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Fill the Nutrient Gap Dollo Ado (Melkadida) Refugee Camps, Ethiopia

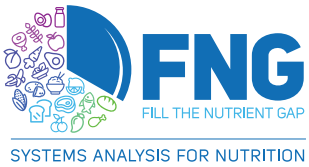
Summary Report

UNHCR
The UN Refugee Agency

Ethiopian Public Health Institute

July 2022

This summary and further information can be found electronically at: wfp.org/fillthenutrientgap



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Fill The Nutrient Gap **Dollo Ado Refugee Camps, Ethopia** | SUMMARY

Introduction to Fill the Nutrient Gap (FNG) Dollo Ado (Melkadida) Refugee Camps, Ethopia

More than 200,000 refugees currently live across five camps in and around Dollo Ado in the Somali region of Ethiopia. The camps were set up between 2009 and 2011 by the Government of Ethiopia and the United Nations Refugee Agency (UNHCR) to host Somalis fleeing the violence in Somalia and to settle a further influx driven by severe drought. Refuge was initially provided in Bokolmanyo and Melkadida, the first camps to be established. Kobe, Hilaweyn and Buramino camps were later set up to accommodate subsequent arrivals.(1)

The camps have recently shifted focus from emergency response (in 2009) to self-reliance and the creation of sustainable opportunities for refugees and host communities. Between 2012 and 2018, both communities in and around the camps received private sector investment of 75 million Euros from the IKEA Foundation. The project included irrigation schemes covering 1,000 hectares of land and strengthened agricultural cooperatives.

Other initiatives included solar energy projects and sustainable firewood cooperatives, construction of a new market infrastructure, microfinance and entrepreneurship grants, and investments in primary education.

Despite considerable improvements over the years, the area still faces the challenges of arid climate and geographical isolation from the rest of the country, exacerbated by conflict at the Somali-Oromia regional border north of the camps. Average rates of global acute malnutrition (GAM) across the camps remain above the UNHCR acceptable threshold of 10 percent (2), though prevalence decreased from 22.4 percent in 2016 to 15.3 percent in 2021. Some camps are more affected than others, with prevalence ranging from 12.4 percent (Bokolmanyo) to 19.6 percent (Melkadida). Though stunting rates are below the 40 percent threshold they remain high, with a slight upward trend between 2017 and 2019 from 34 percent to 37 percent.(3)

Building consensus for improved nutrition

Fill the Nutrient Gap (FNG) is a collaborative analytical process comprised of a secondary literature review in combination with Cost of the Diet (CotD) linear optimization to understand local drivers that affect the availability, cost and affordability of a nutritious diet. Using the CotD software, solutions for improving availability of nutritious foods, lowering their cost and/or increasing income are assessed for their potential to improve diets.

In this way, the context-specific potential for the impact of proven interventions can be quantified.

This summary report presents findings from the analysis and a discussion of its process, methodology and limitations. It highlights recommendations and priorities identified by stakeholders. By identifying and contextualizing new findings, the FNG analysis contributes towards building consensus around a vision and a path forward for improved nutrition in refugee settings in Ethiopia.

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

Malnutrition has two direct causes: inadequate dietary intake and disease. The FNG assessment focuses on gaps in dietary intake to inform national policies and actions that can be taken across food, social protection, and health systems to improve nutrition, with a focus on the most vulnerable populations. The FNG considers whether nutritious foods are available, accessible, and affordable in a specific context, and identifies the barriers that lead to gaps in nutrient intake. The analysis focuses on the extent to which vulnerable people have choices in the foods they consume and how those choices are made. The FNG process identifies and models the impacts of context-appropriate interventions to improve diets and nutrient intake across food, health, education, and social protection systems. The results are used to identify entry points across systems, to refine programmes, and to make recommendations to policymakers.

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 (CotD) 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.

Preventing malnutrition, including through improved access to nutritious foods, cannot be achieved 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.

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 together with the analytical team 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, etc.

The FNG methodology has been developed by WFP with technical support from partners including 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.

Between 2016 and early 2021, FNG analyses were completed in 32 countries and, at the time of writing in March 2021, were ongoing in 12 countries with more in the pipeline.

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

Process and Scope of the Analysis

According to the UNICEF malnutrition framework, one of the main pathways of chronic malnutrition is inadequate access to nutritious diets due to economic constraints. To gain a better understanding of factors related to food access and availability in the camps and to potentially address any bottlenecks leading to dietary inadequacy, UNHCR, in collaboration with WFP, decided to undertake a "Fill the Nutrient Gap" (FNG) study in the Dollo Ado refugee area. The study was intended to inform the continued efforts to build a more resilient refugee economy through continued integration of refugees and host communities, and to promote self-reliance.

Process of the FNG Analysis in the Dollo Ado refugee camps

Earlier efforts to initiate an FNG assessment in Dollo Ado were delayed by the COVID-19 pandemic, but the national Fill the Nutrient Gap study that was conducted in Ethiopia (2020-2021) built additional momentum to undertake a refugee-focused assessment. A small team of staff from WFP, UNHCR and International Medical Corps (IMC), alongside Ethiopian Public Health Institute (EPHI) staff, were trained in November 2019 in the Cost of the Diet methodology. The process officially resumed in March of 2021, when discussions between WFP and UNHCR on preparations to collect primary food price data resumed. In August 2021, a virtual training of trainers was held as a refresher to UNCHR and WFP staff. A team of six experienced enumerators plus supervisors were subsequently trained in Melkadida and deployed to the field for food price data collection. Data collected were cleaned and prepared for analysis by a team at the EPHI in September-October, followed by analysis led by the WFP HQ team. Preliminary results were presented in December 2021 to UNHCR and WFP, followed by meetings in January-February 2022 to gather additional inputs for intervention modelling, which was completed in March 2022. Final results were presented in June 2022, when stakeholder consultations were held to derive recommendations and outline how the FNG findings can be used by UNHCR, WFP and other development partners to improve the nutrition status of refugees living in the assessment area.

Figure 1: The Fill the Nutrient Gap (FNG) process

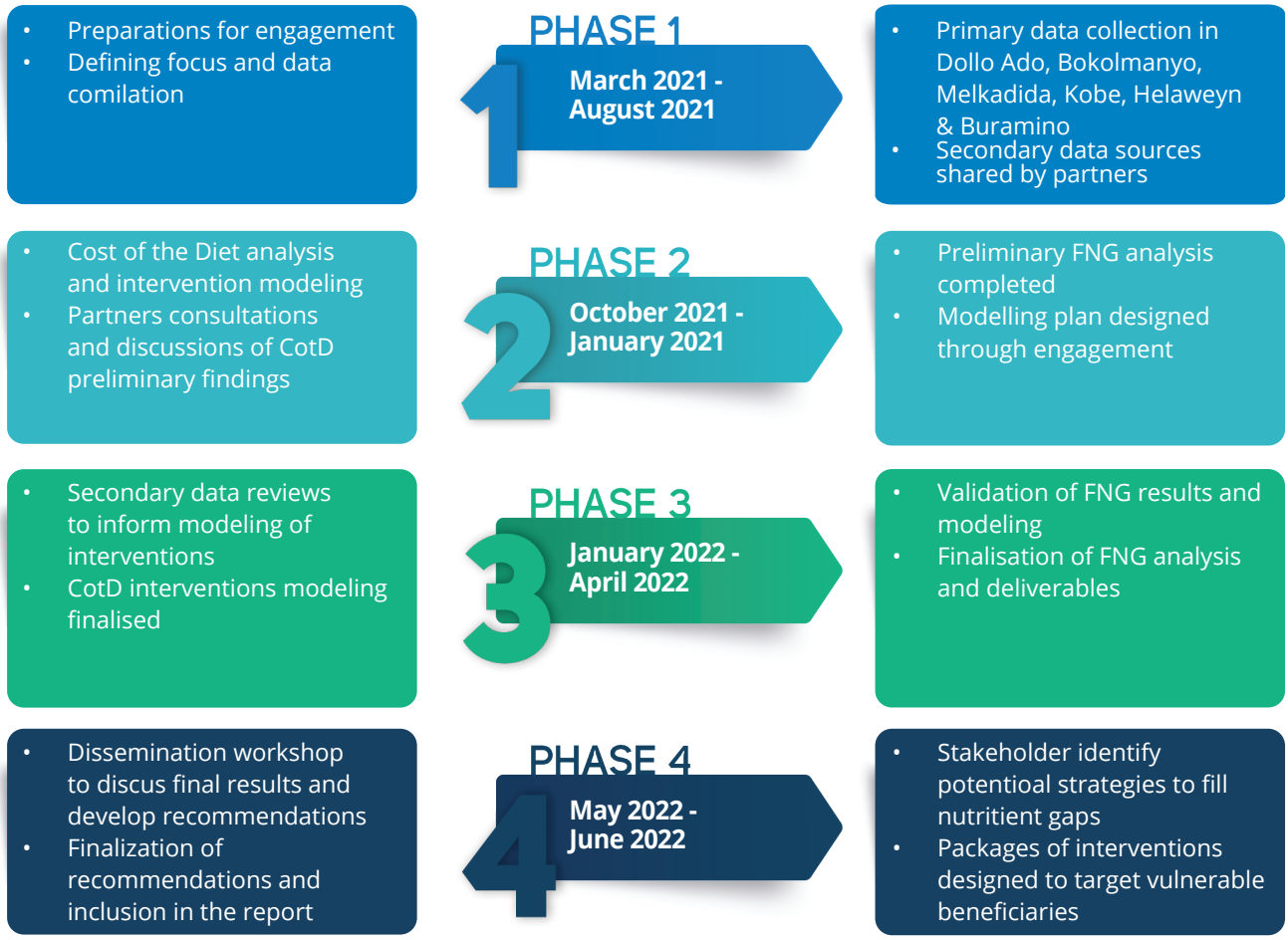
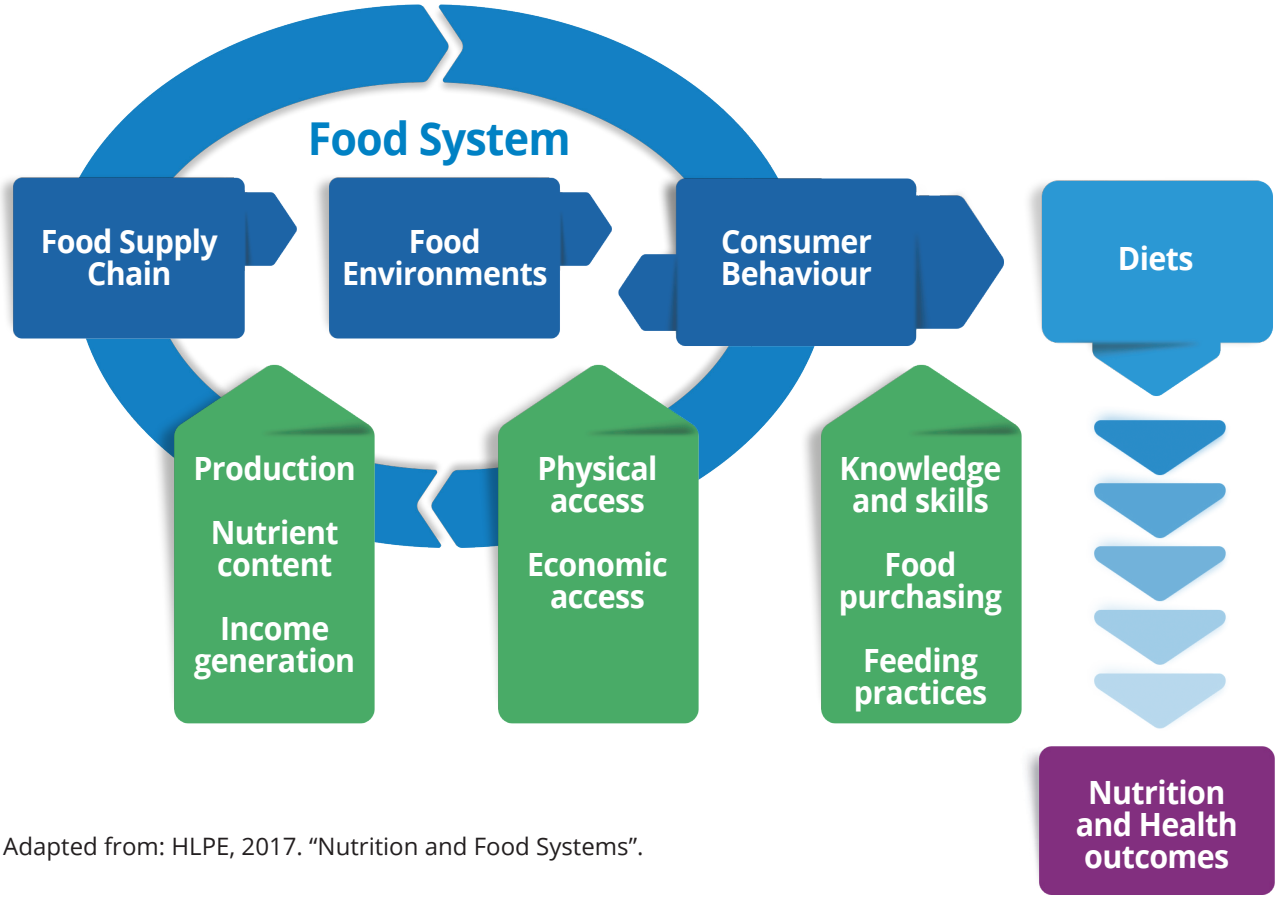


Figure 2: Food systems for diets and nutrition and health outcomes framework



Adapted from: HLPE, 2017. "Nutrition and Food Systems".

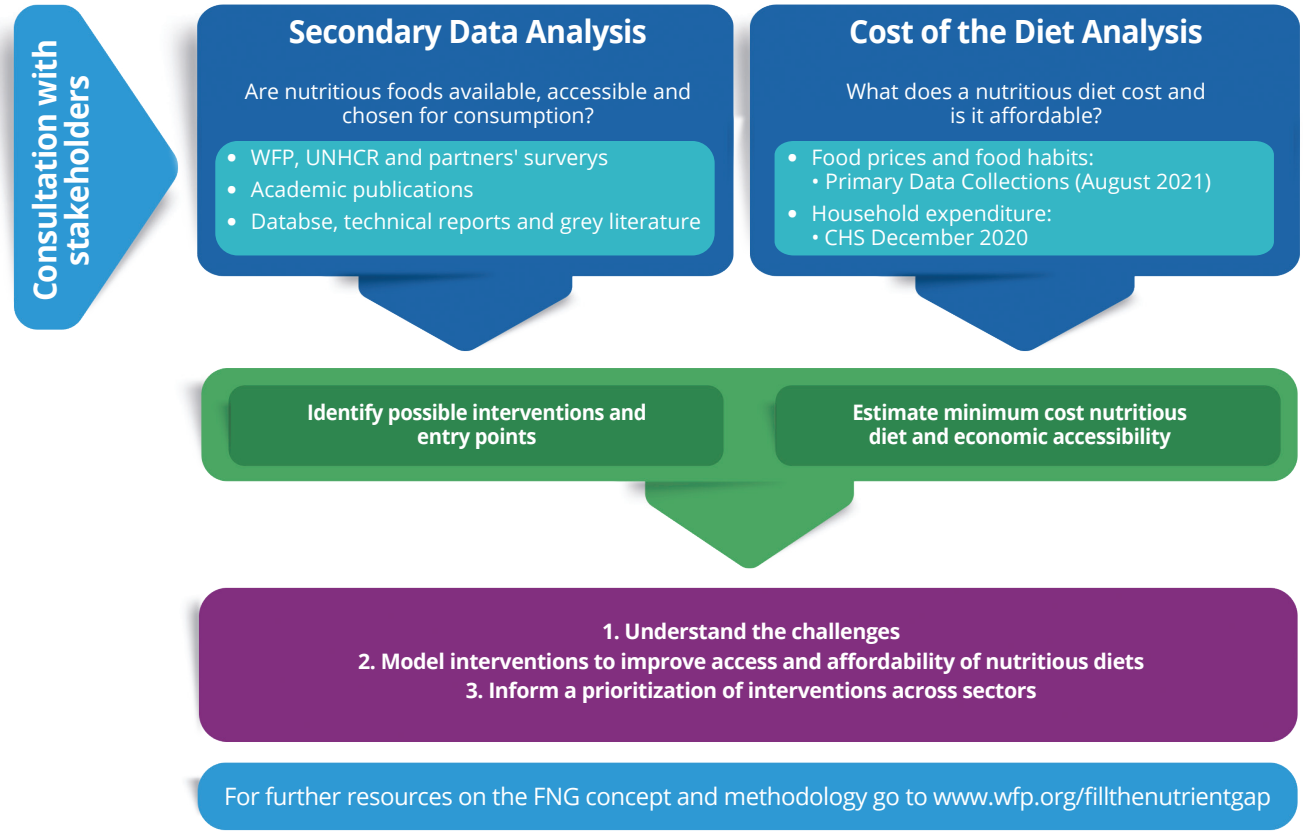
Methodology

The FNG analysis is composed of a secondary literature review of the food system, focusing on entry points for current and potential nutrition interventions, and a CotD analysis. CotD analysis uses linear optimization to provide a detailed look at availability, cost and affordability of nutritious diets (4) (Figure 3).

Secondary Data Analysis

FNG secondary data analysis identifies barriers to accessing healthy diets, platforms for reaching nutritionally vulnerable groups, and opportunities for policy and programme interventions to improve access to nutritious foods through multiple sectors, including agriculture, health, social protection and education.

Figure 3: FNG analytical framework



COST OF THE DIET (CotD) ANALYSIS

CotD software uses linear programming to understand the extent to which poverty, food availability and food 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 lowest possible cost of local foods that are required to provide individuals or households with their average needs for energy, and their recommended intake of protein, fat and micronutrients.[1] 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' as the lowest cost nutritious diet that includes a typical staple food and excludes foods that are prohibited.[2] This diet is referred to as the 'nutritious diet' throughout this summary. It meets requirements for nutrients, including protein, nine vitamins and four minerals, and does not exceed energy and fat requirements. The nutritious diet is conceptually similar to the 'nutrient-adequate' diet estimated as the second level of diet quality in the State of Food Insecurity (SOFI) report.

Population expenditure data is compared to the cost of the nutritious diet and is used to estimate the proportion of the population that would not be able to afford it. This non-affordability can be estimated and compared across different regions, seasons or countries. The estimate of non-affordability is a conservative estimate of the share of households unable to afford the lowest cost nutritious diet, assuming optimized selection of nutritious foods. The real cost and non-affordability of a nutritious diet is likely to be higher, as reflected by a healthy diet, which includes foods from several food groups and has greater diversity within food groups.

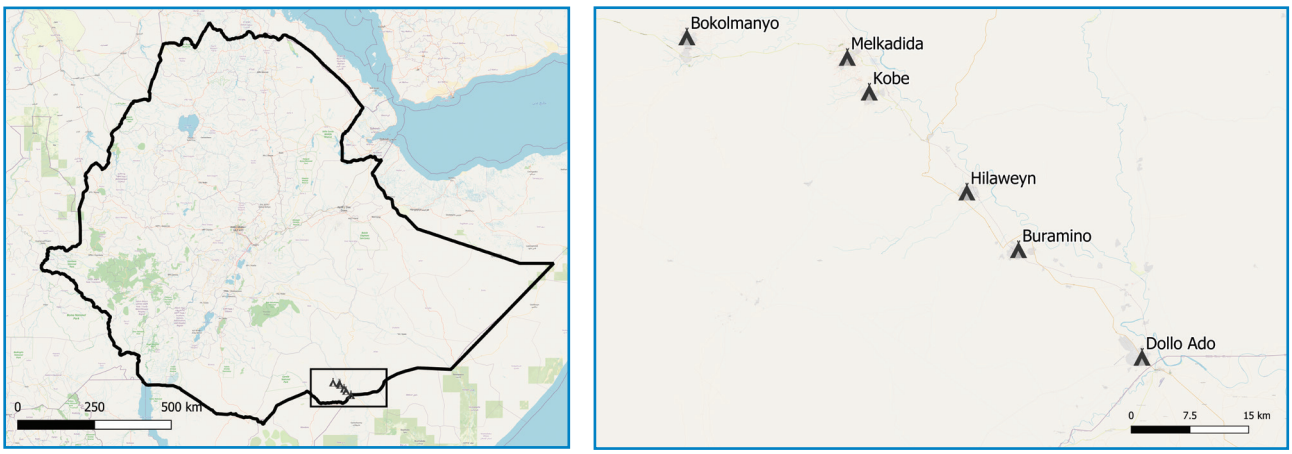
[1] As defined by the Food and Agricultural Organization (FAO) and the World Health Organization (WHO).
[2] This diet is not intended to reflect what individuals or households are currently eating nor should it be used to develop food-based recommendations or dietary guidelines. Foods that are prohibited could be for customary or public health reasons, e.g., raw meat during pregnancy in some parts of the world.

Data sources for CotD analysis

Due to the limited food and market price data available, WFP and UNHCR jointly collected primary data on the retail food prices in the Dollo Ado market and the main markets around the five refugee camps, Bokolmanyo, Melkadida, Kobe, Hilaweyn and Buramino (see figure 4 for the location of the camps). The markets were identified by the local UNHCR and WFP teams operating in the camps, selecting those mostly accessed by refugees. A total of 799 price points across six markets (five camps plus Dollo Ado) were collected between 20 and 27 August 2021; a total of 83 unique food items were found across the markets surveyed. Prices and cost estimates are reported in Ethiopian Birr (ETB).

Non-affordability was estimated based on household food expenditure data collected through the Comprehensive Household Surveillance (CHS) of 2020. Expenditure values were adjusted for inflation to August 2021 using the Consumer Price Index by food group. The CHS was also used to determine the preferred staple for consumption across the camps and inform the staple adjustment (i.e. optimization constraints) for the nutritious diet calculations.

Figure 4: Map showing camp sites from which primary food price data were collected



Modelled household & main target groups for the analysis

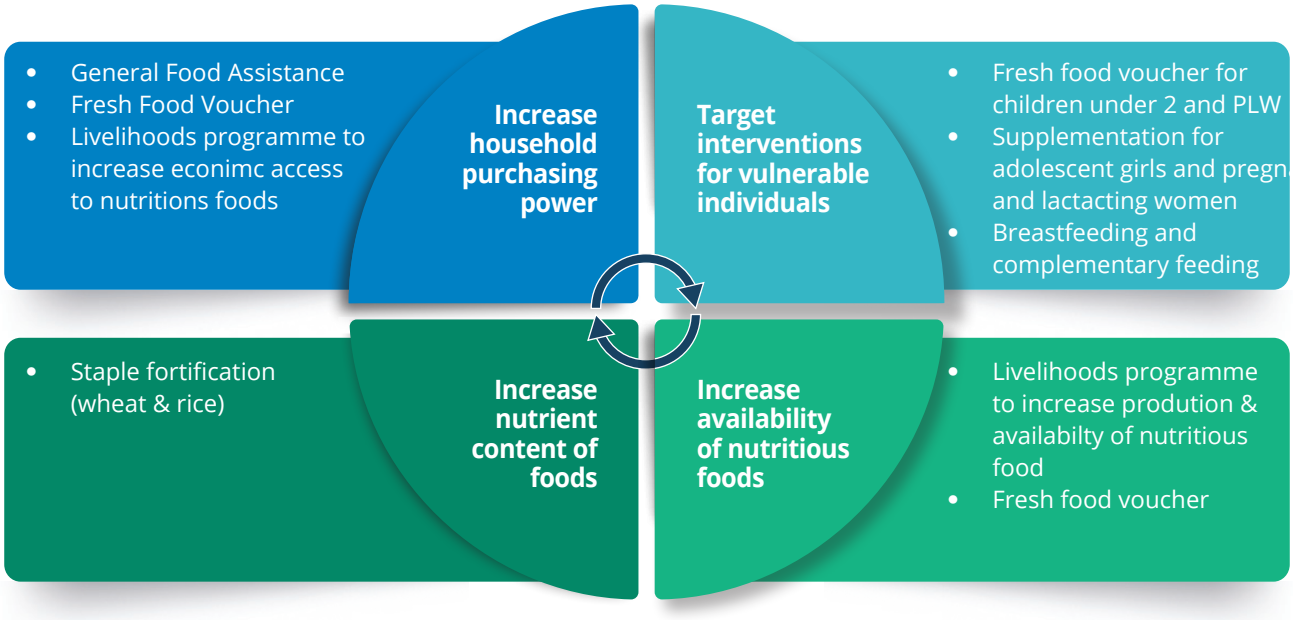
Diet costs were estimated for an FNG-standard household of five members, selected to represent nutritionally vulnerable target groups in the population. Per capita costs were derived by dividing the household cost by 5. The household composition used for the analysis reflects different stages of life and nutrition needs, and provides a per capita average of approximately 2,100 kcal, aligning with humanitarian assistance standards. The household includes:

- Breastfed child (12-23 months);
- School-age child (6-7 years);
- Adolescent girl (14-15 years);
- Breastfeeding adult woman (PLW); and
- Adult man.

Intervention modelling

Interventions modelled in this analysis were based on consultations with UNHCR, WFP and partner teams working in the Dollo Ado refugee camps. Current, planned or potential interventions were identified and translated into information that allowed for the modelling of their impact using the CotD software and/or impact on household affordability. To identify concrete recommendations based on the analysis, the FNG process concentrated on modelling the interventions outlined in Figure 5.

Figure 5: Entry points and interventions modelled to estimate reduction in cost of a nutritious diet



Considerations for interpretation and study limitations

Primary food price data were collected in August 2021 and may not reflect fluctuations in price and availability across different periods of the year. Cross-sectional price data rely on availability at a specific time and place, thus are limited to what was available when surveyed. Data do not entirely reflect availability levels, i.e., abundance or scarcity of food in the market, other than what it is reflected in the selling price.

Though the food list is exhaustive and reflects availability at the time of the survey, the few food items that could not be matched to nutrient composition data were excluded from the analysis. This primarily concerns meat products that comprised a mixture of cuts (e.g., camel or goat legs and head mixed with other meat). The exact nutrient content of items such as fermented camel milk was not identified in available literature, therefore the composition of fermented cow milk was used instead. Cost averages presented in this analysis are not weighted for camp population size, therefore all camps weigh equally on averages.

Food expenditure data used in this analysis account for in-kind general food assistance (GFA) rations and is reliant on the estimated value of in-kind rations that the CHS applies in its approach. The inclusion of GFA in food expenditure is accounted for in the non-affordability estimates reported here.

The estimates of the costs of the energy only and nutritious diets reported here should be interpreted as an economic benchmark based on what is available in markets during the period of August. The diets should not be interpreted as desirable or reflective of actual or current consumption patterns. The cost-reducing effect of the interventions modelled reflects the extent to which macro- and micronutrient specifications for individuals can be met at a lower cost or become more affordable when food expenditure increases, thus bringing nutritious diets closer to the economic reach of households.

Findings

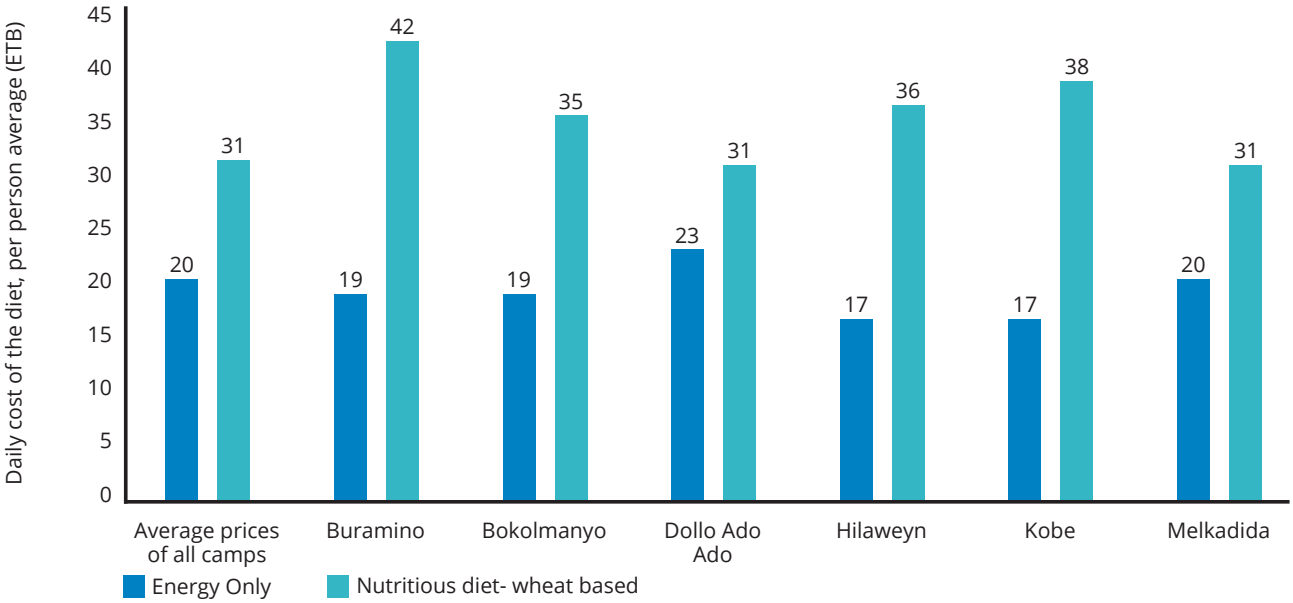
1.

The daily cost of a nutritious diet is ETB 31 per person on average across the Dollo Ado refugee camps. Meeting nutrient needs is 1.5 times more costly than meeting energy only needs. Wheat is the cheapest source of calories, followed by sorghum, maize and rice.

A nutritious diet that meets nutrient needs was estimated to cost an average of ETB 31 per person per day. The cost of the diet may vary across camps according to local prices and availability. The lowest cost of ETB 31 per person was estimated in Melkadida, and the highest in Buramino at ETB 42 per person. Meeting nutrient requirements was estimated to cost 1.5 times more than meeting energy only needs, as the average daily cost of an energy only diet was estimated at ETB 20 per person across camps. Rice is the preferred staple for most refugees, followed by wheat, sorghum and maize. Because adjusting preferences for rice led to sharp rises in the cost of the diet estimates, diets presented in this analysis have been adjusted to reflect preferences for wheat, which was generally found to be one of the cheapest available staples.

Over half the cost of the nutritious diet is composed of cereal (30 percent) and pulses (28 percent), followed by oil (18 percent), vegetables (14 percent), condiments (6 percent) and meat (5 percent). The diet is mostly composed of wheat, Ethiopian kale, beans and vegetable oil, with small quantities of offal, lentils, coriander and cumin. Cereals currently account for over half (55 percent) of current food expenditure (5), proportionally higher than the estimated 30 percent share of the cost of the nutritious diet.

Figure 6: Daily average cost of energy only and nutritious diets for all Dollo Ado refugee camps and for individual camps



2.

At least half of all households are unable to afford a nutritious diet, despite general food assistance and income-generating activities. Non-affordability of nutritious diets varies across camps: highest in Bokolmanyo and lowest in Melkadida, aligned to malnutrition trends.

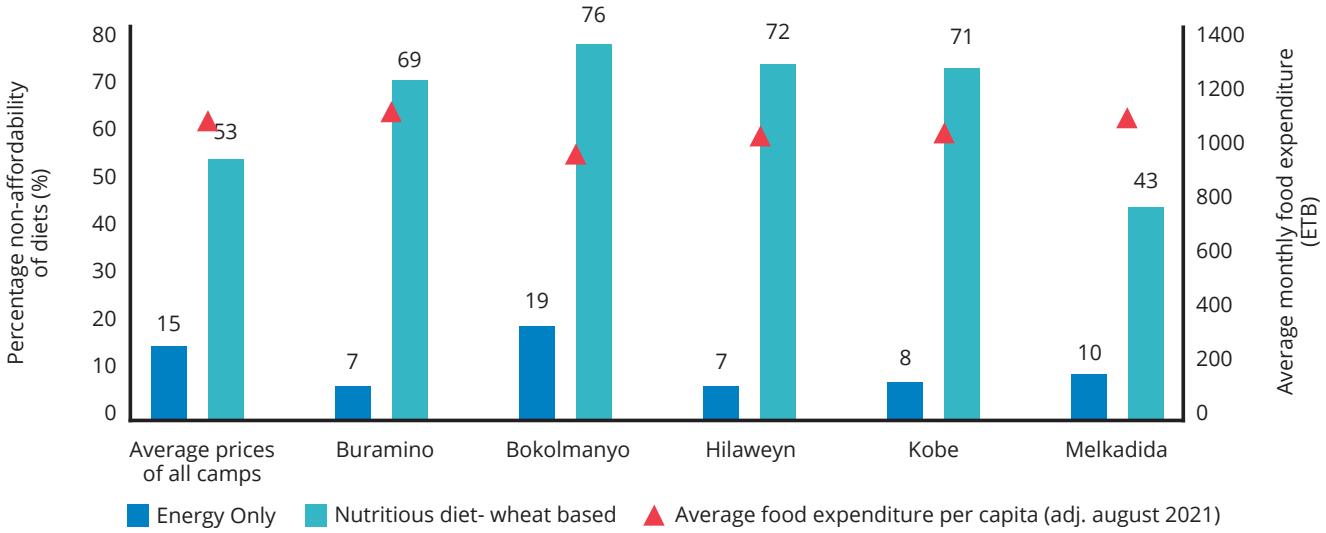
Based on average household food expenditure in the five camps, 16 percent of refugee households could not meet the cost of energy needs. Proportions vary by camp, from 7 percent in Buramino and Hilaweyn to 19 percent in Bokolmanyo. On average, over half of all refugee households in the five camps would not be able to meet the cost of a nutritious diet, though this proportion could be as high as 69 percent if different staples, such as rice, were purchased from the market. Non-affordability of nutritious diets may be 43 percent (in Melkadida) and as high as 76 percent (in Bokolmanyo). Notably, GAM prevalence is also highest in Bokolmanyo (20 percent) and lowest in Melkadida (12 percent)(3). These differences in the non-affordability of diets are primarily driven by expenditure differences between different camps: lowest in Bokolmanyo (ETB 917 per month), followed by Kobe, Buramino and Hilaweyn, and highest in Melkadida (ETB 1,144 per month). These patterns align with 2021 GAM rates estimates where prevalence is highest in Bokolmanyo and Kobe, and lowest in Melkadida.(3)

Higher non-affordability coincides with camps located furthest from the Genale river, which offers closer camps agriculture opportunities.(1)

Access to income-generating activities is more limited for female-headed households which are more likely to borrow money, thus increasing their vulnerability to inadequate diets.

On average, 86 percent of female-headed households borrow money and earn ETB 398 per capita per month, compared to 62 percent and ETB 648 for male-headed households. Income-generating opportunities are needed to boost spending power, especially for female-headed households and refugees living in camps faced with high levels of non-affordability.

Figure 7: Non-affordability of energy only and wheat-adjusted nutritious diets, for all Dollo Ado refugee camps, and average monthly food expenditure per capita per camp



3.

Food assistance is crucial for meeting essential macronutrient needs. However, the current ration is nutritionally inadequate. Current consumption is mostly limited to cereals and oil, though dairy and vegetables are commonly consumed. Fortified cereals in food assistance could increase micronutrient content.

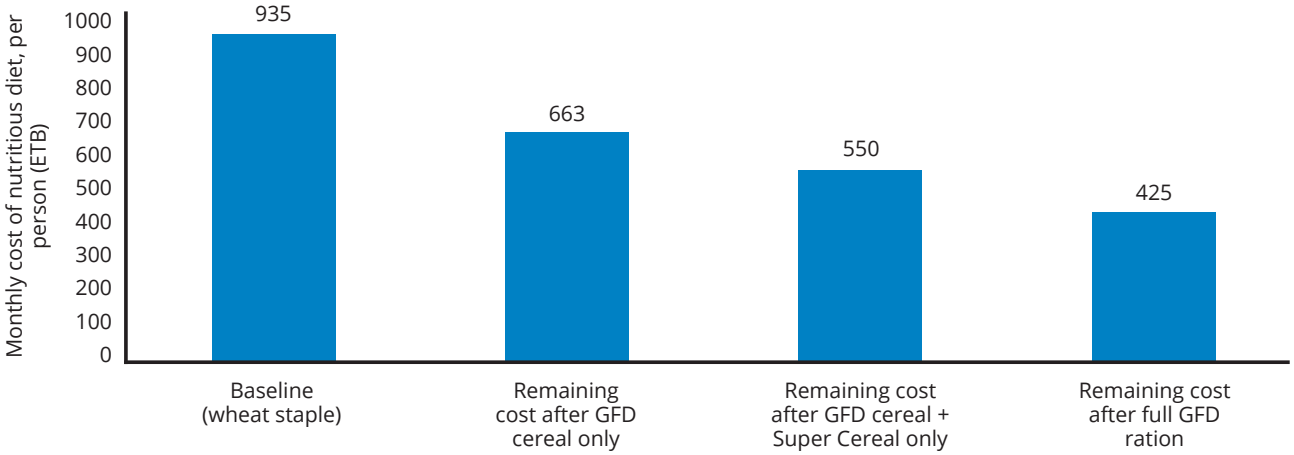
General food assistance (GFA) rations consist of 16kg of grains, 1.5kg of Super Cereal, 1.5kg of pulses, 0.9kg of oil and 1.5kg of salt per beneficiary, distributed monthly. However, since November 2021 the ration has been reduced to 60 percent of its original energy content due to budget constraints, effectively reducing the amounts of grains (10kg), Super Cereal (1kg) and oil (0.45kg). The CotD software was used to assess the impact of three food baskets on the cost of the diet: a full ration (100 percent of energy), a marginally reduced ration (84 percent of energy), and a further reduced ration (60 percent of energy). Assumptions for intrahousehold distribution were based on caloric requirements of each of the five model individuals. Results (figure 8) revealed that a full ration could reduce the monthly cost of the diet by 55 percent, from ETB 935 to 425 per person. A marginally reduced basket would reduce the cost by 51 percent, down to ETB 460 per person. A further reduced basket (60 percent of energy) would reduce the cost of the diet by 41 percent, to ETB 552 per person.

Results also revealed that the grain component could reduce the cost of a nutritious diet by 29 percent. When Super Cereal, pulses and oil are added, the cost could reduce by a further 26 percent, giving a 55 percent total reduction in cost. The addition of sugar to the ration had no effect on the cost of the nutritious diet as it does not contribute to meeting micronutrient requirements. Though the basket is primarily composed of grains (78 percent of the total volume), the smaller quantities of other foods largely contribute to the cost reduction as these provide important micronutrients, such as fat (oil), folic acid (pulses), vitamin A (Super Cereal and fortified oil) and vitamin B_{12} (Super Cereal).

Super cereal alone could reduce the cost of the diet by 15 percent, on average. Yet, for nutritionally vulnerable individuals, such as a child under two years and an adolescent girl, the difference in terms of cost reduction effect of Super Cereal compared to cereal alone is small, despite the large differences in the quantities included in the ration (1.5kg versus 16kg, respectively). For a child under 2 years, Super Cereal reduces the cost of the diet by 22 percent compared to 23 percent for cereal alone. Similarly, for an adolescent girl the reduction was 12 percent compared to 16 percent, respectively. These results highlight the importance of the inclusion of such nutrient-dense foods in GFA rations to ensure that nutritionally vulnerable individuals are supported, though Super Cereal alone would not be sufficient to meet nutrient needs.

When assessed against SPHERE standards (6) (a set of principles and minimum humanitarian standards) for minimum nutrient requirements, current reduced rations (60 percent of energy) are especially deficient in essential nutrients for adequate development of children and health of adults: folic acid (70 percent of needs not met), vitamin B_{12} (30 percent), vitamin C (14 percent), calcium (24 percent) and iron (2 percent). According to a 2020 refugee household survey (5), dietary diversity is limited. Current weekly consumption patterns mostly reflect GFA rations, dominated by grains, oil and pulses. Vegetables and dairy are consumed 3.8 and 3.5 days a week respectively, on average, while animal source foods and fruit are either not consumed or only consumed one day a week. Though strategies to increase consumption diversity are essential, fortification of staples could increase their nutrient content, potentially increasing access to vital nutrients that are likely lacking in current diets.

Figure 8: Monthly cost of a nutritious diet per capita (average) at baseline and after the inclusion of a complete ration (100 percent), a reduced ration (84 percent) and a further reduced ration (60 percent)



4.

Availability of fresh food is limited across all markets in the area although there is variation between camps with the least in Buramino. Livelihoods projects could increase focus on production of diversified crops to boost market availability.

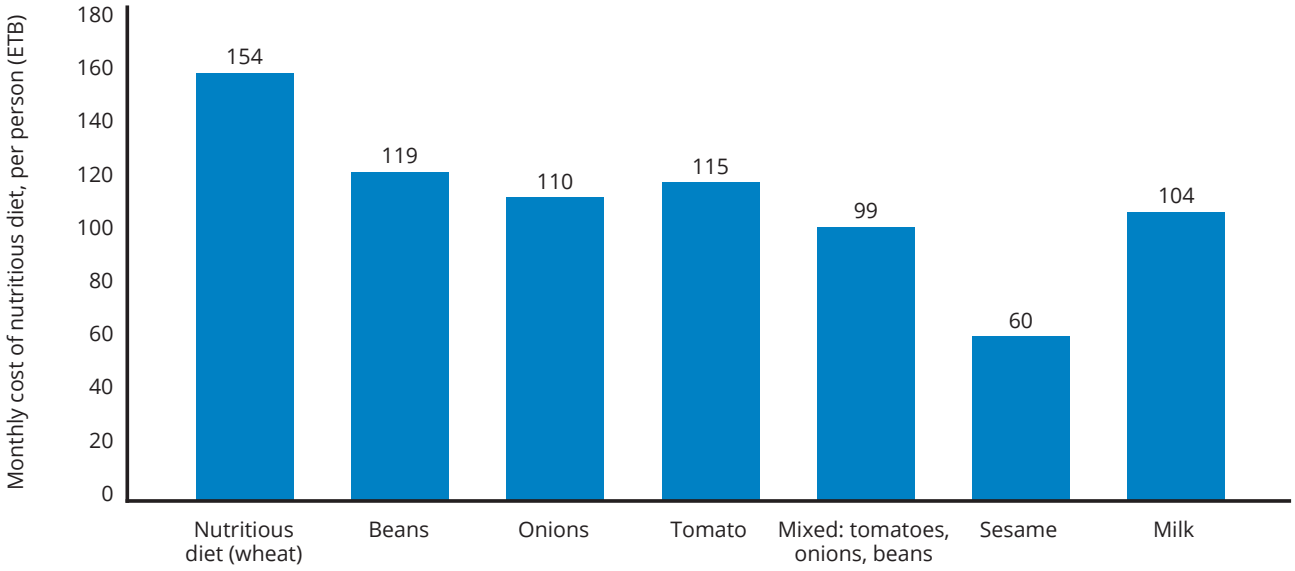
There is limited variation in commodity prices across camps, though greater variation was observed in the prices of eggs, meat and oil. Over the one year period between 2020 and 2021, nominal prices of dairy have increased between 25 and 60 percent, revealing a concerning trend, possibly highlighting the effects of high levels of inflation in the country.

Except for grains and oil, most of the food consumed by refugees is purchased from the market, especially animal source food, fruit and vegetables.(5) Based on the food price data collected, availability of food is relatively limited and varies across market sites, ranging between 40 items sold in Buramino to 67 items sold in the Dollo Ado market. The assortment of animal source products is highest in Dollo Ado and lowest in Bokolmanyo, followed by Buramino and Kobe; eggs were found in all markets surveyed though supply is generally low across all camps.(7) The assortment of fruit and vegetables is highest in Dollo Ado and Hilaweyn and lowest in Bokolmanyo. The five camps are located in order of age of settlement, starting from Bokolmanyo, the oldest and furthest from Dollo Ado and the border with Somalia, and progressing to Buramino, the closest and newest among the camps, and are connected by a single unpaved road.(1) Though the market of Bokolmanyo reported a positive expansion in recent years, its traders are negatively affected by high transportation costs.(7) Most markets are supplied with fresh fruit and vegetables from nearby farms, except Bokolmanyo, which is located furthest from suppliers.

Since 2012, the area has benefitted from agricultural irrigation investments which provided water to 1,000 hectares of irrigated cropland (as at 2019), benefiting members of its agricultural cooperatives through increased income and consumption, and increasing local supply of fresh produce.

The consumption of horticultural products was modelled in the CotD software to assess the potential impact of household access to the crop production programme. Based on information from implementing partners, the model assumes that a household involved in the programme would be able to consume 80% of produce grown over 1 hectare of land. Horticultural products modelled were tomatoes, sesame, beans and onions; household production of milk, based on livestock rearing, was also modelled. Results shown in figure 9 reveal that consumption of own produce and milk could cover between 23 and 61 percent of a household's nutritious diet cost.

Figure 9: Cost of a nutritious diet at baseline and after the inclusion of horticultural and dairy products, at zero cost to refugees, to assess the potential impact on the cost of a nutritious diet



Though the inclusion of sesame resulted in the largest cost reduction due to its high calcium content, a more realistic and diverse consumption of tomatoes, onions and beans would result in the cost being lowered from ETB 154 to ETB 99 for a household of 5, equivalent to a 36 percent reduction in cost. Combining consumption of these horticultural products with consumption of milk would lead to a greater reduction in the cost of the nutritious diet (analysis not shown). However, only a limited number of refugee households have access to agricultural activities.

The potential impact of access to fruit trees was also modelled by assessing hypothetical modest weekly consumption of papaya (1 per household), bananas (2 per person) and watermelon (1 per household). Results showed a limited reduction in the cost of the nutritious diet (up to 3 percent) though, in combination with access to other plant and animal products, fruit could meaningfully contribute to the intake of vitamin C and other essential micronutrients.

5.

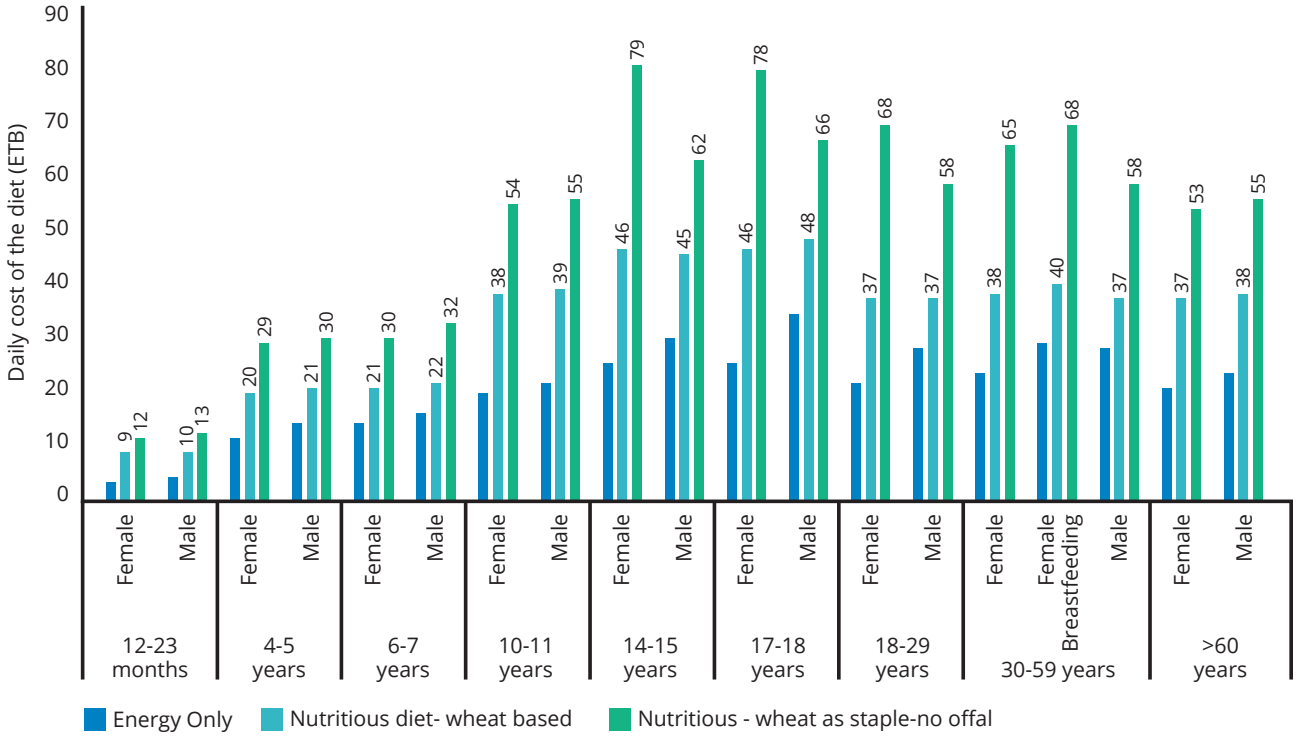
Adolescent girls and women are particularly vulnerable to poor nutrition, due to higher nutrient needs. The cost of a nutritious diet is highest during adolescence, pregnancy and lactation. Targeted nutrition-specific interventions could improve nutrient intake in adolescents and pregnant and lactating women (PLW).

A breakdown of the cost of the nutritious diet in the modelled household reveals an uneven distribution in individual costs, which are highest for adolescent girls, followed by PLW, adult men, school-age children and breastfed children. This reflects the differences in micronutrient and energy requirements across different stages of life. For example, though the adult man and PLW have the highest dietary energy requirements, the adolescent girl requires the most iron and calcium of all household members. These were also identified as the limiting nutrients driving up the cost of the nutritious diet for the adolescent girl, as well as for the PLW and child under two.

Women represent 52 percent of the refugee population in the Dollo Ado camps and their high micronutrient requirements make the cost of their diets higher than average. An analysis of a wider selection of index individuals (figure 10) revealed that nutritious diets of adolescents (aged 14 to 18 years) would cost the most, ranging between ETB 38 and ETB 48 daily. Currently, approximately 67 percent of the refugee population in the Dollo Ado camps younger than 18 years, with the majority aged between 7 and 17 years – a nutritionally demanding and critical stage of development.(6) A sensitivity analysis revealed that removing offal (such as liver or kidney) from the selected foods leads to a sharp increase in the cost of nutritious diets, particularly for adolescent girls. Offal is commonly found in the market and consumed in the area, and is a rich source of micronutrients, only needed in small quantities, thus relatively inexpensive.

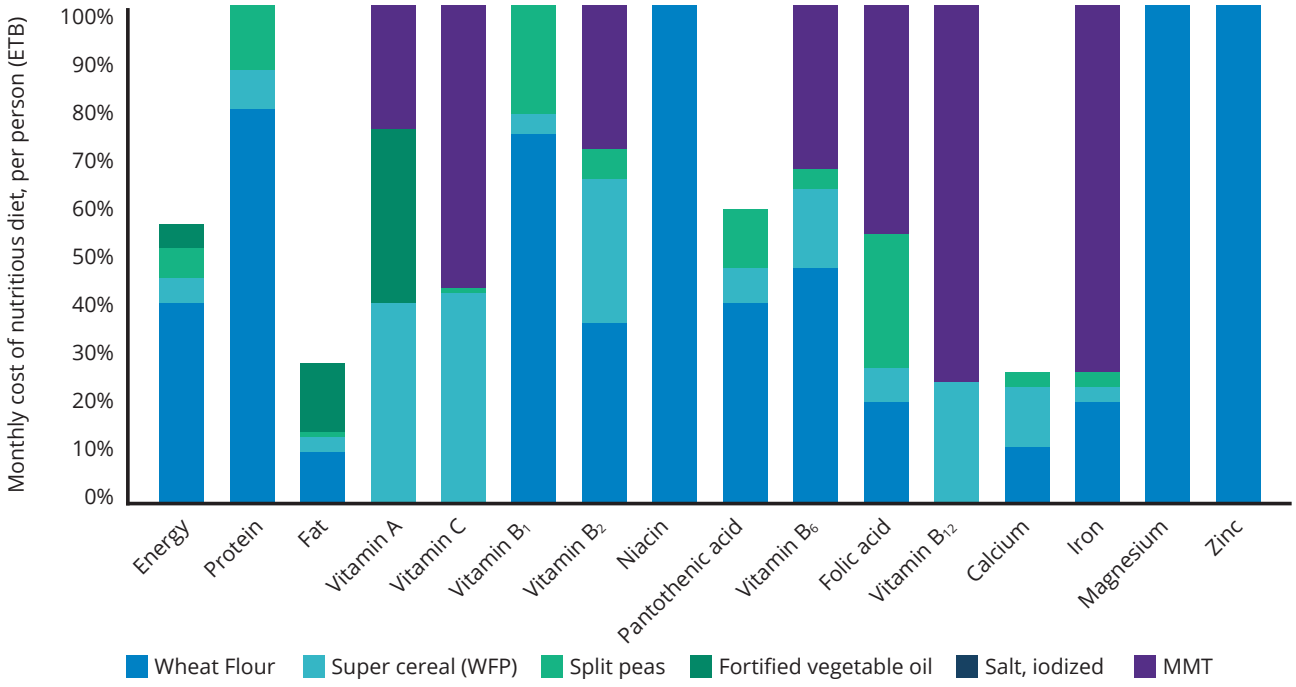
In light of the non-affordability estimates presented in point two of the main findings, affordability of micronutrient-rich foods, such as offal, may be a challenge for many refugee households. Targeted interventions could improve access to nutritious diets for more nutritionally vulnerable individuals (infants, children, adolescent girls and PLW), and could help break the cycle of malnutrition.

Figure 10: Cost of the energy only and nutritious diets (with and without offal) for individuals across various age groups and biological sex



Multiple micronutrient tablets (MMT) and iron and folic acid (IFA) supplements could support PLW in meeting nutrient needs when nutrient-dense foods cannot be accessed. Modelling in CotD showed a reduction of 5-9 percent in the cost of a nutritious diet when 1g of IFA was added to the daily diet, and between 41 and 43 percent when 1g of MMT was added daily. Supplements with a broader spectrum of micronutrients lead to a greater cost reduction due to their contribution to a higher number of micronutrients targets. Micronutrient supplements could also be used to complement GFA for PLW as current rations fall short of meeting PLW nutrient and energy needs (figure 11). A nutrient contribution would include vitamin A, vitamin C, folic acid, vitamin B_{12} and iron. Micronutrient supplements could also support adolescent girls and women of reproductive age in meeting nutrient needs when nutrient-dense foods cannot be accessed.

Figure 11: Percentage of nutrient requirements of a PLW met by components of the GFA ration and MMT



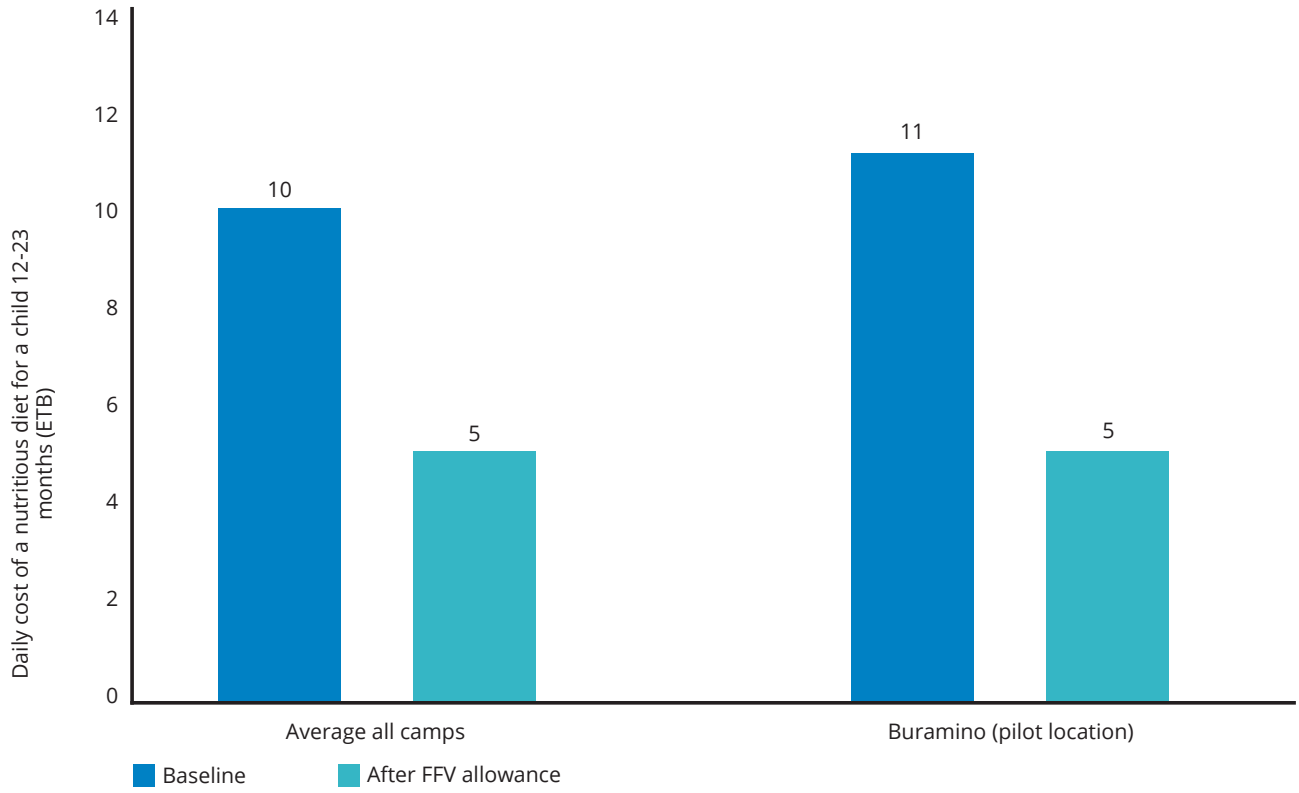
6.

While most children aged under 6 months are exclusively breastfed, delays in the introduction of complementary foods beyond 6 months increases the risk of malnutrition in young children. Fresh food vouchers (FFV) could improve consumption of fresh food and the timely introduction of complementary food for these children.

Approximately 8 out of 10 children under 6 months are exclusively breastfed in the Dollo Ado refugee camps. However, timely introduction of complementary feeding is especially poor in some camps (as low as 33 percent in Hilaweyn), hindering optimal health and growth beyond 6 months of age. Delays in the introduction of complementary food may be due to limited economic and/or physical access to fresh food (among other factors). A fresh food voucher (FFV) programme could support parents, enabling the introduction of the right foods at the right time to help meet the growing nutrient needs of these children. An IMC FFV programme piloted in Buramino was modelled using the CotD software. The model included the equivalent of the monthly entitlement[1] for each child at zero cost. The results (figure 12) show that the FFV could cover up to 57 percent of the cost a nutritious diet for a child aged 6–23 months.

An evaluation of the FFV programme has identified issues around the perishable nature of fresh food and the lack of access to cool storage. Among the strategies recommended to prevent these issues are higher frequency (weekly) of FFV distribution and implementing storage systems, which could also contribute to limiting nutrient loss. Blanket supplementary feeding was also modelled; results revealed that a 200g ration of Super Cereal Plus could cover 64 percent of the cost of the diet for a child under two (results not shown), meaningfully contributing to meeting nutrient targets.

Figure 12: The impact of the fresh food voucher basket entitlement on the cost of the nutritious diet for a child 6–23 months



[1] The monthly entitlement for each child, equivalent to ETB 3,250, was modelled by adding the following quantities and items: 3kg of banana, 12 eggs, 3kg of potatoes, 10 bundles of chard, 2kg of onion, and 2kg of carrot.

7.

Current school meal ration covers between 24 and 41 percent of a nutritious diet cost for primary school-age children. The ration's nutrient content could be significantly improved through the inclusion of small portions of locally available fresh foods. Adolescents would benefit substantially from the reintroduction of school meals to support healthy development during a crucial development phase.

The school meal programme currently provides primary school children with meals consisting of 100g of Super Cereal and 25g of oil, consumed in the form of a porridge. The impact of the school meal was modelled to assess the effect on the cost of the diet for a child aged 6–7 and a child aged 10–11 years (representing lower and upper elementary school). The results showed a reduction in the cost of the diet of 24 percent for the older child and 41 percent for the younger child. Though the school meal ration covers half of almost all nutrient needs for a child aged 6–7 years, the same ration cannot meet the nutrient targets of a child aged 10–11 to the same extent. This is due to increasing energy and nutrient requirements as the child gets older, which should be factored into meal provision if nutrient needs are to be met as children move up through primary school. The impact of school meals was also modelled for adolescent children and results showed that the daily cost of the diet would reduce between 8 and 9 percent for females and males respectively. The school meal could meet important nutrient needs for adolescents during this crucial stage of development.

School meals could also be improved by integrating small quantities of fresh and nutrient-dense foods into the current ration. Five scenarios were modelled in the CotD, with small quantities of kale (50g), egg (50g), milk (100g), lentils (30g) and sesame (5g) added to the basic ration. The potential contribution to nutrient requirements is shown in figures 13a and 13b. The results showed that complementing a school ration with a glass of milk had the greatest effect and could further reduce the cost of a diet by 12–17 percent for older and younger children respectively. Connecting local producers to school meal programmes could strengthen local supply and improve children's diets.

Figure 13a: Percentage of nutrient requirements met by the basic school meal and additional fresh food items for a child aged 6–7 years

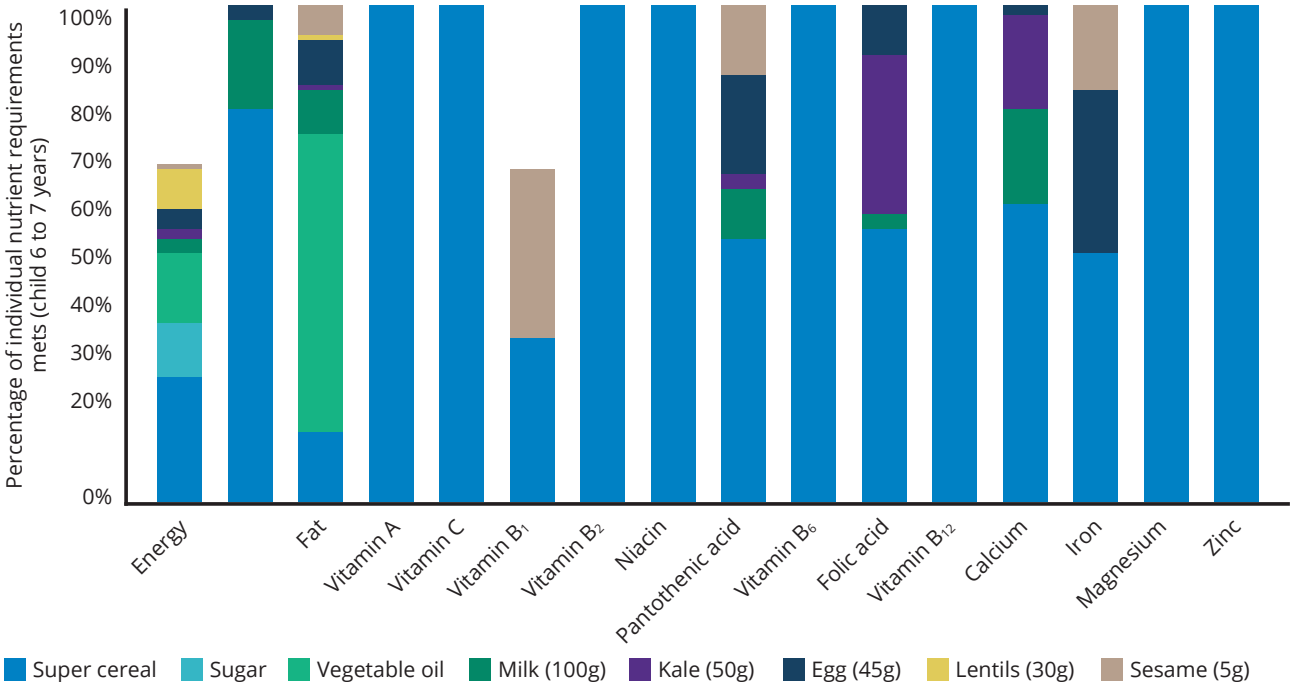
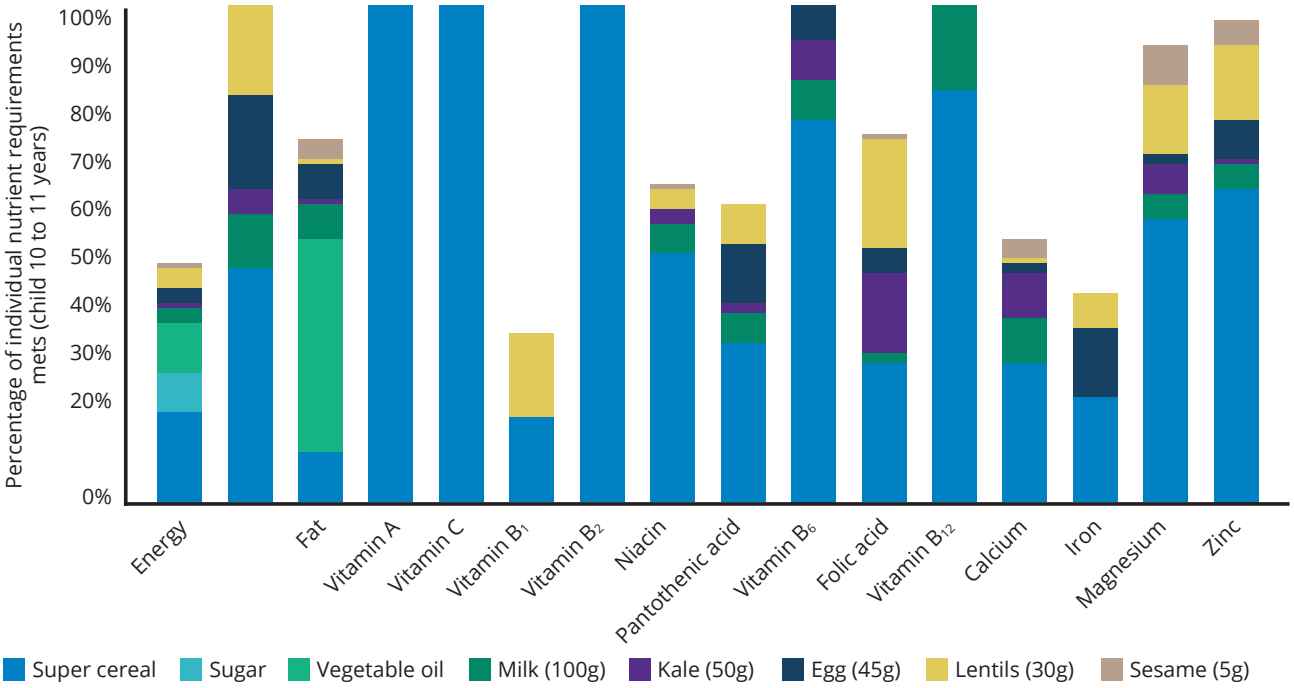


Figure 13b: Percentage of nutrient requirements met by the basic school meal and additional fresh food items for a child aged 10–11 years



8.

General food assistance reduces the cost of a nutrient adequate diet by approximately half. Combining livelihoods programmes, school feeding and FFV programmes, bring households closer to meeting nutrient targets. However, nutrient coverage could be improved through more comprehensive packages of interventions. Greater employment opportunities are also needed to increase purchasing power and improve affordability of nutritious diets.

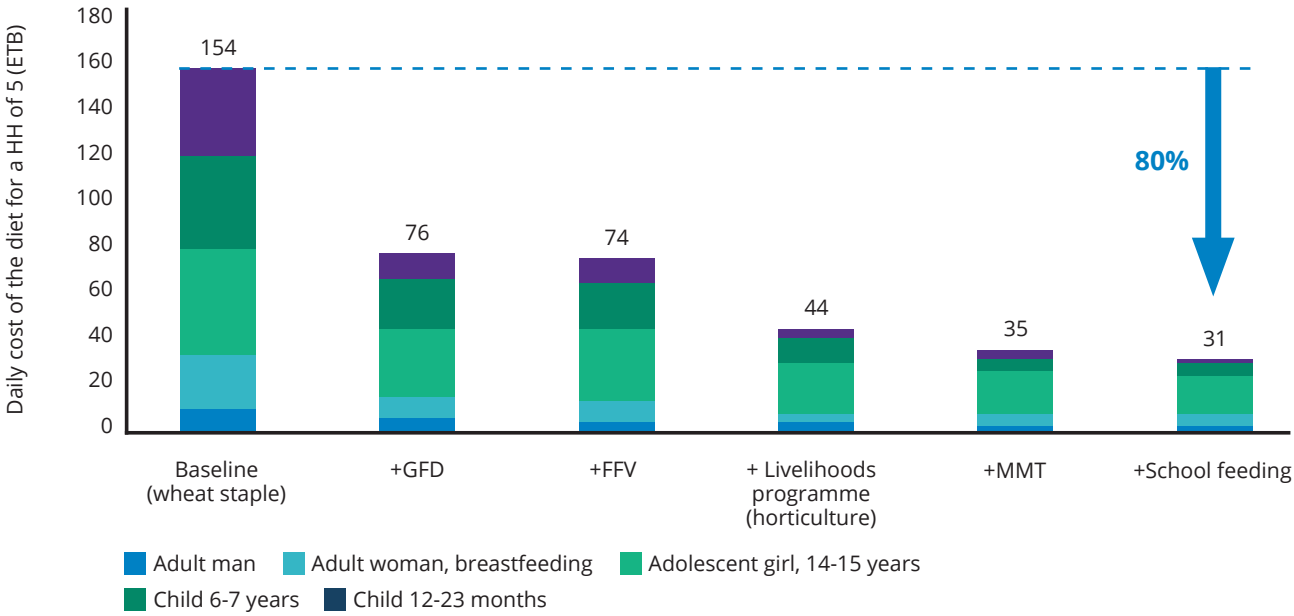
Findings discussed in points 1 to 7 show the potential impact of interventions across four pathways: increasing purchasing power, increasing nutrient content of foods, increasing availability of nutritious foods, and targeted, nutrition-specific interventions. However, no single intervention can eliminate nutrient gaps and ensure access to healthy diets for all households. Interventions modelled were combined into a household package, leveraging different entry points to maximize impact.

Table 1 provides a summary of the intervention package that was modelled in the CotD. Results (figure 14) show an incremental decrease in the household cost of the nutritious diet, from ETB 154 to ETB 31, equivalent to a reduction of 80 percent. This reduction would potentially bring diets within the reach of all refugee households. The package modelled is a combination of interventions currently implemented and new or potential interventions that could help bridge nutrient gaps.

Table 1: Summary of interventions combined into a household package, by target group

Target beneficiary	Intervention
	General food assistance
	Livelihoods programme - multi-crop horticulture
	Fresh food voucher
	MMT (daily for pregnant and lactating women + weekly for adolescent girls)
	School feeding

Figure 14: Incremental reduction in daily cost of the nutritious diet for a modelled household of 5, by intervention (adding interventions from left to right) and individual cost



Main takeaways

Below are the six main takeaways based on the FNG analysis. The vision is to inform programming decisions relating to the assistance and livelihood projects in and around the five refugee camps included in this assessment. These points were identified during a final stakeholder consultation where findings were comprehensively discussed.

1 Food-sensitive livelihoods and food-sensitive cash-based interventions combined with general food assistance remain essential in the short term, while long-term solutions for self-sufficiency of refugees are developed. Currently, refugees rely heavily on the general food assistance rations provided, and ration cuts will severely hinder access to adequate diets.

2 Super Cereal is a critical component of rations that move households closer to meeting essential nutrient needs; the removal or reduction of the Super Cereal component will lead to greater difficulty in meeting these needs. Nevertheless, nutrient gaps remain considerable, particularly for vulnerable individuals such as adolescent girls and PLW. Further ration cuts will exacerbate vulnerabilities.

3 Given limited resources to meet all needs of all members, focus must be on the most vulnerable individuals. Cash, food, voucher and other modalities of assistance should focus on providing adequate access to a nutritious diet to children under 2 and PLW.

4 To improve exclusive breastfeeding rates and increase optimal and timely introduction of appropriate nutritious food for young children across all camps, it is crucial to support mothers in exclusive breastfeeding and ensure timely introduction of complementary food through FFV vouchers and SBCC activities.

5 Health sector partners (RRS, Ministry of Health, UNICEF, UNHCR) should consider the provision of supplements (such as iron and folic acid or multiple micronutrient tablets) to the most vulnerable refugees (PLW, children under 5 and women of reproductive age).

6 School feeding programmes are crucial in supporting young children's growth and breaking the cycle of malnutrition. More specifically, current primary school porridge-based meals could be complemented with additional fresh food products such as milk or eggs (creating links to local production and supplies) and also with micronutrient supplementation. Given the current rate of non-affordability of nutritious diets and implemented ration cuts, the reintroduction of the pre-school meal programme should be considered to ensure children under 5 have access to nutrient-dense meals.

Despite general food assistance, one in every two refugee households is unable to afford a nutritious diet, with some camps nowhere near meeting their needs. Income generating opportunities and multisectoral integrated solutions are urgently needed to support refugee families in achieving nutrient adequacy. Targeted interventions are needed at a time when resources are limited. Furthermore, targeted interventions are needed at a time when resources are limited.

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Acronyms

ARRA	Agency for Refugees and Returnees Affairs
CotD	Cost of the Diet
CHS	Comprehensive Household Surveillance
DHS	Demographic Health Survey
EPHI	Ethiopian Public Health Institute
ETB	Ethiopian Birr
FFV	Fresh food voucher
GAM	Global acute malnutrition
GFA	General food assistance
IFA	Iron and folic acid (supplements)
IMC	International Medical Corps
MMT	Multiple micronutrient tablets
PLW	Pregnant and lactating women
SBCC	Social and behaviour change communication
UNHCR	United Nations High Commissioner for Refugees
WFP	United Nations World Food Programme
WHO	World Health Organization
WRA	Women of reproductive age

Contributors

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