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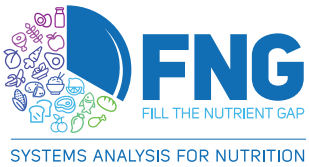
Fill the Nutrient Gap Cameroon

Summary Report

October 2021

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



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Executive Summary

The Government of Cameroon, with technical assistance from WFP, undertook the FNG analysis in an effort to reduce malnutrition. Multisectoral stakeholders were mobilized and consensus was reached on how to improve the availability and affordability of nutritious diets.

Context

Despite economic development in recent decades, Cameroon has made little progress in reducing malnutrition. Stunting affects nearly 30 percent of children under 5 and is prevalent in the most vulnerable regions including the Far North, North, Adamawa and East. The triple burden of malnutrition in Cameroon is underscored by persistently high rates of stunting and wasting, multiple micronutrient deficiencies (particularly of iron in children and women), and an increasing burden of overweight in urban areas and among more affluent groups. This burden contributes to high levels of social and economic loss and slows national development.

Process of the FNG

The FNG Task Force was established in 2020 under the direction of the Technical Secretariat for the Interministerial Committee for the Fight Against Malnutrition under the Office of the Prime Minister. A multistakeholder workshop was held in December 2020 to identify objectives, define model parameters, and identify data for the analysis. Analysis took place in early 2021 with two virtual technical validation sessions in March and June. In September 2021, a multiday workshop was held in Douala with the FNG Taskforce and multisectoral stakeholders to disseminate the findings of the analysis and identify priorities and recommendations based on the findings.

Methodology

The FNG analysis is composed of two components: a comprehensive secondary review of the food system and supporting systems, and a quantitative analysis using Cost of the Diet (CotD) software. CotD enables the FNG to estimate the lowest-cost diet that meets nutritional needs using local foods for each of the 10 regions of Cameroon, calculates the affordability of that diet for the population, and models the impact of various interventions across sectors. The analysis provides entry points for how multiple sectors can support nutrition and increase access to nutritious diets.

Main findings

1. Nearly half of Cameroonians (48 percent) cannot afford a diet that meets their nutritional requirements, and 24 percent cannot afford a diet that meets just their energy needs. The level of non-affordability of a nutritious diet is highest in the Far North (70 percent), East (70 percent), and Adamawa (61 percent), and is lowest in the Littoral region (21 percent). It is higher in rural than in urban areas.

2. There is a strong correlation between non-affordability of nutritious diets and stunting across the regions of Cameroon. Regions with the highest rates of non-affordability, such as Far-North, North, East, and Adamawa, have the highest rates of stunting. Enabling access to food through market and non-market mechanisms is pivotal in the fight against chronic malnutrition. Infrastructure underdevelopment, conflict and displacement, widespread poverty, and climate shocks undermine the food system and exacerbate malnutrition in the most vulnerable regions.

3. For a 5 person household[1], a nutritious diet costs FCFA 38,430 per month on average, almost twice as much as a diet that only meets energy needs. The cost of a nutritious diet varies across the country, from FCFA (Central African CFA Franc) 30,000 in the South to FCFA 45,000 in the Northwest and Centre. Even in regions where the cost is lower, high levels of poverty prevent many households from being able to afford nutritious diets.

4. The nutritional needs of adolescent girls and pregnant and lactating women require nutrient-dense foods that are more costly. Together they account for 56 percent of the household cost of a nutritious diet. These individuals are especially vulnerable because they have increased requirements for nutrients such as iron and folic acid, which come from costly foods. When micronutrients cannot be attained from local diets, providing a multiple micronutrient tablet or iron and folic acid supplement to adolescent girls and pregnant and lactating women can meet their needs.

5. Breastfeeding and complementary feeding practices for young children are suboptimal. Only 40 percent of children under 6 months are exclusively breastfed per WHO recommendations, and only 11 percent of those aged 6–23 months receive a minimal acceptable diet. Promotion of optimal breastfeeding is essential, as are nutrition

[1] The 5 person household modelled in the FNG includes a child under two, a school-age child, an adolescent girl, a breastfeeding woman, and an adult man.

education on complementary feeding practices, and actions across sectors to bring nutritious foods within reach for all households, thus reducing stunting and morbidity.

6. The agricultural production system in Cameroon is underdeveloped and needs to be reoriented to increase the availability of nutritious foods at scale locally, and to increase the competitiveness of Cameroonian production for international trade. Currently over 40 percent of Cameroonians are involved in agriculture which employs 70 percent of the workforce and contributes 42 percent to GDP, yet the majority are smallholders with fewer than 2 hectares. These small farms are characterized by low levels of productivity, inefficient production systems and very high levels of post-harvest loss. Investments in nutritious food production and diversification, post-harvest processing, transportation infrastructure, and cold chains are necessary to improve the production and availability of nutritious foods of plant and animal origin.
7. In the most vulnerable regions where chronic conflict and displacement continue to disrupt livelihoods and food systems, safety nets are essential for the most vulnerable. These include food assistance, blanket supplementary feeding for women and girls, cash-based transfers, and school meals, which can secure nutritional gains for children. Resilience and livelihood programmes can support long-term outcomes but many refugees, internally displaced people and host communities remain highly dependent on integrated food and nutrition assistance. In less vulnerable regions access to nutritious diets is higher and dietary diversity with animal source foods and nutritious fruit and vegetables can contribute to meeting nutrient needs for vulnerable groups.
8. Multisectoral actions are required to sustainably improve access to nutritious diets in Cameroon. Actions are required across food and health systems. The education sector can deliver nutritious school meals and provide nutrition education, the private sector can enable food products to reach remote areas and can support the scale up of fortified foods, and the social protection sector can ensure that the most vulnerable have access to nutritious diets. Regular monitoring and evaluation of actions is essential to inform the different ministries and implementors of the results achieved.

Insight from co-located nutrition modelling initiative

The FNG modelling in Cameroon was complemented by two other nutrition modelling and optimization tools: MINIMOD and Optima Nutrition. These tools provide policymakers with a coordinated set of analyses that allow them to reallocate scarce resources towards nutrition-specific and nutrition-sensitive actions for maximum impact on target groups. Optima Nutrition shows that from 2021 to 2030, reallocating current nutrition spending optimally could mean 60,000 fewer child deaths, 20,000 fewer severely malnourished children, and 125,000 fewer stunted children. MINIMOD explores how micronutrient interventions can more cost-effectively reach vulnerable groups based on current Cameroonian diets.

Stakeholder recommendations by sector

Health sector

- Strengthen multiple micronutrient and iron and folic acid supplementation for women and adolescent girls.
- To address the triple burden of malnutrition, design nutrition education programmes to promote healthy diets that include nutrient-dense fruit, vegetables and animal source foods.
- Reinforce initiatives to promote breastfeeding as the foundation of good nutrition for infants and young children.
- Plan reallocation of financial resources according to the insights from Optima Nutrition to minimize mortality, stunting and wasting over ten years.

Education sector

- Implement an Integrated National Programme of School Nutrition and Hygiene in all schools; include school gardens, WASH, nutrition education, and physical activity.
- Develop normative documents on school feeding to include nutritious vegetables in school meals and establish linkages with local farmers to promote resilience.

Agriculture and livestock and infrastructure and energy sectors

Agriculture and livestock

- Strengthen programmes to diversify production and increase supply of nutritious foods in markets, especially small livestock, poultry, fish and milk. Combine this with communications on consumption of nutritious foods, especially for vulnerable individuals.

- In regions where a nutritious diet is least affordable, roll out regional food security and livelihoods programmes that integrate nutrition based on locally available foods, including from smallholder farmers. Create healthy recipes from local foods and promote them through community education. Integrate aquaculture and the cultivation of nutritious fresh produce (including moringa and green leafy vegetables) into livelihoods programmes.
- Build capacity on the integration of nutrition objectives and of monitoring indicators for improving dietary diversity in plans and programmes.

Infrastructure and energy

- Prioritize investments and development of infrastructure and energy for production, transportation, processing and marketing of nutritious foods to reduce post-harvest losses.

Fortification, private sector, and trade

- Develop rice and other food/condiment fortification programmes, in addition to strengthening existing fortification programmes according to the potential benefits identified in the FNG and MINIMOD analyses. Ensure a behaviour change communication plan to promote consumption of fortified rice by target individuals.
- Identify opportunities for the development of locally produced fortified complementary foods targeting children aged 6 – 23 months.
- Create a regulatory environment conducive to implementing fortification, considering imports of micronutrient premixes and the competitiveness of local production in relation to imports.

Social protection and gender

- Build capacity and provide nutrition education for social workers and managers of programmes responsible for the supervision of women, children and socially vulnerable groups, including indigenous populations.
- Ensure cash transfer values are sufficient to cover the local cost of a nutritious diet. Improve the quality of accompanying measures on nutrition education and feeding practices.
- Sensitize and mobilize communities for Essential Family Practices, including dietary practices and the fight against harmful cultural practices such as early marriage and pregnancy.

Cross-cutting/coordination

- Align National Nutrition Policy documents with the National Development Strategy (SND) 30, incorporating the results of the FNG analysis. Implement a results monitoring framework for the Interministerial Committee for the Fight Against Malnutrition (CILM) based on the results of the FNG analysis.
- Improve the national human resources capacity for nutrition through the creation of the Nutritionist Corps within the public service.
- Improve nutrition data collection and sharing of national surveys to ensure nutrition goals and monitoring are considered.
- Partner with media and well-known celebrities in Cameroon to create social campaigns and messages on healthy and nutritious diets.

Fill The Nutrient Gap **Cameroon** | REPORT

Introduction to Fill the Nutrient Gap (FNG) Cameroon

The Government of Cameroon is committed to the fight against malnutrition and has undertaken numerous initiatives aimed at achieving Sustainable Development Goal 2, ending all forms of hunger and malnutrition, by 2030. Cameroon joined the Scaling Up Nutrition (SUN) movement in 2011 and, in 2014, the Government of Cameroon formed the Interministerial Committee for the Fight Against Malnutrition (CILM) under the Prime Minister.

While some progress has been made, Cameroon is still facing the triple burden of malnutrition (undernutrition, micronutrient malnutrition, and overweight). The Demographic and Health Survey (DHS) 2018 reported that about 11 percent of children under 5 in Cameroon are overweight and 29 percent are stunted. In addition, anaemia, a proxy indicator of iron deficiency, affects 57 percent of children under 5 and 40 percent of women of reproductive age.[2]

In 2020, the Government of Cameroon undertook the Fill the Nutrient Gap (FNG) Analysis with technical support from the World Food Programme to mobilize multisectoral stakeholders and to establish a consensus about ongoing and potential interventions to improve access to nutritious diets. The findings from the FNG will inform government strategies and policies on health, food, agriculture and social protection as well as the development of the National Infant and Young Child Feeding (IYCF) strategy, the National Nutrition strategy, and WFP's Cameroon Country Strategic Plan (CSP).

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 two Lancet series (2013 and 2021) on maternal and child undernutrition identified a variety of nutrition interventions that have proven effective. Improving the nutrition situation in a country requires coordinated actions across the food, social protection, health and education systems. These need to be grounded in a good understanding of the local context, its opportunities and bottlenecks, and a synthesis of global and local evidence.

Fill the Nutrient Gap (FNG) is an analytical process comprised of a secondary literature review in

[2] National Institute of Statistics (Cameroon) and ICF. 2020. 2018 Cameroon DHS Summary Report. Rockville, Maryland, USA: NIS and ICF.

combination with Cost of the Diet (CotD) linear optimization to understand local drivers that affect the availability, cost and affordability of a nutritious diet. Solutions of interest for improving availability of nutritious foods, lowering their cost and/or increasing income are then assessed for their potential to improve affordability, using the CotD software. This enables the context-specific potential for impact of proven interventions to 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 Cameroon in a sustainable way that is integrated across the country's food systems.

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 September 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

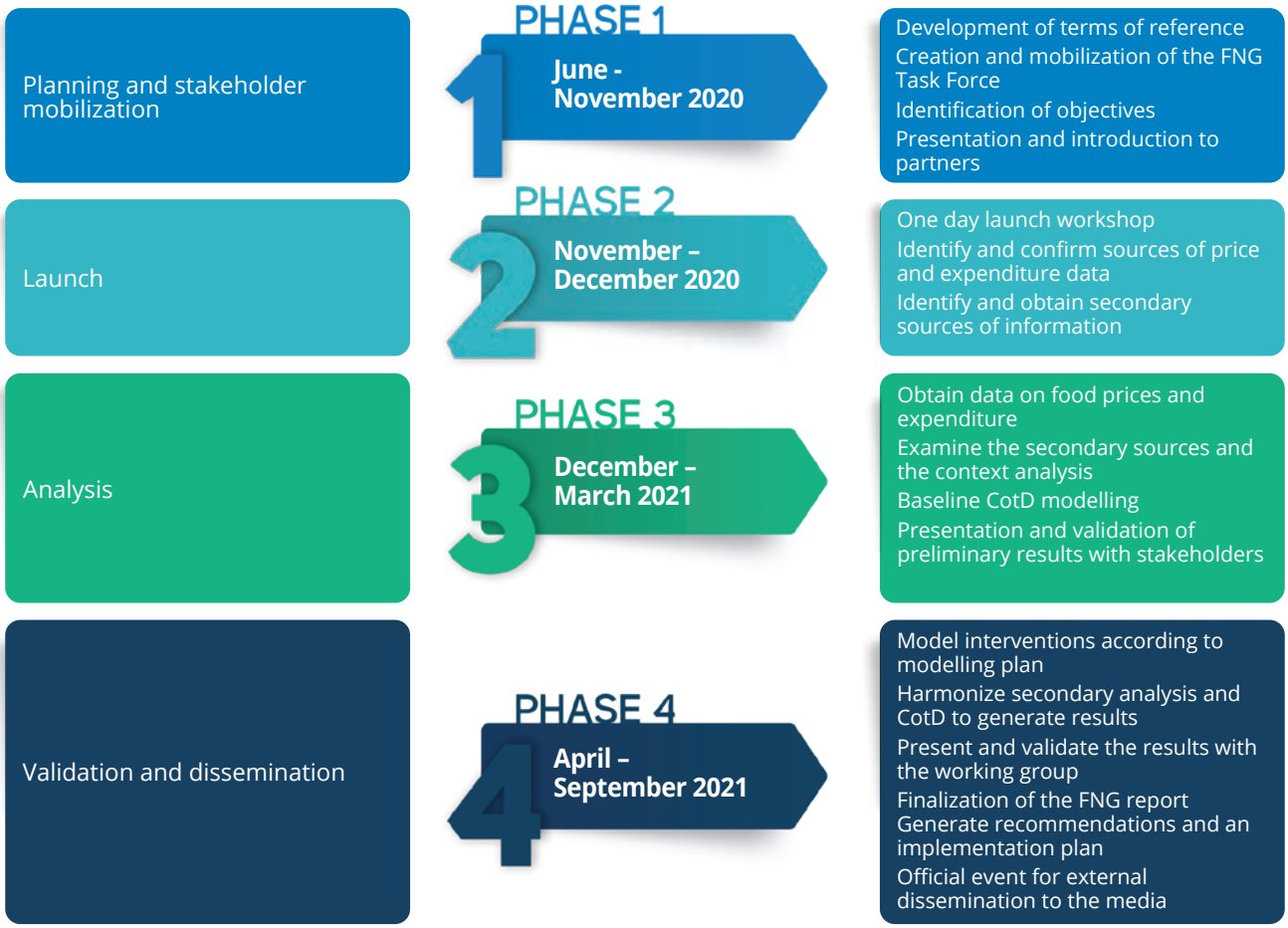
Process of the FNG Analysis in Cameroon

The Cameroon FNG analysis was conducted from June 2020 to September 2021 (Figure 1). The first phase involved organizing and sensitizing the FNG Task Force under the technical working group (Technical Secretariat of the CILM) to reach consensus on the protocol and endorse the analysis. This phase included defining the terms of reference and identifying preliminary study objectives. The second phase was a one-day work workshop to launch the FNG with leadership and members from the FNG Task Force, with support from the WFP Country Office and headquarters. This phase included finalizing the parameters of the analysis and identifying and obtaining food prices and household expenditure data.

The third phase was the review of secondary sources and completion of the baseline models for CotD and affordability. A national consultant led the secondary review, which involved an extensive literature search on drivers of access to nutritious diets across systems. The consultant also compiled inputs for the modelling from the literature and from relevant stakeholders, contributed to the definition of the findings of the analysis, and drafted the findings for the FNG report. The preliminary results were presented to the Technical Secretariat of the CILM and FNG Task Force for technical validation.

The fourth and final phase included obtaining extensive input from stakeholders to refine and validate the analysis and modelling. The main messages to come out of the analysis were then formulated, and a multistakeholder workshop was held in September 2021 in Douala where decisions were made and priorities agreed. The FNG results were presented to the Task Force and stakeholders, who participated in a process to generate sectoral recommendations and an action plan based on the findings. Finally, a high-visibility external communications event, led by the Technical Secretariat of the CILM, was held in Yaoundé to disseminate the results and priorities for action at the national level.

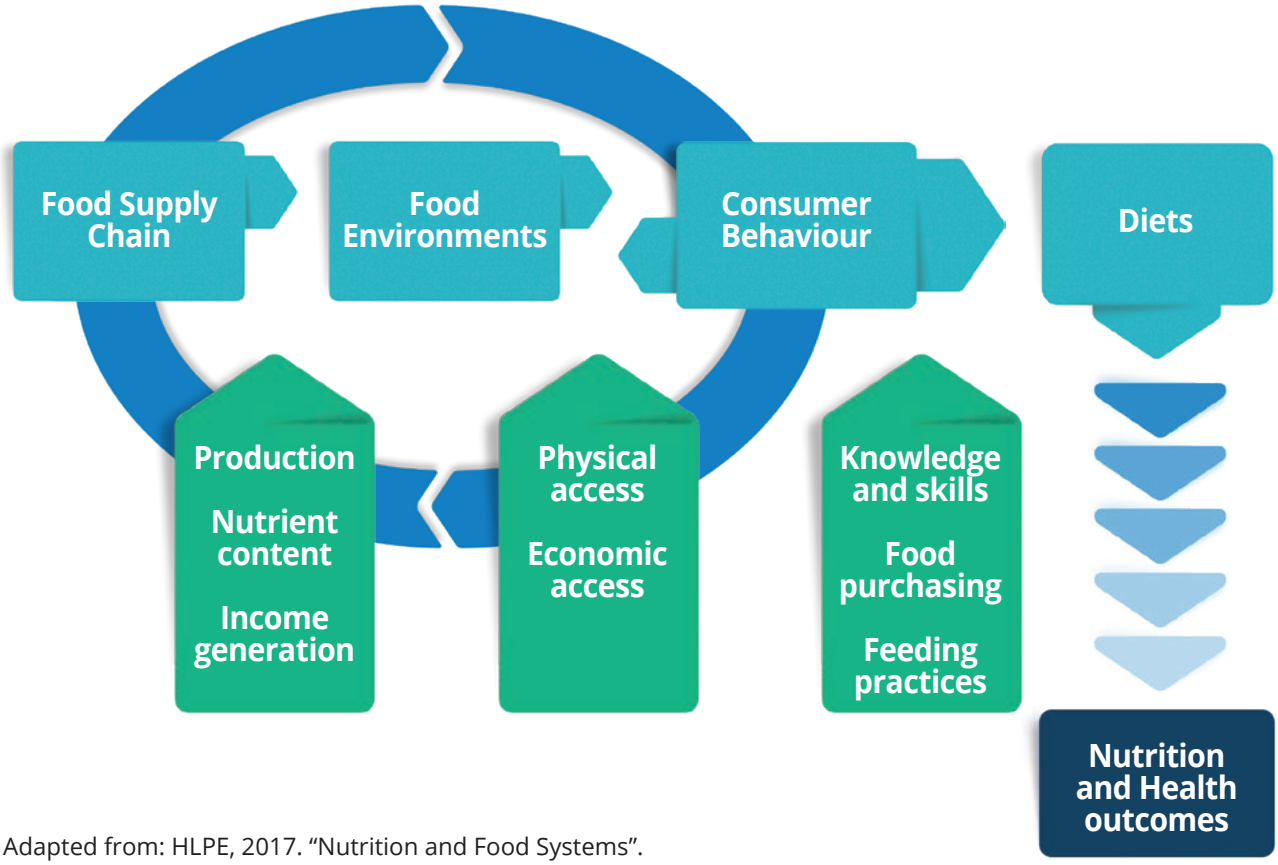
Figure 1: The Fill the Nutrient Gap (FNG) process followed in Cameroon



Scope and focus of the FNG Analysis

Long-term solutions to malnutrition require transformation of the food system along food supply chains, within food environments and in consumer behaviour patterns (Figure 2). The FNG analysis provides a framework for strengthened situation analysis and multisectoral decision making that identifies context-specific barriers to adequate nutrient intake among specific target groups. The analysis identifies nutrient gaps and barriers to adequate nutrient intake for different target groups through the life cycle, across the ten regions of Cameroon.

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



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

The specific objectives of the FNG include:

- Enable nutrition actors and key stakeholders to better understand the barriers to adequate nutritional intake for the population as a whole and for specific nutritionally vulnerable groups, especially children under 5, pregnant and breastfeeding women and adolescent girls.
- Foster collaboration among multiple stakeholders across different sectors to strengthen the links between health and nutrition, agriculture, social protection, education, and gender equality to develop multisectoral recommendations for reducing malnutrition.
- Evaluate existing interventions and services with a view to improving their contributions to improved nutritional intake, especially for vulnerable individuals.
- Structure existing secondary data and link sectoral information to produce a comprehensive situational analysis of nutrition systems and identify data gaps that can be filled with further studies.
- Provide information that will contribute to the structural transformation of the food system, the system most capable of improving access to nutritious and/or fortified foods, in line with pillars 1 and 2 of the National Development Strategy.
- Establish links with other ongoing and complementary food security and nutrition studies such as Optima Nutrition and MINIMOD, to strengthen decision making.
- Formulate multisectoral recommendations by study area and align sector strategies around improving nutritional intake, including behaviour change strategies to create demand for nutritious foods.

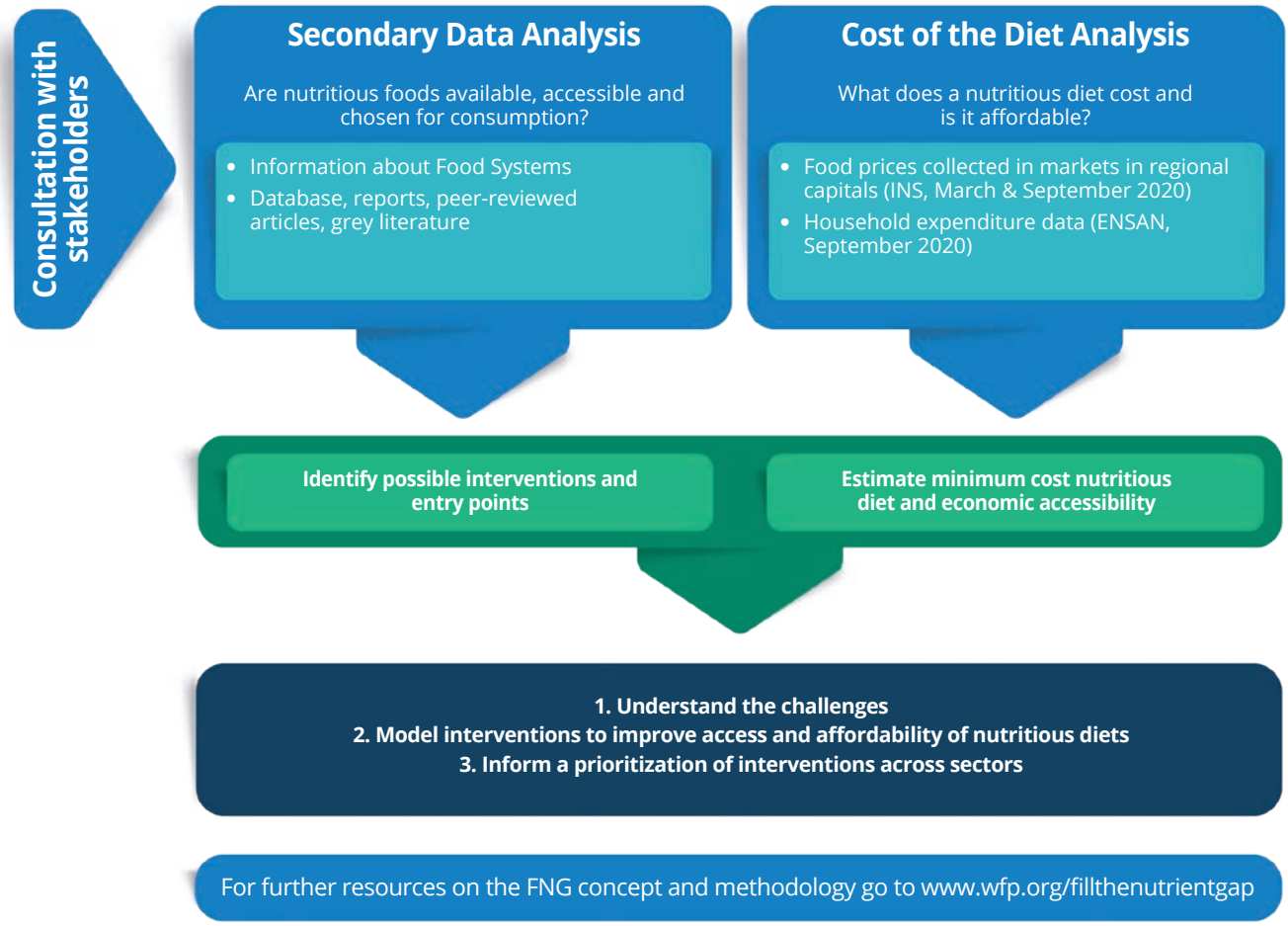
Methodology

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 CotD analysis which uses linear optimization to provide a detailed view of availability, cost and affordability of nutritious diets (Figure 3).

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 (agriculture, health, social protection and education). In Cameroon the analysis also reviewed cross-cutting issues such as gender and women's empowerment and the dynamics of gender for household access to nutritious diets.

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 2020 State of Food Insecurity (SOFI) report[3].

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.
[3] FAO, IFAD, UNICEF, WFP, WHO. The State of Food Security and Nutrition in the World 2020 [Internet]. 2020. Available from: http://www.fao.org/3/ca9692en/online/ca9692en.html

Data sources for CotD analysis

The CotD analysis was undertaken at the regional level for all ten regions of Cameroon, and the affordability analysis was disaggregated for the urban and rural levels of each region. Existing food price data were provided to WFP by the Cameroon National Institute of Statistics (INS). These data, available monthly for 2020, were collected in regional capitals with support from INS and the Food and Agriculture Organization (FAO) and include over 100 different food items. Data from the analysis were from March and September 2020, selected to represent seasonality within the country as well as any impacts on food prices experienced due to the COVID-19 pandemic. Existing data on household food expenditure was obtained from the data collected for the Enquête Nationale sur la Sécurité Alimentaire et Nutritionnelle (ENSAN) in September 2020.

Modelled household and main target groups for the analysis

The FNG estimated a nutritious diet for a model household of five members:

- breastfed child (12–23 months);
- school-age child (6–7 years);
- adolescent girl (14–15 years);
- breastfeeding woman;
- adult man.

The household composition was validated with stakeholders, reflects the average household size in Cameroon, and takes into consideration nutrient requirements at different stages of the life cycle.

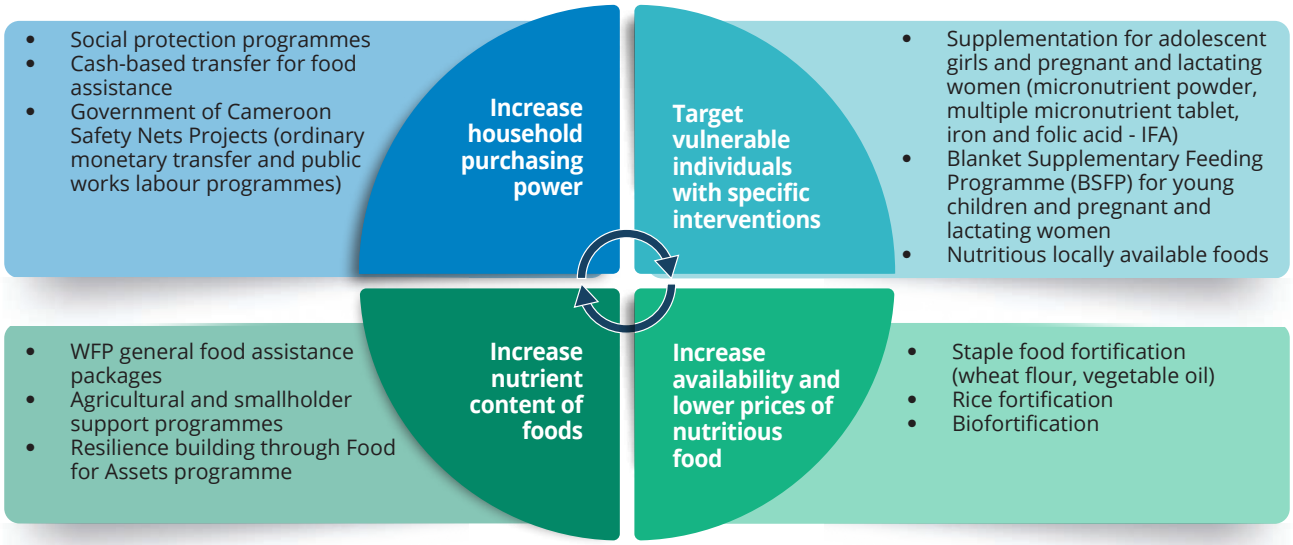
The parameters of the FNG baseline model are adjusted to reflect staple consumption in actual diets. In Cameroon, this staple adjustment consisted of 50 percent rice in all regions, and 50 percent of one other staple food depending on the region: maize in Adamawa, Littoral, North, North West, West, and South West; Cassava in Centre, South, and East; and Millet in Far North. The selection of staples for each region was based on several sources including average apparent intake (calculated by the MINIMOD analysis), review of livelihood zone and agricultural data, and stakeholder consultation.

Intervention modelling

Based on discussions with stakeholders, scenarios modelled in the FNG analysis were defined, modelled, and validated with the objective of improving the affordability of a nutritious diet for individuals and/or households through multiple entry points. To identify concrete recommendations based on analyses, the FNG process concentrated on modelling the interventions outlined in Figure 4. These include:

- increasing households purchasing power to afford a nutritious diet;
- targeting interventions for vulnerable people;
- increasing the nutrient content of foods;
- increasing the availability of nutritious foods.

Figure 4: Entry points and interventions modelled to estimate reduction in cost of a nutritious diet



Considerations for interpretation and data gaps

The estimates of the costs of energy-only and nutritious diets reported here should be interpreted as an economic indicator for a minimally viable diet. They are not desirable or recommended diets and do not reflect actual consumption patterns.

Some foods that are highly seasonal, consumed only in certain areas, or foraged, may not be captured in the food list and thus are absent from the analysis. Food price data was only available for the ten regional capitals, thus prices used in the analysis may not be representative of prices across the entire region. The cost of the diet estimates reported here are representative only of the point in time in which they were collected and do not capture the full range of seasonal food price variability.

Finally, the aim of the FNG is to identify ways to improve access to nutritious diets from a consumer's perspective and to mobilize multisectoral stakeholders to identify and plan priority actions. While interventions are compared against the cost of the diet indicator, the implementation cost and cost-benefit ratio of the interventions are not calculated in the FNG approach.

Findings

1.
Despite progress in socioeconomic development and stunting reduction, multiple forms of malnutrition and food insecurity remain high in Cameroon, with significant regional disparities.

While stunting in Cameroon has improved in recent decades, it remains high, with 29 percent of children under 5 stunted.[3] The burden of stunting is highest in the four most vulnerable regions of Cameroon: Far North (37 percent), North (41 percent), Adamawa (38 percent) and East (37 percent). Stunting is concentrated among the poor, (42 percent in the poorest quintile compared to 14 percent in the wealthiest quintile) and in rural areas (38 percent in rural areas compared to 23 percent in urban).[4] The drivers of stunting include low access to nutritious foods and to clean water, sanitation, and health services.

While recent data is limited, evidence suggests that micronutrient deficiencies remain high in the country, particularly among vulnerable groups. Fifty seven percent of children aged 6–59 months and 39 percent of women aged 15–49 years suffer from anaemia, indicating a prevalence of iron deficiencies.[5] Data from 2011 found that among children aged 1–5 years, 69 percent suffered zinc deficiency, 35 percent were deficient in vitamin A, and 28 percent in vitamin B_{12}.[6]

In addition to undernutrition and micronutrient deficiencies, rapidly rising rates of overweight among children and adults are evidence of the triple burden of malnutrition in Cameroon. Overweight in children under 5 has increased from 6 percent in 2011 to 11 percent in 2018.7 Overweight in adult women has increased from 21 percent in 1998 to 37 percent in 2018, and is more common in older women, women of higher wealth and education levels, and those in urban areas.

Malnutrition in all its forms imposes substantial direct and indirect costs and is a major impediment to achieving the Sustainable Development Goals. According to World Bank estimates, Cameroon loses more than USD 187 million in gross domestic product (GDP) every year to micronutrient deficiencies yet scaling up core micronutrient interventions would cost less than USD 11 million annually.[8] Global estimates suggest that, on average, every dollar spent on proven interventions to reduce stunting generates around USD 18 in economic benefits.[9]

2.
In Cameroon, a diet that meets nutritional requirements of a 5 person household costs an average of 1,262 Central African Francs (FCFA) daily. In some regions, meeting nutritional needs can cost more than twice as much as meeting energy needs alone. Nationally, at least half of households cannot afford a diet that meets nutrient needs, while a quarter of households cannot even afford a diet that meets only energy needs.

In September 2020, nationally the average cost of a diet that meets only energy needs was found to be FCFA 720 for a five person household. Compared to an energy-only diet, which consists mainly of low cost staples, a diet which meets nutrient requirements consists of a more diverse selection of foods, including animal source foods, legumes, fruit and vegetables. The average nutritious diet was found to cost FCFA 1,262 per household daily, or about 1.75 times more than the energy-only diet. The cost of the nutritious diet ranged from a low of FCFA 990 in South to a high of FCFA 1,470 in North West and Centre.

While the nutritious diet analysed in the FNG is the optimized diet that meets nutrient needs at the lowest cost, it is not intended to make a pleasing recipe or to reflect actual dietary patterns. By contrast, a healthy diet can be described as one that not only meets nutrient needs but also includes a balanced intake of diverse foods groups and prevents malnutrition as well as non-communicable diseases.[10] While the FNG does not calculate the cost of a healthy diet, an estimate based on other settings suggests that a healthy diet in Cameroon would cost FCFA 1,900–2,100 per household per day, approximately 60 percent more than a nutritious diet.

The cost of the nutritious diet was also calculated for each region for March 2020 to examine nutritional vulnerabilities across seasons and during the initial months of the COVID-19 pandemic.
The analysis found that the cost of the diet was higher

[3] National Institute of Statistics (Cameroon) and ICF. 2020. 2018 Cameroon DHS Summary Report. Rockville, Maryland, USA: NIS and ICF.
[4] Ibid.
[5] Ibid.
[6] Ministère de la Santé Publique du Cameroun, 2011. Enquête Nationale sur les Carences en Micronutriments et les Habitudes de Consommation des Aliments Fortifiables.
[7] National Institute of Statistics (Cameroon) and ICF. 2020. 2018 Cameroon DHS Summary Report. Rockville, Maryland, USA: NIS and ICF.
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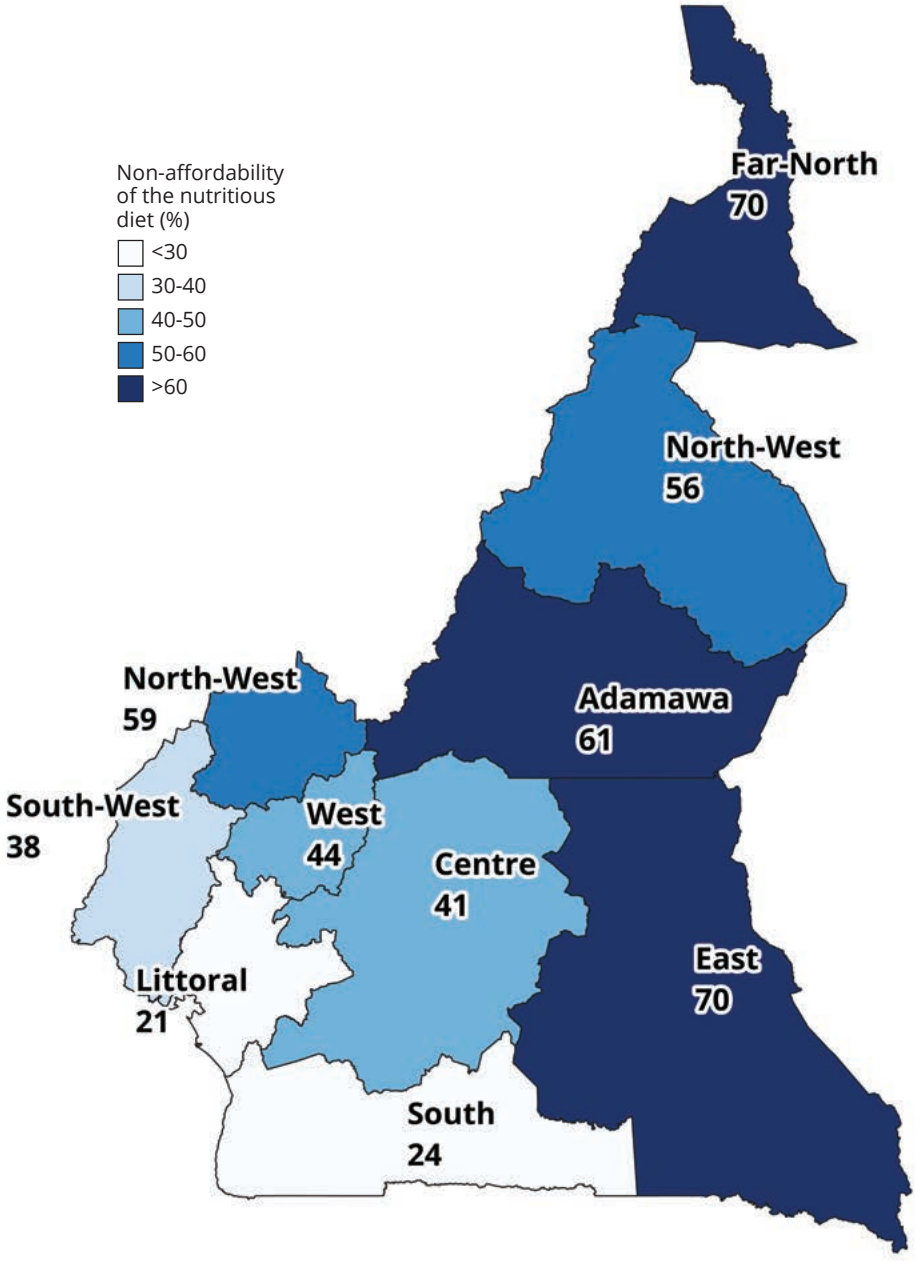
[9] Hoddinott, J., H. Alderman, J. Behrman, L. Haddad, and S. Horton, 2013. The economic rationale for investing in stunting reduction, Maternal and Child Nutrition, 9 (Suppl 2): 69-82 https://doi.org/10.4060/ca9692en
[10] FAO, IFAD, UNICEF, WFP and WHO. 2020. The State of Food Security and Nutrition in the World 2020. Transforming food systems for affordable healthy diets. Rome, FAO.

in March in four regions (Far North, Littoral, West, South). In all other regions it was higher in September. Expenditure data was only available for September so affordability could only be calculated during that month. However, these seasonal cost findings suggest that for the four regions for which cost was higher in March, non-affordability levels, and thus nutrient gaps, may be even higher than those calculated in this analysis.

The FNG analysis found that at least 48 percent of the national population cannot afford to purchase a diet that meets their nutritional requirements, and that 24 percent cannot even afford a diet that meets only energy requirements. Non-affordability of the nutritious diet was lowest in Littoral (21 percent) and South (24 percent) and highest in East and Far North (70 percent) (Figure 5). The estimated level of non-affordability is far high in rural areas, at 66 percent on average compared to 34 percent in urban areas. These figures indicate a very high level of food insecurity and nutritional vulnerability in all regions of Cameroon, with the highest vulnerabilities in rural areas, and in the northern and eastern parts of the country.

Figure 5: Non-affordability of the nutritious diet by region in Cameroon



3.
The price and affordability of nutritious diets in Cameroon are influenced by upstream factors in the food system such as agriculture production practices, distribution, policies and trade, and reliance on imports.

With fertile land and regular abundant rainfall in most regions, agriculture is a major pillar of Cameroon's economy. Despite the fact that 43 percent of the workforce is involved in agriculture, the majority of the country's farmers are smallholders, with little land, low access to inputs and credit, and inefficient production methods.[11] While 21 percent of the country's land is used for agriculture, this figure remains unchanged in recent years, and agriculture contributes just 15 percent to the nation's GDP.[12]

Productivity growth for many nutritious foods such as animal source foods, fruit, and vegetables has been stagnant in recent years. Cameroon's productivity for cereals is less than half the global average, and for vegetables it is less than a quarter.[13] These factors drive up the costs of all foods, particularly nutritious foods such as vegetables, lowering economic access for vulnerable households.

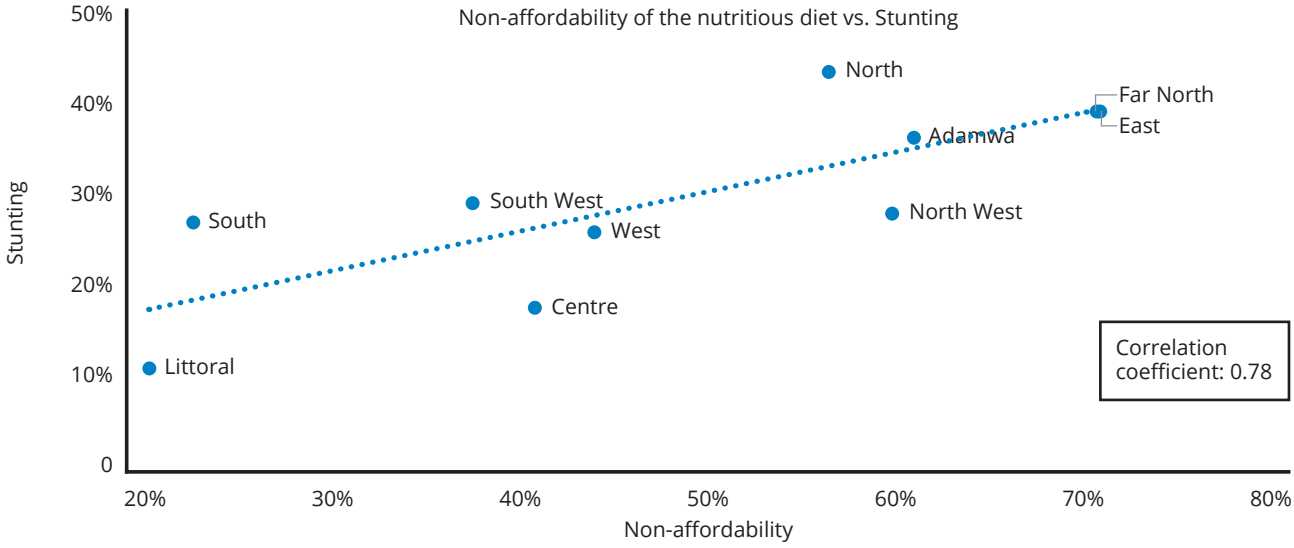
Several regions, including Far North, North, Adamawa and East, are exposed to recurring climate shocks such as floods and droughts, leading to food crises. Poor road infrastructure, land degradation, outdated agricultural practices, high post-harvest losses, and fragmented markets all severely limit people's access to sufficient nutritious food due to hikes in food prices.[14] Post-harvest losses are very high, estimated at 15 percent for soya, peanut, and beans, 25 percent for green leafy vegetables, and up to 40 percent for cassava.[15] Cameroon depends on high levels of imports for a number of strategic food commodities including rice, wheat flour, fish, and powdered milk.

4.
Vulnerabilities vary greatly across regions and between urban and rural areas. Vulnerabilities have been exacerbated by the impact of the COVID-19 pandemic, with the greatest impact on those working in the informal sector, part-time workers, and those in urban areas.

There is great regional variation in vulnerability of households within Cameroon. Northern regions such as Far North, North and Adamawa, are frequently exposed to climate shocks including droughts, which affect productivity and drive up food prices. These regions are also confronted with structural underdevelopment, poor infrastructure, degraded lands, and unimproved agricultural practices, all of which increase poverty and food prices, undermining household access to nutritious foods.

In addition to poverty, food insecurity and nutrition outcomes vary greatly by region. The FNG analysis compared the prevalence of stunting with the level of non-affordability of a nutritious diet and found a strong positive correlation, indicating that economic access to nutritious diets is an important underlying driver for malnutrition outcomes in Cameroon (Figure 6).

Figure 6: Correlation between the non-affordability of a nutritious diet and stunting



[11] World Bank, 2021. World development indicators (Database). https://databank.worldbank.org/
[12] Ibid.
[13] FAO STAT, 2021. Food and Agriculture Data (Database). https://www.fao.org/faostat/es/
[14] Ministry of Agriculture and Rural Development (MINADER) and World Food Programme (WFP). 2017. Comprehensive Food Security and Vulnerability Analysis (CFSVA), Cameroon.
[15] FAO STAT, 2021. Food and Agriculture Data (Database). https://www.fao.org/faostat/es/
Ministère de l'Agriculture et du Développement Rural (MINADER), 2021. Average yields and post-harvest loss figures for select agricultural products. Personal correspondence.

Rural households also face increased vulnerabilities and barriers to the affordability of a nutritious diet. On average, 34 percent of urban households could not afford the nutritious diet, compared to 66 percent in rural areas. More than a fifth of rural households (22 percent) are food insecure compared to ten percent of urban households, while stunting is 36 percent in rural areas compared to 10 percent in Yaoundé/Douala and 20 percent in all urban areas.[16]

In 2020 and 2021, the COVID-19 pandemic exacerbated vulnerabilities through an economic downturn, disruptions in global food supply chains, and government restrictions leading to significant barriers to food availability and accessibility. The worst impact has been on the poor, especially those in urban areas and in informal employment. Nutritious diets have become more inaccessible for many marginalized and vulnerable groups such as those in food-insecure regions, those from low-income households, women and children, and refugees.

5.
Acute and chronic shocks, including conflict, insecurity and climate-related events, increase vulnerability to malnutrition in certain regions of Cameroon, in particular the Far North, North, North West, and South West regions. Groups such as refugees, internally displaced people and host communities are at increased risk of malnutrition.

In the past four years, Cameroon has been facing three concurrent and complex conflict situations: violence by non-state actors in Far North; the ongoing civil crisis in North West and South West regions with spill-over effects in West and the Littoral region; and an influx of refugees from Nigeria into Far North region and from the Central African Republic into the Adamawa, North and East regions. These conflicts, together with seasonal climate shocks, have had serious impacts on food security and access to nutritious foods for households already suffering from low socioeconomic development.

Conflict and climate shocks are severely impacting trade and the overall economy, including food prices and affordability, and access to nutritious foods and overall poverty in rural and urban areas in the northern regions and the country as a whole. This is significantly affecting people's livelihoods, eroding their resilience, and increasing their vulnerability to food insecurity, malnutrition, and related health conditions.

These conflicts and associated population movements have given rise to acute food shortages and rising levels of malnutrition. Disruptions in agricultural activities, loss of livelihoods and the associated increase in food prices, constrains access to, and affordability of, nutritious foods for households that have been displaced or otherwise affected by the conflicts.

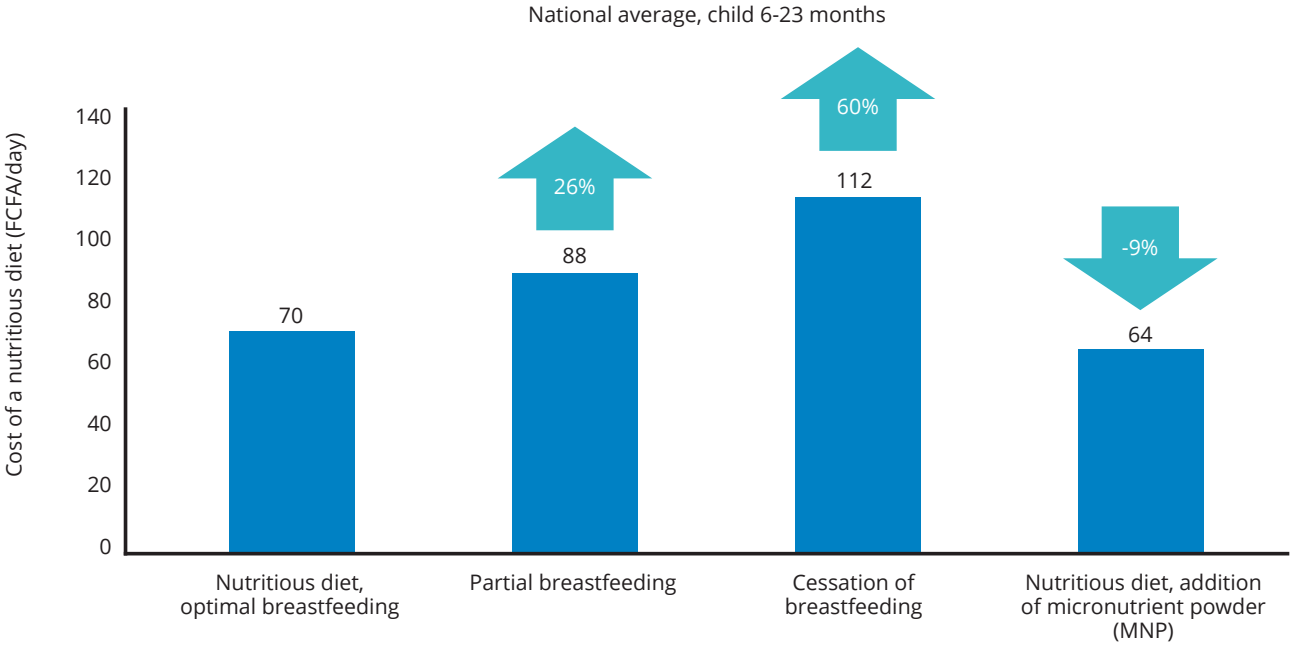
6.
Children aged under 2 are at increased risk of multiple forms of malnutrition due to suboptimal breastfeeding practices, inadequate complementary feeding practices and consumption of snack foods. Targeted interventions to promote nutrient intake, such as multiple micronutrient supplementation and consumption of nutrient-rich complementary foods, can increase access to nutritious diets for this group.

Breastfeeding and complementary feeding practices are suboptimal in Cameroon, with only 20 percent of infants receiving early initiation of breastfeeding and 40 percent being exclusively breastfed for six months.[17] Sixty nine percent of children aged 6–9 months receive a timely introduction to complementary foods. Only 11 percent of children aged 6–23 months receive a minimum acceptable diet, ranging from just 3 percent in the north to 18 percent in the west. FNG modelling found that iron, calcium, and zinc were the most expensive nutrients for the child under 2 as they were the hardest requirements to meet in 7 of 10 regions.

The FNG models found that compared to a child receiving the optimal portion of breastmilk, the cost of meeting nutrient requirements increases by an average of 26 percent for a child receiving only partial breastmilk and by 60 percent for a child receiving none. Micronutrient powder (MNP) for home fortification provides a number of essential nutrients and can reduce the cost of the diet for the young child by an average of 9 percent (Figure 7).

[16] National Institute of Statistics (Cameroon) and ICF. 2020. 2018 Cameroon DHS Summary Report. Rockville, Maryland, USA: NIS and ICF.
[17] Ibid.

Figure 7: Cost of the diet for the child 6–23 months with breastfeeding and micronutrient powder



In addition to stunting and micronutrient malnutrition, Cameroon is facing a rapidly growing double burden of malnutrition. FNG simulations find that the consumption of a sugary snack increases the cost of meeting the young child's nutrition needs by 57 percent and increases the likelihood of exceeding energy requirements, thus risking overweight.

WFP's Blanket Supplementary Feeding Programme (BSFP) delivers Supercereal Plus to children under 2 to prevent malnutrition in several regions characterized by high levels of food insecurity and malnutrition. This fortified staple food includes essential nutrients and reduces the cost of meeting nutrient needs for the child by up to 64 percent in Far North, 55 percent in North and North West, and 47 percent in South West.

In settings where acute food insecurity and non-affordability of nutritious diets are lower, social and behaviour change communication and nutrition education should be used to improve complementary feeding practices to include nutritious foods. In most regional market surveys, several nutritious plant and animal source foods were found that deliver essential nutrients at a relatively lower cost compared to other foods. For example, a 50 gram serving of cowpea (also known as black-eyed pea) contains more than half of the young child's requirements for protein, vitamin B1, folic acid, and magnesium, and unrefined palm oil is an important source of vitamin A. Dark green leafy vegetables such as cassava and moringa leaves are crucial sources of vitamins C, B_2 and B_6, folic acid, calcium and magnesium. Animal source foods such as sardines and small dried fish, chicken eggs and yogurt also provide several essential nutrients such as protein, iron, and vitamin B_{12}.

Modelling analyses by Optima Nutrition found that reallocating budgets and increasing allocations to complementary feeding were among the most cost-effective approaches to improving child survival and nutrition in Cameroon.[18]

7.

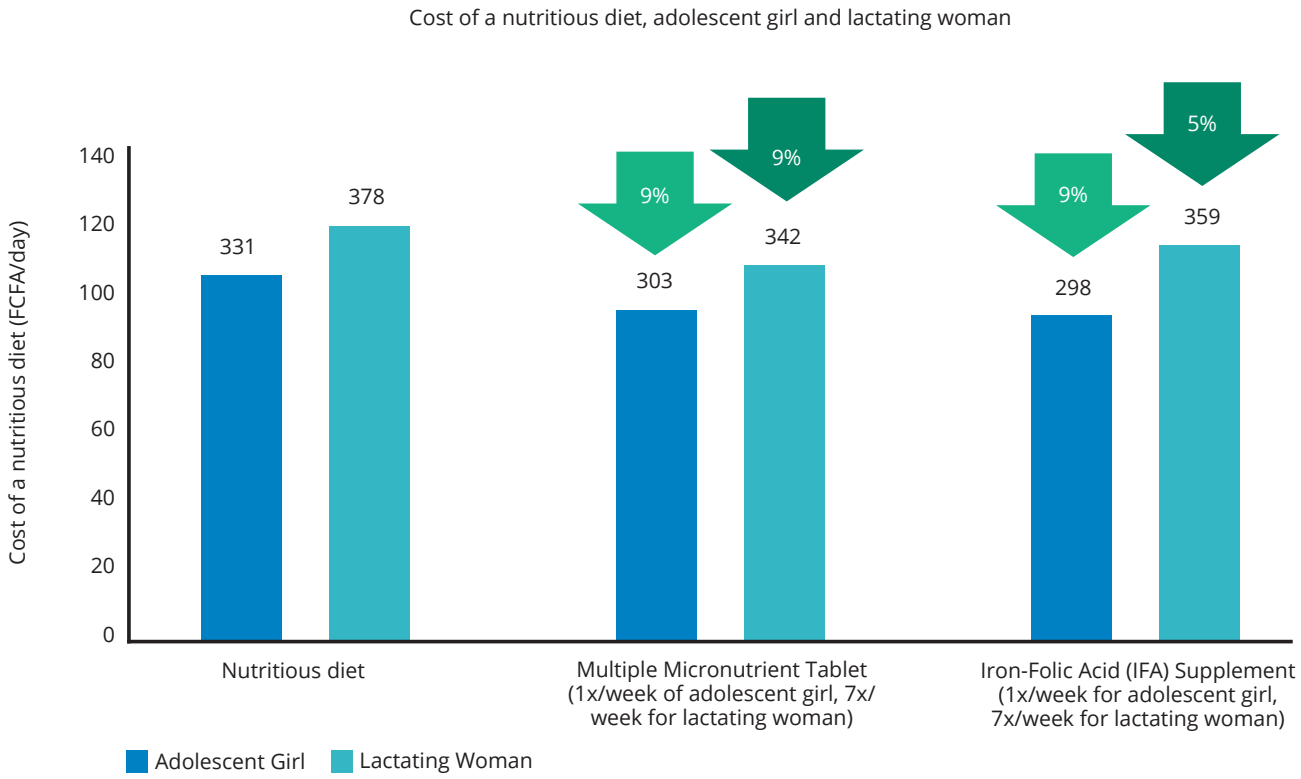
Adolescent girls and breastfeeding women are at increased risk because of their high requirements for nutrients such as iron, which come from relatively expensive foods in local markets. Targeted interventions, such as IFA or multiple micronutrient supplementation, can reduce these vulnerabilities.

Adolescent girls and pregnant and lactating women (PLW) have increased nutritional vulnerabilities because of their elevated requirements for certain nutrients. The FNG analysis found that the most difficult needs to meet for these individuals in most regions were for IFA and vitamin A, which are found in the most expensive foods in local markets. Meeting the nutrient needs of the adolescent girl and PLW would comprise 56 percent of the household cost of the diet. Their increased risk is clear in the nutritional indicators for Cameroon: nationally, the prevalence of anaemia in girls and women aged 15–49 years is 39 percent. There is regional variation but this figure exceeds 30 percent in all regions except North West.[19]

[18] Optima Nutrition, 2021. Optimizing investment in nutrition for children under 5: minimizing stunting, wasting and anaemia. PowerPoint Presentation. Burnet Institute, Melbourne.
[19] National Institute of Statistics (Cameroon) and ICF. 2020. 2018 Cameroon DHS Summary Report. Rockville, Maryland, USA: NIS and ICF.

While their needs are ideally met through consumption of nutrient-dense foods such as eggs and green leafy vegetables rich in nutrients like iron and calcium, this is difficult in settings where nutritious diets are highly unaffordable. The health sector plays an essential role in supporting nutrition for adolescent girls and PLW through the delivery of IFA and multiple micronutrient supplements. The FNG found that for an adolescent girl, an IFA tablet and a multiple micronutrient tablet delivered weekly reduced the cost of her diet by nine percent, indicating a significant potential contribution to accessing nutritious diets for this group. For PLW, the multiple micronutrient table had a greater impact than the IFA, reducing the cost of the PLW's diet by 9 percent compared to 5 percent when taken daily (Figure 8).

Figure 8: Cost of a nutritious diet for an adolescent girl and lactating woman receiving multiple micronutrient and IFA supplementation



In regions with high rates of food insecurity, WFP delivers Supercereal through the BSFP to prevent malnutrition among PLW. The models found that this intervention reduces the cost of a nutritious diet by 20 percent in Far North and West, and by more than 25 percent in North and North West.

While supplementation plays an important role, it is also essential that girls and women consume nutrient-dense foods when available and affordable. Several nutrient-dense foods were found to provide essential nutrients at a cost relatively lower than other foods. Significant contributions to the requirements for several nutrients are made through numerous foods, including vitamin A (moringa or unrefined palm oil); vitamin C (moringa and cassava leaf); vitamin B_2 (moringa); vitamin B_6 (moringa); and vitamin B_{12} (small fish and sardines).

8.

Fortification provides essential nutrients through staple foods and commonly eaten foods, and may have the greatest impact on the most vulnerable such as adolescent girls and breastfeeding women.

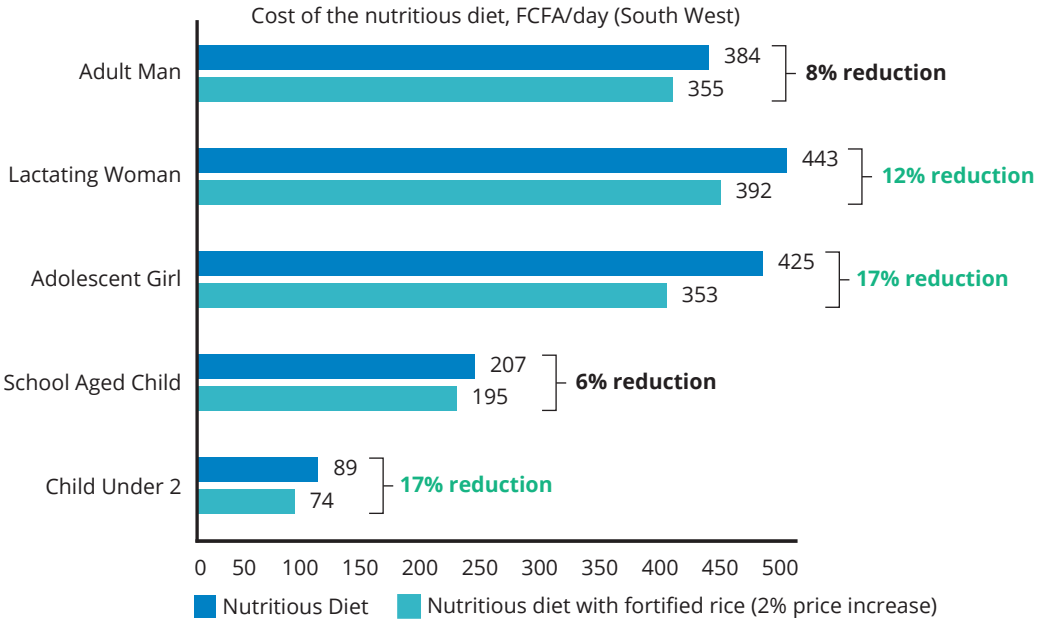
Post-harvest fortification and biofortification present opportunities to reduce micronutrient deficiencies in Cameroon. Several staple foods including wheat flour, vegetable oil and salt are commonly fortified post-harvest in Cameroon. Fortification models based on current dietary patterns indicate that if fully implemented at scale, oil fortification combined with vitamin A supplementation has the potential to greatly reduce or eliminate vitamin A deficiencies in nearly all regions.[20]

[20] MINIMOD, 2021. Utilisation de l'outil et des données MINIMOD pour éclairer la recherche et les décision concernant les programmes de lutte contre les carences en micronutriments. PowerPoint Presentation. UC Davis, California.

Although it is not widely available in Cameroon, the FNG also examined the potential of fortified rice, using a WFP standard which includes multiple micronutrients and an assumption that the price of fortified rice is 2 percent higher than the unfortified variety.[21] The modelling reveals that in regions where rice consumption is highest, fortified rice can decrease the cost of a nutritious diet by up to 6 percent in South West when rice is consumed alongside another staple food, and up to 11 percent when rice is the main household staple. This lower cost to meet nutrient needs reduces the level of non-affordability of the nutritious diet. If fortified rice were scaled up in South West region, the level of non-affordability would drop from 39 percent to 35 percent.

While all household members benefit from fortified rice, the impact is greatest on the most vulnerable household members as it is otherwise very costly to meet their nutrient needs using local foods. In South West region, fortified rice consumption reduces the cost of the diet by 17 percent for the child under 2 and the adolescent girl, and by 12 percent for the lactating women (assuming the household consumes rice as their only staple, and fortified rice is 2 percent more expensive than unfortified rice) (Figure 9).

Figure 9: Impact of fortified rice on the cost of the diet by household member



Biofortification of crops increases nutrient content through plant breeding and agronomic practices and has the potential to address micronutrient deficiencies in a cost-effective manner in Cameroon. Biofortified crops under research or distribution include vitamin A cassava, vitamin A maize, and iron-zinc beans. Biofortification and post-harvest fortification provide complementary, rather than competitive, approaches.

9.

Agricultural production is a low productivity system in Cameroon and needs to be reoriented to increase the availability of nutritious foods. Improved smallholder farming practices can increase dietary diversity if nutritious foods are produced and consumed, and can increase income if sold.

Many Cameroonians are involved in smallholder agriculture yet productivity levels are low, especially for nutritious foods. Current production is centred around staple foods. Market research shows that of the crops available at markets, over 70 percent are cereals and nearly a quarter are roots and tubers.[22] Transportation and storage infrastructure are poor, impeding the ability of smallholders to get their produce to market and increasing the risk of post-harvest loss. Improving the availability of nutritious foods requires actions across the food system and the transportation, infrastructure and energy sectors.

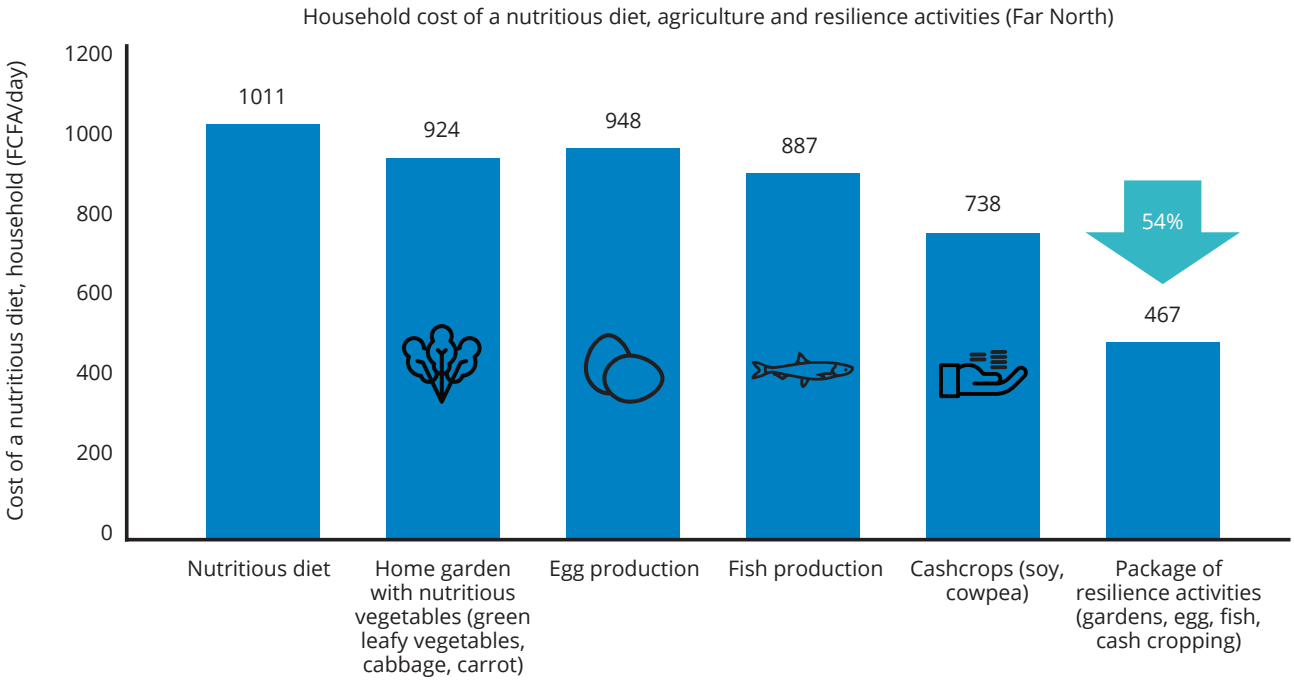
The FNG modelled the potential of a package of smallholder production activities to improve household access to nutritious diets and increase household resilience. These included small-scale vegetable farming, production of eggs and small fish, and cash crops such as cowpea and soya (Figure 10).

The results for vulnerable households in Far North are that egg production, vegetable gardening and small fish production can reduce the cost of a nutritious diet by 9 percent, 6 percent, and 12 percent respectively when harvests are consumed by the household. However,

[21] WFP, 2015. Technical Specifications for RICE – Fortified.
[22] Ministry of Agriculture and Rural Development and World Food Programme (WFP). 2017. Comprehensive Food Security and Vulnerability Analysis (CFSVA), Cameroon.

these nutritious foods have a greater impact when combined, as they provide complementary nutrients for the household; fish is an excellent source of vitamin B_{12} and iron and vegetables such as carrots, cabbage and dark green leafy vegetables provide vitamins A and C. Cash crop production can provide income that covers 27 percent of the cost of a nutritious diet. When all interventions are combined, the overall resilience package can reduce the cost of a nutritious diet by 54 percent.

Figure 10: Impact of agriculture interventions on the household cost of the diet



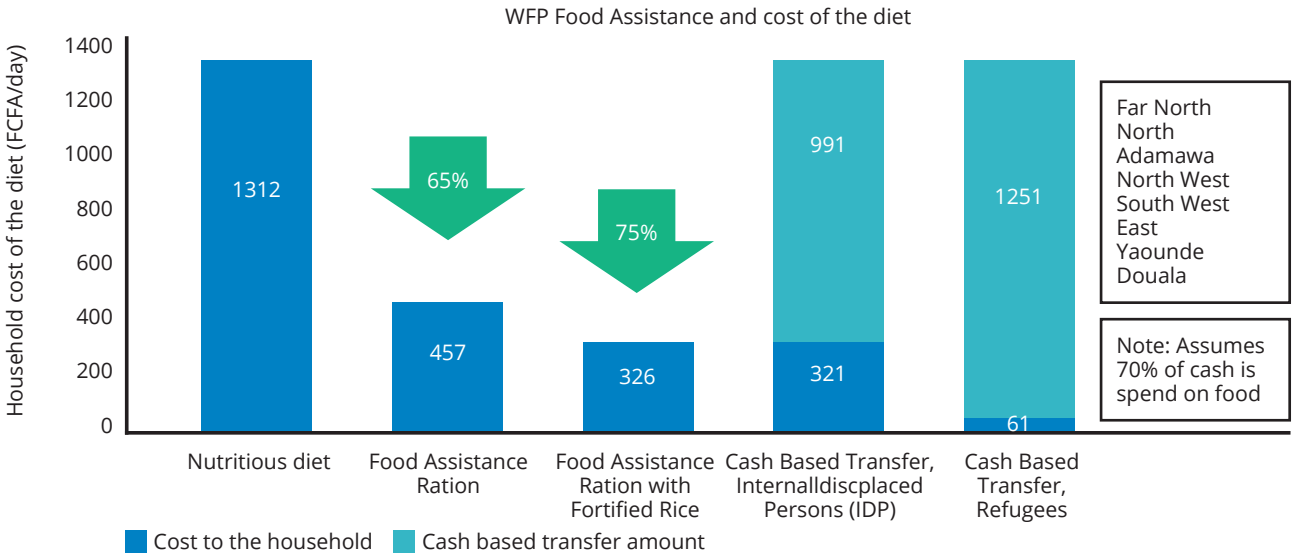
10.

The social protection sector can be harnessed to help bring nutritious diets within reach of the most vulnerable. However, assistance programmes need to be made nutrition-sensitive through adequate transfer size and targeting of vulnerable groups. They must be supported with social behaviour change communication to ensure that nutritious foods are demanded and consumed by those who need them most.

The social protection sector plays a vital role in protecting the most vulnerable during chronic poverty or acute shocks, and it can also play an important part in supporting nutrition. The FNG analysed the potential impacts of food assistance supported by WFP and the Government of Cameroon's Safety Net Project.
WFP's food assistance package, which consists of 350g rice, 100g beans, 35g fortified oil and 5g iodised salt per beneficiary per day, was modelled for Far North, North, Adamawa, North West, South West, East, Yaoundé, and Douala. On average, the ration reduced the cost of the nutritious diet by 65 percent, leaving a gap of FCFA 457 per household per day to cover nutritional needs. When the model included fortified rice in the ration, it reduced the cost by an additional 10 percent, revealing the potential of this intervention to support nutrition if implemented at scale (Figure 11).

WFP also uses a cash-based modality in the food assistance programme in Cameroon. This varies for refugees, internally displaced people (IDPs) and host communities depending on the context. Assuming that 70 percent of the cash is spent on food, this transfer covers 75–95 percent of the cost of a nutritious diet. However, this estimate assumes that the cash is spent optimally on nutritious foods, and for the most vulnerable who are fully dependent on aid, there is still an economic barrier to a nutritious diet.
The Government of Cameroon Social Safety Nets Project supports households over 24 months at an average rate of FCFA 15,000 per month for rural households and 25,000 per month for urban households. On the assumption that 70 percent of income is spent on food, the cash transfer programme covers an average of 27 percent of the cost of a household's nutritious diet in rural areas and 45 percent in urban.

Figure 11: Impact of WFP in-kind food assistance and cash-based transfer on the cost of the diet



11.

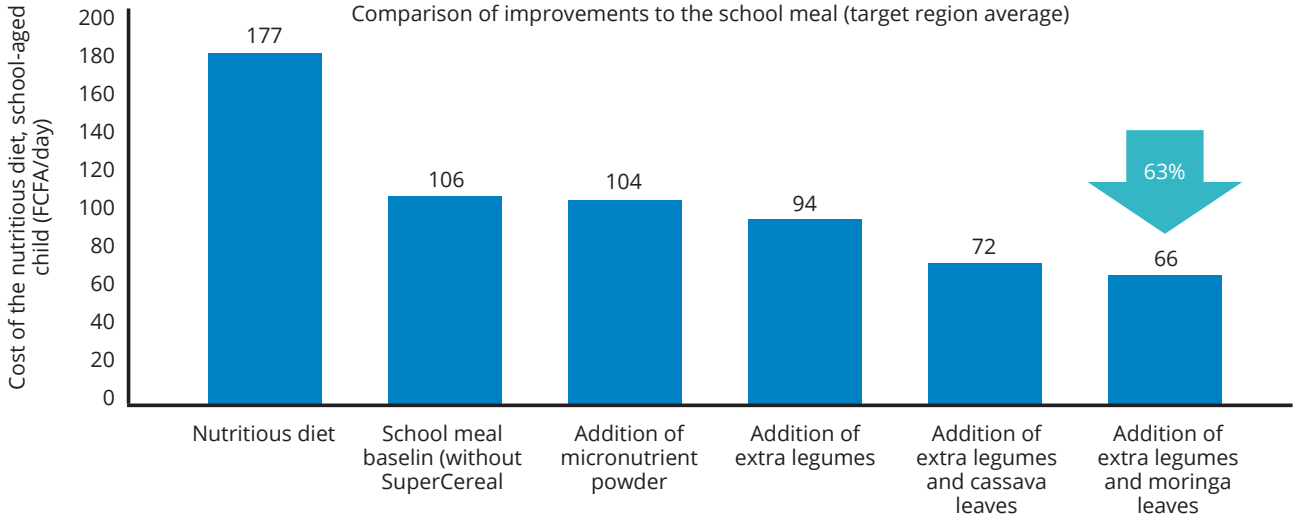
The education sector can help provide nutritious diets for school-age children through well designed school feeding programmes. School meals can increase access to nutritious diets for school-age children if improved by actions such as including micronutrient supplements or nutritious fresh foods.

School-age children need healthy food to meet their needs for physical and intellectual development during this crucial period, and school meals provide an important delivery mechanism. WFP delivers school meals to children in Cameroon in several regions. However, the programme has great potential be scaled up and to improve the menu to better meet children's nutritional needs.

The baseline school meal ration, which includes rice, cowpea, vegetable oil, iodized salt and fortified Supercereal, reduces the cost of the diet of a child aged 6–7 years by an average of 54 percent. However, because of supply chain challenges, Supercereal is being phased out of the programme, reducing the cost of the meal by only 40 percent. As many school children are older than 7 years, this meal provides a much lower contribution to their nutritional needs.

Strategies to improve the school meal through the inclusion of nutrient-dense fresh foods have great potential (Figure 12). The addition of micronutrient powder, fortified rice or an increased portion of legumes, provides only a marginal improvement as several nutrient needs remain unmet. The addition of dark green leafy vegetable, along with the increased portion of legumes, is more promising: while the baseline ration reduces the cost of the diet by 40 percent, cassava leaf and legumes reduces the cost by 59 percent, while moringa plus legumes reduces the cost by 63 percent

Figure 12: Comparison of scenarios to improve the school meal ration



12.

Interventions across multiple sectors should be combined and layered to better reach the most vulnerable households and enable greater access to nutritious food. Different combinations of interventions should be selected based on the contexts of vulnerability, malnutrition and non-affordability of nutritious diets.

Combinations of interventions across multiple sectors should be tailored to the local context as vulnerabilities vary greatly across the country, and for vulnerable groups such as host communities, displaced people and refugees. The FNG modelled packages of interventions in three representative settings: an urban setting where nutritious diets are relatively more accessible and affordable (Yaoundé), a rural setting in which non-affordability is high (Far North), and where a high proportion of displaced people are dependent on assistance to meet their needs (IDPs in North West).

In urban Yaoundé, the model included provision of micronutrient supplements to children under 2, adolescent girls, and lactating women through the health sector. It also included a nutritious school meal and fortified rice available on the local market. These interventions reduced the cost of the diet by 15 percent and brought nutritious diets within reach for an additional 8 percent of the population (Figure 13).

In the Far North, a package of multisectoral nutrition actions included provision of micronutrient supplements to children under 2, adolescent girls, and lactating women. It also included a nutritious school meal, development of smallholder agriculture, WFP food assistance in-kind ration, and BSFP. This package reduced the cost of the nutritious diet by 84 percent in this vulnerable region in which many are dependent on assistance. If it was achieved at scale, this package could reduce the level of non-affordability from 75 percent down to 9 percent for the rural population in the Far North (Figure 14).

Finally, a combination of nutrition actions was modelled to target IDPs in the North-west region, who may be dependent on assistance for nearly all their nutritional and basic needs (Figure 15). The package included provision of micronutrient supplements to children under 2, adolescent girls and lactating women, a nutritious school meal, BSFP for young children and lactating women, and a cash-based transfer. The non-cash interventions reduced the cost of the diet by 29 percent; the cash reduced the cost another 67 percent, nearly covering the cost of the nutritious diet. This demonstrates how this combination can almost close the nutrient gap for the most vulnerable populations in this setting.

Figure 13: Impact of a package of multisectoral interventions on the cost of the diet, urban Yaoundé

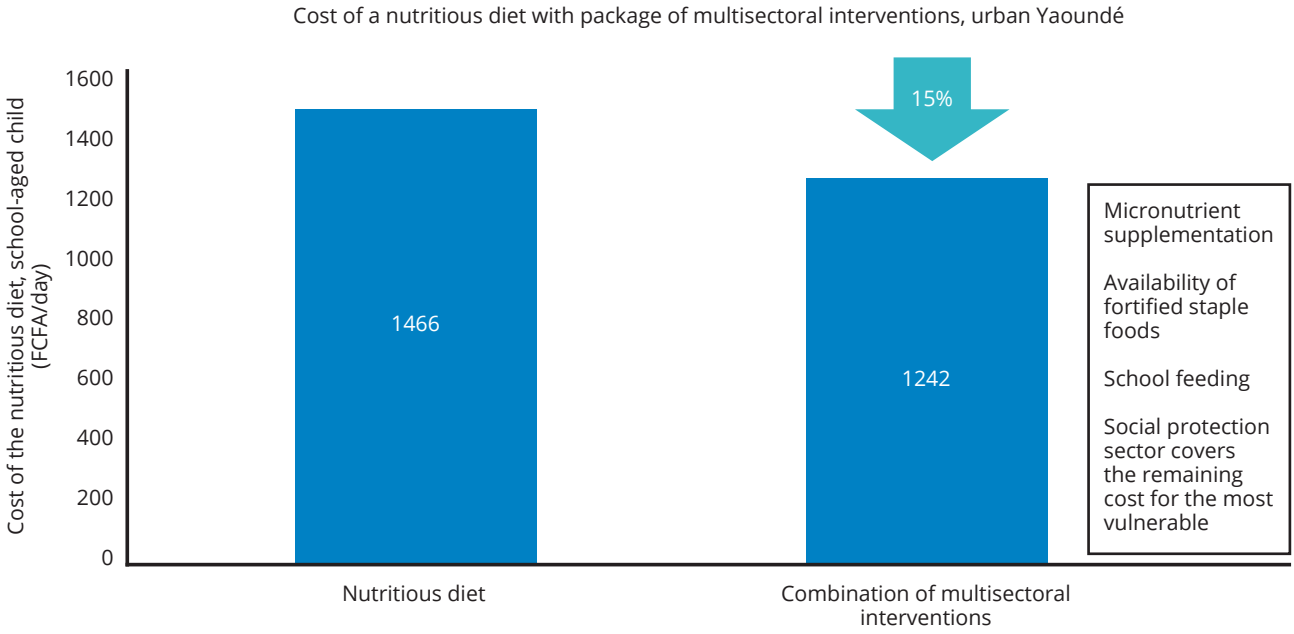


Figure 14: Impact of a package of multisectoral interventions on the cost of the diet, rural Far North

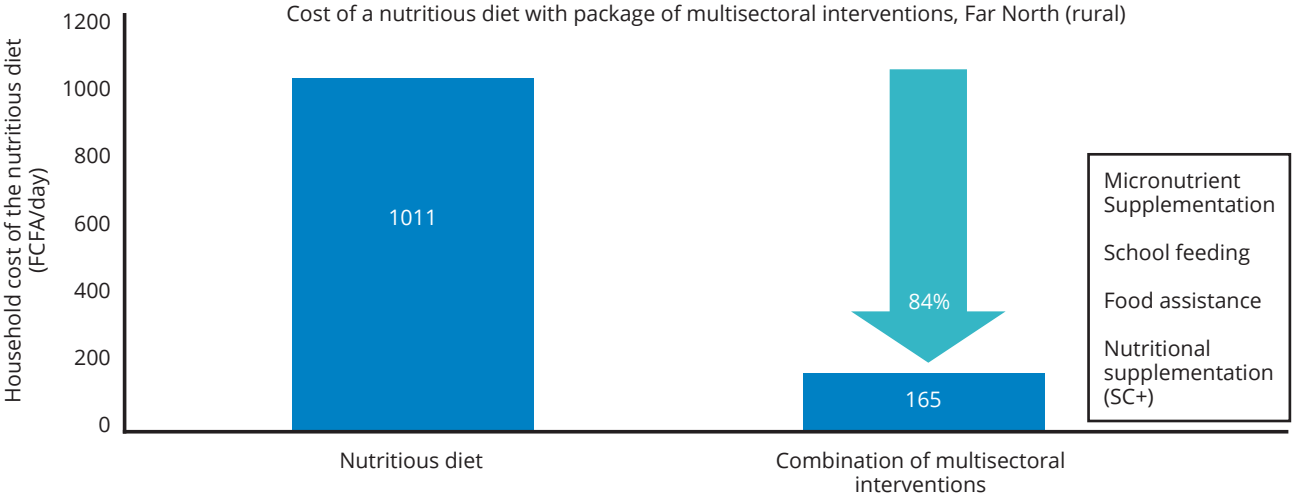
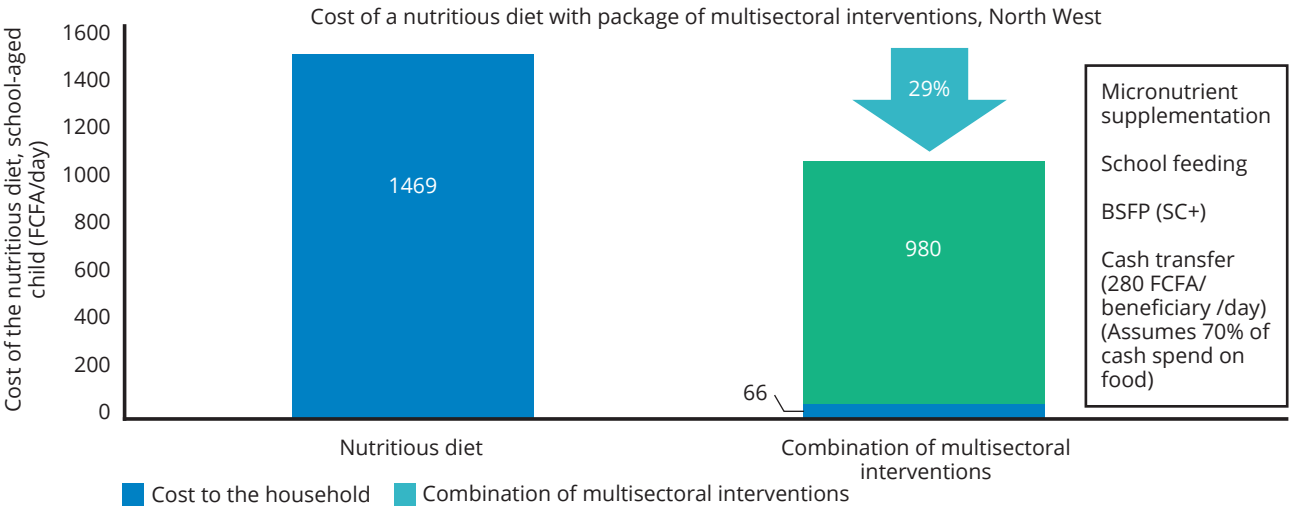


Figure 15: Impact of a package of multisectoral interventions on the cost of the diet, North West



Stakeholder recommendations by sector

Health sector

- Strengthen multiple micronutrient and iron and folic acid supplementation for women and adolescent girls.
- To address the triple burden of malnutrition, design nutrition education programmes to promote healthy diets that include nutrient-dense fruit, vegetables and animal source foods.
- Reinforce initiatives to promote breastfeeding as the foundation of good nutrition for infants and young children.
- Plan reallocation of financial resources according to the insights from Optima Nutrition to minimize mortality, stunting and wasting over ten years.

Education sector

- Implement an Integrated National Programme of School Nutrition and Hygiene in all schools; include school gardens, WASH, nutrition education, and physical activity.
- Develop normative documents on school feeding to include nutritious vegetables in school meals and establish linkages with local farmers to promote resilience.

Agriculture and livestock and infrastructure and energy sectors

Agriculture and livestock

- Strengthen programmes to diversify production and increase supply of nutritious foods in markets, especially small livestock, poultry, fish and milk. Combine this with communications on consumption of nutritious foods, especially for vulnerable individuals.
- In regions where a nutritious diet is least affordable, roll out regional food security and livelihoods programmes that integrate nutrition based on locally available foods, including from smallholder farmers. Create healthy recipes from local foods and promote them through community education. Integrate aquaculture and the cultivation of nutritious fresh produce (including moringa and green leafy vegetables) into livelihoods programmes.
- Build capacity on the integration of nutrition objectives and of monitoring indicators for improving dietary diversity in plans and programmes.

Infrastructure and energy

- Prioritize investments and development of infrastructure and energy for production, transportation, processing and marketing of nutritious foods to reduce post-harvest losses.

Fortification, private sector, and trade

- Develop rice and other food/condiment fortification programmes, in addition to strengthening existing fortification programmes according to the potential benefits identified in the FNG and MINIMOD analyses. Ensure a behaviour change communication plan to promote consumption of fortified rice by target individuals.
- Identify opportunities for the development of locally produced fortified complementary foods targeting children aged 6 – 23 months.
- Create a regulatory environment conducive to implementing fortification, considering imports of micronutrient premixes and the competitiveness of local production in relation to imports.

Social protection and gender

- Build capacity and provide nutrition education for social workers and managers of programmes responsible for the supervision of women, children and socially vulnerable groups, including indigenous populations.
- Ensure cash transfer values are sufficient to cover the local cost of a nutritious diet. Improve the quality of accompanying measures on nutrition education and feeding practices.
- Sensitize and mobilize communities for Essential Family Practices, including dietary practices and the fight against harmful cultural practices such as early marriage and pregnancy.

Cross-cutting/coordination

- Align National Nutrition Policy documents with the National Development Strategy (SND) 30, incorporating the results of the FNG analysis. Implement a results monitoring framework for the Interministerial Committee for the Fight Against Malnutrition (CILM) based on the results of the FNG analysis.
- Improve the national human resources capacity for nutrition through the creation of the Nutritionist Corps within the public service.
- Improve nutrition data collection and sharing of national surveys to ensure nutrition goals and monitoring are considered.
- Partner with media and well-known celebrities in Cameroon to create social campaigns and messages on healthy and nutritious diets.

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Acronyms

BSFP	Blanket Supplementary Feeding Programme
CILM	Interministerial Committee for the Fight Against Malnutrition
CotD	Cost of the Diet
CSP	Country Strategic Plan
DHS	Demographic and Health Survey
ENSAN	Enquête Nationale sur la Sécurité Alimentaire et Nutritionnelle
FAO	Food and Agriculture Organization
FCFA	Central African Franc
FNG	Fill the Nutrient Gap
GDP	Gross domestic product
IDP	Internal displaced person
IFA	Iron and folic acid
INS	Cameroon National Institute of Statistics
IPC	Integrated Food Security Phase Classification
IYCF	Infant and young child feeding
MINIMOD	Micronutrient Intervention Modelling Project
MMT	Multiple micronutrient tablet
MNP	Micronutrient powder
NCD	Non-communicable disease
PLW	Pregnant and lactating women
SAM	Severe acute malnutrition
SND	Cameroon National Development Strategy
SUN	Scaling Up Nutrition
UN	United Nations
USD	United States Dollar
WASH	Water, sanitation and hygiene
WFP	World Food Programme
WHO	World Health Organization

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