Government of the
Republic of Zambia

WFP
World Food Programme

SAVING LIVES
CHANGING LIVES

Fill the nutrient Gap

Zambia

SUMMARY REPORT

March 2021

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

For more information please contact:
World Food Programme Zambia
WFP.Lusaka@wfp.org
Plot 10/4971, Tito Road, Rhodes Park, Lusaka

Nutrition Division (NUT) World Food Programme
Systems Analysis for Nutrition
nutrition@wfp.org
Via C.G. Viola, 68/70, 00148, Rome, Italy

ACKNOWLEDGEMENT

The National Food and Nutrition Commission of Zambia, with particular thanks to Freddie Mubanga, Idah Chama Mulenga, Sosten Banda, and Boniface Kanjere; the NFNC's ministerial partners; the WFP Zambia Country Office team, the Fill the Nutrient Gap team at the WFP HQ Nutrition Division, with particular thanks to Janosch Klemm, Zuzanna Turowska, Saskia de Pee and Jane Badham; the WFP Regional Bureau Johannesburg with particular thanks to Rosalyn Ford and James Kingori; and special thanks to all the partners and stakeholders who provided valuable inputs into the process.

Photos: WFP/Sophie Smeulders, WFP/Paul Mboshya, WFP/Archives

LIST OF ACRONYMS

CotD	Cost of the Diet
FNG	Fill the Nutrient Gap
FSP	Food Security Pack
IFA	Iron/folic acid
IYCF	Infant and Young Child Feeding
MCDP II	First 1,000 Most Critical Days Programme
MEB	Minimum Expenditure Basket
NFNC	National Food and Nutrition Commission
SBC	Social and behaviour change communication
ZMW	Zambian Kwacha

Fill The Nutrient Gap **Zambia** | SUMMARY REPORT

Introduction to Fill the Nutrient Gap (FNG)

The effects of malnutrition are globally recognized as being devastating and far-reaching. Malnutrition in Zambia takes many forms and is widespread. Despite concerted efforts it remains a major public health concern. Micronutrient deficiencies are common among children and pregnant and breastfeeding women. Anaemia has remained high at 41 percent of pregnant women, 28 percent of breastfeeding women and 58 percent of children under five. Overweight and obesity rose from 13 percent in 2002 to 23 percent in 2014, suggesting that the triple burden of malnutrition – the co-existence of chronic malnutrition, micronutrient deficiencies and overnutrition – is becoming an increasing concern. There are glimmers of hope: between 1992 and 2018 the national prevalence of stunting fell to 35 percent, though with significant disparities between provinces, ranging from 46 percent in Northern Province to 29 percent in Western Province.

In the past decade the government of Zambia has made progress in integrating nutrition objectives into multisectoral policy[1] and different government ministries have begun including nutrition as an objective in their respective policies. It is imperative that national stakeholders and champions now have access to evidence, data, and advocacy tools for the further advancement and integration of nutrition so that past gains are not lost and nutrition remains a national priority.

FNG in Zambia: Purpose

The overarching objective of the Fill the Nutrient Gap (FNG) analysis was to bring stakeholders together to identify and prioritize context-specific policies and programmes across different sectors aimed at improving nutrition among target groups across the lifecycle. The FNG process was initiated to support the objectives set forth by the First 1,000 Most Critical Days Programme (MCDP II), a multisectoral initiative coordinated by the National Food and Nutrition Commission (NFNC). The aim of the analysis was to identify and analyse entry points for interventions within the scope of ongoing MCDP II programmes and Zambian government policy, and to support expansion or implementation of those programmes with evidence-based advocacy messages.

Building consensus for improved nutrition

Nutrition is a crucial pillar in the development of a healthy, productive nation. Good nutrition enhances physical and cognitive development, prevents disease, and increases the potential of the workforce and society. Improving diets, especially of children and women, brings immediate and long-term health, education and economic benefits. The 2013 Lancet series on maternal and child undernutrition identified a variety of nutrition interventions that have proven effective. Successfully improving nutrition outcomes depends on interventions being tailored to the local context.

[1]The Seventh National Development Plan (7NDP) identifies nutrition as a critical factor for social and economic development; the National Food and Nutrition Strategic Plan (NFNSP) focuses on multisectoral action to reduce stunting by 25% in target districts by 2022. (From the Proposal to Support Implementation of the First 1000 Most Critical Days Programme (MCDP) II)

FNG is an analytical process comprised of a secondary literature review in combination with Cost of the Diet (CotD) linear optimization to understand the availability, cost and affordability of a nutritious diet. This process – applying the CotD findings to contextual analysis and intervention modelling - is dedicated to identifying and prioritizing the scaling up of proven interventions that are most likely to be effective in a given setting.

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

FILL THE NUTRIENT GAP: SITUATION ASSESSMENT FOR MULTISECTORAL DECISION MAKING ON THE PREVENTION OF MALNUTRITION

The two direct causes of malnutrition are inadequate nutrient intake and disease. The FNG assessment focuses on gaps in nutrient 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 on nutrition 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 systems.

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, 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.

FNG Zambia: Process and Scope of the Analysis

The FNG process in Zambia was led by the NFNC with WFP providing technical assistance. FNG analysis was informed by guidance and input from secondary data sources, CotD modelling, and the development of recommendations by several stakeholders (see full report for list).

The process started in October 2020 with meetings between WFP and the NFNC, government, NGOs, UN agencies and other development partners. To define the focus, stakeholders established consensus on the analysis and identified ongoing and potential interventions for modelling during the inception workshop in November 2020. The FNG team then conducted preliminary analysis and validated findings with stakeholders in the first half of March 2021. Revisions to the analysis with intervention modelling were completed and final results presented at a dissemination workshop at the end of March 2021. During this workshop, stakeholders developed recommendations based on FNG main findings (Figure 1).

Figure 1: Food systems for diets and nutrition and health outcomes framework. (Adapted from HLPE 2016).

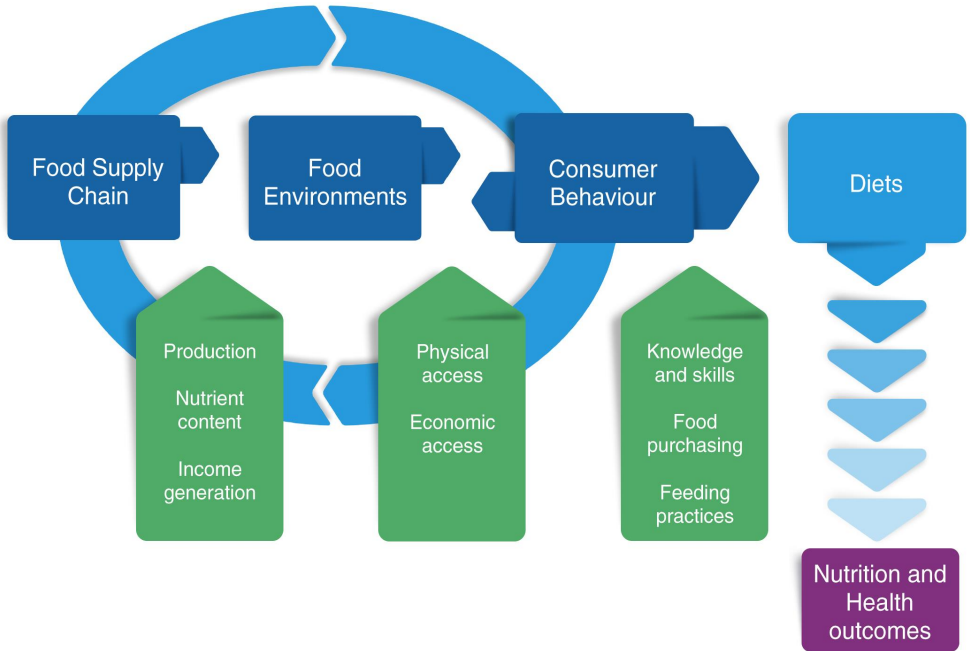


Figure 2: FNG analytical framework.

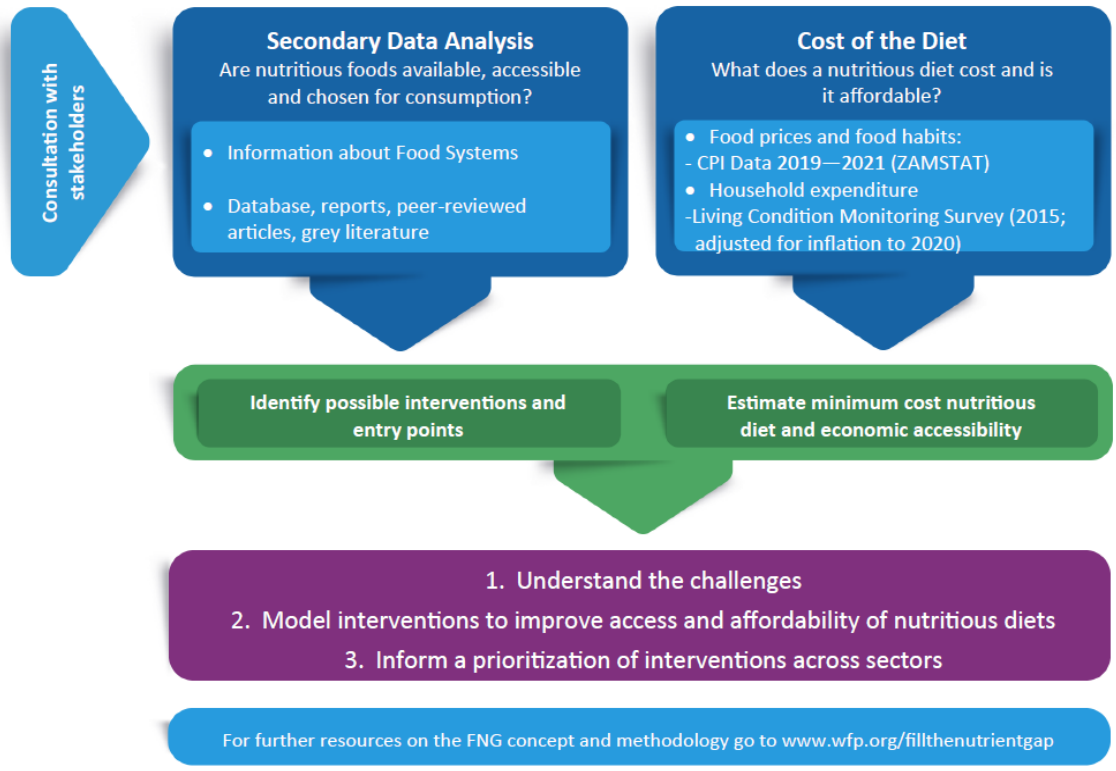


Figure 3: Entry points and interventions modelled to estimate reduction in cost of a nutritious diet.

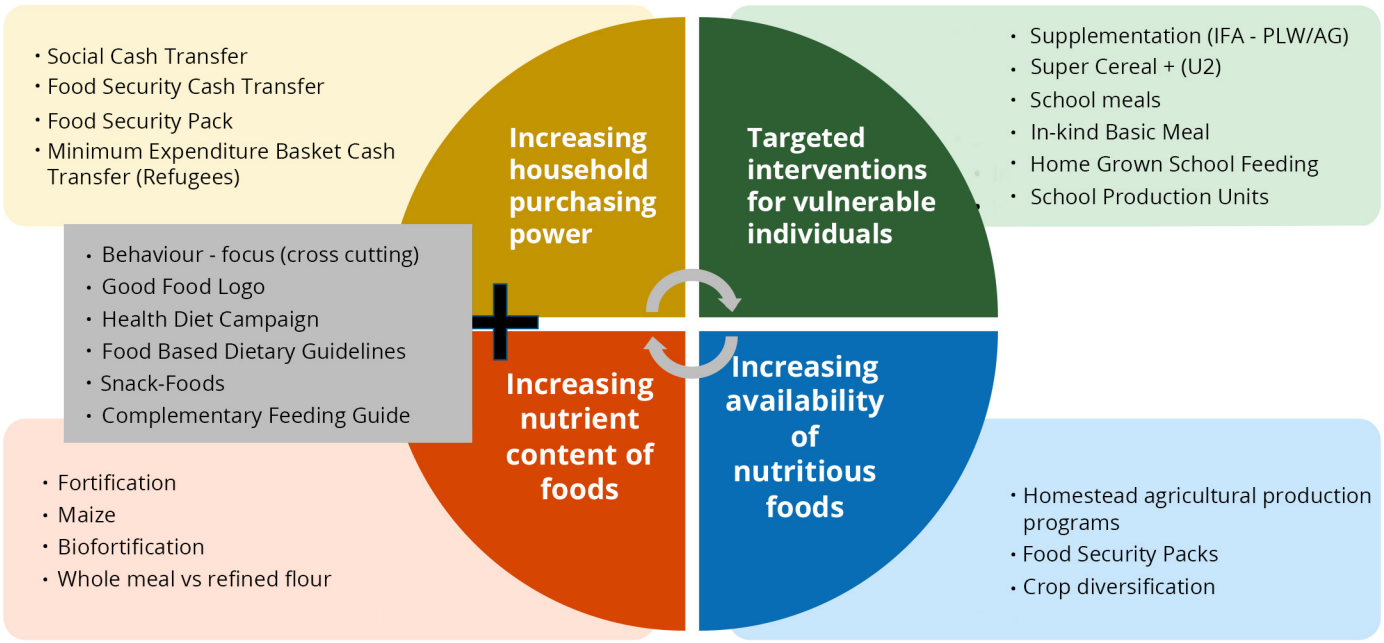


Figure 4: The three levels of diet quality
(Adapted from SOFI 2020).

Methodology

The FNG analysis is composed of a secondary literature review of the food system and the social protection and health sectors, focusing on entry points for current and potential nutrition interventions, and a Cost of the Diet (CotD) analysis (Figure 2). CotD analysis uses linear optimization to provide a detailed look at availability, cost and affordability of nutritious diets.

Secondary Data Analysis

FNG secondary data analysis identifies barriers to accessing healthy diets, platforms for reaching nutritionally vulnerable groups in the population, and opportunities for policy and programme interventions to improve access to nutritious foods through multiple sectors including agriculture, health, social protection and education. Long-term solutions to malnutrition require transformation of the food system along food supply chains, food environments and consumer behaviour patterns (Figure 1).

COST OF THE DIET (CotD)

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 (see also 4). For discussion of similarities and differences in methodology, please refer to the full 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 (Figure 4), 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 and vary from context to context, e.g. raw meat during pregnancy in some parts of the world.

Scope and focus of the FNG analysis

Based on discussions with stakeholders during the inception workshop, the following parameters for analysis were agreed:

Geographic scope: Analyses were carried out at provincial level for all 10 provinces. Because food price data was not available for Muchinga separately from Northern province, estimates for diet costs for Muchinga were based on price data collected for Northern province, and modelling was not carried out for Muchinga province. Non-affordability estimates for Muchinga were based on combining cost for Northern province expenditure data from Muchinga.

Seasonality and month selection: Initial analysis and modelling were carried out for the non-lean season (August 2019 and August 2020) and the lean season (February 2020 and January 2021)[2]. The values in the baseline findings reflect the 2020 non-lean season and 2021 lean season. Modelling was carried out on 2019 and 2020 non-lean and lean season data.

Modelled household

Based on national average household size, the FNG analysis was modelled on a 5 person household which included the following individuals:

1. Adult man
2. Breastfeeding adult woman
3. Adolescent girl
4. School-going child
5. Breastfed child 6-23 months old

This family composition also provides for a good per capita average. Based on requests from stakeholders, certain models were run for individuals not in the modelled household (e.g. Early Childhood Care and Development interventions for children between 3 and 5 years).

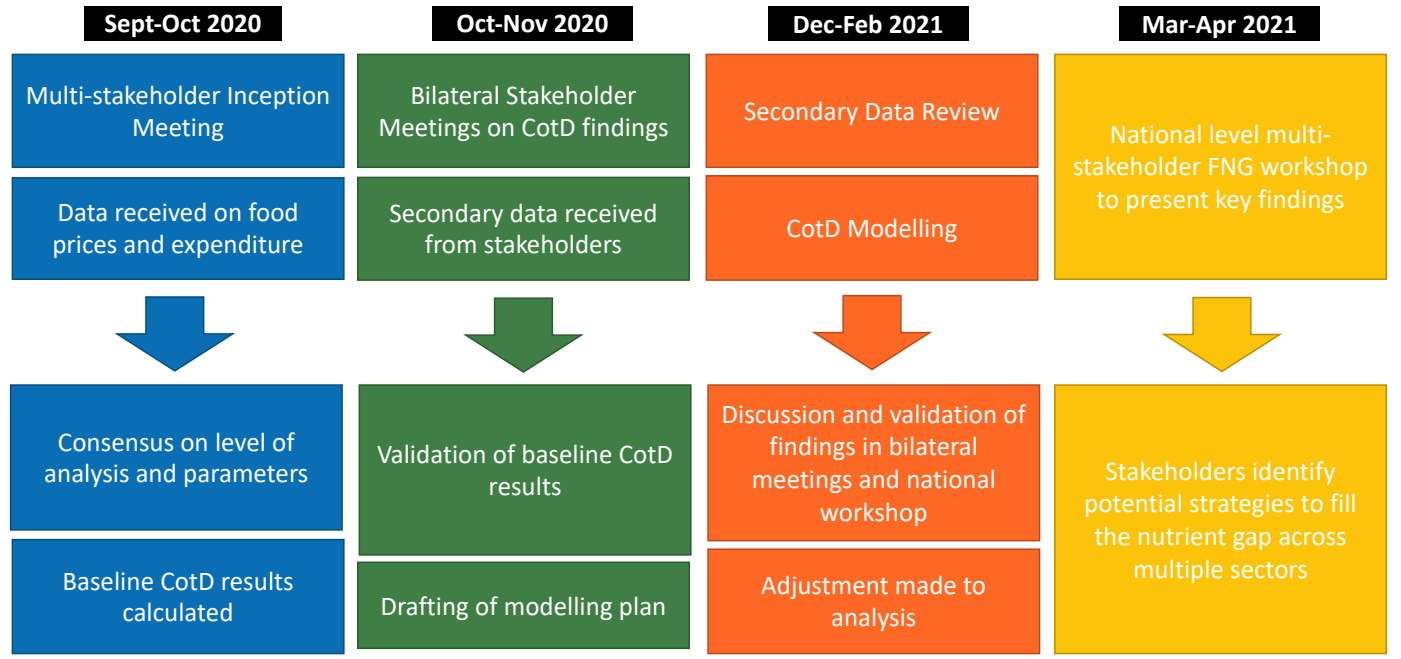
Modelling areas: Nine provinces (all provinces except Muchinga) were used for modelling. Certain models were only included for priority areas, these being Northern, Luapula, Western, and Lusaka provinces. Individual models have been carried out in

[2]Lean season months are considered to refer to the period between planting and harvesting (October to February), often co-occurring with scarce job opportunities and reduction in income. The other months (March to October) are non-lean season, in the case of this analysis referring to the time after harvest.

single provinces based on intervention suitability (e.g. dairy production models have been included in areas where this livelihood is common and feasible). For a complete list of models and modelling areas, please see the full FNG Zambia report.

Scope of intervention modelling: All interventions modelled in the FNG analysis were defined and approved by stakeholders. The focus of the modelling was defined at the initiation of the FNG, based on priorities defined by the MCDP II, the Zambia WFP Country office, and engagements with NGOs, civil society, line ministries, and UN partners. To identify concrete recommendations based on analyses, the FNG process concentrated on modelling the interventions outlined in Figure 3.

Figure 5: The Fill the Nutrient Gap Process in Zambia.



FNG in Zambia: Findings

Main Message 1

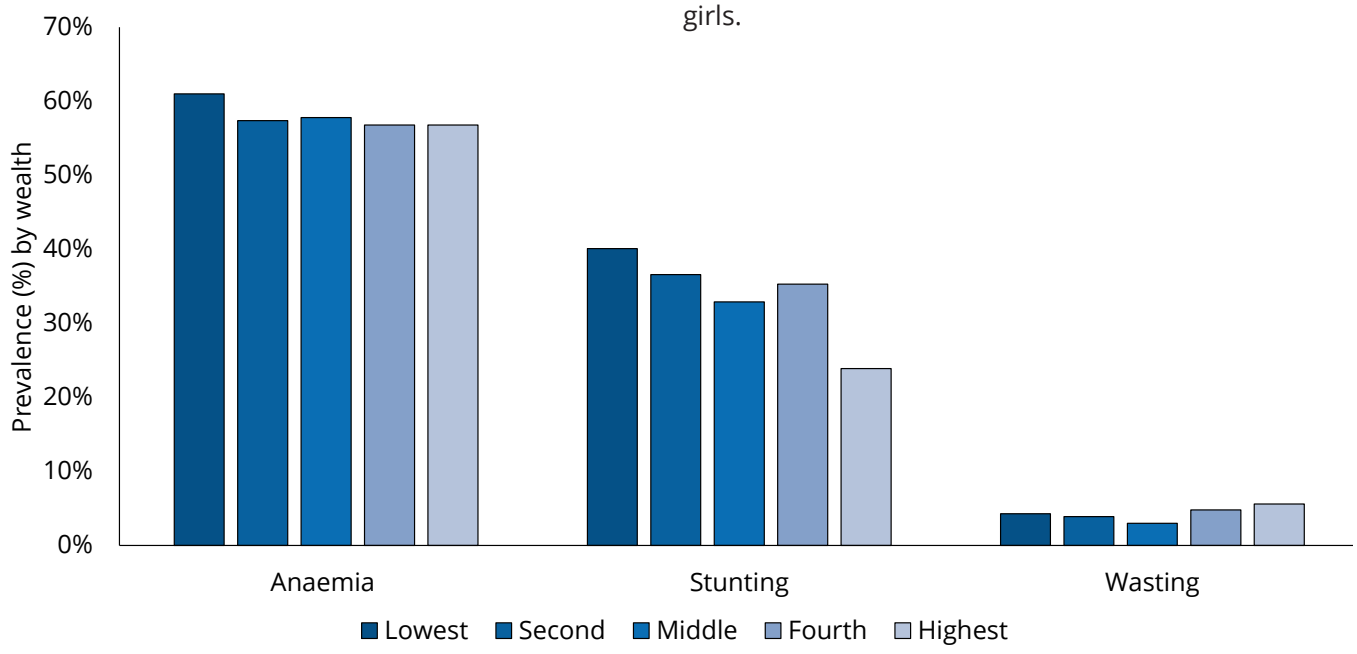
DESPITE PROGRESS OVER THE LAST YEARS, CHRONIC MALNUTRITION AND MICRONUTRIENT DEFICIENCIES REMAIN WIDESPREAD. THE DOUBLE – AND IN SOME AREAS TRIPLE - BURDEN OF MALNUTRITION IS ON THE RISE, AS INDICATED BY STAGNATING REDUCTION OF CHRONIC MALNUTRITION AND INCREASE OF OVERWEIGHT.

National prevalence of chronic malnutrition has decreased from 45 percent of children under 5 stunted in 2007 to 35 percent in 2018. At the same time, diet related indicators are causing more death and disability than 10 years ago. Estimates from the Global Burden of Disease Study show that death and disability associated with overweight and obesity has increased by over 100 percent (ranked as 7th overall), those related to high blood pressure are up by around 50 percent (6th overall), and generic dietary risks increased by over one third (now 8th highest). These trends come at a cost. Between 2017 and 2026, it is estimated that the worldwide impact of undernutrition – not accounting for overweight and obesity – is a loss of 2 billion USD to the global economy, or 7.5 percent of GDP. It also has strong implications for global human capital development: 4.5 million years of schooling are lost every year that malnutrition remains unaddressed (Zambia Ministry of Health, National Food and Nutrition Commission and Food and Nutrition Technical Assistance III Project (FANTA), 2017).

Child malnutrition in Zambia is prevalent across almost all wealth quintiles (Figure 6). There is little to no variation across wealth groups for anaemia and wasting, and only the highest wealth group has a stunting prevalence below 30 percent. Stunting is also lower in children whose mothers achieved higher education; however, this is a relatively small group and high educational attainment is correlated with wealth. There is a five percent difference between children whose mothers completed primary vs. secondary education (38 vs. 31 percent). This indicates that it is not just education and knowledge that is the barrier to adequate nutrient intake, but also the possibility to act on them.

Malnutrition in children under 6 months of age is already high, with one in five children stunted, indicating low endowment from pregnancy. Similarly, anaemia is very high in children aged 6–8 months (73 percent), indicating low iron storage at birth in mothers. Of the 80 percent of children whose weight at birth was known, nine percent weighed less than 2.5 kg. Stunting prevalence almost doubles by the time children reach the age of two, with half of children aged 18–24 months stunted. After 24 months of age, as growth is less rapid and the need for micronutrient dense foods decreases with the increased ability to consume larger portion sizes, stunting slowly reduces to 30 percent. These trends indicate that IYCF practices are suboptimal and, equally important, that dietary intake in mothers before and during pregnancy and lactation is insufficient to support optimal growth. With teenage pregnancies particularly high (one in three Zambian girls aged 18 have had a live birth), it is particularly important to consider the dietary intake of adolescent girls.

Figure 6: Malnutrition characteristics by wealth quintiles (DHS 2018).



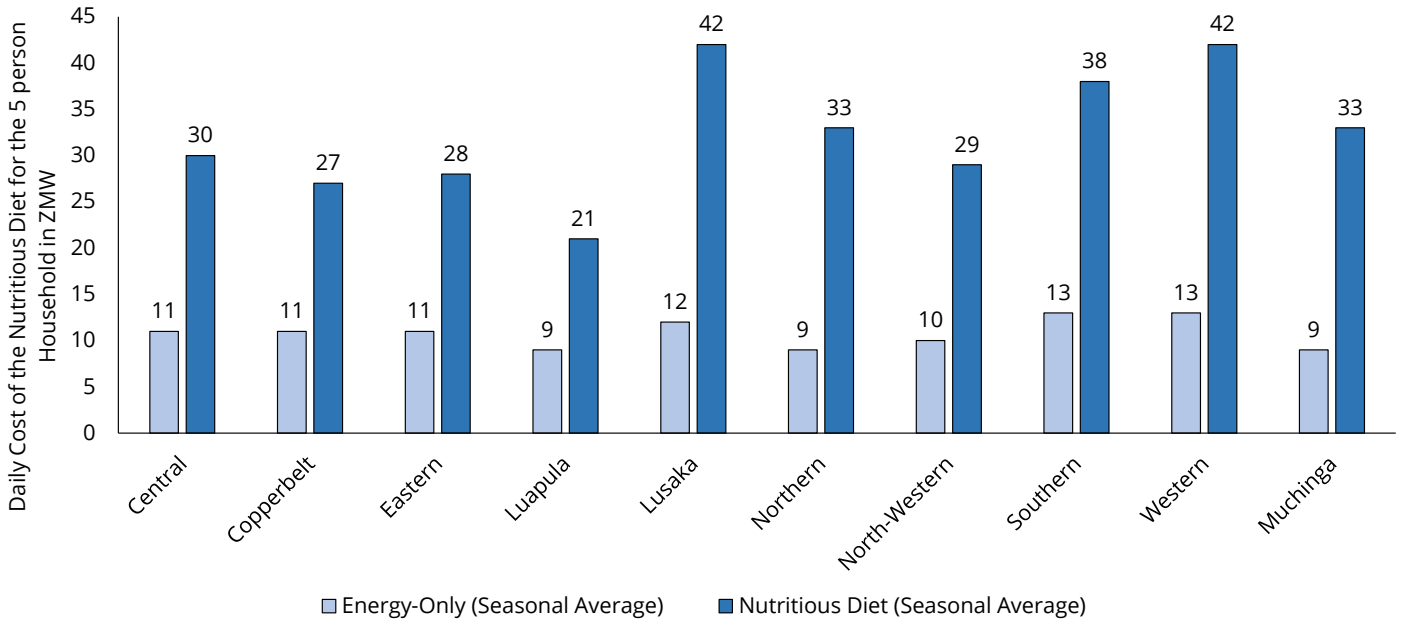
Main Message 2

THE NUTRITIOUS DIET COSTS ON AVERAGE 33 ZAMBIAN KWACHA (ZMW) PER 5 PERSON HOUSEHOLD PER DAY. THIS PRICE INCREASED BY AN AVERAGE OF 10 PERCENT BETWEEN AUGUST 2019 AND JANUARY 2021 DUE TO INFLATION. IN SOME PROVINCES THE INCREASE WAS AS HIGH AS 40 PERCENT.

Meeting the nutrient needs of a 5 person household would cost ZMW 33 per 5 person household per day. Meeting only energy needs would cost ZMW 11. A nutritious diet therefore costs three times as much as a diet providing only enough kilocalories. This is because the foods needed to meet nutrient needs are more expensive than staple foods. Whereas energy needs can be met through cereals and oil alone, a nutritious diet consists of a variety of foods from different food groups such as cereals, green leafy vegetables, other vegetables, animal source foods, fruit, pulses and oil.

The cost to meet only energy needs is relatively stable across Zambia, ranging from ZMW 9 to 13 per household per day. However, meeting nutrient needs with the nutritious diet varies greatly across the different provinces, ranging from ZMW 21 (Luapula) to ZMW 42 (Western, Lusaka) per household per day. With the exception of Lusaka, costs are particularly high in largely rural areas.

Figure 7: Daily cost of the energy-only diet and the nutritious diet across all modelling provinces (CotD 2021).

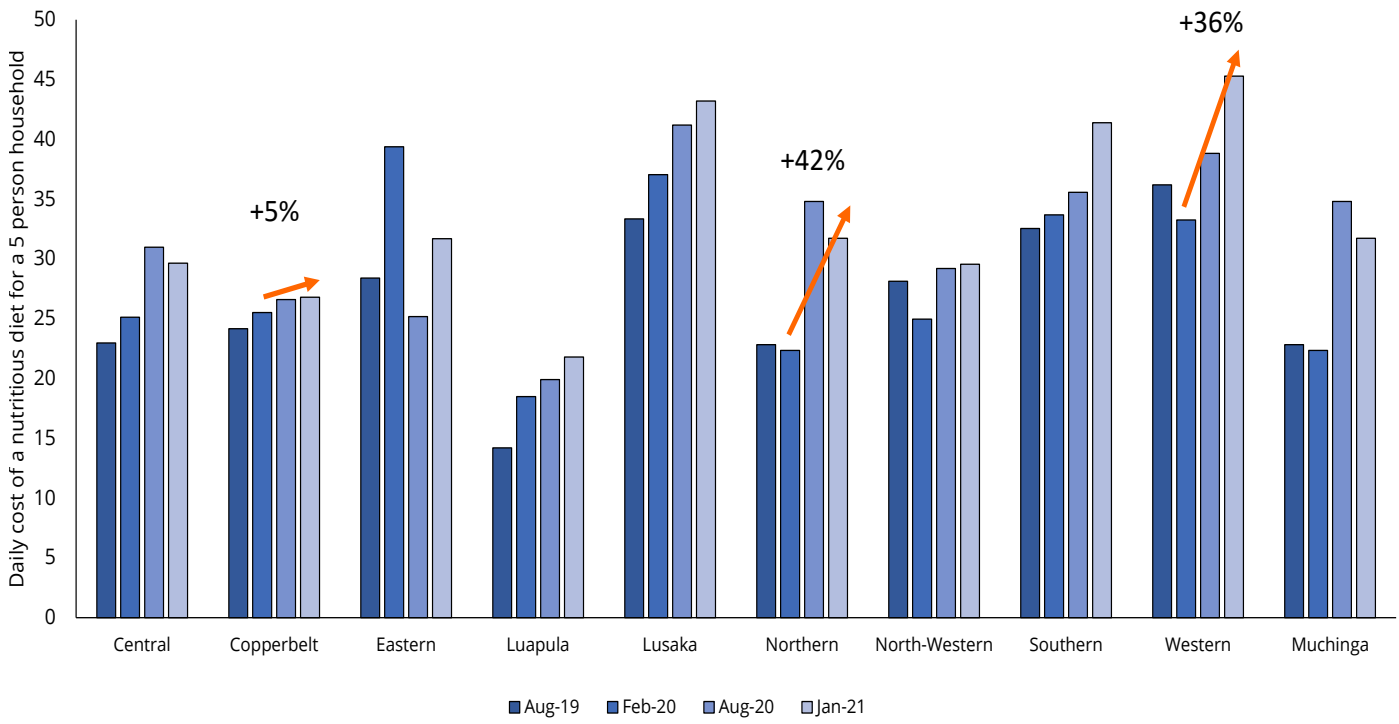


Rising food prices in Zambia increase diet cost. Since August 2019 the daily cost of the nutritious diet has risen from ZMW 27 to ZMW 34 per household per day in January 2021, representing more than 10 percent growth. As Figure 8 shows, this increase is highest in some of the remote areas, e.g. in Western and Northern provinces, where the cost of the nutritious diet increased by more than one third over 2020. More centralized provinces with well-established infrastructure networks, e.g. Copperbelt and Lusaka, show lower and more steady increases (5 and 10 percent respectively).

In Zambia, over half of households (53 percent) would not be able to afford a nutritious diet[3] and one in eight (13 percent) would not be able to afford an energy-only diet. Both estimates vary across provinces (see Figure 9). Non-affordability of an energy-only diet ranges from two to 31 percent, indicating that in some provinces, for example Northern, Luapula and Western, over a quarter of households would not be able to afford an energy-only diet. Substantially higher ranges for non-affordability were found for a nutritious diet, from 25 percent (Copperbelt) to 82 percent (Western).

This range of costs (see main message 2) and non-affordability shows that variation in available foods and their cost, have an impact on the variation in the cost of a nutritious diet, and that existing income levels further exacerbate or mitigate cost levels.

Figure 8: Change in cost of a nutritious diet between August 2019 and January 2021, by province (CotD 2021).



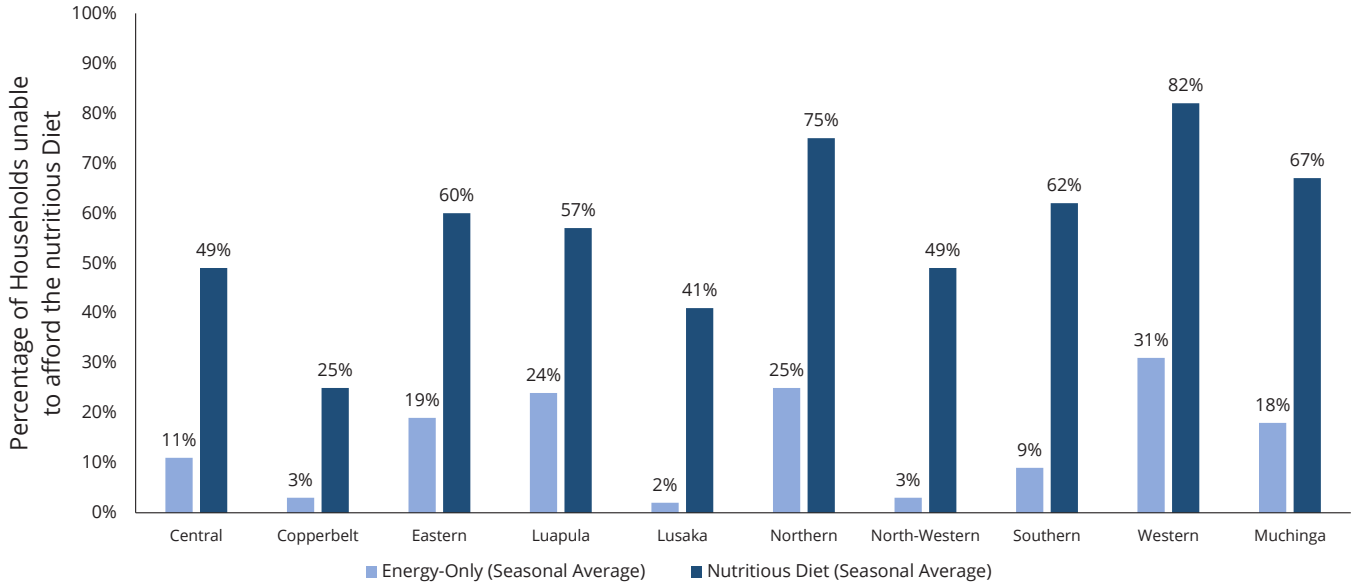
Main Message 3

CURRENTLY, HALF OF ALL HOUSEHOLDS WOULD NOT BE ABLE TO AFFORD THE NUTRITIOUS DIET. RURAL HOUSEHOLDS ARE MOST AT RISK OF BEING UNABLE TO AFFORD THE DIET, WITH NON-AFFORDABILITY HIGHER THAN 70 PERCENT IN CERTAIN PROVINCES.

For example, Luapula has relatively low cost (ZMW 21/household/day) but relatively high non-affordability (57 percent), whereas it is the opposite for Lusaka, where the cost of a nutritious diet is high (ZMW 42) but non-affordability is relatively low (41 percent).

[3]Non-affordability is an estimate of the proportion of households whose food expenditure is below the estimated minimum cost of a nutritious or energy-only diet. It contextualizes the cost of a nutritious diet by placing it in relation to how much money households typically spend on food.

Figure 9: Non-affordability for the energy-only and the nutritious diet by province (CotD 2021).



High diet costs do not necessarily mean households face challenges in accessing nutritious diets, therefore understanding non-affordability is crucial to identifying areas most vulnerable to price increases. The FNG findings show that increases in food prices, co-occurring with the global COVID-19 pandemic and local movement restrictions, drove non-affordability up from 43 percent to 53 percent in fewer than 18 months (data not shown). It should be noted that because of a lack of data on income and food expenditure, the FNG findings were based on these being assumed to be stable, although emerging evidence is showing that incomes have in fact declined.

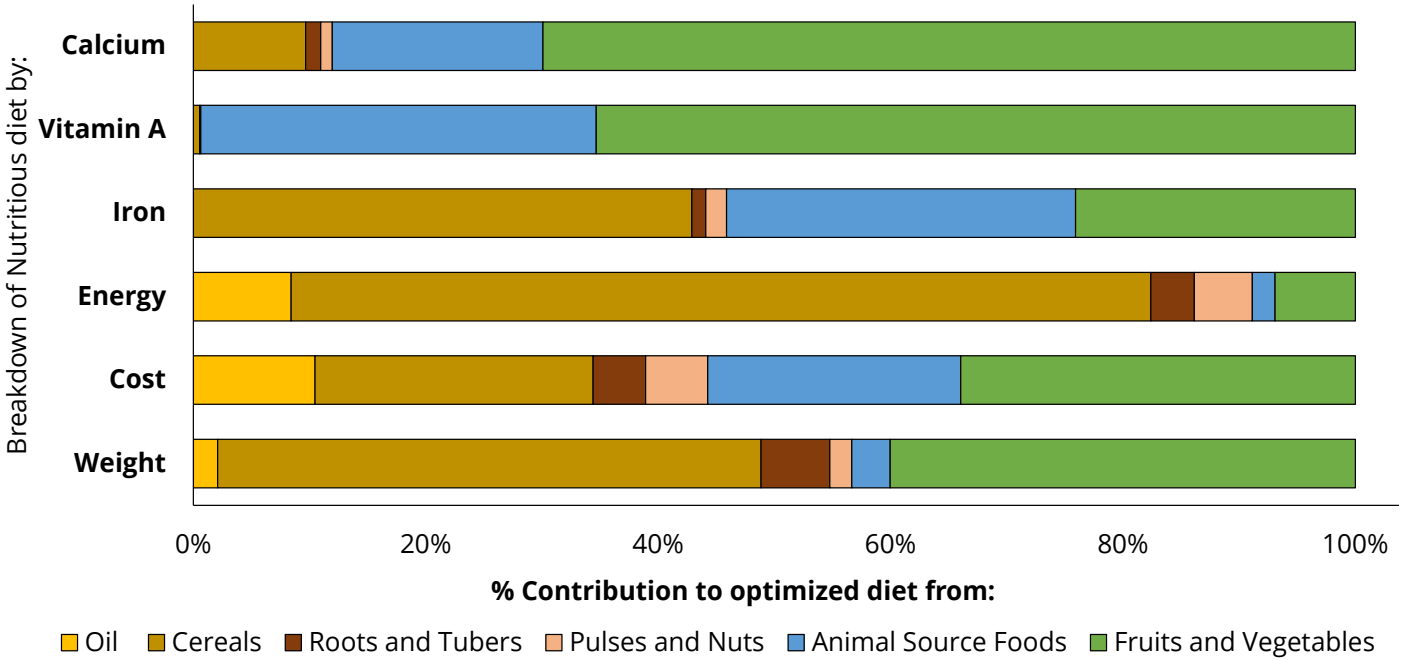
Non-affordability of the nutritious diet is only slightly determined by seasonality. At the national level, lean season non-affordability is 3 percent higher than non-lean season non-affordability, only factoring in food price changes. Urban/rural divisions matter greatly for non-affordability — rural household non-affordability (64 percent) is significantly higher than urban non-affordability (35 percent).

Main Message 4

FRESH, NUTRIENT-DENSE FOODS, WHICH CONTRIBUTE MOST TOWARDS COVERING ESSENTIAL MICRONUTRIENT NEEDS, CONTRIBUTE MOST TO THE COST OF THE NUTRITIOUS DIET. CURRENT FOOD EXPENDITURE PATTERNS INDICATE THAT DIETS LACK SUFFICIENT QUANTITIES OF FRUIT AND VEGETABLES.

Nutritious non-staple foods, such as animal source foods, fruit and vegetables, make up around 55 percent of the optimized cost of the nutritious diet. Staples, such as cereals, roots, oil and pulses, make up around 45 percent of cost, but contribute most of the food weight (56 percent). Staples make up the majority of energy contribution (over 80 percent) of the optimized diet, but lack sufficient micronutrients to cover all needs. Non-staple foods contribute only around 10 percent to energy, but are indispensable in meeting micronutrient needs: almost all vitamin A and around 60 percent of iron needs are met through vegetables, fruit and animal source foods.

Figure 10: Contribution to optimized diet nutrient content, cost and weight from different food groups (CotD 2021).



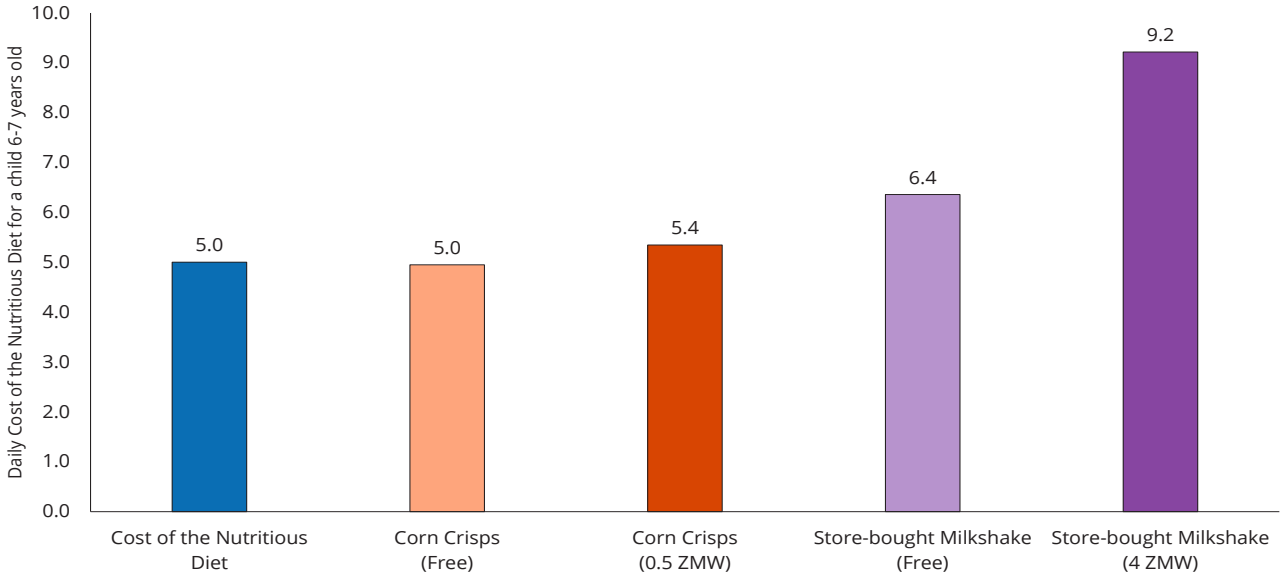
Households must spend a relatively large share of their food budgets on small but necessary quantities of non-staple foods. Two thirds of the total household food budget would have to go towards animal source foods, vegetables and fruit, and only one third to energy dense staples such as cereals, pulses and oils in order to align with the optimized least cost nutritious diet. For example, in Eastern Province a household would have to spend ZMW 11 on a total of 2.5kg cereals, pulses and oil, and around ZMW 22 on a total of 2.5 kg of vegetables, animal source foods and fruit.

Studies on dietary behaviour in Zambia suggest that more than 90 percent of households already regularly consume some animal source foods and dark green leafy vegetables but not enough of them. Data from the 2015 Living Conditions Monitoring Survey indicate that for Eastern region, households spend around ZMW 14 a day on fresh, non-staple foods – below the estimated minimum level of ZMW 22. It is therefore crucial that households have sufficient resources to buy or produce large enough quantities of non-staple foods to cover their nutrient needs, and that social and behaviour change communication (SBC) and information on healthy diets are widely disseminated to encourage healthy, nutritious choices.

Consumption of non-diverse diets and unhealthy foods is a main driver of overweight and obesity. Obesity almost doubled between 2002 and 2014 for women of reproductive age, from 13 percent to 23 percent. To tackle this and to prevent non-communicable diseases, behaviour change strategies are crucial for the development of healthy food habits in younger children and adolescents. Snack foods, rich in fat, sugar and salt, provide consumers with energy but do not contribute to essential micronutrient needs. Frequent consumption of unhealthy snacks puts people at higher risk of overweight and obesity.

Figure 11 shows the average cost of a nutritious diet for a school-age child with and without the consumption of snack foods. Consuming corn crisps, even when received for free, does not reduce the cost of the nutritious diet because these foods do not contribute to micronutrient needs. A commercially produced milkshake, which is higher in calories and sugar than corn crisps, increases the cost of the nutritious diet even when received for free because it needs to be complemented by foods of even higher nutritional value but that provide less energy.

Figure 11: Cost of the nutritious diet for a child aged 6–7, without and with the addition of snack foods (CotD 2021).



Main Message 5

NUTRITION INTERVENTIONS AND SBC FOR DIETARY INTAKE SHOULD BE TARGETED TO IMPROVE NUTRITION FOR ALL VULNERABLE INDIVIDUALS. BREASTFEEDING MOTHERS AND TEENAGE GIRLS HAVE ELEVATED MICRONUTRIENT NEEDS AND WOULD BENEFIT FROM TARGETED INTERVENTIONS TO FILL SPECIFIC MICRONUTRIENT GAPS.

When breaking down the cost of the nutritious diet by individual household members, the adolescent girl accounts for the largest share of cost at 30 percent, followed by the lactating woman (28 percent), the adult man (22 percent), the school-age child (14 percent), and the child of 12–23 months (6 percent).

For the child of 12–23 months, appropriate breastfeeding and complementary feeding practices can reduce the risk of micronutrient deficiencies. In Zambia, breastfeeding practices are generally good although median duration of breastfeeding (20 months) is slightly declining, and only 13 percent of children under 2 (one in eight) receive a minimum acceptable diet.

Optimal breastfeeding contributes significantly to covering the energy and micronutrient needs of the child under 2 and reduces the household's need to purchase additional food items. In an optimal breastfeeding scenario, the cost of the nutritious diet for the breastfed child is ZWM 1.7 per day. If the child is fed at 50 percent of the optimal breastfeeding level, this cost increases to ZMW 2.4 per day, and in a scenario without breastfeeding the cost increases to ZWM 2.9 per day. Alongside breastfeeding, complementary feeding is essential at this age to ensure coverage of all nutritional needs. Nutritious recipes based on local foods (such as those found in the Zambian Complementary Feeding Booklet) can complement nutrition provided by breastmilk as illustrated in Figure 12. In case of insufficient access to adequate diversity and quantity of fresh nutritious foods, targeted interventions like micronutrient powder (MNP) or fortified infant flours can reduce the cost of the diet (ZMW 1.8) for the child of 12–23 months by 11 percent and 44 percent respectively (to ZMW 1.6 and ZMW 1.0).

A child's nutrition status also depends on the health and nutrition status of its mother. Pregnancy and breastfeeding elevate micronutrient needs in women of reproductive age, particularly for iron, folic acid, and calcium. Providing iron and folic acid (IFA) tablets, calcium supplementation, or lipid-based nutrient supplementation to pregnant and breastfeeding women, could reduce the cost of a nutritious diet (ZMW 8.1) by 3 percent, 16 percent and 23 percent respectively (ZMW 7.9, ZMW 6.8, and ZMW 6.2).

Adolescence is a critical stage for nutrition, particularly for girls. An adolescent girl has comparatively lower energy requirements than an adolescent boy, but a highly elevated need for iron to support her body through menstruation, meaning she requires foods with higher micronutrient to energy ratios. She is at a higher risk of anaemia, exacerbated by pregnancy which increases iron and calcium needs significantly.

Figure 12: Micronutrient coverage (percent of recommended nutrient intake) of optimal breastfeeding and a nutritious complementary feeding meal for a child 12 – 23 months old
(CotD 2021).

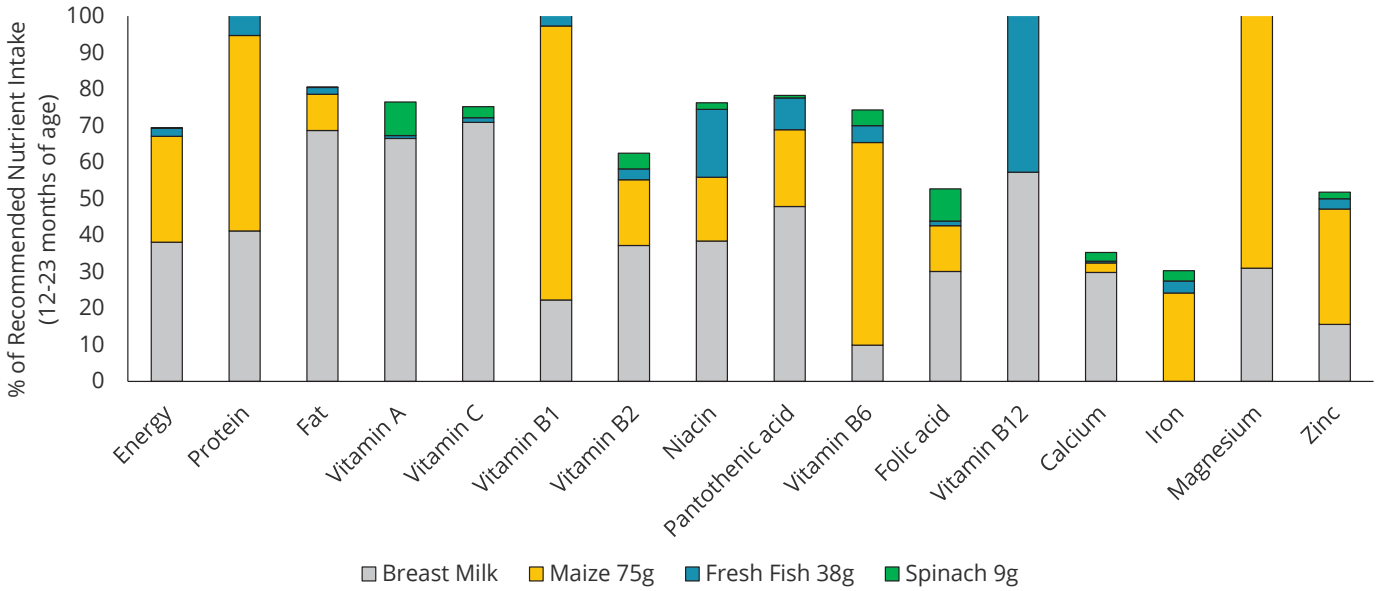
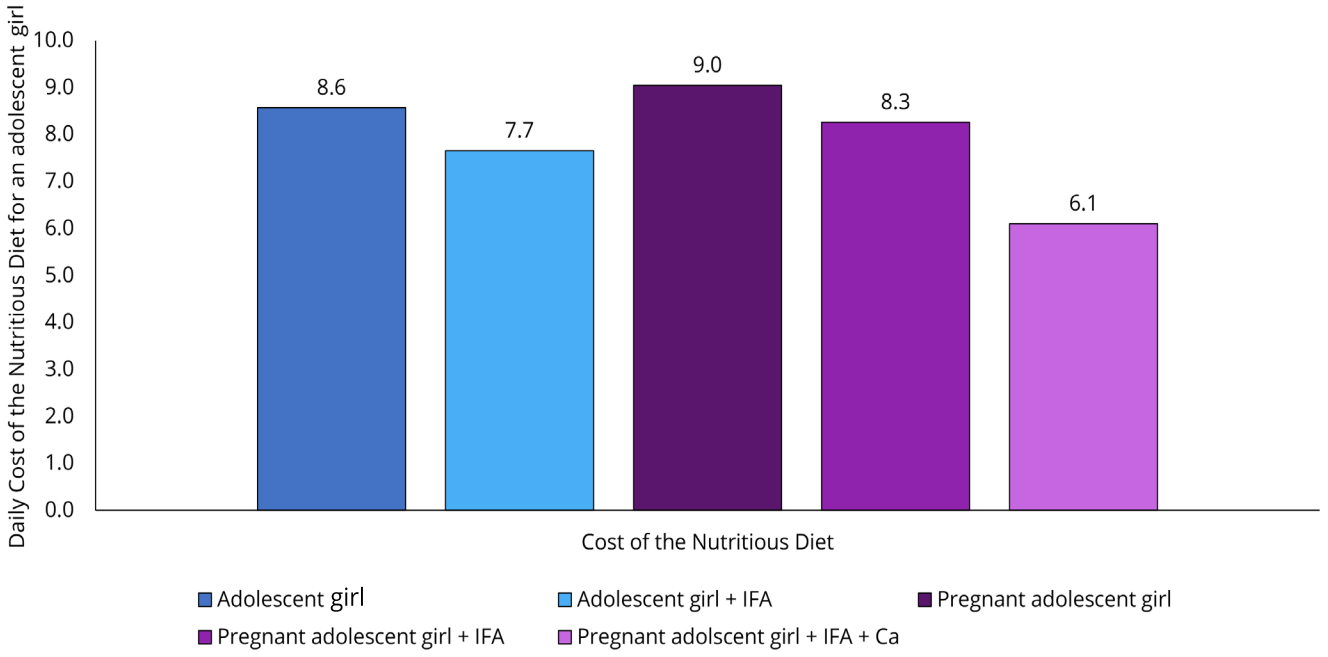


Figure 13 illustrates how pregnancy increases the cost of the nutritious diet for the adolescent girl, and how targeted nutrition-specific interventions like IFA tablets and calcium supplementation can help reduce the cost by providing adequate amounts of these specific micronutrients.

Figure 13: Cost of the nutritious diet for non-pregnant and pregnant adolescent girls under different supplementation interventions
(CotD 2021).



Main Message 6

DESPITE GOOD DIVERSITY OF PRODUCE IN MARKETS, HOUSEHOLDS' ACCESS TO FRESH FOODS IS DETERMINED BY LOCATION AND CONSTRAINED BY HIGH PRICES. ANIMAL SOURCE FOODS ARE AMONG THE MOST EXPENSIVE COMMODITIES AND THEIR PRICES INCREASED THE MOST IN 2020. FORTIFICATION CAN COMPENSATE FOR A MICRONUTRIENT INTAKE THAT IS TOO LOW DUE TO UNAFFORDABILITY.

Fresh, non-staple foods can be found across all provinces and seasons, with minor differences in number of products available per food group. Consumer Price Index data, collected monthly at various retail outlets, shows that animal source foods, vegetables and fruit are available in all provinces. However, despite widespread availability, there are significant differences in product prices between food groups and provinces. As Figure 14 shows, the average price for pulses, vegetables and fruit is particularly low in Luapula, but up to three times more expensive for the same food groups in Lusaka. Differences in price levels directly impact the cost of a nutritious diet in these provinces (cf. main message 2).

Cereals, eggs, and vegetables show the least variation in price among the different provinces, while the prices of oils, meat, and fruit vary more widely. Generally, animal source foods are the most expensive food group in Zambia. Fish are most expensive in Northern and North-Western provinces, but are cheapest in Luapula and areas with comparatively developed infrastructure like Copperbelt and Lusaka. Among provinces generally, Copperbelt, Lusaka, Southern, and Western most often have above average food prices. Lusaka has some of the highest prices for non-animal source foods, but has low or average prices for animal source foods.

Figure 14: Average price per 100kcal per food group across provinces in Zambia (average prices between August 2019 and February 2020,
(ZAMSTAT 2021).

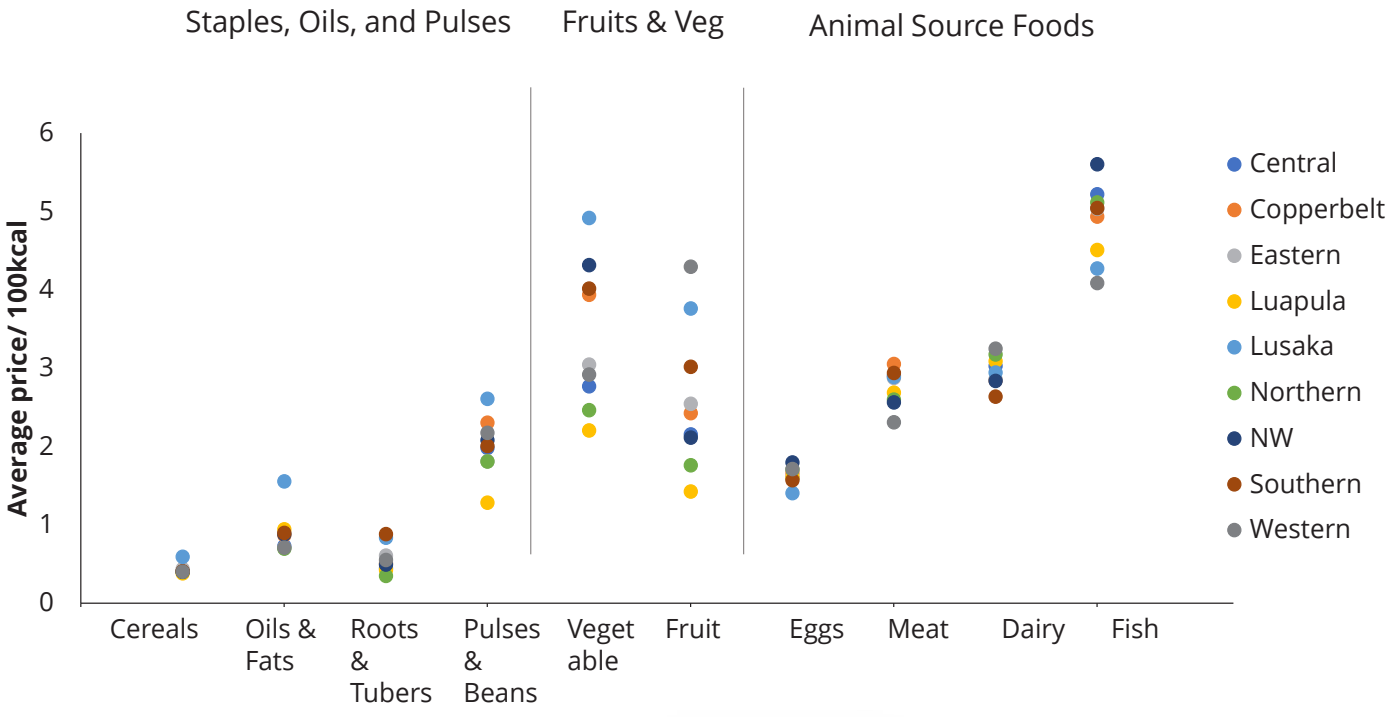
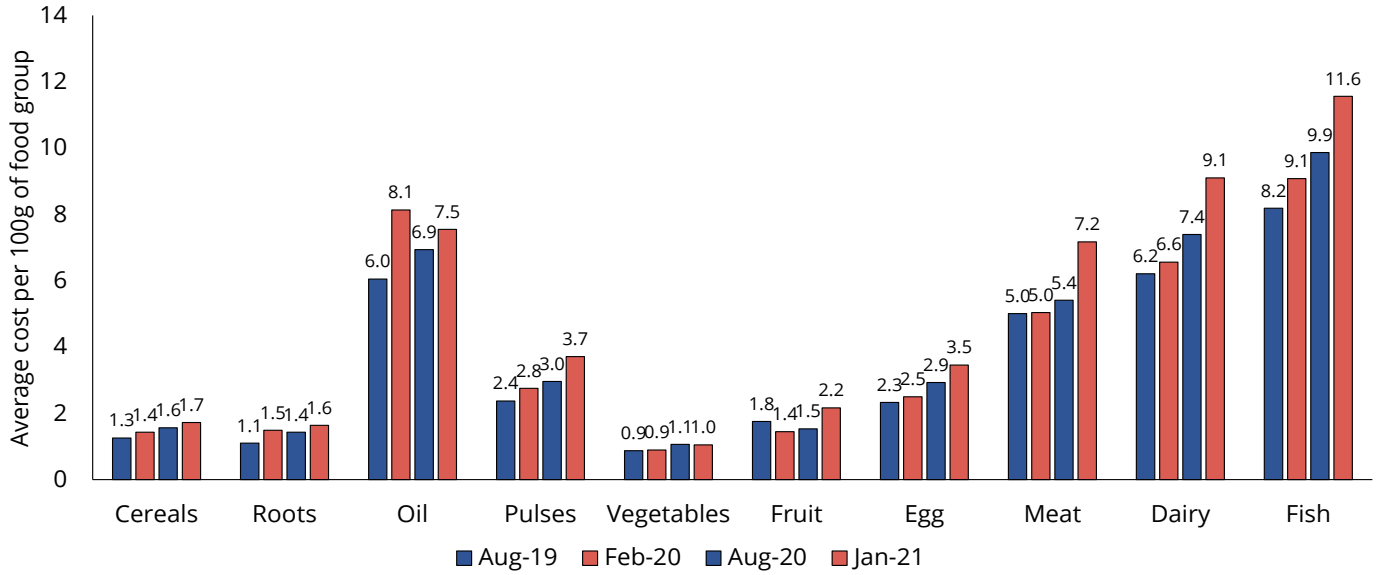


Figure 15: Average food prices per food group (national average) for August 2019, February 2020, August 2020, and January 2021
(ZAMSTAT 2021).

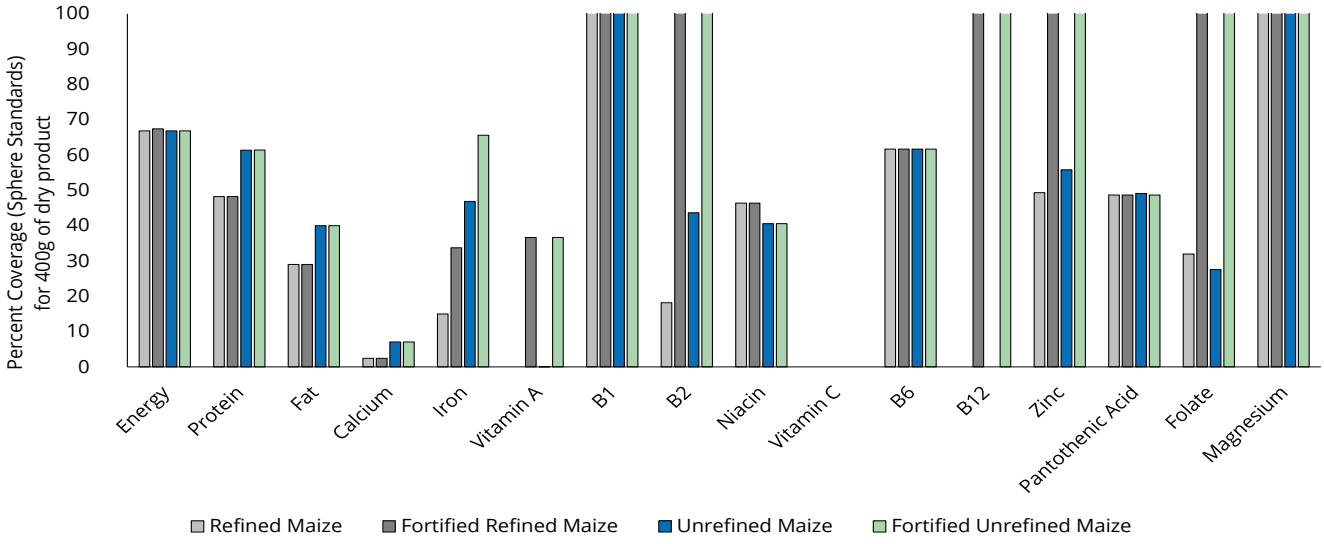


Prices have been on the rise for the 18 month period from August 2019 to January 2021, with increases particularly visible between August 2020 and January 2021. The prices for meat, dairy, fish, pulses and oil have increased at rates greater than normal inflation levels, potentially putting these foods further out of reach for many households (cf. main message 3) and increasing the risk of inadequate nutrient intake.

For individuals who cannot afford to regularly consume a healthy, nutritious diet, staple fortification is a pathway to improving micronutrient intake. Compared to other staples like rice or wheat flour, the unrefined maize meal typically found in Zambian diets is already a relatively nutritious staple.

Fortification of refined or unrefined maize meal could increase availability of key micronutrients like iron and vitamin A in the existing food environment, making them more readily available to the general population. Figure 16 shows the different micronutrient profiles per type of maize, comparing fortified and unfortified variants of refined and unrefined maize. Consumption of three portions of fortified maize meal per day could meet over 60 percent of micronutrient needs of an average individual (as per Sphere standards) for iron and cover large gaps of other micronutrients, such as B12 and zinc, which are expensive to meet in the context of the Zambian food system because animal source foods are the only and best sources respectively.

Figure 16: Percentage of macro and micronutrient coverage provided by 400g of various maize types based on Sphere Standard requirements
(CotD 2021).



Main Message 7

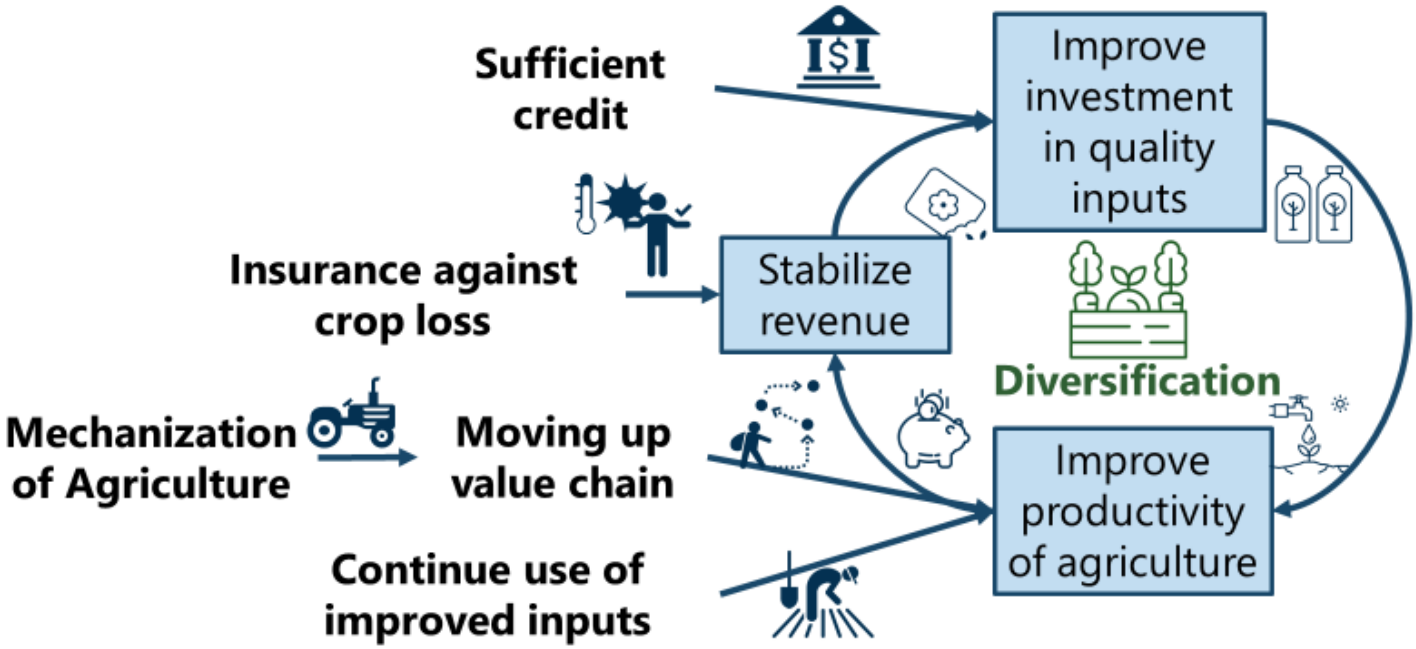
ALTHOUGH MOST HOUSEHOLDS LIVE AT LEAST PARTLY OFF AGRICULTURE, THE AGRICULTURAL SECTOR CONTRIBUTES ONLY A SMALL FRACTION TO GDP. DIVERSIFYING HOMESTEAD AND COMMERCIAL PRODUCTION WOULD IMPROVE DIVERSITY AND HENCE QUALITY OF NUTRIENT INTAKE AND INCOMES.

The contribution of agriculture to overall GDP has been declining in absolute terms (from 1.9 billion USD in 2010 to 0.8 billion USD in 2019) and relative terms (from 9.4 total percent GDP contribution in 2010 to 2.9 percent in 2019). Although the export of food products has tripled in value since 2008 and almost half the population is active in agriculture, the sector only contributes 3 percent of total GDP.

Staple sufficiency has long been the agricultural policy focus for Zambia which is considered a surplus producer of maize in the region. However, maize exports have decreased in value and tonnage over the past years and horticulture and livestock production have not yet filled the gap. Diversification of production provides an opportunity to further improve export value of food products while adding to the availability and affordability of fresh nutritious foods in Zambia. To reach this diversification it is essential to support necessary pre-conditions, namely mechanisation, agricultural inputs, credit lines, access to markets, digitization, insurance, and improved climate information. Under adequate conditions of financing and coordination with agrodealers, recent policies like the Electronic Farmer Input Supply Programme (E-FISP) have excellent potential to support improvements in agriculture.

Up to one third of the total food consumed by smallholders comes from their own production. Household dietary diversity is clearly linked with size of landholdings. Smallholder farmers with less than half a hectare of land consume only five food groups, whereas farmers with more hectares consume on average seven food groups. Further disaggregating production and sale data by landholding size is required to identify whether most farmers with low landholdings prioritize staple foods in their own production, or whether some farmers with low landholdings choose to sell the more nutritious foods they grow. Existing data indicates that for almost all crops there is high market participation of farmers, but cash crops such as cotton and soybeans are almost universally sold (above 90 percent).

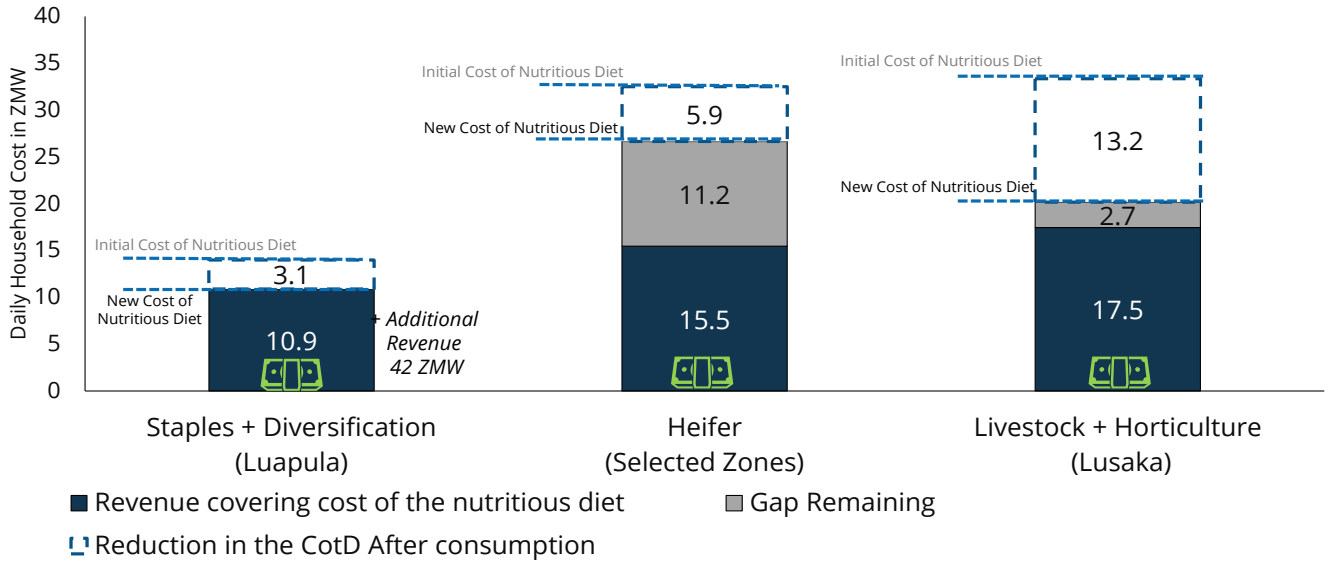
Figure 17: Pre-conditions for smallholder diversification in Zambia (Adapted from Agricultural Status Report).



If surpluses are sold, diversified homestead food production can improve household consumption of healthy foods and availability in the food environment at the local level. We modelled three diversified homestead interventions to estimate their impact: 1) Staples + Diversification with half a hectare split between maize and vegetables, e.g., intercropped production; 2) Heifer Dairy Production model with one cow providing 6 litres of milk per day; and 3) Livestock and Horticulture, with one cow (6 litres of milk daily) and a quarter hectare dedicated to vegetables. (Refer to the full report for modelling details and assumptions.)

The modelling was done for specific provinces to reflect different livelihood activities. In lieu of validated farm gate prices, market prices were used to estimate the impact of generating income through surplus sales. All three models show that smallholder livelihoods can support consuming a nutritious diet. Through consumption of a diversified diet, own production costs are reduced between 3 and 13 ZMW per day. In addition, all three models show revenue gains that are high enough to cover large portions of the remaining cost, in the case of modelling a staple with diversified own production, it was even possible to generate surplus income.

Figure 18: Reduction in the cost of the nutritious diet due to consumption of diversified production and revenue earned through sale of diversified crops for three agricultural models: Staples + Diversification, Heifer Dairy Production, and Livestock + Horticulture
(CotD 2021).



Note: Models were carried out in different modelling areas on values calculated for 2019/2020 (pre-inflation adjustment). The Staples + Diversification model was carried out in Luapula where the cost of the nutritious diet is ZMW 14.1/household/day. Heifer Dairy Production was carried out in areas with the highest concentration of cattle (Lusaka, Western, Southern, Eastern and Central), and the average cost of the nutritious diet for these areas is ZMW 32.5/household/day. The Livestock + Horticulture model was carried out only for Lusaka where the cost of the diet was estimated to be ZMW 33.4/household/day.

Main Message 8

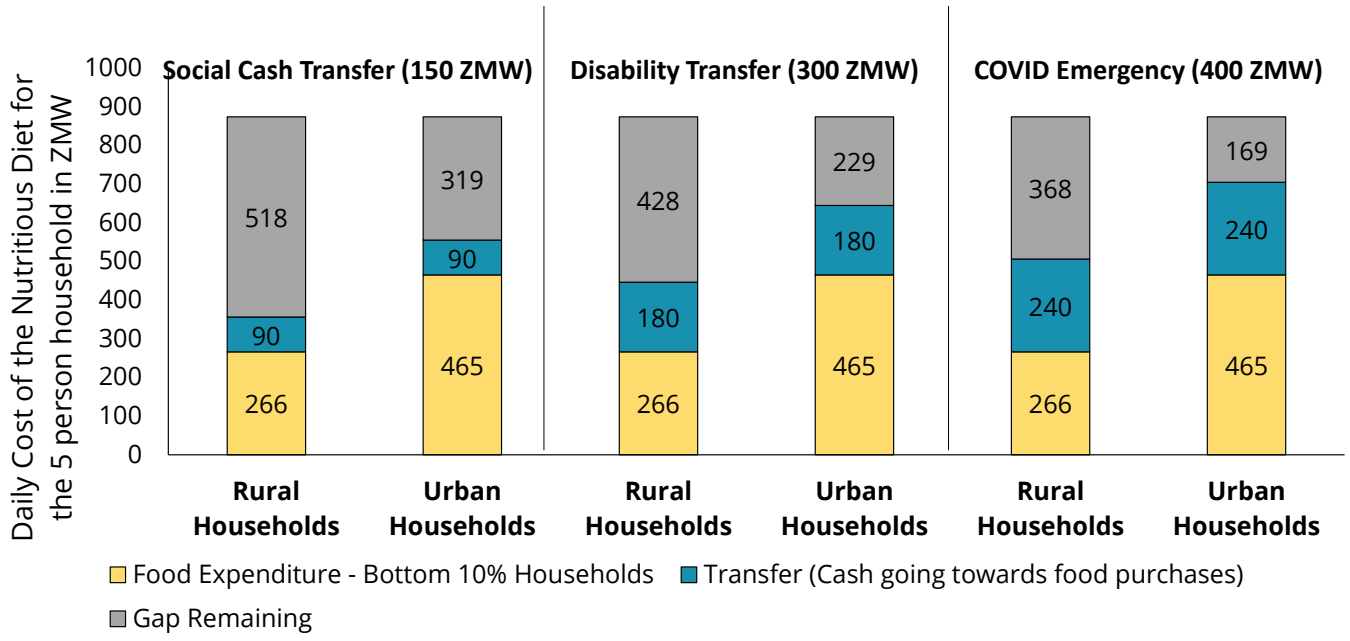
MOST LOW-INCOME HOUSEHOLDS ARE FAR FROM BEING ABLE TO AFFORD A NUTRITIOUS DIET. CURRENT SOCIAL SAFETY NETS CAN COVER A SMALL PORTION OF THE COSTS OF NUTRITIOUS DIETS. LIVELIHOOD SUPPORT STRATEGIES CAN BE AN EFFECTIVE TOOL FOR IMPROVING HOUSEHOLD PURCHASING POWER AND STRENGTHENING LOCAL FOOD SYSTEMS.

When the current minimum wage of ZMW 33 per day is adjusted for food expenditure (assuming households spend 60 percent of minimum wage on food), the remaining value of wages is insufficient to cover the cost of the nutritious diet for the household in all provinces. Households in the bottom two quartiles of food expenditure face significant gaps between the amount they currently spend on food and the amount they need to cover the cost of the nutritious diet. For the poorest rural quartile, this gap is ZMW 574 per month (66 percent of the total cost of the nutritious diet), and for the second poorest this gap remains high at ZMW 253 per month (29 percent of the total cost of the nutritious diet).

Given the large economic barriers to accessing nutritious diets, social protection interventions provide a pathway to improve household purchasing power. Social protection can be made more nutrition-sensitive if programmes remove economic barriers to diets through adequate transfer sizes, and prioritize and reach underserved populations and nutritionally vulnerable groups like pregnant or lactating women, adolescent girls, and children. Social protection can also provide efficient links to other programmes, such as improvements in food systems or health interventions.

The FNG Zambia examined three ongoing social protection programmes and assessed the gap between household expenditure of the poorest decile and the cost of the nutritious diet after receiving social safety nets (Social Cash Transfer of ZMW 150 per household per month, Social Disability Transfer of ZMW 300 per household per month, and COVID Food Security Transfer of ZMW 400 per household per month). Figure 19 illustrates that for the poorest 10 percent of households, current transfers still leave a gap towards covering the cost of the nutritious diet, and that rural households face significantly larger barriers than their urban counterparts in affording healthy diets.

Figure 19: Coverage of the daily cost of the nutritious diet for the 5 person household by food expenditure of the poorest 10% of households
(CotD 2021).



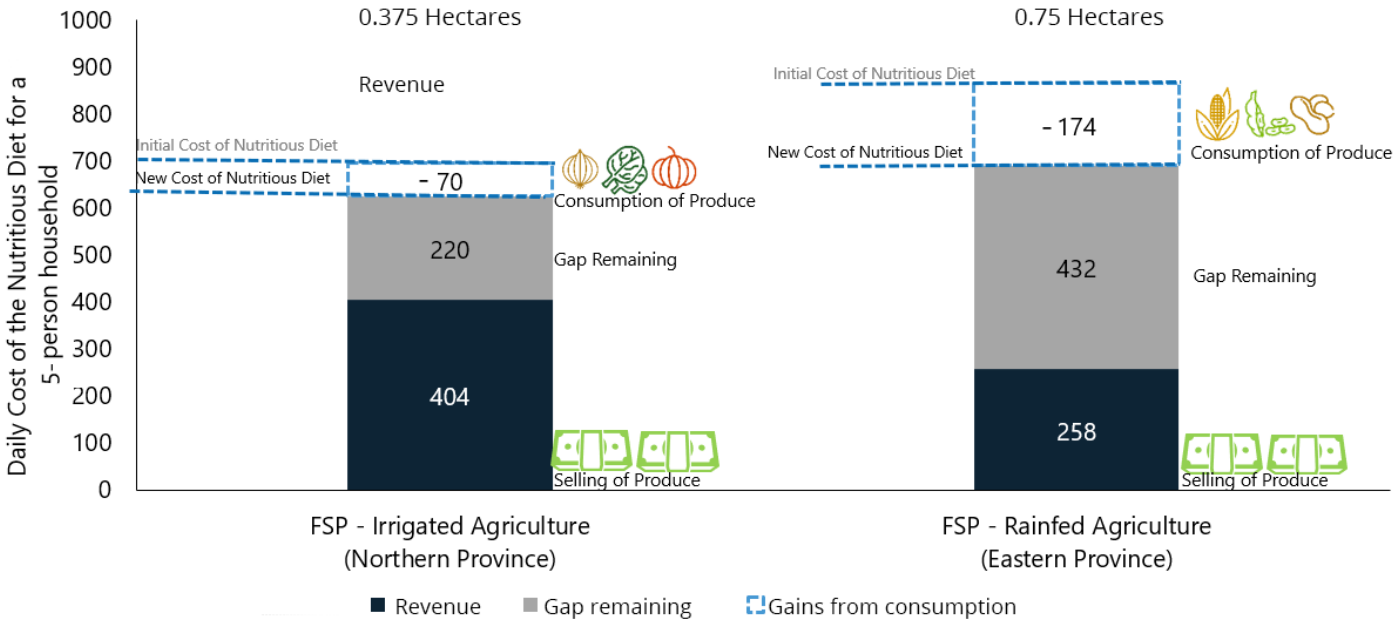
Note: Calculations assume that 60 percent of transfer value is going towards food purchases.

Agricultural programmes like the Food Security Pack (FSP) rolled out by the Ministry of Community Development and Social Services, provide another alternative to improve incomes for households that are identified as vulnerable but not labour-constrained. The FSP promotes various livelihood support strategies, including production of staple food and cash crop production through rainfed agriculture, vegetable production through irrigated agriculture, and alternative livelihoods related to animal husbandry and fish ponds. The FNG Zambia analysis estimated potential income gains from two FSPs: irrigated production of vegetables and tubers and rainfed production of maize, soybeans, and peanuts (Figure 20).

The models illustrate the potential gains if households are able to consume a portion of their harvest and sell part of their production. Under the irrigated agriculture FSP modeled for the Northern province, the sale of the farmed commodities allows households to cover most of the cost of the nutritious diet if foods are sold at market price. Under the rainfed agriculture FSP modelled for Eastern province, households were not able to cover the total cost of the nutritious diet through consumption of production and surplus sale, as indicated by the gap in grey in Figure 20. Although modelling specifications for the two models differ4, comparison indicates that production of higher value non-staple foods has good potential to increase household income while also improving supply of these foods in the food system.

The FNG Zambia also considered assistance programmes in refugee settings, specifically the preliminary estimate for the Minimum Expenditure Basket (MEB), calculated for Mantapala District in Luapula province. The food MEB for households with acceptable food consumption and no crisis/ emergency coping adoption was estimated at ZMW 820 per 5 person household per month (or ZMW 164 per person per month). This aligns with the findings from the FNG Zambia in which a lowest cost nutritious diet in Luapula costs ZMW 638 per 5 person household per month.

Figure 20: Reduction in the cost of the nutritious diet due to consumption of Food Security Pack (FSP) crops and revenues earned due to sale of FSP crops for both the irrigated agriculture package and rainfed agriculture package (CotD 2021).



[4]**Note**: For the irrigated agriculture model: Area 1.5 lima (0.375 Hectare) and agricultural inputs; Yields calculated for: onion (5804 kg/hectare), pumpkin (8906 Kg/hectare), and spinach (12930 Kg/hectare). (FAOSTAT 2020). Post-harvest losses were assumed for each crop. Revenues calculated for harvesting seasons between 2–7 months but divided for 12 months. It is assumed 56 percent of revenues are going towards food purchases (LCMS 2015 for rural HH). Household consumed 60 kg of vegetables per month. For the rainfed agricultural model: 2 Lima (0.5 Hectare) and agricultural inputs. Yields calculated for: maize (2200 kg/hectare), soya beans (1580 Kg/hectare), and groundnuts (700 Kg/hectare), (FAOSTAT 2020). Post-harvest losses were assumed for each crop. Revenues calculated for harvesting seasons (between 1–4 months) but are divided for 12 months). It is assumed 56 percent of revenues are going towards food purchases (LCMS 2015 for rural HH). Households consumed 20 kg of maize, 20 kg of soybean, and 4 kg of peanut per month.

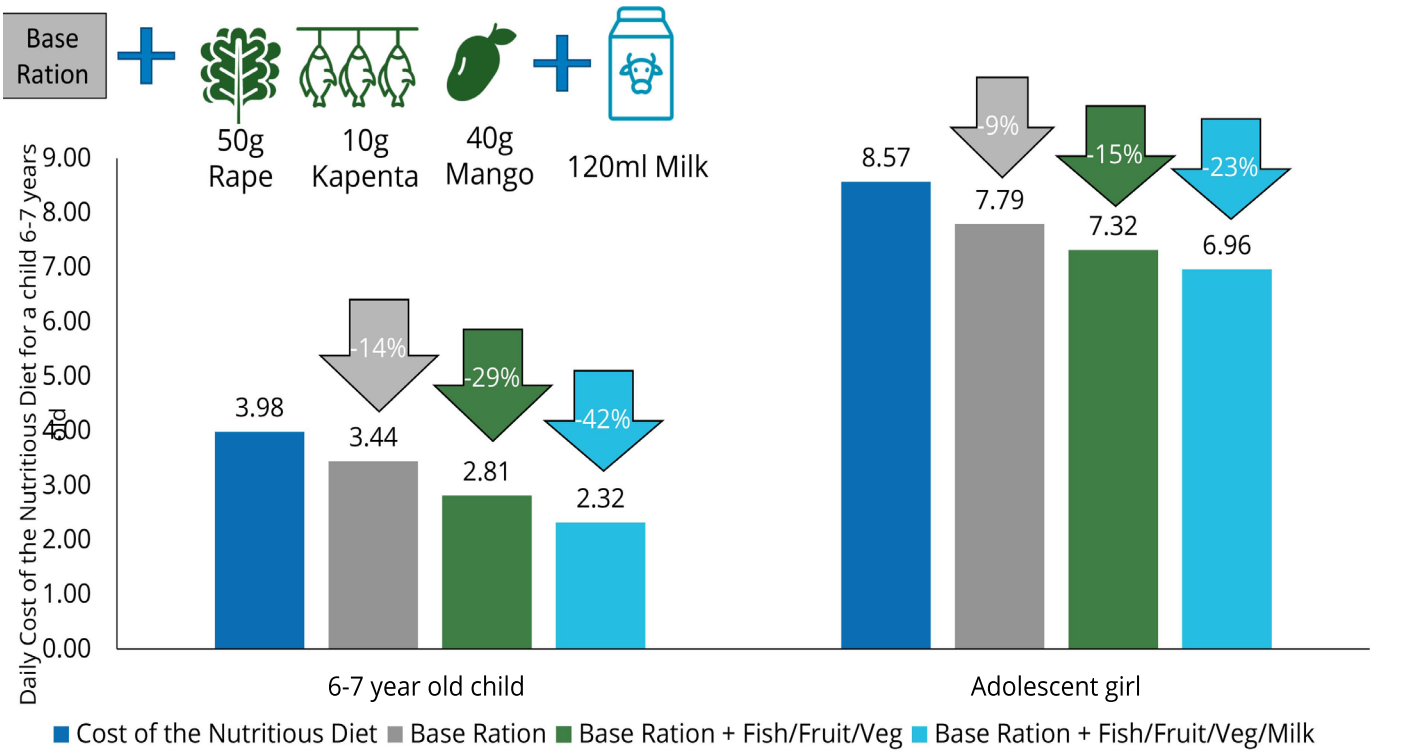
Main Message 9

SCHOOL MEALS SERVE AS AN OPPORTUNITY TO PROVIDE LEARNERS WITH ESSENTIAL MICRONUTRIENTS THAT THEY MAY OTHERWISE NOT CONSUME. A DIVERSE, NUTRITIOUS MEAL CAN CONTRIBUTE SIGNIFICANTLY TO COVERING MICRONUTRIENT NEEDS AND REDUCE HOUSEHOLD COST IN FEEDING THE SCHOOL-GOING CHILD.

In Zambia, primary school net enrolment is high at 88 percent but reduces significantly in secondary school, where net enrolment is only 25 percent. In primary school, both sexes are equally represented (1.0 Gender Parity Index), but this shifts somewhat between primary and secondary school: 24 percent of girls are enrolled in secondary school, compared to 27 percent of boys. The difference in attendance is particularly visible when comparing total dropouts by sex and age. While at 14 years of age there is no visible difference between girls and boys, at 16 years of age 12,000 (28%) more girls have dropped out than boys, further rising to a 32,000 (62%) difference between 18 year old girls and boys. This difference is likely to be explained with different socioeconomic and cultural barriers for boys and girls.

Provinces with lower per capita income have a lower percentage of school-going children and a higher dropout rate for adolescent girls. These areas also have a higher difference in dropout rates between boys and girls which indicates that in economically weak provinces, adolescent girls are more affected by poor economic circumstances than their male counterparts. Socioeconomic factors driving decisions related to education status of girls can also have consequences for nutrition outcomes, as maternal education is a known driver of infant nutrition. Comparing enrolment data with information on dietary intake also shows that where more girls are dropping out of school, fewer children under 5 consume a minimum acceptable diet. School meals can therefore serve as an economic incentive to keep children and adolescents in school, as well as serve as an opportunity to improve micronutrient intakes for better health among learners and develop healthy dietary habits.

Figure 21: Cost of the nutritious diet for a child aged 6–7 years and an adolescent girl aged 14–15 years without and with consumption of aspirational school meals (CotD 2021).



Zambian school meal programmes are being reoriented towards a more diverse school ration by the Ministry of General Education Home-Grown School Feeding Programme. The FNG Zambia analysed the potential reduction in the household's cost of feeding the school-going child if they received the standard base ration (120g maize, 20g dried beans, 10g fortified oil, and iodized salt) plus a diverse combination of vegetables, fruit, and animal source foods (50g rape leaves, 40g mango, and 10g dried kapenta fish). Costs were also estimated with the addition of a glass of milk (120 ml) to aid in coverage of calcium, a micronutrient essential for bone growth for this group but expensive to access in the Zambian food system. Figure 21 shows that the diverse school meal, without and with the addition of milk, can significantly reduce the cost of the diet for both the school-aged child and adolescent girl, thereby reducing the cost burden for the household of feeding learners.

Fortification and biofortification have potential to improve micronutrient content and reduce the cost of the nutritious diet. Modelling a school meal consisting of 120g of fortified maize meal, 20g of biofortified pulses, 10g of oil and 50g of orange flesh sweet potato, reduced the cost of the diet by ZMW 1 per day for school-going children in the household. Despite this relatively low reduction in cost, it is important to highlight that this improved school meal would meet more than 60 percent of micronutrient needs of a child aged 6–7 years with seven essential micronutrients (vitamins A, B_1, B_2, B_6, folic acid, magnesium and zinc), and more than 40 percent for iron and vitamin B_{12}.

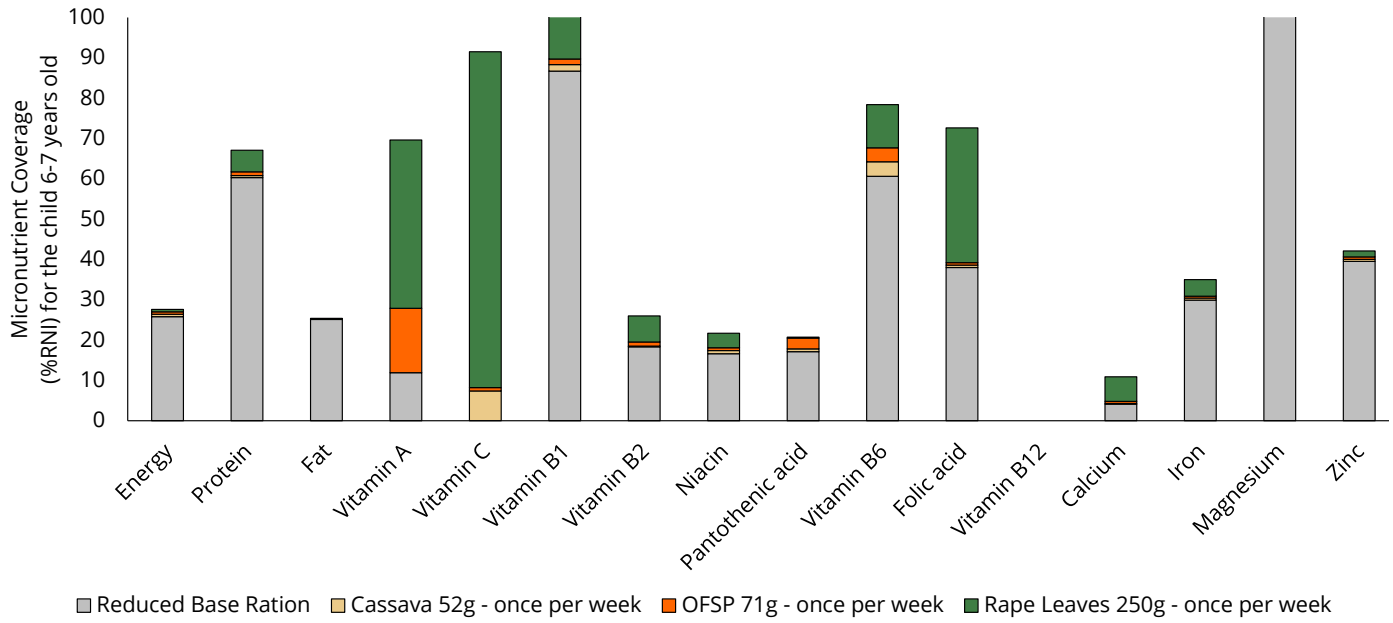
Current school meal programmes in Zambia are also exploring innovative approaches for income-generation for schools, and own production for school meals. School Production Units provide a pathway for schools to produce a variety of foods on the grounds of the school, and/or sell the commodities in their local marketplace to generate revenue to pay for school supplies, foods for school meals, or other necessities. To estimate the impact of school production units on generating income for the schools, the assessment included three models: school farming of mainly staples, school farming of staples and green leafy vegetables, and hydroponic production of vegetables (Table 1).

Based on modelling parameters, selling the produce could generate an annual income of between ZMW 20k and 30k, depending on which School Production Unit model was used. If a school were to use the food for its school meals instead of for sale in the marketplace, the cassava, beans, and orange flesh sweet potato (OFSP) could contribute to covering micronutrient gaps left by the base ration, as illustrated in Figure 22. This shows that regularly consuming fresh foods provides learners with essential micronutrients, reducing the risk of insufficient micronutrient intake.

Table 1: Parameters for school production models and potential benefits for school income or contribution to school meals.

Model	Area and size	Commodity (% of area)	Cost reduction (in percent) for 6–7 year old and adolescent girl	Micronutrients contributed (>10% of RNI)
School Farm I	Northern/Muchinga (0.5 ha)	Cassava (45%) beans (45%) sweet potato (10%)	-15% (average across both school-going children)	Vit C, Vit B6, Vit A
School Farm II	Western (0.5 ha)	Cassava (10%) green leafy vegetables (40%) sweet potato (40%)	-11% (average across both school-going children)	Vit A, Vit C, Vit B1, Vit B6, Folate
Hydroponics	5 provinces, greenhouse (9x24m)	Rape (25%), spinach (25%) cabbage (25%), eggplant (25%)	-10% (average across both school-going children)	Vit A, Vit C, Vit B1, folate, magnesium

Figure 22: Micronutrient coverage (percent of recommended nutrient intake) of the reduced base ration and food produced by the school production unit (Western province) for a child 6–7 years old (CotD 2021).



Main Message 10

MULTISECTORAL ACTION IS NEEDED TO SUSTAINABLY REDUCE MALNUTRITION. COMBINING INTERVENTIONS FROM DIFFERENT SECTORS HAS THE POTENTIAL TO CUT THE COST OF A NUTRITIOUS DIET IN HALF. ADDING SUSTAINABLE IMPROVEMENT OF LIVELIHOODS AND ENSURING ADEQUACY OF SOCIAL SAFETY NETS COULD MAKE A NUTRITIOUS DIET AFFORDABLE FOR ALL.

A combination of interventions is required to enable households and individuals to access nutritious diets. Multisectoral interventions can reduce non-affordability through combining the following: targeted interventions for vulnerable individuals (supplementation, school meals); increasing the availability of nutritious foods (market-based interventions, smallholder production, diversifying homestead gardens); increasing nutrient content of foods (staple food fortification); and increasing household purchasing power (cash transfers, income-generation).

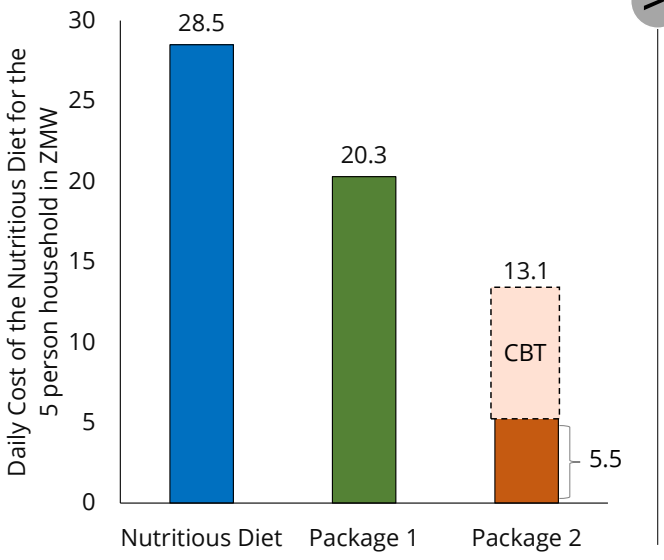
The FNG analysis estimated the daily cost of a nutritious diet for two intervention packages. Household Package 1 includes: nutritious complementary feeding (in-kind) for a child of 12–23 months; school meals for a school-aged child and adolescent girl; IFA daily for the breastfeeding mother; replacement of unfortified maize with fortified maize meal; and dairy production (1 litre consumed per day) for the household. This intervention would reduce the daily cost of the nutritious diet for the household from ZMW 28.5 to ZMW 20.3, thereby reducing non-affordability in modelling areas from 47 percent to 36 percent (not shown in figure 23).

Household Package 2 is intended for crisis-affected or particularly vulnerable households. This package includes: daily portion of fortified infant flour (in-kind) for a child 12–23 months; fortified school meals for a school-aged child and adolescent girl; IFA daily for the breastfeeding mother; rainfed agriculture Food Security Pack; and COVID Food Security transfer (ZMW 400 per month). Without the addition of the cash transfer, the intervention could reduce the cost of the nutritious diet from ZMW 28.5 to ZMW 13.1 per household per day. With the addition of the cash transfer, the gap left for the household to cover the cost of the nutritious diet is further reduced to ZMW 5.5, thereby reducing non-affordability in modelling areas from 47 to 4 percent (not shown in figure 23).

Addressing the drivers of malnutrition requires concerted efforts through all sectors and entry points. Line ministries, humanitarian actors and development partners must consider scaling up short- and long-term nutrition interventions.

FNG analysis has documented that by combining incremental efforts through targeted and coordinated action, the vision of a healthy, nutritious diet being available, accessible, and affordable to all Zambian households is achievable.

Figure 23: Multisectoral household intervention packages and their respective reductions in the cost of the nutritious diet for the 5 person household
(CotD 2021)



Target Group	Household Package 1	Household Package 2
Under 2 year old:	Complementary Foods (for free)	Corn Soy Blend+
School-Age Child/ Adolescent Girl:	School Meal (Fresh)	School Meal (Fortified)
Breastfeeding Mother:	IFA	IFA
Household Intervention:	• Fortified Flour (through market) • Dairy Production (Heifer Model)	• Food Security Pack (rainfed agricultural) • Covid Food Security Transfer (CBT - 400 Kwacha)

Average of Selected Modelling Zones

Recommendations

During the dissemination and recommendation workshop, participants were asked to provide inputs and evaluate findings from the FNG to identify priority actions moving forward.

Based on a predetermined list of interventions drawn directly from the FNG analysis, all stakeholders were asked to rank interventions they felt should be prioritized. Using open-ended questions, participants were asked to highlight key actions by sector and then suggest areas to develop advocacy messages for would best demonstrate the importance of addressing malnutrition Zambia.

Using these inputs, sector focal points from the Ministry of Agriculture, Ministry of Health, Ministry of Livestock and Fisheries, Ministry of Community Development and Social Services, plus Education represented by WFP's school feeding focal point, developed advocacy messages by sector[5]. These messages consist of a main recommendation and highlight the supporting FNG evidence. Recommendations are ranked in order of priority, as identified by the stakeholder group.

Recommendation 1

INCREASE FUNDING TO OPERATIONALIZE THE HOME - GROWN SCHOOL MEALS STRATEGY. FUNDING SHOULD SUPPORT EXPANSION OF COVERAGE OF PROGRAMME TO INCLUDE ADOLESCENT LEARNERS, PRODUCTION OF NUTRITIOUS HORTICULTURE CROPS, PROMOTION OF NUTRITION KNOWLEDGE USING THE INNOVATIVE AND CLIMATE SMART NUTRITION GARDENS AS TEACHING AIDS, AND GENERATION OF FARMING REVENUES FOR SCHOOL INCOMES.

Evidence from the FNG:

- Nutritious, diverse school meals including animal source foods, fruit and vegetables, can reduce the amount a household has to spend to provide adequate nutrition to children by up to a third. (Main message 1)
- School meals offer an incentive to go to school. Provinces with lower per capita income have a lower percentage of school-going children and a higher dropout rate for adolescent girls. (Main message 9)
- School Production Units can benefit learners by providing income to schools and providing nutritious foods to school meal programmes. They can educate this generation on the benefits of growing and consuming healthy, nutritious foods. (Main message 9).

Recommendation 2

DIVERSIFY HOMESTEAD AGRICULTURAL PRODUCTION WITH NUTRITIOUS CROPS (INCLUDING BIOFORTIFIED CROPS) AND SMALL LIVESTOCK AND/OR FISH FARMING. PROVIDE MECHANISMS FOR CREATING LINKAGES BETWEEN PRODUCERS AND ESTABLISHED OUTPUT MARKETS.

Evidence from the FNG:

- In rural areas, up to one third of the total amount of food consumed comes from own production, indicating that household production is a major pathway to support consumption of nutritious foods. (Main message7)
- In the minimum cost nutritious diet, fruit, vegetables, and animal source foods contribute most significantly to covering essential micronutrient needs. (Main message 3)
- Consuming produce from own production can reduce household cost by up to one third. (Main message 7)
- The production and sale of high value non-staple foods can generate additional revenue, helping households to cover the cost of the diet and, in some provinces, generate surplus income. (Main message 7)
- Smallholder farmers should be targeted by diversification programmes as data shows household dietary diversity increases with cultivated land size, indicating vulnerability of smallholder farmers. (Main message 7).

[5]Additional recommendations focusing on actions in Capacity Building and Coordination can be found in the full report.

Recommendation 3

SUPPORT POLICY DISCUSSION FOR ENGAGING RELEVANT ACTORS IN COMMERCIAL FORTIFICATION.

Evidence from the FNG:

- Fifty three percent of households could not afford to purchase the diversity needed to consume a nutritious diet. (Main message 2)
- For those individuals who cannot afford to regularly consume a healthy, nutritious diet, staple fortification is an effective pathway to improving intake of micronutrients otherwise lacking from a low-diversity diet. (Main message 6)
- Consumption of three portions of fortified unrefined maize meal could meet over 60 percent of micronutrient needs for iron, and cover large gaps of other micronutrients like B12 and zinc. (Main message 6)
- Despite a higher market price, consuming fortified maize will reduce the cost the household has to bear for a nutritious diet. (Main message 6).

Recommendation 4

EXPAND COVERAGE OF CURRENT SOCIAL SAFETY NETS; SPECIFICALLY SCALE UP SOCIAL CASH TRANSFERS TO HOUSEHOLDS WITH CHILDREN UNDER 2 AND SCALE UP FOOD SECURITY PACKS TO SUPPORT FARMING HOUSEHOLDS THAT ARE VULNERABLE BUT NOT LABOUR-CONSTRAINED.

Evidence from the FNG:

- Over the 18 months from August 2019 to January 2021, the number of Zambian households that could not afford nutritious diets increased by 10 percent. (Main message 2)
- The poorest 50 percent of rural households are missing ZMW 250+ per month to buy a minimum cost nutritious diet. (Main message 8)
- Minimum wage levels are insufficient to meet basic nutrient needs in almost all provinces. (Main message 8)
- Livelihood support programmes like the Food Security Pack show potential to cover the cost of a nutritious diet, especially if the household produces high-value, fresh, nutritious foods. (Main message 8)
- A combination of a cash transfer and a nutrition-specific intervention for nutritionally vulnerable groups reduces their risk of malnutrition the most. (Main message10)

Recommendation 5

CONTINUE SUPPORT FOR IMPROVED INFANT AND YOUNG CHILD FEEDING PRACTICES, INCLUDING APPROPRIATE COMPLEMENTARY FEEDING. HOME FORTIFICATION COULD BE CONSIDERED TO SUPPORT PARTICULARLY VULNERABLE HOUSEHOLDS.

Evidence from the FNG:

- Suboptimal breastfeeding practices can increase the cost of the nutritious diet of the child aged 6–23 months by up to 70 percent. (Main message 5)
- Fresh, nutritious foods like those found in the Zambian Complementary Feeding Guidelines, complement breastfeeding by contributing to filling micronutrient gaps such as those of iron, zinc, and magnesium. (Main message 5)
- Low minimum acceptable diet is correlated with high non-affordability, highlighting the need for complements to the diet that can fill the nutrient gap, such as micronutrient powder. (Main message 5).

Recommendation 6

PRIORITIZE SECTORAL COORDINATION THROUGH COMMON PLATFORMS AT NATIONAL AND SUBNATIONAL LEVELS TO GUIDE INTEGRATED NUTRITION PROGRAMMING.

Evidence from the FNG:

- A nutritious diet is unaffordable for 35 percent of the urban and 63 percent of the rural population, showing the need to develop programmes specific to each context. (Main message 2)
- A package of interventions targeting the most vulnerable households with assistance interventions from different sectors, can reduce the cost of a nutritious diet by up to 80 percent, making the diet affordable for almost all. (Main message 10)
- The cost of a nutritious diet can be reduced by around 30 percent with a package of interventions from different sectors that come together at household level to target vulnerable but not labour-constrained households with agricultural support for income generation. Support from the different sectors could include dairy production (agriculture), fresh school meals (education) and improved feeding practices (health and IYCF). (Main message10).

Cow Meatballs

Cowpea snacks – sausage, scones and fritters

Nutrition Division (OSN)
World Food Programme
Via Cesare Giulio Viola, 68/70
00148, Rome, Italy - T +39 06 65131
wfp.org

The Fill the Nutrient Gap Analysis was funded by:

unicef
for every child