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MINISTRY OF HEALTH-ETHIOPIA  
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HEALTHIER CITIZENS FOR PROSPEROUS NATION



# School Feeding Menu Booklet for Addis Ababa – 2025



March, 2025  
Addis Ababa, Ethiopia

## Ethiopian Public Health Institute (EPHI)

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HEALTH FOR EVERYONE FOR OUR DEVELOPING COUNTRY!



## **Acknowledgement**

The Ethiopian Public Health Institute (EPHI) extends its sincere appreciation to Dawit Alemayehu, a researcher at EPHI and a PhD student at the University of Galway, Ireland, and Tirsit Genye from IFPRI-Ethiopia for their significant contributions as lead authors of this booklet.

We also express our gratitude to Dr. Masresha Tessema, Director of the Nutrition, Environmental Health, and NCDs Research Directorate at EPHI, and Dr. Tadesse Zerfu from IFPRI-Ethiopia for their valuable supervision and review contributions.

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Cover page designed by Yitagesu Mergia.

## FOREWORD BY THE ETHIOPIAN PUBLIC HEALTH INSTITUTE

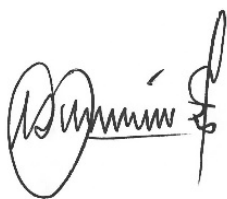
Ensuring Ethiopian schoolchildren receive adequate, healthy, and diversified meals remains a challenge. Many school feeding programs face issues such as the lack of standardized, science-based menus, limited dietary diversity, and restricted access to affordable, nutritious foods, impacting children's growth, cognition, and overall well-being.

Understanding that feeding children is key to building a stronger nation, the Ethiopian government has prioritized school feeding programs. While malnutrition has complex and multi-layered causes, diet remains one of the most significant determinants of health, influenced by factors ranging from individual choices to national food availability. The Ethiopian School Feeding Program (SFP) provides nutritious meals to support students' health, education, and development. By improving physical well-being, enhancing cognitive abilities, and boosting academic performance—especially among children from low-income families—the program helps increase school attendance and reduces hunger-related learning disruptions. Additionally, it fosters social equity by ensuring that all children, regardless of background, have access to adequate nutrition.

To establish a scientifically grounded approach to school feeding, the Ethiopian Public Health Institute (EPHI), in collaboration with key stakeholders, has developed evidence-based Food-Based Dietary Guidelines (FBDGs). These guidelines provide a clear framework for schools, nutritionists, educators, healthcare providers, and policymakers to implement healthy, cost-effective, and culturally appropriate school menus. Beyond meal planning, they contribute to the broader goal of improving national nutrition.

By integrating these guidelines into school feeding programs, we can take a crucial step towards ensuring that every child has access to the nourishment they need to thrive. We extend our gratitude to all stakeholders, including implementing sectors, development partners, and experts, for their invaluable contributions to this initiative.

We hope this booklet serves as a valuable tool in strengthening the school feeding program and enhancing the health and well-being of children across Addis Ababa.



**Getachew Tollera (MD, MPH)**

Deputy Director-General

Ethiopian Public Health Institute

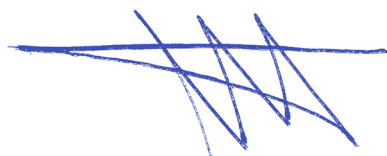
## What is the Booklet For?

This booklet, A Guide to School Feeding Menus for Addis Ababa, has been developed to support the effective implementation of the School Feeding Program, specifically designed for primary school children. With minor adaptations to portion sizes and context, it can also be applied to pre-primary school feeding programs. These menus are not just about providing meals — they are about nurturing young minds, fostering their potential, and contributing to the development of future leaders, thinkers, and innovators.

The booklet also recognizes the importance of inclusivity by incorporating dietary options for students with special needs, including those with autism, intellectual disabilities, diabetes, and students living with HIV/AIDS. Ensuring all children have access to nutritious, appropriate meals is essential for their physical health, cognitive development, and overall well-being.

This booklet is intended to be a practical resource for menu planners, school feeding program coordinators, teachers, school health personnel, and cafeteria staff who play a vital role in ensuring that the meals served align with national nutritional guidelines and meet the diverse needs of the student population. By working together, we can create an environment where every child receives the nourishment they need to thrive academically, socially, and physically.

I hope this booklet serves as a valuable tool in strengthening the school feeding program and enhancing the health and well-being of children across Addis Ababa.



**Masresha Tessema (PhD)**

Director of Nutrition, Environmental Health and NCDs Research Directorate  
Ethiopian Public Health Institute (EPHI)

## Summary

The Ethiopian School Feeding Program (SFP) is designed to provide nutritious meals that enhance the health, education, and development of schoolchildren. The program aims to improve physical health, support cognitive development, and boost academic performance, especially for students from low-income families. It plays a crucial role in improving school attendance by ensuring that children receive balanced meals, helping to reduce hunger-related distractions during the school day. The program also fosters social equity by offering meals to children who may not have access to sufficient food at home.

By integrating locally sourced ingredients, the SFP promotes nutrition and supports the local economy. The inclusion of locally grown staples, legumes, animal products, and fruits ensures dietary diversity and supports sustainable agricultural practices. This approach not only provides essential nutrients for the children but also creates market opportunities for farmers, contributing to the overall economic development of the country. By utilizing these ingredients, the program stimulates local economies, reduces food import dependency, empowers women associations working on cooking school meals and strengthens community resilience.

The present menu is carefully planned for school students targeting mainly Addis Ababa city administration to provide both macronutrients – such as carbohydrates, fats, and proteins and micronutrients such as vitamins and minerals to support the physical and cognitive growth of students. The menu is also designed to meet the specific nutritional needs of children, with portion sizes adjusted based on age, sex, and activity levels. This approach ensures that meals are not only healthy but also culturally acceptable and aligned with local preferences.

In Addis Ababa, the estimated daily cost of covering two-thirds of primary students' daily calorie needs is 54.6 ETB, with the school feeding program designed to run for 200 school days. This cost excludes administrative expenses related to school feeding, such as cooking and labor. The program features a flexible weekly menu that can be adapted based on food availability and local economic conditions. It also adheres to food-based dietary guidelines (FBDG) to ensure nutritional requirements are met while respecting cultural norms.

To ensure the program's success, schools require essential infrastructure, including hygienic kitchens, proper ventilation, access to safe water and handwashing stations, effective waste management systems, and secure food storage. Spacious dining areas, adequate seating, and administrative spaces for managing and monitoring the program are also critical. These infrastructure elements support the efficient implementation of the SFP, contributing to healthier, well-educated students and fostering long-term sustainable development for the community.

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## Background

School feeding programs (SFP) are interventions designed to provide regular, nutritious meals or snacks to children and adolescents [1]. These programs are implemented globally, particularly in areas experiencing food insecurity, with the goal of ensuring that school-age children receive adequate nutrition. In addition to addressing hunger, SFPs contribute to various objectives, including enhancing social safety nets, improving educational outcomes, promoting better health, and supporting local agriculture, such as through school gardening initiative [2].

In terms of health and nutrition, school feeding contributes to the continuum of development by building on prior investments in maternal and infant health, as well as early childhood development interventions [3]. Additionally, appropriate school feeding programs also help leverage global efforts to enhance the inclusiveness of education for out-of-school children, adolescent girls, and disabled persons, as called for in the Sustainable Development Goals [4-6].

In 2021, it was estimated that 244 million children and youth between the ages of 6 and 18 years worldwide were out-of-school, with 98 million school children were found in Sub-Saharan Africa (SSA) [7]. Nearly 60% of the children went to school hungrily hungry [8]; hunger can impair attention and motivation; undernutrition at this age can impair cognitive abilities and school performance [9]. Moreover, short-term hunger can adversely affect attention and interest [10]; missing breakfast is particularly problematic for those children who are most undernourished [11].

In Ethiopia, the development of the SFP menu reflects the nation's commitment to addressing food insecurity among its schoolchildren. Rooted in the country's rich agricultural heritage, the menu development integrates locally sourced and home-grown ingredients. This approach not only ensures nutritional adequacy but also promotes economic sustainability within local communities, supporting both health and local agriculture.

With a focus on dietary diversity to address macro and micronutrient deficiencies and quality, the SFP menu offers balanced meals that cater to the nutritional needs of growing children. Each dish is designed to optimize cognitive function and physical health, aiming to reduce absenteeism and improve academic performance. Moreover, by utilizing locally available resources, the program stimulates local economies and strengthens agricultural practices, fostering resilience against food insecurity. To ensure the long-term sustainability of the SFP, it is essential to prioritize the quality of the diet, dietary diversity, and cost-effectiveness of locally sourced and home-grown ingredients. Additionally, it is crucial to incorporate culturally relevant values and preferences. This booklet provides an overview of the SFP, a review of the current menu, and a cost-effective healthy menu option that balances these factors.

## Review of the Existing School Menu

The Addis Ababa City Administration has a 5-day breakfast and lunch menu for kindergarten and primary school students. The menu details are meticulously designed with a focus on using locally produced foods, aligning with the city's agricultural resources, and promoting sustainability. In addition, the target population was clearly stated.

However, when assessed against the Ethiopian Food-Based Dietary Guidelines (FBDGs) – 2022, the menu shows limited diversity across food groups, with notable gaps in fruits, nuts and seeds, and dairy products. There is also low variety within food groups, and adherence to recommended portion sizes and age-specific daily caloric needs is inconsistent. Importantly, essential animal-source foods like meat and eggs are significantly underrepresented.

Despite the clearly stated purpose, relevance, and daily and weekly schedules, there is a lack of comprehensive direction for program planning and stakeholder involvement in document preparation. The possible sources of finance, allocation, adequacy, and management strategies were also not addressed. There is no clear direction regarding the monitoring and evaluation, assessment, and planning of such activities. The implementation is underway through the school committee organized for this activity, indicating the absence of a concrete stand-alone responsible body.

Moreover, this document lacks the sustainability and community participation mechanisms of the program. There was no community or parent involvement from the inception of the program to its implementation, and there were limited communication channels with stakeholders. Furthermore, the menu lacks a clear mechanism for addressing food safety and hygiene, promoting healthy eating habits, stakeholder engagement strategies, and feedback.

The current menu considered various areas of student preferences. Food groups incorporated into the menu strictly adheres to the culture

of the community. As a public institution, school meals served food groups accepted by all the community members. Not only cultural acceptability, but the meals also considered student preferences, for example fasting or other medical conditions that may influence students' consumption of specific types of foods.

## Consumption Pattern and Preference

In recent years, Ethiopia's has undergone a rapid urbanization and economic growth leading to a significant shift in the city's eating habits [12]. As a result, urban residents have increasingly opted for a more varied diet that incorporates a greater proportion of processed foods. Unfortunately, this shift has been linked to a rise in overweight, obesity, and non-communicable diseases, particularly in urban areas, which is a growing concern [12, 13].

In Addis Ababa, traditional starchy foods such as cereals, roots, and tubers play a vital role in daily diets. Within the cereal category, Teff and wheat are particularly popular staples in the city. While there is a growing trend towards consuming processed cereals, the intake of fruits and vegetables remains relatively low, with onions being an exception [14].

In terms of socioeconomic status, households in the highest income quintile tend to have a more diverse diet compared to those in lower quintiles. While lower-income households primarily consume basic staples like cereals and pulses, higher-income households opt for more meat products. Interestingly, fruit consumption remains consistent across all income levels [15].

It is essential to consider that in Ethiopia, consumer behavior is shaped by a complex interplay of factors beyond just availability and affordability. The country's rich cultural heritage deeply ingrained traditional values, and religious beliefs also significantly impact what, when, and how they consume it.

## Purpose of the School Feeding Program in Ethiopia

The School feeding Program in Ethiopia aims to nourish both the bodies and minds of schoolchildren, addressing barriers to learning and development. Its core mission is to provide regular, nutritious meals, which enhance educational outcomes by improving attendance, concentration, and academic performance. Nutrition is critical for effective learning, helping students stay alert and engaged in the classroom.

Beyond improving educational metrics, the SFP promotes better health. By supporting physical growth and boosting immune systems, it reduces illness-related absenteeism, fostering a healthier

school environment. The program also champions social equity, ensuring that children from low-income families have equal access to nutritious meals, leveling the academic playing field.

The program's benefits extend to the broader community. Local sourcing of ingredients stimulates economic growth, while community involvement fosters resilience. By investing in school children nutrition today, the SFP contributes to Ethiopia's long-term social and economic development, helping to build a healthier, more equitable, and productive future generation.

## Menu Development Principles

### 1. Local Sourcing and Home-Grown Approach

To ensure the success of the School Feeding Program (SFP) in Addis Ababa, a smart school menu was developed based on key guiding principles, including cost, cultural acceptability, availability, nutritional value, and affordability. By sourcing locally produced foods such as cereal grains, vegetables, and legumes from nearby areas, we ensured that the meals were fresh, nutritious, and supported the local economy. This approach not only promoted healthier diets but also helped strengthen the connection between local farmers and the community, while maintaining cost-effectiveness within the program's budget. It also aligns with the Ministry of Education's home-grown school feeding policy.

### 2. Cultural Acceptability and Student Engagement

Cultural acceptability was another important factor in menu development. By incorporating traditional Ethiopian dishes and regional specialties that are widely enjoyed in Addis Ababa, we ensured that the meals resonated with students and their families. Familiar foods played

a key role in encouraging greater participation in the program, as students were more likely to engage with meals that reflected their culinary traditions.

### 3. Cost-Effectiveness and Budget Consideration

Affordability was also a central consideration. The menu was designed to be cost-effective, taking into account the available budget for the school feeding program. By using affordable, locally sourced ingredients, we were able to keep meal costs manageable while still providing diversified, healthy and balanced nutrition.

### 4. Nutritional Quality and Balanced Meals

Nutritionally, the menu was carefully planned to provide a balanced intake of macronutrients (carbohydrates, fats, and proteins) along with essential micronutrients such as vitamins and minerals. We aimed to offer a variety of food items that would contribute to students' overall health and cognitive development. The meals were designed to meet dietary needs for growth, energy, and concentration, supporting both physical and academic performance.

## 5. Comprehensive and Sustainable Menu Design

Overall, the present school feeding menu for Addis Ababa's SFP was developed with careful attention to cost, cultural preferences, availability of local ingredients, and nutritional balance, ensuring a sustainable and effective approach to promoting student health and well-being.

## Target Population and Users of the Booklet

### Primary Users (Direct Beneficiaries)

1. Primary school students (and pre-primary students where applicable)
2. Students with special needs (including students with autism, intellectual disabilities, diabetes, and those living with HIV/AIDS)

### Secondary Users (Implementers and Stakeholders)

3. School feeding menu planners
4. School directors and administrators
5. School feeding program coordinators
6. Cooks and kitchen staff
7. Teachers (for nutrition education and awareness)
8. Parent-Teacher Associations (PTAs)
9. Health and nutrition officers at schools
10. Food suppliers and local farmers (providing ingredients)

### Oversight and Policy Users

11. Government sectors: Addis Ababa Education Bureau, Addis Ababa Health Bureau, Sub-city and Woreda -level administrators, Ministry of Education (MoE), Ministry of Health (MoH)
12. Non-Governmental Organizations (NGOs) supporting school feeding programs

13. Development partners (such as WFP, UNICEF, or other agencies working in school nutrition)

## Inclusive School Feeding: Tailored Menus for Special Needs Students

### Menu Options for Special Needs Students

Incorporating dietary school feeding menu options for pre- and primary school students with special needs, such as autism and intellectual disabilities, is crucial for their growth, learning, and overall well-being. These children often have unique nutritional requirements and sensory sensitivities that affect their food preferences and tolerance. Providing tailored meals that meet their dietary needs ensures adequate nutrition, supports cognitive development, and helps maintain focus and behavior in the classroom. Certain foods may exacerbate behavioral issues, digestive problems, or sensory sensitivities. Here are some meals and ingredients to avoid:

- A. **Processed and Artificial Foods** – Fast food, chips, candy, and packaged snacks with artificial colors, flavors, and preservatives (e.g., MSG, sodium benzoate).
- B. **High-Sugar Foods** – Sugary cereals, sweets, soda, and fruit juices with added sugars, which can contribute to hyperactivity and mood swings.
- C. **Dairy Products (for lactose-sensitive children)** – Milk, cheese, and yogurt can cause digestive discomfort and inflammation in some children with autism.
- D. **Gluten-Containing Foods (for gluten-sensitive children)** – Bread, pasta, and baked goods made from wheat, barley, or rye may trigger gut and behavioral issues in some cases.
- E. **Highly Processed Meats** – like sausages, meats containing Nitrates, preservatives, and excessive sodium can negatively impact health.

**F. Caffeinated or Carbonated Beverages** – Soda, energy drinks, and some flavored teas may worsen anxiety, restlessness, or sleep disturbances.

**G. Fried and High-Fat Foods** – Deep-fried items like fries and oily snacks can cause digestive issues and sluggishness.

### **Menu Options for Diabetic and children living with HIV**

For diabetic students, school menus should focus on low-glycemic index foods to help maintain stable blood sugar levels. Ideal options include cereals like barley, pulses such as lentils and chickpeas, and fruits like oranges and other citrus. Vegetables such as Ethiopian kale, spinach, and carrots, along with dairy products like

unsweetened yogurt and soy milk, also fit well in a diabetic-friendly diet. Additionally, nuts and seeds like peanuts and flaxseeds, as well as animal source foods such as fish, eggs, and poultry, provide healthy nutrition while minimizing blood sugar spikes.

For children living with HIV, nutrient-dense meals rich in vitamins, minerals, and protein are crucial to support immune function and overall health. These children may also require additional meal servings to meet their energy needs. Inclusive menu planning that accommodates such specific dietary requirements not only ensures that these vulnerable groups receive adequate nutrition but also promotes health equity and reduces stigma, fostering a more supportive and inclusive school environment.

## **Nutritional Requirements for Pre- and Primary School Children**

Ensuring that school feeding programs meet the nutritional requirements of children is crucial for their growth, cognitive development, and overall health. The Ethiopian school feeding program should adhere to nutritional standards and guidelines based on national food-based dietary

guideline recommendations, specifically tailored for primary school children. The following section briefly explains food and nutrition concepts which are part of the National Food Based Dietary Guidelines to ensure common understanding among service providers.

### **Food and nutrients**

Food is something we eat which provides nutrients. Nutrients are substances that provide us the strength and energy for activity. Nutrients are needed for growth and all bodily functions such as breathing, digesting food, staying warm, and repair of the body and for keeping the immune system healthy. Nutrients in the food we eat are divided into the following two major categories:



**Photo credit: FANA BC**



**Macronutrients:** nutrients that our body needs in a large amount

- Carbohydrates in bread, injera, rice, False banana/kocho, cassava
- Fats in butter and oil
- Proteins in eggs, meat, milk and legumes

**Micronutrients:** nutrients we only need in small amounts

- Minerals: such as iron, iodine, zinc, found in animal-sourced foods
- Vitamins: vitamins A, B, C, D, E and K found in fruits and vegetables

## The Six Food groups in the Ethiopian Food Based Dietary Guidelines

Food groups classify various foods based on similarities in nutrient content. Food groups are the basis of a practical guide that can help plan your daily diet to increase the likelihood of meeting nutrient requirements by simply following the recommended number of serving sizes per day for each food group. Hence, as much as possible, this food guide uses foods and food groups in a very simple way so that it is easily understood by the public.



**Staple foods:** Cereal grains such as Teff, barley, maize, sorghum, root crops and white tubers such as Enset/false banana and cassava are the major staple foods in Ethiopia. Cereal grains and root crops are good sources of energy, plant protein, B vitamins, minerals and dietary fiber, particularly when wholegrains are eaten such as dark-colored barley and oats.



**Legumes:** such as peas, lentils, broad beans and soya beans are good sources of proteins, minerals and vitamins. Those with more proteins such as beans and peas combat protein-energy malnutrition while also providing other nutrients.



**Nuts and oilseeds:** are good sources of minerals and unsaturated fat. Common nuts and oilseeds in Ethiopia include groundnuts, sunflower seeds, sesame seeds and Niger seeds. Nuts and oilseeds are very good sources of vitamins with anti-oxidative properties such as vitamin E and beta-carotene.



**Milk and milk products:** Milk, yoghurt and cheese are good sources of energy and nutrients (such as fat, protein and minerals, for forming strong bones and teeth), and of vitamin A that is excellent for sound vision. Milk and milk products combat child stunting.



**Fruits and vegetables:** Fruits such as papayas, avocados, mangoes and bananas are excellent sources of pro-vitamin A carotenoids, vitamin C and minerals. Vegetables such as kale, broccoli, cauliflower and beetroot also have important vitamins and minerals needed for our health. Consumption of fruits and vegetables can help combat multiple nutrient deficiencies.



**Fats and oils:** The fats and oils food group consist of different types of fatty acids: those which are solid at room temperature are saturated fatty acids while those which are liquid are unsaturated fatty acids. Fats are concentrated sources of energy: for example, one spoonful of cooking oil contains twice as much energy as one spoon of starch or one spoon of sugar. Fats contain fatty acids needed for growth. Fats also help the absorption of certain vitamins such as vitamin A.

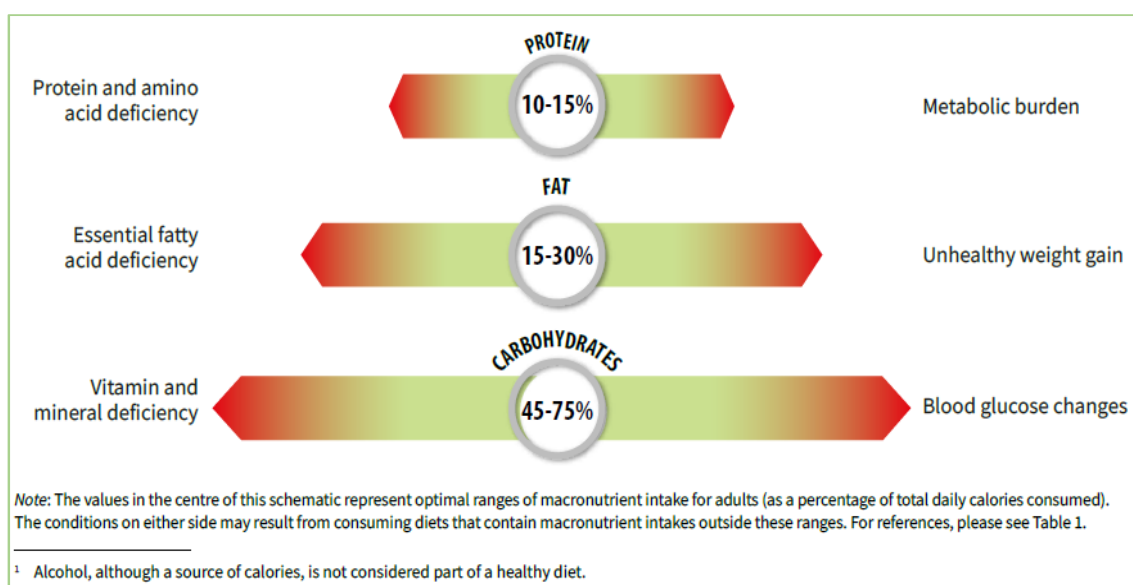


**Meat, poultry, eggs and fish:** Animal Source Foods such as meat, poultry, eggs and fish are very good sources of high-quality (complete) protein and vital micronutrients such as iron, zinc and vitamin B12.

## What are Healthy Diets?

According to FAO and WHO recent definitions, healthy diets need to meet four core principles, universal in their application, based on human biology and underpinned by evidence. To be healthy, diets need to be: Adequate-Providing enough essential nutrients to prevent deficiencies and promote health, without excess. Balanced-

In energy intake, and energy sources (i.e., fats, carbohydrates and proteins) to promote healthy weight, growth and disease prevention. Moderate- In consumption of foods, nutrients or other compounds associated with detrimental health effects. Diverse-Including a wide variety of nutritious foods within and across food groups to favor nutrient adequacy and consumption of other health promoting substances [16].



**Figure.** The macronutrient distribution of healthy diets

**Source:** © World Health Organization and Food and Agriculture Organization of the United Nations, 2024 [16].

## Appropriate Cooking Tips for Vegetables

When preparing vegetables for school feeding programs, it's essential to preserve their nutrients. Wash vegetables thoroughly before chopping, and avoid peeling them excessively to retain fiber and vitamins. Use cooking methods like steaming instead of boiling, as these help retain nutrients better. Chop vegetables uniformly for even cooking and add leafy greens, such as

spinach, towards the end of the cooking process to minimize nutrient loss. Encourage the use of vegetable cooking water in soups or drinks instead of discarding it, and demonstrate this practice by showcasing colorful vegetable waters (like carrot, beetroot, and kale) in clear glasses for students to taste and share with their families.



Choose cooking methods like steaming or stir-frying, which help preserve nutrients and prevent overcooking. Stir-frying, in particular, cooks food quickly at high heat with minimal oil, retaining vitamins and minerals, especially water-soluble nutrients like vitamin C, and reducing nutrient loss compared to longer cooking methods like boiling or deep-frying. Limit the use of added salt, sugar, and unhealthy fats, while focusing on whole grains and healthy oils, following the recommended guidelines. Ensure proper hygiene and food safety by washing produce thoroughly and cooking foods to safe temperatures.



**Photo credit:** Simplyrecipes

### **Appropriate Use of Iodized Salt**

Iodized salt is vital in preventing iodine deficiency among children, making its proper use essential in school feeding programs. Add iodized salt at the end of the cooking process to preserve its iodine content, as excessive heat can degrade iodine. Additionally, store the salt in an airtight container in a cool, dry place to prevent moisture and iodine loss.



### **Safe Food Storage Practices in School Feeding Programs**

For safe food storage in school feeding programs, keep dry foods in clean, airtight containers in cool, dry areas to prevent spoilage and pest infestation. Store perishable foods like fruits, vegetables, and dairy in refrigerators at appropriate temperatures to maintain freshness and nutrient quality. Use a first-in, first-out (FIFO) system to reduce

waste and ensure older stock is used first. Avoid prolonged storage of nutrient-rich foods like fruits and vegetables to prevent nutrient loss. Regularly clean storage areas and monitor for signs of spoilage or contamination to ensure food safety.

## Portion Sizes and Serving Recommendations for Primary School Feeding Menus

Based on the Ethiopian Food-Based Dietary Guidelines-2022 (FBDGs), appropriate portion sizes and serving recommendations are essential to ensure that school children receive the necessary nutrients without overeating. The national FBDG guideline has already included portion sizes for pre- and primary school children,

taking into account age, sex, Body Mass Index (BMI), and physical activity level considerations (active/less active children need different calories) (Table 1). These recommendations with available SBCC tool kits can be used for enhancing the quality of service for school feeding program.

**Table 1.** The recommended intake of different food groups in grams per day+\* for 6–18 years (g/day) from individual and population diet modelling [17]

Food group	6–18 years (g/day) (2/3 of FBDG recommendation)	Daily meal and intake with example food recipes for Primary School Students	Serving per half day
Grains, white roots and tubers	400 (330–530)	1&1/4th medium-sized teff injera or 4 medium-sized homemade bread or commercial bread	1-2
Pulses	76 (50–76)	½ medium sized ladle shiro stew or 2 average adult handful (efign in Amharic) of roasted beans (qollo) or 1 small ladle lentil stew or 1 & ½ average adult handful (efign) of germinated beans (beqolt)	1-2
Nuts and seeds	6 (3–10)	½ average person handful of groundnuts or 1 teaspoon of peanut butter or ½ medium ladle sunflower paste mixed with pieces of injera (Suf/ telba fitfit)	1-2
Milk and dairy foods	130 (100– 160)	130 (100– 160) ½ glass of milk or ½ cup of yogurt	1-2
Meat and eggs	30 (20–30)	1 small-sized ladle of meat stew or ½ medium-sized boiled egg or 1 medium-sized scramble eggs	1-2
Fruits	100 (60– 130)	½ Banana or 1 Avocado or 1/2 glass of homemade mixed fruit juice	1-2
Vegetables	60 (40–60)	1 medium- sized ladle of mixed cooked vegetables	1-2
Fats and oils	10 (6–11)	1 tablespoon of oil or 1 tablespoon of spiced butter	1-2
Added sugar and SSBs	15 (0–31)	1 teaspoon of sugar or 1 medium sized cookie or 1 medium sized sweet or 1 teaspoon of honey	
Salt	<5 (0–3)	<5 (0–3) g/day	
Physical activity+	>3 (3–5)	Encourage regular physical activity to complement healthy eating and support overall well-being.	
Potable water*	>8 (8–10)	3-4 glasses of clean water for breakfast and lunch	

**NB:** +days/week: children should do physical activity at least 30 minutes per at least 3 days/week

\*glass/day: average estimated based on the current intake, optimized individual diets and population diet

**Table 2.** The recommended intake of different food groups in grams per day+\* for 6–18 years (g/day) from individual and population diet modelling

Food group	6–18 years (g/day) FBDGs recommendation	Two-Meals-Per-Day SFP Approach (2/3 of FBDGs recommendation for 6–18 years (g/day))	One-Meal-Per- Day SFP Approach (1/3 of FBDGs recommendation for 6–18 years (g/day))	Two-Meals-Per-Day SFP Approach: Daily Meal Plan and Example Recipes for Primary School Students	Serving per half day
<b>Grains, white roots and tubers</b>	600 (500–800)	400 (330–530)	200 (110–180)	1&1/4 <sup>th</sup> medium-sized teff injera or 4 medium- sized homemade bread or commercial bread	1-2
<b>Pulses</b>	115 (80–115)	76 (50–76)	38 (15–25)	½ medium sized ladle shiro stew or 2 average adult handful ( <i>efign</i> in Amharic) of roasted beans (qollo) or 1 small ladle lentil stew or 1 & ½ average adult handful ( <i>efign</i> in Amharic) of germinated/sprouted and boiled beans ( <i>beqolt</i> ) or roasted beans/peas (Ashuk)	1-2
<b>Nuts and seeds</b>	10 (5–20)	6 (3–10)	3 (1–4)	½ average person handful of groundnuts or 1 teaspoon of peanut butter or ½ medium ladle sunflower paste mixed with pieces of injera (Suf/telba fitfit)	1-2
<b>Milk and dairy foods</b>	200 (150–250)	130 (100– 160)	67 (30–55)	½ glass of milk or ½ cup of yogurt	1-2
<b>Meat and eggs</b>	50 (30–50)	30 (20–30)	17 (5–10)	1 small-sized ladle of meat stew or ½ medium-sized boiled egg or 1 medium-sized scramble eggs	1-2
<b>Fruits</b>	150 (100–200)	100 (60– 130)	50 (20–45)	½ Banana or 1 Avocado or 1/2 glass of homemade mixed fruit juice	1-2
<b>Vegetables</b>	95 (70–100)	60 (40–60)	20 (13–20)	1 medium- sized ladle of mixed cooked vegetables	1-2
<b>Fats and oils</b>	15 (10–17)	10 (6–11)	3 (2–4)	1 tablespoon of oil or 1 tablespoon of spiced butter	1-2
<b>Added sugar and SSBs</b>	15 (0–31)	15 (0–31)	3 (0–10)	1 teaspoon of sugar or 1 medium sized cookie or 1 medium sized sweet or 1 teaspoon of honey	
<b>Salt</b>	<5 (0–3)	<5 (0–3)	<1 (0–1)	<5 (0–3) g/day	
<b>Physical activity+</b>	>3 (3–5)	>3 (3–5)	>1 (1–2)	Encourage regular physical activity to complement healthy eating and support overall well-being.	
<b>Potable water*</b>	>8 (8–10)	>8 (8–10)	>2.5 (2.5–3)	3-4 glasses of clean water for breakfast and lunch	

**NB:** +days/week: children should do physical activity at least 30 minutes per at least 3 days/week \*glass/day: average estimated based on the current intake, optimized individual diets and population diet

- **For a one-Meal-Per-Day Approach/where the serving is ones per day/:** half of all the quantities shown in Two-Meals-Per-Day Approach will be applied
- As per Eth-FBDGs message 1, meals should include 4 food groups per meal and 6 food groups per day. Schools providing one meal per day should ensure it includes 4 minimum food groups and offer additional snacks to include more food groups. Feeding programs should prioritize food groups missing from children's diets at home to enhance dietary diversity. Energy shares in the quantification table must remain unchanged and guide meal planning
- **For diabetic students,** school menus should focus on low-glycemic index foods to help maintain stable blood sugar levels. Ideal options include cereals like barley, pulses such as lentils and chickpeas, and fruits like oranges and other citrus. Vegetables such as Ethiopian kale, spinach, and carrots, along with dairy products like unsweetened yogurt and soy milk, also fit well in a diabetic-friendly diet. Additionally, nuts and seeds like peanuts and flaxseeds, as well as animal source foods such as fish, eggs, and poultry, provide healthy nutrition while minimizing blood sugar spikes.
- **For children living with HIV,** nutrient-dense meals rich in vitamins, minerals, and protein are crucial to support immune function and overall health. These children may also require additional meal servings to meet their energy needs. Inclusive menu planning that accommodates such specific dietary requirements not only ensures that these vulnerable groups receive adequate nutrition but also promotes health equity and reduces stigma, fostering a more supportive and inclusive school environment.
- Since the recommended amounts cover broad age ranges, the lower limits apply to younger ages (students 6–12 years), while the highest recommended quantities are intended for older adolescents (13–18 years).

## Nutritional Requirements for Ages 4-6 Pre-primary school Ages 7-12 Primary School of Ethiopia

**Table 3. Nutritional Requirements for Ages 4-6 Pre-primary school Ages 7-12 Primary School of Ethiopia [17, 18]**

Nutrient		Ages 4-6 Pre-primary school	Ages 7-12 Primary School	
			Boys	Girls
Vegetables	Energy	1300 - 1600 kcal	1600 - 2400 kcal	1400 - 2200 kcal
	Protein	19-24 g	31-46 g	31-46 g
	Carbohydrate	130 g	130 g	130 g
	Fats	30-40 g	50-70 g	50-70 g
	Fiber	17-20 g	22-25 g	22-25 g
Micronutrients	<b>Vitamins</b>			
	Vitamin A	400-450 mcg	600 mcg	600 mcg
	Vitamin C	15-25 mg	45-75 mg	45-75 mg
	Vitamin D	15 mcg (600 IU)	15 mcg (600 IU)	15 mcg (600 IU)
	Vitamin E	7 mg	11 mg	11 mg
	Thiamin B1	0.6 mg	0.9-1.2 mg	0.9-1.2 mg
	Riboflavin B2	0.6 mg	0.9-1.3 mg	0.9-1.3 mg
	Niacin B3	8 mg	12-16 mg	12-16 mg
	Vitamin B6	0.5 mg	1.0-1.3 mg	1.0-1.3 mg
	Folate B9	150 mcg	200-300 mcg	200-300 mcg
	Vitamin B12	1.2 mcg	1.8-2.4 mcg	1.8-2.4 mcg
	<b>Minerals</b>			
	Calcium	700-1000 mg	1300 mg	1300 mg
	Iron	7-10 mg	10-12 mg	10-12 mg
	Zinc	5 mg	8-11 mg	8-9 mg
	Magnesium	130 mg	240 mg	240 mg
	Phosphorus	500 mg	1250 mg	1250 mg
	Potassium	3000 mg	4500 mg	4500 mg

## Food Variety and Dietary Diversity for School Feeding Menu

Offering a diverse range of foods in school feeding program menus is crucial for promoting balanced nutrition and supporting the overall health and development of children. A varied diet ensures that students receive a wide array of essential nutrients, which are vital for their growth, cognitive function, and long-term well-being.

### Importance of Diverse Food Choices in School Feeding Menus

**Balanced Nutrition:** Providing a variety of foods ensures that school children receive a broad spectrum of vitamins, minerals, and other essential nutrients necessary for their physical and mental development.

**Prevention of Nutrient Deficiencies:** Offering diverse menu options helps schools prevent common nutrient deficiencies that can impact children's health and academic performance.

**Development of Healthy Eating Habits:** Exposing school children to a wide range of foods from an early age encourages them to develop a preference for healthy and diverse tastes. This exposure can lead to healthier eating patterns that last a lifetime.

### Guidelines for Preparing a Balanced School Feeding Menu

**A. Fruits and Vegetables:** Include a variety/ different colored of fresh, seasonal fruits and vegetables/colored in every meal. Aim for a mix of colors and types to ensure a wide range of nutrients. E.g. Green Leafy Vegetables such as Ethiopian kale or spinach or lettuces, root vegetables like orange-fleshed sweet potato, and citrus fruits such as oranges.



- B. Whole cereals/Grains:** Incorporate whole grains such as Teff, brown rice, whole wheat, barley porridge, quinoa, and oats instead of refined grains. Home-made breads are good examples. Whole grains are higher in fiber, which aids digestion and helps maintain energy levels.
- C. Lean Proteins:** Provide a selection of lean protein sources, including beans, lentils, chicken, fish, and eggs. These proteins support muscle growth and repair and contribute to a feeling of fullness and satisfaction.
- D. Dairy or Alternatives:** Ensure the inclusion of dairy products like milk, and yogurt that are important for bone health.
- E. Healthy Fats:** Incorporate sources of healthy fats, such as avocados, nuts, seeds, and olive oil, which are essential for brain development and overall health.
- F. Nuts and seeds:** are rich in essential nutrients like healthy fats, protein, vitamins, and minerals, which support growth, brain development, and overall health in children. Including them in the school feeding menu ensures a nutritious, energy-dense option that helps keep students full and focused throughout the day. Careful storage of nuts, such as peanuts and groundnuts, is essential due to their sensitivity to aflatoxins.



## Encouraging Seasonal and Locally Sourced Ingredients and Promoting school back yard gardening

- A. Sustainability:** Using seasonal and locally sourced ingredients reduces the carbon footprint associated with food transportation and supports sustainable agricultural practices.
- B. Community Health:** Purchasing from local farmers and suppliers instead of retailers boosts the local economy and fosters a sense of community. It also ensures fresher, less processed food, which is often more nutritious.
- C. Cost-Effectiveness:** Seasonal and local foods are typically more affordable, making it easier to manage school feeding programs within budget constraints.
- D. School Backyard Gardening:** This is a good strategy practiced by the Ethiopian government nowadays. It enhances educational experiences and fosters healthy eating habits. School gardening activities teach children about plant biology, caring for the ecosystem, sustainability, and the importance of fresh produce. This hands-on approach improves their understanding of science and nature, instills responsibility, and connects them to their food sources. The fresh produce (commonly vegetables) harvested can supplement school feeding programs, ensuring nutritious, homegrown food.

## Promotion of Healthy Eating Habits

Schools, due to the significant amount of time students spend, offers a key opportunity to develop a lifelong healthy eating habit. Healthy eating habits are not about providing a nutritious meal, but also adapting to a culture of wellness that promote a positive relationship with food. This in turn can be translated to benefits such as improved cognitive growth, physical health, and foundations of lifelong healthy eating habits.

through the implementation of strategies like attractive and delicious healthy meals, interactive food education, a positive school eating environment, and collaboration with families and the community, schools can empower students to understand the importance of healthy eating for their overall well-being.



**Photo credit:** Beyond Access

**Provide nutrition education and life Skills Training:** Schools can significantly impact students' lifelong eating habits by prioritizing nutrition education. Staff and student training by a nutritionist or dietitian, coupled with engaging classroom lessons (both dedicated health classes and integrated across subjects like biology), empowers students towards healthy choices. Workshops and school days that focus on nutrition can further solidify these lessons. Ultimately, integrating nutrition education into the curriculum creates a well-rounded approach that benefits students' overall wellbeing. Life Skills Training in school feeding programs are also important for equipping students with practical and social skills through activities like meal planning, hygiene practices, and teamwork exercises. It focuses on decision-making, problem-solving, and sustainable food choices, fostering healthy habits and responsibility. Integrated into the curriculum, the training helps students apply these skills to improve their well-being and contribute positively to their communities.

**Engage students in food and nutrition-related activities:** To make healthy eating fun and engaging for students, schools can involve them in activities such as Q&A sessions on nutrition, taste tests of new foods, planting vegetables in school gardens, forming a committee to give feedback on meals, and incorporating harvests in school meals. This interactive experience fosters positive food relationships and empowers students to take ownership of healthy eating habits.

**Promoting physical activities:** Physical activity in schools acts as a powerful ally for promoting healthy eating habits. Exercise burns calories, creating a natural appetite for nutritious foods, while regulating blood sugar. In addition to the usual physical education classes, schools can also prepare other regular and structured physical exercise programs to create a culture.



**Photo:** Internet Archive

**School gardens:** School gardening is an essential component of a successful school feeding program, providing both nutritional and educational benefits. By growing fruits, vegetables, and legumes on school grounds, students gain access to fresh, nutrient-rich foods that can enhance the quality and diversity of their meals. Gardens also serve as practical learning spaces where students can engage in hands-on activities, fostering an understanding of agriculture, nutrition, and sustainability. This practice not only reduces the cost of food procurement but also promotes food security and self-reliance (promotes a homegrown school

feeding policy). To ensure effectiveness, school gardens should be designed with considerations for local climate, soil conditions, and the nutritional needs of the students. Incorporating crops that are easy to grow, drought-resistant, and culturally appropriate can maximize the garden's productivity and impact. Incorporating poultry farms alongside school gardens enhances the nutritional diversity of school feeding programs by providing a reliable source of eggs and meat to complement fresh produce.

**Involve Parents:** organize workshops and events to educate parents about nutrition and create a platform to monitor the school meal program as learning and feedback opportunities.

## Collaboration and Feedback

A school feeding program is a collaborative effort that involves various stakeholders working together to provide nutritious meals to students. The role of different stakeholders in a school feeding program can be broadly categorized into the following groups:

**Federal and regional government bodies:** They play a crucial role in implementing and overseeing the school feeding program. They can also provide funding, guidelines and support to ensure the program's success. In addition, regional governments are responsible for implementing the school feeding program at the local level, working closely with the Ministry of Education and other stakeholders.

**School Administrators:** Oversee the program's implementation, manage resources, and ensure smooth operations. They also provide direction, set priorities and allocate resources.

**Food Suppliers/cooperatives:** They can be farmers/ producers who can supply fresh produce, meat and dairy products. It can also involve food processors/ distributors who can supply processed food items such as injera, bread etc.



**Non-Governmental Organizations (NGOs):**

Donate funds, resources or hire expertise to support the program (with sustainability in mind) and partner with schools to implement specific programs or initiatives.

**Parents/ Guardians:** Provide feedback, volunteer, and support the program through meal preparation, cooking, or distribution, which can help build community engagement. Parents can participate in school meetings and discussions about the school feeding program by providing valuable insights and suggestions to improve the program. They can also work with the school to maintain a clean and hygienic environment, which is essential for food safety and overall health.

**Students:** Recipients of the meals, ensuring they receive nutritious food that meets their dietary needs. Students can also participate in the production of crops especially in home grown school feeding programs.

**Teachers/Staff:** Assist with meal delivery, supervision, and monitoring of students during meals. Teachers can incorporate nutrition education into their lesson plans, teaching students about the importance of healthy eating, hygiene, and food safety. They can also provide feedback to school administrators or health extension workers on the program's effectiveness, identifying areas for improvement.

**Nutritionists/Dietitians:** Develop menus that meet nutritional standards and provide guidance on meal planning.

**Health Extension Workers:** HEWs can raise awareness about the benefits of school feeding programs. They can provide nutrition education to children, teachers and parents on the importance of healthy eating, food safety, and hygiene practices. They can also monitor food handling, storage and food preparation in schools to ensure that they meet the minimum food safety standards.

Each stakeholder plays a critical role in ensuring the success of a school feeding program. Effective collaboration and communication among these stakeholders are essential to ensure the program meets its goals of providing nutritious meals to students while promoting a healthy learning environment.

## Cultural and Food Preference Considerations

Cultural and religious factors, such as dietary restrictions imposed by religious beliefs, are carefully addressed by substituting prohibited food items like pork and camel milk with more affordable alternatives within the same food group. Religious practices like fasting are also considered with suitable alternatives for animal-sourced foods, such as dairy products, meat, and eggs, particularly for children over seven years old.

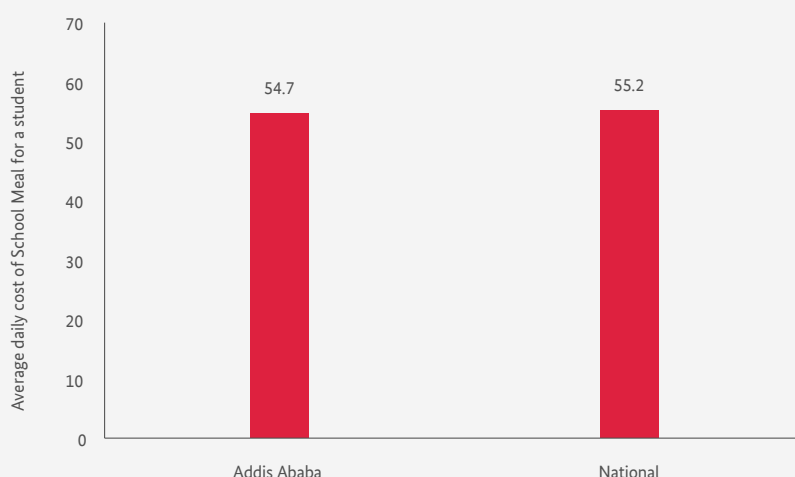
In some cases, students' food preferences are adapted to the local context of Addis Ababa regardless of price. For example, while maize is more affordable, it is not commonly used for bread-making; wheat remains the preferred cereal in the region. According to investigators in Addis Ababa, certain foods may be unpopular with children due to their strong odors. For instance, boiled eggs can create an unpleasant smell in cafeterias or feeding rooms, reducing children's appetites. To address this, meal planners opt to serve scrambled eggs instead of boiled ones. Additionally, the availability of locally produced fruits is considered, as some fruits like dates, which are not grown in Ethiopia and must be imported, may still be more cost-effective than other options within the food group. In addition, the school feeding program is fundamentally based on the idea of promoting home-grown and locally produced foods, ensuring that students' dietary needs are fulfilled while simultaneously encouraging local agricultural production.

## Frequently selected least cost food items

In Addis Ababa, the estimated average daily cost to cover two-thirds (breakfast and lunch) of the daily calorie requirement for primary students who are aged 6–18 years and beneficiaries of the school feeding program is 54.6 ETB per day. This cost was calculated by using the locally available food items retail price (June 2023 to June 2024) to

meet the expected daily calorie requirement from the school feeding program. The monthly retail price is collected every month from 116 markets across 110 woredas (districts) in all regions of Ethiopia. However, this may not always be the case due to security and other reasons.

Average Daily Cost per Student for School Feeding Program Menus in Addis Ababa and Nationally (Ethiopian Birr/day) for Breakfast and Lunch (Excluding Administrative Costs such as Cooking, etc.)



**Source:** Analyses using ESS monthly retail price data (ESS, 2023–2024) and the Ethiopian FBDG (EPHI, 2022)

Using frequently selected, available, and culturally accepted as well as least cost food items (Table 3), a sample weekly lunch cycle menu is designed for school children in Addis Ababa (Table 4). The menu includes flexibility for changing meals, rearranging their order, or substituting items within each meal while ensuring compliance with

all required food components in the SFSP meal pattern. It highlights a range of hot and cold food options and incorporates culturally diverse menu suggestions. These menus are primarily intended for on-site preparation but can be adapted for off-site service at playgrounds or campsites as needed.

**Table 3. Frequently selected least cost food items**

EFBDG Food Group	Food Item Name selected based on price	Price Rank (from lowest to highest)
Grains, white roots, and tubers	Kinche barley	1 <sup>st</sup>
	Maize <sup>a</sup>	2 <sup>nd</sup>
	Sorghum (red) <sup>a</sup>	3 <sup>rd</sup>
	Durrah <sup>a</sup>	4 <sup>th</sup>
	Sweet potato	5 <sup>th</sup>
Pulses	Chick pea	1 <sup>st</sup>
	Horse bean	2 <sup>nd</sup>
	Soya bean	3 <sup>rd</sup>
Nuts and seeds	White sunflower	1 <sup>st</sup>
	Ground nuts-unshelled-not roasted	2 <sup>nd</sup>
	Linseed red	3 <sup>rd</sup>
Milk and dairy foods	Milk	1 <sup>st</sup>
	Cheese	2 <sup>nd</sup>
	Yoghurt	3 <sup>rd</sup>
Meat Fish Eggs	Egg non indigenous fresh	1 <sup>st</sup>
	Egg Traditional	2 <sup>nd</sup>
	Camel meat	3 <sup>rd</sup>
Fruits	Avocado	1 <sup>st</sup>
	Banana	2 <sup>nd</sup>
	Dates(fresh) <sup>c</sup>	3 <sup>rd</sup>
	Papaya	4 <sup>th</sup>
Vegetables	Beet root	1 <sup>st</sup>
	Cabbage	2 <sup>nd</sup>
	Pumpkin indigenous	3 <sup>rd</sup>
	Ethiopian Kale	4 <sup>th</sup>
	Carrot	5 <sup>th</sup>
Fats and oils	Edible Oil (imported)Liquid packed sunflower	1 <sup>st</sup>
	Edible (Imported)	2 <sup>nd</sup>
	Edible oil (local)	3 <sup>rd</sup>

**Note:** Although some food items (a) are cheaper, they might not be preferred due to the feeding habits in Addis Ababa specifically in making bread or Injera. Additionally, certain food items (b) are not acceptable from a religious perspective, while other items (c) are either unavailable or not locally produced. In the weekly sample school menu these food items are not considered in recipes of meal preparation.

Source: Analysis using ESS monthly retail price data (ESS, 2023) and the Ethiopian FBDG (EPHI, 2022).

## Assumptions for Et-FBDGs Compliance in School Menus



Further the assumption is to deliver school meals that could not be achieved by students/ children at their home.

- A. Fulfilling four food groups per meal
- B. Fulfilling six food groups per day

### Fulfilling four food groups per each meal

The FBDG for food groups per day is suitable for a one-meal-per-day school menu, where only food groups for breakfast or lunch are considered. Additionally, portion sizes should account for students' stomach capacity and ability to finish the meal. Meal times in school feeding programs should align with students' natural appetite patterns to ensure they consume the provided meals effectively. Scheduling meals during peak hunger periods, such as mid-morning or lunch time, can enhance participation and nutritional intake.

For example, a breakfast of ዳቦ በድንች ሳንዱች (ድንችና ሽንኩርትና ቃሪያ ያለው) ከሻይ ጋር (potato sandwich with green pepper and onion with tea) includes three food groups (cereals, white roots and tubers, vegetables and Fats and oils), but it doesn't meet the FBDG recommendation of four groups per meal. To align with the FBDG, one food item, such as the bread or potato, should be replaced with a food item from another food group. Suggested options can be Egg sandwich with milk, Peanut butter with bread and milk and Chechebsa with milk.

### Fulfilling six food groups per day



Ethiopian FBDGs recommend six food groups per day, making this guideline ideal for a two-meal-per-day school menu plan. A two-meal feeding program is more suitable and feasible, as it considers children's portion sizes and their ability to consume the recommended amounts and diversity. Although this approach requires a higher budget, it aligns with FBDG recommendations by ensuring adequate quantity, diversity, and quality. For a one-meal school feeding program, meeting the requirement of including four food groups per meal is both practical and achievable.

### Flexibility in meal Planning

This meal plan is designed to be flexible, taking into account factors such as food availability, cost, and the preferences of the meal planner, while still adhering to FBDG recommendations. Food items within each group can be substituted as needed. For example, instead of serving bread with potato in one meal, the meal planner could replace either the bread or potato with an item from a different food group, such as bread with an egg or peanut butter.

## Sample Weekly Menu Plans

The school meal plan is designed to meet the daily energy needs of students through two meals per day, providing a total of 1,518 Kcals per student. Breakfast contributes one-third of this target (506 Kcals), while lunch provides two-thirds (1,012 Kcals).

All portion sizes and caloric values align with the Food-Based Dietary Guidelines (FBDGs) to ensure students receive adequate energy and essential

nutrients. The central principle of FBDGs—dietary diversification, both across food groups and within food groups—is also considered. By consuming meals within the recommended FBDG amounts, students are expected to meet their daily dietary requirements for optimal growth and learning.

**Table 3. Nutritional Requirements for Ages 4-6 Pre-primary school Ages 7-12 Primary School of Ethiopia [17, 18]**

Week 1	Monday	Tuesday	Wednesday	Thursday	Friday
	<b>Breakfast</b> <ul style="list-style-type: none"> <li>Egg sandwich<sup>1</sup> with milk or <sup>2</sup>Peanut butter with bread</li> </ul> <b>Snack</b> <ul style="list-style-type: none"> <li>Lewz kolo or sprouted boiled bean</li> </ul> <b>Lunch</b> <ul style="list-style-type: none"> <li>Injera with shiro stew and beet root</li> </ul>	<b>Breakfast</b> <ul style="list-style-type: none"> <li>Egg boiled</li> </ul> <b>Snack</b> <ul style="list-style-type: none"> <li>Banana</li> </ul> <b>Lunch</b> <ul style="list-style-type: none"> <li>Injera with ater kik stew with sunflower Fitfit</li> </ul>	<b>Breakfast</b> <ul style="list-style-type: none"> <li>Chechebsa with Milk</li> </ul> <b>Snack</b> <ul style="list-style-type: none"> <li>Banana</li> </ul> <b>Lunch</b> <ul style="list-style-type: none"> <li>Potato stew with Telba Fitfit</li> </ul>	<b>Breakfast</b> <ul style="list-style-type: none"> <li>Scrambled eggs/enkulal firfir</li> </ul> <b>Snack</b> <ul style="list-style-type: none"> <li>Banana</li> </ul> <b>Lunch</b> <ul style="list-style-type: none"> <li>Injera with Soya sauce with sunflower Fitfit</li> </ul>	<b>Breakfast</b> <ul style="list-style-type: none"> <li>Ful</li> </ul> <b>Snack</b> <ul style="list-style-type: none"> <li>Banana</li> </ul> <b>Lunch</b> <ul style="list-style-type: none"> <li>Rice with vegetables</li> </ul>
Week 2	Monday	Tuesday	Wednesday	Thursday	Friday
	<b>Breakfast</b> <ul style="list-style-type: none"> <li>Kinche with milk</li> </ul> <b>Snack</b> <ul style="list-style-type: none"> <li>Peanut butter with bread</li> </ul> <b>Lunch</b> <ul style="list-style-type: none"> <li>Injera with lentils stew with potato &amp; carrot and telba fitfit</li> </ul>	<b>Breakfast</b> <ul style="list-style-type: none"> <li>Yogurt</li> </ul> <b>Snack</b> <ul style="list-style-type: none"> <li>Banana and kolo (Roasted shimbira with Sunflower)</li> </ul> <b>Lunch</b> <ul style="list-style-type: none"> <li>Injera with meat stew</li> </ul>	<b>Breakfast</b> <ul style="list-style-type: none"> <li>Chechebesa with milk or *Peanut butter with bread</li> </ul> <b>Snack</b> <ul style="list-style-type: none"> <li>Banana</li> </ul> <b>Lunch</b> <ul style="list-style-type: none"> <li>Injera with Shiro stew with cabbage and sunflower fitfit (consider Ethiopian kale if the price seems lower during the season)</li> </ul>	<b>Breakfast</b> <ul style="list-style-type: none"> <li>Scrambled eggs/enkulal firfir</li> </ul> <b>Snack</b> <ul style="list-style-type: none"> <li>Banana</li> </ul> <b>Lunch</b> <ul style="list-style-type: none"> <li>Injera with Soya sauce with sunflower Fitfit</li> </ul>	<b>Breakfast</b> <ul style="list-style-type: none"> <li>Ful</li> </ul> <b>Snack</b> <ul style="list-style-type: none"> <li>Banana</li> </ul> <b>Lunch</b> <ul style="list-style-type: none"> <li>Rice with vegetables</li> </ul>





Week 3	Monday	Tuesday	Wednesday	Thursday	Friday
	<b>Breakfast</b> <ul style="list-style-type: none"> <li>■ Beso chibito with milk</li> </ul> <b>Snack</b> <ul style="list-style-type: none"> <li>■ Lewz kolo</li> </ul> <b>Lunch</b> <ul style="list-style-type: none"> <li>■ Injera with lentils stew with potato &amp; carrot stew</li> </ul>	<b>Breakfast</b> <ul style="list-style-type: none"> <li>■ Peanut butter with bread and milk</li> </ul> <b>Snack</b> <ul style="list-style-type: none"> <li>■ Banana and Lewz kolo</li> </ul> <b>Lunch</b> <ul style="list-style-type: none"> <li>■ Pumpkin/ beetroot with meat stew</li> </ul>	<b>Breakfast</b> <ul style="list-style-type: none"> <li>■ Bread with milk or *Avocado with bread/vegetable sandwich</li> </ul> <b>Snack</b> <ul style="list-style-type: none"> <li>■ Chickpea with lewz kolo</li> </ul> <b>Lunch</b> <ul style="list-style-type: none"> <li>■ Pasta with vegetables sauce or Minestrone made of (carrots, whole lentils, potato, macaroni)</li> </ul>	<b>Breakfast</b> <ul style="list-style-type: none"> <li>■ Scrambled eggs/enkulal firfir</li> </ul> <b>Snack</b> <ul style="list-style-type: none"> <li>■ Banana</li> </ul> <b>Lunch</b> <ul style="list-style-type: none"> <li>■ Injera with Soya sauce with sunflower Fitfit</li> </ul>	<b>Breakfast</b> <ul style="list-style-type: none"> <li>■ Ful</li> </ul> <b>Snack</b> <ul style="list-style-type: none"> <li>■ Banana</li> </ul> <b>Lunch</b> <ul style="list-style-type: none"> <li>■ Rice with vegetables</li> </ul>

\* Applicable during fasting period

<sup>1</sup> For students with diabetes, use bread made from barley as it has a lower glycemic index, which can help manage blood sugar levels.


<sup>2</sup> If students are allergic to nuts or peanuts, which is common among many children, then serve only bread with tea or juice





## Sample Recipe Options Made From the least Cost Items

Breakfast Recipes	
	<b>Option #1: EGG SANDWICH /OMELET WITH MILK</b> <b>Servings:</b> Serve 1 sandwich per child
Ingredients	Preparation
<ul style="list-style-type: none"> <li>■ Bread slices (130g)</li> <li>■ Egg (30g)</li> <li>■ Oil (3g)</li> <li>■ Salt</li> </ul>	<ol style="list-style-type: none"> <li>1. Crack the eggs into a bowl and whisk them together and add a pinch of salt</li> <li>2. Heat the oil in a large pan over medium heat</li> <li>3. Pour the whisked eggs into the pan until they are cooked</li> <li>4. Place one slice of bread on a plate, top the bread with the omelet and cover with other sliced bread and serve it with a half glass of milk per child</li> </ol>
<b>Drink:</b> Milk (130g)   <b>Snack:</b> 	Barley roasted + peanut/sunflower kolo
	<b>Option #2: PEANUT BUTTER WITH BREAD<sup>3</sup></b> <b>(to be served during fasting period)</b>  <b>Servings:</b> Serve about one table spoon of peanut butter per child



<sup>3</sup> If students are allergic to nuts or peanuts, which is common among many children, then serve only bread with tea or juice.

Provide an additional serving and include more protein-rich meals for students living with HIV/AIDS to enhance their immunity.

Ingredients	Preparation
<ul style="list-style-type: none"> <li>■ Bread slices (130g)</li> <li>■ Peanut butter (10g)</li> </ul>	<ol style="list-style-type: none"> <li>1. Put two slice of bread in a plate</li> <li>2. spread a generous layer of peanut butter on each slice</li> </ol>
Drink	Tea
<b>Snack:</b> sprouted boiled bean/ beqolt or Roasted peas/Ashuk  	Sprouted Boiled Beans <ol style="list-style-type: none"> <li>1. Soak beans overnight, sprout for 2-3 days, and then boil until tender.</li> </ol> Boiled and Roasted Peas <ol style="list-style-type: none"> <li>1. Soak and boil peas until soft. Then roast until crunchy.</li> </ol>

<p><b>Drink:</b> Milk (130g)</p> 	Milk or Tea*
<p><b>Snack:</b></p> 	Banana (medium size) (130g)
	<p><b>Option #5: SCRAMBLED EGG/ ENKULAL FIRFIR</b>  <b>Servings:</b> Serve 1 medium size egg per child</p>
Ingredients	Preparation
<ul style="list-style-type: none"> <li>■ Egg (30g)</li> <li>■ Tomato (20g)</li> <li>■ Onion</li> <li>■ Oil (3g)</li> <li>■ Salt</li> </ul>	<ol style="list-style-type: none"> <li>1. Crack the eggs into a bowl and whisk them together and add salt</li> <li>2. Dice the tomato and onion</li> <li>3. Heat a pan by putting onion with oil</li> <li>4. Add the diced tomato and cook softly and finally add the whisked egg</li> <li>5. Serve it with injera or bread</li> </ol>
<p>Drink</p> <p>Snack</p>	<p>Tea</p> <p>Banana</p>
	<p><b>Option #6: BROADBEANS STEW WITH PEPPER/FUL</b>  <b>Servings:</b> Serve half of the medium ladle full per child</p> <ol style="list-style-type: none"> <li>1. Dice tomato and onion</li> <li>2. Heat a pot by putting the diced onion with oil</li> <li>3. Add tomato and stir the mixture together until well combined</li> <li>4. Add the bean and stir them into the mixture and finally add salt</li> </ol> <p>Serve it with bread</p>
Ingredients	Preparation
<ul style="list-style-type: none"> <li>■ Split broad bean (76g)</li> <li>■ Bread to serve (130g)</li> <li>■ Tomato (20g)</li> <li>■ Onion</li> <li>■ Oil (3g)</li> <li>■ Salt</li> </ul>	<ol style="list-style-type: none"> <li>5. Dice tomato and onion</li> <li>6. Heat a pot by putting the diced onion with oil</li> <li>7. Add tomato and stir the mixture together until well combined</li> <li>8. Add the bean and stir them into the mixture and finally add salt</li> <li>9. Serve it with bread</li> </ol>
<p>Drink</p> <p>Snack</p>	<p>Tea</p> <p>Banana</p>



 <p>Milk (130g)</p>	<p><b>Option #7: CRACKED BARLEY/KINCHE WITH MILK</b></p>
<p>Ingredients</p>	<p>Preparation</p>
<ul style="list-style-type: none"> <li>■ Barley/wheat Split (130g)</li> <li>■ Butter (3g)</li> <li>■ Salt</li> </ul>	<ol style="list-style-type: none"> <li>1. Boil water in a large pot</li> <li>2. Once the water is boiling, add the cracked barley/wheat and salt</li> <li>3. Lower the heat, cover the pot, and let it simmer for about 15-20 minutes, or until the grains have absorbed all the water and are tender. Be sure to stir occasionally to prevent the grains from sticking to the bottom of the pot.</li> <li>4. Remove the pot from heat. Stir in butter until it's fully incorporated</li> </ol>
<p>Drink Snack</p>	<p>Milk Peanut butter with bread</p>
	<p><b>Option #8: CRACKED BARLEY/KINCHE* (Fasting option)</b></p>
<p>Ingredients</p>	<p>Preparation</p>
<ul style="list-style-type: none"> <li>■ Barley/wheat Split (130g)</li> <li>■ Tomato (20g)</li> <li>■ Onion</li> <li>■ Oil (3g)</li> <li>■ Salt</li> </ul>	<ol style="list-style-type: none"> <li>1. Boil water in a large pot</li> <li>2. Once the water is boiling, add the cracked barley/wheat and salt</li> <li>3. Lower the heat, cover the pot, and let it simmer for about 15-20 minutes, or until the grains have absorbed all the water and are tender. Be sure to stir occasionally to prevent the grains from sticking to the bottom of the pot.</li> <li>4. Remove the pot from the heat.</li> <li>5. Dice the tomato and onion</li> <li>6. Heat the pan by putting onion with oil</li> <li>7. Add the tomato and stir the mixture together until well combined (make sure the tomato is not over cooked)</li> <li>8. Combine the mixture with the cooked grain and remove it from heat</li> <li>9. Serve 5-6 medium ladle of kinche for one student</li> </ol>
<p>Drink Snack</p>	<p>Milk Peanut butter with bread</p>
	<p><b>Option #9: UNLEAVENED FLAT BREAD/CHECHEBESA WITH MILK</b></p>



Ingredients	Preparation
<ul style="list-style-type: none"> <li>■ Wheat flour (130g)</li> <li>■ Butter/oil*(3g)</li> <li>■ Pepper Powder</li> <li>■ Salt</li> </ul>	<ol style="list-style-type: none"> <li>1. Combine flour, water, and salt to form a dough</li> <li>2. Knead the dough until smooth and elastic</li> <li>3. Take a small portion from the dough to make flat bread (kita)</li> <li>4. Cut the flat bread (kita) into small pieces</li> <li>5. In a small bowl, combine softened butter/oil* with berbere spice and salt.</li> <li>6. Mix well to form a spiced butter/oil*</li> <li>7. Put the spiced butter over the unleavened bread/kita pieces</li> <li>8. Serve 5-6 medium ladle of Chechebsa for one student</li> </ol>
Drink	Milk
Snack	Banana


### Lunch Recipes





#### Option #1: INJERA WITH SHIRO STEW AND BEET ROOT


Ingredients	Preparation
<ul style="list-style-type: none"> <li>■ Injera (270g)</li> <li>■ Chickpea or pea flour (50g)</li> <li>■ Beet root (20g)</li> <li>■ Onion</li> <li>■ Oil (7g)</li> <li>■ Pepper Powder</li> <li>■ Salt</li> </ul>	<p><b>Shiro Stew</b></p> <ol style="list-style-type: none"> <li>1. Cook finely chopped onions in a dry saucepan over medium heat until soft and add cooking oil</li> <li>2. Mix in minced garlic stirring for 1-2 minutes</li> <li>3. Add pepper powder</li> <li>4. Put the chickpea or pea flour in a separate bowl and add water till it becomes a little thick and smooth?</li> <li>5. Pour the mixed flour and water into the saucepan and stir well to avoid lumps.</li> <li>6. Cook the shiro, stirring occasionally, until it becomes thick and bubbly</li> </ol> <p><b>Beet root Salad</b></p> <ol style="list-style-type: none"> <li>1. Peel the beetroot and cut into pieces</li> <li>2. Cook finely chopped onions in a dry sauce pan over medium heat until soft and add cooking oil</li> <li>3. Add the beetroot pieces and cook till it becomes softer</li> <li>4. Add green pepper for taste and turn off the heat</li> </ol> <p>Serve shiro stew with beetroot salad with injera</p>
Drink	Glass of clean water

	<p><b>Option #2: INJERA WITH PEA SPLIT STEW /ATER KIK WET WITH SUNFLOWER PASTE/SUF FITFIT</b></p>
<p>Ingredients</p>	<p>Preparation</p>
<ul style="list-style-type: none"> <li>■ Injera (270g)</li> <li>■ Pea split (50g)</li> <li>■ Onion (20g)</li> <li>■ Oil (7g)</li> <li>■ Turmeric</li> <li>■ Green pepper (20g)</li> <li>■ Salt</li> </ul> <ul style="list-style-type: none"> <li>■ Injera (270g)</li> <li>■ Sunflower seeds (10g)</li> <li>■ Onion (20g)</li> <li>■ Green pepper (20g)</li> <li>■ Oil (7g)</li> <li>■ Salt</li> </ul>	<p><b>Pea Split stew /Ater kik wet</b></p> <ol style="list-style-type: none"> <li>1. Rinse the pea split in a in cold water and drain</li> <li>2. Boil split peas and water in a sauce pan for 20 minutes (the split pea shouldn't be mushy)</li> <li>3. Cook finely chopped onions in a dry sauce pan over medium heat until soft and add cooking oil</li> <li>4. Mix in minced garlic stirring for 1-2 minutes and turmeric for further 10 minutes</li> <li>5. Add the split peas and simmer stirring occasionally (not to often so that it doesn't get too mushy) for another 15 minutes and finally add salt and green pepper</li> </ol> <p><b>Sunflower paste mixed with injera pieces / Suf fitfit</b></p> <ol style="list-style-type: none"> <li>1. Wash the sunflower seeds (suf) and put into a cooking pot to boil it for 15 minutes</li> <li>2. Drain the boiled suf and grind until the suf turn into paste</li> <li>3. Put the paste in a bowl and add water and mix well</li> <li>4. Strain the liquid into a bowl and discard the paste</li> <li>5. Add onion, green pepper and salt and mix thoroughly</li> <li>6. Cut the injera into pieces. Lightly mix them all together so that the pieces of injera are uniformly soaked and moist</li> <li>7. Serve Injera with split pea stew and suf fitfit / sunflower paste</li> </ol>
<p>Drink</p>	<p>Glass of clean water</p>
	<p><b>Option #3 –POTATO STEW/DINCH WET WITH LINSEED PASTE MIXED WITH INJERA PIECES / TELBA FIFIT</b></p>

Ingredients	Preparation
<ul style="list-style-type: none"> <li>■ Injera (135g)</li> <li>■ Potato (135g)</li> <li>■ Onion (20g)</li> <li>■ Tomato (20g)</li> <li>■ Oil (7g)</li> <li>■ Salt</li> <li>■ Pepper Powder</li> </ul>	<p><b>Potato stew</b></p> <ol style="list-style-type: none"> <li>1. Peel potatoes and cut into thick pieces</li> <li>2. Cook finely chopped onions in a dry sauce pan over medium heat until soft and add cooking oil</li> <li>3. Add pepper powder spice, stir well so the onions are coated</li> <li>4. Mix in minced garlic stirring for 1-2 minutes</li> <li>5. Add crushed tomato and mix well. Add water slowly as necessary to prevent the mixture from burning</li> <li>6. Once the ingredients are well incorporated, add the diced potatoes and hot water slowly and bring to simmer. Be careful not to add too much water</li> <li>7. Cover with lid and stir occasionally, adding more water as necessary.</li> <li>8. Once the potatoes are tender and the stew is finished, serve with injera</li> </ol> <p><b>Linseed paste mixed with injera pieces/ Telba fifit</b></p> <ol style="list-style-type: none"> <li>1. Dry roast the telba/flaxseed while stirring for 10 minutes and let it cool off for few minutes</li> <li>2. Then grind the telba seeds to powder and put the powder in a large bowl</li> <li>3. Add water to the telba powder and mix well</li> <li>4. Then add chopped onion and green pepper and mix thoroughly</li> <li>5. Tear the injera into pieces and put into the mixture so that the pieces of injera are uniformly soaked and moist</li> <li>6. Serve injera with potato stew and telba fitfit</li> </ol>
Drink	Glass of clean water
	<p><b>Option #4 –INJERA WITH POTATO AND CARROT STEW/DINCH AND CARROT</b></p>

Ingredients	Preparation
<ul style="list-style-type: none"> <li>■ Injera (135g)</li> <li>■ Carrot (20g)</li> <li>■ Potato(135g)</li> <li>■ Onion (20g)</li> <li>■ Oil (7g) and salt</li> <li>■ Pepper powder</li> </ul>	<ol style="list-style-type: none"> <li>1. Peel, rinse and slice the carrot and potato and put it in a bowl with water</li> <li>2. Cook finely chopped onions in a dry sauce pan over medium heat until soft and add cooking oil</li> <li>3. Add carrot in the cooking mix , cook it for 5-10 minutes</li> <li>4. Add the sliced potato, cook the mix 15-20 minutes, occasionally stirring, and pouring little water as needed till the mix is cooked well</li> <li>5. Add salt, green pepper and remove from heat</li> </ol>
Drink	Glass of clean water
	<b>Option #5: INJERA WITH LENTILS STEW / MISIR WET WITH POTATO AND CARROT AND LINSEED/FLAXSEED PASTE/ TELBA FITFIT</b>
Ingredients	Preparation
<ul style="list-style-type: none"> <li>■ Injera (270g)</li> <li>■ Lentils (50g)</li> <li>■ Onion (40g)</li> <li>■ Oil (7g)</li> <li>■ Pepper powder</li> <li>■ Salt</li> </ul>	<b>Lentils stew / Misir wet</b> <ol style="list-style-type: none"> <li>1. Cook finely chopped onions in a dry sauce pan over medium heat until soft and add cooking oil.</li> <li>2. Mix in minced garlic and grated ginger, stirring for 1-2 minutes.</li> <li>3. Add pepper powder and spice and stir in cooking for 1 minute to release the flavors.</li> <li>4. Add rinsed red lentils and water or stock. Bring to a boil, then simmer</li> <li>5. Stir occasionally, adding salt and cook until thickened.</li> </ol>
Drink	Glass of clean water
	<b>Option #6: INJERA WITH MEAT STEW / SIGA WET</b>

Ingredients	Preparation
<ul style="list-style-type: none"> <li>■ Injera (270g)</li> <li>■ Meat (30g)</li> <li>■ Onion (40g)</li> <li>■ Oil (7g)</li> <li>■ Salt</li> <li>■ Pepper Powder</li> </ul>	<ol style="list-style-type: none"> <li>1. Chop the meat into pieces</li> <li>2. Put the chopped beef on a plate and season it with 1 tea spoon of salt</li> <li>3. Cook finely chopped onions in a dry sauce pan over medium heat until soft and add cooking oil</li> <li>4. Add pepper powder and spice and cook for 10 minutes with the pan covered. Occasionally stir the mixture to prevent burning</li> <li>5. Add the beef to the onion mixture. Mix well and cook covered for 10 minutes, stirring occasionally</li> <li>6. Add and mix garlic and ginger to the stew</li> <li>7. Cook with the pot covered for 40 minutes. Continue to stir occasionally to prevent burning</li> <li>8. Add water to the stew. Cook covered for 20 minutes. Add salt and remove the stew from heat</li> <li>9. Serve with injera</li> </ol>
Drink	Glass of clean water
	<p><b>Option #8: INJERA WITH PUMPKIN STEW WITH MEAT STEW / SIGA WET</b></p>
<ul style="list-style-type: none"> <li>■ Injera (270g)</li> <li>■ Pumpkin (20g)</li> <li>■ Onion (20g)</li> <li>■ Oil (7g)</li> <li>■ Salt</li> <li>■ Pepper powder</li> <li>■ Garlic</li> </ul>	<ol style="list-style-type: none"> <li>1. Chop the pumpkin into pieces</li> <li>2. Cook finely chopped onions in a dry sauce pan over medium heat until soft and add cooking oil</li> <li>3. Mix in minced garlic and grated ginger, stirring for 1-2 minutes</li> <li>4. Add pepper powder and cook for 10 minutes with the pan covered</li> <li>5. Add chopped pumpkin and mix to combine the sauce</li> <li>6. Pour enough water and simmer until the pumpkin is cooked; mix occasionally</li> <li>7. Take the pan off the heat</li> <li>8. Serve it with Injera with meat stew and pumpkin stew</li> </ol>
Drink	Glass of clean water
	<p><b>Option #9: MINISTRONE WITH VEGETABLE SAUCE</b></p>

Ingredients	Preparation
<ul style="list-style-type: none"> <li>■ Macaroni (270g)</li> <li>■ Carrot (20g)</li> <li>■ Whole lentils (50g)</li> <li>■ Onion (20g)</li> <li>■ Oil (7g)</li> <li>■ Salt</li> </ul>	<ol style="list-style-type: none"> <li>1. Wash the whole lentils</li> <li>2. Cook finely chopped onions in a dry sauce pan over medium heat until soft and add cooking oil</li> <li>3. Add carrot and macaroni – stir occasionally by adding few water</li> <li>4. Add the potato and whole lentils , stir occasionally</li> <li>5. Add hot water to make a soup and cook the ingredients specially the macaroni</li> <li>6. Add salt, rosemary or other spice and turn off heat</li> </ol>
Drink	Glass of clean water
	<p><b>Option #10 : INJERA WITH SHIRO STEW WITH ETHIOPIAN KALE STEW/ YE HABESHA GOMEN</b></p>
Ingredients	Preparation
<ul style="list-style-type: none"> <li>■ Injera (270g)</li> <li>■ Ethiopian kale/ye habesha gomen (20g)</li> <li>■ Onion (20g)</li> <li>■ Oil (7g)</li> <li>■ Garlic</li> <li>■ Salt</li> </ul>	<ol style="list-style-type: none"> <li>1. Wash and chop the kale</li> <li>2. Cook finely chopped onions in a dry sauce pan over medium heat until soft and add cooking oil</li> <li>3. Mix in minced garlic and ginger – stir occasionally</li> <li>4. Add the chopped Kale, cook on medium heat until the kale becomes soft but make it shorter period to preserve heat-sensitive vitamins</li> <li>5. Add salt and turn off heat</li> <li>6. Serve injera with shiro stew and Ethiopian kale</li> </ol>

Recommended amount and equivalent serving size among different age groups [17]



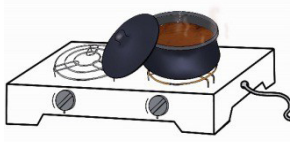

Food Group	Sentinel food	Serving size (kcal)	Equivalent amount in grams (measured)	In local measurement unit convenient for the public
Grains, roots and tubers	Injera, bread	300	Average from 310 g of injera and 150 g of bread = 230 g	1 medium-size injera or 1.5 pieces of bread
Pulses	Shiro stew	115	100 g 'shiro'	1 medium size ladle of stew
Nuts and seeds	Sunflower seeds	50	10–15 g sunflower paste ('suf fitfit')	1 Tablespoon
Milk and dairy foods	Milk	90	200 g milk	1 cup
Meat and eggs	Egg and beef stew	65	Average from 50 g of eggs and 85 g of meat stew (67 g)	1 egg or 1 portion of beef stew
Fruits	A standard used by other countries' FBDGs	80	Average from 150 g of banana and 100 g of mangoes = 125 g	1 medium banana or 1 medium mango
Vegetables	A standard used by other countries' FBDGs	30	80 g cooked vegetable	1 medium-sized ladle
Oils and fats	Oil	130	8 g (oil)	1 Tablespoon

## Food Safety Considerations in School Feeding Programs

Ensuring food safety is crucial when preparing school feeding menus, especially when dealing with easily perishable foods like eggs, milk, and fish products. The World Health Organization

(WHO, 2006) has provided the following five key food safety recommendations to make foods safer for all.



<p><b>1. Keep clean</b></p> <ul style="list-style-type: none"> <li>■ Wash your hands with soap and water before handling food and often during food preparation to avoid diseases-causing microorganisms leading to food-borne diseases</li> <li>■ Wash your hands with soap and water after going to the toilet</li> <li>■ Wash and sanitize all surface and equipment used for food preparation</li> <li>■ Protect kitchen areas and food from insects, pests and other animals</li> </ul>	
<p><b>2. Separate raw and cooked foods/Avoid cross-contamination</b></p> <ul style="list-style-type: none"> <li>■ Separate raw meat, poultry and sea foods such as fish from other foods to prevent the transfer of microorganisms which can affect your health</li> <li>■ If possible use separate equipment and utensils such as knives and cutting boards for handling raw foods. If not, clean knives and cutting boards thoroughly before using them.</li> <li>■ Store foods in containers with lids to avoid contact between raw and cooked foods.</li> </ul>	
<p><b>3. Cook food thoroughly</b></p> <ul style="list-style-type: none"> <li>■ Cook food thoroughly especially meat, poultry, eggs and sea foods; proper cooking (to a temperature of 70 degree centigrade) kills almost all microorganisms that can affect your health</li> <li>■ Reheat cooked leftover foods thoroughly</li> </ul>	
<p><b>4. Keep food at safe temperature</b></p> <ul style="list-style-type: none"> <li>■ If you have a refrigerator, do not leave cooked food at room temperature for more than 2 hours ; if not keep it in a cool dry place</li> <li>■ Refrigerate all perishable foods</li> <li>■ Do not store food for too long even in the refrigerator</li> </ul>	
<p><b>5. Use safe water and raw materials</b></p> <ul style="list-style-type: none"> <li>■ Use safe water or treat water by boiling or using Water Guard to make it safe</li> <li>■ Select safe and wholesome foods</li> <li>■ Wash fruits and vegetables in clean water especially if eaten raw</li> <li>■ Check expiry dates when you buy processed packed foods; do not buy if expired; it is harmful.</li> </ul>	

*Source: Five keys to safer food manual, WHO 2006*

## Infrastructure Considerations for School Feeding Programs in Addis Ababa, Ethiopia

### A. Clean and Well-Ventilated Facilities

School kitchens must be hygienic, with easy-to-clean surfaces like tiled walls and floors. Regular cleaning and proper ventilation, such as exhaust fans or chimneys, ensure air quality and a comfortable workspace for staff.

### B. Access to Hand-washing and Safe Water

Hand hygiene is vital for food safety. Schools should provide hand-washing stations with soap and running water near kitchens and dining areas, along with access to safe water for cooking, cleaning, and drinking through water tanks or reliable municipal supplies.



Photo: Internet Archive

### C. Sewage and Waste Management Systems

Functional drainage systems in school kitchens and cafeterias are essential for maintaining proper sewage management, preventing contamination, and ensuring overall sanitation. Additionally, designated areas for waste disposal, including organic and non-organic waste segregation, should be established to promote hygiene and environmental sustainability.

### D. Storage of Utensils and Food Supplies

Schools should have storage rooms with shelves for dry goods, secure cabinets for perishables items, such as vegetables, , and refrigeration for temperature-sensitive foods. Utensils must be stored in clean, covered areas to prevent contamination.



Photo: Internet Archive

### E. Fully Equipped Kitchens with Electric Systems

The kitchen should be equipped with essential cooking appliances, including stoves, ovens, and blenders. Where possible, schools should prioritize the installation of electric cooking systems, such as electric stoves and ovens, to improve efficiency and reduce reliance on firewood or charcoal, which can contribute to indoor air pollution. Safety equipment such as fire extinguishers, first-aid kits, and protective gear for kitchen staff (gloves, aprons, hairnets) should also be readily available.



Photo: Internet Archive

#### **F. Dining Areas with Sufficient Seating**

Schools should provide clean, spacious, and well-organized dining areas with enough durable, easy-to-clean tables and chairs suitable for all age groups. Serving points should minimize congestion to ensure smooth meal distribution and timely seating.



**Photo:** Internet Archive

#### **G. Administrative and Monitoring Facilities**

School feeding programs need dedicated spaces for staff to manage operations, maintain records, and coordinate with suppliers. Offices should have basic tools like computers and filing cabinets, along with facilities for data storage and evaluations to ensure efficiency and accountability.

## Case Story of School Feeding Program at Menelik Primary School, Addis Ababa

Menelik Primary School, nestled in Arada Sub-City just 200 meters from Addis Ababa University's Science Faculty, has been running a successful school feeding program since 2010. The program serves 340 kindergarten children (ages 4-6) and 922 primary school students (ages 7-12), and it extends its support to an additional 200 high school students from the surrounding community.

A dedicated team of 27 members from the local mothers' association, organized into three teams, plays a vital role in preparing and serving meals twice a day. These women create a nurturing and supportive environment, fostering positive relationships with the students. The program is overseen by the school head, Mr. Nadew Bayew, who ensures that meals are carefully planned within a modest budget of 32 Ethiopian Birr per student. A supervisory committee, comprising key staff members, manages daily operations, including purchasing raw materials, planning meals, supervising food quality, and auditing expenditures.

During a recent visit, children were observed enjoying breakfast in the school dining area from 7:30 to 8:00 AM. The program benefits from well-constructed infrastructure and a dedicated

team, providing a positive and warm atmosphere. However, challenges remain, notably the lack of electricity and water supply, which impacts daily operations and hygiene practices, despite the available facilities for dining and washing.

The school's feeding committee, consisting of teachers and a volunteer public health professional, is responsible for monitoring the overall administration of the program. This includes ensuring the quality of the meals served to the students. Additionally, the school has a small garden where vegetables are grown to support the program. However, due to the garden's limited production capacity, it cannot fully meet the nutritional needs of the feeding program.

Overall, Menelik Primary School's feeding program demonstrates a strong commitment to student nutrition and a community-driven approach. Addressing key gaps, such as access to electricity, water, dining tables, and kitchen storage facilities, will be essential for enhancing the program's effectiveness and ensuring its long-term sustainability.

### Monday morning breakfast





## School storage facilities



## Kitchen and hygiene facilities



## References

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**Table 1. Recommended Dietary Allowances (RDA) for macro nutrients and Vitamins (Gropper et al., 2013)**

Age (yr)	Reference BMI (kg/m <sup>2</sup> )	Energy EER <sup>a</sup> (kcal/ day)	Carbohydrate RDA (g/day)	Protein RDA (g/day) <sup>b</sup>	Thiamin (mg/day)	Riboflavin (mg/day)	Niacin (mg/day) <sup>a</sup>	Vitamin B6 (mg/day)	Folate (μg/day) <sup>b</sup>	Vitamin B12 (μg/day)	Vitamin C (mg/day)	Vitamin A (μg/day) <sup>c</sup>	Vitamin D (IU/day) <sup>d</sup>	Vitamin E (mg/day) <sup>d</sup>
4-8	15.3	1742 for males & 1642 Females	130	19	0.6	0.6	8	0.6	200	1.2	25	400	600 (15 μg)	7
9-13 Males	17.2	2279	130	34	0.9	0.9	12	1.0	300	1.8	45	600	600 (15 μg)	11
9-13 Females	17.4	2071	130	34	0.9	0.9	12	1.0	300	1.8	45	600	600 (15 μg)	11

<sup>a</sup> The Estimated Energy Requirement (EER) represents the average dietary energy intake that will maintain energy balance in a healthy person of a given gender, age, weight, height, and physical activity level.

<sup>b</sup> The values listed are based on reference body weights.

<sup>c</sup> Vitamin A recommendations are expressed as retinol activity equivalents (RAE).

<sup>d</sup> Vitamin E recommendations are expressed as α-tocopherol.

**Table 2. Recommended Dietary Allowances (RDA) for Minerals**

Age (yr)	Calcium g/day	Phosphorus	Magnesium RDA (mg/day)	Iron (mg/day)	Zinc (mg/day)	Iodine (μg/day)	Selenium μg/day)	Copper (μg/day)	Molybdenum (μg/day)
4-8	1000	500	130	10	5	90	30	440	22
9-13 Males	1300	1250	240	8	8	120	40	700	34
9-13 Females	1300	1250	240	8	8	120	40	700	34



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