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Fill the Nutrient Gap Uganda

NATIONAL SUMMARY REPORT



March 2019



Fill the Nutrient Gap Uganda | SUMMARY REPORT

Malnutrition is widespread in Uganda

The effects of malnutrition are globally recognised as being devastating and far reaching. Malnutrition is widespread across Uganda - 29 percent of children under the age of 5 years are stunted and 53 percent are anaemic and unlikely to reach their full mental and physical potential. The burden varies by region and progress has been hampered by several factors including poverty; agriculture policies focused on staple foods; poor supply chain and market infrastructure for nutritious, fresh foods; low school attainment and high youth unemployment; and unaffordability of nutritious food. Addressing malnutrition in a sustainable manner in Uganda must take a lifecycle approach with a special focus on children under 2 years of age, adolescent girls, and pregnant and lactating women. It must include a range of context-specific, targeted interventions that engage stakeholders across multiple sectors.

Fill the Nutrient Gap (FNG) in Uganda: Purpose

The overarching objective of the FNG was to bring stakeholders from sectors including health and nutrition, education, social protection and agriculture as well as academia and the private sector together to identify and prioritise context specific policies and programmes, aimed at improving the nutrient intakes of key 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. The results from the FNG at the National level will be used by the Office of the Prime Minister (OPM) to inform and complement the Uganda Nutrition Action Plan II, which is currently being finalized.

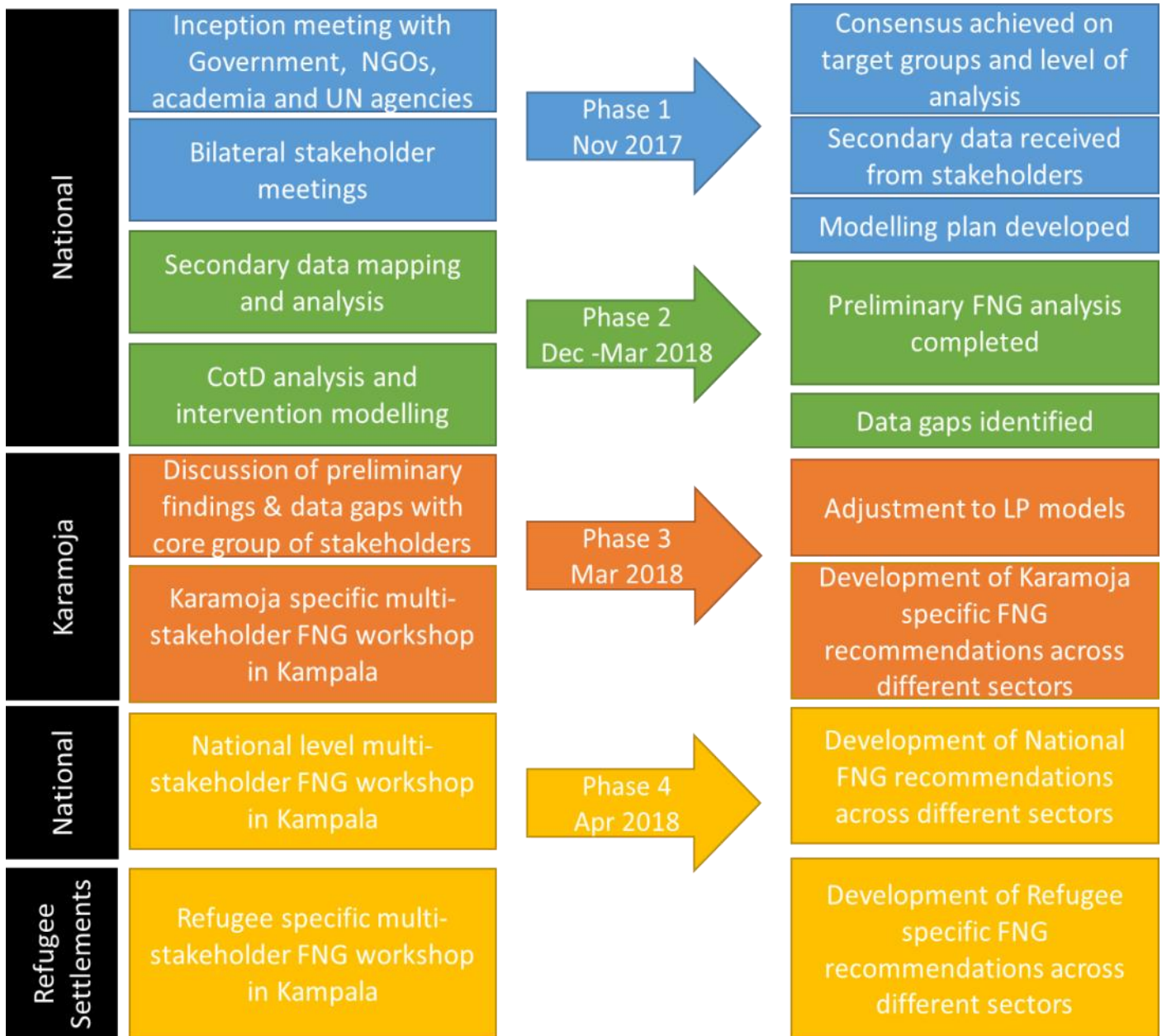
The World Food Programme (WFP) Country Office FNG team also identified a need for two additional FNG analyses to be used to inform WFP and stakeholder programmes in Karamoja and in the refugee settlement areas.

FNG in Uganda: Process

The FNG process in Uganda ran from November 2017 to April 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 food.

The National FNG assessment was led by the OPM with technical assistance from the WFP country office, regional bureau and Rome headquarters. Together, they formed Uganda's FNG team. At the start of the process, the Uganda FNG team met with government, non-government, United Nations (UN), academic and donor stakeholders 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 170 data sources were identified and reviewed, and a number of data gaps were identified, as discussed in the findings. The CotD analysis intervention modelling was then carried out and the findings were presented internally to all nutrition-specific and nutrition-sensitive units within the WFP country office, to the OPM and the technical working group, and then to the wider stakeholder group as part of a workshop to formulate recommendation. The detailed FNG process in Uganda is illustrated in Figure 1.

Figure 1: The FNG process followed in Uganda.



FILL THE NUTRIENT GAP: SITUATION ASSESSMENT FOR MULTI-SECTORAL DECISION MAKING ON THE PREVENTION OF MALNUTRITION¹

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.

⁴For 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 micronutrients². 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 taboo³. 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 Panel Survey was used to calculate food prices and availability, staple preferences, food expenditure and average household size. 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 staple food were included for all household members per day, except for the child aged 12–23 months, who received one portion a day⁴.

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. It 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.
- Increased availability of local nutritious (unfortified) foods and biofortified foods.
- Micronutrient supplementation.
- Fortification of staple foods.
- Determine adequate cash transfer values for vulnerable households targeted through social protection safety nets programmes.

The modelled interventions are theoretical and would need to be accompanied by complementary behaviour change interventions.

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

³This 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.

⁴Please refer to the full report for the list of staple preferences applied.



FNG in Uganda: Findings⁵

1.

UNDERNUTRITION IS WIDESPREAD AND VARIES GEOGRAPHICALLY, WHILE OVERNUTRITION IS ON THE RISE IN WOMEN. PREVENTATIVE ACTION AGAINST THE DOUBLE BURDEN OF MALNUTRITION IS REQUIRED.

The UDHS results show that progress has been made in reducing infant and young child malnutrition nationwide over the past 10 years, as illustrated in Figure 2. Despite this, the prevalence of anaemia is still a severe public health problem at 53 percent as defined by the World Health Organization (WHO) criteria, whilst the prevalence of stunting is of high public health significance at 29 percent. It is, however, important to note that the country's population has increased by 10 million people over the past 10 years and so despite stunting having decreased by 9 percent, 200,000 more children under the age of five were stunted in 2016 compared to 2006 (from 2 million stunted children in 2006 to 2.2 million in 2016). As of 2016, the burden of wasting and anaemia among children under five is 300,000 (unchanged from 2006) and 4 million children (an increase of 900,000 children from 2006) respectively.

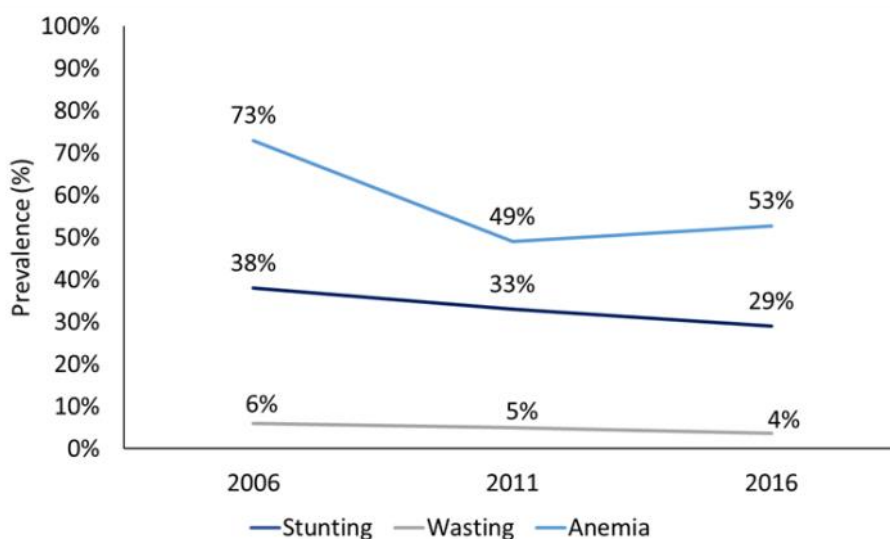
Geographically, child malnutrition rates vary across the country. Generally, children in the southern regions experience lower levels of undernutrition compared to children in the north. Stunting is between 20-30 percent in the south compared to 30-40 percent in the north. The exception is the southern region of Tooro where stunting is the highest in the country at 40 percent. Between 40-50 percent of children in the south suffer from anaemia compared to 50-60 percent in the north. The northern regions of Karamoja and West Nile also experience high levels of wasting (10-15 percent of children).

Anaemia prevalence is high not only in children, but also in women (32 percent). However, there is very little data for Uganda on the causes of anaemia and its associations. There are no data on other micronutrient deficiencies in the country for women or children. The percentage of children consuming iron rich food is low at 40 percent and only 23 percent of women took iron tablets or syrup as recommended during pregnancy. Fewer than 1 percent of children have sickle cell disease, whilst 6 percent suffer from malaria-related anaemia. There are no data on this for women. Sixty five percent of children and 60 percent of women received deworming tablets.

Children in the wealthiest households are somewhat protected from stunting, wasting and anaemia. However, anaemia in the highest wealth quintile remains a severe public health problem. Data from the UDHS shows a strong relationship between undernutrition and educational level and nutritional status of mothers. For example, anaemia in children is 21 percent lower if mothers have completed tertiary education compared to mothers who have no education. The same pattern is visible for wealth, i.e. the difference in anaemia prevalence between the highest and lowest wealth quintile is also 21 percent.

Although thinness in women has declined nationally to 9 percent, regional analysis shows that women in the north of the country, such as Karamoja where this figure is 36 percent, are more vulnerable to this form of undernutrition. Conversely, overweight and obesity is rising, particularly in women of reproductive age in the south and central regions. Nationally, overweight and obesity in women has risen by 8 percent in the last 10 years and is as high as 44 percent in Kampala and 34 percent in women aged 40-49 years nationally.

Figure 2: The prevalence of child undernutrition from 2006 to 2016 in Uganda (Uganda Bureau of Statistics, 2006; 2011; 2016).



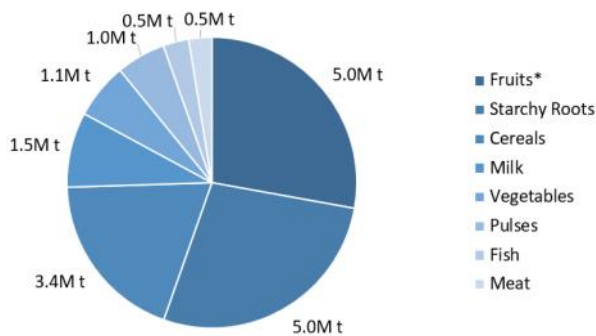
⁵ Complete details of the findings, a full list of data sources used and references can be found in the full report.

2.

THE CLIMATE AND ECOLOGY OF UGANDA IS IDEAL FOR FOOD PRODUCTION AND NUTRITIOUS FOOD IS BEING GROWN, BUT IN LOWER QUANTITIES THAN STAPLE FOOD. TO SUPPORT IMPROVED NUTRITIONAL OUTCOMES FOR THE POPULATION IT IS CRUCIAL TO CONTINUE TO ENSURE CROP DIVERSIFICATION THROUGH APPROPRIATE AGRICULTURAL POLICIES.

Agriculture is an important livelihood in Uganda, contributing to 23 percent of Gross Domestic Product and employing 36 percent of the working population. Forty percent of the country's land is used to grow food and the bi-modal season results in two harvest a year (except in Karamoja which has only one harvest a year). Figure 3 shows that the majority of produce grown is plantain (which contributes 4.3 million metric tons in the fruit section of the pie chart), roots and tubers, and cereals⁶.

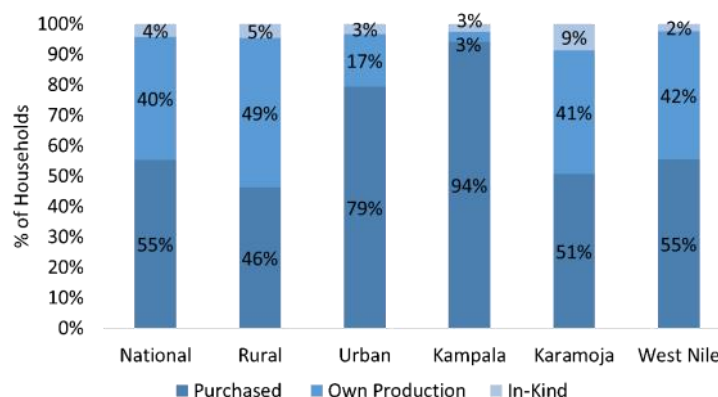
Figure 3: Total agriculture production by food group (FAO, 2013).



* Fruit includes 4.3 million Mt Plantain, so only 0.7 million Mt are other fruits

This food is important in providing for the population's energy requirements but food that provides essential micronutrients such as fruit, vegetables and animal source food, amounts to a total production of 3.6 million Mt. When comparing the quantity of fruits (excluding plantain) and vegetables grown to the staple foods (cereals and starchy roots), this equates to a ratio of 1.8:12.7 or 1 million Mt of fruit and vegetables grown to 7 million Mt of staples.

Figure 4: How households access food in Uganda (UNHS, 2017).



⁶Namely maize, sorghum, millet and rice

Although nutritious food is being grown, fruit (excluding plantain) and vegetables are priority commodities in only three of the ten agricultural regions of Uganda. In these areas, based on UNPS data, the availability of these commodities is high within the markets. The 2016 Panel Survey data indicates, however, that outside these regions, the price of these foods is more expensive and not widely available.

3.

MARKETS ARE ACCESSIBLE, WELL USED AND PROVIDE AN ENTRY POINT FOR IMPROVING ACCESS TO NUTRITIOUS FOOD. HOWEVER, FUNCTIONAL SUPPLY CHAINS NEED TO BE ESTABLISHED TO ENSURE THAT NUTRITIOUS FOOD IS AVAILABLE TO HOUSEHOLDS ACROSS ALL REGIONS.

Markets are an entry point for improving the nutrient intake of the population as they are well used for food purchases throughout the country. Figure 4 shows that 55 percent of food is purchased from markets. They are used more by urban households than rural and there are geographic variances. Access is generally good with the average distance travelled by households to reach a market being half a kilometre. Still, in some rural regions the distance to markets is up to 10km, a characteristic seen particularly in Karamoja.

Although distance to market is not an issue nationally, road access throughout the country is poor - only 19 percent of roads are paved and there is often only one road that connects villages and regions. This results in a poor distribution network where it is both difficult and expensive to move nutritious food from the regions that produce them to the regions that do not. This, in turn, leads to limited food availability being highlighted as a major factor affecting food security and diversity of the food supply in some regions, particularly in the north of the country, where agricultural production is focused primarily on staples.

4.

HOUSEHOLD DIETARY DIVERSITY IS LOW AND THE CONSUMPTION OF ENERGY-DENSE BUT MICRONUTRIENT-POOR STAPLES IS ON THE RISE.

Little data exists on the quantities of food consumed by households in Uganda. The information that exists suggests that the quality of the diet is poor, with one third of households consuming a diet low in diversity (defined as four or fewer food groups per day). The average food consumption score is 52 out of 112, with both the urban and rural regions falling within the 'acceptable' range (60 and 50, respectively). Household diets, particularly in rural areas, consist predominantly of energy-providing staple foods and this is largely influenced by economic access and food availability. Most households that produce nutritious food, particularly meat, tend to sell it as a source of income instead of consuming it as part of their diet. A National Smallholder Farmer Survey found that 70 percent of goats reared by households were sold and only 30 percent were consumed.

Over the years, there has been a shift in the type of staples consumed by households, from millet and sorghum (which, in addition to providing energy, are rich sources of essential micronutrients) to cassava, rice and white maize (which are less micronutrient-dense). Given the reliance on staples in household diets, this consumption pattern will have an important and potentially negative impact on micronutrient intake especially for vulnerable groups, if the intake of other nutritious food is not increased. The Global Alliance for Improved Nutrition supported the Ministry of Health in establishing a Working Group on Food Fortification and developing the standards for fortification of wheat and maize flours and oil. However, manufacturer compliance of fortificant levels in these foods is inconsistent.

5.

SMALL SCALE AGRICULTURE IS THE PRIMARY LIVELIHOOD IN UGANDA. CROP-BASED AND LIVESTOCK-BASED LIVELIHOODS REQUIRE INVESTMENT TO IMPROVE THE USE OF INPUTS, PROVIDE FOR PROCESSING AND INCREASE MARKET ACCESS.

Agriculture is the primary livelihood in Uganda and employs 36 percent of the workforce. Most of the country engages in crop production, whilst Karamoja produces a major surplus of livestock. However, the supply chain infrastructure is weak and pastoralists are not maximising their profits. In Karamoja, slaughter facilities and value-added enterprises such as meat butchering and canning are inadequate and require investment, and there is no

cold-chain to export carcasses. Addressing this is vital to improving nutritional outcomes. Other animal products such as milk, dried fish and eggs were identified by the CotD analyses as a source of essential nutrients.

Eighty two percent of crops are grown by smallholders who face multiple challenges: lack of modern inputs and techniques; lack of knowledge and training in agricultural best practices and; an inefficient supply chain. Consequently, more than a third of their produce is lost post-harvest. Increasing farmer's access to fertilizer and improved quality seeds, coupled with better processing and storage, could result in higher yields and nutrient content of the foods produced. This, in turn, could improve food security due to lower losses and higher incomes.

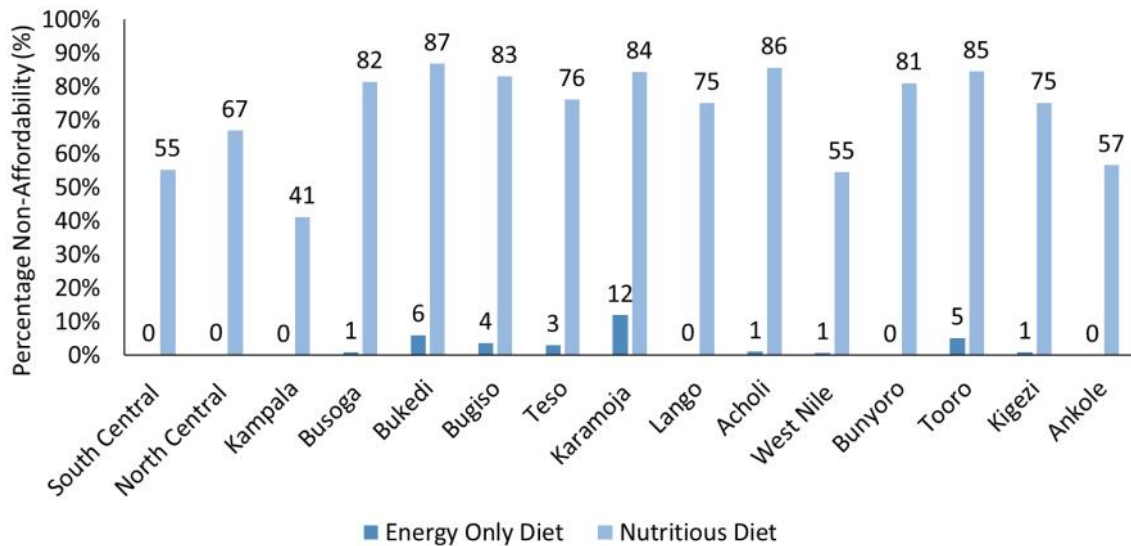
6.

DIETS THAT MEET ENERGY REQUIREMENTS ARE GENERALLY AFFORDABLE FOR HOUSEHOLDS. THE OPPOSITE IS TRUE FOR A NUTRITIOUS DIET WHICH IS UNAFFORDABLE TO MOST. ECONOMIC ACCESS IS A BARRIER TO ACHIEVING ADEQUATE NUTRIENT INTAKE.

The CotD analysis found that it costs seven times more for a household to purchase a nutritious diet, compared to a diet that meets only their energy requirements. This is because the nutritious, fresh foods selected by the CotD software, such as milk, dried fish and green leafy vegetables, are more expensive.

When compared against food expenditure, most households would be able to afford a diet that meets only their energy needs. Figure 5 shows that regions in the north of the country, particularly Karamoja, are more susceptible to not being able to afford even their energy needs. Nearly three quarters (73 percent) of the population cannot afford a nutritious diet, a trend that is widespread across the regions.

Figure 5: The percentage non-affordability among households of energy-only and nutritious diet by sub-region (WFP, 2018).



7.

THE RELATIONSHIP BETWEEN STUNTING AND ECONOMIC ACCESS TO A NUTRITIOUS DIET VARIES GEOGRAPHICALLY. STUNTING PREVALENCE IS HIGH IN AREAS OF LOW AND HIGH NON-AFFORDABILITY. HIGH FOOD PRICES ARE NOT THE ONLY DRIVER OF NON-AFFORDABILITY.

Stunting prevalence shows an association with non-affordability of a nutritious diet (see Figures 6 and 8). This relationship is strongest in the North East and parts of the South West of the country. A comparison of Figures 7 and 8 shows that food prices are not the only factor driving non-affordability. For example, in Karamoja and Lango, non-affordability is one of the highest in the country, but the cost of a nutritious diet is one of the lowest. In these areas, low incomes are driving non-affordability and access to a nutritious diet.

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

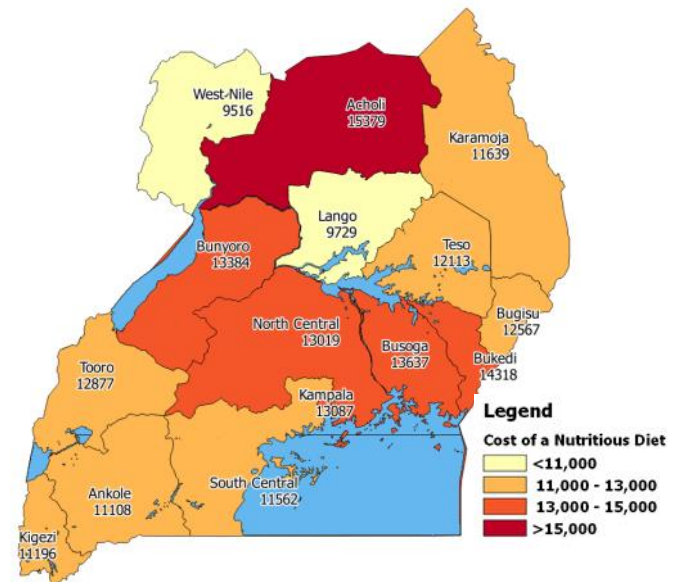


Figure 6: The prevalence of stunting in children under 5 years of age for the 15 sub-regions of Uganda (DHS, 2016).

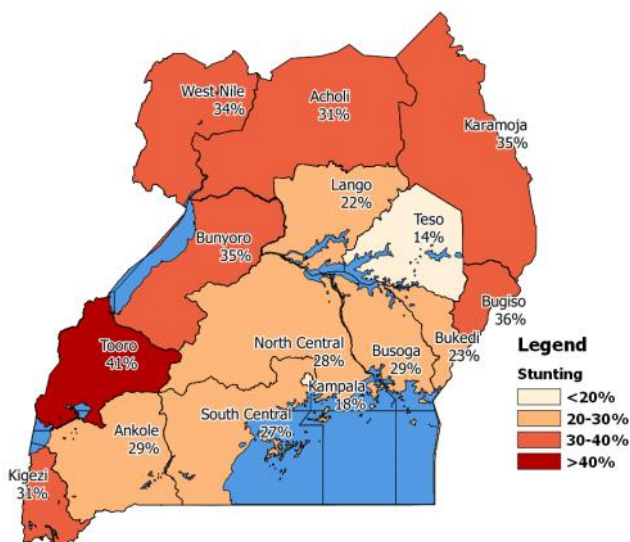
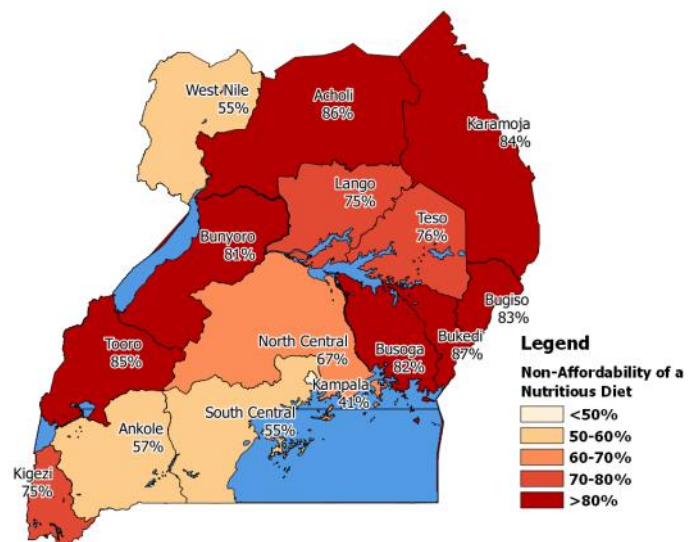


Figure 8: The percentage non-affordability of a nutritious diet for the 15 sub-regions of Uganda (WFP, 2018).



8.

BREASTFEEDING IS WIDELY PRACTICED BUT EXCLUSIVE BREASTFEEDING DOES NOT LAST LONG ENOUGH. COMPLEMENTARY FEEDING IS SUBOPTIMAL, RESULTING IN AN INADEQUATE NUTRIENT INTAKE AMONG CHILDREN AGED 6- 23 MONTHS.

Data on undernutrition disaggregated by a child's age (in months) suggest that infant and young child feeding practices are suboptimal. The prevalence of stunting, wasting and anaemia increases the most between the ages of 6 and 12 months. The increase in anaemia prevalence is from 16 percent to 36 percent.

Although age appropriate breastfeeding is relatively high at 70 percent for children 0-23 months, only 43 percent of children are exclusively breastfed for the first six months of life. Median duration of breastfeeding (in months) is generally longer in other regions compared to central and southern regions, and decreases as households become wealthier and mothers more educated. The main challenge of age-appropriate breastfeeding, as reported by mothers, was the need to return to work to contribute to the economy of the household. Infants are therefore left with siblings or caregivers who feed them other liquids or semi-solid food. Furthermore, mothers felt that their breastmilk supply was inadequate and that they needed to provide other liquids or foods to satiate their children.

Only 15 percent of children under the age of 2 years are fed a Minimum Acceptable Diet. Achieving Minimum Dietary Diversity is a greater barrier than achieving Minimum Meal Frequency, but both indicators are low at 30 percent and 42 percent of children respectively. Figure 9 shows that children's diets mainly comprise cereals, roots and tubers, and pulses, with only half consuming vitamin A rich foods and even fewer receiving animal source foods.

These micronutrient-rich foods are essential for growth and development. This consumption pattern is similar to that of the household, indicating that food availability and economic access are important barriers to adequate infant and young child feeding. Another barrier was maternal workload, which limits the duration of exclusive breastfeeding and time to prepare extra meals for the child.

9.

THE NUTRIENT NEEDS OF ADOLESCENT GIRLS AND WOMEN, ESPECIALLY THOSE WHO ARE PREGNANT AND BREASTFEEDING, ARE HIGH, AND DATA SUGGESTS THAT THEIR DIETS ARE POOR. THIS CONTRIBUTES TO MALNUTRITION IN THEIR CHILDREN.

The CotD analysis, shown in Figure 10, 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 foods such as meat, eggs, and milk, in addition to green leafy vegetables. The proportionately higher costs for these individuals indicate that they need a larger share of nutrient-rich foods. However, it is often men, infants and young children who are prioritised for food within the household, with women and adolescent girls eating last. This puts them at risk of micronutrient deficiencies.

Little data exists on the diets of women and adolescent girls, but what is available suggests that both dietary diversity and food frequency are poor. Data from the UDHS also shows that at a national level, adolescent girls aged 15-19 years are slightly thinner and more anaemic than women of reproductive age. However, in certain geographical areas the nutritional situation of adolescent girls is of even greater concern. For example, in Karamoja underweight and anaemia are two to three times higher for this age group (at 33 percent and 43 percent

Figure 9: The percentage of children aged 6-23 months who reportedly consumed different food groups in the previous 24 hours (Bureau of Statistics, 2016).

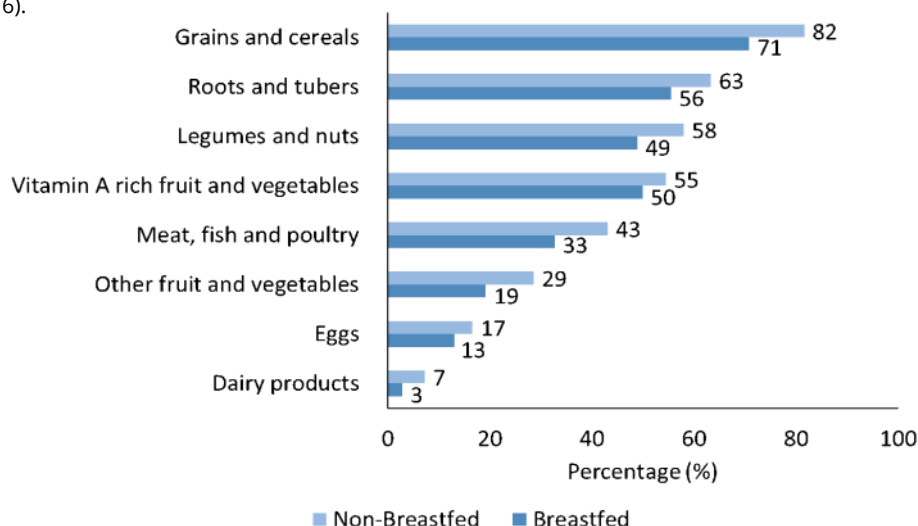
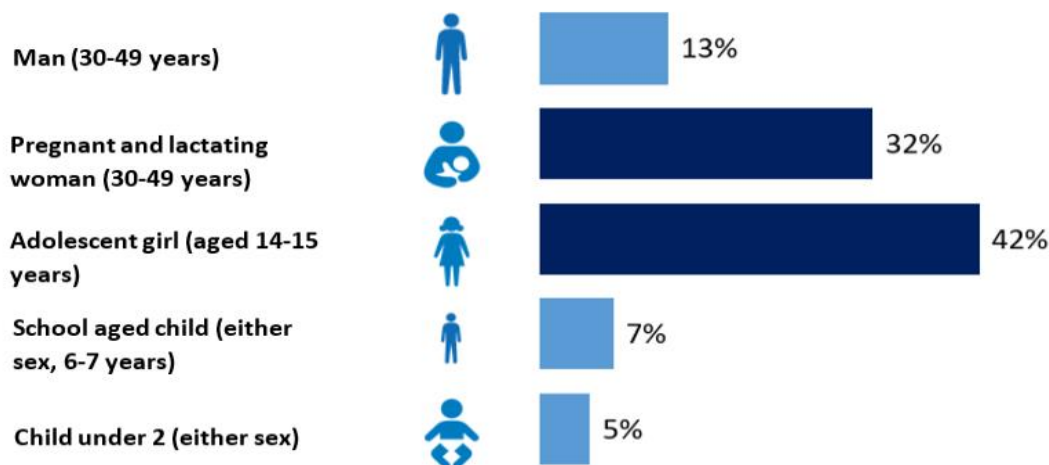


Figure 10: The proportion of the cost of a nutritious diet for different household members, according to CotD analysis (WFP, 2018).



respectively) compared to the national average (12 percent and 23 percent respectively). A recent study on adolescents in districts of Karamoja and West Nile showed that they were consuming some nutritious foods such as dodo leaves, milk, meat and mangoes, but this data was not disaggregated by boys and girls and the quantities of these foods was not reported. The study also inferred that the frequency of food consumption among adolescents was very low at one to two meals per day.

Despite their higher requirements, data suggests that women’s diets do not change during pregnancy or breastfeeding. This is because women are not treated or prioritised differently during this stage of the lifecycle. They are therefore 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, which leaves little time to rest or prepare extra meals or additional food for themselves.

10.

EDUCATION IS A PLATFORM TO ENGAGE ADOLESCENTS AND CHILDREN ON NUTRITION. DESPITE PROGRESSIVE POLICIES, ONE IN FIVE CHILDREN DROPS OUT OF SCHOOL BETWEEN THE AGES OF 13 AND 18 YEARS. A COMBINATION OF FRESH FOODS AND NUTRITIONAL SUPPLEMENTS HAS THE GREATEST POTENTIAL IMPACT ON REDUCING THE COST TO THE HOUSEHOLD OF MEETING THE MICRONUTRIENT NEEDS OF THIS TARGET GROUP.

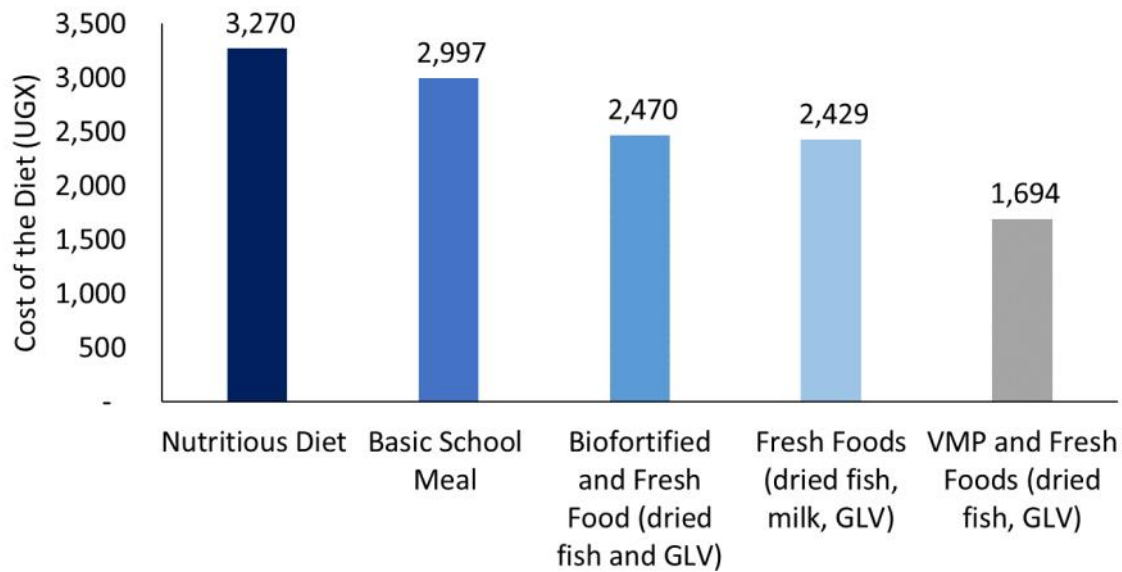
Educational attainment varies across the country. Although a progressive policy is in place that, in theory, makes education accessible for all school aged children (6-13 years for primary, 13-19 years for secondary), data suggests that 1 in 5 children drop out of school between

the ages of 13 and 18, and around 10 percent of children between the ages of 6 and 12 are not attending. This is a substantial number given that 38 percent of the population is school aged (6-19 years). The Ministry of Education and Sports has developed a school feeding guideline where parents are responsible for providing money or food to schools for school meals. With this policy in place nationally 30 percent of children were given access to school meals, yet two thirds did not receive a school meal. The percentage of children that do have access to a school meal – either provided in-kind or paid by the parents – varies largely across regions and might be linked with wealth: 42 percent of primary school children in the Central region have access to a meal, but only 12 percent of primary school children in the North receive a school meal.

The CotD analysis emphasises the economic challenges that households face and it is likely that the parents of these children cannot afford to pay for school meals. The CotD analysis was used to determine the most nutrient dense combinations of food that could be provided within a school meal ration⁷ of a staple, a pulse and fortified oil, different combinations of locally available foods and nutrient supplements were added. Figure 11 shows that a combination of the basic ration and food such as dried fish and green leafy vegetables, coupled with a vitamin and mineral powder (VMP) had the greatest potential to improve the nutrient intake of this target group.

⁷ Based upon WFP programming in Karamoja – consisting of 150g of cereals, 30g of pulses and 10g of fortified vegetable oil per person per day.

Figure 11: The potential impact that different school meal rations have on reducing the cost to a household of providing a nutritious diet for a school aged child (WFP, 2018).



*GLV = Green Leafy Vegetables

11.

INTERVENTIONS TARGETING SPECIFIC INDIVIDUALS CAN REDUCE THE COST OF MEETING NUTRIENT NEEDS FOR PRIORITY GROUPS.

A range of interventions for individual target groups and the household were modelled using the CotD (shown in Table 1), as guided by the secondary data analysis and stakeholder consultation.

- SuperCereal + was the most effective at reducing the cost of meeting nutrient needs for children aged 6-23 months, although the provision of a VMP and Small-Quantity Lipid Based Nutrition Supplement would also make important contributions.
- A combination of a basic school feeding ration, with a VMP and fresh foods such as dried fish, cow's milk and green leafy vegetables would be the most effective in reducing the cost of meeting micronutrient needs for school aged children.
- A multiple micronutrient tablet (MMT) would be the most effective at reducing the cost of a nutritious diet for adolescent girls and pregnant and lactating women.
- Action Against Hunger's fresh food voucher was the most effective in reducing the cost of meeting nutrient needs for the household - showing a 1:1.5 return on investment (40,000 UGX spend on nutritious foods reduced the monthly cost for the household by 60,000). Nutrition sensitive agriculture and making biofortified high iron beans available on the market would also make important contributions.
- If current food expenditure (i.e. 46 percent spent on food) is applied to the NUSAF II cash value, unaffordability of a nutritious diet could reduce by an average of 12 percentage points. If 100 percent of the cash value is spent on food, this transfer could reduce unaffordability by 33 percent.
- If all the Senior Citizens Grant (SCG) were spent on food for an elderly individual, this could provide 53 percent of the cost of the nutritious diet on average. If current food expenditure (46 percent) is applied, the SCG value would only be enough to cover energy needs.



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
Fortified Blended Flour (SuperCereal +)			
Small-Quantity Lipid Based Nutrient Supplement			
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)			
Fortified Blended Flour (SuperCereal)			
Nutrition Sensitive Agriculture	Household	Own Production	Agriculture Markets
Smallholder Poultry Intervention			
Smallholder Fish Farming			
Fortified Staples (Maize and wheat flour)		Market	Markets
Biofortified Foods (High Iron Beans and Orange Flesh Sweet Potatoes)		In-kind/voucher	Health Agriculture Markets Social Protection
Fresh Food Vouchers ⁸			
NUSAF II ⁹		Adults 60+ years	Cash Transfer
Senior Citizen's Grant (SCG) ¹⁰			

⁸Based 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).

⁹Northern 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.

¹⁰A Government led cash transfer programme operating in 15 districts of Uganda, targeting elderly (60+ years) beneficiaries. The transfer value is set at UGX 25,000 (US\$7.50) per month and is paid every two months

12.

A PACKAGE OF INTERVENTIONS IMPLEMENTED ACROSS MULTIPLE SECTOR ENTRY POINTS COULD GREATLY IMPROVE HOUSEHOLD POTENTIAL TO ACCESS A NUTRITIOUS DIET.

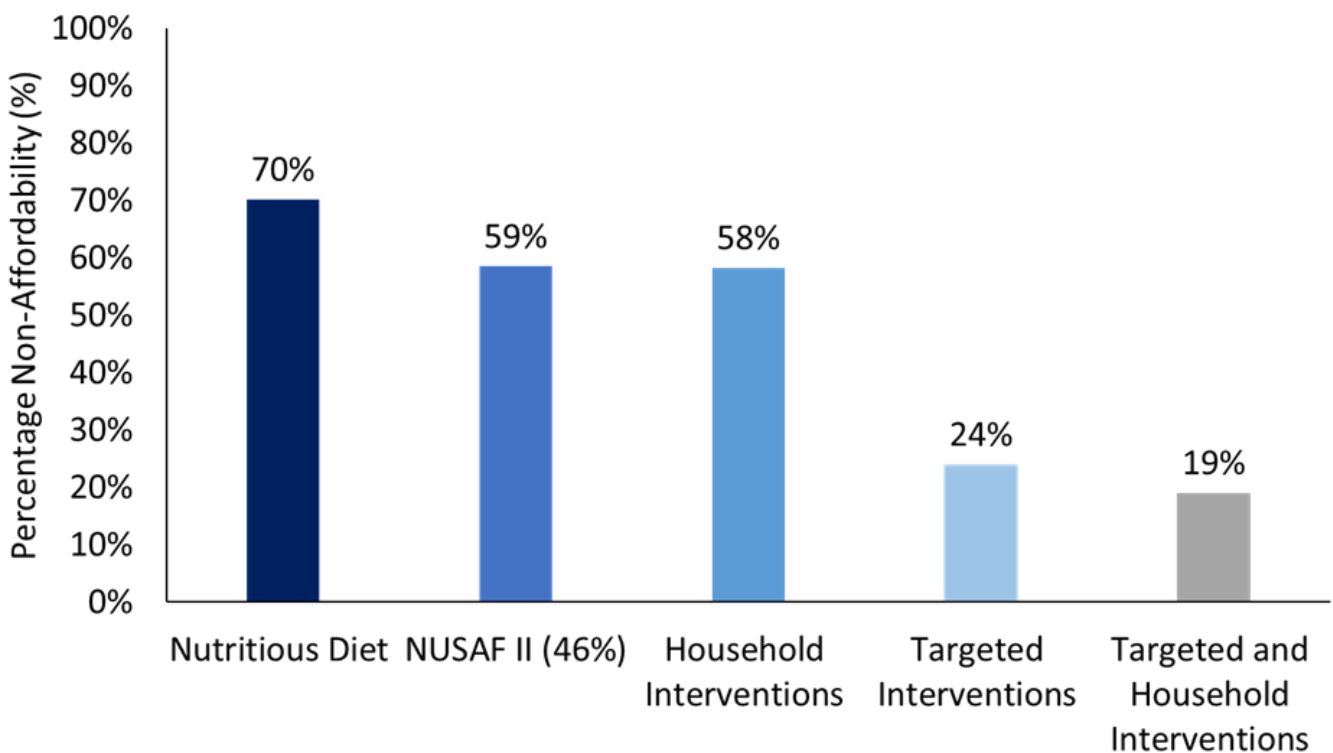
The most effective interventions for reducing the cost of meeting nutrient intake for individual target groups were combined into a package together with the most effective household interventions, as shown in Table 2. Figure 12 summarises the impact of these packages on the affordability of a nutritious diet, separately and in combination. The impact of the NUSAF II cash transfer was also modelled separately and it was assumed that 46 percent would be spent on food as per the national average household food expenditure.

These results demonstrate the possible benefits that could be gained by increasing household nutrient access via a package of interventions that is delivered across multiple entry points and by different sectors. The underlying assumption for such an intervention is that adequate demand creation strategies are in place to ensure that cash transfers or vouchers provided would be spent on nutritious food which would be consumed by the target individual.

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

Target Group	Intervention
Child 6-23 months	Fortified Blended Flour (SuperCereal +)
School Aged Child (6-19 years)	Basic School Feeding Ration with VMP, Dried Fish, Milk and Green Leafy Vegetables
Adolescent Girl Pregnant and Lactating Woman	Multiple Micronutrient Tablet (MMT)
Household	Nutrition Sensitive Agriculture
	Biofortified High Iron Beans

Figure 12: The potential impact that a range of targeted and household level interventions, or a cash transfer (modelled independently), could have on improving the affordability of a nutritious diet (WFP, 2018).





FNG in Uganda: Recommendations

During the dissemination workshop, the main findings of the FNG analysis were shared and discussed with the wider stakeholder group to formulate recommendations. Participants then formed four work groups, each comprised of different complementary entry points for policy and programmatic strategies: health and nutrition; agriculture and markets; social protection and general assistance and; education. Each group was asked to brainstorm interventions based on the findings, which could contribute to improving the dietary intake of target groups and the overall refugee and host population. They were then asked to prioritise one intervention, for which they identified target groups and objectives and determined activities for the short (0-6 months), medium (6-12 months) and long terms (>12 months).

SOCIAL PROTECTION

The social protection group identified a Fresh Food Voucher for the first 1,000 days as an intervention to improve access to fresh, nutritious foods for vulnerable groups. This intervention would target women from pregnancy until their child is 2 years of age. The main objectives described were the reduction of anaemia in women and children under 2 years, and the reduction of stunting in children. Additional objectives of this intervention included stimulating demand and supply of nutritious foods in markets (increasing income of smallholders) and improving supply chain mechanisms for fresh nutritious foods. Ripple effects were foreseen such as improved household dietary diversity and, by combining this intervention with community outreach and behaviour change communication, increased knowledge of the importance of nutritious foods for women and children, water, sanitation and hygiene (WASH) and food

safety.

Short term activities to implement this intervention focused on improving the availability of nutritious foods, spreading knowledge around the seasonality of nutritious foods, and better coordination of information on market traders and their products. The group emphasised that local food producers needed to be engaged directly to respond to increased demand for nutritious food, taking into account food consumption habits (especially taboo foods for children and pregnant and lactating women), the geographic targeting that would work best, and how to decide on the value of the voucher.

In the medium term, the group envisaged pilots of the voucher scheme to strengthen the connection between markets and purchasers, also focusing on the review and lessons learned from the implementation approach.

In the long term, both the engagement work of the short-term activities and the evaluation exercises of the medium-term activity would enable the programme to link with agriculture extension workers to promote local production and ensure sustainability.

An additional aspect mentioned by this group was keeping track of dietary diversity, stunting, anaemia, and nutrition knowledge, to be able to create evidence around the impact of programming for social protection. The suggestion was made to use existing community health workers to follow up on the impact of this intervention. Among perceived challenges were cultural practices, funding, capacity and human resources, lack of monitoring, and supervision. Important sectors to engage were agriculture, health, education, WASH, and the Ministries of Gender and Finance.





AGRICULTURE AND MARKETS

The agriculture and markets group identified two main interventions to improve nutrition: 1) capacity building in nutrition-sensitive agriculture for men, women and youth around growing nutritious foods and 2) the promotion of biofortified foods.

The main objectives for the first intervention were to increase production and consumption of nutritious foods, promote food security, and create awareness around nutritious food and diets. This intervention would also impact on the general availability of fresh food and improve the income of households.

Short-term activities developed to start the process included establishing demonstration gardens, mobilizing the local community and leaders, making advance loans available and combining them with financial training. The group advocated to seek support from private sector companies to ensure that inputs were available. Other suggestions included setting up support groups to demonstrate how to cook and prepare nutritious food, and preventing post-harvest losses.

For medium-term activities stakeholders identified priorities as the monitoring and evaluation of earlier activities, analysis of the value chain, training on agricultural machines, irrigation, and storage of fresh food. They pointed out that for the intervention to remain viable, a framework for training needed to be established as well as social and behaviour change communication (SBCC) around growing practices and the importance of the mechanisation and modernisation of existing agriculture.

The challenges that were identified included: cultural issues that limit changes regarding land ownership and workload of women, limited resources and inadequate capacity to train and general access to land (enabling environment), bureaucracy, lack of technological enhancement of agriculture. The intervention outlined

would engage stakeholders working in fields such as Finance, Gender and Social Protection, Education and Trade and Industry.

The second intervention outlined by this group was the promotion of biofortified foods for both production and consumption with the objective of enhancing intake of micronutrients among the population.

Short-term activities prioritised for this intervention included SBCC for nutrition-sensitive agriculture to build awareness around the need for nutritious foods. It was also highlighted by this group to exploit linkages with existing government and NGO programmes to distribute biofortified crops and provide agricultural inputs through the private sector or NGOs.

To drive this intervention in the medium term, the group focused on the ability to produce nutritious food, particularly on preserving harvested commodities. For this they emphasised the importance of Post-Harvest Loss Reduction initiatives and establishing storage facilities to ensure availability and maximum utility of products. To facilitate learning, the group also suggested the set-up of demonstration gardens in schools, health centres and communities.

To make these innovations sustainable in the long term, stakeholders identified actions around processing and value addition. For this they suggested increased research on biofortified crops and their impact on nutrition to enable evidence generation.

The main challenges foreseen by this group were focused on climate change, access to irrigation methods, the cultural mindset of communities that might object to “new” food, and financial constraints such as the lack of loans. Stakeholders that were mentioned as important to engage included the Ministry of Agriculture, government development partners such as NGOs and UN agencies, private sector, and media outlets (especially for SBCC).

HEALTH AND NUTRITION

The stakeholder group that was working on the Health and Nutrition interventions focused particularly on the promotion of nutrition for mothers, infants, young children and adolescents. There was consensus in the group that while several interventions exist, they need to be enhanced to provide meaningful impact for these target groups. The primary objective for this group was to increase the rate of exclusive breastfeeding and the proportion of children receiving a minimum acceptable diet (MAD).

In the short-term, interventions were identified to focus on reviewing existing IYCF strategies and strengthen initiatives already present. For this they highlighted increased promotion of breastfeeding centres, training of health workers, and strengthening of nutrition education in health services.

In the medium term, the group suggested establishing demonstration gardens at Health Facility level and developing Village Health Team (VHT) Training and tasking VHTs with supervision around the demonstration gardens.

This would use an existing platform that is already well established to link to other sectors, e.g., agriculture, and demonstrate the multi-sectoral nature of nutrition.

In the long term, the group highlighted the importance of keeping demonstrations present at community level, to ensure initiatives are being carried forward. The group pointed out that resource transfer mechanisms (micronutrient supplements or cash) should be in place to ensure access to nutrients for those that couldn't afford them otherwise. Additionally, they suggested researching the feasibility of home fortification using VMP.

The main challenges foreseen were around lack of financial resources at community level, the low attendance in antenatal care groups, and generally low male involvement that could prove to be a barrier to interventions that are targeted at other individuals. Inadequate leverage and utilization of existing health services was the main gap identified in current programming. Sectors to engage and integrate into Health and Nutrition included: WASH, Agriculture, Education, Finance, Gender and Social Protection.





EDUCATION

The stakeholder group working on interventions through the education platform particularly focussed on promoting School Feeding.

Based on the evidence of 66 percent of school children going hungry, they emphasised the need to access early childhood care and development centres for 3-5 year olds and school going children aged 6-12 years old. Several objectives were thought to be reachable through an education platform, among them the promotion of education outcomes and improved enrolment, and the retention and completion of literacy levels. Improving nutrition in school feeding was also thought to impact the reduction of short term hunger and improve nutrition outcomes, e.g. stunting, wasting, and micronutrient intake. Linking up agricultural production with school meal programmes also has great potential to improve local economic productivity and promote community participation in those initiatives.

Short term activities designed by this group largely focused on creating awareness of the importance of school feeding and enabling parent involvement and contribution. The group emphasised sensitising parents on school feeding and creating mechanisms through which parents could provide food for school going children. Examples are home grown school meals or school kitchen gardens. The stakeholder group highlighted the need to provide food to the most vulnerable parts of the population and to design mechanisms that ensure

inclusion of the poorest. In addition, they recommended commencing communication and dissemination of the school feeding guidelines more explicitly and widely. Lastly, they suggested developing guidelines around how education on nutrition and SBCC can be facilitated through the educational platform.

Most medium-term activities were concentrated on the continuation of short term activities, with heightened sensitisation taking place on a political level, and ensuring adequate monitoring activities to inform lessons learned.

In the long term, this group recommended developing school gardens and farming of biofortified crops close to the school sites. It was strongly emphasised that lobbying and political work was needed to come up with a revised school feeding policy, which currently poses a barrier for nationwide, government-led nutrition-sensitive school meals.

Major challenges foreseen by this group were policy issues – especially the stance contra school meals currently taken by the Ministry of Education. Poor policy dissemination and food insecurity at household level exacerbate the economic inability of poor households to provide children with school meals. Climate change impacts and general low income can cause instability in continuity of home grown school meals, making the ability of all households to source school meals themselves dependent on seasonality. Important sectors to engage in this intervention were listed as Agriculture, Health, Gender, Finance, and Private Sector partners.



CONTRIBUTORS

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LIST OF ACRONYMS

CotD	Cost of the Diet
FAO	Food and Agriculture Organization
FNG	Fill the Nutrient Gap
GLV	Green Leafy Vegetables
IYCF	Infant and young child feeding
LP	Linear Programming
MMT	Multiple Micronutrient Tablet
OPM	Office of the Prime Minister
SBCC	Social and behaviour change communication
SCG	Senior Citizens Grant
UDHS	Uganda Demographic and Health Survey
UN	United Nations
UNICEF	United Nations Children's Fund
VMP	Vitamin and Mineral Powder
WHO	World Health Organisation
WFP	World Food Programme

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