SAVING LIVES
CHANGING LIVES

Somali Fill the Nutrient Gap and Cost of the Diet Assessment

SUMMARY REPORT

WFP
World Food Programme

Scaling Up NUTRITION
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“The FNG process in Somalia has elucidated how the food system shapes food access and food choices, and how each sector in the public and private sectors must contribute in a harmonised and coordinated manner to create a food environment that supports people to access diverse, safe, and nutritious foods. Furthermore, it has highlighted vulnerabilities and practices that disadvantage specific groups, such as girls and young women, putting not only their nutrition and health but also that of tomorrow’s generation at risk. [...]

To ensure efforts are effectively coordinated, we look forward to working together across sectors, such as health, agriculture, livestock, social protection and education, and across partners, including the private sector, to reduce malnutrition in Somalia in a sustainable manner. I suggest planners and project managers across multi-sectoral platforms (MSPs) to read this report in conjunction with the Somali Health and Demographic Survey and Micronutrient Survey, and act upon the results of these reports in a coordinated way.”

Dr. Mohamed Abdi Farah

Special Adviser on Health and Nutrition
National Coordinator for Scaling Up Nutrition
Office of Prime Minister
Federal Government of Somalia

Fill the Nutrient Gap **Somalia** | SUMMARY REPORT

Introduction to Fill the Nutrient Gap

The Federal Government of Somalia (FGS), under the leadership of the Office of the Prime Minister (OPM) Scaling Up Nutrition (SUN) Movement Secretariat is seeking long-term strategies to reduce the burden of malnutrition across the country. The Fill the Nutrient Gap analysis (FNG) was conducted in 2018-19 to build a deeper understanding of the structural barriers to accessing healthy diets and identify opportunities across the food system to improve nutrition. FNG analysis contributes to FGS' efforts to address food insecurity, and high rates of acute and chronic malnutrition, and leads the country towards a path of sustainable development.

Building consensus for improved nutrition

Nutrition is a 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 the diets of women and young children 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 with proven effectiveness. However, successfully improving nutrition outcomes depends on interventions being tailored to the context.

Fill the Nutrient Gap (FNG) is an analytical process comprised of a comprehensive literature review of available secondary data sources in combination with linear programming (LP) using the Cost of the Diet (CotD) software. FNG analysis builds an understanding of availability, cost and affordability of a nutritious diet. FNG analysis is dedicated to identifying and promoting scale-up of proven interventions best suited to local context.

This summary report presents findings from the analysis and a discussion of its process, methodology and limitations. By identifying and contextualizing new findings, FNG analysis builds consensus in Somalia with a vision and path ahead for improved nutrition.

Process and scope of the analysis

The OPM led the FNG analysis in Somalia from inception in November 2018 through discussion of results in October 2019 with technical support from the World Food Programme (WFP). A Feasibility Study was completed in April 2019 and findings were presented to stakeholders in a workshop to define FNG analysis parameters. Primary data collection on food prices and household consumption was conducted in July and August 2019.

The analysis was embedded in an extensive stakeholder consultation process involving government ministries (Planning, Investment and Economic Promotion; Health; Education; Agriculture; Livestock, Fisheries and Marine Resources; Trade and Commerce; Labor and Social Affairs; Information; Humanitarian Affairs; Women and Human Rights; Youth and Sports), Development Partners (FSNAU, FAO, UNICEF), civil society (BRCiS consortium, UNN-REACH, World Vision International, Mercy Corps, FERO, Concern Worldwide, IRC), academia (Somali National University, Hormuud University) and private sector (Somalia Chamber of Commerce, Somali Medical Association, Somali Industries Association).

Feasibility Study

The OPM undertook the Feasibility Study to (1) identify how FNG analysis could contribute to current policy and programme work in Somalia; (2) determine whether necessary data sources were available to conduct the analysis and assess the quality of data sources; and (3) set out the scope of the analysis in the Somali context. The basis of the final Feasibility Study report is based on insights from a desk review of background documents, qualitative interviews, stakeholder consultations and spot market.

The Feasibility Study recognized Somalia's vulnerability to food insecurity, which is exacerbated when rainfall is lower than expected. Persistently high global acute malnutrition (GAM) rates and widespread micronutrient deficiencies indicate undernutrition is widespread, including stunting, with consequences for child development. Data sources were often inconsistent and/or limited in scope, limiting the reliability of estimates. The nationally representative Somali Demographic and Health Survey (SDHS) and National Micronutrient Survey (NMS) were in the process of data collection at the time FNG analysis was conducted and results were not available to inform FNG analysis.

The Feasibility Study identified livelihood systems as an important dimension to be considered in understanding malnutrition in Somalia as they influence access, availability, food preferences and income. The study recommended disaggregation of analysis into four broad livelihoods: pastoral, agropastoral, riverine and urban. Livelihoods should be considered when analysing dietary habits, challenges in food access, food price disparities and determinants of malnutrition. The study highlighted the importance of pastoral livelihoods for the Somali economy and riverine agriculture for domestic production of cereals, fruits and vegetables. The study identified seasonal fluctuations in food production and availability as important factors impacting the availability of food.

The Feasibility Study concluded it would be possible to conduct the FNG analysis in Somalia and the analysis would support Somalia's nutrition actors in identifying how to address malnutrition despite limited data availability. The Feasibility Study recommended the disaggregation of FNG analysis by livelihood system, with special emphasis on Xagaa season (Summer, June to September) due to low availability of foods and high food prices during this time.

Scope and focus of FNG analysis

FNG analysis follows the recommendations from the Feasibility Study. In discussions with stakeholders, the following parameters for the analysis were agreed to:

Level of analysis: disaggregation into six livelihood systems, four recommended by the Feasibility Study (pastoral, agropastoral, riverine and urban), plus two considered important by stakeholders (internally displaced people (IDP) and fisheries); and reflection of administrative boundaries and geographic differences to ensure the results are usable for policy and programme decisions.

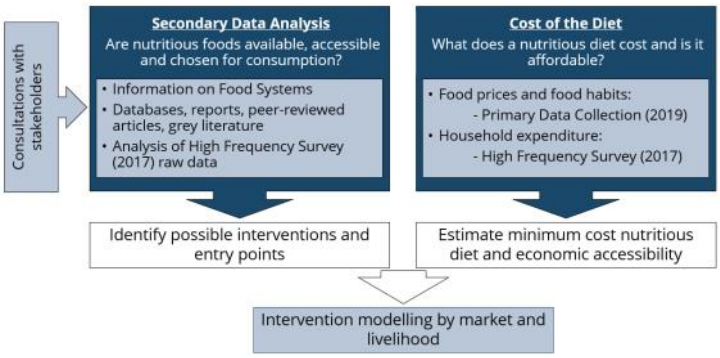
Data sources for CotD analysis: High Frequency Survey (HFS) 2017 as a source for food expenditure, and; primary food price data collection during Xagaa season for food prices and availability.

Model household: five-person household to reflect different stages of nutritional vulnerability across the lifecycle, comprising a breastfed child under 2 years of age, a school-aged child, an adolescent girl, a breastfeeding mother and an adult man.

Methodology

FNG analysis is composed of a secondary literature review of the food system, social protection and health-sector based nutrition interventions, and a (CotD) analysis. The latter allows a detailed look at availability and affordability of nutritious diets through linear optimization (Figure 1).

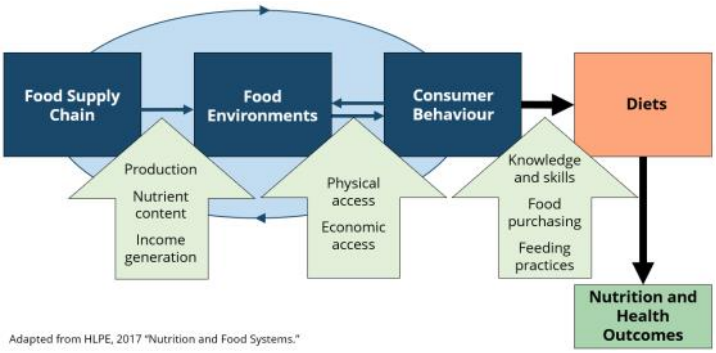
Figure 1: FNG Somalia analytical framework.



Secondary data analysis

FNG secondary data analysis identifies: barriers to accessing nutritious foods, nutritionally vulnerable groups in the population and opportunities for policy and programme interventions to improve nutrition through the food, health and social protection systems. Long-term solutions to malnutrition require transformation of the food system along food supply chains, in food environments and across consumer behaviour patterns to facilitate healthier diet choices (Figure 2).

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



Sources for secondary data analysis include analysis of the HFS 2017 raw data to quantify current dietary intake, expenditure patterns and drivers of vulnerability; policy documents; national surveys and; livelihood-specific information. Over 100 documents were reviewed including academic studies, non-academic analyses and policy and programme documents.

Cost of the Diet (CotD)

The CotD analysis estimates the minimum cost of purchasing a nutritious diet with locally available foods. A "nutritious diet" is one that meets requirements for nutrients, including protein, vitamins and minerals, but does not exceed an individual's energy and fat

requirements. An "energy only" diet meets only energy requirements and does not consider nutrient requirements. CotD identifies the cheapest combination of locally-available foods that can combine to create a nutritious diet. CotD analysis for FNG Somalia was conducted by market and was then aggregated into averages.

To ensure the optimized nutritious diet considers basic dietary preferences, optimization was restricted to include at least two portions of preferred staple foods, which vary according to geographic location and livelihood system. Based on focus group discussions during primary data collection, the following staples were selected for each region and livelihood systems (Figure 3):

Figure 3: Staple preferences by market and livelihood.

Market	Staple				
	Maize	Sorghum	Rice	Wheat	Pasta
AP: Agro-Pastoral; P: Pastoral; F: Fisheries, R: Riverine; U: Urban; IDP: IDP					
Baidoa	AP, IDP	AP, IDP, U		U	
Belet Weyne	AP, P IDP, U, R	AP, P IDP, U, R			
Cabudwaq		P, IDP	IDP	P	
Cadado		P			
Doolow	P, IDP, U	P, IDP, U, AP, R			
Eyl			P, F	P, F	
Johwar	AP, P, U, R				
Luuq	AP, P, IDP, R	AP, P, IDP, R			
Mogadishu			F, P, IDP, U		F, P, IDP, U
Qardho			P	P	
Hargeisa	AP, U, IDP	AP, U, IDP	P	P	
Berbera			U, IDP, P, F	U, IDP, P, F	

Next, the cost of the diet is compared with household food expenditure – if a household spends less on food than the cost of the diet, the household is considered unable to afford a nutritious diet. This assumes no elasticity of household food expenditure. The estimate of non-affordability is an estimate of the share of households unable to afford a nutritious diet. It is conservative because it assumes optimized choices of nutritious foods; actual non-affordability is likely to be higher.

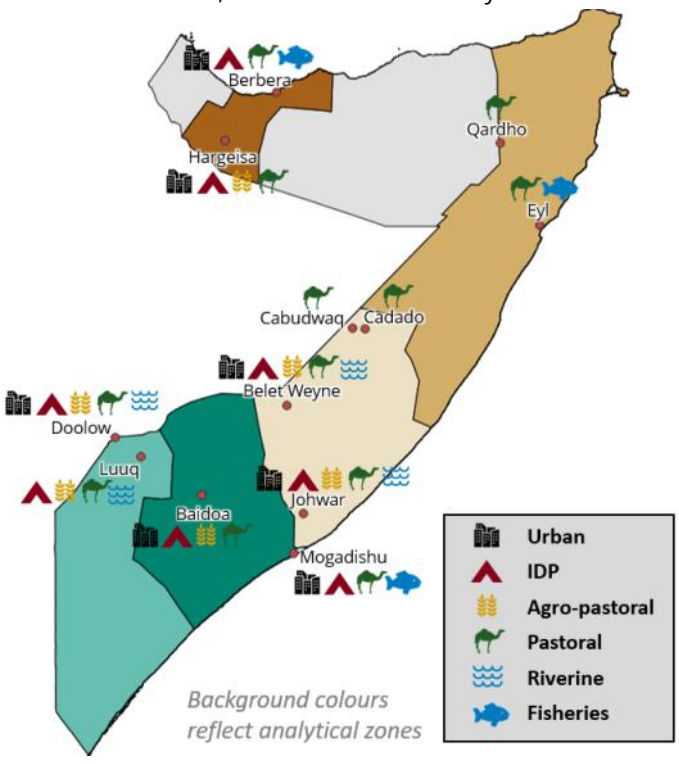
Household food expenditure in the HFS was disaggregated by urban, rural, nomadic and IDP populations, along pre-war regional boundaries. This does not match the disaggregation recommended by the Feasibility Study. For non-affordability estimates, markets were grouped into six analytical zones: 1) Hargeisa and Berbera, 2) Qardho and Eyl, 3) Cadado, Cabudwaq, Belet Weyne and Johwar, 4) Mogadishu, 5) Baidoa and 6) Doolow and Luuq.

Primary data collection

Primary data collection was led by the OPM and consisted of: 1) collecting food price data from local markets and 2) focus group discussions and household surveys for data on food consumption. Data was collected from 4-28 July, 2019 in Luuq, Doolow, Baidoa, Mogadishu, Johwar, Belet Weyne, Cabudwaq, Cadado, Eyl and Qardho; and from 6 -14 August, 2019 in Hargeisa and Berbera (Figure 4). In each site local enumerators visited markets and recorded prices of all foods available. Where possible, four samples of each food item were recorded in all markets.

Most markets in Somalia are accessed by members of more than one livelihood system. Data collection was based on purposeful sampling of 12 markets, two in each federal state. A matrix was developed indicating the different livelihood systems accessing each market. Sampled markets were selected to ensure at least four markets were surveyed for riverine and fisheries livelihood systems and six markets were surveyed for all other livelihood systems, with a wide geographic range (Figure 4). The sample was restricted by security concerns and limited accessibility, particularly in rural areas in the south of the country. The limitations of this purposeful sampling technique are discussed in the next section.

Figure 4: Markets where primary food price data was collected, and the livelihoods they serve.



Enumerators conducted focus group discussions across the country. Two locations per livelihood were chosen and groups were split by very poor/ poor and middle/ better-off households, as identified by local authorities. The team also conducted household surveys. Focus group discussions and household surveys covered community and household food habits, meal frequency, food taboos and intra-household food allocation.

FILL THE NUTRIENT GAP: SITUATION ASSESSMENT FOR MULTI-SECTORAL DECISION-MAKING ON THE PREVENTION OF MALNUTRITION[1]

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

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

The assessment comprises two components:

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

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

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

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

The FNG has been completed in 20 countries and is ongoing in another 10, as of October 2019.

Limitations and data gaps

The data presented in this summary report has limitations. The analysis does not represent the situation in all of Somalia, but it reflects the situation for the communities served by the specific markets that were surveyed. Food prices and food expenditure data were collected in two different time periods (food prices in July/August 2019 and food expenditure in December 2017). Expenditure data was adjusted based on the FSNAU Consumer Price Index (CPI) estimates to allow for a comparison with food prices across the two distinct time periods. The CPI captures the change in value of foods consumed and allows a comparison from one point to the other. However, it does not capture household changes in purchasing patterns based on the changes in prices or changes in income for households working in agriculture.

Based on these limitations, FNG results should be considered as approximations, illustrating the tendencies, trends, vulnerabilities and structural drivers of malnutrition. The results do not fully capture the complexities throughout Somalia, neither can they be applied to Somalia as a whole. They do bring advancement, furthering the knowledge of the current nutrition situation and opportunities for improvement under the specific market dynamics prevalent in the livelihood systems described. To decrease limitations, existing data, notably HFS and FSNAU price information, was used to triangulate and confirm coherence of FNG findings with other national surveys and analysis.

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

COST OF THE DIET (CotD) ANALYSIS

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

The FNG approach defines the Staple Adjusted Nutritious Diet: the lowest cost nutritious diet that includes the typical staple food and excludes food that is considered taboo[3]. This diet is referred to as the 'nutritious' diet throughout this summary. 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.

As part of the FNG process, CotD analysis was undertaken for the six livelihoods purchasing food from 12 markets in all regions of Somalia. Primary data collection was conducted to provide food price data and food habits data. The 2017 High Frequency Survey provided data on household food expenditure, including monetised consumption of self-produced food.

The lowest cost nutritious diet was estimated for a model household of five members, which included a breastfed child 12–23 months, a child 6–7 years, an adolescent girl 14– 15 years, a lactating woman and an adult man. Two meals based on preferred staple foods were included per day to account for approximately 50 percent of dietary energy. This was done for all household members except the child aged 12–23 months, who received one portion per day. Additional servings of staples could be selected by the software.

CotD software was used to model interventions proposed by stakeholders with the objective of improving the affordability of a nutritious diet for individuals and/or households.

The selection of potential interventions for modelling was informed by secondary data review and stakeholder consultations. It included:

- increased availability of local nutritious food;
- complementary food or specialized nutritious foods (SNF) made available through the market and/or social safety nets;
- micronutrient supplementation;
- fortification of staple food;
- conditional cash transfers for vulnerable households.

Modelled interventions are theoretical and would need to be accompanied by complementary behaviour change interventions to promote nutritious choices by consumers.

[2] As defined by the Food and Agriculture Organization (FAO) and the World Health Organization (WHO). The need for 9 vitamins and 4 minerals is included.

[3] 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.

FNG Somalia Findings[4]

Malnutrition in Somalia

Although numerous studies have been conducted on the malnutrition situation in Somalia, the data faces similar challenges to data from other sectors, particularly affecting estimates of chronic malnutrition (stunting). Access to several regions has been and remains challenging, posing a barrier to consistent collection of anthropometric data. Information on stunting is inconsistent across data systems and assessments, often with unrealistic changes between data points. Large-scale anthropometric data collected as part of the 2009 micronutrient survey, shows a stunting rate of 23 percent, ranging between 16 and 31 percent in different areas of the country. Given the fragility of institutions, ongoing conflict, severity of droughts and lack of development over the past ten years, it is likely these figures are outdated. Information on wasting is available and relatively consistent, with high GAM rates, that fluctuate between 10 and 15 percent.

Diets and the Food Environment: Availability, Accessibility and Affordability of Nutritious Foods

Findings:

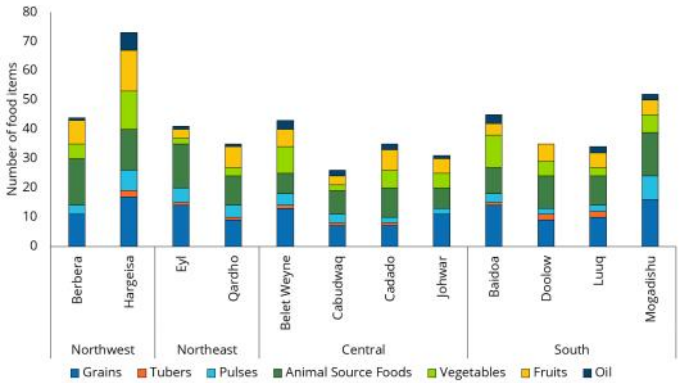
- **Diets in Somalia are based on staple foods (maize, sorghum, rice, wheat and pasta), oil and sugar, with limited consumption of nutritious foods.**
- **The availability of nutritious foods in local markets is limited, especially in markets accessed by only one livelihood system.**
- **Energy-dense foods such as grains, oil and sugar are cheaper per calorie than nutrient-dense foods.**

Focus groups found that the typical diet throughout Somalia is based on staples (mainly rice, pasta, sorghum and maize), oil and sugar with some consumption of beans, urban and IDP). Staples contribute significantly to micronutrient intake, which is inadequate for average households throughout the country.

Forty-four percent of households do not meet energy requirements, based on analysis of HFS consumption data. Adolescents (13-18 years old, either sex) and older people (50 years and above) are more likely to live in households that do not meet energy needs (59 percent and 54 percent, respectively). Dietary intake of calcium, vitamin A, folic acid (for adolescents) and iron is low. These micronutrients are the most expensive to meet with local foods according to CotD analysis. Most households spend 65-85 percent of total expenditure on food, which is considered very high and indicative of high levels of poverty.

The availability of nutritious food varies substantially across markets. Markets in Somaliland (Hargeisa, Berbera) offered an average of 42 different food items compared to an average of 23 food items in markets in Hirshabelle (Cadado, Cabudwaq, Johwar, Belet Weyne) (Figure 5). Availability of vegetables is particularly low in Eyl, Qardho, Doolow and Luuq.

Figure 5: Number of foods available by food group in primary data collection markets.



Vegetables, fruits and animal-source foods were most expensive per calorie (Figure 6) and their prices varied widely across the country. On average, energy-dense foods such as grains, oil and sugar cost $0.04 (oil, sugar) and