustainability of initiatives was considered vital and ideas included exploring if soap could be made locally by women as a source of income, the importance of the location of boreholes, and sustainability of borehole maintenance. There was evidence that communities are willing to pay for WASH services, also pointing toward the feasibility of services becoming the basis for a sustainable income.

There is an opportunity to coordinate services and use WASH training for WASH service providers.

## **EARLY CHILD DEVELOPMENT AND EDUCATION**

The institutionalisation of early child development centres was recommended and the following activities were listed: empowerment of child caretakers; empowerment of mothers to make children's toys and; sensitisation of mothers regarding nutrition and early childhood development activities. It was also noted that there was an opportunity to link early childhood development centres to health interventions such as child health days, regular growth monitoring and the distribution of nutritional supplements and mother's nutrition education.

Activities related to nutrition education for adolescent girls prior to conception were considered important. It was recommended that messages related to delaying pregnancy, consuming a nutritious diet before, during and after pregnancy, and reducing alcohol intake should be prioritised. In addition, there was a need for interventions to support schools in providing nutritious school meals, establishing and maintaining school gardens and running nutrition clubs. Programme interventions could also be linked to livelihood, WASH and health interventions.

To improve nutrition of adolescent girls, education is an important, and often the only, entry point. A multi-faceted approach is most appropriate, consisting of, but not limited to:

- incentivising enrolment and attendance through school meals, conditional cash transfers or take-home rations to reduce the economic burden on the family;
- sexual and reproductive health education explicitly tailored to the needs of adolescent girls;
- locally and sustainably sourced school meal programmes that account for the elevated nutrition needs (short term supplementation, medium term food diversification);
- offering viable training and education alternatives, such as accelerated learning platforms or technical and vocational training offers to reach those girls who have dropped out;
- male engagement in norm change, communication and women's empowerment, using a male activist approach.

## **SOCIAL PROTECTION AND SAFETY NETS**

Multiple opportunities for the use of social protection and social safety nets to support households and vulnerable target groups in Karamoja were recommended. A strategic grain reserve that provides maize grains during the lean season was considered to be the top priority. Conditional cash transfers for mothers linked to the attendance of

antenatal care, infant and young child feeding education sessions, and routine child health appointments (for growth monitoring and vaccination) were also considered to be key. Other suggestions included a cash transfer for households conditional to a child under the age of 18 attending school, and cash and food for work programmes aimed at men. It was recognised that these interventions could be linked with livelihood, health, nutrition and education programmes.

**During the stakeholder consultations the following WFP-specific recommendations were also made:**

**MAKING USE OF THE EXISTING FSNA AND MARKET MONITORING ASSESSMENTS TO FILL CURRENT DATA GAPS.**

The following data and analysis gaps were identified during the FNG analysis:

- Anaemia prevalence for women and children by wealth quintile;
- Anaemia prevalence of children by mother's education and nutritional status;
- Disaggregation of the prevalence of stunting, wasting and anaemia by child's age in categories of 3 months;
- The availability and price of common fresh food on the market (beyond staples, pulses and oil);
- The ability of the market to respond to an increased demand for fresh food, through cash transfers or restricted vouchers.

It is recommended to explore the possibility of this information being collected, analysed and reported in the ongoing food security, nutrition and market assessments that WFP and UNICEF undertake in the region. To understand seasonal food availability at markets, it might be necessary to undertake a separate assessment, but fresh food should be embedded within routine market monitoring.

**A HOME GROWN SCHOOL FEEDING MODEL HAS GREAT POTENTIAL TO STRENGTHEN LIVELIHOODS AND IMPROVE THE NUTRIENT CONTENT OF THE CURRENT SCHOOL FEEDING RATION.**

Multiple analyses were run using the CotD software to determine an optimised school meals ration based on current opportunities in the region. School meals offer a promising market for pastoralists and farmers to supply with milk, biofortified beans and green leafy vegetables being the most micronutrient dense options identified. Steps can be taken to link the demand and supply from schools to farmers: post-harvest loss reduction mechanisms; a scale-up of fresh produce through consistent demand; introduction of biofortified varieties such as iron-fortified beans or orange flesh sweet potatoes and; education on healthy eating habits.

It is therefore recommended to start implementing school feeding programmes that utilize local production to provide nutritious meals to students. This will have a direct impact on the students affected and may even carry spill over effects to nutrition of the household, through nutrition education or take-home rations. As building the demand and supply necessary for this model will take time, and given the levels of child undernutrition, schoolchildren in the immediate future require a nutritious school meal. It is therefore recommended that VMPs are used in the short term to improve the micronutrient content of the ration while exploring the feasibility of establishing a home-grown school meals programme based on locally available nutritious foods.



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## LIST OF ACRONYMS

CotD	Cost of the Diet
ECD	Early Child Development
FAO	Food and Agriculture Organisation
FNG	Fill the Nutrient Gap
FSNA	Food Security and Nutrition Assessment
KNP	Karamoja Nutrition Programme
LP	Linear Programming
MCHN	Maternal and Child Health and Nutrition
MMT	Multiple Micronutrient Tablet
NUSAF	Northern Uganda Social Action Fund
UDHS	Uganda Demographic and Health Survey
UN	United Nations
UNICEF	United Nations Children's Fund
VMP	Vitamin and Mineral Powder
WASH	Water Hygiene and Sanitation
WHO	World Health Organisation
WFP	World Food Programme

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