



**African Population and
Health Research Center**

Healthy and Sustainable Diets Within Informal Settlements of Mukuru, Korogocho, and Kibera, Nairobi, Kenya



**A Training Manual for Community Organized
Groups, Micro and Small Enterprises, and
Small Holder Farmers**

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A Training Manual for Community Organized Groups, Micro and Small Enterprises, and Small Holder Farmers

African Population and Health Research Center (APHRC), CCHefs-Impact Project on Leveraging School Feeding and Micro and Small Enterprises to Promote access to healthy and Sustainable Food among the Urban Poor in Kenya and Rwanda

March 2025

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1.0. Overview

This training manual is designed to impart knowledge on healthy and sustainable dietary foods to Community Organized Groups (COGs), Micro and small-scale enterprises (MSEs) and Small Holder Farmers (SHFs) who are expected to pass on this information to school communities in Nairobi's informal settlements. The primary focus is the implementation of Home-Grown School Feeding Programs (HGSFP), which encourage sourcing food locally from smallholder farmers and micro-enterprises. This approach not only improves the nutritional status of school children but also strengthens the local economy by supporting small-scale farmers and businesses.

The project will be implemented in both private and public schools across three key sites: Mukuru, Kibera, and Korogocho. The curriculum blends theoretical concepts with practical activities, aiming to deepen understanding of nutrition, sustainability, and local food systems.

The curriculum is structured into six modules and workbooks, each designed to address a specific aspect of sustainable and healthy diets:

- 1. Introduction to Food Security, Food Safety, Healthy and Sustainable Foods:**
Explores the relationship between nutrition and environmental sustainability, emphasizing the importance of diet choices for both personal and planetary health. This will be used by COGs, MSEs, and SSHFs.
- 2. Food Security in Informal Settlements:**
Examines the challenges of food insecurity in urban slums and how schools can contribute to community food security initiatives. This will be used by COGs, MSEs, and SSHFs.
- 3. Basic Nutrition for School-Going Children:**
Introduces essential nutrients and their role in supporting children's growth, development, and learning. This will be used by COGs.
- 4. The Role of Schools in Promoting Healthy Diets:**
Highlights how schools can influence children's eating habits and act as change agents for sustainable food practices. This will be used by COGs, MSEs, and SSHFs.
- 5. Practical Cooking and Food Preparation Techniques:**
Teaches hands-on cooking skills using locally available ingredients, with an emphasis on reducing food waste. This will be used by COGs.
- 6. Creating a School Garden:**
Encourages schools to grow their own fruits and vegetables. This will be used by COGs.

Module 1:

Introduction to Food security, Food Safety, Healthy and Sustainable Diets

Introduction

This module introduces the basics of food security, food safety, healthy, and sustainable diets. It's aimed at helping Community Organized Groups (COGs), Micro and Small Enterprises (MSEs), and Smallholder Farmers (SHFs) understand how to produce and promote safe, nutritious, and sustainable food options, while also minimizing food waste and promoting proper waste disposal to protect the environment.

Objective

To introduce the concept of sustainable and healthy diets, emphasizing the role of agroecology in promoting environmentally friendly farming practices that support both personal and environmental health, along with effective food waste management practices.

Key Learning Points:

- i. Definition of healthy, sustainable diets, agroecology, and the importance of minimizing food waste.
- ii. The relationship between nutrition and social, economic, and environmental sustainability.
- iii. How dietary choices, food waste, and waste disposal impact the environment and long-term health.

Activities:

- i. **Discussion Session:** What is a sustainable diet and agroecology? Why are they important in our community? How can we reduce food waste?
- ii. **Group Activity:** Participants share examples of foods they consider healthy and sustainable, and brainstorm waste disposal strategies. Create a comparison chart to discuss the impact of these foods on health, waste, and the environment.

Materials:

- i. Posters with visuals explaining sustainable diets

diets and food waste reduction.

- ii. **Worksheet:** List examples of sustainable food sources and waste disposal practices in Nairobi.

Delivery methods

- i. **Interactive Lectures:** Explain key concepts, emphasizing the importance of healthy, sustainable diets and proper waste management.
- ii. **Group Discussions:** Encourage discussions on sustainable diets and practical ways to reduce food waste.
- iii. **Practical Activities:** Engage participants in creating comparison charts for healthy, sustainable foods and waste disposal practices.
- iv. **Visual Aids:** Use posters and infographics to illustrate the link between diet, health, sustainability, and waste management.
- v. **Worksheets:** Provide worksheets to document sustainable food sources and waste disposal methods.
- vi. **Role-Playing:** Simulate decision-making around dietary choices, waste reduction, and proper waste disposal.
- vii. **Case Studies:** Present examples showing benefits of sustainable diets and effective waste management.
- viii. **Reflection Sessions:** Encourage participants to reflect on implementing sustainable diets and waste management in their communities.

Learning Outcomes:

By the end of the module, participants will be able to:

- i. Define sustainable healthy diets and explain their importance for health, the environment, and waste reduction.
- ii. Explain the connection between nutrition, sustainability, and effective waste management.
- iii. Explain how agroecology, sustainable dietary choices, and proper waste disposal can benefit both health and the environment.

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Food Security

According to High level Panel of Experts (HLPE), food security includes six dimensions (figure 1), which expand upon the traditional four-pillar framework of availability, access, utilization, and stability. These additional dimensions provide a more comprehensive understanding of food security in modern contexts.

1. **Availability:** This refers to the physical presence of enough food of appropriate quality, supplied through production, storage, distribution, and trade. It focuses on ensuring that food is accessible at a national, regional, or local level.
2. **Access:** This dimension refers to the economic and physical ability of individuals and households to acquire sufficient food. It includes financial access (affordability), market accessibility, and social access to food.
3. **Utilization:** Utilization goes beyond having food and involves the body's ability to absorb and metabolize nutrients. It emphasizes the proper use of food, including food safety, nutritional quality, preparation, and biological utilization.
4. **Stability:** Stability ensures that the availability, access, and utilization of food are reliable and consistent over time. It addresses risks such as seasonal food insecurity, economic shocks, climate change, and conflicts that could disrupt long-term food security.
5. **Agency:** This relatively new dimension highlights the ability of individuals or groups to make decisions about what foods they consume and how those foods are produced, processed, and distributed. It reflects the importance of participation in decision-making and the power to control food systems.
6. **Sustainability:** This dimension refers to ensuring that the methods of food production, distribution, and consumption can be maintained over the long term without depleting natural resources or damaging the environment. It ties food security to environmental stewardship and resilience against future challenges like climate change.



Figure 1: HLPE, 2020

Food Safety

Food safety refers to the practices and conditions that ensure the food we consume is free from harmful contaminants, such as bacteria, viruses, parasites, pesticide residues, or other chemicals, and is safe for human consumption. The goal of food safety is to prevent foodborne illnesses, protect public health, and maintain the quality of food throughout the supply chain, from production and handling to storage, distribution, and preparation.

Key elements of food safety include:

- i. **Preventing contamination:** Ensuring food is protected from hazards like microorganisms, chemicals (including pesticide residues), and physical objects that may cause illness.
- ii. **Proper food handling:** Implementing hygiene practices such as handwashing, avoiding cross-contamination, and using separate equipment for raw and cooked foods.
- iii. **Temperature control:** Maintaining appropriate temperatures for food storage to inhibit microbial growth.
- iv. **Sanitation and hygiene:** Keeping food preparation areas, utensils, and equipment clean to avoid the spread of harmful microbes.

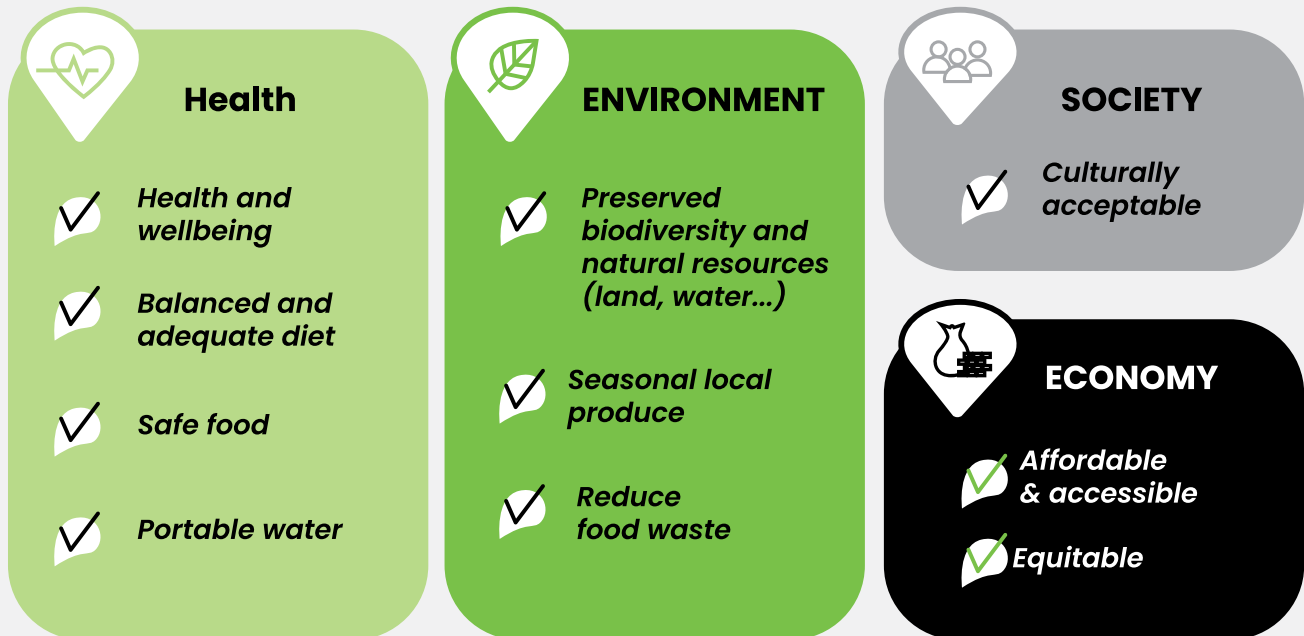
Healthy and Sustainable Diet

A **healthy diet** supports growth, development, and prevents malnutrition. Malnutrition includes both undernutrition (wasting, stunting, vitamin deficiencies) and overnutrition, for example, overweight and obesity, which increases the risk of non-communicable diseases (NCDs) like heart disease, diabetes, and cancer. NCDs are a leading cause of death worldwide. Undernutrition and obesity can exist together in the same communities, particularly in low-income areas.

A **sustainable healthy diet** provides a balance of essential nutrients while promoting environmental sustainability. It includes a variety of food groups: fruits, vegetables, whole grains, proteins (such as legumes, lean meats, fish), and healthy fats. Sustainable diets emphasize locally sourced, minimally processed foods, which support local farmers and reduce environmental impact.

A **sustainable food system (SFS)** is a food system that delivers food security and nutrition for all in such a way that the economic, social and environmental bases to generate food security and nutrition for future generations are not compromised. This means that it is profitable throughout (economic sustainability); – It has broad-based benefits for society (social sustainability); and it has a positive or neutral impact on the natural environment (environmental sustainability). By integrating women's groups and promoting equity, these systems empower communities and strengthen food security for future generations.

Sustainable healthy diets: 4 dimensions to keep in mind (1)



Food and Agriculture Organization of the United Nations, World health Organization (2019) Sustainable healthy Diets, guiding Principles.

Nutrition and Environmental Sustainability

Nutrition and environmental sustainability are closely linked. Plant-based foods generally have a lower environmental impact, requiring fewer resources and emitting less greenhouse gases than animal products. Highly processed foods and food waste contribute to environmental degradation. Choosing sustainable options like locally grown and minimally processed foods helps conserve water, reduce emissions, and support biodiversity, benefiting both health and the planet.

Table 1 in the next page illustrates how different foods commonly found in urban informal settlements in Kenya could affect the environment.

Table 1: Effect of Different Foods on The Environment.

Food Group	Examples and Environmental Impact	Environmental Impact
1. Grains, White Roots and Tubers, and Plantains	Examples: Maize, rice, ugali (maize meal), white potatoes, cassava, chapati (wheat flour)	Moderate water and land use; maize and rice require significant resources to grow, and wheat for chapati flour contributes to soil depletion.
2. Pulses (Beans, Peas, and Lentils)	Examples: Beans, green grams (mung beans), cowpeas, pigeon peas	Low impact; pulses improve soil fertility by fixing nitrogen, require minimal water, and have low greenhouse gas emissions.
3. Nuts and Seeds	Examples: Groundnuts (peanuts), sesame seeds, pumpkin seeds	Moderate impact; peanuts require significant water, but other seeds generally have low environmental impact and are often grown with minimal inputs.
4. Milk and Milk Products	Examples: Fresh milk, mala (fermented milk), powdered milk	High impact; dairy production requires large amounts of water and feed, and cows produce methane, a potent greenhouse gas.
5. Meat, Poultry, and Fish	Examples: Beef, chicken, goat meat, omena (small fish), tilapia	High impact for beef due to land and water use; poultry and fish have a lower impact but still require resources for feed and contribute to emissions. Overfishing is a concern for local fish.
6. Eggs	Examples: Chicken eggs, quail eggs	Moderate impact; egg production requires feed and water but has a lower environmental footprint than red meat.

7. Dark Green Leafy Vegetables	Examples: Sukuma wiki (collard greens), spinach, kunde (cowpea leaves), managu (African nightshade)	Low impact; leafy greens require minimal land and water and can often be grown locally in small spaces.
8. Other Vitamin A-Rich Fruits and Vegetables	Examples: Carrots, orange-fleshed sweet potatoes, pumpkins, ripe mangoes	Moderate impact; root vegetables like carrots and sweet potatoes have low water needs, while tropical fruits like mangoes may require more water and land.
9. Other Vegetables	Examples: Cabbage, tomatoes, onions, green peppers	Low to moderate impact; vegetables like cabbage and tomatoes are water-intensive if not grown locally, but most vegetables have relatively low-impact.
10. Other Fruits	Examples: Bananas, pawpaws, oranges, avocados	Moderate to high impact; bananas and avocados require significant water and land, while pawpaws and oranges have a lower impact when grown locally.

Healthy and sustainable diets in school feeding aim to provide nutritious, safe, and culturally appropriate meals while minimizing environmental impact. They address both undernutrition and overnutrition, thus promoting children's health and long-term well-being.

Key Aspects:

1. Minimum Dietary Diversity
 - o School meals should include a variety of food groups (e.g., cereals, pulses, vegetables, fruits, and proteins) to meet children's nutritional needs and prevent malnutrition. Ensuring dietary diversity supports children's cognitive development and strengthens immune systems.
2. Preventing Undernutrition and Overnutrition
 - o Undernutrition: Meals must provide adequate calories and micronutrients to combat stunting and wasting, particularly in food-insecure areas.
 - o Overnutrition: To prevent childhood obesity, school meals should limit processed foods, refined sugars, and unhealthy fats, encouraging balanced portions.

3. Sustainable and Local Sourcing
 - o Home-grown school feeding programs link meal provision with local agriculture, reducing the carbon footprint, supporting smallholder farmers, and promoting food system resilience.
4. Food Safety and Sustainability
 - o Safe handling, procurement policies, and waste reduction practices (e.g., composting or minimizing food waste) ensure food security and align with sustainable goals.

How Dietary Choices Impact the Environment and Long-Term Health

Dietary choices directly affect both the environment and long-term health (figure 2 and 3 in the next page). Diets high in processed foods and animal products often require more resources like water and land, leading to higher carbon emissions and environmental degradation. On the other hand, diets rich in plant-based, locally sourced foods not only reduce environmental impact but also lower the risk of chronic diseases such as heart disease, diabetes, and obesity. Making sustainable dietary choices helps to protect the planet and promotes better health over time.

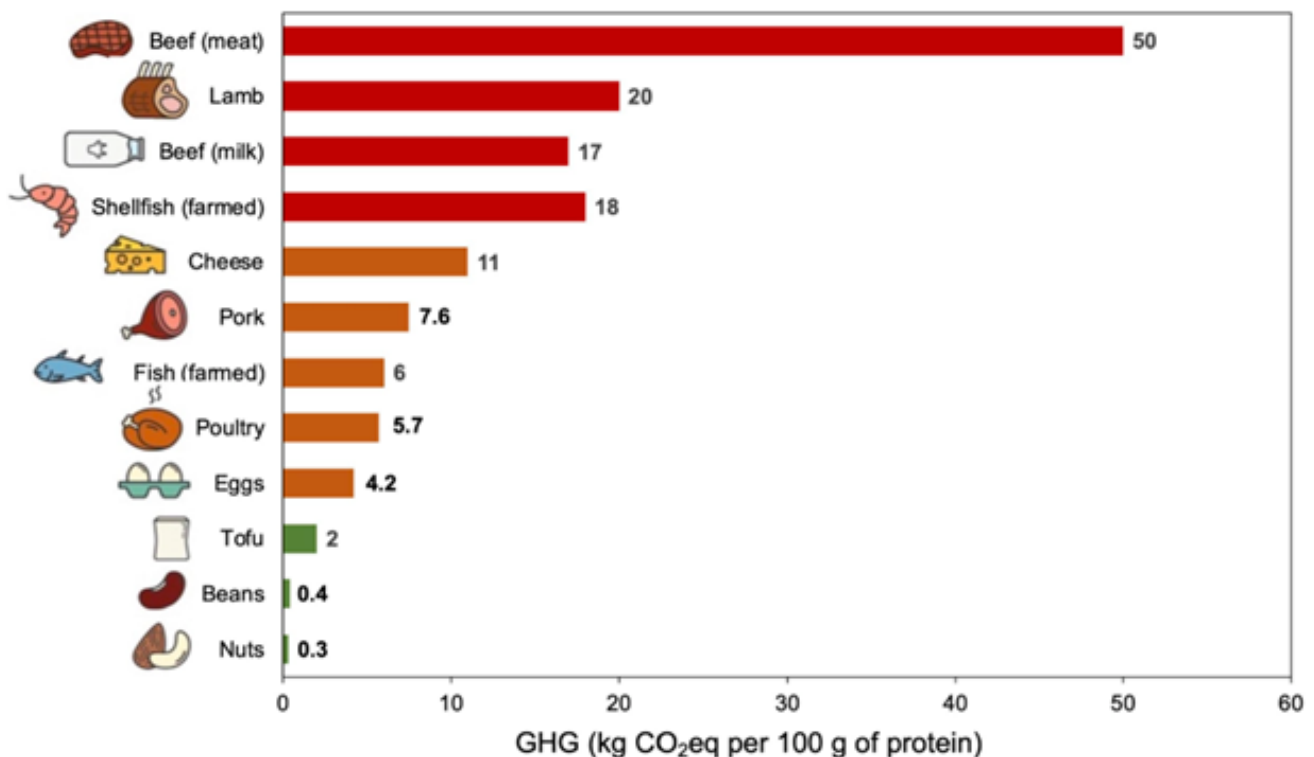


Figure 2: Comparison of Green House Gas (GHG) levels generated during the production of different protein sources.

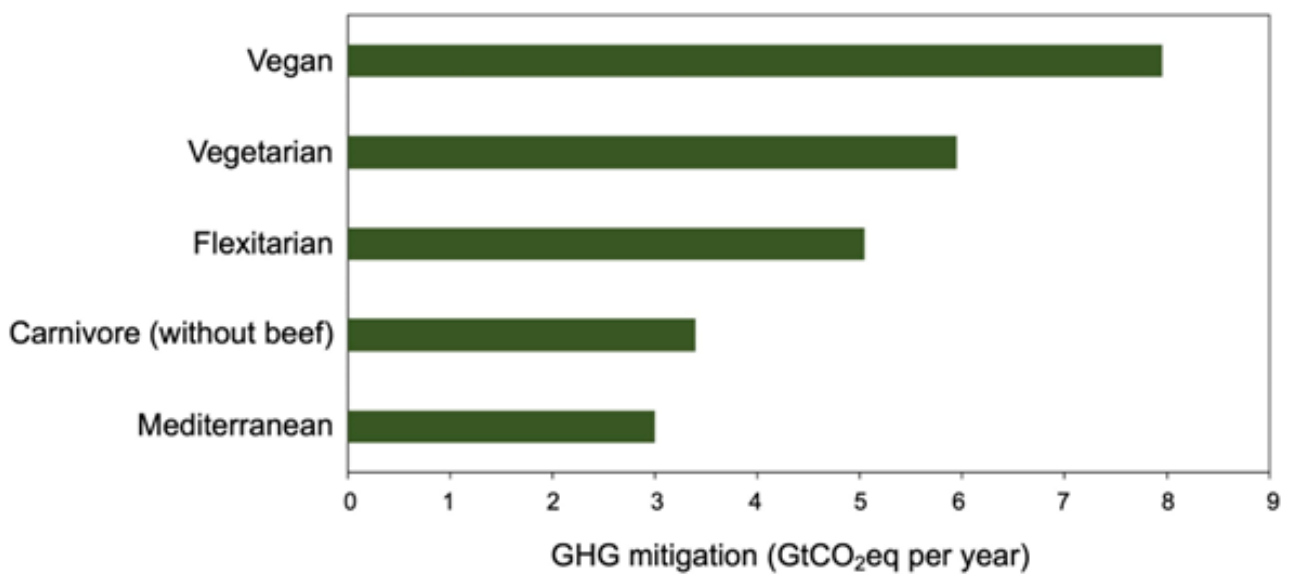


Figure 3: Potential for mitigation of GHG emissions by different types of diets. Adapted from IPCC (2019).

Agroecology

Agroecology is an approach to farming that works with nature to grow food in a sustainable and environmentally friendly way. It combines traditional agricultural practices with modern science to promote healthy soils, conserve water, protect biodiversity, and reduce the use of chemical fertilizers and pesticides. By focusing on diverse crops, natural pest control, and soil health, agroecology aims to create farming systems that are productive, resilient, and beneficial for both people and the planet.

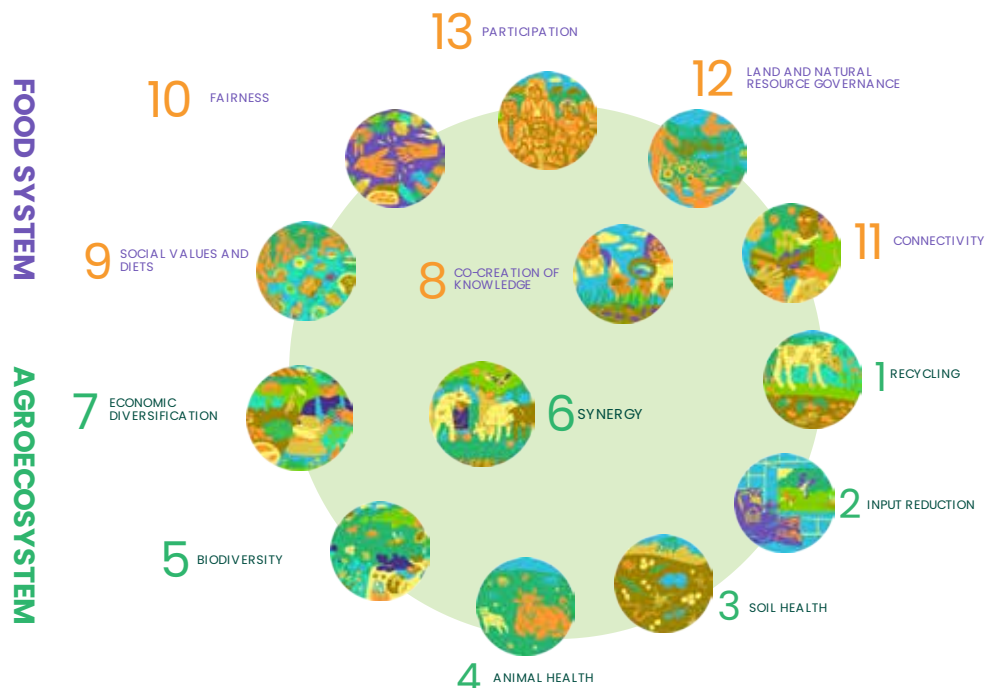


Figure 4: The 13 Principles of agroecology (HPLE, 2019).

The 13 principles of agroecology focus on building sustainable and resilient food systems:

1. **Recycling:**
Make use of local resources and recycle nutrients to improve soil.
2. **Input Reduction:**
Cut down on chemical inputs, using natural alternatives.
3. **Soil Health:**
Boost soil fertility with organic matter and natural methods.
4. **Animal Health:**
Prioritize the well-being of animals in farming systems.
5. **Biodiversity:**
Encourage a variety of plants and animals to maintain balance in ecosystems.
6. **Synergy:**
Promote interactions between crops and livestock that benefit the farm.
7. **Economic Diversification:**
Help farmers earn from different sources to stay resilient.
8. **Knowledge Sharing:**
Combine local know-how with scientific insights for better farming.
9. **Social Values:**
Support healthy and culturally appropriate diets in communities.
10. **Fairness:**
Ensure fair treatment, access to resources, and equity in food systems.
11. **Connectivity:**
Build strong connections between local farmers and consumers.
12. **Resource Governance:**
Guarantee fair access to land and resources for sustainable use.
13. **Participation:**
Engage communities in decision-making and planning.

Module 1: Workbook

Healthy and sustainable diets

Worksheet 1: Defining Sustainable Healthy Diets

Objective:

To help participants define and understand what a sustainable healthy diet is.

1. How would you define a sustainable healthy diet that supports both health and the environment?
2. What key elements do you think are essential for a diet to be sustainable and healthy? (Think about factors like local sourcing, seasonal foods, waste reduction, and minimizing processed foods.)

Worksheet 2: Sustainable vs Unsustainable Foods

Objective:

To help participants compare sustainable and unsustainable food choices.

1. What foods do you consider sustainable?
2. What foods do you think are unsustainable?

Worksheet 3: Impact of Dietary Choices on Health and Environment

Objective:

To help participants analyze the impact of different food choices on both health and the environment.

Instructions

The following table has a list of common food items. For each item, indicate its impact on health and the environment by checking the boxes.

Food Group	Positive for Health	Negative for Health	Low Environmental Impact	High Environmental Impact
Grains, Roots, and Tubers	☐	☐	☐	☐
Pulses (e.g., beans, lentils)	☐	☐	☐	☐
Nuts and Seeds	☐	☐	☐	☐
Dairy	☐	☐	☐	☐
Meat and Poultry	☐	☐	☐	☐
Fish and Seafood	☐	☐	☐	☐
Eggs	☐	☐	☐	☐
Dark Green Leafy Vegetables	☐	☐	☐	☐
Other Vegetables	☐	☐	☐	☐
Fruits	☐	☐	☐	☐
Processed Foods	☐	☐	☐	☐

Hints:

Positive for Health:

- **Definition:**
Foods that provide essential nutrients and contribute to overall health, supporting growth, immune function, and reducing disease risk.
 - **Examples:** Fresh vegetables (e.g., kale, spinach), fruits (e.g., mangoes, oranges), legumes (e.g., beans, lentils), and whole grains (e.g., maize, sorghum).
- Negative for Health:

- **Definition:**
Foods that are high in unhealthy fats, sugars, and salt, contributing to poor health outcomes such as obesity, heart disease, and diabetes.
- **Examples:** Processed snacks (e.g., mandazi, crisps), fast foods (e.g., fried chicken, chips), and sugary drinks.

Low Environmental Impact:

- **Definition:**
Foods that require fewer natural resources (like water and land) and contribute less to pollution and greenhouse gas emissions, making them environmentally sustainable.
 - **Examples:** Locally grown vegetables (e.g., sukuma wiki, spinach), legumes (e.g., beans, lentils), and whole grains (e.g., sorghum, millet).
- High Environmental Impact:

- **Definition:**
Foods that consume large amounts of natural resources or generate significant pollution and emissions, making them less sustainable.
- **Examples:** Red meat (e.g., beef, goat), dairy (e.g., cheese, milk), and large-scale fish production (e.g., farmed tilapia).

Worksheet 4: Group Reflection

Objective:

To encourage participants to reflect on their own dietary choices and commit to changes that align with sustainability.

1. What foods in your diet support sustainability and health, and which ones might have a negative impact?
2. What changes could you make to eat more sustainably, and what actions will you take this week?

Module 2:

Food Security in Informal Settlements

Introduction

This module addresses food security challenges in informal settlements, providing Community Organized Groups (COGs), Micro and Small Enterprises (MSEs), and Smallholder Farmers (SHFs) with information on strategies to improve access to affordable, nutritious food. These stakeholders play essential roles in creating resilient food systems and reducing hunger within communities.

Objective

To identify food security challenges in informal settlements and explore ways in which COGs, MSEs, and SHFs can contribute to sustainable food access solutions, in collaboration with schools.

Key Learning Points:

- i. Barriers to food security in informal settlements.
- ii. The importance of access to nutritious, affordable, and locally sourced food.
- iii. How schools can support community food security initiatives.

Activities:

- i. **Case Study:** Present a real-world example where a school in an informal settlement collaborates with COGs, MSEs, or SHFs on food security initiatives, such as initiating a school garden or a local feeding program.
- ii. **Group Discussions:** Facilitate discussions for each group to identify specific food security challenges in Nairobi's informal settlements and brainstorm tailored solutions, focusing on how schools can act as partners.
- iii. **Role-Playing Exercise:** Participants take on roles as COG members, MSE owners, SHFs, or school representatives to practice developing collaborative food security initiatives, like sourcing local produce for school meals.

Materials:

- i. **Case Study Handouts:** Examples of successful school-community partnerships that improve food security.

- ii. **Worksheets:** Identify food security barriers and potential solutions that involve COGs, MSEs, and SHFs.

Delivery methods

- i. **Case Study Presentations:** Use examples of schools working with COGs, MSEs, and SHFs in informal settlements to strengthen food security.
- ii. **Small Group Discussions:** Organize groups to discuss food security barriers in Nairobi's informal settlements and identify practical ways each group (COGs, MSEs, SHFs) can partner with schools.
- iii. **Worksheets:** Encourage participants to document barriers and proposed solutions tailored to their roles.
- iv. **Interactive Sessions:** Facilitate interactive discussions on providing nutritious, affordable, and locally sourced food in informal settlements.
- v. **Role-Playing:** Simulate collaborative scenarios where COGs, MSEs, and SHFs partner with schools to implement food security solutions.

Learning Outcomes:

By the end of this module, participants will be able to:

- i. Explain the barriers to food security in informal settlements, particularly in the context of Nairobi, from the perspectives of COGs, MSEs, and SHFs.
- ii. Articulate the importance of ensuring access to nutritious, affordable, and locally produced food, with each group's role in enhancing food security.
- iii. Propose practical, collaborative solutions where COGs, MSEs, and SHFs can work alongside schools to improve food security, fostering sustainable, community-based food solutions.

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Barriers to Food Security in Informal Settlements

Food security in informal settlements faces many challenges. Low income and poverty make it hard for people to buy nutritious food, so they often rely on cheaper, less healthy options. Fresh food is not easily available due to a lack of nearby markets, and poor infrastructure makes storing food difficult. Unstable jobs mean families may not always have enough money to buy food regularly, and high food prices make things worse. Environmental problems like floods can also disrupt food supplies, and limited knowledge about nutrition makes it harder for people to eat balanced meals.

The Importance of Access to Nutritious, Affordable, and Locally Produced Food

Access to nutritious, affordable, and locally produced food is vital for promoting health and well-being, especially in low-income communities. Nutritious food ensures that individuals receive the vitamins and minerals they need for proper growth, development, and disease prevention. When food is affordable, it becomes accessible to a broader population, reducing the risk of hunger and malnutrition. Locally produced food supports the local economy, reduces the environmental impact of long-distance food transport, and often ensures fresher, more nutrient-rich options. Additionally, supporting local food systems can increase food security by making communities less reliant on external sources.

How Schools Can Support Community Food Security Initiatives

- **Incorporating Local Food in School Meals:**
Schools can source food from nearby farmers and local suppliers, including kitchen garden produce, to provide students with fresh, nutritious meals. This approach supports local agriculture in Kenya and neighboring counties, fostering community resilience and reducing reliance on distant food sources.
- **Establishing School Gardens:**
Schools can grow fruits and vegetables on-site, providing both food for meals and educational opportunities for students to learn about agriculture and sustainability. This can be done in collaboration with local small holder farmers.
- **Partnering with Community Organizations:**
Collaborating with local food security groups, NGOs, and government initiatives can strengthen efforts to provide nutritious meals to students and their families.
- **Hosting Nutrition and Cooking Workshops:**
Schools can offer workshops for students and their families to educate them on healthy eating habits, food preparation, and making the most of local, affordable ingredients.
- **Creating Food Donation Programs:**
Schools can organize food drives or partner with local food banks to support families in need, ensuring that no child goes hungry.
- **Involving Students in Food Security Initiatives:**
Engaging students in food security efforts, for example, helping them in creating school gardens or participating in food distribution, fosters a sense of community responsibility and promotes long-term sustainability.
- **Advocating for Policy Change:**
Schools can advocate for policies that improve food access and support sustainable agriculture in the local community.

Module 2: Workbook

| Food Security in Informal Settlements

Worksheet 1: Identifying Barriers to Food Security

Objective:

To help participants identify the barriers to food security in informal settlements.

1. What does food security mean to you, and what does it mean to be food secure?
2. What barriers do you think prevent people in informal settlements from having secure access to food?

Worksheet 2: Solutions for Improving Food Security

Objective:

To help participants brainstorm and compare solutions for improving food security in informal settlements.

Instructions:

Below are two columns. In the first column, list actions schools can take to improve food security. In the second column, list community-based actions for food security improvement. Discuss as a group.

School-Based Actions	Community-Based Actions
01. _____	01. _____
02. _____	02. _____
03. _____	03. _____

Worksheet 3: Impact of Schools on Food Security

Objective:

To help participants assess how schools can influence food security.

1. How can schools contribute to improving food security in their communities?
2. What specific activities could schools implement to increase food access, promote nutrition, and build community resilience?

Worksheet 4: Group Reflection

Objective:

To encourage participants to reflect on food security challenges and solutions.

Instructions: Reflect on your community's food security situation and answer the following questions.

1. What partnerships can you establish to improve food security in your community?
2. List three actions you will take to enhance food security in your community:
 1. _____
 2. _____
 3. _____

Module 3:

| Basic Nutrition for School-Going Children

Introduction

This module will equip COGs with essential knowledge on nutrition for school children, emphasizing the importance of healthy meals, dietary diversity, and food safety to support children's growth, learning, and well-being.

Objective

To help participants identify the nutritional needs of school-aged children, the role of healthy meals, and the importance of including foods from key food groups for optimal development and academic performance.

Key Learning Points

1. Definition of key nutrients (carbohydrates, proteins, fats, vitamins, minerals) and their functions.
2. Importance of including foods from various food groups for dietary diversity.
3. Use of food composition tables to ensure nutrient adequacy in meal planning.
4. Addressing common nutritional challenges such as iron and vitamin A deficiencies.
5. Complementary strategies like deworming and vitamin A supplementation to support child health.
6. Managing overweight and obesity through portion control, healthy meals, and physical activity.

Activities

1. **Discussion Session:** Identify key nutrients and their sources from the various food groups.
2. **Group Activity:** Plan a daily meal for a school-going child using foods from various food groups and check nutrient adequacy using food composition tables.
3. **Discussion on Complementary Strategies:** Explore the importance of deworming and supplementation alongside a balanced diet.

Materials

- i. Nutritional charts showing daily nutrient needs and food groups.

- ii. Food composition tables for accurate nutrient planning.
- iii. Worksheets for meal planning with prompts for food group inclusion.

Delivery Methods

- i. **Interactive Lecture:**
Present nutrient functions and the role of the various food groups in balanced meals.
- ii. **Group Discussions:**
Discuss the impact of deworming and supplementation on child health.
- iii. **Meal Planning Activity:**
Groups create balanced meal plans using foods from at least 4-5 food groups to ensure diversity and address overweight/obesity.
- iv. **Visual Aids:**
Use charts to illustrate food groups, nutrient needs, and common deficiencies.
- v. **Worksheets:**
Guide participants to develop diverse meal plans.

Learning Outcomes

By the end of the module, participants will be able to:

1. Identify essential nutrients and their sources from various food groups.
2. Plan balanced meals ensuring dietary diversity from at least 4-5 food groups.
3. Appreciate the role of deworming, supplementation, and healthy diets in managing malnutrition and preventing overweight/obesity.

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Food Nutrients

Nutrients in food are essential for the growth, repair, and proper functioning of the body. No single food provides all the nutrients the body needs, making it important to consume a diverse diet. Nutrients support bodily functions like energy production, immunity, tissue repair, and maintaining body temperature. They are broadly categorized into macronutrients and micronutrients.

1. Macronutrients

Macronutrients are needed in large amounts and include carbohydrates, proteins, and fats.

- **Carbohydrates:**
Include primary energy source found in starches (e.g., maize, potatoes) and sugars (e.g., fruits, honey) and fibre, a type of carbohydrate that aids digestion and supports blood sugar regulation.
- **Proteins:**
Composed of amino acids, which support growth, tissue repair, and production of enzymes and hormones. Sources include fish, meat, legumes, and nuts.
- **Fats:**
Provide long-lasting energy and support brain function. Saturated fats (in meat and dairy) should be consumed in moderation to avoid heart diseases. Unsaturated fats are healthier than saturated fats. They come from avocados, fatty fish, peanuts, cashew nuts, and sesame seeds as well as from plant oils such as avocado oils, olive oils, peanut oil, sunflower oil, corn oil, and canola oil.

2. Micronutrients

Micronutrients are vitamins and minerals required in small amounts but are crucial for health.

- **Vitamins:**
 - Fat-soluble (A, D, E, K): Support immunity, vision, and bone health.
 - Water-soluble (B-complex, C): Aid metabolism and immune function. Vitamin C enhances iron absorption and promotes healing.
- **Minerals:**
 - Iron: Found in meat and leafy greens and it is essential for oxygen transport.
 - Calcium: Important for bones and teeth and it is present in dairy and some fish.
 - Zinc: Boosts immune function and supports tissue growth.

3. Water

Water, though not classified as a nutrient, is vital for hydration, temperature regulation, and transport of nutrients. The body loses water regularly, so it's important to drink enough fluids throughout the day. Maintaining a balanced intake of these nutrients ensures overall well-being and reduces the risk of malnutrition and chronic diseases.

Key Nutrients Essential for School-Going Children, their Functions, Sources, and effects of their deficiency

Nutrient	Function	Sources	Effects of Deficiency
Carbohydrates	Provide energy for physical activities and brain function	Maize, rice, potatoes, bread	Fatigue, poor concentration
Proteins	Support growth, tissue repair, and muscle development	Beans, lentils, eggs, fish, meat	Poor growth, weak immune system
Fats	Support brain development, provide long-lasting energy	Avocados, fish, groundnuts, cooking oils	Poor brain development, dry skin
Vitamin A	Supports vision and immune function	Carrots, orange-fleshed sweet potatoes, green leafy vegetables	Vision problems, increased risk of infections
Iron	Helps in blood production, prevents anemia	Red meat, liver, beans, spinach, fortified cereals	Anemia, fatigue, poor concentration
Calcium	Strengthens bones and teeth	Milk, yogurt, cheese, fish (with bones (Omena)), green leafy vegetables	Weak bones, dental issues
Vitamin D	Helps in calcium absorption, supports bone health	Sunlight, fortified dairy products, eggs, fish	Rickets, bone pain
Iodine	Supports thyroid function and brain development	Iodized salt, seafood	Cognitive impairment, goiter
Zinc	Boosts immune function and supports growth	Meat, beans, lentils, nuts	Poor immune response, slow growth

Food Groups

Food groups are clusters of foods that provide similar nutrients and serve the same functions in the body.



The following table provides a summary of the main food groups and their functions in the body based on FAO guidelines

Food Group	Examples	Functions in the Body
Grains, White Roots, and Tubers, and Plantains	Maize, rice, ugali (maize meal), white potatoes, cassava, chapati (wheat flour)	Provide energy through carbohydrates; essential for daily activities and brain function
Pulses (Beans, Peas, and Lentils)	Beans, green grams (mung beans), cowpeas, pigeon peas	Supply plant-based proteins; rich in fiber, which aids digestion and helps regulate blood sugar levels
Nuts and Seeds	Groundnuts (peanuts), sesame seeds, pumpkin seeds	Provide healthy fats and proteins; rich in essential fatty acids, which support brain health and skin integrity
Milk and Milk Products	Fresh milk, mala (fermented milk), powdered milk	Rich in calcium and vitamin D for bone health; provides proteins essential for growth and tissue repair
Meat, Poultry, and Fish	Beef, chicken, goat meat, omena (small fish), tilapia	High-quality protein source; provides iron and vitamin B12, essential for energy production and red blood cell formation
Eggs	Chicken eggs, quail eggs	Provide complete proteins; rich in choline, which supports brain development and liver function
Dark Green Leafy Vegetables	Sukuma wiki (collard greens), spinach, kunde (cowpea leaves), managu (African nightshade)	Rich in vitamins A, C, and K; provides iron and folate, which support immune function and prevent anemia
Other Vitamin A-Rich Fruits and Vegetables	Carrots, orange-fleshed sweet potatoes, pumpkins, ripe mangoes	High in vitamin A, which is crucial for eye health and immune function; also provides antioxidants to reduce cell damage
Other Vegetables	Cabbage, tomatoes, onions, green peppers	Provide a range of vitamins and minerals, including vitamin C; high in fiber, which supports digestion and satiety
Other Fruits	Bananas, pawpaws, oranges, avocados	Rich in vitamins C and E; provides natural sugars for energy and dietary fiber for digestive health

Key Messages

Proper nutrition is essential for the growth, health, and academic performance of school-going children. Providing balanced meals not only helps them thrive physically but also supports their learning and development. The following are key messages on basic nutrition for children:

- Children need meals that provide a mix of energy-giving foods, proteins, healthy fats, and vitamins. This balance supports their growth, helps them concentrate in class, and keeps them active throughout the day.
- School-going children need essential nutrients like calcium for strong bones, iron for healthy blood, and vitamins for their overall well-being. Including these in their meals helps prevent common deficiencies and boosts their learning ability.
- Nutritious meals not only fill children's stomachs but also help them stay focused and perform better in school. Schools should aim to provide foods that energize and support brain development.
- Teaching kids about different food groups and their benefits helps them make better food choices. Schools can include activities like gardening or cooking lessons to engage them in learning about nutrition.
- Using locally grown foods in school meals supports both children's nutrition and the local community. It also ensures that the food is fresh, familiar, and more likely to be eaten.
- Offering a mix of fruits, vegetables, whole grains, and proteins ensures children get all the nutrients they need. Eating a variety of food also keeps meals interesting and encourages kids to eat more healthily.

Healthy Eating Principles for school children

Planning children's meals according to healthy eating principles ensures the right type, quality, and quantity of food. The following principles should be considered:

1. Variety

- Include 4–5 food groups daily (e.g., grains, vegetables, proteins, fruits, and dairy or alternatives).
- Utilize affordable, locally available foods such as maize, beans, animal sources of protein, vegetables like sukuma wiki, and seasonal fruits.

2. Adequacy

- Meals should meet the child's energy and nutrient needs for growth and learning.
- Smaller children may need more frequent, smaller meals, such as porridge and fruits between meals.

3. Balance

- Combine carbohydrates, proteins, and vegetables in appropriate amounts. Example: A meal of ugali (maize meal), omena (small fish), and sautéed greens provides energy, protein, and essential micronutrients.

4. Energy Control (Calorie Management)

- Ensure meals provide enough energy without excess calories. School-going children require nutrient-dense foods to meet their needs with smaller portions.
- Example: Whole maize meal porridge with milk offers sustained energy and essential nutrients without overloading on calories.

5. Nutrient Density

- Nutrient dense foods are foods which are high in nutrients but relatively low in calories. For example, omena is rich in calcium, iron, and protein, offering more nutrients per serving than fried fish fillets. Similarly, boiled eggs are affordable, portable, and packed with protein and vitamins.
- Limit sugary snacks and fried foods, such as mandazi, which may be readily available but offer little nutritional value. Encourage healthier alternatives like roasted maize or fresh fruit.

6. Food Safety

- Promote hygiene during food preparation and storage to prevent contamination, especially where water and sanitation may be limited. Teaching children to wash their hands before eating is critical.

7. Minimal Processing

- Encourage the use of minimally processed foods to retain their nutritional value. Example: Whole maize instead of processed flour or fresh fruits instead of sugary juices.

Module 3: Workbook

| Basic Nutrition for School-Going Children

Worksheet 1: Understanding Key Nutrients for Children

Objective:

To help participants describe essential nutrients for children and their functions.

1. What are the key nutrients that school-going children need, and why are they important?
2. Can you give examples of foods rich in these essential nutrients?

Worksheet 2: Common Nutritional Deficiencies and their Impact

Objective:

To help participants identify foods that prevent common deficiencies in children.

Instructions:

Fill in the chart below with examples of foods to prevent deficiencies.

Deficiency	Impact on Health	Foods to Prevent Deficiency
Iron Deficiency	Fatigue, poor concentration	-----
Vitamin A Deficiency	Vision problems, increased infections	-----
Calcium Deficiency	Weak bones and teeth	-----
Protein Deficiency	Poor growth, weak immune system	-----

Worksheet 3: Planning a Balanced Meal for a School-Going Child

Objective:

To design a nutritious daily meal plan for children.

1. How would you plan breakfast, lunch, and dinner to ensure a balanced and diversified diet for a school going child?

Worksheet 4: The Role of Schools in Addressing Nutritional Challenges

Objective:

To explore how schools can improve children's nutrition.

Instructions:

In the next page put a tick in the boxes to indicate strategies that schools can implement.

Strategy	Check if Relevant
Offering balanced school meals	☐
Including nutrition education	☐
Creating school gardens	☐
Monitoring children's growth and health	☐

Worksheet 5: Group Reflection on Children's Nutrition**Objective:**

To reflect on children's nutrition and plan actions for improvement.

Instructions:

Reflect on the questions below and write your responses.

1. What nutritional challenges are common among school-going children in your community?
2. How can schools support children in meeting their nutritional needs?
3. What role can parents and the community play in ensuring children eat balanced meals?
4. List three actions you can take to promote better nutrition for children:

1. _____

2. _____

3. _____

Module 4:

The Role of Schools in Promoting Healthy Diets

Introduction

This module highlights the important role schools play in promoting healthy diets. It provides Micro and Small Enterprises (MSEs), Smallholder Farmers (SHFs), and Community Organized Groups (COGs) with strategies to support schools in offering nutritious meals and educating about healthy eating habits.

Objective:

To explore how schools can influence healthy dietary habits and act as centers of change for sustainable food practices.

Key Learning Points:

- i. The role of school meals in shaping children's eating habits.
- ii. How to integrate healthy, locally sourced foods into school feeding programs.
- iii. The benefits of incorporating nutrition education into the school curriculum.

Activities:

- i. **Role-Playing Activity:** Simulate a meeting between a school, parents, and local food suppliers on sourcing healthy and sustainable ingredients for school meals.
- ii. **Practical Exercise:** Design a sample school meal plan using sustainable, locally available foods.

Materials:

- i. Sample school meal plans.
- ii. Flipcharts and markers for group discussions.

Delivery methods

- **Role-Playing Activity:** Organize a simulation where participants role-play a meeting between a school, parents, and local suppliers to discuss sourcing healthy, sustainable ingredients for school meals.
- **Group Meal Planning Exercise:** Have participants work in groups to design a school meal plan using locally available, sustainable foods, and present their strategies.

- **Interactive Discussions:** Use flipcharts to facilitate discussions on how school meals shape children's eating habits and ways to incorporate nutrition education into the school curriculum.
- **Visual Aids:** Provide sample meal plans and visual guides on integrating local foods into feeding programs.

Learning Outcomes:

By the end of this module, participants will be able to:

- i. Describe how school meals influence children's eating habits and contribute to the development of lifelong healthy dietary patterns.
- ii. Develop strategies to effectively integrate healthy, locally sourced foods into school feeding programs, enhancing nutrition and sustainability.
- iii. Explain the importance of incorporating nutrition education into the school curriculum and its role in promoting healthy eating habits among students.

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The Role of School Meals in Shaping Children's Eating Habits

School meals play a crucial role in shaping children's eating habits by providing consistent access to nutritious food. They offer an opportunity to introduce healthy, balanced meals that can influence children's long-term food preferences and behaviors. By offering a variety of fruits, vegetables, and whole grains, school meals help establish positive eating patterns, teach children the value of good nutrition, and can contribute to reducing childhood obesity and other diet-related health issues.

How to Integrate Healthy, Locally Sourced Foods into School Feeding Programs

Integrating healthy, locally sourced foods into school feeding programs involves partnering with local farmers and suppliers to provide fresh, seasonal produce. Schools can create meal plans that prioritize fruits, vegetables, grains, and proteins grown or produced within the locality. Educating staff on preparing simple, nutritious meals using these ingredients is essential, along with engaging in the process through school gardens or food education programs. This approach supports local economies, reduces the environmental footprint, and improves the nutritional quality of school meals.

The Benefits of Incorporating Nutrition Education into the School Curriculum

Incorporating nutrition education into the school curriculum helps children develop lifelong healthy eating habits. It teaches them about the importance of diverse diets, the nutritional value of different foods, and how food choices affect their health. By learning how to make informed decisions, learners are more likely to adopt healthier eating patterns, which can reduce the risk of obesity, malnutrition, and other diet-related diseases and disorders. Additionally, nutrition education fosters a better understanding of food sustainability and encourages mindful eating, benefiting both personal health and the environment.

Module 4: Workbook

| The Role of Schools in Promoting Healthy Diets

Worksheet 1: The Impact of School Meals on Children's Eating Habits

Objective:

To help participants explore how school meals influence learners' dietary behaviors.

1. How do you think school meals influence children's eating habits and attitudes toward healthy eating?
2. What specific actions can schools take to promote healthy diets for learners?

Worksheet 2: Incorporating Healthy Foods into School Feeding Programs

Objective:

To help participants plan the integration of healthy foods in school meals.

1. What healthy, locally sourced foods would you include in school meals?
2. What types of foods would you minimize or avoid in school menus to promote good health?

Worksheet 3: Planning a School Meal with Local Ingredients

Objective:

To help participants design a nutritious school meal plan using local food.

1. How would you plan a balanced school meal for children using local ingredients from at least 5 of the FAO food groups?

Worksheet 4: The Importance of Nutrition Education in Schools

Objective:

To help participants appreciate the value of nutrition education.

1. What do you think are the most important benefits of teaching nutrition in schools?
2. How could nutrition education influence children's long-term health and food choices?

Worksheet 5: Group Reflection on Schools as Change Agents

Objective:

To encourage participants to reflect on how schools can promote healthy diets.

1. In what ways can schools in your community promote healthy eating habits and engage students in learning about nutrition?
2. What partnerships and actions could schools take with local farmers or businesses to improve learners' diets?

Module 5:

Practical Cooking and Food Preparation Techniques, and Food Safety and Hygiene

Introduction

This module provides practical guidance on cooking, food preparation techniques, and food safety. It equips **Community Organized Groups (COGs)** with skills to prepare nutritious, safe meals, ensuring high standards in food handling for community and school feeding programs. It also covers essential procurement procedures for sourcing quality ingredients and implementing quality control to ensure food safety.

Objective

Participating to carry out practical cooking techniques that promote health and sustainability, with an emphasis on safe sourcing and quality control.

Key Learning Points

- i. How to prepare nutritious meals using locally available ingredients from various food groups to ensure dietary diversity and nutrient balance.
- ii. Methods to reduce food waste during preparation and cooking.
- iii. Understanding portion sizes, nutrient balance, and food safety in school meals.
- iv. Importance of procurement procedures for sourcing safe, quality ingredients and implementing quality control measures.
- v. Integration of food safety practices, such as hygiene standards and proper food storage, to maintain high quality.

Activities

- i. **Demonstration on Cooking:** Show participants how to prepare a simple, nutritious meal using affordable, locally sourced ingredients, ensuring proper handling, safety, and quality control throughout.
- ii. **Hands-on Activity:** Participants work in small groups to cook the chosen meal, focusing on minimizing food waste, applying quality control, and maintaining hygiene standards.

- iii. **Discussion on Sourcing and Quality Control:** Explore strategies for sustainable procurement of various ingredients of meals, maintaining consistent quality, and engaging the community in efficient sourcing practices.

Materials

- i. Local ingredient lists with procurement guidelines.
- ii. Cooking equipment and ingredients for demonstrations.

Delivery methods

- i. **Cooking Demonstration:** Conduct a live demonstration on preparing a simple, nutritious meal using locally available ingredients, highlighting quality control and safe food handling.
- ii. **Hands-On Cooking Activity:** Organize participants into small groups to prepare the meal, focusing on reducing food waste, nutrient balance, and applying food safety and quality standards.
- iii. **Visual Aids:** Use ingredient lists, procurement checklists, and portion size charts to guide participants in meal planning, sourcing, and quality control.
- iv. **Group Discussions:** Facilitate discussions on sourcing methods, procurement practices, quality control, and food safety in school meal preparation.

Learning Outcomes

By the end of this module, participants will be able to:

- i. Prepare nutritious meals using affordable, locally available ingredients that support both health and sustainability.
- ii. Reduce food waste during meal preparation and cooking, ensuring minimal environmental impact.
- iii. Explain appropriate portion sizes, nutrient balance, procurement procedures, quality control, and food safety practices when preparing school meals to meet learners' dietary needs.

How to Prepare Nutritious Meals Using Locally Available Ingredients

- Use seasonal fruits and vegetables for freshness and affordability.
- Incorporate locally grown whole grains like maize or millet.
- Include plant-based proteins such as beans and lentils.
- Add indigenous greens like amaranth for vitamins and minerals.
- Enhance flavour with local spices and herbs like garlic and ginger.
- Balance proteins, carbohydrates, and vegetables for a complete meal.
- Use quick cooking methods like steaming to preserve nutrients.

Cooking methods

The common cooking methods include:

- **Boiling:**
Food is covered or almost covered by water, and the water is heated to boiling point (100°C). This method is suitable for cooking large joints of meat e.g. beef, leg of mutton, leg of pork, tough chicken; cereals and pulses; vegetables with strong fiber or a course flavor; roots, tubers and bananas.
- **Stewing:**
Food is cooked gently over low heat in a small quantity of liquid. Stewing may take 1.5–2 hours. This method is suitable for cooking tough cuts of meat, fish, certain fruits and vegetables.
- **Steaming:**
This is cooking with steam in a container above boiling water. This method minimizes nutrient and flavor losses. Steaming can be used to cook fish, tender cuts of meat, vegetables (cabbage, cauliflower, broccoli, pumpkin) and bananas.
- **Baking:**
Food is cooked using dry heat in a closed oven, heated by gas, electricity or charcoal. It is suitable for large joints of meat; whole chicken, mutton, pork, flour mixtures, cakes, bread, cookies, roots and tubers.
- **Frying:**
Food is cooked in fat or oil. It can either be deep fried or shallow fried. Frying is suitable for small portions of tender food such as steak, pan cakes, doughnuts, mandazi, chips and crisps.
- **Braising:**
Involves browning meat or vegetables in a small amount of oil or fat in high heat. The food is then slowly cooked under low heat, in

a covered utensil, in or on top of the stove, using a small quantity of liquid.

- **Poaching:**
Food is placed in sufficient hot liquid to barely cover it, and then it is left to simmer. Poaching is suitable for foods that require low temperature or require gentle handling such as fish and eggs. It is a good method as fat is not used and delicate food does not disintegrate.
- **Roasting:**
Food is cooked using dry heat in front of, or over a glowing source of heat. This method is suitable for meat, chicken; roots, tubers, bananas and green maize.
- **Sprouting:**
Seeds or legumes are soaked and germinated, making them easier to digest and increasing their nutrient content.
- **Fermentation:**
Foods undergo controlled fermentation to enhance flavor, texture, and digestibility. Common for cereals and legumes.

Methods to Reduce Food Waste During Preparation and Cooking

- **Plan Meals Ahead:**
Prepare only what is needed by planning portion sizes.
- **Use the Whole Ingredient:**
Utilize all parts of vegetables, like stems and peels, in soups or broths.
- **Store Food Properly:**
Keep leftovers in airtight containers to extend freshness.
- **Compost Scraps:**
Convert inedible food scraps into compost for gardening.

Portion Sizes and Nutrient Balance in School Meals

- **Age-Appropriate Portions:**
Serve portions based on the age and energy needs of children, ensuring they receive adequate nutrients without overeating.
- **Balance Food Groups:**
Include appropriate amounts of proteins, carbohydrates, and vegetables to ensure a balanced meal.
- **Use Visual Cues:**
Divide the plate into sections, with half for vegetables, one-quarter for proteins (e.g., beans or meat), and one-quarter for carbohydrates (e.g., grains or root vegetables).

children receive a wide range of nutrients from different sources.

- Limit Sugars and Fats:
Ensure meals are low in added sugars and unhealthy fats, focusing on nutrient-dense foods.

Key messages

The following messages should be used as a guide to prepare meals correctly so as to retain their nutrient content.

- Cook vegetables for a short time or steam them.
- Add food to boiling water rather than cold water where applicable, e.g. when cooking vegetables.
- Whenever possible, use alternative methods of cooking instead of deep frying.
- Add nutrient absorption enhancers such as oil to meals that include vitamin A rich foods, and foods rich in vitamin C in diets with non-haem iron and calcium.
- Chop vegetables and fruits just before cooking or eating. Vegetables and fruits should be eaten as fresh as possible.
- When cooking vegetables, use minimal water and do not drain water from the food after cooking.
- Peel root vegetables as little as possible e.g. Irish potatoes and carrots.
- Do not use bicarbonate of soda in vegetables since it destroys vitamins B & C.
- Presence of inhibitors such as tannins, phytates and oxalates in some cereals, legumes, and vegetables are known to reduce iron absorption. Fermentation and germination is recommended for cereals and legumes.
- Oxalates are also known to inhibit calcium absorption in the body. Therefore, chop up vegetables high in oxalates before cooking.
- Soya is a good source of protein, but its availability is inhibited by trypsin inhibitor. Heat treatment of soya helps destroy the trypsin inhibitor.
- When cooking pulses, soak them overnight in cold water to soften them, reduce cooking time and increase digestibility while reducing stomach discomfort.
- Add ground or powder form of the legumes to mixed dishes to make them nutrient dense.
- Use energy-saving techniques like the use of briquettes over firewood for cooking to conserve energy and reduce negative environmental impact.

- To conserve fuel, use energy efficient stoves and methods like steaming or pressure cooking to minimize energy use.

Food safety and hygiene

Meals should be prepared and handled in a safe and hygienic way that adheres to recommended food safety and hygiene standards. Food safety and hygiene measures prevent contamination and multiplication of microorganisms in food and in food preparation/storage areas.

1. Keep food preparation areas, serving and eating areas and utensils clean.

- Wash utensils and surfaces that have come into contact with meat, poultry or fish with hot water and soap before preparing other foods.
- If possible, use one chopping board for fresh produce like fruits and vegetables, and another one for raw meat, poultry and sea food.
- Keep rubbish in a covered bin, which is emptied regularly.
- If dish cloths are used, wash and air them daily.
- Use clean dishes and utensils to store, prepare, serve and eat food. Equipment, utensils and other containers should allow easy cleaning, and should not have pitted, grooved or sculpted surfaces.

2. Maintain high levels of personal hygiene when handling food.

- Wash hands with clean water and soap or ashes before, during and after preparing food or eating, and after visiting the toilet. Use a clean cloth or towel to wipe hands while in the kitchen.
- Keep fingernails short and clean.
- Wear clean clothes and clean aprons to protect other clothes.
- Keep hair covered and never comb it where food is being prepared or eaten.
- Cover all wounds with Band-Aids to prevent contamination of food during preparation and handling.
- When sneezing or coughing, cover the mouth and nose with a handkerchief or tissue.
- Do not use cooking spoons to taste food for flavor; avoid licking fingers, or touching the mouth, nose, ear or any part of the body when handling food.
- People suffering from infectious diseases such as diarrhea should not handle food.

- **Include Variety:**
Rotate ingredients and dishes to ensure children receive a wide range of nutrients from different sources.
- **Limit Sugars and Fats:**
Ensure meals are low in added sugars and unhealthy fats, focusing on nutrient-dense foods
- **Wash hands thoroughly after using the toilet and latrine.** Keep latrine clean, covered and free from flies when not in use.

3. Use clean, safe water for drinking and food preparation.

- Boil drinking water continuously for three minutes or treat it with an appropriate chemical.
- Store drinking water in a covered container that is cleaned at least once a week. The best container is one with a tap as this prevents dipping of hands and cups into the container.

4. Exercise extreme care about foods prepared and sold by vendors in the marketplace.

5. Cook raw foods, especially poultry, meats, eggs and unpasteurized milk thoroughly to kill pathogens.

- Cook all animal products such as meat, poultry, eggs and fish thoroughly; meat should have no red juices.
- Hard-boil eggs; avoid soft-boiled eggs, raw eggs, cracked eggs or any other food containing raw eggs.
- Remove the bruised part of fruit and vegetables to get rid of any mold and bacteria growing there.
- Wash foods, especially vegetables and fruits thoroughly with clean and safe water before cutting or chopping.
- Cover all food to keep pests, dust and other contaminants away.

Key messages

The following key messages should be used to inform and provide practical support on food processing and preservation:

- Apply methods of food processing correctly to prevent loss of important micronutrients.
- Use food materials and ingredients that meet recommended safety and quality standards during processing and preservation.
- Keep storage areas dry, cool and properly ventilated. Circulation of air around bags and cartons of foods aids the removal of

moisture, reduces temperature and eliminates odors. Check food stores regularly for cleanliness, and pest and rodent infestation.

- Store food using the First in–first out and first expiry–first out rules
- Store fresh food in a cool place or refrigerator in portions that can be cooked at once. If need be, thaw food in the fridge before cooking.
- Do not store raw food, especially meat, in contact with cooked food. Keep meat, poultry and fish separate from other foods to avoid contamination with bacteria and other disease-causing agents.
- Buy perishable food in small quantities unless a refrigerator is available.
- Eat food fresh after cooking. Keep leftovers in a cool place or refrigerator and reheat at a high temperature before eating.
- Serve food immediately after cooking. Hot foods should be kept hot, and cold foods cold.

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Module 5: Workbook

Practical Cooking Techniques, Food Preparation, and Food Safety

Worksheet 1: Cooking Methods

Objective:

To explore various cooking methods and their impact on nutrition.

1. How do different cooking methods, like boiling, steaming, frying, baking, and roasting impact the nutrition of various foods?
2. What cooking methods would you recommend for preserving nutrients while preparing meals?

Worksheet 2: Planning a Nutritious Meal with Local Ingredients

Objective:

To design a simple, nutritious meal using locally available foods.

1. How would you plan a simple, nutritious meal using locally available ingredients?

Worksheet 3: Reducing Food Waste in Meal Preparation

Objective:

To develop strategies for minimizing food waste.

Instructions:

Tick in the boxes for actions that help reduce food waste.

Action	Tick if Relevant
Use vegetable peels in soups and broths	☐
Plan portions to avoid overcooking	☐
Store leftovers properly for future use	☐
Compost inedible food scraps	☐
Encourage batch cooking to save ingredients	☐

Worksheet 4: Food Safety and Hygiene Practices

Objective:

To ensure food safety from preparation to serving.

1. What are some essential hygiene practices to follow from food preparation to serving?
2. How can proper storage and cooking techniques help prevent food contamination and spoilage?

Worksheet 5: Identifying Common Food Safety Mistakes

Objective:

To avoid food safety mistakes during meal preparation

1. What common food safety mistakes have you observed, and how might they impact health?
2. What steps can be taken to avoid these food safety mistakes during food preparation and serving?

Worksheet 6: Group Reflection on Cooking Techniques and Safety

Objective:

To reflect on the importance of practical cooking techniques and food safety.

1. How can you make nutritious meals using local ingredients?
2. What steps can you take to reduce food waste during meal preparation?
3. What actions will you take to ensure safe and sustainable cooking practices?

Module 6:

Creating a School Garden

Introduction

This module guides Community Organized Groups (COGs) on how to create and maintain school gardens. It offers practical steps for growing fresh produce, teaching learners about agriculture, and enhancing nutrition through locally sourced foods.

Objective:

To help learners grow their own food in school.

Key Learning Points

- i. How to start and maintain a small garden within the school.
- ii. The benefits of growing fruits and vegetables for school meals.
- iii. Involving students in garden maintenance as part of learning.

Activities:

- i. **Garden Planning:** As a group, plan a small school garden, discussing what to plant, where to plant it, and how to care for it.
- ii. **Practical Gardening:** In schools with space, students can help plant and maintain the garden. For those without, this could be a theoretical exercise.

Materials:

- i. Gardening tools, farm inputs (manure, water).
- ii. Seeds/seedlings of local fruits and vegetables.

Delivery methods

- i. **Group Planning Session:** Facilitate group discussions where participants plan a small school garden, deciding on what to plant, where to plant it, and how to care for the garden.
- ii. **Practical Gardening Activity:** If space permits, engage participants in hands-on planting and garden maintenance, allowing them to experience the process. For schools without enough space advise them to use innovative gardening techniques for example vertical gardens.

- iii. **Demonstration and Tool Use:** Provide demonstrations on how to use gardening tools, prepare soil, and care for plants, using local inputs such as manure and seeds.
- iv. **Visual Aids and Instructional Guides:** Use visual aids to explain the steps of creating and maintaining a garden, emphasizing sustainable practices and benefits for school meals.

Learning Outcomes:

By the end of this module, participants will be able to:

1. Describe how to start and maintain a small school garden for sustainable and cost-effective school meals.
2. Recognize the benefits of growing fruits and vegetables within the school, for enhancing the nutritional quality of school meals and promoting sustainability.
3. Engage learners in establishing school gardens for learning purposes.

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5. National Guidelines for Healthy Diets and Physical Activity 2017.
6. Hunter, D., Monville-Oro, E., Burgos, B., Rogel, C. N., Calub, B., Gonsalves, J., & Lauridsen, N. (2020). *Agrobiodiversity, School Gardens and Healthy Diets*. Routledge, Oxon, UK

How to Start and Maintain a Small Garden Within the School

Select a well-lit area with access to water. Use raised beds, containers, or pallets if space or soil quality is limited. Enrich the soil with compost or organic matter to enhance fertility. Choose climate-appropriate vegetables, fruits, and herbs. Incorporate agro-ecological practices such as crop rotation, mulching, and integrated pest management (IPM) to ensure food safety and reduce the need for chemical inputs. Regular watering, weeding, and pest monitoring are essential for plant health.

In dry areas, adopt water-saving techniques such as drip irrigation, which delivers water directly to plant roots, minimizing evaporation and runoff while improving water efficiency. Additionally, practices like rainwater harvesting and mulching help retain soil moisture, reducing the frequency and volume of irrigation needed. These approaches promote sustainable water use while ensuring optimal plant growth and productivity.

Engage learners, teachers, and parents through a rotating schedule for garden care. Parents may volunteer or hired labor can assist with maintenance. Implement post-harvest management practices such as sorting and grading, cleaning, and storage to prevent losses and ensure food safety for school meals.



Micro-garden



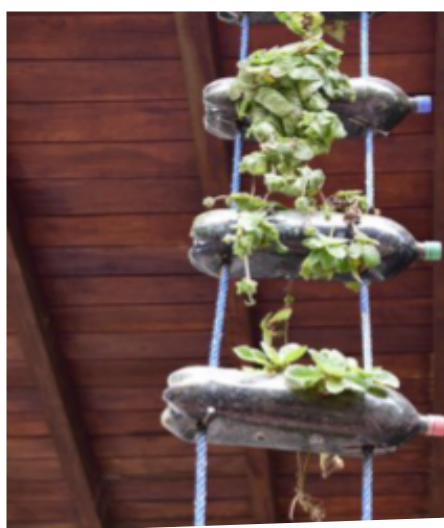
Tyre garden



Multi-storey garden



Sack-garden



Suspended-garden

The Benefits of Growing Fruits and Vegetables for School Meals

Growing fruits and vegetables for school meals offers numerous benefits. It ensures access to fresh, nutritious produce, contributing to balanced and healthy meals for learners. Locally grown produce reduces the school's dependence on external food suppliers, making meals more sustainable and cost-effective. It also provides an educational opportunity for students to learn about nutrition, sustainability, and food production. Additionally, growing food on-site minimizes transportation costs and environmental impact, promoting an eco-friendly approach to school meals.

Involving Learners in Garden Maintenance

Involving students in garden maintenance as part of their education fosters practical learning experiences. It helps them understand the principles of agriculture, sustainability, and nutrition, enhancing their connection to the food they eat. Working in the garden also teaches responsibility, teamwork, and problem-solving skills as students collaborate to care for plants and overcome challenges like pests or weather changes. Integrating gardening into the curriculum allows learners to apply lessons from subjects or learning areas for example science, social studies, and mathematics. This hands-on involvement promotes a sense of ownership and encourages lifelong habits of healthy eating and environmental stewardship.

Module 6: Workbook

Creating a School Garden

Worksheet 1: Planning a School Garden

Objective:

To design a simple garden that supports school meals.

1. Where would be the ideal location for a school garden that can support school meals?
2. What types of vegetables, fruits, and herbs would you choose to grow in a school garden?
3. What water sources could be used to sustain a school garden?

Worksheet 2: Weekly Garden Care Schedule

Objective:

To organize tasks for maintaining the garden.

Instructions:

List garden activities and assign them to specific days.

Day	Activity	Responsible Person/Group
Monday	-----	-----
Wednesday	-----	-----
Friday	-----	-----

Worksheet 3: Benefits of a School Garden

Objective:

To explore the benefits of growing food on school premises.

1. What do you think are the main benefits of having a school garden?

Worksheet 4: Managing Challenges in the Garden

Objective:

To identify solutions for common challenges experienced in gardening

Instructions: Suggest a solution to a potential challenges in gardening.

Challenge	Suggested Solution
Pests attacking crops	-----
Limited access to water	-----
Lack of gardening tools	-----
Poor soil quality	-----
Others (specify)	-----

Worksheet 5: Planning for harvesting and use of garden produce

Objective:

To plan how the garden's produce will be used.

1. How would you use the produce from a school garden to benefit the school and community?
2. Who could be involved in the harvest process to make it a learning experience?
3. What methods would you use to store or preserve any excess produce from the garden?

Worksheet 6: Group Reflection on Garden Creation and Sustainability

Objective:

To reflect on the value of school gardens and sustainability.

1. What are the benefits for learners and teachers in participating in a school garden?
2. What steps could you take to keep the garden thriving throughout the school year?

Conclusion and Next Steps

Wrap-Up Discussion:

- i. Review the key points from each module.
- ii. Ask participants to share their thoughts on how they will implement what they've learned in their schools.

Next Steps:

- i. Encourage schools to create action plans outlining how they will promote sustainable healthy diets moving forward.
- ii. Set up a follow-up schedule to assess progress and provide additional support as needed.

Additional Resources

- i. Handouts with further reading on sustainable food practices.
- ii. Links to online resources for creating sustainable diets and school feeding programs.

Further Reading on Sustainable and Healthy Food Practices

1. FAO and WHO. 2019. Sustainable healthy diets – Guiding principles. Rome.
2. <https://www.fao.org/platform-food-loss-waste/food-waste/food-waste-reduction/food-waste-reduction-resources/en>
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ANNEX I: WORKBOOKS: MARKING SCHEMES

Module 1

Worksheet 1: Defining Sustainable Healthy Diets

- *Question 1: Definition of a Sustainable Healthy Diet*

o A sustainable healthy diet is a diet that provides essential nutrients for good health while minimizing environmental impact. It includes diverse, locally sourced, seasonal foods, reduces waste, and limits reliance on processed foods.

- *Question 2: Key Elements of a Sustainable and Healthy Diet*

- o Key elements include:
- *Locally sourced and seasonal foods,*
 - *Waste reduction practices,*
 - *Supporting local food systems and farmers,*
 - *Minimizing processed foods.*

Worksheet 2: Sustainable vs. Unsustainable Foods

- *Question 1: Examples of Sustainable Foods*

- o Examples of sustainable foods include:
- *Locally grown vegetables and fruits (e.g., sukuma wiki, bananas),*
 - *Whole grains and roots (e.g., maize, millet, sweet potatoes),*
 - *Pulses (e.g., beans, lentils),*
 - *Plant-based foods and legumes.*
 - *Question 2: Examples of Unsustainable Foods.*

- o Examples of unsustainable foods include:
- *Highly processed snacks (e.g., crisps, sugary drinks),*
 - *Red meats with high environmental impact (e.g., beef),*
 - *Foods with high resource requirements (e.g., certain dairy products),*
 - *Foods requiring long-distance transport.*

Worksheet 3: Impact of Dietary Choices on Health and Environment

Food Group	Positive for Health	Negative for Health	Low Environmental Impact	High Environmental Impact
Grains, Roots, and Tubers	☒	☐	☒	☐
Pulses (Beans, Peas, and Lentils)	☒	☐	☒	☐
Nuts and Seeds	☒	☐	☒	☐
Dairy	☒	☐	☐	☒
Meat and Poultry	☒	☐	☐	☒
Fish and Seafood	☒	☐	☒	☐
Eggs	☒	☐	☒	☐
Dark Green Leafy Vegetables	☒	☐	☒	☐
Other Vegetables	☒	☐	☒	☐
Fruits	☒	☐	☒	☐
Processed foods	☐	☒	☐	☒

Worksheet 4: Group Reflection

- Question 1: Reflection on Current Diet
 - o Foods that support sustainability and health might include:
 - *Locally sourced vegetables, whole grains, legumes, and fruits.*
 - o Foods that may have a negative impact include:
 - *Highly processed snacks, red meat, sugary beverages.*
- Question 2: Actionable Changes for Sustainable Eating
 - o Possible changes and actions include:
 - *Choosing more local, seasonal produce.*
 - *Reducing consumption of processed foods.*
 - *Incorporating more plant-based meals.*
 - *Minimizing food waste through portion control and better storage.*

Module 2

Worksheet 1: Identifying Barriers to Food Security

- *Question 1: Definition of Food Security and Its Requirements*
 - o Food security means that all people have consistent access to sufficient, safe, and nutritious food that meets their dietary needs and preferences for an active, healthy life. This requires stable food availability, physical and economic access, and reliable food sources.
- *Question 2: Barriers to Food Security in Informal Settlements*
 - o Common barriers include limited access to affordable food, high food prices, poor food storage and distribution infrastructure, and unstable income sources.

Worksheet 2: Solutions for Improving Food Security

- *School-Based Actions*
 - o Examples of school-based actions include establishing school gardens, sourcing food from local farmers, implementing nutrition education programs, and organizing food donation drives.
- *Community-Based Actions*
 - o Examples of community-based actions include partnering with local farmers, promoting urban gardening, creating food cooperatives, and setting up community kitchens or food banks.

Worksheet 3: Impact of Schools on Food Security

- *Question 1: Schools' Role in Food Security*
 - o Schools can improve food security by providing nutritious meals, educating students about healthy eating, sourcing food locally, and raising awareness about food security within the community.
- *Question 2: Specific Activities for Food Access, Nutrition, and Resilience*
 - o Examples of specific activities include establishing a school garden, partnering with local farmers for fresh produce, offering nutrition workshops, and organizing food donation programs.

Worksheet 4: Group Reflection

- *Question 1: Partnerships for Food Security*
 - o Examples of partnerships include working with local farmers, food banks, non-profits, and local government agencies to improve food availability and support food security initiatives.
- *Question 2: Actions to Enhance Food Security*
 - o Examples of actions include starting a community garden, creating a local food distribution network, organizing food waste reduction campaigns, and hosting community workshops on food security.

Module 3

Worksheet 1: Understanding Key Nutrients for Children

- *Question 1: Key Nutrients and Their Importance*
 - o School-going children need carbohydrates (for energy), proteins (for growth and tissue repair), fats (for brain development and sustained energy), vitamins (such as Vitamin A, C, and D for immune health and growth), and minerals (like iron and calcium for blood health and bone strength).
- *Question 2: Examples of Foods Rich in Essential Nutrients*
 - o Examples include:
 - *Carbohydrates:* Rice, maize, potatoes
 - *Proteins:* Eggs, beans, chicken
 - *Fats:* Avocado, nuts, olive oil
 - *Vitamins:* Carrots (Vitamin A), oranges (Vitamin C)
 - *Minerals:* Spinach (iron), milk (calcium)

Worksheet 2: Common Nutritional Deficiencies and Their Impact

Deficiency	Impact on Health	Foods to Prevent Deficiency
Iron Deficiency	Fatigue, poor concentration	Spinach, beans, liver, fortified cereals
Vitamin A Deficiency	Vision problems, increased infections	Carrots, sweet potatoes, mangoes, spinach
Calcium Deficiency	Weak bones and teeth	Milk, yogurt, cheese, leafy greens
Protein Deficiency	Poor growth, weak immune system	Eggs, fish, chicken, lentils, beans

Worksheet 3: Planning a Balanced Meal for a School-Going Child

- *Question: How to Plan a Balanced Meal*
- o For a balanced meal plan:
 - *Breakfast: Whole-grain porridge (carbohydrate), boiled egg (protein), banana (fruit)*
 - *Lunch: Rice (carbohydrate), beans (protein), spinach (vegetable), avocado (healthy fat)*
 - *Dinner: Chapati (carbohydrate), chicken (protein), mixed vegetable stew (vegetables)*

Worksheet 4: The Role of Schools in Addressing Nutritional Challenges

- *Strategies Schools Can Implement*
- o Relevant strategies include:
 - *Offering balanced school meals,*
 - *Including nutrition education,*
 - *Creating school gardens,*
 - *Monitoring children's growth and health.*

Worksheet 5: Group Reflection on Children's Nutrition

- *Question 1: Common Nutritional Challenges*
- o Common challenges include inadequate access to nutrient-rich foods, reliance on processed foods, and limited knowledge about balanced diets.
- *Question 2: How Schools Can Support Nutrition*
- o Schools can support nutrition by offering balanced meals, providing nutrition education, and involving children in school gardens.
- *Question 3: Role of Parents and Community*
- o Parents and the community can ensure children eat balanced meals by providing nutritious food at home, reinforcing healthy habits, and supporting school initiatives.
- *Question 4: Actions to Promote Better Nutrition for Children*
- o Examples of actions include:
 - *Encouraging children to eat more fruits and vegetables.*
 - *Collaborating with local farmers to source fresh produce for schools.*
 - *Raising awareness about the importance of balanced meals within the community.*

Module 4

Worksheet 1: The Impact of School Meals on Children's Eating Habits

- *Question 1: Influence of School Meals on Eating Habits*
- o School meals influence children's eating habits by exposing them to a variety of nutritious foods, encouraging balanced diets, reinforcing healthy eating patterns, and shaping positive attitudes toward nutrition.

- *Question 2: Actions Schools Can Take to Promote Healthy Diets*
- o Schools can promote healthy diets by providing balanced meals, incorporating local produce, limiting processed foods, educating students on nutrition, and creating programs like school gardens.

Worksheet 2: Incorporating Healthy Foods into School Feeding Programs

- *Question 1: Healthy, Locally Sourced Foods for School Meals*
- o Examples include whole grains (e.g., maize, millet), leafy greens (e.g., sukuma wiki), fruits (e.g., bananas, mangoes), pulses (e.g., beans, lentils), and healthy fats (e.g., avocados).
- *Question 2: Foods to Minimize or Avoid in School Menus*
- o Foods to minimize or avoid include highly processed snacks (e.g., chips, sugary drinks), foods high in unhealthy fats (e.g., fried foods), and foods with excessive sugar or salt.

Worksheet 3: Planning a School Meal with Local Ingredients

- *Question: Planning a Balanced School Meal Using Local Ingredients*
- o Examples of a balanced meal:
 - *Grains: Ugali or rice*
 - *Pulses: Beans or lentils*
 - *Vegetables: Spinach or cabbage*
 - *Fruits: Banana or mango*
 - *Healthy Fats: Avocado or groundnuts*

Worksheet 4: The Importance of Nutrition Education in Schools

- *Question 1: Benefits of Teaching Nutrition in Schools*
- o Key benefits include improving children's food choices, reducing risk of obesity, encouraging lifelong healthy habits, promoting awareness of sustainable food practices, and fostering better academic performance.
- *Question 2: Impact of Nutrition Education on Long-Term Health and Choices*
- o Nutrition education helps children make informed food choices, builds a foundation for healthy lifelong habits, reduces risks of diet-related diseases, and promotes an understanding of the impact of food on health and the environment.

Worksheet 5: Group Reflection on Schools as Change Agents

- *Question 1: How Schools Can Promote Healthy Eating and Nutrition Education*
- o Schools can promote healthy eating by offering balanced meals, incorporating nutrition into the curriculum, setting up school gardens, involving students in meal planning, and organizing nutrition-focused events.
- *Question 2: Partnerships and Actions with Local Farmers or Businesses*
- o Examples include sourcing fresh produce from local farmers, partnering with businesses for food donations, organizing farm visits, and engaging local businesses in nutrition education initiatives.

Module 5

Worksheet 1: Understanding Cooking Methods

- *Question 1: Impact of Different Cooking Methods on Nutrition*
- o Boiling can lead to nutrient loss, especially water-soluble vitamins; steaming preserves most nutrients by minimizing water contact; frying adds fats and can reduce some nutrient content if overused; baking and roasting enhance flavors and can retain nutrients but may require longer cooking times.
- *Question 2: Recommended Cooking Methods for Nutrient Preservation*
- o Steaming and baking are recommended for preserving nutrients, as they minimize nutrient loss.

Cooking methods that require less water or shorter cooking times, such as stir-frying with minimal oil, are also beneficial.

Worksheet 2: Planning a Nutritious Meal with Local Ingredients

- *Question: Planning a Simple, Nutritious Meal Using Local Ingredients*
- o A nutritious meal could include maize (carbohydrate), beans (protein), spinach (vegetable), and avocado (healthy fat) with a side of mango for dessert. This meal provides balanced nutrition with locally available ingredients.

Worksheet 3: Reducing Food Waste in Meal Preparation

- *Actions That Help Reduce Food Waste*
- o Relevant actions include:
 - *Using vegetable peels in soups and broths,*
 - *Planning portions to avoid overcooking,*
 - *Storing leftovers properly for future use,*
 - *Composting inedible food scraps,*
 - *Encouraging batch cooking to save ingredients.*

Worksheet 4: Food Safety and Hygiene Practices

- *Question 1: Essential Hygiene Practices from Preparation to Serving*
- o Essential practices include washing hands thoroughly before handling food, using separate cutting boards for raw and cooked foods, cleaning utensils and surfaces regularly, and avoiding cross-contamination.
- *Question 2: Importance of Proper Storage and Cooking Techniques*
- o Proper storage prevents bacterial growth and spoilage (e.g., refrigerating perishable foods), and thorough cooking kills harmful bacteria, ensuring food is safe to consume.

Worksheet 5: Identifying Common Food Safety Mistakes

- *Question 1: Common Food Safety Mistakes and Their Health Impact*
- o Common mistakes include leaving cooked food at room temperature too long, using the same knife for raw and cooked foods, not washing fruits and vegetables, and handling food without washing hands. These can lead to foodborne illnesses due to bacterial contamination.
- *Question 2: Steps to Avoid Food Safety Mistakes*
- o Steps include refrigerating food promptly, using separate utensils and cutting boards for raw and cooked items, washing all produce thoroughly, and washing hands frequently during food preparation.

Worksheet 6: Group Reflection on Cooking Techniques and Safety

- *Question 1: Making Nutritious Meals Using Local Ingredients*
- o To make nutritious meals, focus on combining local ingredients from different food groups, like grains, proteins, and vegetables, ensuring a balanced intake of nutrients.
- *Question 2: Steps to Reduce Food Waste During Meal Preparation*
- o Steps include planning portions carefully, using leftovers creatively, and storing ingredients properly to extend their shelf life.
- *Question 3: Actions to Ensure Safe and Sustainable Cooking Practices*
- o Actions could include maintaining kitchen hygiene, using energy-efficient cooking methods, reducing packaging waste, and sourcing ingredients locally.

Module 6

Worksheet 1: Planning a School Garden

- *Question 1: Ideal Location for a School Garden*
 - o An ideal location for a school garden would be a sunny, open area with access to water and away from high traffic zones, ensuring plants get enough sunlight and are protected from damage.
- *Question 2: Types of Vegetables, Fruits, and Herbs to Grow*
 - o Suitable choices might include fast-growing, nutrient-dense plants like spinach, kale, tomatoes, carrots (vegetables); papayas or bananas (fruits); and herbs such as basil, mint, or coriander.
- *Question 3: Water Sources for Sustaining the Garden*
 - o Water sources could include rainwater collection, tap water, or using greywater recycling from school sinks (if safe and available) to ensure regular irrigation.

Worksheet 2: Weekly Garden Care Schedule

- *Example Weekly Schedule:*

Day	Activity	Responsible Person/Group
Monday	Watering and weeding	Gardening club
Wednesday	Fertilizing and pest control	Science class
Friday	Harvesting ripe produce, cleanup	Volunteer teachers and learners

Worksheet 3: Benefits of a School Garden

- *Question: Main Benefits of a School Garden*
 - o A school garden provides fresh produce for meals, teaches students about agriculture, reduces food expenses, promotes environmental awareness, and engages learners in hands-on learning.

Worksheet 4: Managing Challenges in the Garden

Challenge	Suggested Solution
Pests attacking crops	Use natural pest repellents (e.g., neem spray) or introduce beneficial insects like ladybugs
Limited access to water	Collect rainwater in barrels for irrigation or set up a drip irrigation system
Lack of gardening tools	Organize a tool donation drive or fundraise for basic equipment
Poor soil quality	Add compost or organic fertilizers to enrich the soil and improve plant growth

Worksheet 5: Planning for harvesting and use of garden produce

Objective:

To plan how the garden's produce will be used

- *Question 1: Using Produce to Benefit School and Community*
 - o The produce can be used in school meals, donated to local food banks, or sold to raise funds for school programs.
- *Question 2: Involving Participants in the Harvest Process*
 - o Learners, teachers, and parent volunteers could all participate in the harvest, making it a hands-on learning opportunity about food production and sustainability.
- *Question 3: Methods for Storing or Preserving Excess Produce*
 - o Excess produce could be stored in a cool, dry place, refrigerated, or preserved by methods like drying, pickling, or freezing, depending on the food type.

Worksheet 6: Group Reflection on Garden Creation and Sustainability

- *Question 1: Benefits for Learners and Teachers in Participating*
 - o Benefits include hands-on learning experiences, understanding food systems, promoting teamwork, and developing responsibility and environmental stewardship.
- *Question 2: Steps to Keep the Garden Thriving*
 - o Steps include regular watering, pest and weed management, and maintaining soil health with compost.
- *Question 3: Encouraging Sustainable Practices in the Community*
 - o A school garden can serve as a model, inspiring learners and families to grow their own food, practice composting, and understand sustainable food practices, which can reduce environmental impact and improve food security.



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