



Food and Agriculture
Organization of the
United Nations

NATIONAL TRAINING PACKAGE ON NUTRITION-SENSITIVE AGRICULTURE AND FOOD SYSTEMS' PROGRAMMING



TECHNICAL MANUAL

With concrete case study examples from Kenyan-led programmes



**NATIONAL TRAINING PACKAGE ON
NUTRITION-SENSITIVE AGRICULTURE
AND FOOD SYSTEMS' PROGRAMMES**

TECHNICAL MANUAL

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Foreword

The Government of Kenya is committed to ensuring that Kenyans have access to safe food and water in sufficient quantity and quality to meet their nutrition and health needs. The vision of a malnutrition-free country is stipulated in the Constitution of Kenya, the National Food and Nutrition Security Policy (FNSP) 2011, and the Kenya Health Policy 2012-2030. The government also developed the Food and Nutrition Security Policy Implementation Framework (FSNPIF) and the Kenya Agriculture Sector Transformation and Growth Strategy 2019-2029. These policies aim to contribute to reduction of food insecurity and malnutrition in Kenya.

The Ministry of Health, in collaboration with other government ministries and partners, developed the Kenya Nutrition Action Plan (KNAP) 2018-2022. Its aim is to accelerate and expand efforts to eliminate malnutrition in line with Kenya's Vision 2030 and Sustainable Development Goals (SDGs) 2030. One of key result area under KNAP focuses on linkages between nutrition, agriculture and food security. Accordingly, the Ministry of Agriculture and Livestock Development developed and launched the first Agri-Nutrition Implementation Strategy (ANIS) in 2020.


The goal of ANIS is to contribute towards sustained reduction of high malnutrition levels through coordinated nutrition-sensitive agriculture and food systems actions by state and non-state actors. Additionally, ANIS seeks to empower communities to produce and consume adequate, safe, diverse and nutritious foods. One of the strategies identified to improve nutrition outcomes is capacity building of policy makers and technical staff in agriculture and other sectors.

In line with this vision, the Government of Kenya has developed the Nutrition-Sensitive Agriculture and Food Systems' Training Package, with support from the Food and Agriculture Organization of the United Nations (FAO). The training package will be used in the country to build the capacity of stakeholders in nutrition-sensitive agriculture and food systems programming.


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Preface

Agriculture and food systems influence people’s dietary patterns, have an impact on nutritional outcomes, and are critical for the development of Kenya’s economy. Sustainable agriculture and food systems have a key role in improving food security and nutrition, while promoting food safety and healthy diets.

To strengthen nutrition outcomes through agriculture and food systems, the Ministry of Agriculture and Livestock Development has collaborated with the Ministry of Health, Food and Agriculture Organization of the United Nations and other partners under the Food and Nutrition Linkages Technical Working Group (FNLTWG) to develop the Nutrition-Sensitive Agriculture and Food Systems Training Package. This training package is contextualized to the Kenyan situation.

Developing the training package involved a review of information on nutrition, agriculture and food systems, health, and other sectors, as well as an assessment of how these sectors can collaboratively enhance better health outcomes among members of the Kenyan population. The training package will contribute to support policy makers, programme implementers and other decision makers in developing and leading implementation of nutrition-sensitive programmes in agriculture and food systems.

The training package is fully aligned with the objectives of the Agri-Nutrition Implementation Strategy (ANIS) 2020-2025. It will also assist in operationalising the Strategy Outcome Area 3 that guides implementers on the integration of nutrition in agriculture sub-sectors.

The national government, in conjunction with various stakeholders, will use the Nutrition-Sensitive Agriculture and Food Systems’ Training Package to train national and county staff in agriculture, health, education and other relevant departments. The aim is to increase knowledge on the ANIS and accelerate implementation of the proposed actions through county programmes.

Kenya Nutritionists & Dieticians Institute (KNDI)

Kenya Nutritionists and Dieticians Institute (KNDI) under Cap 253B re-affirms the contribution of FAO on matters of nutrition sensitive agriculture.

This is to confirm that KNDI Council within its mandate accredits and approves “Nutrition Sensitive Agriculture and Food Systems Technical Manual” for use in Kenya by all stakeholders and professionals in Health and Agriculture Sectors.

This approval is sealed on behalf of the Council under my signature.

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Acronyms and Abbreviations

ACF	- Action Against Hunger
ADFNS	- African Day for Food and Nutrition Security
ADSF	- African Day for School Feeding
AIV	- African Indigenous Vegetables
ANIS	- Agri-Nutrition Implementation Strategy
ARI	- Acute Respiratory Infection
ASAL	- Arid and Semi-Arid Lands
ASF	- Animal Source Food
ASTGS	- Agriculture Sector Transformation and Growth Strategy
AVCD	- Accelerated Value Chains Development
BCC	- Behaviour Change Communication
BFCI	- Baby-Friendly Community Initiative**
BoP	- Base of the Pyramid
CAP	- Community Action Plan
CDDC	- Community-Driven Development Committee
CHEW	- Community Health Extension Worker
CHV	- Community Health Volunteer
CIAT	- International Center for Tropical Agriculture
CIDP	- County Integrated Development Plans (CIDP)
CIG	- Common Interest Group
CIP	- International Potato Center
CLA	- Collaborating, Learning and Adapting
CNAP	- County Nutrition Action Plan
COHA	- Cost Of Hunger in Africa
CSA	- Climate-Smart Agriculture
CT-Elderly	- Cash Transfer for the Elderly
CT-Handicapped	- Cash Transfer for the Handicapped
CT-OVC	- Cash Transfer for Orphans and Vulnerable Children
CVCDC	- Community Value Chain Development Committee
CVTF	- Commercial Village Trade Facilitator
DDBIO	- Development and Delivery of Biofortified Crops Project
DND	- Division of Nutrition and Dietetics
EAC	- East Africa Community
FAO	- Food and Agriculture Organization of the United Nations
FBS	- Farmer Business School
FCS	- Food Consumption Score
FCT	- Food Composition Table
FCI	- Food Concern International
FF	- Food Fortification
FFS	- Farmer Field School
FNLTWG	- Food and Nutrition Linkages Technical Working Group

FNSP-IF	- The Food and Nutrition Security Policy Implementation Framework
FSNP	- Food Security and Nutrition Policy
FSQ	- Food Safety and Quality
FtF	- Feed the Future
GAIN	- Global Alliance for Improved Nutrition
GAM	- Global Acute Malnutrition
GAP- Child Wasting	- Global Action Plan on Child Wasting
GHP	- Good Hygienic Practices
GNR	- Global Nutrition Report
GoK	- Government of Kenya
HBT	- Healthy Baby Tool Kit
HDDS	- Household Dietary Diversity Score
HGSF	- Home-Grown School Feeding
HLC	- Healthy Living Club
HSNP	- Hunger Safety-Net Programme
ICN 2	- Second International Conference on Nutrition
ICRISAT	- International Crops Research Institute for Semi-Arid Areas Tropics
IDDS	- Individual Dietary Diversity Score
IFNA	- Initiative for Food and Nutrition Security in Africa
ILRI	- International Livestock Research Institute
IMAM	- Integrated Management of Acute Malnutrition
IPM	- Integrated Pest Management
JKUAT	- Jomo Kenyatta University of Agriculture and Technology
KALRO	- Kenya Agricultural and Livestock Research Organization
KCDMS	- Kenya Crops and Dairy Market Systems
KCSAP	- Kenya Climate Smart Agriculture Programme
KEBS	- Kenya Bureau of Standards
KES	- Kenya Shillings
KEPHIS	- Kenya Plant Health Inspectorate Service
KHP	- Kenya Health Policy
KISEDIP	- Kalobeyei Integrated Socio-Economic Development Plan
KNAP	- Kenya Nutrition Action Plan
KNFFA	- Kenya National Food Fortification Alliance
KNMS	- Kenya National Micronutrient Survey
KRA	- Key Result Areas
Link NCA	- Link Nutrition Causal Analysis
MAD	- Minimum Adequate Diet
MDD - C	- Minimum Dietary Diversity for Children
MDD-W	- Minimum Dietary Diversity Score for Women
MFB	- Minimum Food Basket
MMF	- Minimum Meal Frequency
MoH	- Ministry of Health
NCD	- Non-Communicable Diseases
NDMA	- National Drought Management Authority
NFNSP	- National Food and Nutrition Security Policy
NICHE	- Nutrition Improvements through Cash and Health Education
NNAP	- National Nutrition Action Plan

NPCK	- National Potato Council of Kenya
NSA	- Nutrition-Sensitive Agriculture
NSAFS	- Nutrition-Sensitive Agriculture and Food Systems
NSNP	- National Safety Net Programme
NuSePPP	- Nutrition-Sensitive Potato Partnership Project
OFSP	- Orange-Fleshed Sweet Potato
PCPB	- Pests Control Products Board
PHO	- Public Health Officer
PM&E	- Participatory Monitoring and Evaluation
PO	- Producer Organizations
SACCO	- Savings and Credit Cooperative Organization
SBCC	- Social and Behaviour Change Communication
SDG	- Sustainable Development Goals
SME	- Small and Medium Enterprise
SP	- Service Provider
SRAPLEA	- Strengthening the Resilience of the Livelihoods of Agro Pastoralists Communities in Eastern Africa
SUN CSA	- Scaling Up Nutrition - Civil Society Alliance
TAN	- Technical Assistance for Nutrition
TAV	- Traditional African Vegetable
TIMPs	- Technologies, Innovations, and Management Practices
TIPS	- Trials of Improved Practices
ToT	- Training of Trainers
UNICEF	- United Nations Children's Fund
USAID	- United States Agency for International Development
VfM	- Value for Money
VMG	- Vulnerable and Marginalized Group
WFP	- World Food Programme
WHO	- World Health Organization
WRA	- Women of Reproductive Age

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Glossary of Key Terms

Balanced diet - A diet that provides an adequate amount and variety of food to meet a person's macro- and micronutrient needs for a healthy, active life.

Complementary feeding - Nourishment of an infant with foods and liquids in addition to breast milk or breast milk substitutes.

Dietary diversity – The selection of a variety of foods within and crossing food groups to obtain nutrients and other substances needed for good health over a given period.

Food - Any processed, semi-processed, or raw substance intended for human consumption so as maintain life, growth and energy.

Food-based approach – A method which utilizes food to improve diets and reduce malnutrition.

Food and nutrition security – This exists when all people at all times have physical, social and economic access to food of sufficient quantity in calories, and quality in terms of variety, diversity, nutrient content and safety. The food should meet their dietary needs and preferences for an active and healthy life, and should be accompanied by a sanitary environment, adequate healthy, education, and care.

Food environment - The physical, economic, political and socio-cultural context in which consumers engage with the food system to make decisions on acquisition, preparation and consumption of food. Healthy food environments enable consumers to make healthy food choices which lead to improved diets and reduced malnutrition.

Food safety - These are standards and controls that have been put in place to protect consumers from unsafe foods and food-borne diseases.

Food security - A situation that exists when all people have consistent physical, social and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life. The dimensions include food availability, economic and physical access to food, food utilization and stability over time.

Food supply chain- It comprises all the stages that food products go through including production, processing and packaging, storage and distribution, retail and markets, consumption, and waste disposal.

Food system – An (agri) food system gathers all elements and activities involved in producing, processing, distributing, and consuming food, as well as managing waste. The elements include environment, people, inputs, and processes. A functional food system is a pre-requisite for healthy diets.

Health – This is a state of complete physical, mental and social well-being beyond the absence of disease or infirmity.

Healthy diets – These are diets of adequate quantity and quality that enable individuals to achieve optimal growth and development. The diets also support physiological, mental and social wellbeing at all life stages Key features of healthy diets include the quantity, diversity, quality and safety of food.

Hidden hunger - This is an alternative term for micronutrient deficiencies, which refer to the lack of vitamins and/or minerals, often with no visible signs.

Livelihood - It comprises the capabilities, assets (natural, human, physical and financial), and activities required for survival and well-being.

Malnutrition – This is a physiological condition caused by deficiencies, excesses or imbalances in energy and/or nutrients necessary for an active, healthy life. Malnutrition includes under nutrition (wasting, stunting, and underweight) micronutrient deficiencies, and over nutrition (overweight and obesity).

Nutrition – This refers to the bodily intake of food and the interaction of biological, social, and economic processes that influence the growth, function and maintenance of the body.

Nutritional status - The physiological state of an individual that results from the interaction between nutrient intake and the body's ability to digest, absorb and utilize these nutrients.

Nutrition security – This exists when all people consistently consume food that meets their preferences and dietary needs within an environment that is sanitary, and has adequate health, education, and care. The food should be of sufficient quantity in the number of calories. It should also be of high quality in terms of its variety, diversity, nutrient content and safety.

Nutrition-sensitive agriculture- An approach that seeks to maximize the positive impact of agriculture and food systems on nutrition outcomes while minimizing the negative consequences of agriculture programming on population nutrition and health.

Obesity and Overweight – This is a condition resulting from accumulation of fat in adipose tissue to the extent that health may be impaired.

Overnutrition - The result of excess dietary intake relative to the requirements. It includes overweight and obesity.

Undernutrition - The outcome of insufficient food intake and/or repeated infectious disease. It includes being underweight for one's age, too short for one's age (stunted), and dangerously thin for one's height (wasted).





INTRODUCTION TO THE TRAINING PACKAGE

The Nutrition-Sensitive Agriculture and Food Systems Training Package comprises of several components:

- 1- **Technical resource manual**- This document is comprised of the technical content and includes detailed case studies derived from projects in Kenya that are implemented by government and other stakeholders. The case studies are annexed in the document.
- 2- **Facilitation manual**- This is the guidance manual that a trainer is recommended to use to facilitate a training and engage participants in the process.
- 3- **PowerPoint presentations**- A trainer may use these presentations during training, and participants may also use them for reference.

✔ Aim of the Training Package

The aim of this training package is to equip policy makers, programme planners and technical officers working in different sectors, that contribute to improvement of nutrition, directly or indirectly, with knowledge and skills on how to formulate and successfully implement nutrition sensitive agriculture and food systems investments.

This manual has been contextualized to Kenya. However, its content could also apply in many other contexts.

✔ Objectives of the Training Package

After comprehensive guidance through the Nutrition-Sensitive Agriculture and Food Systems Training Package, the learner will be able to:

- 1- Understand how to integrate nutrition in agriculture and food systems programmes.
- 2- Apply the knowledge and skills gained to develop, implement, monitor and evaluate and document nutrition sensitive agriculture and food systems programmes.



A Guide to the Visual Elements Used

The visual elements in the Nutrition-Sensitive Agriculture and Food Systems' Training Package are designed to enhance readability and understanding. They consist of human characters and representations of a cross-section of animals and plants. The elements are used in the Technical Manual, Facilitator's Manual, and accompanying Powerpoint presentations.

The human characters and examples of the animal and plant representations are introduced below:

Kaka



Maua



Livestock



Vegetables



Fruits





MODULE 1

INTRODUCTION TO NUTRITION-SENSITIVE AGRICULTURE AND FOOD SYSTEMS PROGRAMMING

➔ Introduction

This introductory module will provide an overview of food systems and healthy diets, and the basic concepts that will be used throughout this training package. All the key definitions are provided in the glossary of terms at the beginning of this document.

Food Systems

A food systems approach considers the food system in *its totality*, taking into account *all the elements, their relationships and related effects*. This means considering the interactions among multiple sectors including health, food, environment, energy, and development. Some of the key elements of a food system include: supply chains, environments and consumer behaviour. These key elements are critical for shaping dietary patterns and they contribute to nutrition outcomes.

The main functions of the food system include: food production, handling and preparation, storage and processing, trade and marketing, consumer demand, and preferences. The food system approach is interconnected and enables the identification of consensus, management of tradeoffs, and the mitigating of undesirable outcomes. Sustainable food systems have a key role to play in improving nutrition, and in promoting and enabling access to healthy diets.

A fuller definition of ‘sustainable food system’ comprises the following:

Economic sustainability which refers to consistent profitability.

- This means that the activities conducted by each food system actor are commercially viable, should generate benefits or economic value for all categories of stakeholders, including wages for workers, taxes for governments, profits for enterprises, and food supply improvements for consumers.

Social sustainability which refers to *broad-based benefits for society*

- This means equity in the economic distribution across society, taking into account vulnerable groups categorized by gender, age, race, and so on. The activities need to contribute to the advancement of important socio-cultural outcomes, such as nutrition and health, traditions, labour conditions, and animal welfare.
- The *socio-economic drivers* of the food system include: (i) markets - through incomes, profits, food prices, labour, etc; (ii) policy - in land rights, food security, food safety, trade etc; (iii) science and technology, innovation and education in areas related to agriculture; (iv) social organizations in sectors related to food systems such as households, media, health care etc; (v) individual factors including lifestyle, cultures and attitudes that influence the choices of individuals in the food system.

• **Environmental sustainability** refers to *a positive or neutral impact on the natural environment*.

- This means there is consideration of biodiversity, water, soil, animal and plant health, the carbon footprint, the water footprint, food loss and waste, and toxicity.
- The *environmental drivers* of the food system include: land for agriculture (including quality of soils); use of fossil fuels in agricultural machinery and other equipment used in the food value chain; usage of minerals to enrich soils and metals used for manufacture packaging materials and cookware; variety of plant and animal life; and water for irrigation and household use.

Sustainable food systems enable food safety, security and nutrition for current and future generations in accordance with the three dimensions (economic, social and environmental) discussed above. Sustainable food systems provide food and enable healthy diets, and must be inclusive, equitable and resilient.

Sustainable healthy diets

Sustainable healthy diets are dietary patterns that promote all dimensions of individuals' health and wellbeing. They have low environmental pressure and impact, are accessible, affordable, safe, equitable, and culturally acceptable. (FAO, 2019).

Sustainable healthy diets should consider all aspects of sustainability in order to avoid unintended consequences in any of the dimensions. Key aspects of healthy diets include the quantity, diversity, quality, and safety of food as shown in Figure 1.

Key principles to consider when promoting sustainable healthy diets include:

Health & nutrition components:

- promote exclusive breastfeeding for the first 6 months of life, and continued breastfeeding until two years and beyond;
- incorporate variety - foods from at least four to five food groups should be included in a daily eating plan;
- meet the nutritional needs of each family member;
- eat a balanced meal that is comprised of the different food groups;
- incorporate nutrient density where a meal should provide the most nutrients for less food energy;
- consume foods with few nutrients moderately;
- promote safe and clean drinking water;
- seek foods that have minimum levels of toxins from farm to table;
- keep consumption of processed foods at a minimum;
- reduce the risk of Non-Communicable Diseases (NCDs).

Environmental components:

- preserve biodiversity;
- minimize greenhouse gas emissions, water, land use;
- reduce food loss and waste.

Socio-cultural aspects:

- avoid negative gender-related impacts such as intra-household food distribution that favours one gender over another, women spending inordinately long amounts of time on food-related matters compared to men;
- aim for accessible, culturally acceptable, and desirable practices.

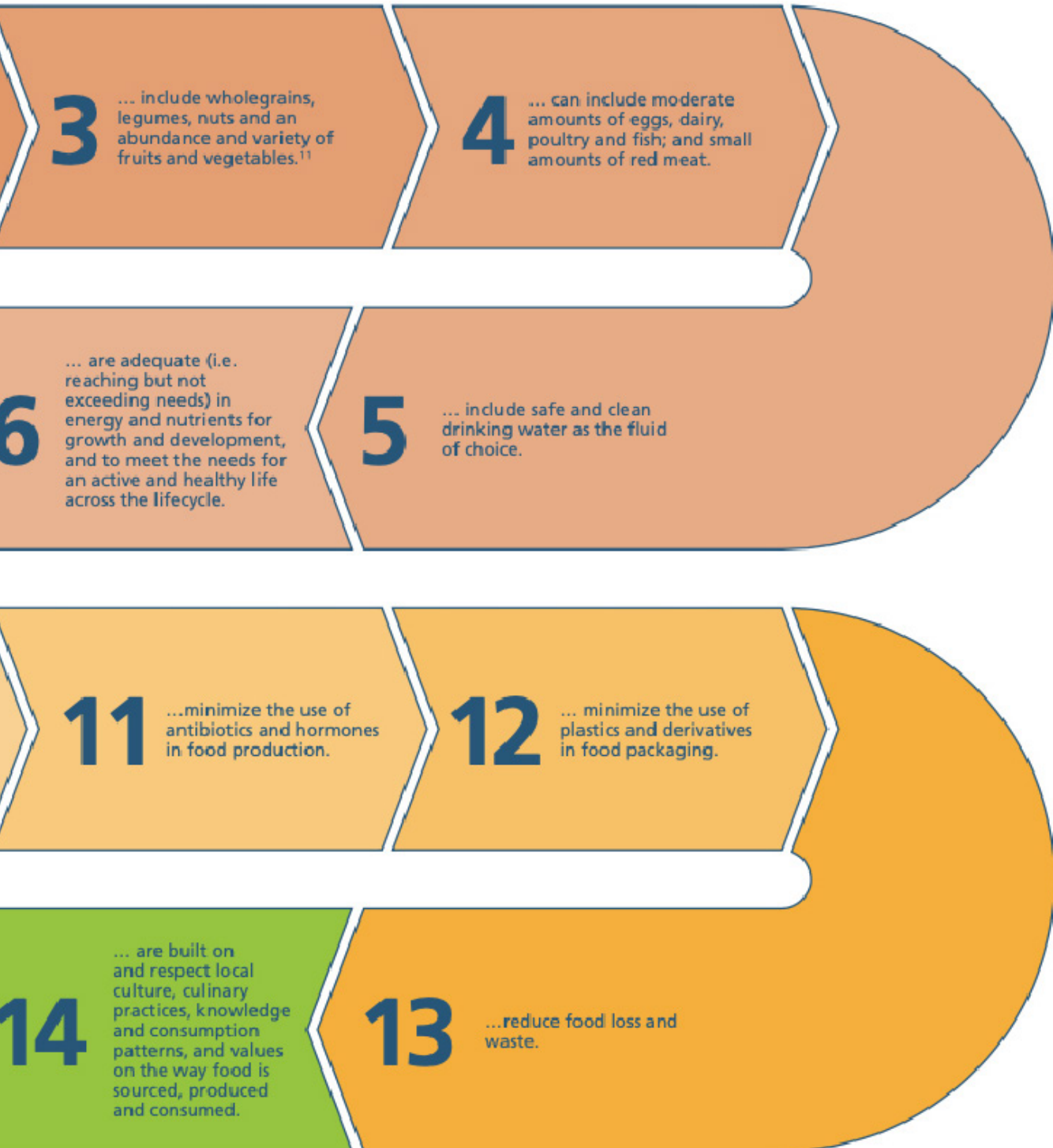
Basic concepts of hunger, food insecurity and malnutrition

Food security exists when all people have consistent physical, social and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life. Based on this definition, four food security dimensions are: *food availability, economic and physical access to food, food utilization, and stability* over time. These four dimensions must be fulfilled simultaneously for food security to be realized. When factors contributing to food security are not adequately and holistically tackled, it contributes to malnutrition.

Malnutrition is a physiological condition caused by deficiencies, excesses or imbalances in energy and/or nutrients necessary for an active, healthy life. Malnutrition includes: Overnutrition (overweight and obesity), micronutrient deficiencies (also referred to as hidden hunger), and undernutrition (wasting, stunting, underweight).



Figure 1: Food systems for



Overnutrition is the result of excess dietary intake relative to the requirements. Micronutrient deficiencies, also referred to as hidden hunger, are the lack of vitamin(s) and/or mineral(s) often with no visible signs. Undernutrition is the outcome of insufficient food intake and/or repeated infectious disease. It includes being underweight for one’s age, too short for one’s age (stunted), and dangerously thin for one’s height (wasted).

In the case of child undernutrition, the causes, consequences and impacts are numerous. The immediate causes that include inadequate dietary intake and disease are linked to underlying factors such as household food insecurity (where there is limited availability of, access to, and utilization of diverse diets), inadequate care and feeding practices especially for children, unhealthy environments, and inaccessible, inadequate health care.

The basic causes of poor nutrition are related to social, political and economic factors that limit access to essential services and resources by the population. These basic causes have long-term impacts on maternal and child undernutrition, and are illustrated in Figure 2.

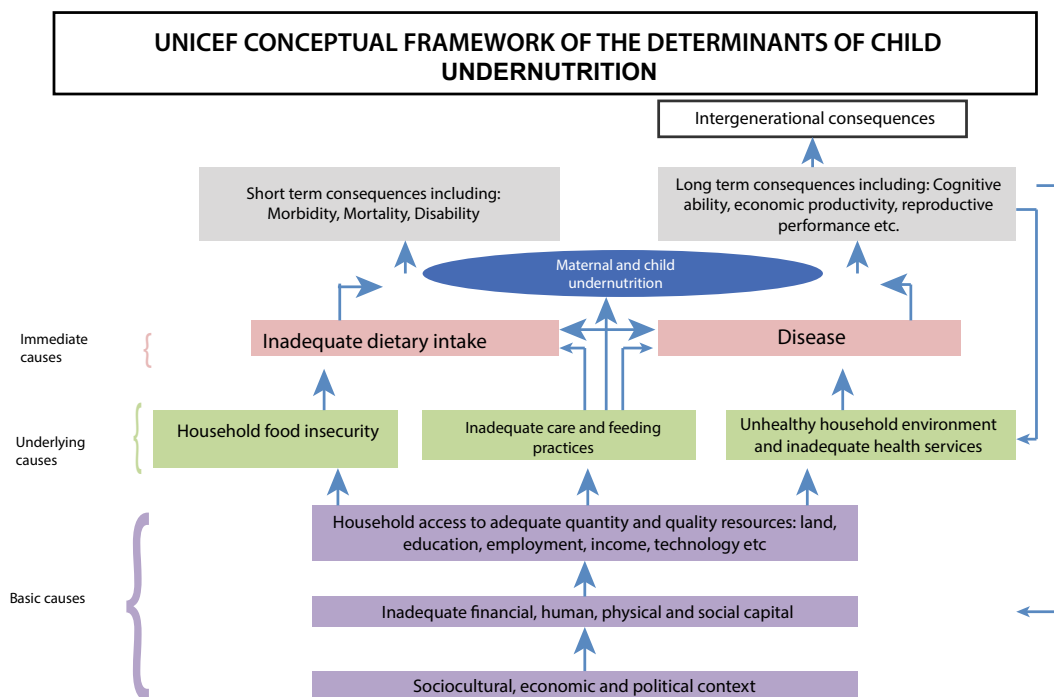


Figure 2: UNICEF Conceptual framework of the determinants of child undernutrition.

Hunger, malnutrition and poverty are all interrelated. This means that:

- All hungry people are food insecure but not all food insecure people are hungry (due to other causes of food insecurity such as poor intake of micronutrients).
- Malnutrition may be caused by food insecurity (but may also be related to other non-food factors including unhealthy environment, inadequate care practices etc).
- Poverty can be a cause of hunger and poor nutrition. Poverty can be a cause of hunger and poor nutrition. Poor nutrition can also be a cause of poverty because improved nutritional status has a direct impact on economic outputs through improved productivity. This in turn

has a direct link with increased incomes among other outputs.

– Crises (including complex and protracted ones) have adverse effects on the nutritional status of vulnerable populations. This is besides the negative nutritional effects of pandemics, epidemics and other infectious diseases.

In order to address food insecurity a combination of strategies are needed including income growth supported by *nutrition interventions* and *investment in agriculture, health, water and education and social protection*.

Importance of agriculture for livelihoods

Agriculture is the heart of economic growth in Kenya and is the key source of livelihood for more than 75 percent of the Kenyan population. Agriculture supports domestic and international trade, and provides raw materials for the manufacturing sector.

While large scale agricultural production is important, the role played by small-scale farmers and family farms should be highlighted and supported to better contribute to food and nutrition security.

Agriculture and the food systems can better influence nutrition outcomes through multiple entry points including:

- provision of quality inputs (such as nutrition dense seeds, labour saving technologies etc);
- enhancing diversification in food production, with a strong focus on nutrient dense foods;
- limiting food processing and retention of nutrients;
- enhancing proper handling and storage of food and food products;
- ensuring food safety;
- enabling proper and efficient transportation of foods and food products;
- improved labeling of nutritious foods;
- enhancing trade and marketing of nutritious foods ;
- integrating nutrition in food and agriculture policies, among others.

These will be discussed in detail in subsequent modules.



① SUMMARY

Agri- Food Systems encompass the ecosystem and all activities that relate to the production, processing, trade, distribution, preparation and consumption of food. It's a pre-requisite to healthy diets

The main functions of the food system include: food production; food handling, storage and processing; food trade and marketing; consumer demand, food preparation and preferences. The key elements of the food systems include: food supply chains, food environments and consumer behavior.

Healthy diets include a diversity of foods which are safe and provide levels of energy and key nutrients of all kinds appropriate to age, sex, physiological status and physical activity level. Healthy diets must include quantity, quality, diversity, and safety. They must be balanced and based on nutritious foods.

Unhealthy diets are a major risk factor of multiple forms of malnutrition and poor health outcomes.

The forms of malnutrition include: undernutrition, hidden hunger (micronutrient deficiencies) and overweight. Kenya faces a triple burden of malnutrition, as the three forms of malnutrition co-exist.



REFERENCES

- Bhunnoo, R.** 2019. The need for a food systems approach to policy making. *The Lancet*, 393(10176): 1097-1098.
- Cliffer, I., Masters, W.A., Trevino, J.A., Webb, P. & Ghosh, S.** 2019. Food systems and nutrition: emerging evidence and research opportunities. USAID Feed the Future Innovation Lab.
- Committee on World Food Security.** CFS Voluntary Guidelines on Food Systems and Nutrition. Rome. (also available at https://www.fao.org/fileadmin/templates/cfs/Docs2021/Documents/CFS_VGs_Food_Systems_and_Nutrition_Strategy_EN.pdf)
- FAO.** 2008. An introduction to the basic concepts of food security. In: FAO [online]. Rome. [Cited 22 September, 2022]. <http://www.fao.org/documents/card/en/c/2357do7c-b359-55d8-930a-13060cedd3e3/>
- FAO.** 2013. *The State of Food and Agriculture - Food systems for better nutrition*. Rome. 6 pp. (also available at <http://www.fao.org/3/i3301e/i3301e.pdf>).
- FAO.** 2014. *The State of Food and Agriculture - Innovation in family farming*. Rome. 161 pp. (also available at <https://www.fao.org/3/i4040e/i4040e.pdf>)
- FAO.** 2017. *Nutrition-sensitive agriculture and food systems in practice: Options for intervention*. Rome. 102 pp. (also available at <https://www.fao.org/3/i7848en/I7848EN.pdf>).
- FAO.** 2018. *Sustainable food systems: Concept and Framework*. Rome. 8 pp. (also available at <http://www.fao.org/3/ca2079en/CA2079EN.pdf>).
- FAO.** 2019. FAO Term Portal. [online]. Rome. [Cited 22 September 2022]. <http://www.fao.org/faoterm/collection/nutrition/en/>
- FAO & WHO.** 2019. *Sustainable healthy diets - Guiding Principles*. Rome. 44 pp. (also available at <https://www.fao.org/3/ca6640en/ca6640en.pdf>).
- Grant, M.** 2015. Food systems approach for food and nutrition security. *Sight and Life Magazine*, 29(1): 87-90. (also available at https://sightandlife.org/wp-content/uploads/2015/11/SAL_Mag_Frontiers_In_Nutrition_2015_Food_systems_approach_for_food.pdf).
- High Level Panel of Experts.** 2017. *Nutrition and food systems. A report by the High Level Panel of Experts on Food Security and Nutrition of the Committee on World Food Security*. In: HLPE. [online]. Rome. [Cited September 22 2022]. <https://www.fao.org/3/i7846e/i7846e.pdf>
- International Center for Tropical Agriculture (CIAT).** 2008. *Sustainable Food Systems*. In: CIAT [online]. Rome. [Cited September 22 2022]. www.ciat.cgiar.org (<https://ciat.cgiar.org/about/strategy/sustainable-food-systems/>)
- Ministry of Agriculture, Livestock, Fisheries and Cooperatives.** 2020. *Kenya Agri-Nutrition Implementation Strategy 2020-2025*. Nairobi. (also available at <https://familyhealth.go.ke/wp-content/uploads/2020/10/Agri-Nutrition-Implementation-Strategy.pdf>).
- Ministry of Health.** 2017. *National Guidelines for Healthy Diets and Physical Activity*. Nairobi.
- Njenga, M.** 2016. Small-scale farmers are key to food security. *Route to Food*. [also available at <https://routetofood.org/small-scale-farmers-are-the-key-to-food-security-in-kenya/>]
- UNICEF.** 2015. *UNICEF's approach to scaling up nutrition. For mothers and their children*. New York. (also available at <http://www.acp.int/sites/acpsec.waw.be/files/UNICEF.pdf>).
- USAID.** 2020. *Agriculture and Food Security Fact Sheet: Kenya*. In: USAID [online]. Washington DC. [Cited September 22, 2022]. https://www.usaid.gov/sites/default/files/documents/1860/Kenya_Agriculture_and_Food_Security_Feb_2020.pdf
- Van Verkum, S., Dengerink, J. & Ruben, R.** 2018. *The food systems approach: Sustainable solutions for a sufficient supply of healthy food*. Wageningen Economic Research. Wageningen, The Netherlands.





MODULE 2

FOOD AND NUTRITION SITUATION IN KENYA

➔ Introduction

This module is focused on Kenya's food security and nutrition context and on undertaking a nutrition situation analysis. It also provides examples of common methodologies of nutrition situation analysis.

Food and nutrition situation in Kenya

The Global Hunger Index (GHI) is a global measure of hunger compiled annually in a peer-reviewed report. In 2021, Kenya's GHI ranking stood at 87th out of 118 countries assessed, whereas in 2020 it stood at 84th out of 107 countries. Levels of hunger are ranked between ≤ 9.9 (low) and ≥ 50 (extremely alarming). In both 2020 and 2021, Kenya scored 23.0, a level of hunger considered serious. The Food Balance sheet for Kenya demonstrates that cereals are the main source of calories, contributing about 47.4 percent, followed by pulses at 8.7 percent.

In Kenya, agriculture is mostly rain-fed and has been affected by climate changes. Temperatures have increased with seasonal variations in the start and duration of the rainy seasons, as well as in the amount of rain that falls. These factors have led to a decline in agricultural productivity as well as the loss of crops, livestock, fish and other investments in the agriculture sector. Food security has deteriorated in Arid and Semi-Arid (ASAL) counties which have experienced droughts and shocks such as floods and insecurity. Each year, Kenya undertakes the Kenya Food and Nutrition Security Assessment in 23 ASAL counties during the long rains of March to May and the short rains of October to December.

The triple burden of malnutrition – overnutrition, undernutrition, and micronutrient deficiencies – remains of great concern in the country. Consumption of minimum acceptable diets among children aged 6–23 months was 31 percent in 2014 and remained at this percentage (31%) in 2022. However, the country has also made significant progress in regard to child undernutrition as shown in Table 1 below.

Table 1: Percentage changes in number of stunted, underweight, or wasting children between 2014 and 2022

	2014	2022
Stunting	26%	18%
Underweight	11%	10.1%
Wasting	4%	5%

Source: Kenya Demographic Health Survey, 2014, 2022

According to the National Micronutrient Survey of 2011, micronutrient deficiencies occur at different rates of prevalence across the population. The prevalence of Vitamin A and marginal Vitamin A deficiency among school-aged children was 3.6 percent and 33.9 percent respectively. Folate deficiency was prevalent among 32.1 percent of pregnant women and 30.9 percent of non-pregnant women. The prevalence of iron and zinc deficiencies are shown in Tables 2 and 3.

Table 2: Prevalence of anaemia and iron deficiency among pregnant women and pre-school children

	Anaemia (percentage)	Iron deficiency (percentage)	Iron deficiency anaemia (percentage)
Pregnant women	41.6	36.1	26
Pre-school children	26.3	21.8	13.3

Source: National Micronutrient Survey, 2011

Table 3: Prevalence of zinc deficiency among sections of the population

Population group	Zinc deficiency (percentage)
Pre-school children	83.3
School-aged children	80.2
Non-pregnant women	82.3
Men	74.8

Source: National Micronutrient Survey, 2011

According to the Kenya Stepwise Survey (2015), overweight, obesity and non-communicable diseases are also on the rise in the country.. Available data shows that 28percent of Kenyans aged 18-69 years are either overweight or obese, with the percentage being significantly higher in women (38.5 percent) than men (17.5 percent). Consumption of unhealthy diets is rampant in the country, with only 5.2 percent of adults aged 18-69 years consuming healthy diets.

Child undernutrition affected individuals' age of mortality, cognitive performance, health, and later ability to work and contribute to the national economy. The Cost of Hunger Study in Kenya estimated the economic impact of child undernutrition to amount to the loss of an estimated KES 373.9 billion shillings in 2014. This was about 6.9 percent of the 2014 Gross Domestic Product (GDP). The overall loss of productivity was estimated to be worth 6.5 percent of GDP.

How to undertake a Nutrition Situation Analysis

A Nutrition Situation Analysis is the process undertaken to enable one to understand the food and nutrition context of a target area or population, including the scope of a problem, opportunities, and challenges. It can either be detailed and comprehensive, or a low-cost and rapid survey that provides immediate responses that can inform decision making. A nutrition situation analysis will facilitate efficient, effective, and well targeted responses. It is best undertaken before implementation of a new intervention.

Moreover, a nutrition situation analysis will enable the programme to:

- address the actual food and nutritional needs of the target group;
- be implemented smoothly with minimal challenges;
- add value to any other existing programmes in the same region;
- reduce on the time and finances needed to correct or reinforce programme activities when implementation has already commenced.

A key factor to consider to ensure that an agricultural or food system programme has a positive impact on nutrition is the ability of the programme to be *context specific*. This means that it is addressing the nutrition issues affecting the target population.

The factors to put into consideration may include but not limited to:

- the *health and nutrition status for the population* - for example the prevalence of wasting, stunting, being underweight, specific micronutrient deficiencies such a iron deficiency, anaemia, and zinc deficiency, being overweight and obesity.
- other *past and existing programmes* implemented by other actors. This will avoid competition and duplication, as well as enhance collaboration and complementarity of the actions on the ground. This will also enable one to identify the successes and the challenges experienced by these programmes.

- identification of *vulnerable groups* in the area such as small-scale farmers, pregnant and lactating mothers, children under five years, teenage girls and boys, orphans and vulnerable children.
- the *development priorities of local authorities*. There is need to ensure programmes are aligned with national and county priorities. This calls for prior engagement with the local authorities, existing relevant policies, government programmes and community representatives to ascertain that the proposed programme is in line with the community's priorities.

In general, undertaking a nutrition situation analysis involves understanding the local nutrition problems and trends, determining the causes of malnutrition and analyzing the existing policies, programmes and stakeholders.

There are various common methods used in nutrition situation analysis. Among them are Link Nutrition Causal Analysis (Link NCA) and Agreeing on Causes of Malnutrition for Joint Action. They are presented in the following section.

Examples of common methods used in nutrition situation analysis.



a) **Link Nutrition Causal Analysis (Link NCA)**

Link NCA is a structured, participatory methodology created to understand and to build evidence-based consensus around the causes of undernutrition in local contexts.

The methodology is designed for a specific context with specific attention to underlying and basic causes of undernutrition.

The information generated is used to promote implementation of programmes that address the causes of undernutrition.

Key features of Link NCA:

- links stakeholders across sectors;
- links risk factors and undernutrition to identify pathways;
- links different sources of information to build a case for nutrition causality;
- links the causal analysis to programmatic response.



① How is it done?

The five main steps of the Link NCA study include:

preparation: The organizations planning to undertake the study meet and evaluate if the benefits of undertaking Link NCA will outweigh the costs. They also determine how the results are likely to be used. Thereafter, the key parameters (e.g the objectives, geographic coverage, etc) are determined. Other operational plans for undertaking studies need to also be done.

identification of hypothesized risk factors and pathways: To identify this, a systematic literature review and initial key informant interviews can be undertaken.

collection of community-level data: This may include qualitative enquiry, risk factor and/or SMART nutrition survey.

synthesis of results and building of technical consensus: The analyzed results are shared in a workshop in order to build consensus on the plausible causes of undernutrition.

communication of results and planning for a response: the results are presented to operational stakeholders and the communities that take part in the study.

The full methodology can be found at: <https://www.linknca.org/methode.htm>



Case Study 1 provides an example of a project that applied the Link NCA.



🔍 CASE STUDY 1: LINK NCA

Project: Link Nutrition Causal Analysis (NCA) in West Pokot
Implementing Organization: Action Against Hunger (ACF)

Link NCA was used to determine the basic and underlying causes of malnutrition specific to agro-pastoral and mixed farming livelihood zones in West Pokot County. The project was implemented between January and July 2015. Findings showed major risk factors linked to stunting included: high prevalence and recurrent episodes of childhood illnesses, high maternal workload, prolonged seasonal (rainfall) failure and limited diversified sources of incomes during the lean season.

Proposed key interventions included upscaling integrated health outreach programmes, implementing cooking demonstrations and promoting utilization of indigenous foods, provision of dairy goats.

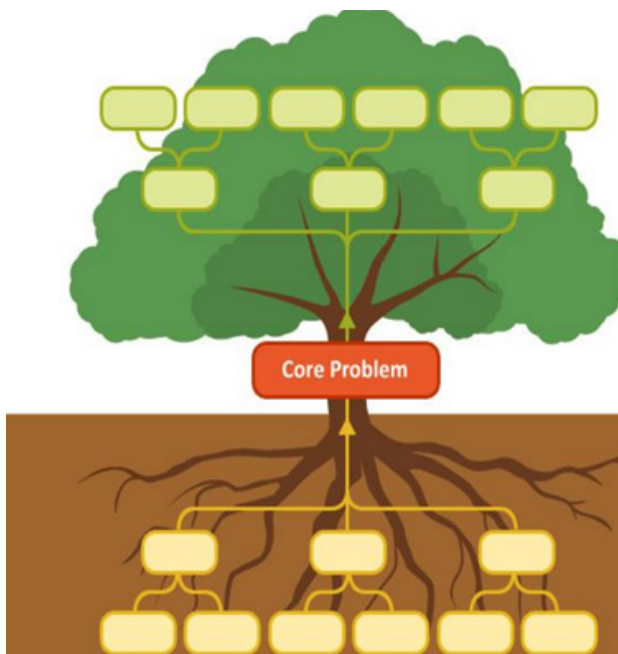
Detailed information on the case study can be found in Annexe 1. Case study 1.



b) Agreeing on causes of malnutrition for joint action - problem and solution trees

The methodology on *'Agreeing on the causes of malnutrition for joint action'* was developed by FAO and published in 2014. The methodology is presented in a workshop format that encourages participants to engage in joint action for nutrition. The methodology allows participants to interact and share experiences, as well as identify different resources that are key in transforming plans into actions.

The methodology is based on the 'problem and solution trees,' a powerful visualization technique for consensus building and participatory problem solving. The problem tree is a tool to systematically analyze the cause-and-effect relationships of problems in relation to a core problem. The problem tree is represented visually by 'a tree'.



The tree includes;

1. The main or core problem (represented by a trunk),
2. The consequences/ effects of the core problem (represented by branches),
3. The causes of the core problem (represented by roots)



① How is it done?

The participants identify causes of nutrition problems in their community and organize them according to cause-effect relationships and create the 'problem tree'. The participants also develop the 'solution tree' that identifies the solutions to the problems identified above.

Some of the key discussions before undertaking the problem and solution trees include:

- discussion on the nutrition situation of the relevant areas;
- discussion on the feeding practices such as the household diets and feeding practices of the communities in the target area;
- identification of the most vulnerable livelihood groups in the target area as a basis for group deliberations;
- development of the problem and solution trees should be done for each livelihood group identified above.

The full methodology can be found in this FAO link:
<http://www.fao.org/3/a-i3516e.pdf>





① SUMMARY

Malnutrition in Kenya is still of great concern, as the country is still faced with the triple burden of malnutrition, namely overnutrition, undernutrition and micronutrient deficiencies. Child stunting and wasting are prevalent in different parts of the country.

To undertake a nutrition situation analysis:

- address the actual food and nutritional needs of the target group;
- enable a programme to be implemented smoothly with minimal challenges;
- add value to/ synergize with any other existing programs;
- reduces on the time and finances needed to correct program activities when implementation has already commenced.

Two examples of methods used to collect information on situation analysis:

- Link Nutrition Causal Analysis (NCA);
- Agreeing on causes of malnutrition for joint action- problem and solution trees.



① REFERENCES

- Action Against Hunger.** 2017. *Link NCA- Nutrition Causal Analysis. Overview.* 5 pp. (also available at https://docpdf.linknca.com/159/159/supports/25096/catDoc246/nca_overview_en_web_170601.pdf?CFID=20189119&CFTOKEN=dd5308b656525ed-AA189644-155D-C932-05B2692456317495).
- Central Bureau of Statistics, Ministry of Health & ORC Macro.** 2004. *Kenya Demographic and Health Survey 2003.* Calverton (also available at <https://dhsprogram.com/pubs/pdf/fr151/fr151.pdf>).
- Davis Jr., T.P.** 2004. *Barrier Analysis Facilitator's Guide: A Tool for Improving Behavior Change Communication in Child Survival and Community Development Programs.* Washington, D.C., Food for the Hungry. 120 pp. (also available at https://coregroup.org/wp-content/uploads/media-backup/Tools/Barrier_Analysis_2010.pdf)
- FAO.** 2014. *Agreeing on the causes of malnutrition for joint action.* Rome. 39 pp. (also available at <http://www.fao.org/3/a-i3516e.pdf>).
- FAO.** 2016a. *FAO Toolkit on Nutrition-Sensitive Agriculture and Food Systems. E-learning materials: How to conduct a Nutrition Situation Analysis.* (<https://elearning.fao.org/mod/scorm/player.php?scoId=911&cm=704>)
- FAO.** 2016b. *How to conduct a Nutrition Situation Analysis.* <https://www.fao.org/3/cb1917en/cb1917en.pdf>)

- Government of Kenya.** 2019. *Social and economic effects of child undernutrition. Kenya country report.* Nairobi. (also available at http://www.nutritionhealth.or.ke/wp-content/uploads/COHA_Infographics/COHA%20-%20Kenya%20Report%20-%20November%202019.pdf).
- Government of Kenya.** 2019. *The Cost of Hunger in Africa: The Social and Economic Impact of Child Undernutrition in Kenya.* Nairobi. 94 pp. (also available at <https://reliefweb.int/report/kenya/cost-hunger-social-and-economic-impact-child-undernutrition-kenya>).
- Government of Kenya.** 2021. *The 2021 Long Rains Season Assessment Report - August 2021.* In: Reliefweb [online]. Cited 22 September 2022]. <https://reliefweb.int/report/kenya/kenya-2021-long-rains-season-assessment-report-august-2021>
- IFAD.** 2018. *Nutrition-Sensitive Value Chains. A Guide for Project Design.* Rome. 96 pp. (also available at <https://www.ifad.org/documents/38714170/40804965/Nutrition+guide+Vol.II.pdf/2c1abcdd-3cb7-4d94-a609-f5do48bo78b4>).
- Kenya National Bureau of Statistics & ICF International.** 2015. *Kenya Demographic and Health Survey 2014.* Rockville. (also available at <https://dhsprogram.com/pubs/pdf/fr308/fr308.pdf>).
- Kenya National Bureau of Statistics.** 2021. *Economic Survey 2021.* Nairobi. (also available at <https://www.knbs.or.ke/wp-content/uploads/2021/09/Economic-Survey-2021.pdf>).
- Kittle, B.** 2013. *A Practical Guide to Conducting a Barrier Analysis.* New York, Helen Keller International. 186 pp. (also available at https://pdf.usaid.gov/pdf_docs/PAooJMZW.pdf)
- KNBS and ICF.** 2023. *Kenya Demographic and Health Survey 2022. Key Indicators Report.* Nairobi, Kenya, and Rockville, Maryland, USA: KNBS and ICF. (<https://dhsprogram.com/publications/publication-PR143-Preliminary-Reports-Key-Indicators-Reports.cfm>)
- Ministry of Health.** 2011. *The Kenya National Micronutrient Survey 2011.* Nairobi. (also available at <http://www.nutritionhealth.or.ke/wp-content/uploads/Downloads/The%20Kenya%20National%20Micronutrient%20Survey%202011.pdf>).
- Ministry of Agriculture, Livestock and Fisheries.** 2017. *Kenya Climate Smart Agriculture Strategy- 2017-2026.* Nairobi. (also available at <https://www.adaptation-undp.org/resources/plans-and-policies-relevance-naps-least-developed-countries-ldcs/kenya-climate-smart>).
- Ministry of Health, Kenya National Bureau of Statistics & WHO.** 2015. *Kenya Stepwise Survey for Non communicable Diseases Risk Factors 2015 Report.* Nairobi. (also available at <https://www.health.go.ke/wp-content/uploads/2016/04/Steps-Report-NCD-2015.pdf>).
- von Grebmer, K., J. Bernstein, C. Delgado, D. Smith, M. Wiemers, T. Schiffer, A. Hanano, O. Towey, R. Ni Chéilleachair, C. Foley, S. Gitter, K. Ekstrom, and H. Fritschel.** 2021. *Global Hunger Index: Hunger and Food Systems in Conflict Settings.* Bonn: Welthungerhilfe & Dublin: Concern Worldwide. (also available at <https://www.globalhungerindex.org/pdf/en/2021.pdf>).
- Welcome Trust Centre for Epidemiology of Infectious Diseases.** 1999. *School Health and Nutrition: A Situation Analysis.* Oxford. 11 pp. (also available at https://pdf.usaid.gov/pdf_docs/Pnacj227.pdf).





MODULE 3

POLICY LANDSCAPE & GOVERNANCE

➔ Introduction

This module will focus on international and regional nutrition architecture, global and regional commitments Kenya has made, nutrition governance, and the food security and nutrition policy framework.

International and regional nutrition architecture

Countries globally are making progress towards addressing all forms of malnutrition across the different population groups. However, the triple burden of malnutrition -undernutrition, micronutrient deficiencies and overnutrition - still continues to cost countries economic and social losses. Though progress has been made, it has been uneven and there are huge opportunities for the food and agricultural system to better contribute to nutrition.

Moreover, addressing malnutrition requires a multisectoral approach. Such an approach requires strong governance, political will and leadership, as well as clear coordination and collaboration among actors in order to succeed. Strong governance is required at international, regional, national, and subnational levels. Some of the key global initiatives addressing malnutrition include:

Sustainable Development Goals (SDGs)

The 2030 Agenda for Sustainable Development includes 17 Sustainable Development Goals that focus on ending poverty, ensuring prosperity for everyone and protecting the planet. The agenda emphasizes a holistic approach to achieving the goals.

The principal SDG goal addressing food security and nutrition is Goal 2, whose aim is to eliminate hunger, achieve food security and improved nutrition, and promote sustainable agriculture. Figure 3 provides an illustration of the link between nutrition and the SDGs.



Figure 3: Link between Nutrition and the Sustainable Development Goals

As shown in Figure 3, other SDGS that incorporate nutrition include: SDG 1 (whose focus is ‘No Poverty’); SDG 3 (whose focus is ‘Good Health and Wellbeing’); SDG 4 (whose focus is ‘Quality Education’); SDG 5 (whose focus is ‘Gender Equality’); SDG 8 (whose focus is ‘Decent Work and Economic Growth’); SDG 13 (whose focus is ‘Climate Action’) and SDG 16 (whose focus is ‘Decent Work and Economic Growth’)

Kenya is a signatory of the Sustainable Development Goal (SDGs) of the United Nations. The country is working towards achievements of the targets through implementation of policies and relevant programmes.

The Scaling Up Nutrition Movement

The Scaling Up Nutrition Movement (referred to as SUN movement) is a renewed country-led effort that works with governments, partners and individuals with an aim of attaining a world free from all forms of malnutrition by 2030. The Movement is based on the principle that ‘everyone has a right to food and good nutrition’. SUN is made up of the following:

- *the civil society* which works closely with communities to ensure that efforts to scale up nutrition are equitable and the alliances at national level are strong nutrition advocates;
- *the United Nations (UN) network* which brings together UN agencies that have a role in nutrition. In July 2020, the UN Network for the Scaling Up Nutrition (SUN) Movement and the UN System Standing Committee on Nutrition (UNSCN) merged to form UN Nutrition;
- *the donor network* which aligns financial and technical assistance to support SUN countries and increase overall funding for nutrition;
- *the business network* which brings together expertise and experience of responsible business enterprises in support of nutrition in SUN countries;
- *the academia and research network* which brings together local research institutions and universities on nutrition matters.

The movement works with the SUN member countries to strengthen political commitments and accountability for actions that contribute to these commitments. Member countries and their stakeholders collaborate to develop multisectoral policies and implement programmes so as to address different forms of malnutrition.

Kenya joined the SUN movement in 2012. The SUN collective action is to ensure that every child, adolescent, mother, father and family can realize their right to food and nutrition, reach their full potential and shape sustainable and prosperous societies.

A Thousand Days Initiative

The ‘A Thousand Days’ global initiative is geared towards ensuring that mothers and children are well nourished in a child’s first 1,000 days. The initiative is based on the window of opportunity – between when a woman is pregnant to a child’s second birthday – to positively impact on the health and development of the child and mother.

Global Nutrition Report (GNR)

Conceived after the first Nutrition for Growth Summit in 2013, the GNR is a mechanism for tracking the commitment towards reduction of malnutrition. It produces an annual report with a strong focus on monitoring progress through nutrition data. The report helps to hold country stakeholders to account on the commitment they have made towards reduction of malnutrition.

Commitments at Global and Regional Level

Below is a summary of some international meetings that have developed global nutrition targets to be achieved by countries.

a. World Health Assembly (WHA) 2012: Global Nutrition Targets 2025 and 2030

The 2012 World Health Assembly Resolution 65.6 endorsed a *Comprehensive Implementation Plan on Maternal, Infant and Young Child Nutrition* that specified a set of six global nutrition targets. The targets, which were to be achieved by 2025, have been harmonized with the SDGs, so that they are achieved by 2030. The targets aim to:

- achieve a 40 percent reduction in the number of children under 5 years who are stunted;
- achieve a 50 percent reduction in anaemia in women of reproductive age;
- achieve a 30 percent reduction in low birth weight;
- ensure that there is no increase in childhood overweight;
- increase the rate of exclusive breastfeeding in the first 6 months up to at least 50 percent;
- reduce and maintain childhood wasting to less than 5 percent.

Kenya is a signatory to the WHA 2012 resolution.

b. The Second International Conference on Nutrition (ICN2) - 2014

The ICN2 was an inclusive inter-governmental meeting on nutrition jointly organized by the Food and Agriculture Organization (FAO) and the World Health Organization (WHO) in Rome in November 2014. The conference's main outcome was the endorsement of the Rome Declaration on Nutrition and the Framework for Action. The Rome Declaration commits countries to eradicate hunger and prevent all forms of malnutrition worldwide, particularly undernutrition in children, anaemia in women and children among other micronutrient deficiencies, and the reversal of obesity trends. The declaration binds countries to take urgent steps to translate their commitments for nutrition into action.

c. Nutrition for Growth Summit (N4G Summit)

This is a global pledging summit that brings together country governments, donors and philanthropies, businesses, NGOs and beyond, in order to drive action towards ending malnutrition. Previous summits were held in 2013, 2017, and 2021.

d. Universal Health Coverage (UHC)

UHC was conceived with the aim of ensuring that all persons globally are able to receive the health services they require without suffering financial hardship. Achievement of UHC is among the SDG targets. The commitment by countries in achieving UHC was reaffirmed in the United Nations General Assembly High Level Meeting on UHC in 2019. Kenya adopted the UHC as one of key national priority areas. With UHC, all Kenyans would be able to access the essential health services they need for their health and wellbeing.

e. Malabo Declaration

In June 2014, the African heads of states and government set concrete agricultural goals to be attained by 2025. This is the 'Malabo Declaration on Accelerated Agricultural Growth and Transformation for Shared Prosperity and Improved Livelihoods'. In regards to nutrition, the heads of states committed to ending hunger in Africa by 2025, and specifically to improve overall nutritional status and eliminate child undernutrition with the intention to reduce stunting to 10 percent and underweight to 5 percent by 2025.

f. African Leaders for Nutrition (ALN) Initiative

This is a platform for high-level political engagement to advance nutrition in Africa. It is one of the eight flagship programmes launched under the African Development Bank's High 5 priorities, the others being *'Light up and Power Africa,' Industrialize Africa; Integrate Africa; and*

Improve the Quality of Life for the People of Africa. The ALN initiative is led by a group of ALN Champions, comprised of current and former heads of state, finance ministers and eminent leaders. The initiative aims to influence and generate innovative investments towards nutrition and food security that will build a foundation for productive human capital in Africa.

The initiative focuses on priority areas that strengthen political leadership, broaden evidence, and encourage accountability and investments. To track the progress made in these areas, there are accountability tools that have been developed such as the Continental Nutrition Accountability Scorecard, Economic Investment Case for Nutrition, and Champion engagement.

g. Africa Regional Nutrition Strategy 2015–2025

The strategy provides a menu of evidence-based interventions to improve nutrition on the continent of Africa. It emphasises the importance of continuing to place nutrition higher on Africa's development agenda with a further call for strong political commitment and leadership as well as increased resources for nutrition.

Kenya is also an active member of the East African Community (EAC) and contributed to the elaboration of the EAC Food and Nutrition Security Strategy 2018–2022. The strategy has a goal of eliminating hunger, malnutrition and extreme poverty within the EAC region.

Other nutrition initiatives in Africa

These include:

- African Day for Food and Nutrition Security (ADFNS);
- African Day for School Feeding (ADSF);
- Cost of Hunger Studies (COHA);
- Initiative for Food and Nutrition Security in Africa (IFNA);
- Pan African Parliamentary Alliance for Food and Nutrition Security.

Kenya Food Security and Nutrition Policy Framework

Food security and nutrition are critical to achieving healthy human and economic development. The right to food is an integral part of key national documents.

The *Constitution of Kenya 2010* guarantees the right to adequate food. *Article 43.(1)*: states that “Every person has the right:... (c) to be free from hunger, and to have adequate food of acceptable quality; (d) to clean and safe water in adequate quantities.” *Article 53.(1c)*: states that “Every child has the right to basic nutrition, shelter and health care.”

The aspiration of food security is well engrained in Kenya's Vision 2030 whose aim is a globally competitive and prosperous country with a high quality of life for all citizens. Food and nutrition security are stipulated in the Economic and Macro Pillar, under the Agriculture and Livestock targets.

The *Food and Nutrition Security Policy (FSNP) 2011*, aims to ensure that all Kenyans have access to safe food and water in sufficient quantity and quality to meet their nutrition and health needs throughout their lives. *The Food and Nutrition Security Policy Implementation Framework (FSNPIF) 2017–2022* was developed as a road map to the implementation of the Food and Nutrition Security Policy through development of action plans and programmes that address food and nutrition

security.

The *Kenya Agriculture Sector Transformation and Growth Strategy 2019-2029* prioritises three anchors to drive the 10-year transformation. The anchors are:

- **Anchor 1** – Increase small-scale farmer, pastoralist, and fisherfolk incomes
- **Anchor 2** – Increase agricultural output and value-add
- **Anchor 3** – Increase household food resilience. Under this anchor, there is a target of reducing the number of food insecure Kenyans to zero while reducing the cost of food and improving nutrition.

The goal of the *Kenya Health Policy 2012-2030* is attaining the highest possible standard of health in response to the needs of the population. The government envisions a malnutrition free Kenya. To support this vision, National Nutrition Action Plan (NNAP) are developed and implemented every five years. The first NNAP covered the period 2012 to 2017.

Lessons learnt from implementation of the first plan informed development of the *Kenya Nutrition Action Plan (KNAP) 2018-2022* whose objective is to accelerate and scale up efforts towards the elimination of malnutrition in Kenya in line with Kenya's Vision 2030 and sustainable development goals. One of the Key Results Areas (KRA 10) focused on scaling up nutrition in agriculture and food security by strengthening the linkages between nutrition, agriculture and food security. Counties have also developed their contextualized County Nutrition Action Plan (CNAPs).

The *Kenya Agri-Nutrition Implementation Strategy 2020-2025* goal is to contribute towards sustained reduction of high malnutrition levels through coordinated nutrition sensitive agriculture actions by state and non-state actors and empower communities to produce and consume adequate, safe, diverse and nutritious foods.

National food and nutrition governance

Good nutrition governance is needed to ensure successful implementation of a country's policies and programmes. Some of the characteristics associated with good nutrition governance at national level are legal and regulatory frameworks in nutrition, functional national food and nutrition systems (including monitoring systems) and inter-sectoral coordination mechanism for nutrition.

Good governance is a key element in creating an enabling environment for food and nutrition security policies and actions. *Legal frameworks* on food and nutrition lead to greater involvement of both political and social actors in addressing malnutrition. When policies are adapted to national and local contexts, they provide adequate support to attaining the goal of food security and nutrition in the country. The frameworks are also catalysts for programming and funding for nutrition.

National nutrition plans provide guidance on the priority food and nutrition actions that the government (with the assistance of its partners) is committed to achieving within given timeframes. Counties also need to develop their county nutrition action plans and show explicit linkages to the national level document. The nutrition plans (at national and county level) should also include a monitoring framework and budget allocations. Evaluation of the plans should be undertaken before each plan's time lapses.

National food and nutrition structures exist at different levels, namely national, sub-national and community. They are typically embedded within government structures. To raise the importance attached to food and nutrition, the structures should ideally be coordinated and housed in high-level government offices at whichever level the coordination group is based.

While governments have overall responsibility for the people's food and nutrition security, other actors play a supportive role at policy and programme levels. The ministry in charge of agriculture, livestock and fisheries is responsible for food and agriculture investments. In Kenya, the ministry in charge of health leads the nutrition mandate and the ministry in charge of agriculture has the agri-nutrition unit that supports nutrition integration in agriculture sub-sectors. Efforts should be made to strengthen monitoring and evaluation mechanisms at national and sub-national levels, while accountability and transparency should be key pillars of good nutrition governance. The national food and nutrition structures are closely linked to planning and coordination functions.

Multisectoral coordination at national and county levels is crucial in combining efforts to address malnutrition. Coordination mechanisms should include other sectors that are directly or indirectly involved in food and nutrition. The coordination mechanisms are operationalized through working groups, committees, coordination units etc. Some of the key sectors that need to be included in multisectoral coordination platforms are: Agriculture, Health, Water and Sanitation, Education, Gender and Youth, Finance, Social protection, and Disaster Management. Programmes implemented at national, county, and community levels by stakeholders should be anchored in the relevant coordination platform. This is crucial so that all stakeholders can plan, implement, monitor and report cohesively while showing the programmes' contribution to the achievement of county and national level nutrition objectives. The coordination platforms provide avenues for dialogue among all stakeholders, collaborative decision-making, and ownership of investments.

📌 **Case Study 2 shows an example of a multisectoral coordination platform for nutrition and agriculture linkages in Kenya.**



CASE STUDY 2 - COORDINATION

Project: Multisectoral Coordination platform in Kenya: Food and Nutrition Linkages Technical Working Group (FNLTWG)
Implementing organization: Ministry of Agriculture, Livestock, Fisheries and Cooperatives, Ministry of Health, Food Agriculture Organization of the UN (FAO)

Kenya set up a multi-sectoral coordination platform/working group for strengthening the linkages between agriculture, nutrition and health. The platform is called the Food and Nutrition Linkages Technical Working Group (FNLTWG). It was established in 2014 and it is housed under the Ministry of Agriculture, Livestock, Fisheries and Cooperatives, State Department for Crops Development and Agricultural Research, specifically the Agri-Nutrition Unit. Membership includes Government ministries, UN Agencies, NGOs, and Development Partners. The working group mandate includes: capacity building, research, resource mobilization, advocacy, networking and development of standards and guidelines. It has so far organized agri nutrition conferences, developed an agri-nutrition strategy, and enabled knowledge sharing through presentations and the development of various nutrition-sensitive agriculture Information products.



Detailed information on the case study can be found in Annexe 1, Case study 2.



① SUMMARY

Key global food and nutrition related commitments and initiatives include Sustainable Development Goals (SDGs), Scaling Up Nutrition Movement, Global Nutrition Report and A Thousand Days Initiative.

Some of the global nutrition targets that Kenya is party to include: World Health Assembly (WHA) 2012: Global Nutrition Targets 2025/2030, The Second International Conference on Nutrition (ICN2), and the Malabo Declaration among others.

Key characteristics associated with good nutrition governance include: existence of legal and regulatory frameworks in nutrition; existence of functional national food and nutrition systems (including monitoring systems); and inter-sectoral coordination mechanisms for nutrition.

Kenya has key policies and commitments to enhancing food and nutrition security. These include: Constitution of Kenya, Vision 2030, Food and Nutrition Security Policy 2011, Food and Nutrition Security Policy Implementation Framework 2017-2022, Kenya Nutrition Action Plan 2018-2022, and Kenya Agri-Nutrition Implementation Strategy 2020-2025.

Addressing malnutrition requires a multisectoral approach. Such an approach requires strong governance, political will and leadership, strong coordination and collaboration among actors in order to succeed.



① REFERENCES

African Development Bank Group (AFDB). African Leaders for Nutrition Initiative. In: AFDB [online]. Abidjan. [Cited 27 January 2021]. <https://www.afdb.org/en/topics-and-sectors/initiatives-partnerships/african-leaders-for-nutrition-initiative>

African Union. 2014. *Malabo Declaration on Accelerated Agricultural Growth and Transformation for Shared Prosperity and Improved Livelihoods*. Addis Ababa.

African Union Development Agency (AUDA-NEPAD). Malabo Declaration on Accelerated Agricultural Growth. In: AUDA-NEPAD [online]. Addis Ababa. {Cited January 27 2021}. <https://www.nepad.org/caadp/publication/malabo-declaration-accelerated-agricultural-growth>

FAO. UNSCN – United Nations System Standing Committee on Nutrition. In: *Policy Support and Governance Gateway* [online]. Rome. [Cited 27 January 2021]. <http://www.fao.org/policy-support/mechanisms/mechanisms-details/en/c/448844/#:~:text=UNSCN%20is%20the%20food%20and,its%20forms%20in%20this%20generation>

- FAO.** Kenya. In: *The Right to Food Around the Globe* [online]. Rome. [Cited 27 January 2021]. <http://www.fao.org/right-to-food-around-the-globe/countries/ken/en/>
- FAO.** 2013. *State of Food and Agriculture. Food systems for better nutrition*. Rome. 6 pp. (also available at <http://www.fao.org/3/i3301e/i3301e.pdf>).
- FAO.** 2014. *The Second International Conference on Nutrition: Committing to a future free of malnutrition*. Rome. 24 pp. (also available at <http://www.fao.org/3/a-i4465e.pdf>).
- FAO.** 2017. *Governance of food and nutrition security. Factors for viability and sustainability. Case studies from seven Latin American countries*. Santiago. 109 pp. (also available at <http://www.fao.org/3/a-i7529e.pdf>).
- Government of Kenya.** The Big 4 Agenda. [online]. Nairobi. [Cited 27 January 2021]. <https://big4.delivery.go.ke/>
- Government of Kenya.** Vision 2030 [online]. Nairobi. [Cited on 27 January 2021]. <https://vision2030.go.ke>
- Government of Kenya.** 2011. National Food and Nutrition Security Policy. Nairobi. (also available at <http://extwprlegsl.fao.org/docs/pdf/ken140936.pdf>).
- Government of Kenya.** 2012. Kenya Health Policy, 2012-2030. Nairobi (also available at <http://www.nutritionhealth.or.ke/wp-content/uploads/Downloads/FinalKenyaHealthPolicyBook.pdf>).
- Government of Kenya.** 2017. Food and Nutrition Security Policy Implementation Framework, 2017-2022. Nairobi. (also available at <http://extwprlegsl.fao.org/docs/pdf/ken170761.pdf>).
- Government of Kenya & UNICEF.** 2020. *Operations manual. Nutrition Improvement through Cash and Health Education (NICHE)*. Nairobi, Kenya.
- Ministry of Agriculture, Livestock, Fisheries & Irrigation.** 2019. *Agriculture Sector Transformation and Growth Strategy. Towards sustainable agricultural transformation and food security in Kenya, 2019-2029*. Nairobi. (also available at <https://www.agck.or.ke/Downloads/ASTGS-Full-Version-1.pdf>).
- Ministry of Health.** 2018. Kenya National Nutrition Action Plan, 2018-2022. Nairobi. (also available at <https://www.health.go.ke/wp-content/uploads/2020/10/Kenya-Nutrition-Action-Plan-2018-2022-POPULAR-VERSION.pdf>).
- Scaling Up Nutrition (SUN).** 2014. An introduction to the Scaling Up Nutrition Movement [online]. Geneva [Cited January 27 2021]. <https://scalingupnutrition.org/>
- Scaling Up Nutrition.** 2014. *An Introduction to the Scaling Up Nutrition Movement*. Geneva. (also available at http://scalingupnutrition.org/wp-content/uploads/2015/06/Orange_Internal_InOutline_ENG_20140415_web.pdf).
- Scaling Up Nutrition.** Linking Nutrition and the SDGs. In: *Scaling Up Nutrition* [online]. Geneva. [Cited 27 January 2021]. <https://scalingupnutrition.org/nutrition/nutrition-and-the-sustainable-development-goals/>
- UNDP.** What are the Sustainable Development Goals? In: *The SDGs in Action* [online]. New York. [Cited 27 January 2021]. <https://www.undp.org/sustainable-development-goals>
- UNSCN.** 2017. Global governance for nutrition and the role of UNSCN. Discussion Paper. (also available at <https://www.unscn.org/uploads/web/news/GovernPaper-EN-WEB-apr17.pdf>)
- United Nations.** Do you know all 17 SDGs? In: *Department of Economic and Social Affairs* [online]. New York. [Cited 27 January 2021]. <https://sdgs.un.org/goals>
- World Health Organization.,** 2014. *Global Nutrition Targets 2025. Policy Brief Series*. Geneva.
- World Health Organization.** Universal Health Coverage. In: *World Health Organization* [online]. Geneva. [Cited 27 January 2021]. [https://www.who.int/news-room/fact-sheets/detail/universal-health-coverage-\(uhc\)](https://www.who.int/news-room/fact-sheets/detail/universal-health-coverage-(uhc))





MODULE 4

AGRICULTURE TO NUTRITION PATHWAYS

➔ Introduction

This module highlights the pathways in agriculture that can have a positive impact on nutrition. It also presents ten key recommendations for improving nutrition through agriculture and food systems.

Different agriculture pathways impacting on nutrition

Identifying the pathways that can positively impact on nutrition involves *'tracing the steps from agricultural production to consumption needed for an intervention to improve nutrition'*. Important to note that the pathways are not linear, and there are many interactions among them. These pathways include the:

- *food production pathway* - It comprises of two components: agriculture as a direct source of food and agriculture as a key driver of food prices. The food production pathway directly affects food availability and diversity at household level; and affects food prices which will impact the capacity of households to access diverse foods and therefore affect nutrition outcomes.
- *income pathway* - This pathway focuses on increased income derived from engagement in agriculture related activities. Increase or decrease of these incomes directly affects the purchasing power of households, both for food and non-food expenditures. This in turn affects nutrition outcomes.
- *women empowerment pathway* - This pathway entails the skills and capacity that women gain as well as investment of their resources (such as time and energy) in order to engage or be engaged in agricultural-related activities. The pathway directly affects the level of incomes, caring capacity and energy expenditure. All these have an impact on nutrition outcomes.

These pathways have both direct and indirect effects on nutrition outcomes of target populations. For instance, the nutritional status of individuals impacts on cognitive ability (including education performance) and productivity. Strong labour productivity leads to economic growth. Moreover, good nutrition is a determinant of health and hence reduces the economic burden on health care. This is evidenced from Cost of Hunger Studies carried out in different countries, including Kenya.

It is worth noting that these pathways must be implemented within an enabling environment which includes food markets, natural resources, health, Water, and sanitation as well as health and nutrition knowledge and attitudes.

Figure 4 illustrates the different agricultural pathways and how they may impact nutrition.

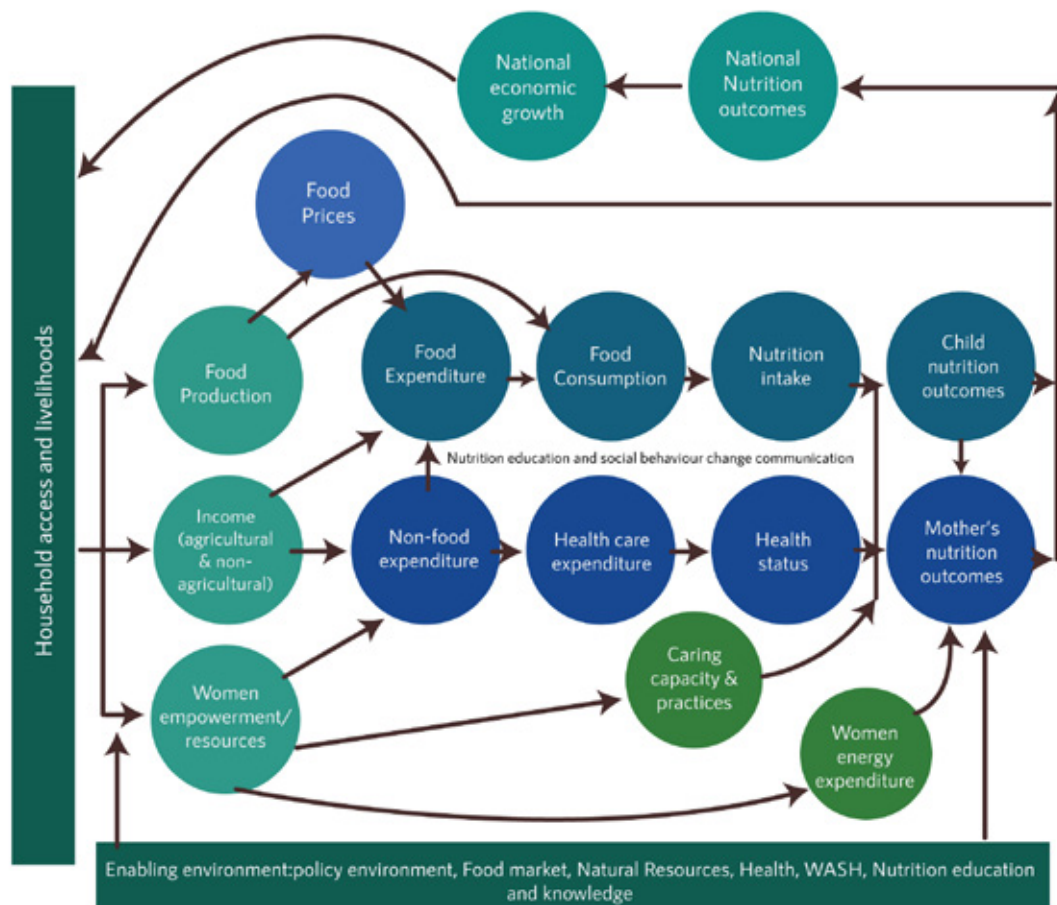


Figure 4: The relationship between nutrition and different agricultural pathways

Different agriculture-nutrition pathways

Food production pathway:

There are two components to consider in this pathway:

- **Agriculture as a source of food** – This is the most direct route for improving the quality and quantity of household diets. It is based on an increase in production of a wide range of foods, which enhances food availability and access to diverse diets. Increased food availability contributes to improved diets and positive impact on nutrition. Food production can affect the type, quantity and seasonality of foods available for household consumption. However, caution should be exercised in the implementation programmes under this pathway because the presence or absence of nutrition knowledge and skills of the producer can lead to positive or negative nutrition outcomes. For instance, even though agricultural production can lead to increased access and availability of nutritious foods, households need to be sensitized on the importance of consuming part of their farm production instead of selling all the produce.
- **Agriculture as a driver of food prices** – Demand for or purchase of food is largely dependent on cost. Therefore, increasing supplies may reduce prices and increase demand. It is assumed that an increase in availability of foods and favourable trade policies influence the prices of foods, ultimately affecting the purchasing power of households.

Caution must also be taken to ensure that there are price controls for agricultural inputs to ensure that small-scale farmers make adequate profits even as food prices are reduced.

Income pathway:

This pathway is essential to reducing poverty and enhancing sustainable livelihoods for agriculture-based households. The assumption is that increases in income from agriculture-related activities lead to the purchase of high quality nutrient-dense foods and other non-food items that are essential for health, care and nutrition.

Moreover, the food environment may positively or negatively effect the income-earning potential of households. Processing and storage can affect the shelf life, safety, and nutrient content of foods in positive or negative ways. For example, if food is over-processed, most of the micronutrients are lost. Furthermore, some food additives that are used in food preservation can also negatively harm the health outcomes of consumers.

It is important to note that local supply and demand may also be positively or negatively influenced by social behaviour change, nutrition knowledge, and social marketing. This in turn may help drive consumer preferences.

Increasing agricultural productivity, both for local consumption and for export, increases government revenues and thereby adds to funds available to invest in improving essential basic social services - such as education, health, and safety-net programmes - which have been shown to improve nutrition outcomes.

Women empowerment pathway

Initiatives that educate women and enhance their involvement in agriculture-based activities can attain the following: strengthen their capacity (to engage in agricultural related activities, decision making, income generation etc); increase their access to, and control over resources and assets; and consequently augment their power to make decisions on the allocation of food, health and care within their households. Increasing the income from agriculture and non-agriculture sources that women control strengthens the income pathway to nutrition, as women tend to spend more resources on household needs.

Agricultural activities that influence how women spend their time and energy will in turn affect their *caring capacity & practices*. Ultimately this will have an effect on maternal and child nutrition.

Enabling environment

The enabling environment is important for the pathways to adequately deliver on nutrition. Some of the factors that influence agriculture and nutrition linkages are factors at community, county, or national levels affecting the household-level pathways. These factors include:

Food environment: This shapes how accessible, affordable, desirable and convenient specific foods are. A healthy food environment allows and encourages communities to make food choices that are consistent with better diets and improved well-being. It also affects the kinds of foods that are available and likely to be purchased, as well as those that are likely to be produced by farm households in response to price signals and market incentives. The food market influences what farming households consume at home or sell.

The food environment can also contribute to good nutrition depending on how nutrition messages are conveyed to consumers, as this will inform their food choices. This includes information of food labeling and social marketing.

Natural resource environment: Natural resources – such as water, soil, climate, biodiversity, and productive land - affect agricultural potential which impacts food availability and incomes

derived from agriculture. Changing climate patterns, including protracted dry seasons and floods, affect quality of agricultural production, and quantity of food produced. Therefore, for agriculture to positively impact food security and nutrition, there is need to mitigate constraints on natural resources and enhance proper management of scarce resources.

Health, water and sanitation environment: The agriculture sector intersects with health, water and sanitation in many ways. For example, contamination of water with agricultural chemicals will have a negative effect on human health. Diseases may be transmitted between livestock and people when they interact. Poor handling and storage of some grains leads to mycotoxins which are harmful to human health. These negative effects increase the burden on health systems. A key component of nutrition-sensitive agriculture therefore includes consideration of the activities' potential effects on the health, water, and sanitation environment.

Nutrition and health knowledge and norms: The knowledge held by a community is crucial in the making of decisions related to agriculture, health and nutrition. A household's knowledge of financial and meal planning will also affect the kind of foods that are bought, how they are prepared and who eats what (also referred to as intra-household food distribution). Decisions that may result in improved household nutrition outcomes for a household are largely dependent on the knowledge and skills of the household members. Therefore, behavior change communication will play a key role in programmes.

Favorable policy environment: There is need for goodwill and an enabling policy environment that will ensure that agriculture-related investments intentionally contribute to positive nutrition outcomes. Examples of how food and agriculture policies can have a better impact on nutrition include:

- increasing incentives and decreasing disincentives that impact on availability, access, affordability and consumption of healthy diets;
- strengthening information systems to include monitoring of food consumption/ dietary patterns;
- protecting and empowering nutritionally vulnerable population groups;
- strengthening of human resource capacity;
- strengthening multi-sectoral coordination.

Other recommendations for consideration include:

- *Strengthening resilience* - This can include activities to ensure sustainability of foods in all seasons, including support to food production even during lean seasons so that households have food access in all seasons.
- *Promoting investments in research and development* in food and agriculture for improved nutrition. This may include, research on nutrient dense inputs like nutritionally improved seed varieties, animal feeds, aflatoxin prevention and control in the food system, affordable nutrient preserving techniques etc.
- *Improve knowledge management and sharing of good practices* in nutrition-sensitive agriculture- this will provide evidence of what works in different settings and promote proper decision-making. It also fosters change in organizational culture and will enhance nutrition integration in different investments.
- *Strengthen advocacy efforts* for nutrition integration in policies and investments. Efforts are required to ensure that decision makers are always aware of the need to integrate nutrition in food and agriculture investments and provide budgets for them. Advocacy efforts play a key role in creating awareness and increasing attention to nutrition.



① Key recommendations for improving nutrition through agriculture and food systems

FAO developed 10 key recommendations on how agricultural programmes and investments can strengthen impact on nutrition. They are:

Incorporate explicit nutrition objectives and indicators into programme design; and track and mitigate potential harms, while seeking synergies with economic, social and environmental objectives.

Assess the context at the local level, to design appropriate activities to address the types and causes of malnutrition, including chronic or acute undernutrition, vitamin and mineral deficiencies, and obesity and chronic disease.

Target the vulnerable and improve equity through participation, access to resources, and decent employment.

Collaborate and coordinate with other sectors such as health, environment, social protection, labour, water and sanitation, gender, education, energy.

Maintain or improve the natural resource base – such as water, soil, air, climate, and biodiversity – which are critical to the livelihoods and resilience of vulnerable farmers and to sustainable food and nutrition security for all.

Empower women by ensuring access to productive resources, income opportunities, extension services and information, credit, labour and time-saving technologies (including energy and water services) and supporting their voice in household and farming decisions.

Facilitate production diversification, and increase production of nutrient-dense crops and small-scale livestock which include horticultural products, legumes, livestock and fish at a small scale, underutilized and indigenous crops and biofortified crops.

Improve processing, storage and preservation to retain nutritional value, shelf-life, and food safety, to reduce seasonality of food insecurity and post-harvest losses, and to make healthy foods convenient to prepare.

Expand markets and market access for vulnerable groups, particularly marketing nutritious foods or products so that vulnerable groups have an advantage in accessing these foods.

Incorporate nutrition promotion and education that build on existing local knowledge, attitudes and practices. Nutrition knowledge can enhance the impact on production and income in rural households and is especially important for women and young children. It can also increase demand for nutritious foods in the general population.

Ref: FAO, 2015. Key recommendations for improving nutrition through agriculture and food systems (<http://www.fao.org/3/a-i4922e.pdf>)





① SUMMARY

Agriculture to Nutrition Pathways are non-linear with many interactions among them. They help make agriculture-nutrition linkages more explicit and clear. They are key to proposing key activities that can be implemented in order to improve nutrition.

Agriculture pathways impacting on nutrition include: the agriculture production pathway; the income pathway; and the women empowerment pathway.

The enabling environment is critical for the pathways to adequately deliver on nutrition. Factors that influence agriculture and nutrition linkages include: the food environment; natural resource environment; health, water and sanitation environment; nutrition and health knowledge and norms; and a favourable policy environment.

① REFERENCES

EC, FAO, CTA & World Bank. 2014. Agriculture and Nutrition: A Common Future. In: Slideshare [online]. [Cited 22 September 2022]. <http://www.fao.org/3/a-at709e.pdf>

Herforth, A. & Harris, J. 2014. *Understanding and Applying Primary Pathways and Principles*. Brief #1. Improving Nutrition through Agriculture Technical Brief Series. Arlington, USAID & Strengthening Partnerships, Results, and Innovations in Nutrition Globally (SPRING) Project. 16 pp. (also available at https://www.spring-nutrition.org/sites/default/files/publications/briefs/spring_understandingpathways_brief_1_o.pdf).

Gillespie, S., Harris, J. & Kadiyala, S. 2012. The Agriculture-Nutrition Disconnect in India. What do We now? International Food Policy Research Institute. https://www.researchgate.net/publication/254416377_The_Agriculture-Nutrition_Disconnect_in_India_What_Do_We_Know/link/55c9cd9508aeb9756747bfe8/download





MODULE 5

SELECTED NUTRITION-SENSITIVE AGRICULTURE AND FOOD SYSTEMS INTERVENTIONS

➔ Introduction

The chapter provides information on how to mainstream nutrition in agriculture and food systems programmes through selected nutrition-sensitive interventions including: dietary diversification, food and nutrition education and Social Behaviour Change Communication (SBCC), fortification and biofortification, meal planning and recipe development, school food and nutrition.

Selected nutrition interventions

Dietary Diversification/diversity

Dietary diversity is defined as the intake of a variety of foods from different food groups over a given period of time. Interventions promoting dietary diversity are aimed at changing food consumption at household or individual level by increasing the consumption of diversified and micronutrient rich foods. For example, this can be through increasing the consumption of diverse fruits and vegetables or of animal source foods. Dietary diversity contributes to reduction of under-nutrition and particularly micronutrient deficiencies.

Kenya has developed the *National Guidelines for Healthy Diets and Physical Activity* (2017) a policy document that aims to provide guidance for the promotion of healthy diets and physical activity among the general population. The document provides healthy diet principles, dietary guidelines for Kenyans of all ages and guidance on advocacy for healthy diets. The Kenya Food Composition Tables (2018) provides data on the common nutrients found in different foods in the country. This is a critical tool in planning diets and promoting dietary diversity at household and community level. The National Guidelines for Healthy Diets and Physical Activity stipulates different food groups to be used for food and nutrition education in Kenya. These include the foods listed in Table 4.

Table 4: Ten food groups for the general population

FOOD GROUP	EXAMPLES OF FOODS
Grains, grain products, roots,tubers, and green bananas	Maize, rice, wheat, millet, sorghum or foods made from these (like porridge, bread). white yams, white cassava, arrow roots, irish potatoes, green banana/plantain
Legumes and pulses	Dried beans, dried peas, lentils, green-grams, cowpeas
Nuts and seeds	Pumpkin seeds, sesame (simsim) seeds, groundnuts, macadamia, nuts and seeds products (e.g. peanut butter)
Milk and milk products	Milk, cheese, fermented milk, yogurt or other milk products
Eggs	From chicken, ducks, quail
Meat, fish, poultry, insects, organ meat	Beef, pork, rabbit, chicken, insects (like termites and grasshoppers), kidney, liver, heart or other organ meats or blood-based foods.
Orange, yellow, fruits and vegetables	Carrots, pumpkins, orange-fleshed sweet potatoes, ripe mangoes, ripe pawpaw, and 100% fruit juice made from these (plus other locally available vitamin A-rich fruits)
Dark green leafy vegetables	Spinach, kale, amaranth leaves, pumpkin leaves, black nightshade, spider plant, cowpea leaves
Other vegetables,	Tomatoes, onions, cabbage, egg plant, capsicum, broccoli, okra, snowpeas, green peas, green beans,
Other fruits	Oranges, passion fruits, and other local fruits and 100% fruit juice made from these

A visual representation of the different types of food groups is provided in Figure 5.



Figure 5: Pictorial image of the 10 food groups for food and nutrition education for the general population. (Ref: National Healthy Diets Poster, 2020)

Diets with diverse foods from different food groups are associated with greater nutrient intake. This is therefore positively associated with improved nutritional status (of both adults and children).

Special attention should be given to the dietary diversity of children aged 6-23 months. The diets of children in this age range should comprise breastmilk and at least five or more of seven food groups. Feeding of a child at 6 months should start with well mashed foods and gradually increase in the frequency, amount, thickness and variety as the child grows. Figure 6 shows the seven food groups for children between the ages of 6 to 23 months.



Figure 6: Pictorial image of the seven food groups for food and nutrition education for children 6 to 23 months. (Ref: National Healthy Diets Poster, 2020)

Households can be assisted to increase their dietary diversity through a combination of different strategies including: own food production, access to incomes that enable the purchase of other foods not produced and integration of nutrition education in agricultural programmes.

Tools that can be used to measure dietary diversity at household and individual levels include: Minimum Dietary Diversity for Women (MDD-W), Women Dietary Diversity Score (WDDS), Household Dietary Diversity Score (HDDS), and Infant and Young Child Feeding Minimum Dietary Diversity (IYCF MDD). These will be discussed in detail in Module 8 which focuses on project cycle and indicators.

Case Study 3 provides an example of a project promoting dietary diversity.



Q CASE STUDY 3: DIETARY DIVERSIFICATION

Project: Improving Dietary Diversity of Households through Nutrition-Sensitive Agriculture Programming in Six Counties, Kenya

Implementing Organization: Self Help Africa

Self Help Africa implemented a nutrition sensitive project on improving dietary diversity of households through programming in Kisumu, Homabay, Migori, Siaya and Busia counties. The project period was 2017–2022. The project targeted 1200 farmers with an aim of increasing household dietary diversity and improving nutrition knowledge. The project involved intercropping cassava with legumes coupled with nutrition education. Increased dietary diversity was realized during the mid-term evaluation in 2020. The project recommended inclusion of explicit nutrition objectives in a project concept with budgetary allocation and embracing of intersectoral collaboration as key to achieving nutrition sensitive agriculture.

Detailed information on the case study can be found in Annexe 1, Case Study 3.



Food and nutrition education and Social Behaviour Change Communication

Food and nutrition education refers to any combination of educational strategies designed to facilitate voluntary adoption of food choices and other food- and nutrition-related behaviors conducive to health and wellbeing. Food and nutrition education is delivered through multiple avenues and involves activities at the individual, community and policy levels. Food and nutrition education plays a key role in promoting healthy and sustainable diets for all.

Behaviors are central to the immediate and underlying causes of malnutrition; social and behavior change play an important role in sustaining improved nutrition outcomes. *Social and Behaviour Change Communication (SBCC)* for health is a consultative process that uses communication approaches, combined with activities and tools for the purpose of positively influencing behaviours, in this case, for improving health and nutrition outcomes.

Effective behaviour change design should:

- make the improved practice easy and desirable.
- facilitate access to knowledge, skills, time, resources and social support required to adopt and maintain the improved practices.

Table 5 provides examples of SBCC approaches.


SBCC Approaches	Examples of Activities	Examples
Interpersonal	Counselling	One-on-one counselling
	Food and Nutrition Education	Group education, Cooking demos
	Support Groups	Mother support groups, Breastfeeding support groups. Positive Deviant Hearth Model
	Trials for Improved Practices	Testing feasibility of nutrition recommendations at household level before wider dissemination
Media	Mass and Mid-Sized Media.	TV Programmes, community radio, talking books, talking walls
	Print Media,	posters, flyers
	Social Media,	Facebook, Twitter
	Mobile Technology	SMS, Calls
Community Mobilization	Campaigns	Immunization days, Child Health days (Malezi Bora)

Table content adapted from WFP, 2019. Social and Behaviour Change Communication (SBCC). Guidance Manual for WFP Nutrition. Rome, Italy.

When using SBCC to improve Maternal and Infant Young Child Nutrition (MIYCN), evidence suggests that using multiple SBCC approaches (e.g. combining messages and preparation of improved recipes) is more effective than using one approach. Furthermore, targeting multiple contacts has a greater effect than targeting only the woman herself, and that several visits or contacts result in greater change.

When food security interventions and participatory nutrition education or SBCC interventions are implemented together, they are likely to improve maternal and children's diets and can have a positive impact on the nutritional status of the mothers and children. These interventions then need to be integrated throughout the programme stages. A behavior change approach should therefore be considered in the design, implementation, and monitoring of all nutrition-related activities in the programme. To catalyze sustainable behaviour change, vulnerable populations must also be empowered and the right policy, market, and social environments created to facilitate this.

① **Case Study 4** provides an example of a project implemented in Kenya on food and nutrition education and SBCC.




Q CASE STUDY 4: FOOD AND NUTRITION EDUCATION, BCC

Project: Sustainable Approaches to scaling up Agri-Nutrition Social Behaviour Change Communication
Implementing Organization: RTI - KCDMS Activity

The Feed the Future Kenya Crops and Dairy Market Systems Activity (KCDMS), implemented by RTI, between 2017 and 2022, aimed at increasing consumption of acceptable and diverse diets among children aged 6–23 months and women of reproductive age. The Project was implemented in 12 counties in Eastern, Western and Nyanza regions. The project offered agri-nutrition programmes through “training of trainers” to private sector partners who were directly working with small scale farmers. Through cascaded nutrition training, there was significant increase in dietary diversity scores among women and children 6–23 months. The project has shown that multi-model approach to agri-nutrition BCC can be effective in influencing positive nutrition behaviours.

Detailed information on the case study can be found in Annexe 1, Case Study 4.



Fortification and biofortification

Micronutrient deficiency is a global problem and a widespread form of undernutrition. It is caused by inadequate intake of fruits, vegetables and other micronutrient-rich foods. Food fortification and biofortification are some of the ways used to combat micronutrient deficiencies.

Food fortification

This is the addition of one or more essential nutrients to a food, whether or not it is normally contained in the food. The purpose of fortification is to prevent or correct a demonstrated deficiency of one or more nutrients in the population or specific population groups.

Food fortification directly enhances the nutrient composition of different foods through adding elements such as vitamins and minerals like Vitamin A, iron, zinc, folic acid or iodine. The additions may be done during the processing phase or at the point of use (e.g. household level). Food fortification is considered to be a cost-effective strategy for prevention and management of micronutrient deficiencies and allows for high population coverage. The foods most commonly fortified in Kenya are salt, wheat flour, maize flour, fats and oils among other condiments.

Below are the main types of food fortification:


- mass or universal fortification of basic staples or condiments (e.g. folic acid-fortified wheat flours, vitamin A-fortified cooking oil, iodized salt);
- community fortification of locally available staples (e.g. small-scale grain fortification, using village mills);
- point-of-use fortification (e.g. sprinkles, micronutrient powders);

Kenya has engaged in food fortification since 1972 through voluntary salt fortification. Mandatory legislation on salt iodization was put in place in 1978. In 2018, Kenya developed the National Food Fortification Strategic Plan.

Kenya has made progress in food fortification including the: development of regulations for mandatory fortification of salt, wheat flour, maize flour, vegetable oil and fats; setup of the Kenya National Food Fortification Alliance; and certification of premix suppliers and distributors by Kenya Bureau of Standards (KEBS), among others.

Among the focus points of the Kenyan fortified foods' strategy are : strengthening regulatory and coordination environment for food fortification by improving policy; leadership and governance; increasing production of adequately fortified salt, maize flour, wheat flour and vegetable oil and fats; strengthening regulatory monitoring of fortified foods at the industry and market levels; improving on demand and consumption of fortified foods; and monitoring of food fortification programme performance at the industry, market and household levels.

① **Case Study 5 provides an example of a project implemented in Kenya focused on food fortification**




Q CASE STUDY 5: FOOD FORTIFICATION

Project: Commercial Food Fortification in Kenya
Implementing Organization: Ministry of Health, Kenya

Food fortification (FF) is one of the strategies used in the prevention and control of micronutrient deficiencies. FF in Kenya dates back to 1970 with voluntary iodization of salt, and in 1978, salt iodization became mandatory. Different partners have supported the Ministry of Health in implementation of the food fortification program. Strong collaboration of the players through public-private partnerships has been the major achievement. This resulted in uptake of food fortification and increased production of fortified foods. Resulting in good program coverage. The program has shown that developing regulatory frameworks, having strong partnerships and continued social marketing are important for uptake and sustained consumption of the fortified foods in Kenya.

Detailed information on the case study can be found in Annexe 1, Case Study 5.



Biofortification

Biofortification can be a strategy to target populations where supplementation and conventional fortification activities may be difficult to implement and/or are limited.

Kenya promotes several biofortified crops, including Vitamin A-rich Orange Fleshed Sweet Potatoes, high iron beans, and biofortified sorghum, among others.

Biofortification involves multiple stages, namely discovery, development, and dissemination as shown in Figure 7.

Discovery

- Identify target populations
- Set nutrition target level
- Screen germplasm and gene discovery

Development

Breed bio-fortified crops

- Test the performance of New crop varieties
- Measure Nutrient retention in crop
- Evaluate Nutrient Absorption and Impact

Dissemination


- Develop strategies to disseminate the seed
- Promote marketing and Consumption of Bio-fortified crops

Improve Nutritional Status of Target Populations

Figure 7: Simplified diagram of the pathway for bio-fortified crops (HarvestPlus, 2009)

Nutrition-sensitive agriculture programmes need to promote consumption of fortified and biofortified foods in order to increase the micronutrient intake of the general populations, as well as that of nutritionally vulnerable groups such as women of reproductive age and children under two years. Fortification can also target other areas, like provision of fortified school meals, emergency food distribution, or social protection programmes.

① Case Study 6 provides an example of a project implemented in Kenya focused on biofortification.




CASE STUDY 6: RECIPE DEVELOPMENT AND MEAL PLANNING

Title: Development and Delivery of Biofortified Crops Programme in Kenya
Implementing Organization: International Potato Center (CIP)
Project duration: 2019-2022

The International Potato Centre (CIP) implemented the Development and Delivery of Biofortified Crops Project (DDBIO), between 2019 and 2022, in 8 counties in Kenya. The objective was to reduce micronutrient malnutrition by scaling up production and consumption of the biofortified Vitamin A-rich Orange-fleshed sweetpotato (OFSP) among households with children under five, pregnant and lactating women, adolescent girls, low-income and vulnerable consumers. The intervention included agricultural production training, coupled with nutrition education and farmer field days. The project resulted in Improved consumption of OFSP among young child feeding supported by the Healthy Baby Tool Kit (HBT) for children under 2 years of age.

Detailed information on the case study can be found in Annexe 1, Case study 6.



Meal planning and recipe development

A healthy balanced diet provides the correct amounts of food energy and nutrients a person needs. A healthy diet must be composed of a variety of foods from different food groups so that it contains the diversified macronutrients and micronutrients the person needs. People who eat healthy and balanced diets are likely to have energy to work, enjoy themselves, and live healthier lives.

Meal planning and recipe development are an important component of food and nutrition education, and SBCC for improved feeding.

Meal planning

Meal planning is the art of organizing meals to be prepared, served and eaten at any one time in the day. It ensures that the meals are adequate to meet the nutritional needs of the family members. These meals should also be attractive and appetizing.

A menu is developed to cater for the nutritional requirements of the household. While planning, it is important to involve other members of the family to cater for individual preferences and nutritional requirements.

Breakfast, lunch and supper form the main meals for a day. Snacks in between the meals form a substantial part of our daily food intake therefore it is important to ensure they contribute to a well-balanced diet.

In meal planning consider the following factors:

- food availability;
- nutritive value of the meal;
- money available to purchase food;

- facilities available for food preparation;
- food variety;
- time available to prepare the food;
- food safety and hygiene.

A good meal should contain:

- a staple food (like grains, grain products, roots, tubers, and green bananas);
- Legumes or animal source foods;
- At least one vegetable;
- Some oil or fat- to increase the energy and improve taste;
- A fruit (either as part of the meal or as a snack);
- Water.

It is important to encourage families to eat:

- several groups of food at each meal.
- diversified fruits and vegetables at each meal, so as to consume different micronutrients needed by the body each day,
- meat, poultry and other animal source foods – because they are good sources of proteins and micronutrients such as iron and zinc. Animal source foods are mostly lacking in diets, and special attention is needed to increase their consumption.

Recipe development

A recipe is a set of instructions used for preparing ingredients in a safe, nutritious and pleasing manner in order to produce a certain food, dish or drink. The purpose is to have a precise record of ingredients used, the amounts needed, and the way they are combined and duration for preparation.

Improved recipes contribute to diversified feeding at household level. Quantified recipes are key in ensuring that target populations are taking the correct estimates of nutrients. Where food composition data is available, the nutrient content of each recipe can be estimated through calculation. In order to assist households, prepare diversified meals, one can prepare recipes that include soups, children's snacks, complementary foods, main meals, salads and fruit-based beverages.

In 2018, the government and FAO documented examples of recipes that are used by households all over the country. Figure 8 shows an example of one such recipe.

A Recipe Book of Common Mixed Dishes with Nutrient Values; As Prepared by Communities.

KFCT Code 15014

Finger Millet Porridge (Uji wa Wimbi)

This porridge is made from the tiny finger millet grain best known for its characteristic brown colour and good source of fibre. It is common in Western and Eastern parts of Kenya. This porridge is prepared from carefully cleaned and dried finger millet grains. It is commonly enriched with milk or sugar and serves children and adults alike.

Ingredients

1 cup (123 g) finger millet flour, whole
2 ½ tbsp. (35 g) sugar, white
7 cups (1509 g) water

Preparation 5 minutes | Cooking 20 minutes | Serves 4

- Boil 5 cups of water in a pot.
- In a separate bowl, add 2 cups of water to the finger millet flour and mix to a medium paste.
- Add the paste to the boiling water and stir to prevent lumps from forming (do this until the mixture boils).
- Leave to boil for 5 minutes and add sugar.
- Stir, remove and serve the porridge.

Figure 8: A Kenyan recipe for the preparation of Finger Millet porridge.

Ref: FAO/Government of Kenya. 2018. Kenyan Food Recipes.

A recipe book of common mixed dishes with nutrient value. Nairobi, FAO. 43 pp.

<http://www.fao.org/3/I8897EN/I8897en.pdf>

Key factors to consider when developing community recipes include:

- recipes that are adapted to local practices and tastes – This includes traditional techniques that are nutritionally beneficial like fermentation, pickling, grinding.
- mode of preparation – It is important to understand a community's accepted food preparation methods with an emphasis on cooking methods that promote maximum retention of nutrients, coupled with hygienic handling. Community trials may also be used to test acceptable methods of cooking, acceptable tastes, trials of new recipes among other features. For example, Trials of Improved Practices (TIPS) has been used to test acceptability of complementary foods in different settings.
- availability of ingredients - Recipes need to take into consideration the ingredients that are locally available and accessible to the target community. This will enhance sustainability and easy adaptation of improved feeding practices.
- nutritional composition of the recipes - In order to contribute to improvement of nutrition, recipes need to intentionally promote the consumption of nutrient-rich foods.

Tips on intra-household food distribution:

All members of a family need to have adequate food that will enable them to meet their daily nutrient requirement. Below are some tips that can help with this:

- share the staple foods, legumes and animal source foods according to the nutritional needs of each of the family members.
- share vegetables and fruits almost equally among all members. Pregnant and breastfeeding women may need larger portions.
- women of reproductive age and girls need bigger portions of iron rich foods. Young children need a fair share of this too.
- give young children their own plate, so that they can have their share of food and one is able to monitor their feeding.

In summary, meal times can be a time for families to talk and bond, while giving children love and attention as they learn to feed.

Nutrition-sensitive agriculture projects are a good entry point for promotion of recipe development, meal planning and preparation, and support for communities to adapt improved and diversified feeding practices.

School food and nutrition



School food and nutrition encompass complementary efforts to improve food security and nutrition through schools as well as through community socio-economic development. These efforts include interventions to promote a healthy school food environment and adequate and safe school food/meals, to stimulate inclusive food procurement and value chains, and to integrate food and nutrition education throughout the school system.

School food and nutrition programmes can be effective tools to reach nutritionally vulnerable populations. These programmes have the potential to address the causes of hunger and malnutrition if designed in a comprehensive way. The four steps for promoting a holistic approach to school food and nutrition are:

A. Conducting a situation analysis - A proper food and nutrition situation analysis will enable one to identify the causes of malnutrition in school children and their families, as well as nutrition factors linked to the education system such as suppliers, food producers, infrastructure, availability of clean water, and cooking skills..

B. Mapping and analyzing key policies and programmes - Policies and programmes in education and other sectors that influence school food and nutrition cover areas including the school environment, organization, curriculum, routines, staff training, and available infrastructure.

C. Identifying the key entry points, challenges and opportunities - Some opportunities that should be seized to enable schools to contribute to better nutrition can be achieved through;

- Promoting healthy food environments - The school food environment refers to all the spaces, infrastructure and conditions inside and around a school's premises. The environment also

includes all the information that is made available, including , promotions (through (marketing, advertisements, branding, food labels, packages, promotions, etc.) and the pricing of foods and food products. A healthy school food environment allows and encourages the school community (children, families, school staff, etc.) to make food choices that are consistent with better diets and improved wellbeing. By establishing school gardens, for instance, children learn how to grow healthy food while simultaneously learning about sustainable food cultivation. In support of such initiatives, the 4-K Clubs have been invigorated in primary schools.

- Integration of food and nutrition education in the education system - This will develop children's basic food skills and capacities. Examples of activities that can be undertaken include: integrating food and nutrition in national curriculum; extra-curricular activities like school gardens; professional development in food and nutrition education; nutrition training programmes for school staff (including the cooking teams). Nutrition education has been embedded in Kenya's newly implemented Competency Based Curriculum (CBC).
- Incorporating complementary activities to promote nutrition and health wellbeing – These activities include deworming of children, assessments of nutritional status of children, micronutrient supplementation when necessary, use of fuel-efficient stoves, correct waste management, provision of safe drinking water, nutritional education on hygiene and sanitation, and environmental education.
- Linking institutional food needs with local agricultural production and the community - This increases the benefits of school food and nutrition programmes. Home-Grown School Feeding (HGSF) programmes link school meals to local and smallholder agriculture production. These programmes can strengthen capacities of small holder farmers and communities to produce food, improve the livelihoods of the farmers and communities, contribute to rural transformation, and strengthen the nexus between nutrition, agriculture and social protection.

D. Creation of sustainable policies, programmes and partnerships - The strategies for implementation, maintenance, scale up and sustainability of school food and nutrition programmes need to be taken into consideration. This will mean having the required technical, financial and structural resources to enable school food and nutrition to be ongoing for long periods. Furthermore, the capacity development gap need to be addressed.

Critical transition points must be anticipated. For example, how a HGSF will continue to function once external funding comes to an end, or how to transition from donor-funded to government-funded school food and nutrition programmes.

School meals should not only strive to alleviate short-term hunger but should also meet the nutritional needs of children. This is because good nutrition throughout the lifecycle is a prerequisite to good health, adds to quality of life, and is the foundation for a strong and productive society.

School feeding is addressed in Kenya's National School Health Policy and operationalized by the National School Meals and Nutrition Strategy. The vision of this strategy is to ensure that school children are well nourished and healthy, so that they are able to learn. The strategy emphasizes the need for dietary diversity and standards for macronutrient and micronutrient provision in school meals. Specific micronutrient-deficiency prevention strategies from the health sector are also integrated in the strategy.

Examples of other interventions that can form synergies with school food and nutrition programmes include: school garden projects, routine deworming activities, and programmes promoting safe drinking water access and hand washing.

① **Case Study 7 provides an example of a project implemented in Kenya focused on school food and nutrition**



🔍 CASE STUDY 7: SCHOOL FOOD AND NUTRITION

Project: Retro Veggies in School Meals: Improving Dietary Diversity and Save Forgotten Foods in Busia County, Kenya

Implementing Organization: Alliance of Bioversity International and CIAT

Between 2014 and 2017, Alliance for Biodiversity and CIAT implemented a Retro Veggies in School Meals project in Busia county. The nutrition-sensitive agriculture intervention aimed at diversifying food procurement and school feeding programmes in order to contribute to improving the diets and nutritional status of school-going children using micronutrient-rich African indigenous vegetables (AIVs). This was being implemented using a pilot Home-Grown School Feeding (HGSF) approach. The farm-to-school network in Busia County now provides healthier school meals to approximately 5,500 pupils, by integrating AIVs in their school meals.

Detailed information on the case study can be found in Annexe 1, Case study 7.





① SUMMARY

Diets with a diverse number of different foods from different food groups are associated with greater nutrient intake.

Households can be assisted to increase their dietary diversity through combining different strategies including own food production, access to incomes that will enable them to purchase other foods and integration of nutrition education in agricultural programmes.

Food fortification and biofortification are considered to be effective strategies for prevention and management of micronutrient deficiencies.

Nutrition education and behaviour change approaches need to be considered in the design, implementation and monitoring of all nutrition-related activities in the programme. To catalyse sustainable behaviour change, key populations must also be empowered within a favourable policy, market and social environment.

Recipe development and meal planning need to be adapted to local beliefs/practices and tastes, while taking into consideration the ingredients that are locally available. Recipes need to intentionally promote the consumption of nutrient-rich foods.

School food and nutrition interventions need to be holistic and focus on the most effective synergies in order for the target population to experience positive outcomes in nutrition, food security and community development.



① REFERENCES

- Borghini, A.** 2015. What is a recipe? *Journal of Agriculture and Environmental Ethics*, 28(4): 719-738.
- Burgess, A. & Glasauer, P.** 2004. *Family Nutrition Guide*. FAO Food and Nutrition Division. Rome, FAO. 126 pp. (also available at <http://www.fao.org/3/y5740e/y5740e.pdf>).
- Bioversity International.** 2013. *Diversifying food and Diets. Using agricultural biodiversity to improve nutrition and health*. New York. (also available at https://www.bioversityinternational.org/fileadmin/user_upload/online_library/publications/pdfs/Diversifying_food_and_diets_1688_01.pdf).
- Contento, I.R.** 2011. *Nutrition education: Linking research, theory and practice* (2nd ed.). Sudbury, Jones & Bartlett Publishers.
- FAO.** 2007. *Recipe development in India*. Rome. <http://www.fao.org/tempref/docrep/fao/010/ag126e/ag126e01.pdf>
- FAO.** 2010. Guidelines for measuring household and individual dietary diversity. Rome, Italy. <https://www.fao.org/3/i1983e/i1983e.pdf>
- FAO.** 2013. Guidelines for measuring household and individual dietary diversity. Rome, Italy.
- FAO.** 2015. Participatory Nutrition Education is a Catalyst for Dietary Diversity. FAO-led food security interventions in Cambodia and Malawi show added value of linking agriculture and nutrition education. <http://www.fao.org/3/a-bc793e.pdf>
- FAO.** 2017. Nutrition sensitive agriculture and food systems in practice. Options for intervention. Rome, Italy.
- FAO.** 2019. Strengthening sector policies for better food security and nutrition results. Education. Policy Guidance 13. Rome, Italy. <http://www.fao.org/3/ca7149en/ca7149en.pdf>
- FAO.** 2020. Legal guide on school food and nutrition. Legislating for a healthy school food environment. Rome, Italy. <http://www.fao.org/3/ca9730en/ca9730en.pdf>
- FAO Website.** School food and nutrition. Healthy food environment and school food. <http://www.fao.org/school-food/areas-work/food-environment>
- FAO & FHI 360.** 2016. *Minimum Dietary Diversity for Women: A Guide for Measurement*. Rome: FAO.
- FAO & Government of Kenya.** 2018. *Kenyan Food Recipes. A recipe book of common mixed dishes with nutrient value*. Nairobi, FAO. 349 pp. <http://www.fao.org/3/I8897EN/I8897en.pdf>
- FAO & Government of Kenya.** 2018. *Kenya Food Composition Tables*. Nairobi, 254 pp. <http://www.fao.org/3/I9120EN/i9120en.pdf>
- FAO & WFP.** 2018. *Home-Grown School Feeding. Resource Framework. Technical Document*. Rome <http://www.fao.org/3/ca0957en/CA0957EN.pdf>
- FAO & WHO.** 1994. <https://www.fao.org/3/w2840e/w2840eob.htm>
- Government of Kenya. *National School Health Policy*. Nairobi, Kenya. (also available at <https://www.prb.org/wp-content/uploads/2018/05/National-School-Health-Policy-2009.-without-cover.-Kenya.pdf>).
- Government of Kenya.** *National School Meals and Nutrition Strategy, 2017-2022*. (<https://www.wfp.org/publications/2018-national-school-meals-and-nutrition-strategy-2017-2022-kenya>.)
- Government of Kenya.** 2017. *A Resource Manual for Agri-Nutrition in Kenya. Indicators for assessing infant and young child feeding practices: definitions and measurement methods*. Geneva: World Health Organization and the United Nations Children's Fund (UNICEF), 2021. Licence: CC BYNC-SA 3.0 IGO; <https://creativecommons.org/licenses/by-nc-sa/3.0/igo>

Ministry of Health. 2017. National Guidelines for Healthy Diets and Physical Activity. Government of Kenya. Nairobi. (also available at <http://www.nutritionhealth.or.ke/programmes/healthy-diets-physical/>).

Ministry of Health. Kenya National Food Fortification Strategic Plan 2018-2022. Nairobi, Kenya. (also available at <http://www.nutritionhealth.or.ke/wp-content/uploads/Downloads/Food%20Fortification%20Strategic%20Plan%20Final%20Press%20Signed%20-%20Aug%202018.pdf>).

Nutrition International. A world free from hidden hunger. Food fortification. <https://www.nutritionintl.org/what-we-do/by-programs/fortification/>

SPRING project. Moving nutrition social and behaviour change forward. Lessons from SPRING project. [https://www.spring-nutrition.org/publications/briefs/moving-nutrition-social-and-behavior-change-forward#:~:text=Nutrition%20social%20and%20behavior%20change%20communication%20\(SBCC\)%20is%20a%20set,to%20adopt%20and%20maintain%20high%2D](https://www.spring-nutrition.org/publications/briefs/moving-nutrition-social-and-behavior-change-forward#:~:text=Nutrition%20social%20and%20behavior%20change%20communication%20(SBCC)%20is%20a%20set,to%20adopt%20and%20maintain%20high%2D)

SPRING. 2014. Evidence of Effective Approaches to Social and Behavior Change Communication for Preventing and Reducing Stunting and Anemia: Findings from a Systematic Literature Review. Arlington, VA: Strengthening Partnerships, Results, and Innovations in Nutrition Globally (SPRING) project. Available at <https://www.spring-nutrition.org/publications/series/evidence-effective-approachessocial-and-behavior-change-communication>

SPRING Project. Online training on ‘Accelerating Behavior Change in Nutrition-Sensitive Agriculture. In: SPRING - Strengthening Partnerships, Results and Innovations in Nutrition Globally [online]. Arlington. [Cited January 28 2021]. <https://www.spring-nutrition.org/publications/training-materials/accelerating-behavior-change-nutrition-sensitive-agriculture>

UNICEF. Community based infant and young child feeding. Brochure- How to feed a baby after six months. https://www.unicef.org/nutrition/index_58362.html

WFP. 2019. Social and Behaviour change communication (SBCC). Guidance Manual for WFP Nutrition. Rome, Italy.

WHO. Biofortification of staple crops. <https://www.who.int/elena/titles/biofortification/en/>





MODULE 6

INTERVENTION OPTIONS FOR SELECTED AGRICULTURAL SUB-SECTORS

➔ Introduction

As emphasised in the previous chapters, agriculture and nutrition share food as a common entry point. Food is both a key outcome of agricultural activities and a key input into good nutrition and health. This chapter looks at different nutrition-sensitive agriculture and food systems interventions.

Components covered in this module are: crop production, livestock production, fisheries and aquaculture, post-harvest management, storage, food processing and preparation, food and feed safety and cross-cutting factors.

Options of interventions for selected agricultural sub-sector

1. Crop production

The crop sector plays a crucial role in Kenya's economy as it is a key source of livelihoods, employment, and a foreign exchange earner. It also contributes to food and nutrition security, as encapsulated in different policy documents including the Vision 2030, the Food and Nutrition Security Policy, and the Agriculture Sector Transformation and Growth Strategy (ASTGS), 2019-2029. The ASTGS 2019-2029 aims to increase producer incomes, agricultural output, food security and resilience.

It is estimated that annual crop production yields about 6 million tonnes of food crops, 4.2 million tons of horticultural crops, and 500,000 tonnes of industrial crops. Key challenges affecting this sector include crop diseases, pests, weeds, and climate change. The country is an importer of staple foods such as maize, rice and wheat because local crop production does not meet demand.

Some of the entry points that can be used in order to make crop production nutrition sensitive include:

Diversification in crop production: Diversification approaches aim to increase availability and affordability of diverse foods. Consumption of diverse and micronutrient rich foods is a pre-condition for good nutrition. Furthermore, integrated farming systems (such as agro-silvo-pastoral systems, rice fish ponds, intercropping and crop rotation) favor diversification and intensification. Crop production may be diversified by:

- promoting production of biofortified food crops: Diversification in crop production also includes promotion of nutrient-rich biofortified foods like Orange Fleshed Sweet Potatoes, biofortified beans and maize, among others. Promoting production and consumption of biofortified foods would increase the consumption of specific micronutrients of interest among the general population. (More information provided in Module 5).
- promoting production of indigenous foods: Indigenous foods are high in micronutrients, have health benefits and are climate resilient. Some of the common indigenous foods in Kenya include cowpea (*kunde*), yams and sweet potatoes. More information is provided later in this module.

Home gardening: Encouraging households to produce diverse vegetables and fruits can improve diet quality. Promoting home garden technologies that are space- and water-efficient can enhance adoption in both urban and rural areas.

Promoting agroforestry: Encouraging the planting of trees or shrubs around or among crops and pastureland has multiple benefits. It leads to increased soil fertility through nitrogen fixing, provides tree shade that prevents moisture loss in ASAL areas, contributes fodder, fuel, fruits and nuts, and helps in soil conservation. Leaves from trees – such as moringa and mulberry – are also a source of vegetables and herbs in some parts of Kenya.

Selection of seeds: The planting of quality seeds encourages production of food varieties with high nutrient productivity. This should be considered besides seeds that are well adapted to the local environmental situation, disease resistant, locally acceptable, and high yielding, among other factors. Biofortified seeds improve the nutritional quality of food crops through conventional plant breeding, agronomic biofortification (which is the application of micronutrient-rich fertilisers), or biotechnology.

Energy, time and labour-saving technologies for production: Women constitute over 50 percent of the agriculture labor force in Eastern Africa. Technologies that will reduce production energy, time and labour especially for women, will need to be considered as important inputs in agricultural production.

Access to land, water and other inputs: There is need to increase access to arable land, water and agricultural inputs which are factors of production. These will be important to support farmers to increase their crop production.

Nutrient-preserving on-farm storage: Storage methods that would preserve the nutrient quality of crops will need to be considered. These include safe storage away from pests and rodents, proper drying and cooling, and hygienic handling of crops from farms.

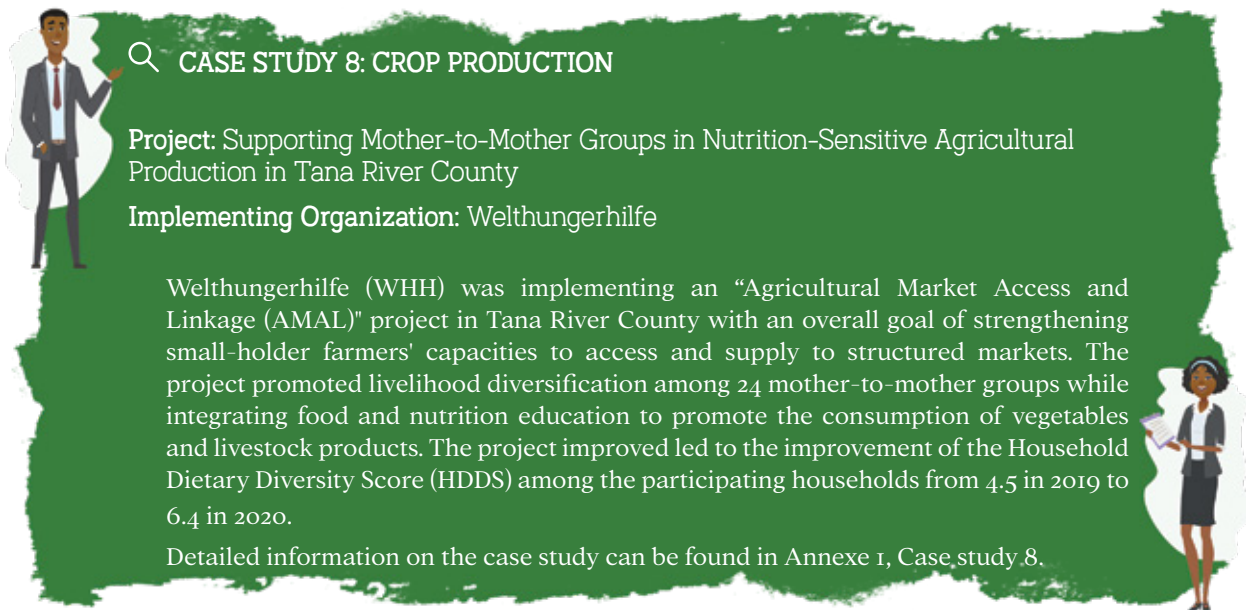
Strengthening demand for nutritious foods: Increased nutrition promotion and behaviour change strategies towards consumption of nutrient-rich foods will increase demand for nutritious foods, which in turn will stimulate their production.

Gender mainstreaming: Men and women have different roles in the agricultural production value chain. Empowering women is crucial in improving household food and nutrition security as they contribute significantly to food production. More attention should be given to initiatives that improve women's access to productive assets such as land, income-generating activities and extension services.

Food and nutrition education: Improving nutrition knowledge enhances impact of nutrition sensitive crop production and improve food consumption for vulnerable population groups.

Enabling environment: Agricultural policies need to support production of diverse nutrient-rich foods and provide incentives for adoption of sustainable agricultural production systems. This is while mitigating the negative impacts of agricultural intensification strategies that may lead to reduced dietary diversity and loss of biodiversity. Robust policy also strengthens the role of research in crop production.

① **Case Study 8 provides an example of a nutrition-sensitive crop production project in Kenya.**



Q CASE STUDY 8: CROP PRODUCTION

Project: Supporting Mother-to-Mother Groups in Nutrition-Sensitive Agricultural Production in Tana River County

Implementing Organization: Welthungerhilfe

Welthungerhilfe (WHH) was implementing an “Agricultural Market Access and Linkage (AMAL)” project in Tana River County with an overall goal of strengthening small-holder farmers' capacities to access and supply to structured markets. The project promoted livelihood diversification among 24 mother-to-mother groups while integrating food and nutrition education to promote the consumption of vegetables and livestock products. The project improved led to the improvement of the Household Dietary Diversity Score (HDDS) among the participating households from 4.5 in 2019 to 6.4 in 2020.

Detailed information on the case study can be found in Annexe 1, Case study 8.

Livestock

The livestock sector covers different livelihood groups namely: pastoralists, agro-pastoralists, mixed farming, rearing of small livestock for homestead production and extensive livestock rearing. Some of the common livestock kept are cows, sheep, goats, camels, chicken, bees and rabbits. Kenya is also home to key indigenous livestock like the Zebu and Borana cows, Small East Africa Goat, and edible insects.

Livestock provide animal source foods (ASFs) that are a source of a range of macro and micronutrients such as energy, proteins, iron, zinc, calcium and Vitamin B12. Vitamin B12 is an important micronutrient that is only naturally found in animal source foods. It plays a key role function of the brain and nervous system.

Animal source foods include meats, organ meats, eggs, dairy and dairy products. Consumption of animal source foods should be done in accordance with local dietary guidelines in order to avoid under- and over-consumption.

In Kenya, the livestock sector accounts for about 4.4 percent of the country's GDP. It also employs about 50 percent of the agriculture labour force, alongside other jobs created in the value chain. About 36 percent of the livestock population in Kenya is found in the Arid and Semi-Arid Lands (ASALs), and contributes a significant proportion of livestock consumed in and exported from Kenya. Some of the major constraints faced by this sector in Kenya include low productivity, poor animal husbandry, inadequate feeds and feeding, and livestock diseases.

There are different entry points for livestock programmes to be nutrition sensitive. These include: *Enhancing livestock ownership* for both men and women is important for nutrition and gender empowerment. Removing barriers that limit entry into or upscaling livestock production can accelerate livestock ownership. This includes increasing access to pastures, finances for livestock production, reducing the cost of animal feeds, increased disease management and surveillance, increased and sustained market for livestock products, and increased access to animal source foods (ASF) processing and preservation.

Livestock ownership can contribute to improved nutrition through:

- direct provision of animal source foods like milk and eggs. Their inclusion will improve the nutrient density of the diets consumed in households. .
- livestock trade through which men and women will gain incomes. Coupled with nutrition promotion, the incomes can contribute to the purchase of diverse foods for the households and other essential nonfood items, as well as better access to healthcare and education.
- livestock waste (manure) can be used for soil enrichment for crop production. This contributes to improved soil fertility and crop yields. However, close interaction between children and livestock waste is likely to increase diarrhoea and other human diseases. This will have a negative impact on the health and nutrition outcomes of children. Environmental health is therefore critical especially in homesteads with young children, and livestock and human habitats should be separated. Livestock health is also important in controlling zoonotic diseases (diseases that can spread between animals and humans) such as Rift Valley Fever and bird flu. This 'One Health' approach is critical in food handling and safety at household, community and national levels. 'One Health' is an approach to designing and implementing programmes, policies, legislation and research in which multiple sectors communicate and work together to achieve better public health outcomes.

Supporting integrated farming systems: This has a great potential of increasing availability and access to diverse nutrient-rich foods. In order to conserve biodiversity, indigenous livestock breeds need to be promoted alongside the modern high-yielding species.

Capacity building on livestock production and nutrition: Livestock-keeping households need greater technical capacities and skills which lead to improved livestock feeding, livestock health and handling, and environmental health in livestock settings among other benefits. The capacity building sessions should include both men and women livestock keepers, in order to enhance uptake and adoption of knowledge and skills. Well-nourished livestock have better quality and increased yields leading to greater access to animal source foods and incomes for households. High quality and safe livestock feeds and pastures positively impact the health of animals.

Increasing market demand for livestock products: This approach looks at the chain from production to consumption. Promoting the nutritional value of animal source foods boosts production by livestock farmers – especially small-scale – because of increased market demand for livestock products. Furthermore, an enabling policy environment plays a critical role in increasing demand for the products.


Promoting processing of animal source foods: Both traditional and modern food processing methods aid in increasing the shelf life of animal source foods. Processing should be promoted as a critical component of resilience building and increasing market value of livestock products for livestock farmers.

Destocking interventions during stress: In pastoral communities, it is important to promote destocking and restocking interventions during the dry seasons. However, some animals should be left close to women and children whenever men migrate in search of pasture to increase ASFs availability. In addition, there should be promotion of fast maturing and resilient breeds to further increase ASFs.

Providing food and nutrition education: Improving nutrition knowledge on animal source foods which include handling, preparation, and preservation can enhance their consumption among vulnerable population groups. Livestock productivity programmes should also be well integrated with nutrition education initiatives.

Providing an enabling environment: Strengthening the food and nutrition outcomes in livestock policies is important in order to strengthen the linkages of livestock to nutrition outcomes and support research on nutrition sensitive livestock programmes.

① Case Study 9 is an example of a nutrition-sensitive livestock production project implemented in Kenya.




Q CASE STUDY 9: LIVESTOCK PRODUCTION

Title: Dairy Farming as a Sustainable Anchor of Nutrition-Sensitive Agriculture
Implementing Organization: Welthungerhilfe

Welthungerhilfe implemented a project titled ‘The entrepreneurial development of the dairy value chain and support to women and youth employment’. The project aimed to contribute to reducing poverty and improved livelihoods of poor rural households in Vihiga County which depend substantially on the production and trade of dairy products for their livelihoods. The project integrated nutrition education as part of the livelihood interventions, in order to support communities to adopt healthier nutrition behaviours. Farmers were able to increase milk yields from 5 liter/cow/day in 2018 to 15 litres/cow/day in 2020. The project also scaled up the adoption of school milk programme for early childhood education (ECD) institutions.

Detailed information on the case study can be found in Annexe 1, Case study 9.



Fisheries and aquaculture

Fish production includes wild capture and aquaculture. Fish contain high levels of macronutrients such as proteins and fats, and micronutrients including zinc, calcium, magnesium, potassium, Vitamin B12, and Vitamin A. Fish are particularly known for their high levels of omega-3 fatty acids, which are important for child brain development.

It is estimated that Kenya’s fishing industry contributes about 0.5 percent of the national GDP and about 2 percent of export earnings, and the sector has a high potential for growth. Fish production is a source of food, income and livelihoods for households. There is need to increase processing and value addition, while reducing postharvest losses which will greatly increase the value and contribution of the sector to food and nutrition security. For sustainability reasons, it is crucial to protect fishing landscapes and create awareness on environmental conservation around fishing areas.

In Kenya, dried fish is also an important source of nutrients, particularly dried sardines (*omena*) which contain higher levels of micronutrients compared to larger fish. Some opportunities for nutrition-sensitive fisheries programmes include:

Increased sustainable fish production: There is need to support households to increase production of fish, so as to increase availability. This can be achieved by promotion of fish farming, restocking of rivers and dams and exploitation of natural water bodies including lakes and oceans. However, seasonal availability of fish needs to be taken into consideration.

Improved fish feeds and fishing inputs: Fish feeds can be modified in order to improve the nutritional value of fish and improve sustainability of production. Care should also be taken to minimize pollutants in fish feeds, in order to enhance consumer safety. The use of proper fishing equipment can also improve production and enhance sustainability of fisheries.

Capacity building on fish and aquaculture production: For efficient fish production, farmers need to have the skills and capacity in proper fish production methods, husbandry and sustainable fishing.

Integrated farming systems: In order to diversify food production and food consumption, households need to be encouraged to rear fish, as well as invest in other crops and livestock farming. Technologies such as rice fish ponds/fishponds and aquaponics can support crops production integrated with fish production.

Market diversity of fish: Increased and diversified fish production will enhance the range of fish available in the markets for low- to high-income households. A thriving fish trade will result in increased incomes which will in turn contribute to the promotion of nutrition through purchase of diverse foods and other essential non-food items, and access to health care and education.

Nutrition education and behaviour change communication: There is limited information available to the general population on the nutritional importance of fish, especially to maternal and child health. Public education and fish promotional activities need to be encouraged, so as to increase the knowledge about and demand for fish and fish products. Nutrition education will also address food taboos and beliefs against consumption of fish among certain population age groups and in certain communities. Practical culinary and fish preservation demonstrations can be integrated in nutrition education initiatives to enhance utilization.

Women empowerment in fish production: The need to empower women to participate in fish and aquaculture production, as well as decision making on fish harvested and incomes generated from sales are all critical for improving household nutrition outcomes.

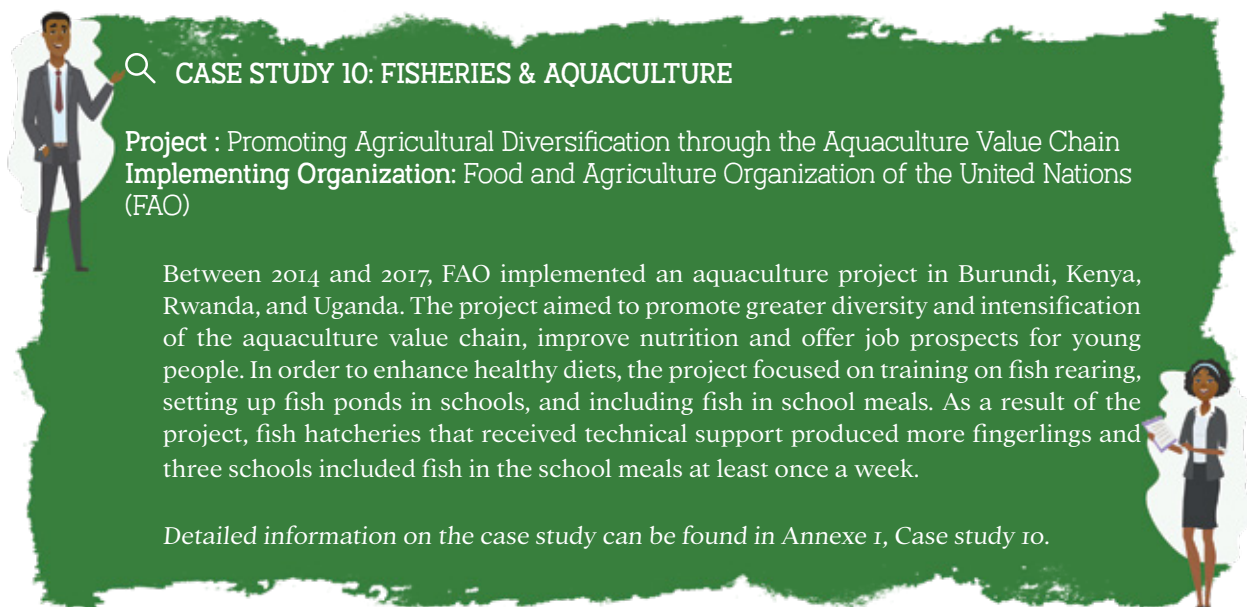
Post-harvest management and food safety of fish and fish products: Nutrition-sensitive programmes need to integrate post-harvest management of fish and fish products to preserve for future use. This includes the following: enhancing preservation through processing, refrigeration and other methods like salting, smoking, drying; application of good hygienic practices; good aquaculture practices in production; and specialized safety management at processing points. This is a key challenge in the fish value chain, which, if addressed adequately, would increase fish availability and retain the nutritional value of fish for human consumption.

Promotion of fish by-products: Fish by-products such as bones, fins, tail and head can be processed and used for human consumption. Moreover, these by-products can be used to enrich animal feeds/ produce fishmeal. Fishmeal is used to prepare animal feeds to support aquaculture, poultry and dairy industry.

Support research on fish and fish products: The research will result in value-added products. Research may include the development of technologies and skills for fish processing and making of different food products from fish, among other innovations. When implemented, these will increase availability of diverse fish products in the market for human consumption.

Enabling environment: To ensure that fisheries policies strengthen nutrition outcomes, sector practitioners need to grow in their skills and knowledge in regards to nutrition and supporting research on nutrition-sensitive fisheries programmes.

① **Case Study 10 is an example of a nutrition-sensitive livestock production project implemented in Burundi, Kenya, Rwanda and Uganda.**



CASE STUDY 10: FISHERIES & AQUACULTURE

Project : Promoting Agricultural Diversification through the Aquaculture Value Chain
Implementing Organization: Food and Agriculture Organization of the United Nations (FAO)

Between 2014 and 2017, FAO implemented an aquaculture project in Burundi, Kenya, Rwanda, and Uganda. The project aimed to promote greater diversity and intensification of the aquaculture value chain, improve nutrition and offer job prospects for young people. In order to enhance healthy diets, the project focused on training on fish rearing, setting up fish ponds in schools, and including fish in school meals. As a result of the project, fish hatcheries that received technical support produced more fingerlings and three schools included fish in the school meals at least once a week.

Detailed information on the case study can be found in Annexe I, Case study 10.

Post-harvest handling, storage, food processing and preparation

Post-harvest handling incorporates stages that a food goes through from the point of harvest to the market. This includes handling at harvest, temporary storage, treatment, packaging, transportation, storage, distribution and marketing.

Food storage is the stage that is supposed to preserve the quality and the nutrient value of the food beyond its normal shelf-life. Short term food storage methods at household level include insulated basket and evaporation coolers. Local food processing methods that can be used at household level include: solar drying (such as of vegetables and selected fruits), smoking, curing, salting, fat/oil treatment, burying in the ground, and fermentation among others.

Food processing has two components: *Primary processing* is used to prepare food for consumption, and includes cleaning, cutting, and peeling; *Secondary processing* is where fresh foods or those that have gone through primary processing are converted to other food products through methods such as cooking, canning, juicing, and dryings.

Reduction of post-harvest losses has the potential to increase food availability, improve incomes for producers and traders, and build resilient value chains that are able to withstand different shocks. It is critical for stakeholders to integrate the use of low-cost technologies that can aid in reduction of post-harvest losses of different food items. Prevention of post-harvest losses also has the potential to reduce the need for more cultivation of land, therefore mitigating the environmental impact from agricultural production.

The post-harvest, storage, processing and preparation stages are important for nutrition because they:

- help to maintain food supply throughout the seasons contributing to food stability;
- help to preserve as well as enhance the nutrient value of foods;
- help to increase the shelf-life of foods;
- increases the variety of foods in the markets;
- prevent food losses;
- make food palatable through food processing;
- reduce time for cooking;
- enhance food safety;
- increase the economic value of foods.

However, caution must be taken as ultra-processed foods and beverages are of less nutritive value and their excessive consumption may lead to increased obesity and rise of non-communicable diseases.

Post-harvest handling, storage, food processing and preparation contribute to nutrition-sensitive programming by:

- promoting simple **post-harvest techniques** that can assist farmers to reduce post-harvest losses and retain nutritional quality of the fresh foods
- supporting local communities to set up **proper storage facilities** (household or community-based structures) and build their capacity in food storage techniques which will assist to reduce food losses
- promoting **food fortification programmes** that add key nutrients to foods will contribute to reduction of micronutrient deficiencies
- integrating nutrition education and SBCC in programmes which will do the following:
 - building the skills of local communities in local food processing methods: Programmes promoting household food processing techniques should promote those that enhance the bioavailability of nutrients, for example, germination and fermentation.
 - holding food preparation/cooking sessions with community groups to improve knowledge and skills on food hygiene and preparation. This Will retain and enhance nutritional value of the foods, reduce food and water borne illnesses, promote consumption of diverse foods and improve feeding practices.
 - promotion of nutrient dense local foods that have been processed and hygienically packaged in order to increase local demand for nutritious foods. Moreover, ultra-processed foods and fast foods should be discouraged due to the negative nutrition impacts on human health.
 - creating partnerships with small-scale processing companies especially those owned by women and youth will enhance their capacity for local processing, storage, packaging of nutrition foods, and also increase their incomes. Such partnerships will also help in reformulating the composition of foods and reviewing processing techniques that would better preserve the nutrient quality of foods.

- promoting different package sizes of foods will allow for small food packaging that can assist poor households to purchase nutritious foods in small quantities. Purchasing foods in bulk may make nutritious processed foods more affordable.
- creating an enabling environment will ensure that enhance policies that promote nutritious foods and discourage consumption of ultra-processed foods. Food price and labeling regulations need to be put in place to ensure that households are able to access information and purchase diverse foods from the markets. Counties should be encouraged to develop and implement food based dietary guidelines for their populations.

① **Case Studies 11 and 12 are examples of projects implemented in different parts of Kenya focusing on post-harvest, storage and food processing.**



Q CASE STUDY 11: POST HARVEST, STORAGE, FOOD PROCESSING

Title: Value Addition of Orange-Fleshed Sweet Potato for Local Consumption
Implementing Organization: Kenya Agricultural and Livestock Research Organization (KALRO)

Vitamin A deficiency is a major public health problem in Kenya. Promotion in production and consumption of Orange-Fleshed Sweetpotato (OFSP) varieties along with training on processing, consumption, and nutrition could significantly contribute to the alleviation of vitamin A deficiency.

KALRO implemented a project to support the Value Addition of OFSP in western Kenya. The main goal of the project was to promote the use of β -carotene rich sweetpotato varieties to provide a year-round, sustainable source of vitamin A in the diets of communities in western Kenya. The project resulted in increased adoption of postharvest handling and value addition technologies; Increased incomes generated from value added OFPS products and improved cooking skills for OFSP among project beneficiaries.

Detailed information on the case study can be found in Annexe I, Case study II.





🔍 CASE STUDY 12: POST HARVEST, STORAGE, FOOD PROCESSING

Project: Food Processing – Nutritious Cassava (Gluten, Dairy & Sugar-free) Cookies
Implementing Organization: Green Without Borders

Green Without Borders is a Social enterprises business registered in Kenya. The company focuses on production and sale of Gluten-free baked products based on locally available foods like cassava, chickpea, honey, peanuts. The enterprise aims to avail healthy and nutritious food products in the market in order to contribute to improvement of health and nutrition outcomes of the population. Through this, value chain actors along entire food value chains are socially and economically empowered.

Detailed information on the case study can be found in Annexe 1, Case study 12.



Food and feed safety

Safe food and animal feed are integral to food security. Food safety is the assurance that the food intended for consumption will not cause harm to the consumer, either when prepared or eaten according to its use. Food-borne hazards that can affect human health can be biological, physical or chemical contaminants.

Biological hazards include bacteria, viruses, fungi (that produce mycotoxins) and parasites (helminthes and protozoa). Chemical hazards include pollutants in water and soils used for crop and livestock production, synthetic agrochemicals (herbicides and pesticides- especially organophosphates), soaps and disinfectants, and heavy metals like lead, arsenic and mercury. Physical contaminants include nails and plastics etc. The contaminants get into foods at all levels of the food value chain from production to consumption.

Food safety, nutrition and food security are linked. Unsafe food creates a vicious cycle of disease and malnutrition especially affecting young children and other vulnerable groups. Consuming unsafe foods can also expose consumers to infections, inflammation or micronutrient deficiencies caused by a reduction in micronutrient absorption. Therefore, access to safe, diverse and nutritious foods is critical for promotion of good health.

Food quality, hygiene and safety standards are preventive approaches to food safety that would protect the population and improve access to diverse, nutritious and safe foods.

Feed safety is also crucial in the value chain. Animal feeds are subject to different forms of contamination including environmental pollution, microbes and insects. Toxins may also arise from compounds of fodder plants. Consuming foods sourced from animals fed with contaminated feeds would negatively affect the health outcomes of the population. For instance, when animals consume animal feeds that have aflatoxin, there are aflatoxin traces that have been found in milk and milk products. In humans, aflatoxin toxicity can cause liver disease and may also lead to liver cancer (hepatocellular carcinoma).

In terms of the food safety legal framework, Kenya has the Public Health Act (Chapter 242) and the Food, Drugs and Chemical Substances Act (Chapter 254) that provide guidance on food safety measures put by the government to ensure that food safety is enhanced along the value chain. Other key engagements that the country participates in in relation to food safety control include: FAO/WHO Codex Alimentarius, National Biosafety Coordination, Kenya Plant Health Inspectorate Service (KEPHIS,) Kenya Bureau of Standards (KEBS) and Pests Control Products Board (PCPB) among others.

Feed regulatory frameworks need to be harmonized with the Codex international standards which should be implemented and followed.

The WHO five key steps to safe food at household level are:

- keep clean
- separate raw and cooked foods
- cook thoroughly
- keep food at safe temperatures
- use safe water and safe raw materials.

Opportunities for strengthening food safety through the nutrition-sensitive agriculture programming include the following:

- programmes need to control risks at different entry points of the food supply chain. These include:
 - implement personal hygiene standards for all food handlers
 - promote improved food handling and hygiene in households and in public places such as informal markets and among street food vendors
 - promote hand washing
 - reduce pesticide use in crop production and antibiotic use in livestock production
 - control humidity in storage and processing companies/ facilities
 - keep fish ponds clean
 - protect foods and water from fecal contamination
 - removing garbage from or around farms
 - promote proper food storage at household level
 - use proper kitchen/ cooking gear in public establishments and households
 - cook foods adequately in order to kill pathogens, especially animal source foods. This includes boiling of milk. However, care should be taken not to overcook foods and destroy all the nutrient.
 - keep the environment clean
 - promote safe use of agro chemicals and pesticides
 - promote public awareness and nutrition education: The population needs to make informed choices such as by identifying safe and unsafe foods, understanding food hazards, and reading food labels.
 - promote access to safe water via:
 - boiling of water before consumption, or chlorinating water for household use.
 - using clean water for crop and animal production. Protect water from microbial and faecal contamination.
 - the use of reverse osmosis to remove chemical contaminants for safe drinking water.
 - promoting safe animal feeds.
 - promoting research through:
 - supporting research of new technologies to improve food safety.
 - evaluating and promoting new technologies to improve food safety and protect public health.

- provide an enabling environment. It is recommended for counties to:
- have food safety regulations that will provide standards on food safety systems, both for large and small companies.
- enhance compliance capacities of large and small enterprises.
- encourage active surveillance and reinforcement of regulations pertaining to food and feed safety.
- maintain adequate food systems and infrastructure, including laboratories, human resources and equipment that will aid to respond and manage food safety risks along the food chains.
- enhance multisectoral collaboration with the different relevant sectors including agriculture, environment, health (public health and animal health), and education for a stronger prevention and response.

① **Case Studies 13 and 14 are two examples of nutrition-sensitive food safety projects implemented in Kenya.**



🔍 CASE STUDY 13: FOOD SAFETY

Project: Promoting Hygienic Milk Production

Implementing Organization: Kenya Agricultural and Livestock Research Organization (KALRO)

KALRO implemented a project to support the promotion of hygienic milk production in Nandi and Kisumu regions of Kenya. The overall objective of the project was to determine and control residues and contaminants in milk for improved health and productivity of animals and humans. The project sensitized farmers on the effects of unclean milk and trained them on how to produce, handle and store milk to maintain quality. The results from the laboratory samples showed the presence of contaminants in raw cow milk. Microbial contamination due to mastitis in milking animals was found to be a major source of bacterial contamination in all the study areas. Farmers benefit from periodic sensitization by extension staff and farmer cooperatives for them to know how to reduce microbial contamination in milk.

Detailed information on the case study can be found in Annexe 1, Case study 13.





🔍 CASE STUDY 14: FOOD SAFETY

Project: Improving Counties' Capacity to Rapidly Test Foods for Safety and Quality to Promote and Safeguard Public Health

Implementing Organization: World Food Programme

The Food Safety and Quality (FSQ) Initiative is an integral component of WFP's sustainable food system programme in Kenya and aims to ensure that food systems in the arid and semi-arid lands are resilient, efficient and inclusive, enabling people to consume food that is both safe and nutritious. The FSQ Initiative began in Kenya in 2017 as part of WFP's handover of the management of the School Meal Programme to national and county governments. WFP has also been strengthening national and county governments' capacities on a more robust and effective FSQ infrastructure and food waste mitigation (post-harvest loss management). This aims to improve FSQ practices through theoretical and practical trainings devoted to public health officers on FSQ aspects and provide Blue Box Kits to establish mini laboratories that deliver field inspection, sampling, and testing equipment to the county ministries of health.

Detailed information on the case study can be found in Annexe 1, Case study 14.

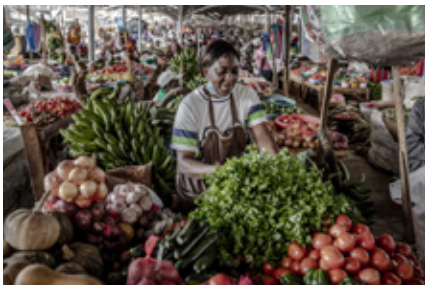


Other cross cutting themes

Value chain, trade and marketing

A **value chain** is an alliance of farms and institutions along the range of activities required to bring a product. These activities range from the initial input supply stage, through the various phases of production to the transformation of raw agricultural materials into food products that are sold to consumers. Common terms used to describe 'value chains' include; 'farm to fork'; 'farm to plate', and 'farm to table'. Nutrition-sensitive value chains contribute to improved diet quality by filling specific nutrient gaps in diets while addressing constraints in supply and demand of food. They also take into consideration the economic benefits of all the value chain actors.

The selection of a specific value chain to be supported in a nutrition-sensitive program will depend on the nutritional issues to be addressed as identified in the nutrition situation analysis. The programme would also aim to address challenges in the supply and demand value chain, in order to increase food availability, access and utilization.



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Programmes can implement multiple value chain approaches in order to contribute to availability of a variety of foods that will better impact on nutrition compared to single commodity value chains. Furthermore, food value chain programmes should encourage proper record keeping for the sake of food traceability, which is the ability to identify and clearly follow the movement of food through all stages of production, processing and distribution.

Some of the entry points that a programme can use to make value chains nutrition- sensitive are:

a) Identification of the nutrition problem/issues: Identifying the nutrition problem/issues that value chains need to address means that a situation analysis needs to be undertaken, and used as the basis of a nutrition-sensitive value chain intervention. (Refer to Module 2 of this training manual for more details).

b) Increased supply for nutritious food: Some actions that can be undertaken to increase supply of food are:

- investments to improve product quality - such as quality of inputs, soil fertility, practicing good agricultural practices, and integrated farming systems - and improve efficiency of production. This includes improved technologies for men and women, and ease of access to inputs and credit.
- investments in value addition - including building the capacity of farmers and other actors in the value chain to take part in food processing, handling and packaging. This will improve the economic value of the food products.
- strengthening coordination among different value chain actors. This may include linking farmers to quality input suppliers and to extension services, linking farmers to financial institutions, and linking processors to diversified markets.

c) Improved nutrition across the value chains: This entails taking actions meant to preserve or increase nutritional quality of the food items along the value chain. For example, supporting biofortification in specific value chains, enhancing skills in food handling and safety, industrial fortification, and proper preservation and storage of the food items. Packaging in quantities that the target group can afford and consume within the recommended period can reduce nutrient loss. Additionally, nutrition labeling and product package labelling improves awareness of product content.

d) Increased demand for nutritious food: Increasing demand for specific food items is important for both producers and consumers. For producers, higher demand for their food and food products would mean more production, increased supplies and opportunities for higher incomes. For consumers, it would mean increased consumption of nutrient-dense foods that would improve their health and nutrition outcomes.

Focusing on the end stages of the value chain can help to increase demand for food and food products. Doing so would include: raising public awareness on importance of specific foods, undertaking food preparation sessions with community groups and behaviour change communication as discussed in Module 5. Engagements with public purchase programmes like supply to Home-Grown School Feeding (HGSF) programmes and social protection programmes is encouraged as it will stimulate supply.

e) Contribution to improved livelihoods: Implementation of nutrition-sensitive value chains will lead to improved incomes of actors along the chain, women empowerment, improved and diversified consumption of foods, improved agricultural practices that would contribute to improved natural resource management, and reduced conflicts for natural resources, climate change mitigation.

f) Strengthening value chain logistics: If value chain logistics are not addressed, increasing supply and demand for nutritious foods can be a challenge. Ways in which this can be addressed include improving the logistics between rural and urban linkages, and strengthening informal and traditional value chains through which many poor households access food.

g) Creating an enabling environment: Addressing the business environment especially for Small and Medium Enterprises (SMEs) - including infrastructure, taxation, and movement of goods - is key in improving access to diverse foods. An enabling environment would require the strengthening of public-private partnerships to improve business opportunities across all actors, including equipment purchase subsidies for SMEs and providing opportunities for SMEs along the value chain.

In order to translate the entry points into a programme, some of the factors to be taken into consideration include:

- characterising the value chain in terms of its structure, main functions, and the different stages. This requires mapping different actors - while identifying the most important ones and their relationships - and understanding the business models, gender dynamics and environmental challenges.
- identifying the opportunities and challenges of the selected value chains. These include the production processes, availability of inputs, interest from producers, nutrition improvement potential, knowledge and skills, opportunities for value addition, market potential, gender sensitivity (how men and women will benefit from the value chain) and environmental conservation.
- nutrition issues. These include nutrient composition of selected food value chains, food safety, food handling and preparation, and packaging of the products.
- demand of the food and food products: This includes consumer demand in the market, and any barriers to food's consumption such as preparation challenges, taboos and beliefs, and price.

Trade and marketing:

Programmes need to support households to generate income through trade and marketing activities. The potential for income and economic value is a crucial factor that will determine if farmers participate in production of proposed foods.

Income-generating programmes will positively impact nutrition if household members are empowered on how they can utilize their income for improved nutrition outcomes. This can be through direct purchase of diverse and nutritious foods, access to health care services, purchase of non-food items like soap and kitchen items, and paying for children's education. Empowering women to access income opportunities will also play a key role in improving household food and nutrition.

Moreover, efforts should be made at policy level to ensure that food is affordable to a majority of the population. Actions towards this will include the subsidy of farm inputs, reduced or no taxation of essential food items, improved logistics for movement of foods from farms to markets, regulations to protect small food suppliers, and regulations to restrict promotion of foods rich in fats, sugars and salts.

Food marketing and promotion play a key role in improving access to diverse foods and influencing food choices. Efforts should be made to strengthen the role of small retailers, street food vendors and informal markets as they are a key source of food for many households. Moreover, improving the retail environment for the larger retailers is also crucial. Some incentives and regulations that can promote nutritious foods include: restriction of promotion and advertising of foods high in fats, sugars and salts to children, establishing subsidy schemes for healthy foods, and establishing nutrition standards for procurement of food for public institutions like schools and hospitals.

① **Case Studies 15 and 16 are two examples of nutrition-sensitive value chains, trade and marketing projects implemented in Kenya.**



🔍 CASE STUDY 15: VALUE CHAINS, TRADE, MARKETING

Project: Linking Potato Farmers to Processors using Contract Farming through the Nutrition-Sensitive Potato Partnership Project (NuSePPP)

Implementing Organization: GIZ

Potato farmers in Kenya face market challenges due to market control by middlemen. GIZ implemented a nutrition-sensitive Potato Partnership Project in the counties of Nyandarua, Bungoma, Trans Nzoia, and Elgeyo Marakwet. The goal of the project was to enhance diversity of food consumed by 19,000 people, increase nutrition knowledge, and improve nutrition practices for at least 20,000 people. The project was implemented through two approaches: the Agriculture Extension approach using Farmer Field and Business Schools approach; and the Community Dialogue approach. The project led to an increase in potato yields from an average of 8 tons per acre to 12.1 tons per acre. It also significantly increased the potato farmers' incomes and reached an estimated 15,000 persons reached with nutrition messages.

Detailed information on the case study can be found in Annexe 1, Case study 15.



🔍 CASE STUDY 16: VALUE CHAINS, TRADE, MARKETING

Project: Making Value Chains Work for Food Security and Nutrition

Implementing Organizations: Alliance of Bioversity International, CIAT and KALRO

CIAT, the Alliance of Bioversity International and KALRO implemented a nutrition-sensitive Value Chain Project that aimed at generating evidence by linking the activities of different stakeholders across the agricultural and nutrition sectors within an integrated system. The project's goal was to improve diets of vulnerable rural and urban consumers at the base of the pyramid (BoP). Particularly, these were women of reproductive age (15-49 years) and young children in the informal settlements of Nairobi and Kampala. The project led in the development of three safe, nutritious, and affordable porridge flour, which were made available to low-income consumers in Nairobi and Kampala. The project also led to an increment in the employment and product range by SMEs.

Detailed information on the case study can be found in Annexe 1, Case study 16.



Gender in agriculture

In the agricultural sector, gender inequalities exist in all areas of value chains from production to processing and disposal. Gendered patterns of behaviour condition men's and women's roles, the distribution of resources and benefits derived from income generating activities in the chain, and the efficiency and competitiveness of value chains in the global market. Both men and women farmers need to be empowered in order to end food insecurity and malnutrition.

Women are crucial actors who contribute a significant share of primary production, and play essential roles along the food value chain and in the marketing of food products. In Kenya, women make up between 42 percent and 65 percent of the agricultural labour force. They have a greater labour burden than men, including a higher proportion of unpaid household responsibilities related to preparing food and collecting fuel and water. Women play a key role in crop and livestock production, and poultry and small livestock management. Generally, they also tend to care for animals that live within the homesteads.

A lot of evidence shows that families benefit much more when women have greater status and power within the households. For example, when women have more influence over economic decisions, families allocate more income to food, health, education, children's clothing and children's nutrition.



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As covered in the previous chapter, one of the important pathways to improving nutrition through agriculture is through *women empowerment*. This includes ensuring that women have incomes, agricultural activities do not influence female energy and time expenditure negatively, as this will affect their caring capacity and practices.

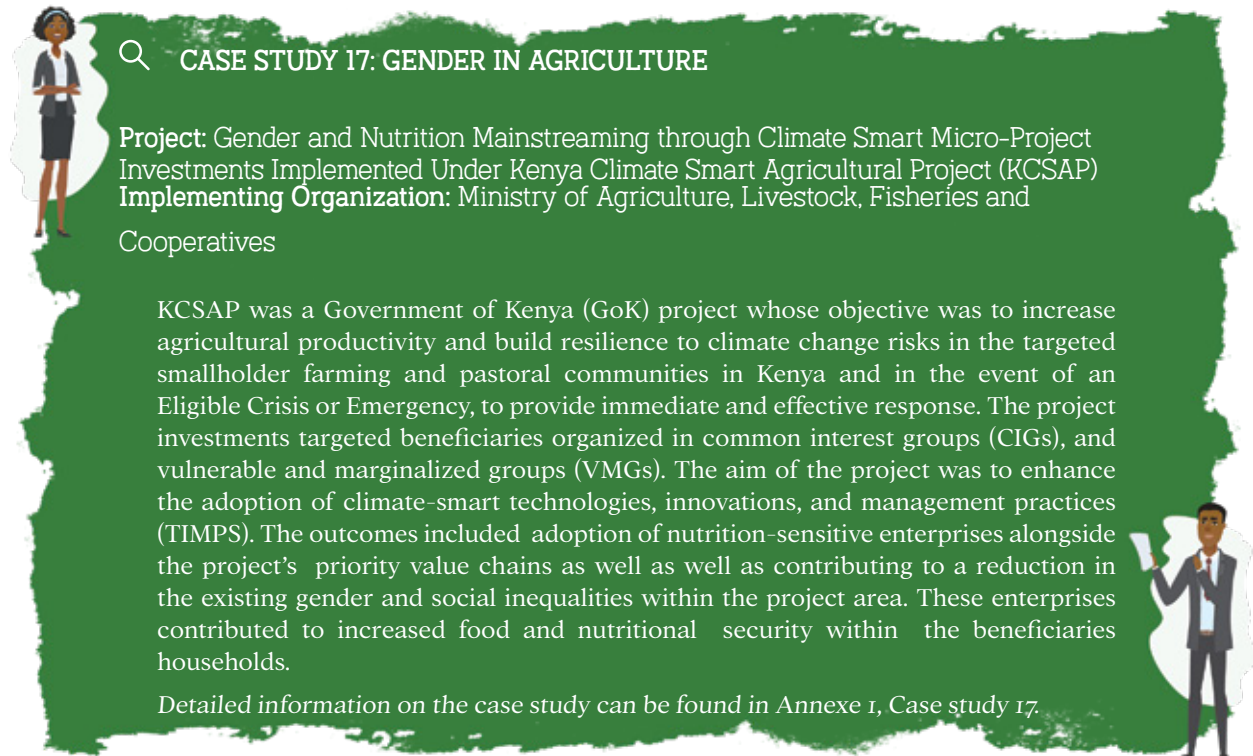
One of the 10 key recommendations for improving nutrition through agriculture emphasizes on empowering women by ensuring they have access to productive resources, income opportunities extension services and information, credit, labour and time-saving technologies. Their voices should also be supported in household and farming decisions.

Through a programme development approach, gender considerations can be taken into consideration through several entry points such as:

- project objectives - If the project is making efforts to address gender equality, it should be reflected in the objective.
- beneficiary selection - In an intervention, selection of beneficiaries should take into consideration the roles of men, women, and youth. Each of them has different roles in the value chain which should be highlighted. In many cases, this also needs to be stated in figures. For example, how many men, women or youth an intervention projects has reached.
- situation analysis/needs assessment - The situation analysis identifies the needs of men, women and youth identify the gaps, and how an intervention will aim to address the gaps of each group. Improved agriculture results come, in large part, from good gender targeting.
- activities - The activities selected need to address the gaps of men, women and youth identified through the situation analysis/needs assessment.
- outcomes - These should clearly capture the change experienced by the men, women and youth in the different categories (like small-scale farmers, traders, school children etc).

Achieving gender equality and empowering women in agriculture is crucial for agricultural development and food security.

① **Case Study 17 is an example of a gender-sensitive nutrition project implemented in Kenya.**



Q CASE STUDY 17: GENDER IN AGRICULTURE

Project: Gender and Nutrition Mainstreaming through Climate Smart Micro-Project Investments Implemented Under Kenya Climate Smart Agricultural Project (KCSAP)
Implementing Organization: Ministry of Agriculture, Livestock, Fisheries and Cooperatives

KCSAP was a Government of Kenya (GoK) project whose objective was to increase agricultural productivity and build resilience to climate change risks in the targeted smallholder farming and pastoral communities in Kenya and in the event of an Eligible Crisis or Emergency, to provide immediate and effective response. The project investments targeted beneficiaries organized in common interest groups (CIGs), and vulnerable and marginalized groups (VMGs). The aim of the project was to enhance the adoption of climate-smart technologies, innovations, and management practices (TIMPS). The outcomes included adoption of nutrition-sensitive enterprises alongside the project's priority value chains as well as contributing to a reduction in the existing gender and social inequalities within the project area. These enterprises contributed to increased food and nutritional security within the beneficiaries households.

Detailed information on the case study can be found in Annexe 1, Case study 17.

Indigenous food systems and biodiversity

The role of indigenous food systems in contributing to resilience, nutrition, sustainability and environmental management cannot be ignored. Indigenous food systems refer to traditional community food systems. Traditional foods are those that indigenous people have access to locally within traditional knowledge and the natural farming environment, and without purchasing. Traditional foods can also include non-indigenous elements like 'long cultivated' crops that have varieties that have been domesticated and locally adapted. Biodiversity refers to the variety of life at genetic, species and ecosystem levels.

Some of the most common indigenous and traditional foods in Kenya include Indigenous vegetables like Spiderplant (*saget*), Amaranthus (*terere*), Night shade (*Managu*), Cowpea (*kunde*); Yams, Sweet potatoes, Cassava, Climbing beans, Bambara nuts, Pigeon peas, Millet, Sorghum, Lima beans, local cherry tomatoes, guavas, gooseberry jack fruits and mushrooms. Some of the indigenous livestock in Kenya include: The zebu cow, Small East Africa Goat, Masai sheep, the East African blackhead sheep, the East African long tailed sheep and edible insects.

Unfortunately, many crops and animal species that are at risk of extinction due to biodiversity loss are indigenous in origin. Genetic loss of indigenous species is occurring very fast as countries intensify agricultural production with an emphasis on a few species and varieties for both plants and livestock. Protecting biodiversity and prioritizing foods of high nutrient value is key to combat malnutrition. Food composition research has shown that many indigenous

foods, besides the many health benefits, are very rich in micronutrients which if consumed, can prevent micronutrient deficiencies. Furthermore, indigenous food systems are part of the solution against climate change and mitigation of non-communicable diseases (NCDs). Indigenous food systems also contribute towards the strengthening of the immune system to reduce the risk from infectious diseases including SARS-COV2 virus also referred as COVID-19.

To protect indigenous food systems and biodiversity, nutrition-sensitive programmes can engage in the following:

awareness raising: Communities can be sensitized on the need to protect, promote and consume indigenous and biodiverse foods (crops and livestock). Members of the population can receive information on the nutritional value that comes from consuming indigenous and biodiverse foods.

community development: Strengthening indigenous seed systems through promotion, saving and exchanging of seeds, empowering communities to protect and promote indigenous foods, and public appreciation of indigenous people's food systems and diets.

food production: Promote production of species and varieties not only based on yields but nutrient content.

food composition: Enhance food composition of biodiverse foods including indigenous foods to ensure that nutrient composition is a priority criterion in research programming and community promotion.

research: Improve facilities for conservation of plant and animal genetic resources and promote funding and research on indigenous and biodiverse foods as opposed to focus on major staple grains.

enabling environment: Support mainstreaming of biodiversity and indigenous food systems in relevant policies, support implementation of policies that protect and promote indigenous foods, food systems and knowledge.

① **Case Study 18 illustrates the concepts of nutrition-sensitive indigenous food systems and biodiversity.**



🔍 CASE STUDY 18: INDIGENOUS FOOD SYSTEMS

Title: Mainstreaming Biodiversity for Food and Nutrition

Implementing Organization: Kenya Agricultural & Livestock Research Organization

Traditional knowledge on indigenous or local agrobiodiversity is rapidly declining, and with increasing globalization in food culture, diets as well as farms have become less diverse as monoculture is encouraged. The project, implemented by KALRO in partnership with other national and international organizations, focused on mainstreaming biodiversity for food and nutrition security of communities.

As a result of the interventions, the project contributed to the development of key documents such as the Food Composition Table for Kenya, recipe books that incorporate indigenous foods from different communities, and the first biodiversity policy in Busia County. There was also an increase in the area underutilized indigenous vegetable production in Busia County, while schools such as Mundika High School included indigenous vegetables in the students' meals and supermarkets began to sale underutilized fruit such as guava, and gooseberry.

Detailed information on the case study can be found in Annexe 1, Case study 18.



Social protection

Safety nets and social protection programmes can improve nutrition by addressing underlying and basic causes of malnutrition. These programmes include promoting direct consumption of diverse diets, increasing incomes, and improving access to social services such as health and education. Social protection programmes help households to also avoid negative coping strategies that may impact their health and nutrition outcomes – for example reduction on number of meals consumed, reduction in quantity of food consumed in each meal.

Common forms of social protection initiatives include: conditional and unconditional cash transfers, school meals, insurance schemes for health, employment, livestock offtake, crop insurance, social transfers (like child support grants) , in-kind transfer of productive assets (like dairy cows, poultry, and nutrient-rich seeds), general and targeted food distribution, and voucher programmes.

Kenya has a National Social Protection Policy whose overarching goal is to ensure that all Kenyans live in dignity and exploit their human capabilities to further their own social and economic development. Kenya implements different categories of social assistance programmes, including but are not limited to: cash transfers, food distribution, public works and grants. The policy also outlines some of the interventions that the government will undertake in order to support ‘asset protection and rehabilitation to re-establish livelihoods. These interventions include provision of direct feeding programmes for vulnerable households, school meals and nutritional support to schools, older persons and pre-school-age children, training on good nutritional practices, and food-for-work interventions.

Examples of how social protection can contribute to nutrition:

- improvement of diets through food transfers, micronutrient supplements, and nutrition education
- improvement of health through access to health services, sanitation, hygiene and health education
- improvement of care practices through labour regulations and women empowerment
- increased household income through cash transfers, insurance schemes, input subsidies, public work programmes, and price supports.

Nutrition-sensitive social protection programmes can consider:

- incorporating nutrition objectives, activities and indicators in the project documents.
- targeting the nutritionally vulnerable; this can be nutrition vulnerability or socio-economic vulnerability. Target groups may include women of reproductive age, children under 5 years of age, poor small-scale farmers and disabled persons.
- integrating nutrition education across all social protection activities so as to influence decisions related to consumption of diverse diets, and health-seeking behaviours among other critical actions
- empowering women through programmes that ensure women are direct beneficiaries of social protection interventions. This can be done by ensuring access to financial resources and education while taking care that the women are not overburdened with work. Engaging men is also critical for reinforcing positive outcomes of social protection initiatives
- promoting local procurement for social protection programmes - such as Home Grown School Meals Program (HGSMP) and general food distribution activities - which not only improve the nutrition outcomes of the target group, but also improve livelihoods of producer groups
- integrating insurance schemes for health, livestock and employment in programmes provides a basic protection against shocks.
- supporting labour oriented programmes like cash for work, food for work and support nutrition through direct cash or voucher schemes.
- scaling up social protection programmes in times of crises so as to protect households from long terms impacts of hunger and poverty
- strengthening linkages with the health sector so as to enhance the quality of nutrition services that are accessed in clinical and community settings like growth monitoring, biochemical and nutrition assessments
- adopting shock-responsive social protection to help household/individuals prepare for, cope with, and recover from shocks. Shock-responsive social protection can prevent detrimental effects of seasonal hunger and chronic malnutrition.
- creating an enabling environment where social protection actions are integrated in policies and financing for social protection programmes.

Cash based programmes is part of Social protection programming.

Cash Programming

Cash programming, as a social assistance intervention, plays a role in enabling households to diversify their diets. In order for cash based social protection programmes to positively impact on nutrition, the following recommendations are applied:

Take an integrated approach that includes nutrition education or social behaviour change programmes. This way, the beneficiaries can make informed choices regarding nutritious foods, health care, water and sanitation and other critical non-food items required in the household. Nutrition messages should be passed through different channels.

Link the cash-based programmes with health systems targeting vulnerable groups like children under five years and pregnant women. Clinical treatment from this approach leads to improved health outcomes.

Integrate sustainability strategies into the program. This will prevent a lapse into malnutrition when the programme ends. Some of the strategies which can be employed include diversification of livelihoods and income-generation activities, strengthening local health systems, and linkages to other social protection programmes supported by government.

① **Case Study 19 is an example of a nutrition-sensitive social protection approach.**



🔍 CASE STUDY 19- SOCIAL PROTECTION

Project: Nutrition Improvements through Cash and Health Education

Implementing Organization: UNICEF

The Kenyan government social protection approach includes the provision of cash to vulnerable households. From January 2017 to January 2018, a pilot was done which aimed at including nutrition sensitivity in the delivery of the social protection cash transfer programmes. Leveraging from the outcomes of the evaluation of the Nutrition Improvements through Cash and Health Education (NICHE) pilot in Kitui, NICHE-II scale-up was undertaken in five counties.

The objective of the pilot was to test whether providing additional cash assistance enhanced with nutrition counseling can improve nutritional well-being among most vulnerable households. The intervention package included provision of intensive nutrition counseling every two weeks through home visits by community health volunteers (CHVs) and a cash top-up of KES. 1,000 every two months (additional to KES. 2,000 every two months). By the end of May 2022, over 12,000 households had been enrolled in the NICHE programme in fifteen sub-counties with cash top-up payments starting in July 2021 to cover the period March to April 2021, and fortnightly nutrition counselling home visits. Community Health Extension Workers (CHEWs) and CHVs were trained to facilitate the delivery of the community-based nutrition counselling. Nutrition counseling is geared towards empowering households to enhance their financial expenditure for food and nutrition-related services.

Detailed information on the case study can be found in Annexe 1, Case study 19.



Resilience

Resilience and nutrition are interlinked since nutrition is both an input to and outcome of strengthened resilience. Approaches designed to improve community resilience need to also contribute to improved nutrition outcomes. Reducing malnutrition is crucial to strengthening resilience because well-nourished individuals are healthier, can work harder and have greater physical strength. Households that are nutrition secure are thus better able to withstand, endure longer and recover more quickly from external shocks. Furthermore, applying a nutrition lens in resilience programming strengthens the connection between people and a systems approach.

Resilience is about transformation and influencing capacities of individuals and households to deal with stress and shocks. An important aspect affecting resilience is climate change. Climate change will impact nutrition by negatively affecting agricultural production which in turn increases human disease.

Climate change affects the following:

The food environment: This includes changes in quality food availability and accessibility due to increased droughts, flooding, extended cold seasons, increased spread of agricultural diseases and pests, and increased post-harvest losses.

The social environment: This includes loss of productive assets (livestock and crops) due to climate shocks, reduction in child-care time due to livelihood disruptions, and labour opportunities away from home.

The health environment: This includes damaged infrastructure (roads and buildings destroyed by floods), increased water- and food-borne diseases, and limited accessibility to clean water.

In Kenya, resilience is core to development. The government established the National Drought Management Authority (NDMA) that works to ensure that the impact of climate change is mitigated and that drought does not result in emergencies. NDMA is responsible for the overall coordination of matters relating to drought-risk management and establishing mechanisms to end drought emergencies. The focus is on Arid and Semi-Arid Land (ASAL) counties that are considered to be vulnerable to drought.

Entry points for resilience programmes for nutrition include:

- integration of nutrition objectives, nutrition interventions and nutrition monitoring in resilience programmes.
- strengthening production diversification and Good Agricultural Practices (GAP) especially sustainable and inclusive agricultural methods that contribute to conservation of the environment.
- integration of nutrition information systems that consider the following:
 - food consumption indicators like Minimum Dietary Diversity for Women (MDD-W) and diet-related coping strategies in early warning systems.
 - nutrition indicators like stunting and wasting as key indicators in determining vulnerability and resilience. Situation analysis incorporates nutritional causal analysis
- ensuring that men and women's needs are considered in resilience programmes
- consideration of nutrition vulnerability as a means of identifying target groups for programmes
- strengthening nutrition education in food and agriculture programming
- creation of an enabling environment which does the following:
 - ensures policies and coordination frameworks related to risk reduction are integrating nutrition measures. These includes emphasis on the basic causes of malnutrition in order to cause lasting transformation in improved nutrition.
 - supports nutrition integration in resilience and disaster management planning while strengthening linkages with food and nutrition security policies and coordination.

- reconciles division between development and emergency programming approaches, stunting and wasting programmes, and treatment and prevention programmes. This calls for holistic approaches to addressing undernutrition.

① **Case Studies 20 and 21 are two examples of resilience projects that contributed to improved food and nutrition security.**



🔍 CASE STUDY 20: RESILIENCE

Project: Strengthening the Resilience of the Livelihoods of Agro-Pastoralists Communities in Eastern Africa (SRAPLEA)

Implementing Organization: Welthungerhilfe

The SRAPLEA programme, implemented by Welthungerhilfe, aimed to strengthen resilience and improve livelihoods, wellbeing, food, and nutrition security of competing groups of Agro-Pastoral Communities in arid and semi-arid areas of Ethiopia, Kenya, and Uganda. In order to enhance the nutrition outcomes of the project, there was a focus on capacity building of the SACCO members to venture into climate-smart agriculture and cultivate vegetables and fruits to supplement their diets that are animal source foods based as a result of their pastoralist livelihood and integration of Nutrition education and cooking demonstrations as part of the trainings. The project resulted in improved and diversified crop production, including vegetables and fruits and Improved access to safe water for domestic use reduced water-borne diseases and enhanced agriculture production.

Detailed information on the case study can be found in Annexe I, Case study 20.





Q CASE STUDY 21- RESILIENCE

Project: Improving Community Resilience through Green Grams Value Chain in Tharaka Nithi County

Implementing Organization: Ministry of Agriculture, Livestock, Fisheries and Co-operatives

The Kenya Climate-Smart Agriculture Project (KCSAP) was a Government of Kenya (GoK) project, whose objective was to increase agricultural productivity and build resilience in the targeted smallholder farming and pastoral communities in Kenya. The project provided technology, certified seeds, technical support and training to small holder farmers with an aim of improving productivity and storage of green grams. As a result of the interventions, the green grams productivity increased to 3.5bags per acre up from 1 bag per acre. The cost of threshing and sorting reduced due to use of threshers. The project recommended a holistic value chain approach for increased productivity in resilience interventions. Use of technology and digital services are key in achieving success.

Detailed information on the case study can be found in Annexe 1, Case study 21.



Do No Harm

The Do-No-Harm approach is the understanding of the impact of an intervention, with the goal being to limit or prevent unintended negative effects. Since 2014, the Do-No-Harm has emerged as a broad principle that encourages the identification of potential harms, development of mitigation plans, and setting in place well-functioning monitoring systems.

In the context of nutrition-sensitive agriculture and food systems programming, some examples of 'Do No Harm' may include:

- providing non-discriminatory and gender-sensitive access to agricultural and nutrition assistance.
- giving special consideration to groups with specific needs when developing and implementing a program. These groups include vulnerable women and children.
- ensuring that agricultural activities do not influence female energy and time expenditure negatively.
- engaging in two-way dialogue with communities.
- assessing host population needs or sensitivities in refugee settings. This includes targeting equally displaced and host populations based on need and avoiding any discrimination based on gender, age, religion, ethnicity, social status etc.
- advocating for property rights for men and women.
- ensuring sustainable use of natural resources for all.
- ensuring programme or project activities do not create divisions among community members.

① **Case Study 22 is an example of a food and nutrition-related project implemented in Kenya that integrated 'Do no Harm' approaches.**



🔍 CASE STUDY 22: DO NO HARM

Project: Do No Harm - The Case of Beneficiary Data Management

Implementing Organization: World Food Programme

As a result of the COVID-19 pandemic and the food security and nutrition shocks faced by communities in the urban informal settlements of Nairobi, WFP Kenya implemented a cash transfer programme between June 2020 to May 2021 in urban and informal settlements. The cash transfers aimed to assist these vulnerable populations to improve their diets through better access to food, and increased expenditure on health and livelihoods. This exercise required the collection of data from the beneficiaries. The beneficiary data collected was protected and only used for the purposes it was intended for, therefore, safeguarding it from unauthorized access. This guarded the beneficiaries from abuse and harm and protected the organization from reputational risks.

Detailed information on the case study can be found in Annexe I, Case study 22.



Linking relief/humanitarian and development

There is a need to close the gap between humanitarian aid and development programmes. The former address the immediate needs of the population, such as their food and nutrition. The latter address the medium- and long-term strategies and interventions. However, sometimes there is a gap between humanitarian and development programmes.

Reducing this gap includes improving coordination of programmes among partners, sharing information across partners, flexibility in funding and implementation of programmes. These approaches allow a transition of beneficiaries from immediate lifesaving interventions to longer term solutions that address the underlying causes of food insecurity and malnutrition. The result is growth in the resilience of the population.

① **Case Study 23 is an example of a programme linking humanitarian interventions to development in order to improve food and nutrition.**



Q CASE STUDY 23- RELIEF/ HUMANITARIAN TO DEVELOPMENT

Project: Linking Emergency Work to Development: Sustainable use of Insect Barrier Technology to Curb Desert Locust Infestation on Vegetable Kitchen Gardens

Implementing Organization: Food & Agriculture Organization

As a result of the desert locusts invasion in Kenya, FAO implemented an emergency-related project to control desert locusts and reduce crop destruction in Marsabit County. The project supported affected households to establish kitchen gardens under shade nets. The shade nets acted as insect barrier as a technology in IPM (Integrated Pest Management) method to control and manage the sucking insect pests. The technology was successful in withstanding aphids, leafhoppers, whiteflies, midges, butterflies, moths to the very tiny thrips and desert locusts. The project also integrated on-farm demonstrations, cooking sessions, nutrition education and food preservation interventions were conducted. The project resulted in an increase in vegetable yields and improved household utilization of vegetables through improved cooking and food preservation skills of the households.

Detailed information on the case study can be found in Annexe 1, Case study 23.



Linking research to development and impact

Research needs to be used to solve a problem that a specific population segment is experiencing. For researchers to provide precise solutions in agriculture and nutrition, they must understand how the agricultural system functions and the key entry points for nutrition in agriculture. It is important to strengthen links between research institutions and food and nutrition programmes. Evidence generation can only be promoted through research work.


Key examples of how research has contributed to improved food and nutrition include: research in biofortification and food fortification, pest and disease control in crops and livestock, One Health research, behaviour change research, policy research and indigenous foods' research.

Key challenges to linking research to nutrition-sensitive agriculture include:

- research teams working in separate physical locations where the agricultural populations are not able to reach them or even be made aware of innovations and solutions being tried and tested.
- limited allocation of resources to agriculture-health-nutrition focused research
- differences in education levels of researchers and communities which can lead to lack of understanding especially if the information is not clearly packaged. Therefore, health and extension workers play a critical role in transmitting research into practice at community level. The extension system is key for this transmission.

In Kenya, there are various institutions that work on agriculture, health and nutrition research. These include: universities/academia, national research institutions for example KALRO and KEMRI, and research focused international organizations and NGOs.

① **Case Study 24 provides an example of linking research to development and impact.**




Q CASE STUDY 24: RESEARCH TO DEVELOPMENT

Project: Use of Kenya Food Composition Tables in Decision Making
Implementing Organization: Ministry of Health and Food & Agriculture Organization

Food composition tables are an integral part of food and nutrition programming. They are useful in planning for the nutrition-sensitive intervention in the agricultural sector especially in breeding and production of highly nutritious foods, nutrition education, product development and food labeling by the food industries, in training by academia, among other ways. The Food Composition Tables 2018 was developed through review and it updated the Kenya FCT of 1993. This was also the aim of the project, which was funded by FAO and implemented in collaboration with Ministry of Health. The food composition tables have been used in many interventions, including key Universities sensitized on the KFCT 2018 and they are using it in teaching, especially in food science, nutrition, and dietetics; and Food processing SMEs training on food composition for use of the data in food labeling.

Detailed information on the case study can be found in Annexe I, Case study 24.



Farmer Field Schools (FFS)

Farmer Field School (FFS) is a group-based learning strategy that teaches farmers how to experiment and solve production challenges on their own. It combines agro-ecology, experiential education, and community development concepts and methods. This strategy enables farmers to engage in a variety of self-directed activities such as research, training, marketing, and advocacy.

FFS was first employed by FAO with rice growers in Indonesia in the late 1980s. The Integrated Production and Pest Management (IPPM) approach, was applied as a mode of extension and practical application of skills. This resulted in local solutions that led to pest resurgence management. FFS was initially implemented in Kenya in 1995 through FAO agricultural initiatives focusing on community-led extension services in the western region. The concept was expanded from maize farming to facilitate community learning and solution generation in a variety of areas, including animal production, the environment, agroforestry, aquaculture, human and public health, and agricultural enterprise development.

FFS's strategic goals; are

- provide farmers with the knowledge and skills they need.
- enable farmers to become experts in their fields.
- improve farmers' ability. in making critical and informed decisions that make farming profitable and sustainable.
- expose farmers to new ways of thinking and problem solving.
- assist farmers in learning how to organize themselves and their communities.

The Farmer Field School approach focuses on crop-based learning and enterprises. *Agro-pastoral FFS adaptation* is used in locations where agricultural cultivation and livestock husbandry are both viable options for a community's long-term well-being. When the production system is primarily pastoral, the *Pastoral Field School adaptation of FFS* is used. These FFS context adaptations are beneficial because they assist communities in better managing their production systems, practices and decisions related to agroecology and livelihoods.

Among the foundational elements of the FFS approach are: learning by doing, farmers as experts, the field as the learning site, extension workers as facilitators rather than teachers, farmers' training following a seasonal calendar, and learning materials generated by farmers.

Core activities that are implemented in any adaptation of FFS include: analysis of agro-ecologies, comparative field experiments to test and generate local solutions, special topics to increase farmers' knowledge, group dynamics to strengthen harmony, relations, and cohesiveness of farmers in their crops, and participatory monitoring and evaluation (PM & E) to assess the progress of farmers' activities and change management.

Some of the important nutrition themes that are integrated into the FFS training process include: basic nutrition principles, recognizing the causes of malnutrition in various situations, dietary diversity, maternal infant and young child feeding, and food preparation and preservation.

FFS has been institutionalized in Kenya through government, civil society, and community programmes. Participatory learning and adaptation approaches have assisted farmers to improve their knowledge, perfect their skills, and change their attitudes for the purpose of production and socio-economic wellbeing.

① **Case Study 25 illustrates an example of a Farmer Field School.**



Q CASE STUDY 25- FFS

Title: Integrating Nutrition Education and Awareness into Farmer Field School (FFS) Programmes

Implementing Organization: Food and Agriculture Organization of the United Nations (FAO)

KISEDIP is the model used to provide Kalobeyei with market-integrated opportunities for self-sufficiency. The overarching objective of the three-year project was to foster food and nutrition security independence among refugees and host communities in Kalobeyei. By participating in Farmer Field Schools (FFS), households improved their knowledge, skills, and attitudes regarding food production, nutrition and food management practices. The establishment of demonstration plots at community farms and health centres managed by FFS groups enabled households to produce nutrient-dense foods and participate in dietary diversification campaigns on food production, processing, preservation, and consumption of healthy foods. FFS increased the number of households benefiting from nutrition intervention from 2,000 in the first phase of the project to 4,000 in the second phase.

Detailed information on the case study can be found in Annexe 1, Case study 25.





① SUMMARY

There are many entry points for improving nutrition in agriculture programmes that are working in different sub sectors. These include: crop production, livestock production, fisheries and aquaculture, post-harvest, storage, food processing and preparation, food and feed safety.

Key cross-cutting issues that need to be put into consideration while developing and implementing nutrition-sensitive interventions in the different sub-sectors include:

value chains, trade and marketing, gender in agriculture, indigenous food systems and biodiversity, social protection, resilience, Do No Harm, and community approaches such as the Farmer Field School approach.

Strengthening the linkages between humanitarian and development programmes, and research should be overarching approaches to address the basic and underlying causes of malnutrition including overweight and obesity.

① REFERENCES

Alderman, H. 2015. *Leveraging social protection programs for improved nutrition. Summary of evidence prepared for the global forum on nutrition-sensitive social protection programs.* World Bank Group.

Chetail S, Bergman C, and Mottram A. (2015) *Nutrition-sensitive agriculture programming: A nutrition-sensitive approach for market-based agricultural projects.* Mercy Corps. Portland.

CIAT. 2016-2019. Making value chains work for food and nutrition security of vulnerable populations in East Africa. In: CIAT [online]. Rome. [Cited January 28 2021]. <https://blog.ciat.cgiar.org/ciat-work-on-nutrition-sensitive-value-chains-in-east-africa-showcased-at-fao-in-rome/>

Dufour, C., Kauffman, D. & Marsland, N. 2014. Enhancing the Links between Resilience and Nutrition. In Fan, S., Pandya-Lorch, R. & Yosef, S., eds. *Resilience for Food and Nutrition Security*, pp. 107-118. Washington, DC. International Food Policy Research Institute (IFPRI).

Grace, D. & McDermott, J. 2015. Reducing and Managing food scares. In 2014-2015 Global Food Policy Report, pp 41-50. Washington, DC. International Food Policy Research Institute (IFPRI).

FAO. 2003. *FAO International Workshop on 'Food Security in Complex Emergencies: Building Policy Frameworks to Address Longer-Term Programming Challenges.'* Food security and linking relief, rehabilitation and development in the European commission. [online]. Food Security Unit, EuropeAid Co-operation Office, Horizontal Operations and RRD, European Commission, Tivoli, 24-25 September 2003. [Cited January 28 2021]. <http://www.fao.org/3/ae504e/ae504e.pdf>

- FAO. 2009a. Bridging the gap. FAOs program for gender equality in agriculture and rural development. In: FAO [online]. Rome. [Cited January 28 2021]. <https://www.fao.org/publications/card/en/c/05c6388c-3727-5a1a-9b3f-c3fdo1bbc594/>
- FAO. 2009b. Indigenous Peoples' Food Systems: The many dimensions of culture, diversity and environment for nutrition and health. In: FAO [online]. Rome: [Cited January 28 2021]. <http://www.fao.org/3/i0370e/i0370e00.htm>
- FAO. 2009b. *Bridging the Gap. FAO's Programme for Gender Equality in Agriculture and Rural Development*. Rome. 36 pp. (also available at <http://www.fao.org/3/a-i1243e.pdf>).
- FAO. 2010-2011. The state of food and agriculture. Women in agriculture. Closing the gender gap for development. In: *Food and Agriculture Organization of the United Nations* [online]. Rome. [Cited January 28 2021]. <http://www.fao.org/publications/sofa/2010-11/en/>
- FAO. 2011. *The state of food and agriculture 2011-11. Women in Agriculture. Closing the gender gap for development*. Rome. 4 pp. (also available at <http://www.fao.org/3/i2050e/i2082e00.pdf>).
- FAO. 2013a. Guidance Note. Supporting displaced people and durable solutions. In: Reliefweb [online]. New York. [Cited January 28 2021]. <https://reliefweb.int/report/world/guidance-note-supporting-displaced-people-and-durable-solutions>
- FAO. 2013b. *The State of Food and Agriculture: Food Systems for Better Nutrition*. Rome. 114 pp. (also available at <https://www.fao.org/3/i3300e/i3300e.pdf>).
- FAO. 2014a. *Strengthening the Links between Resilience and Nutrition in Food and Agriculture*. Rome. 4 pp. (also available at <http://www.fao.org/3/a-i3824e.pdf>).
- FAO. 2014b. *The state of World Fisheries and Aquaculture*. Rome. 243 pp. (also available at <http://www.fao.org/3/a-i3720e.pdf>).
- FAO. 2015a. Key recommendations for improving nutrition through agriculture and food systems. Rome. 2 pp. (also available at <http://www.fao.org/3/a-i4922e.pdf>).
- FAO. 2015b. *Nutrition and social protection*. Rome. 52 pp. (<http://www.fao.org/3/a-i4819e.pdf>).
- FAO. 2016. *Farmer Field School Guidance Document. Planning for quality programs*. In: *Food and Agriculture Organization of the United Nations*. Rome. [Cited January 28 2021]. <https://www.fao.org/documents/card/en/c/d7d4db1f-826f-4d81-b097-44292ff7eeca/>
- FAO. 2017a. *Food traceability guidance*. Santiago, 2017. 140 pp. (also available at <https://www.fao.org/3/i7665e/i7665e.pdf>).
- FAO. 2017b. *Nutrition-sensitive agriculture and food systems in practice. Options for interventions*. Rome. 102 pp. (also available at <https://www.fao.org/3/i7848en/I7848EN.pdf>).
- FAO. 2019. *Food Safety and Quality: Background*. In: *Food and Agriculture Organization of the United Nations* [online]. Rome. [Cited September 24 2020]. <http://www.fao.org/food-safety/background/en/>
- FAO. 2020. *Nutrition and livestock– Technical guidance to harness the potential of livestock for improved nutrition of vulnerable populations in programme planning*. In: *Food and Agriculture Organization of the United Nations* [online]. Rome. [Cited September 24 2020]. <https://doi.org/10.4060/ca7348en>
- Humanity and Inclusion & F3E**. 2018. *Incorporating the principle of 'Do No Harm: How to Take Action Without Causing Harm. Reflections on a Review of Humanity and Inclusion Practices*. Silver Spring, MD. (also available at https://www.alnap.org/system/files/content/resource/files/main/donoharm_peo7_synthesis.pdf).
- Kenya Agricultural and Livestock Research Organization (KALRO)**. 2021. *Crops*. In KALRO online]. Nairobi. [Cited April 12 2021]. <https://www.kalro.org/divisions/crops/>.

- Government of Kenya.** 2019. *Agriculture Sector Transformation and Growth Strategy: Towards Sustainable Agricultural Transformation and Food Security in Kenya 2019-2029*. Nairobi. (also available at <http://extwprlegsl.fao.org/docs/pdf/ken189053.pdf>).
- Government of Kenya.** 2013. *The national food safety policy*. Nairobi. (also available at <https://www.health.go.ke/wp-content/uploads/2019/09/Draft-National-Food-Safety-2013-Policy.pdf>).
- Genschick, S., Phillips, M.J., Thilsted, S.H., Thorne-Lyman, A.L., Subasinghe, R.** 2015. Aquaculture and fisheries: towards a nutrition-sensitive approach. INFOFISH International, 3: 11-17. (also available at http://pubs.iclarm.net/resource_centre/WF-3846.pdf).
- Gostelow, L., Desplats, G., Shoham, J., Dolan, C., & Hailey, P.** 2015. *Nutrition and resilience: A scoping study*. ENN, USAID & Irish Aid. (also available at <https://www.enonline.net/attachments/2450/Resilience-report-final.pdf>).
- International Crops Research Institute for the Semi-Arid Tropics (ICRISAT).** 2022. *Kenyan pastoralists: how changing livestock markets could reduce conflict*. In: ICRISAT [online]. Nairobi. [Cited 28 January 2021] <https://www.icrisat.org/kenyan-pastoralists-how-changing-livestock-markets-could-reduce-conflict/>
- IFAD.** 2014. *How to do community value chain development projects*. Rome, IFAD.
- IFAD.** 2018. *Nutrition-sensitive value chains: A guide for project design - Volume I*. In: IFAD [online]. Rome. [Cited January 28 2021]. <https://www.ifad.org/en/web/knowledge/-/publication/nutrition-sensitive-value-chains-a-guide-for-project-design>
- International Food Policy Research Institute.** 2015. *Global Nutrition Report 2015: Actions and Accountability to Advance Nutrition and Sustainable Development*. Washington, DC. (also available at <https://globalnutritionreport.org/reports/2015-global-nutrition-report/>).
- International Rice Research Institute (IRRI).** *Seed Quality*. Manila. (also available at <http://www.knowledgebank.irri.org/step-by-step-production/pre-planting/seed-quality>).
- Kimani, A., Mayer, A. & Swiderska, K.** 2020. *Putting indigenous foods and food systems at the heart of sustainable food and nutrition security in Uganda*. Discussion Paper. London and The Hague, IIED and Hivos. (also available at <https://www.iied.org/sites/default/files/pdfs/migrate/16663IIED.pdf>).
- Kimani, E., Okemwa, G. & Aura, C.** 2018. *The status of Kenya Fisheries: Towards sustainability exploitation of fisheries resources for food security and economic development*. Nairobi, Kenya Marine and Fisheries Research Institute (KMFRI).
- McNamara, K. & McKune, S.** 2018. *Nutrition-sensitive livestock interventions*. Gainesville, FL, Feed the Future Innovation Lab for Livestock Systems. (also available at <https://livestocklab.ifas.ufl.edu/media/livestocklabifasufledu/pdf-/Nutrition-Sensitive-Livestock-Interventions-1.10.2019.pdf>).
- Ministry of Gender, Children and Social Protection.** 2011. *Kenya National Social Protection Policy*. Nairobi, Government of Kenya. (also available at <https://socialprotection.or.ke/images/downloads/kenya-national-social-protection-policy.pdf>).
- Ministry of Health.** 2017. *National Guidelines for Healthy Diets and Physical Activity*. Nairobi, Government of Kenya. (also available at <http://www.nutritionhealth.or.ke/wp-content/uploads/Downloads/National%20Guidelines%20for%20Healthy%20Diets%20and%20Physical%20Activity%202017.pdf>).
- Natural Food Barefoot Guide Writer's Collective.** 2020. *Surviving COVID-19: The neglected remedy*. Kampala. (also available at <https://organicconsumersalliance.org/images/barefoot-guide-surviving-covid-19-the-neglected-remedy.pdf>).

- Nordin, S.** 2016. Sustainable nutrition manual. Food, water, agriculture and environment. In: FSN Network [online]. New York. [Cited January 28 2021]. <https://www.fsnnetwork.org/sustainable-nutrition-manual-food-water-agriculture-environment-second-edition>
- Onyalo, P.O.** 2019. Women and agriculture in rural Kenya: Role in agricultural production. *International Journal of Humanities, Art and Social Studies*, 4(4): 1-10. (also available at <https://airccse.com/ijhas/papers/4419ijhaso1.pdf>).
- Rampa, F. & Dekeyser, K.** 2020. AgrInvest-Food Systems Project – Political economy analysis of the Kenyan food systems. Key political economy factors and promising value chains to improve food system sustainability. Rome, FAO. 69 pp. (also available at <https://doi.org/10.4060/cb2259en>).
- Ridolfi, C., Hoffmann, V. & Baral, S.** 2018. Post-harvest losses in fruits and vegetables: The Kenyan context. Washington, D.C. International Food Policy Research Institute (IFPRI). (also available at <http://ebrary.ifpri.org/cdm/ref/collection/p15738coll2/id/132325>).
- Fan, S., Pandya-Lorch, R. & Yosef, S. eds.** 2014. Resilience for Food and Nutrition Security. Washington, DC, International Food Policy Research Institute (IFPRI).
- Thilsted, S.H., James, D., Toppe, J., Subasinghe, R. & Karunasagar, I.** 2014. Maximizing the contribution of fish for human nutrition. Rome, Food and Agriculture Organization of the United Nations, and Geneva, World Health Organization. (also available at <http://www.fao.org/3/a-i3963e.pdf>).
- UN-OCHA.** *Gender marker tip sheet. Gender Equality in the project sheet.* New York. (also available at <https://www.humanitarianresponse.info/sites/www.humanitarianresponse.info/files/documents/files/Nutrition%20Gender%20Marker%20Kit.pdf>).
- USAID.** 2009. *Promoting gender equitable opportunities in agricultural value chains.* A Handbook. Washington, DC. (also available at https://pdf.usaid.gov/pdf_docs/pnaeb644.pdf).
- USAID & SPRING.** Promotion of food safety. In: *Strengthening Partnerships, Results, and Innovations in Nutrition Globally* [online]. Arlington, VA. [Cited January 28 2021]. <https://www.spring-nutrition.org/publications/series/understanding-anemia/options/promotion-food-safety>
- WFP, Research for Action & Action against Hunger.** 2018. Impacts of cash on nutrition outcomes. From available scientific evidence to informed action. Rome. 24 pp. (also available at <https://www.calpnetwork.org/wp-content/uploads/2020/03/1529400438.WFP-0000071735-1.pdf>).
- WHO.** 2012. Five keys to growing safer fruits and vegetables. In: World Health Organization [online]. Geneva. [Cited January 28 2021]. <https://www.who.int/publications/item/9789241504003>
- WHO.** 2012. Five keys to safer food. In: *World Health Organization* [online]. Geneva. [Cited January 28 2021]. <https://www.who.int/news-room/fact-sheets/detail/food-safety>
- World Health Organization. 2017. One Health. In: WHO [online]. Geneva. [Cited January 28 2021]. <https://www.who.int/news-room/q-a-detail/one-health>
- World Vision.** 2019. How cash-based approaches affect nutrition outcomes. A guidance note. In: Reliefweb [online]. New York. [Cited January 28 2021]. <https://reliefweb.int/report/world/how-cash-based-approaches-affect-nutrition-outcomes-guidance-note-june-2019>
- Yen, E., Hoffmann, V., Grace, D., Karugia, J., & Aguda, R.** 2018. *Food safety in Kenya: Focus on Fruits and Vegetables.* Washington, DC. International Food Policy Research Institute (IFPRI). (also available at <http://ebrary.ifpri.org/utils/getfile/collection/p15738coll2/id/132321/filename/132533.pdf>).





MODULE 7

FOOD AND NUTRITION ADVOCACY, BUDGETING AND RESOURCE MOBILIZATION

➔ Introduction

This chapter will focus on food and nutrition policy advocacy and resource mobilizing for nutrition-sensitive agriculture programming.

Food and nutrition advocacy


Advocacy involves inspiring, motivating or influencing policies and actions in order to achieve a positive outcome. Policy advocacy should aim to maintain high level interest, support critical initiatives by improving integration of nutrition in policies, increase resource mobilization, support programme implementation and increase accountability for reducing malnutrition.

An advocacy strategy or process should be planned, be systematic and be deliberate. It also needs to be flexible and to have a review process that enables feedback. An advocate needs to have comprehensive information on key sectors such as food security, nutrition and agriculture. Well planned and well implemented advocacy can result in long lasting achievements.

A nutrition advocacy process can be implemented through:

- a) explicitly identifying the problem to be tackled. This is the foundation for an effective nutrition advocacy strategy.
- b) establishing clear advocacy goals and the targeted change objectives. The advocacy objectives can be proactive or reactive. Proactive means that an emerging issue is raised and a new policy is passed or implemented, while reactive means that one aims to modify or stop a policy.
- c) identifying the key decision makers at national, sub-national and community levels. Identify what they care about as this can be a key entry point for advocacy e.g. whom they listen to for technical and political advice, and the formal and informal decision-making processes.
- d) defining realistic ways of achieving the advocacy goal by providing decision-makers with viable options on how to deal with the problems or gaps. Prior preparation – such as briefing documents, talking points, testimonials, and fact sheets - is required in order to have successful interactions with the target groups. The content of advocacy materials should be clear, direct, evidence based, simple and action-oriented. .
- e) creating political or institutional will for change by reaching out to different audiences. The audiences may include decision-makers, advisors, implementers, the general public, community leaders, and media. Different audiences require messages tailored to each of them, and that can be delivered by a focal person who is well known and respected by that audience group.
- f) facilitating the formation of formal or informal alliances with a common goal. This will make the advocacy effort more effective. .
- g) monitoring and evaluating the effectiveness of the advocacy effort. Policy advocacy requires human and financial resources, and therefore, one must also put in place the monitoring and evaluation indicators in order to track progress in achieving the policy advocacy objectives.

① **Case Study 26 is an example of a successful nutrition-related policy advocacy process in Kenya.**



Q CASE STUDY 26: POLICY ADVOCACY


Title: Advocacy and Policy Engagement for Nutrition - Establishment of a Parliamentary Caucus for Nutrition in Kenya

Implementing organization: Scaling Up Nutrition – Civil Society Alliance

The advocacy and policy engagement initiative to establish a Parliamentary Caucus for Nutrition in Kenya, was implemented between May 2020 and January 2021 and funded by the Scaling Up Nutrition – Civil Society Alliance (SUN CSA). The goal of the caucus was to bring like-minded and interested members of parliament and stakeholders together to discuss legislative gaps, budget gaps and programme implementation gaps that hinder the achievement of optimal nutrition. The Speaker of the National Assembly granted approval for the formation of the Parliamentary Caucus on Nutrition and engagement remains ongoing.

Some of the key learnings include the need for identification of nutrition champions from the onset during the induction of new MPs and the need to have a framework to institutionalize the nutrition caucus in parliament.

Detailed information on the case study can be found in Annexe 1, Case study 26



Budgeting and resource mobilization for nutrition-sensitive agriculture and food systems programming

The main aim of resource mobilization is to increase resources available (for example, finances and technical assistance) for policies and programmes. Resources can be mobilized both locally and externally.

The first step in resource mobilization is the mapping of food and nutrition initiatives, the government's priorities in relation to those initiatives, and the nature and extent of their funding. Furthermore, there is opportunity to identify other potential donors who may be interested in funding or providing technical assistance for food and nutrition initiatives.

Local funding can be from national and county governments through specific ministries and county departments such as those handling agriculture, health, education, and gender. There are also local private and charitable institutions that may provide funding for nutrition. In order to mobilize resources from government and local institutions, it is critical to understand the funding cycles (i.e the budgeting cycle of national and county governments) and the process that needs to be followed in order to ensure that food and nutrition actions are included as priority interventions for funding. Examples are the Medium-Term Plans (MTP) at national level and the County Integrated Development Plan (CIDP) development process and cycle. The allocated resources should also be identified both at national and county levels.

For advocacy to be successful, it needs to be planned well in advance. It should also encourage the political will and interest indecision-makers to prioritize food and nutrition in the planning and funding processes. Furthermore, advocacy can also improve accountability of government commitments.

External funding can be from foundations, individual donors, international private companies, etc. It is important to understand which external donor has interest in nutrition-sensitive programming, what their objectives are, how one's programme can fit into their objectives, and what their funding cycles and modes of channeling funds are. Advocacy outreach is required towards donors in order to increase funding commitment to nutrition, aid in influencing donor aid priorities, and seek donor support to influence global and national processes.

The current funding for malnutrition is insufficient and therefore innovative modes of fundraising should also be sought. These may give rise to new partnerships (e.g. South-to-South Cooperation, and collaboration between public and private sectors, and may enhance effectiveness of programmes and accountability

Different roles and responsibilities in resource mobilization:

- *coordination of efforts*: coordination within a team (in an institution) or among organizations applying together is very crucial in order to ensure consistent messages are delivered to potential resource partners.
- *strategic and technical inputs*: These should form the foundation of the resource mobilization initiatives, and should align to the national (and institutional) policies and strategies. They should also be appropriate for the situation.
- *negotiation*: A focal person should be selected to lead discussions with the potential donor. The skills of the negotiator should include communication, interpersonal engagement, ability to read a situation, and extensive knowledge of the initiative.
- *monitoring and evaluation*: The institution should have capacity to monitor the partnership agreement, progress of activities, outputs, and budgets in line with the project milestones.



The approach to resource mobilization includes:

identifying potential funding sources: This is finding potential donors who have similar interests in food security and nutrition. One can identify potential donors through: online search, word of mouth with other institutions' representatives, subscription to mailing lists, and joining local networks related to the subject matter, among others.

engaging the potential partners: This includes arranging meetings, delivering presentations to them, etc. This stage is critical for building relationships with the donors.

negotiating: This calls for a discussion and mutual agreement with funding partners on the terms of engagement. It is the most complex step in resource mobilization. It is also important to have the right people to undertake the task.

managing and reporting: The aim is to ensure that the resource partner and other partners involved in the programme are acknowledged, and are kept up to date with the implementation of the programme.

communicating results: This step involves sharing results and lessons learned with the stakeholders, as well as developing communication materials about the project.



Budgeting for nutrition in programmes needs to start from ensuring that projects have specific nutrition objectives, activities and nutrition indicators at design stage. Budgeting will include allocation of funds to objectives and/ or specific activities that will be implemented to cause the intended change, and that will be monitored against given indicators.

Prioritization of nutrition activities in multisectoral programmes will also involve advocacy with programme design teams to ensure that nutrition activities are given priority in the planning and budgeting. Furthermore, there needs to be a balance between budgets allocated to other sectors' activities and that which is allocated to nutrition activities in the same programme. Nutrition should not be viewed as 'less critical' compared to other sectors' activities.

① Case Study 27 is an example of a case study on nutrition resource mobilization.



🔍 CASE STUDY 27: RESOURCE MOBILIZATION

Project: Advocacy and Policy Engagement for Nutrition – Domestic Resource Mobilization for Nutrition in Kenya

Implementing organization: Nutrition International & Scaling Up Nutrition – Civil Society Alliance (SUN CSA)

Many counties have developed County Nutrition Action Plans (CNAPs) 2019–2023 after the finalization of the Kenya Nutrition Action Plan (KNAP) 2018–2022. Through the efforts of Nutrition International and supported by the Technical Assistance for Nutrition (TAN) programme, governors of Busia, Vihiga, Makueni, Kiambu, Embu, Murang’a, Nakuru, Bomet, Kajiado, and Nandi led the launching of their CNAPs 2019–2023.

As an outcome, through a matching fund modality provided through Nutrition International, the county governments have committed to financing nutrition to the tune of KES. 490 million (approximately US\$4.9 million) for three years. Nutrition champions have also been selected from the county assemblies and the executive to promote nutrition at various levels.

Detailed information on the case study can be found in Annexe I, Case study 27.



① SUMMARY

Advocacy includes influencing policies and actions of those in power in order to achieve a positive outcome. The actions should aim to maintain high level interest, support critical policy initiatives, increase resource mobilization, support programme implementation, and increase accountability for reducing malnutrition in a given region.

Before undertaking a resource mobilization activity, it is important to first undertake a mapping exercise in order to understand the donor priorities, and which entity is funding which nutrition initiatives, where and to what extent.

REFERENCES

- ACF International.** 2013. *Aid for nutrition – information note. Mobilizing innovative financing for the fight against undernutrition.* Paris. 12 pp. (also available at https://www.actionagainsthunger.org/sites/default/files/publications/ACF_International_Mobilizing_Innovative_Financing.pdf).
- Gonzalez, G.** 2016. *Nutrition Cluster Advocacy Toolkit.* Global Nutrition Cluster. 21 pp. (also available at https://www.nutritioncluster.net/Nutrition_Cluster_Advocacy_Toolkit).
- FAO.** 2014. *Integrating Food Security, Nutrition and Good Governance in District Development Planning Through Advocacy, Social Mobilization and Capacity Strengthening A Methodological Guide.* Rome. 59 pp. (also available at <http://www.fao.org/3/i1549e/i1549e00.pdf>).
- FAO.** 2015a. *Key recommendations for improving nutrition through agriculture and food systems.* Rome. 2 pp. (also available at <http://www.fao.org/3/a-i4922e.pdf>).
- FAO.** 2015b. *Quick guide to Resource Mobilization. Promoting partnership with FAO.* Rome. 34 pp. (also available at <http://www.fao.org/3/a-i5027e.pdf>).
- FAO & IPPC.** 2017. *IPPC Guide to resource mobilization. Promoting contracting party partnerships.* Rome. 32 pp. (also available at <http://www.fao.org/3/I7638EN/i7638en.pdf>).
- Office of the Prime Minister.** 2015. *Nutrition Advocacy and communication strategy for the Uganda Nutrition Action Plan 2015-2019.* Kampala. 81 pp. (also available at <https://www.spring-nutrition.org/sites/default/files/publications/components/files/nutrition-advocacy-communication-strategy-for-uganda-nutrition-action-plan.pdf>).
- Pelletier, D., Haider, R., Hajeerhoy, N., Mangasarya, N., Madime, R., & Sarkar, S.** 2013. The principles and practices of nutrition advocacy: Evidence, experience and the way forward for stunting reduction. *Maternal and Child Nutrition*, 9(2): 83-100. (also available at <https://onlinelibrary.wiley.com/doi/pdf/10.1111/mcn.12081>).
- Sethuraman, K., Kovach, T., Oot, L., Sommerfelt, A. E. & Ross, J.** 2018. *Manual for Country Level Nutrition Advocacy Using PROFILES and Nutrition Costing.* FHI 360/Food and Nutrition Technical Assistance III Project (FANTA). Washington, DC. (also available at https://www.fantaproject.org/sites/default/files/resources/Nutrition-Advocacy-PROFILES-Manual-Apr2018_0.pdf).



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MODULE 8

TRACKING PROGRESS AND MEASURING OUTCOMES

➔ Introduction

This chapter is focused on how to measure progress of ongoing initiatives, creating a clear understanding of nutrition impact pathways, simple data analysis, documentation and dissemination of good practices. Monitoring and evaluation is a critical component of any project cycle because it enables measurement of progress. As the saying goes, *“what gets measured gets done.”*

Introduction to project cycle

A project is a time- and resource-bound set of actions that is required to provide given results. The key steps in a project cycle are: include: project identification, project document formulation, project document appraisal and approval, project implementation and monitoring, project evaluation, project learning and adaptation, and project closure.

Project identification

This occurs through the development of a concept note which provides the general idea of the project and shows the linkages between the idea and local/national/regional/global policies, commitments or set targets. The concept note addresses a specific problem, and it is at this stage that one can ensure that food and nutrition issues are strongly embedded in the project. There is a need for the project formulation team to also undertake a nutrition situation analysis to understand the food and nutrition context of the target area. This information will also inform the project document formulation.

If one of the project goals is to address food and nutrition challenges, then the project should have a nutrition outcome already identified. A concept note can also be used to start discussions on resource mobilization.

Project document formulation

At this stage, all the key inputs need to be clearly defined to ensure that the project document is comprehensive. A project formulation template or internal project documents may be used in the development of the document which should also clarify the implementation modalities of the different project components.

This is an important stage for a project that is intended to be nutrition-sensitive. Adequate nutrition information needs to be included in the project background and justification. Explicit nutrition objectives, activities, indicators and a clear budget need to be also incorporated into the project design.

Project document appraisal and approval

Project appraisals involve internal or external technical reviews in order to ensure that project document is technically sound and is of high quality. For nutrition-sensitive agriculture projects, appraisals by a nutrition specialist are critical to ensure any gaps are adequately addressed in a timely fashion.

Project approval commits an institution legally, operationally and technically to implement the project according to the project document. Project objectives should be met in spite of anticipated challenges.

Project implementation and monitoring

Project Implementation: operationalizes the project document and ensures that the activities are implemented with the target group as stipulated. At the beginning of the project, a baseline survey should be undertaken to adequately inform target audiences and ensure food and nutrition activities are well implemented to achieve the desired outcomes. Close coordination

with other partners implementing relevant projects is crucial to ensure the success of the project activities. Different actors can bring in knowledge and experiences that add immense value to the project.

Project monitoring is a continuous process involving systematic collection of data on selected indicators to track progress. This provides stakeholders with an understanding of the extent of progress and achievement of objectives.

Monitoring enables the team to keep track of the progress of activities. It aids in comparing actual against planned results in order to determine how well an intervention is being implemented. If unexpected negative results are observed, corrective measures are undertaken to return the project on track. Project monitoring also ensures that the activities are within scope, budget and timeline. There is a need for flexibility during monitoring exercises especially in complex environments that may include conflict situations, drought emergencies, multisectoral projects implemented in diverse settings etc.

There are two forms of monitoring:

- process monitoring, also known as tracking monitoring, looks at delivery of goods and services, use of services or structures by target groups, and management of financial resources
- impact monitoring, also known as end of project evaluation, focuses on progress of the project towards achieving its purpose – such as improvement of nutrition.

Programmes need a reliable monitoring system for a good evaluation process to be undertaken.

Project evaluation

Evaluation involves the systematic collection and analysis of information about the outcomes of the project. It assesses all the elements of a programme including design, implementation, tracking, and results.

There are two main types of evaluation:

- performance evaluation focuses on quality of goods and service delivery, as well as the results achieved by a programme. This usually depends on monitoring information collected throughout the programme.
- impact evaluation which evaluates if the changes in outcomes are directly attributed to the programme.

Programme or project evaluations are usually undertaken periodically. One that is undertaken in the middle of a project is referred to as a mid-term evaluation. An end of project evaluation is undertaken once a project has been completed while an ex post evaluation is done several years after completion of the project.

Programmes or projects are also evaluated against the cost. There are two tools that can be used for this:

- a cost-benefit analysis estimates the total benefit of a programme compared to its total costs.
- a cost effectiveness analysis compares the costs of two or more programmes in yielding the same outcome.

Project evaluation is important for nutrition-sensitive projects. It provides information on whether all the different project activities and components are well coordinated with an aim of improving food and nutrition of target groups.

Project learning and adapting

Sharing of successes and lessons learned among partners is important in improving implementation of other ongoing or future nutrition-sensitive programmes. Project learning needs to be a core component of the project and should be incorporated in the planning process through the inclusion of adequate finances in the project formulation stage.

Project closure.

This is the final step of a project. It requires various activities to be undertaken, including:

- internal review of the project: it is good practice for the team involved to provide feedback on the different aspects of the project.
- finalization of the paper work: the final project report including financial reports should be shared with funding partners, and for internal records/archiving.

Theory of change

A theory of change looks at how an intervention will deliver on proposed results. A result chain or logical framework shows the sequence of inputs, activities and outputs that a programme will apply in order to achieve given outcomes and overall impact.

The diagram below provides a visual rendering of a theory of change, which is comprised of inputs/activities, outputs, outcomes, and impact.

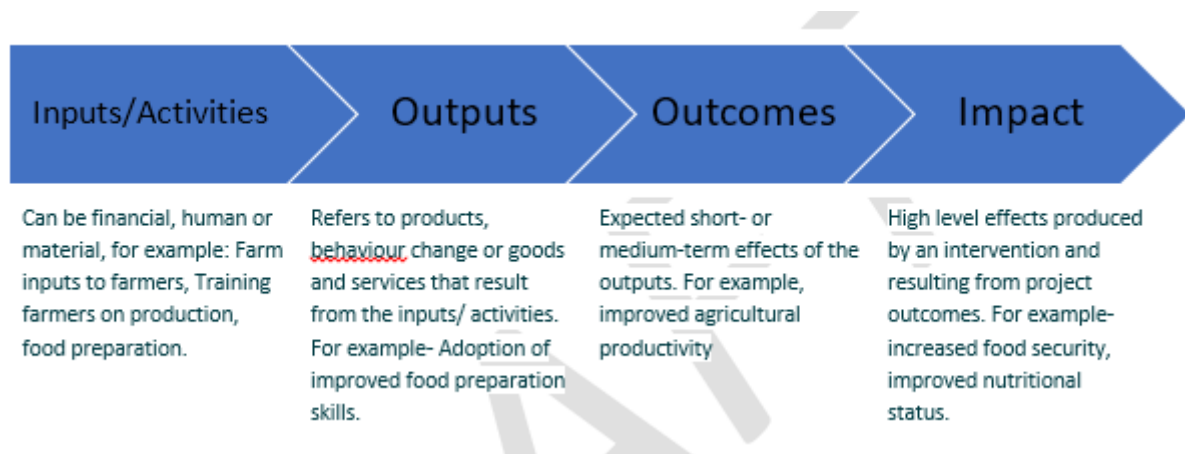


Figure 9: Example of a theory of change components

Understanding and selecting key nutrition-sensitive agriculture indicators

What are indicators? These are qualitative or quantitative variables that provide a reliable means to measure achievement, as well as estimate progress and change due to a certain intervention. Indicators can also be used to measure performance against stated outcomes.

Different indicators can be used to measure progress at the following levels: activity, input, output, outcome, and goal.

Selection of indicators depends on the type of nutrition-sensitive agriculture intervention, the impact pathways and what is feasible in terms of measuring

Tips for selection of indicators:

Indicators should be:

- relevant to the purpose of monitoring.
- disaggregated by age group, sex, income levels.
- easy to use and understand.
- clearly defined.
- able to measure trends over time.
- specific to reflect the gap in the programme.
- both qualitative and quantitative indicators.

Key features to take note of when selecting indicators include:

- when to use an indicator
- what it measures
- population target
- data collection methods
- data analysis
- notes/comments on validity and other relevant information
- cost.

Examples of indicators for nutrition-sensitive agriculture programmes/ projects are shown in Table 6.

Table 6: Commonly used nutrition-sensitive indicators

TYPE OF MEASURE	EXAMPLES
Diet quality - Individual level	<ul style="list-style-type: none"> • Minimum Dietary Diversity- women of reproductive age [MDD-W] • Minimum Dietary Diversity - Young children [MDD age 6-24 months] • Minimum Acceptable Diet (MAD) for children under 2 years, Individual Dietary Diversity Score (IDDS) • Unique Food Items/ Dietary variety • Quantitative nutrient intakes • Consumption of 400g fruits and vegetables per day • Proportion of the diet consisting of processed/ultra-processed foods; • Vitamin A-rich food consumption • Iron-rich food consumption • Consumption of specific target foods.
Food access- Household level	<ul style="list-style-type: none"> • Food Insecurity Experience Scale (FIES), • Household Dietary Diversity Score (HvDDS), • Food Consumption Score (FCS), • Household Food Insecurity Access Scale (HFIAS), • Coping Strategies Index (CSI), • Months of Adequate Household Food Provisioning (MAHFP), Household Hunger Scale (HHS).
On- farm availability, diversity and safety of food	<ul style="list-style-type: none"> • Production of specific nutrient-rich foods on-farm; • Diversity of foods produced on-farm; • Functional diversity index; • Proportion of staple crop production that is biofortified; Implementation of good agricultural practices; • Grain loss

TYPE OF MEASURE	EXAMPLES
Food Environment in markets	<ul style="list-style-type: none"> • Availability of specific foods in the markets; • Prices of specific foods in markets; • Food prices, • Cost of a healthy diet, • Functional diversity index, • Food safety indicators in food environments, • Food loss in the supply chain.
Women's empowerment	<ul style="list-style-type: none"> • Women's Empowerment in Agriculture Index (WEAI), • Women's Control of Income, • Women's time use and labour, • Asset ownership by gender, • Qualitative process to understand equity, time use and income control.
Nutrition and food safety knowledge and norms	<ul style="list-style-type: none"> • Indicator of nutrition and food safety-related knowledge - to be specified according to intervention; • Changes in specific behaviours promoted with regard to food safety.
Care practices	<ul style="list-style-type: none"> • Exclusive breastfeeding • Continues breastfeeding to 2 years or beyond , • Minimum Acceptable Diet (MAD), • Minimum Meal Frequency (MMF)
Natural resource management practices, health and sanitation environment	<ul style="list-style-type: none"> • Access to improved drinking water source, • Presence of animals in or near the household, • Sustainability of water availability and water use efficiency measures, • Nutrition Indicators for biodiversity, • Contamination from water or environment food supply.
Nutritional status: anthropometric indicators	<ul style="list-style-type: none"> • Stunting, • Wasting, • Underweight, • Maternal weight/ BMI
Nutritional status: biochemical indicators	<ul style="list-style-type: none"> • Iron Status, • Anaemia, • Vitamin A status.

Data collection, analysis and showing impact- one example

Collecting data is an important component when it comes to project monitoring and evaluation. This section will look at one example of an indicator, and how its data can be collected, analyzed and presented.

Minimum Dietary Diversity Score for Women (MDD-W):

The table below includes a description of what the indicator measures, when it is relevant to use it, how it is collected and analysed, and technical resources available related to it.

Type of Measure	Indicator	What is measures	Popula-tion	Data collection	Data Analysis	Notes
Diet-Individual Level	MDD-W (Minimum Dietary diversity- for women of reproductive age)	A measure of dietary quality, which reflects nutrient adequacy and dietary diversity. It does not reflect adequacy of specific target nutrients.	Women of reproductive age (15-49 years)	Data is collected on the foods and beverages consumed in the previous 24 hours which are aggregated into 10 distinct food groups. Does not require quantitative food intake.	Several indicators can be derived from the basic data, including (1) proportion of women who consume 5 or more food groups out of ten; (2) mean dietary diversity score; (3) proportion of women consuming any specific food groups such as animal source foods.	<p>Validity: This indicator has been validated as an indicator of likelihood of micronutrient adequacy among women of reproductive age. There is a recent global consensus on this indicator as the best, most valid measure of women's dietary diversity, it replaces the WDDS (Women's Dietary Diversity Score) that had been previously developed by FAO and FANTA project. Unlike former measurements, it offers a threshold for women's micronutrient needs.</p> <p>Mode of collection: Household Survey (Individual interview within the household).</p> <p>Cutoff (available): Women who consume foods from at least 5 out of 10 food groups have a higher likelihood of micronutrient adequacy.</p> <p>Methodology: Standardized methodology for data collection and analysis is available from: Minimum Dietary Diversity for Women: A Guide to measurement. (FAO/FHI 360, 2016).</p>

Similar information for all other recommended indicators is detailed in the FAO Manual- Compendium of indicators for nutrition-sensitive agriculture, 2016. <http://www.fao.org/3/a-i6275e.pdf>

Minimum Dietary Diversity Score for Women (MDD-W):

MDD-W assesses whether women aged 15–49 years of age have consumed at least five out of the ten food groups the previous day or night. This indicator can be used as a proxy for micronutrient adequacy. The ten food groups used in MDD-W are:

1. Grains, white roots and tubers, and plantains
2. Pulses (dry beans, dry peas and lentils)
3. Nuts and seeds
4. Dairy and dairy products
5. Meat, poultry and fish
6. Eggs
7. Dark green leafy vegetables
8. Other vitamin A-rich fruits and vegetables
9. Other vegetables
10. Other fruits

The tool: A model questionnaire for MDD-W, adapted from the *FAO and FHI 360. 2016. Minimum Dietary Diversity for Women: A Guide for Measurement*. Rome: FAO. (<http://www.fao.org/3/a-i5486e.pdf>) can be found in *Annexe 3*. The questionnaire descriptions/ examples need to be modified according to the context. The questionnaire may need to be translated to the local language of the area where it will be used. It also needs to be pretested to ensure that the potential respondents understand the questionnaire and probing that will enable exhaustive information collection.

Note that enumerators will need to be trained on how to apply the questionnaire. The exact steps on what to train on can be found in *FAO and FHI 360. 2016. Minimum Dietary Diversity for Women: A Guide for Measurement*. Rome: FAO. (<http://www.fao.org/3/a-i5486e.pdf>).

Analysis: In order to analyse the MDD-W data, one will need to aggregate the questionnaire rows (food groups and sub food groups) into the 10 MDD-W food groups. A ‘yes’ answer to each food group consumed by the woman interviewee is awarded one point. This is then summed up into a score ranging from 0 to 10. This is thereafter followed by a calculation of the proportion of women who score from 5 to 10.

Interpretation: This is as simple as providing the ‘Percent of Women of Reproductive Age’ who achieved the ‘Minimum Dietary Diversity’. This may be presented as ‘X percent of Women of Reproductive Age achieved the minimum dietary diversity; and they are more likely to have higher micronutrient intakes than X percent of women’.

Illustrative options: Some of the key features that can be presented from MDD-W data, include (but are not limited to):

- the mean diversity score (the number of food groups)– a histogram can be used to show the distribution of scores.
- if there is a specific interest in certain food groups, analysis can be done specifically for consumption patterns for specific food groups. For example:
 - The mean number of fruits and vegetable groups consumed (out of the four groups)
 - Mean number of animal source foods consumed (out of the three groups)
 - Percent of women consuming low nutrient density food groups in the last 24 hours (these include: fats/oils, sweets, sweetened drinks etc).
- context-specific analysis: This can include a comparison of different food groups consumed in different settings where the data was collected.

For more information on MDD-W, please refer to: *FAO and FHI 360. 2016. Minimum Dietary Diversity for Women: A Guide for Measurement. Rome: FAO. (<http://www.fao.org/3/a-i5486e.pdf>).*

📌 **Case Study 28 is an example of a case study that has measured outcomes using selected indicators.**



🔍 CASE STUDY 28 - NSA INDICATORS

Title: Monitoring and Evaluation of Nutrition-Sensitive Agriculture programmes: The Case of the Accelerated Value Chain Development (AVCD) Programme

Implementing organization: International Livestock Research Institute (ILRI) in partnership with other Consortium of International Agricultural Research (CGIAR) centres

The Accelerated Value Chains Development (AVCD) programme was funded by Feed the Future (FtF) initiative of the United States Agency for International Development (USAID) to implement nutrition-sensitive Interventions in 21 counties in Kenya. The AVCD programme was implemented by a consortium of CGIAR centers. The project consultatively developed monitoring tools and undertook monitoring continuously.

A FAO tool was adapted and pre-tested for outcome indicators and collected annually through a survey within the same time frame to factor for seasonality. The focus was on MMD-W, MDD-C for 0-23 months and HHDS. The score for women of reproductive age had increased but together with the score for children decreased during 2020 due to COVID-19. A robust monitoring and evaluation system for nutrition-sensitive agriculture and food systems needs to be established and this may be attained by building capacity and strengthening existing government structures. capacity and strengthening existing government structures.

Detailed information on the case study can be found in Annexe 1, Case study 28



Documenting good practices and lessons learned in nutrition-sensitive agriculture

Documentation and sharing of knowledge are important components of nutrition-sensitive programmes, and should not be ignored. Sharing of documented practices contributes to the body of evidence that is required to inform policy and programme decisions.

Documentation of good or promising practices as well as the challenges should be encouraged for learning purposes. This can lead to improvement of capacities and programme results.

According to FAO, a *good practice* is a successful experience that has been tested and replicated in different contexts and can therefore be recommended as a model. It deserves to be shared so that a great number of people can adapt and adopt it. A good practice can also be institutionalized by becoming part of policy or norm.

A *promising practice* is a practice that is successful in its specific context but represents a risk if applied in a different context.

Some key factors that can be used to identify good practices include:

- *effective*: The potential good practice needs to be doable and achieve measurable results
- *efficient*: It should provide results with reasonable resources and time
- *relevant*: It needs to address priority gaps/ challenges in nutrition
- *being ethical*: It respects ethics for dealing with populations
- *sustainable*: It should be able to implement the practice over a given period and comfortably use existing resources.
- possibility of *replication* in another context.
- *involve all stakeholders/ partners*: It should satisfactorily strengthen collaboration with relevant stakeholders including communities.
- have clear *target users*.
- *guide actions* of others who may want to replicate.

The process of documenting and sharing a good practice in nutrition-sensitive agriculture involves the following:

- *identify* the nutrition sensitive practice that you wish to focus on and prepare the process that you will follow to document it. Remember that it is important to have adequate information about this practice and its potential for replication.
- *gather and organize the information* on the good practice: This should include the background information, context, objectives, stakeholders involved, methodological approach, results, success factors, key lessons, among others. There are examples of good practice templates developed by different organisations.
- *analyse the good practice results*: This includes explaining how and why the activities were successful. It provides key information on key success factors and how the practice can be replicated.
- *document and prepare to communicate*: Documentation can take different formats, including written products, short video clips, radio program etc. The different formats will however include writing of the key information that needs to be passed.
- *share the good practice*: This is the main objective of preparing a good practice and it must be shared. Sharing can be through digital channels (emails, websites, blogs etc), Face to face (meetings, conferences, exchange fairs etc) and conventional channels (radio, printed documents, television etc).



① SUMMARY

The key steps in a project cycle include: project identification (through concept note development); project document formulation; project document appraisal and approval; project implementation and monitoring; project evaluation; project learning and adapting; and project closure.

The logical framework of a project shows the sequence of inputs, activities and outputs that a programme will apply in order to achieve given outcomes, and overall, the impact. Project monitoring is a continuous process in a project intervention, that involves systematic collection of data on selected indicators in order to provide stakeholders with an understanding of the extent of progress and achievement of objectives. Two types of monitoring are: process monitoring and impact monitoring.

Project evaluation involves the systematic collection and analysis of information about the outcomes of the projects. It assesses all the elements of a programme including- design, implementation, results. Two types of evaluation are: performance evaluation and impact evaluation. Indicators should be: relevant, disaggregated, easy to use and understand, clearly defined, able to measure trends over time, and specific.

Examples of indicators that can be used in nutrition-sensitive agriculture and food systems programmes include: Minimum Dietary Diversity- women of reproductive age [MDD-W]; Household Dietary Diversity Score (HDDS), Food Consumption Score (FCS), Food prices, and Minimum Acceptable Diet (MAD).

A good practice is a successful experience that has been tested and replicated in different contexts and can therefore be recommended as a model. Documentation of good or promising practices, as well as the challenges, should be encouraged for learning purposes.



REFERENCES

- Canadian International Development Agency.** 1997. *Guide to gender sensitive indicators.* Canada. Quebec. 91 pp. (also available at http://eugender.itcilo.org/toolkit/online/story_content/external_files/TA_Edu_CIDA.pdf).
- FAO.** 2001. *Project Cycle Management Technical Guide. Socio-economic and Gender Analysis Programme.* Rome. 105 pp. (also available at <http://www.fao.org/3/ak211e/ak211e00.pdf>).
- FAO.** 2012. *Guide to the project cycle - Quality results.* Rome. (also available at <https://pdf4pro.com/view/guide-to-the-project-cycle-quality-for-results-1388a.html>).
- FAO.** 2014. *Project cycle and Strategic Framework: Basic Principles and guidelines.* Rome. 5 pp. (also available at <http://www.fao.org/3/a-bbo22e.pdf>).
- FAO.** 2016. *Compendium of indicators for nutrition-sensitive agriculture.* Rome. 60 pp. (also available at <https://www.fao.org/3/i6275e/i6275e.pdf>).
- FAO.** 2020. *How to capture and share your good practices in order to generate change.* In: *FAO Capacity Development* [online]. Rome. [Cited 22 September 2022]. <http://www.fao.org/capacity-development/resources/practical-tools/good-practice-tool/en/>
- FAO & FHI 360.** 2016. *Minimum Dietary Diversity for Women: A Guide for Measurement.* Rome. 82 pp. (<http://www.fao.org/3/a-i5486e.pdf>).
- ILO.** 2017. *Basic Principles of monitoring and evaluation of youth employment interventions.* Geneva. 29 pp. (also available at https://www.ilo.org/wcmsp5/groups/public/---ed_emp/documents/publication/wcms_583693.pdf).
- United Nations Framework Convention on Climate Change.** 2013. *Module 5: Best Practices and lessons learned.* UN. 15 pp. (also available at https://unfccc.int/files/adaptation/application/pdf/5.1_best_practices_and_lessons_learned.pdf).
- USAID.** *Program Cycle Overview.* Washington DC. 4 pp. (also available at https://usaidlearninglab.org/sites/default/files/resource/files/39-usaid_program_cycle_overview_summary.pdf).
- WHO Regional Office for Africa.** 2017. *A Guide to Identifying and Documenting Best Practices in Family Planning Programmes.* Geneva, World Health Organization. pp. 40. (also available at <https://apps.who.int/iris/bitstream/handle/10665/254748/9789290233534-eng.pdf>).
- Wills, A., Tshangela, M., Shaxson, L., Datta, A., and Matomela, B.** 2016. *Guidelines and good practices for evidence-informed policymaking in a government department.* Pretoria, Department of Environmental Affairs & and London, Overseas Development Institute. 19 pp. (also available in <https://www.odi.org/sites/odi.org.uk/files/resource-documents/11011.pdf>).
- Zall Kusek, J. & Rist, R.C.** 2004. *Ten steps to a results-based monitoring and evaluation system : A handbook for development practitioners.* Washington, DC, World Bank. (also available at <https://openknowledge.worldbank.org/handle/10986/14926>).





MODULE 9

ACTIONS TO STRENGTHEN NUTRITION-SENSITIVE AGRICULTURE AND FOOD SYSTEMS' PROGRAMMING IN KENYA

➔ Introduction

This module aims to summarize all the modules of this package by providing a checklist for programming, highlighting common obstacles in programming, and proposing examples of key actions that can be implemented in order to strengthen nutrition-sensitive agriculture and food systems' programming.

Checklist for effective nutrition mainstreaming in agriculture policies and programmes

To support effective nutrition mainstreaming, it is crucial to have it integrated into different policies and programmes. Using a nutrition integration checklist can assist with this process. The checklist includes six components of a programme cycle and their subtopics, guiding questions and examples to illustrate. The six components are: project identification, project document formulation, project document appraisal and approval, project implementation, monitoring and evaluation, project learning and adapting, and project closure. Table 8 provides a sample checklist.

Table 8: Sample nutrition integration checklist

Program Cycle Components	Guiding Questions	Examples (Note: This varies with the types of programmes)
1. Project Identification: The project idea needs to have nutrition gaps highlighted.		
Identification of the problem to be addressed	Does the project idea address specific food and nutrition problems?	From available data, the population from selected region has high stunting rate/ high iron deficiency anaemia/ high wasting rates/ low dietary diversity/ poor food accessibility among others
2. Project Document Formulation: This is a critical component, as all the necessary nutrition sensitive inputs need to be integrated.		
Situation Analysis	Does the project target to work in region(s) with the highest nutritional problem identified?	Selection of a given region due to high wasting, stunting, obesity, NCDs prevalence, Vitamin A Deficiency etc
Project Objectives	Does the project have explicit nutrition objective(s)?	<ul style="list-style-type: none"> - To improve the dietary diversity of target households through agriculture production. - To improve infant feeding practices of children under 2 years of age through nutrition education and social behaviour change communication. - To strengthen nutrition mainstreaming through advocacy and policy review/ formulation.
Project Outcome	Does the project have an outcome focused on improving nutrition?	<ul style="list-style-type: none"> - Improved consumption to diverse and nutritious foods - Reduced prevalence of child wasting

Project Output	Does the project have explicit output that are focused on improving the nutrition outcomes?	<ul style="list-style-type: none"> - Increased production of diversified foods . - Number of SBCC sessions held - Number of people (men & women) reached with messages on nutrition. - Number of nutrition sensitive policies reviewed/ formulated.
Project Activities	Does the project have explicit activities that are focused on improving the nutrition outcomes?	<ul style="list-style-type: none"> - Activities focused on production of animal source foods, fruits and vegetables; - Activities on behaviour change communication or nutrition education, - Activities focused on improving availability of diverse foods in local markets, food processing, food labeling, nutrient analysis etc. - Activities on capacity development, policy development or reviews.
Project Targeting	Do the project activities aim to improve the nutrition outcomes of the nutritionally vulnerable groups?	<ul style="list-style-type: none"> - The project target groups include: households with children (boys & girls) under five years, school-going children (boys & girls), pregnant and lactating women, small-scale farmers, SMEs, food vendors, elderly, people living with HIV and AIDS, among other groups. - Policy level: Policy makers.
Gender and youth considerations	<p>Does the project contribute to women and youth empowerment?</p> <p>How are men included in the discussions in order to facilitate positive nutrition changes?</p>	<ul style="list-style-type: none"> - Targeting women in projects improves the likelihood if it contributes to improved nutrition. - Including men, women and youth in projects (including decision-making activities) is crucial for nutrition at household and community level.
Impact pathways	Is the project impact pathway, from activity to nutrition improvement clearly articulated?	<ul style="list-style-type: none"> - Some of the pathways include: food production pathway, food price pathway, income pathway, women empowerment pathway (which includes- women's income pathway, women's time use pathway and women's workload pathway. - The narrative needs to clearly explain how the proposed activities will lead to nutrition improvement.
Project resources: Budget	Does the project budget include adequate resources for nutrition activities?	<ul style="list-style-type: none"> - The project budget needs to have an explicit budget dedicated to nutrition actions. Furthermore, it needs to be adequate (in proportion to the whole budget and in comparison, to other project activities).

Project resources: Human resource	Does the project have dedicated nutrition staff to support implementation of the nutrition activities?	- The project needs to have an adequate budget for a food and nutrition specialist to oversee the implementation of the nutrition activities.
Project indicators	Does the project have specific nutrition indicators that will be used to monitor the progress? Gender disaggregated data?	- Examples Include: MDD-W, HDDS, MAD for children under 2 years, Coping Strategy Index, food prices, asset ownership by gender, women's control of income, biodiversity indicators. - Data to be disaggregated by gender, age and disability.
Partnerships	Does the project identify key partners and stakeholders?	- Identification of other relevant key partners and stakeholders working in the same region or implementing similar projects that will support or complement the project?
Sustainability	Are nutrition actions sustainable?	- There is need to have nutrition actions that the target groups can continue implementing on their own or with limited support after the project has ended. - Key measures for sustainability include, strengthening capacity for the local/ community structures, market systems, co-funding, advocacy and building strong partnership and linkages.
3. Project Document Appraisal and Approval		
Project appraisal	Does the project appraisal team include a nutrition specialist?	- Inclusion of a nutrition specialist in the project appraisal process is important to ensure that the document is technically sound.
4. Project Implementation, Monitoring, Evaluation		
Project implementation	Is the project being implemented as stipulated in the project document? Does the project have a comprehensive detailed implementation plan and organogram? Has the project done the project risk analysis and put in place mitigation measures?.	- The nutrition activities need to be implemented as stipulated in the document. - Proper coordination with relevant partners will ensure overall success of the project.
Project Monitoring	Does the project have a monitoring plan? Has the project planned for adequate resources for routine monitoring.	Examples include: - Process monitoring: of nutrition related goods and nutrition services rendered, management of nutrition financial resources - Impact monitoring: monitoring of nutrition activities towards achieving the purpose (Outcome or objectives stated in project).

Project Evaluation	Will a project evaluation be undertaken? If so, nutrition evaluation should be included. Has the project planned for baseline, mid term and end term evaluations? Has the project planned for adequate resources for evaluation?.	Examples include: - Performance evaluation: on quality of nutrition goods and services; and the nutrition results achieved by program. - Impact evaluation: changes in nutrition outcomes directly attributed to the programme. - Nutrition evaluation against costs: cost benefit analysis, cost effectiveness analysis.
5. Project Learning and Adapting		
Documenting and sharing of best practices, successes stories and lessons learnt.	Does the project plan/ have adequate resources for documentation and knowledge management.	- In order to build the body of evidence, it is important for the project to document the nutrition sensitive outcomes, successes as well as lessons learned. -This should thereafter be shared through the different platforms such as agri-nutrition conference.
6. Project Closure		
Internal review of project	Has the project planned for community reflection and review meetings? Has the project planned for the project closure workshop?	- It's important to provide nutrition feedback and draw recommendations for future projects.
Reporting and finalization of paperwork	Has the project planned for finalisation of project reports and wrap up.	-Ensure that the final project report (for donor, and internal use) includes key nutrition aspects, recommendations.

Obstacles / barriers for nutrition-sensitive agriculture and food systems programming

Below are examples of key barriers to nutrition-sensitive programming. These barriers may not be exhaustive and may apply in different scenarios.

Political and policy level:

- low political commitment to nutrition-sensitive agriculture: As in many countries, agriculture sector players in Kenyan do not yet consider nutrition as a critical issue to integrate in policy and programming.
- agricultural policies on intensification: Some national policies are focused on crop intensification, rather than promoting diversity in production. This therefore has impacts on nutrition-sensitive programmes that aim to improve diets through diversification in production.
- agriculture policies that are nutrition blind: Many agriculture policies do not yet consider implications of the actions to nutrition outcomes.

Coordination:

- nutrition-sensitive programmes by nature, require multisectorial coordination with all other key sectors involved in the programme, as well as with other partners implementing nutrition related activities in the target regions. Often, programmes are not well coordinated, affecting nutrition outcomes.
- coordination of nutrition-sensitive actions at national and sub national level has room for improvement. Weak coordination systems affect information sharing, joint implementation and complementarity of skills and actions. Eventually, it affects the quality and nutrition outcomes of programmes.
- programme actors that do not collaborate with their peers in other sectors apply a fragmented approach that is not very successful in achieving nutrition outcomes. This is a critical challenge in the agriculture sector.

Limited capacities/ Information gap-

- there is need for concerted efforts to strengthen capacity in nutrition-sensitive programming both at national and county levels. This is due to the limited skills and knowledge among decision makers and implementers on integrating nutrition in agriculture programming.
- incomplete understanding of the causes of malnutrition among practitioners in other sectors. This limits the ability to make decisions that will positively impact nutrition outcomes.
- limited interest on importance of nutrition among practitioners in other sectors. There is need for advocacy and increasing attention on how other sectors can contribute to nutrition improvement.

Short programme duration: Nutrition-sensitive agriculture programmes need a sizeable duration for nutrition change to be seen on the ground. This is often a challenge in programmes with very short durations. This includes emergency programmes that are not linked to long term development.

Examples of challenges that are specific to agricultural production activities:

- loss or neglect of indigenous or traditional crops and livestock: Indigenous crops and livestock are both resilient to climate change and nutritious Yet they are quickly being replaced by exotic breeds
- focus on productivity (only): In many cases there is promotion of crop varieties and livestock species that are highly productive, regardless of their nutritive value. There is need for a balance between high levels of production and nutritional value.
- gender disparities: Limited access to land, access to production resources and limited incomes are affecting women's contribution to household food security and nutrition. Much more needs to be done to enhance economic empowerment of women in agriculture sector.
- climate change affects seasonality, productivity, and other emerging issues such as pests and diseases.
- inadequate access to market information.
- lack of access to quality farm inputs and services such as extension

Challenges relating to nutrition-sensitive data:

- weak project monitoring and reporting. This limits the effectiveness of interventions.
- limited availability of already documented nutrition sensitive data. There are challenges in accessing robust data on nutrition-sensitive indicators like food consumption, dietary diversity, and coping strategies, among others. This affects justification and evaluation of nutrition-sensitive programmes as the documented information (especially food-related data) may not be available.
- limited use of nutrition sensitive indicators to measure progress- There is limited use of available nutrition sensitive indicators, therefore, many programmes are unable to show impact of work.
- limited documented evidence on impact on nutrition in agriculture programmes. While Nutrition sensitive agriculture programming contributes to improved diets and improved nutrition, there is still limited evidence (compared to nutrition specific programming) on impacts of different activities on nutrition outcomes. Programmes should be encouraged to strengthen research, documentation and sharing of evidence.
- limited nutrient analysis- When nutrient analysis data is not available, the analysis activities are usually not prioritized in many nutrition sensitive agriculture programmes. This limits available evidence of which highly nutritive foods to promote.

Other challenges:

- Limited budget allocation to nutrition-sensitive activities: Agriculture programmes in many instances do not allocate adequate budgets to nutrition components of their projects. This leads to limited capacities to implement the activities at good scale, to show impact on nutrition outcomes.
- De-prioritization of nutrition benefits in food marketing. The private sector, which is a key player in nutrition-sensitive programming, prioritizes profits over nutrition outcomes. While nutritional value of the food products should be used as a key selling point, in many cases, it is overlooked.
- Illiteracy and low education levels: Illiteracy affects the modes that can be used to pass information to communities, and the community members' ability effectively apply knowledge and skills.

Concrete actions to strengthen NSA programming

Moving forward, below are some general recommendations for strengthening nutrition-sensitive agriculture programming. They may not be exhaustive but may apply in different scenarios:

Ensure that *nutrition is strongly integrated in programme and project documents*- (refer to 'Checklist for guidance on effective nutrition mainstreaming in agriculture policies and programmes').

Training on nutrition sensitive agriculture programming: Provide training on nutrition-sensitive agriculture programming: Non-nutritionists have need to understand the importance of integrating nutrition in the agriculture sector. There should also be support for policy and programme development processes, so that nutrition is integrated from the beginning.

Upscale *internal and external advocacy* efforts among programme technical teams, decision makers (including donors), on why nutrition needs to be integrated in the processes. This will also include advocacy for adequate budgets on nutrition line items.

Strengthen collaboration and coordination within programmes and among partners, in order to raise the nutrition-sensitive programming profile among stakeholders; and improve programmes and policy outcomes.

Based on these examples, each group will develop their own contextualized action plan based on their regions. Refer to guidance provided in the Facilitation manual Module 9.



① SUMMARY

The nutrition integration checklist aims to facilitate mainstreaming of nutrition across policies and programmes. The checklist includes the 6 components of a programme cycle namely:

- Project identification
- Project document formulation
- Project document appraisal and approval
- Project implementation, monitoring and evaluation
- Project learning and adapting
- Project closure.

Some of the key barriers to nutrition-sensitive agriculture and food systems programming include low political commitment, agricultural policies promoting intensification, limited multisectoral coordination with other sectors, limited capacities to implement nutrition in agriculture programmes, and short duration of programmes.

Key challenges related to nutrition-sensitive agriculture data include weak project monitoring and reporting, limited knowledge and use of relevant indicators, limited documented evidence on impact of nutrition in agriculture programmes, and limited nutrient analysis, among others.

In order to move forward, some of the recommendations include strongly integrating nutrition in programme documents, building capacity of non-nutritionists on nutrition-sensitive agriculture programming, internal and external advocacy for resources, and strengthening collaboration and coordination in programmes.

REFERENCES

- African Development Bank.** 2019. Guidance on Integrating Nutrition into AFDB Investments. Abidjan. 60 pp. (also available at https://www.afdb.org/sites/default/files/2019/11/11/11._guidance_on_integrating_nutrition_into_afdb_investments.pdf).
- Balz, A.G., Heil, E.A. & Jordan, I.** 2015. Nutrition-sensitive agriculture: new term or new concept? *Agriculture & Food Security*, 4(6). (also available at <https://doi.org/10.1186/s40066-015-0026-4>).
- FAO.** 2014. Group work - obstacles for integrating nutrition and food security. Rome. 1 p. (also available at http://www.fao.org/fileadmin/user_upload/food-security-capacity-building/docs/Nutrition/NairobiWorkshop/Obstacles__integrating_FS_Nut.pdf).
- FAO.** 2015a. Key recommendations for improving nutrition through agriculture and food systems. Rome. 2 pp. (also available at <http://www.fao.org/3/a-i4922e.pdf>).
- FAO.** 2015b. Designing nutrition-sensitive agriculture investments. Checklist and guidance for programme formulation. Rome. 62 pp. (also available at <https://www.fao.org/3/i5107e/i5107e.pdf>).
- Kimani, A., Mayer, A. & Swiderska, K.** 2020. Putting indigenous foods and food systems at the heart of sustainable food and nutrition security in Uganda. Discussion Paper. London & The Hague, IIED and Hivos. (also available at <https://pubs.iied.org/sites/default/files/pdfs/migrate/i6663IIED.pdf>).
- Ouedraogo, M., Khassanova, R. & Yago-Wienne, F.** 2016. Implementation challenges and successes of an AG4Nut project in the eastern region of Burkina Faso. In: Emergency Nutrition Network [online]. Oxford. [Cited September 22 2022]. <https://www.enonline.net/fex/51/ag4nutprojectburkinafaso>
- Ruel, M. T. & Alderman, H.** 2013. Nutrition-sensitive interventions and programmes: how can they help to accelerate progress in improving maternal and child nutrition? *The Lancet*, 382(9891): 536-551.





ANNEXES

ANNEXE 1

Detailed Case Studies

CASE STUDY 1: LINK NCA

Title: Link Nutrition Causal Analysis (NCA) in West Pokot County

Implementing Organization: Action Against Hunger (ACF)

Project duration: January – July 2015



Context

Findings from the Kenya Demographic Health Survey (KDHS, 2014) showed high stunting rates (45.9 percent) for West Pokot County. Action Against Hunger Kenya Program saw the need to urgently address the levels of stunting by changing the way interventions are done. This led to the launch of the “Alleviating Chronic Malnutrition Initiative”. Link NCA was used to determine the basic and underlying causes of malnutrition specific to agro-pastoral and mixed farming livelihood zones. The study was implemented between January and July 2015.

Objective: To identify the possible causes of child undernutrition, particularly stunting among children aged 0-59 months, in agro-pastoral and mixed farming livelihood zones of West Pokot County.

Study process: Identification of stakeholders from various sectors; Review of secondary data and formulation of hypothesis on the causal link to stunting; Multi-stakeholder workshop to validate the hypothesis; Training of county supervisors; Sensitization training at national level; Data collection at household level; Identification of highest priority causes of under-nutrition; Development of response plans using study findings (problem and solution tree used); Validation and sharing of result findings in multi-stakeholder forums.

Results and impact: Findings showed major risk factors linked to stunting in West Pokot included: high prevalence and recurrent episodes of childhood illnesses including Acute Respiratory Infections (ARI), clinical malaria, environmental enteropathy and diarrhoea; high maternal workload; prolonged failure of seasonal rains coupled with a myriad of vulnerabilities over time; low income earning during the lean season; cultural taste preferences and minimal involvement of men in the decision-making process.



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For each major risk factor, ACF identified priority interventions across sectors to inform programmes, as shown in Table 9.

Table 9: Proposed interventions for identified risk factors

RISK FACTORS	PROPOSED INTERVENTIONS
High prevalence of childhood illness	Increase integrated health outreach programmes to strengthen and expand community-level services; strengthen disease/nutrition surveillance; improve supply chain management
Inadequate dietary diversity and meal frequency	Implement BFCl Cooking demonstrations; Advocate for utilization of indigenous foods development of recipes, provision of dairy goats
Limited sources of diversified incomes	Support Integrated Pest Management for crops and livestock, pasture production and introduce diversified livestock breeds
Poor access to safe water	Provision of water treatment chemicals at household level, Rehabilitate and/or repair broken boreholes and shallow wells
Poor hygiene practices	Intensify Community Led Total Sanitation (CLTS), Participatory Hygiene and Sanitation Transformation (PHAST) and Children's Hygiene and Sanitation Training (CHAST) Advocate for a central water storage; connectivity and expansion of pipe water to households to main sources; provision of tanks for rain water harvesting at communal level
Inadequate incomes and assets utilization intra-household High Maternal workload	Linking women to enterprise funds and loans; training women on financial literacy and alternative IGAs institution, Advocate for improved education infrastructure; shared gender roles and responsibilities; adult literacy education classes.

Sustainability

To ensure that the study results are linked to programmes, the team developed key advocacy messages including the expected change in nutrition from the actualization of the multisectoral response plans. With factors and pathways leading to undernutrition being diverse, complex, and multisectoral, Action Against Hunger, as well as other multisector local partners are implementing programmes to address some of the identified risk factors.

Link NCA in Kenya has also been implemented in Isiolo County (2013), Nairobi Informal areas (2017). Link on more information on the report can be retrieved here https://linknca.org/etude/comte_de_west_pokot.htm

Person to be contacted for more information: Lilian Kaindi,
Email: fsnsf@ke-actionagainsthunger.org

CASE STUDY 2: COORDINATION

Title: Multisectoral Coordination platform in Kenya: Food and Nutrition Linkages Technical Working Group (FNLTWG)

Implementing organization: Ministry of Agriculture, Livestock, Fisheries and Cooperatives, Ministry of Health, Food Agriculture Organization of the UN (FAO)

Project duration: Ongoing

REPUBLIC OF KENYA



Food and Agriculture
Organization of the
United Nations

Context

To address malnutrition sustainably, the collaboration of all stakeholders in food and nutrition security is paramount. The National Food and Nutrition Security Policy (2011), recognizes that hunger eradication and nutrition improvement is a shared responsibility of all Kenyans. The engagement of multiple partners including institutions in the public and private sectors can be enabled through multi - sectoral coordination at national level. An example of such a coordination platform is the Food and Nutrition Linkages Technical Working Group.

In 2014, the Ministry of Agriculture, Livestock, Fisheries and Cooperatives (MoALFC) in collaboration with FAO initiated discussions on the modalities of making nutrition more grounded in agriculture. As a result, the idea of linking nutrition programming in health and agriculture was born. This led to the establishment of the Food and Nutrition Linkages Technical Working Group. The development of the terms of reference of the working group was guided by the Food and Nutrition Security Policy and the Kenya National Nutrition Action Plan.

Chair

Ministry of Agriculture, Livestock Fisheries and cooperatives.

Co-chair

The Food and Agriculture Organization of the United Nations (FAO).

Secretariat

Ministry of Health- Nutrition Unit: Healthy Diets and Lifestyle programme.

Mandate of the FNLTWG

Under the Ministry of Agriculture, Livestock, Fisheries and Cooperatives, State Department for Crops Development and Agricultural Research, and the Agri- Nutrition Unit, the FNLTWG was mandated to steer nutrition-sensitive strategies/ interventions that would result in improved nutritional status in the Kenyan population by promoting consumption of healthy diets.

Functions of the FNLTWG

1. Develop and contribute to standards, guidelines and materials
2. Advocacy and networking with relevant ministries, stakeholders, county and national government on matters of diets.
3. Capacity building and technical support.
4. Resource mobilisation for implementation of planned activities.

5. Research and development on Food and Nutrition linkages

Membership includes but is not limited to: Government ministries, UN Agencies, NGOs, development partners and research organizations all working in agriculture and nutrition-sensitive programming.

Results and impact:

Since the establishment of the FNLTWG, the following key results have been achieved;

- The working group has organized three national agri-nutrition conferences attracting participation both from Kenya and internationally. This provided opportunities for learning from different programmes and research work, adoption of key recommendations, and raised the profile of nutrition-sensitive programming.
- Various key resource nutrition-sensitive agriculture materials have been developed and launched including the agri-nutrition resource manual, the community dialogue card for agri – nutrition, and the Agri- Nutrition Implementation Strategy 2020 to 2025
- The sharing of documents and various presentations have enabled sharing of knowledge and lessons learned.

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CASE STUDY 3: DIETARY DIVERSIFICATION

Title: Improving Dietary Diversity of Households through Nutrition-Sensitive Agriculture Programming in Six Counties, Kenya

Implementing Organization: Self Help Africa

Project duration: 2017-2022



Context

The Ministry of Agriculture has promoted traditional high-value crops such as cassava and other tuber crops through the national roots and tubers strategy. In past years however, cassava production had been affected by cassava mosaic disease, which resulted in farmers abandoning its production. The European Union funded a five-year project which sought to strengthen the cassava value chain across six counties in Kenya, namely Kisumu, Homa Bay, Migori, Siaya, Busia, and Kilifi.

The project was implemented between 2017 and 2022. It aimed to increase food and nutrition security, employment and income among 20,000 smallholder-farming households in these counties. At least 60 percent of the households were headed by women. The project promoted cassava production, consumption and trade by linking the farmers to markets.

The project targeted 20,000 households who benefited from increased smallholder production and income from enterprises. The nutrition component of the project targeted 12,000 households with the aims of increasing household dietary diversity and improving nutrition knowledge.

Methodological approach

Nutrition-sensitive components of the project are:

- Intercropping: by intercropping the cassava fields with legumes, households were able to consume the highly nutritious crops
- Nutrition education for the smallholder farmers: the training focused on nutrition for pregnant and lactating women, promoting exclusive breastfeeding to 6 months, complementary feeding for children (6 -24 months) and general household nutrition. Activities included cooking demonstrations based on preparing cassava-based meals and other commonly consumed foods in the target communities
- Nutrition training: One member of a farmer business group attended a ToT (Training of Trainers) conducted by Ministry of Health nutrition officers at the county and sub-county levels. They were supported by home economics officers from the Ministry of Agriculture. The ToT member from one of the trained groups was then supported to further cascade training to 4 other groups. The three-day training covered subtopics around maternal, infant, and young child nutrition, food preparation and preservation especially of cassava-based products and other foods.

Results and impacts

During the duration of the project, there was an increase in household dietary diversity between the project baseline in 2017 and mid-term evaluation of the project in 2020. The nutrition indicator that was measured under this project was the household dietary diversity using the food consumption score (FSC). Figure 10 provides a comparative assessment of the consumption of various foods between 2017 and 2020.

Other highlights from the project were as follows:

- In 2020, 76 percent of all the project beneficiaries had access to adequate diets with food consumption scores (FCS) >35 percent. This represents a 19 percentage point increase in the number of households with FCS scores >35 up from 57 percent in 2017.
- There was an increase in the average number of days that households consumed legumes in 2020 compared to 2017 at the start of the project. Pulse consumption increased by 100 percent from 2.3 days in 2017 to 5 days in 2020. Pulses are highly nutritious and an important source of protein.
- The households' average consumption of animal source foods improved from 1.1 days in 2017 to 2 days in 2020.

Sustainability

To promote the sustainability of household adoption of nutritional diversity, the following were proposed: increase agricultural production through good agricultural practices' training; promote crop diversification (for example, cassava and legume inter-cropping); promote women's economic empowerment by integrating gender-transformative approaches; and integrate nutrition training at the community level with collaboration from MoH and MoA.

Key learning

- The introduction of legume production (green grams and cowpeas) together with nutrition training on their nutritional value was an important factor that led to an increase in the consumption of pulses
- Identifying key entry points for nutrition integration during value chain analysis, maximizes outcomes and benefits to the targeted beneficiaries
- Collaboration between the agriculture, health, gender and trade sectors is paramount in the success of nutrition-sensitive interventions
- Organizations should have explicit nutrition-sensitive objectives in project concept notes and specific budget lines dedicated to nutrition activities.

This project has been funded by European Union **and implemented by** Self-help Africa. **Implementing partners:** Ustadi Foundation in Kilifi County; Ugunja Centre in Busia, Siaya, Kisumu, Homa Bay, and Migori counties.

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CASE STUDY 4: FOOD AND NUTRITION EDUCATION, BCC

Title: Sustainable Approaches to scaling up Agri-Nutrition Behaviour Change Communication

Implementing Organization: RTI – KCDMS

Project Duration: 2017-2022



Context

Over 80 percent of the Kenyan population lives in rural areas and engages in agricultural ventures. Opportunities in agriculture, such as those supported by Feed the Future and other funding agencies, can contribute to addressing malnutrition. The Feed the Future Kenya Crops and Dairy Market Systems (KCDMS) activity aimed to increase the percentage of children aged 6-23 months consuming acceptable diets and the percentage of women of reproductive age who were consuming diverse acceptable diets. These increases were to be achieved through adoption of recommended nutrition practices at household level drawn from the Agri-Nutrition Community Dialogue cards.

The project partnered with both private and public (national and county-level) market systems actors to achieve increased nutrition knowledge and outcomes for more than 150,000 farming households in 12 counties across the Eastern, Western and Nyanza regions of Kenya.

Methodological approach

The project offered agri-nutrition education programmes through Training of Trainers programmes to private sector partners. The trainers were then expected to integrate agri-nutrition into their extension messaging to farmers for adoption of good agricultural and agri-nutrition practices. The project used two primary mechanisms for nutrition behavior change communication (BCC) as follows:

- Collaborating with stakeholders to support adoption, production and distribution of agri-nutrition training materials packaged into community dialogue cards. The project market actors leveraged regular farmer meetings with training on good agronomic practices, linkages to markets and finance, and additional nutrition messaging.
- Disseminating posters covering the ten food groups. Complementary feeding instructions for children were also distributed to trained participants for home use.

The project adopted the Talking Books technology which consists of a simple, durable audio computer that can provide locally relevant knowledge across many sectors on demand. Talking books were loaded with audio messaging that included jingles, skits, songs and discussions focused on the 14 modules from the community dialogue cards.

Through a pilot study, the project compared household preferences and knowledge retention between the Talking Books and the community dialogue cards. This coupled with real-time feedback and insights from the built-in feedback mechanism revealed farmers' acceptance of both methodologies. While they enjoyed the edutainment material from the Talking Books, the farmers also wanted the print material as visual reminders.

In addition, to increase access to the audio content, 13 rural FM radio stations aired listener-led agriculture programmes. (Content is available on the radio stations' agriculture content repository <https://radiokilimo.org/>).

Results and impact:

Key learnings across the four phases of agri-nutrition surveys include the following:

- training seems beneficial in improving nutritional outcomes in women. However receiving agri-nutrition, and agri-nutrition and income training in particular has been seen to have a better impact on dietary diversity scores.
- factors such as having an increased income and higher education also showed a positive correlation with dietary diversity. Income training, moreover, was shown to be related to loan uptake, with respondents in income training groups having a higher willingness to take a loan in the future.
- with continuous training, the respondents reported an improvement in nutrition and nutritional knowledge. Hence going forward, it is recommended to train women on both agri-nutrition and income to see an effect on nutrition outcomes, loan uptake and an overall enhanced knowledge on nutrition.
- any form of nutrition training was correlated with improved nutritional outcomes of children particularly when combined with training on income-generating activities. As a standard, it was recommended that KCDMS combines agri-nutrition training with training on income-generating activities as the potentially most effective way to improve the nutritional outcomes of children.
- from the last two phases, children appeared to benefit significantly more when the training participant was male. As such, KCDMS was encouraged to expand the reach of its training programmes to reach more male participants.
- seasonality also had an impact on nutritional outcomes across all the phases. Hence it is important to provide additional training, loans, and introduction to alternative farming such as dairy or eggs which can be utilised in months after the harvest seasons to maintain nutritional outcomes.
- As of September 2021, 91,680 individuals had received agri-nutrition training and, 28,440 children under the age of two had been reached with nutrition interventions through trained caregivers.
- The dietary diversity scores for women increased from 40 percent in 2018 to 92.6 percent in 2020, while 90.9 percent of the children consumed acceptable diets meeting the diversity scores.
- The dietary diversity scores for women trained in agri-nutrition and participating in income-generating activities reached 6.6 out of the 10 food groups. That of children (6-23 month) was 5.5 out of 7 recommended food groups.

- The indirect reach by the *Kilimo Lishe* (agri-nutrition) programmes on radio was approximately five million people. The agri-nutrition knowledge by those reached by radio only was comparable to those reached through in-person training, at 4.6 and 4.7 respectively on a scale of 1-5.

Sustainability

The project approach was to increase nutrition knowledge among target beneficiaries while exposing them to agri-led economic growth activities by working with the private sector. This provided the pathway to improving nutrition outcomes. Partnership with county radio programmes also extended the reach to the community for improved nutritional outcomes.

Replicability and upscaling

The culmination of the KCDMS agri-nutrition work - from contributing to the messaging on standard dialogue cards, modifying them for Talking Books, and taking the messaging to scale via radio - demonstrated that a multi-model approach to agri-nutrition BCC can be effective and complementary.

Key learning

Internally, the KCDMS Collaborating, Learning and Adaptation (CLA) approach to agri-nutrition enhanced the team's group effort, resulting in more effective delivery of the whole package of interventions to smallholder farmers.

Donor: USAID
Implementing organization: RTI

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CASE STUDY 5: FOOD FORTIFICATION

Title: Commercial Food Fortification in Kenya

Implementing Organization: Ministry of Health, Kenya

Project duration: February 2011 – September 2015

REPUBLIC OF KENYA



Context

Food fortification (FF) is one of the strategies used in the prevention and control of micronutrient deficiencies. Commercial FF is an effective and relatively inexpensive strategy which allows for general population coverage with an emphasis on women and vulnerable children. In Kenya, FF dates back to 1970 with the entry of voluntary iodization of salt. In 1978, salt iodization became mandatory.

Followed by voluntary trials for mass fortification of other food vehicles, Global Alliance for Improved Nutrition (GAIN) funded the Ministry of Health to accelerate the implementation of food fortification in Kenya. The project ran between February 2011 and September 2015. During this period, food fortification regulations were developed. In 2012, legal Notice No 62 of June 2012 Kenya was published, making fortification of packaged wheat flour, maize flour, vegetable oils, and fats mandatory (GoK 2012).

Since the end of the project, food fortification transitioned to a programme which still receives support from other recent projects including the European Union-supported food fortification project which is a collaboration between the Jomo Kenyatta University of Agriculture and Technology (JKUAT), and the Division of Nutrition and Dietetics (DND) in the Ministry of Health (MoH).

Nutrition component:

Food fortification is a nutrition-specific high-impact intervention. The industry players facilitate the addition of micronutrients in the food vehicles during food processing. Fortified food products help in carrying the micronutrients of interest in food. This improves the diet of the population by making it rich in micronutrients. Consumption of micronutrients in food help in improving the nutrition status especially the hidden hunger by preventing and control of micronutrient deficiencies and disorders.

Methodological approach

The process was as follows:

- Identification of the nutrition needs (a high prevalence of micronutrient deficiencies as per the Kenya National Micronutrient Survey, 2011)
- Discussion with stakeholders on possible solutions
- Development of the standards resulting in voluntary application of maize flour, wheat flour, fats and oils standards for several years (2005–11). It became mandatory in 2012.

The overall programme objective was to prevent and control micronutrient deficiencies and disorders in the population. This was through fortification of staple foods with selected micronutrients of public health concern. The selected micronutrients included Iron, Zinc, Vitamin A, Iodine, Folic Acid and some B Vitamins.

Programme implementation

The following were put in place:

Formation of the Kenya National Food Fortification Alliance (KNFFA) – a coordinating body with membership from both private and public players. The alliance has sub-committees to facilitate technical areas such as Product Delivery – Standards and Product Formulation, Information Education and Communication, Policy and Advocacy, Monitoring & Evaluation and Resource mobilization.

Capacity Development which included the following approaches: Sensitization meetings for industries on the importance of food fortification; Industry trainings on FF components such as sourcing of the premix, micro-dozers, dosing, calibration of the micro-dozers, and record keeping; Industry training on quality control, quality assurance, and national database reporting system.

Results and impact:

A strong collaboration of the players through public-private partnerships was the major achievement. This resulted in uptake of food fortification and increased production of fortified foods which in turn led to availability of fortified foods in the market.

Challenges

- Low uptake of the food fortification programme by medium and small-scale millers
- Concern among industries on initial cost of procurement of micro-dozers and quality of premixes.

Sustainability

Sustainability has been enhanced by making food fortification mandatory and in the education of industry players and families, resulting in increased demand and consumption of fortified foods.

Key learning

Regulatory frameworks, strong partnerships and continued social marketing are important for uptake and sustained consumption of the fortified foods.

Financial partners: EU, GAIN
Implementing partners: Ministry of Health-
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CASE STUDY 6: RECIPE DEVELOPMENT AND MEAL PLANNING

Title: Development and Delivery of Biofortified Crops Programme in Kenya

Implementing Organization: International Potato Center (CIP)

Project duration: 2019-2022



Context

In Kenya, the prevalence of Vitamin A deficiency and marginal Vitamin A deficiency is 4.5 percent and 24.2 percent respectively. Pre-school children have a significantly higher prevalence as compared to other population groups (Kenya National Micronutrient Survey, 2011). The agriculture sector needs to deliver more nutritious foods through sustainable production and promotion of profitable nutrition-sensitive value chains to address the micronutrient gaps.

The aim of the Development and Delivery of Biofortified Crops Project (DDBIO) was to reduce micronutrient malnutrition by scaling up production and consumption of the biofortified Vitamin A-rich, orange-fleshed sweet potato (OFSP) among households with children under five, pregnant and lactating women, adolescent girls, low-income and vulnerable consumers. The project timeline was 2019-2022 and it was jointly implemented with partners in seven counties (Wajir, Garissa, Tana River, Isiolo, Samburu, Baringo and Makueni).

Methodological approach

The nutrition-sensitive components of the project were:

- Intensifying production of biofortified OFSP as an effective and cost-effective way to tackle Vitamin-A deficiency
- Promoting OFSP consumption and utilization through nutrition education, awareness creation and scaling up a complementary infant feeding toolkit
- Strengthening and sharing the evidence on OFSP's effectiveness in improving the nutrition status of vulnerable beneficiaries.

Step by step implementation:

1. Training of Trainer (ToT) courses on '*Everything You Ever Wanted to Know about Sweet Potato*' including good agricultural practices, post-harvest handling techniques and nutrition etc.
2. Healthy Living Club (HLC) nutrition training for farming households delivered through a ToT approach which recognises that both genders have a role to play in maternal and child nutrition. Therefore, both men and women participate in the peer support group.
3. Materials developed and disseminated (ToT modules, e-learning modules, OFSP recipe books, a HLC training curriculum guide, and a range of IEC materials).
4. Use of digital tools such as mobile phones to reach farmers and other beneficiaries with technical information on good agronomic practices especially during the period of COVID-19 that has limited physical interactions.
5. Farmer field days and OFSP cooking demonstrations to promote positive behaviour change.

Results and impacts

- Over 100,000 households in the Arid and Semi-Arid Lands (ASAL) of Kenya acquired OFSP planting material and produced contributing to more resilient livelihoods through the inclusion of a variety of nutritious crops.
- Behaviour change interventions integrated with distribution of the complementary feeding toolkit (Healthy Baby Toolkit) in 10,422 farming households contributed to improved child feeding practices.

Sustainability

CIP prioritized sustainable delivery models and those that represent Value for Money (VfM) and promote resilient food systems. These include:

- Facilitating access to clean and quality OFSP planting materials – including promotion of drought tolerant OFSP seeds and working with decentralized certified vine multipliers to ensure that clean seeds were consistently available to farmers beyond the project lifetime.
- Capacity development for national partners, government staff, Community Health Volunteers and other stakeholders in priority areas along the OFSP value chain.
- Anchoring and integrating the Healthy Living Club curriculum into existing Government-led child nutrition initiatives, including the Maternal, Infant and Young Child Nutrition (MIYCN) guidelines.
- Sustainability was further strengthened through establishing strategic partnerships and working within multisectoral platforms.

Key learning

It is crucial to take a two-pronged approach in OFSP programming: working with humanitarian partners to establish OFSP production in fragile environments; and linking farmers who have the scope for expansion to new institutional and local markets.

Financial partners: Foreign Commonwealth and Development Office (FCDO) UK
Implementing partners: Ministries of Health and Agriculture, National and County Governments in implementing counties, World Food Programme, Kenya Agriculture and Livestock Research Organization (KALRO), Burton and Bamber Ltd – a private sector food processing SME, Alliance of Bioversity International and CIAT, North Carolina State University.

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REFERENCE

International Potato Center. 2013. *Everything You ever wanted to know about Sweetpotato: Reaching agents of change ToT Training Manual*. Nairobi, International Potato Center. (also available at <http://www.sweetpotatoknowledge.org/wp-content/uploads/2015/11/Everything-You-Ever-Wanted-to-Know-about-Sweetpotato-ToT-Manual-Volume-I.pdf>).

CASE STUDY 7: SCHOOL FOOD AND NUTRITION

Title: Retro Veggies in School Meals: Improving Dietary Diversity and Save Forgotten Foods in Busia County, Kenya

Implementing Organization: Alliance of Bioversity International and CIAT

Project duration: 2014-2017

Alliance



Context

The health and nutrition status of the children of Busia County is heavily affected by a complex set of socio-economic and environmental factors, which result in limited access to sufficient quantities of nourishing food and poor dietary diversity. Limited awareness exists of the benefits local agrobiodiversity can offer from nutritional, livelihood and environmental perspectives. School feeding can offer a nutritional safety net, but the shift towards monoculture in farmers' fields is reflected in the school meals of the 400,000 school-going children in Busia County, where school meals provided are generally monotonous and lacking essential nutrients⁸.

Lasting from 2014-2017, the nutrition-sensitive agriculture intervention tackled the interconnected challenges of food and nutrition insecurity, poverty and biodiversity loss using a pilot Home-Grown School Feeding (HGSF) approach. The pilot's main nutrition-sensitive objective was to diversify food procurement and school feeding programmes thus contributing to improving the diets and nutritional status of school-going children using micronutrient-rich African indigenous vegetables (AIVs).

Methodological approach

The key methodological steps of the pilot approach were:

- Use food composition analysis to generate **scientific evidence** of the nutritional value of AIVs and document **traditional knowledge** of local foods;
- **Build the capacity** of farmers to incorporate AIVs and other nutritious local crops into their production systems, develop the business and ability to access new markets;
- **Raise awareness** among consumers of the benefits of AIVs via food fairs, recipe books, cooking demonstrations, and nutrition education to **stimulate demand** for these foods;
- Strengthen the **enabling policy environment** to support the integration of AIVs into smallholder production systems and markets, using farm-to-school networks as a point of entry.

Training materials developed: A Training of Trainers (ToT) manual on sustainable agricultural practices for the production of AIVs and other nutritious local crops; an adapted Farmer Business School (FBS) training module incorporating nutrition-sensitive messaging alongside basic business and management training; in collaboration with Procasur and FAO, a Compendium of case studies to design and implement successful HGSF programmes in Africa

Results and impacts

- Initially implemented in one school catering for 410 students, the farm-to-school network in Busia County now provides healthier school meals to approximately 5,500 pupils;
- Ten farmers groups who attended the FBS training have won tenders to provide AIVs to 10 local schools and one health clinic while school cooks were trained to ensure that procured AIVs are prepared with nutrient preservation in mind;

The farmer group that won the tender for supplying AIVs to the school further shortened the supply chain by growing the indigenous vegetables directly on school land. On the plots students learned to appreciate the vegetables' cultural and nutritional properties as well as their market potential. Some of the students set up plots of their own and any surplus production was sold to teachers and other school staff for extra pocket money, showing that agriculture can be a profitable business when markets exist.

- Initial reports from the schools indicated that students with food intolerances have reduced medication and are able to enjoy more varied school meals.

Challenges

The biggest is the acceptance of indigenous foods as a valuable source of nutrients. In many countries, these foods are forgotten in diets and classified as “food for the poor” or “for the sick” as in the past they would be harvested during food shortages; they are also seen as “unmodern” particularly by youth.

Sustainability

The main elements to consider for the sustainability of direct procurement HGSF approaches using indigenous foods are: (i) capacity building and ownership of all school food system actors (farmers, students, teachers, school cooks and nutritionists); and (ii) the creation of enabling policy environments for HGSF initiatives.

Replicability and upscaling

St. Mary's Mundika secondary school, where the pilot was first tested, has become an example of sustainable school procurement in Western Kenya. Baseline surveys were also carried out in 2018 to assess the replicability of the approach in Uganda, Tanzania, and Ethiopia.

Key learning

The sustainability of direct procurement HGSF approaches needs to factor in resources to:

- Build farmer capacity to produce safe and quality indigenous vegetables in sufficient quantity to satisfy increasing demand from public procurement
- Establish infrastructural, political and financial mechanisms to support farmers in this endeavor
- Improve access to reliable nutrition data for indigenous foods and raise awareness of potential benefits by engaging essential influencers/champions. This will aid in addressing the challenge of acceptance of indigenous foods as a key nutrition source.

REFERENCES

Biodiversity for Food and Nutrition Project: Training of Trainers A guide to Home Gardening Technologies. (also available at http://www.b4fn.org/fileadmin/templates/b4fn.org/upload/documents/Country_additional_resources/Kenya/ToT__Garden_Tehcnologies_Busia_County_Part_I.pdf).

Borelli, T., Hunter, D., Wasike, V., Wasilwa, L., & Manjella, A. 2021. Linking farmers and schools to improve diets and nutrition in Busia County, Kenya. In L. Swensson, D. Hunter, S. Schneider, & F. Tartanac, eds. *Public Food Procurement for Sustainable Food Systems and Healthy Diets - Volume 2*, pp. 338-353. Rome, Italy, FAO and Bioversity International. (also available at <https://cgspace.cgiar.org/handle/10568/117355>).

Manjella A., Grasso, A. & Wasike, V. 2020. African Leafy Vegetables Go Back to School in Kenya. In D. Hunter, D., E. Monville-Oro, B. Burgos, C.N. Rogel, B. Calub, J. Gonsalves & N.O. Lauridsen, eds. *Agrobiodiversity, school gardens and healthy diets: Promoting biodiversity, food and sustainable nutrition*, pp. 208-214. London, UK, Routledge. (also available at <https://cgspace.cgiar.org/handle/10568/107465>).

Key implementing partners were the Kenyan Agricultural and Livestock Organization (KALRO), farmer groups from the Sustainable Income Generating Investment Group (SINGI), public and private schools in Busia, local government ministries of Agriculture, Environment, Health, and Education, Bioversity International, FAO, and UNEP.

The intervention was funded by the Global Environment Facility (GEF) via the BFN project, the Australian Centre for International Agricultural Research (ACIAR) and the MacArthur Foundation.

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CASE STUDY 8: CROP PRODUCTION

Title: Supporting Mother-to-Mother Groups in Nutrition-Sensitive Agricultural Production in Tana River County

Implementing Organization: Welthungerhilfe

Project duration: 2019 to 2021



Context

Tana River has a history of cyclic disasters such as floods and droughts that usually result in loss of crops and livestock. The resultant effect is poor self-supply of households, many of which rely on purchased, borrowed, or donated foods. The meals prepared are less preferred and nutrient-poor. Global Acute Malnutrition (GAM) in Tana River is recorded at 14.0 percent, while Severe Acute Malnutrition (SAM) is at 1.5 percent.

Welthungerhilfe (WHH) was implementing an “Agricultural Market Access and Linkage (AMAL)” project in Tana River County with an overall goal of strengthening small-holder farmers' capacities to access and supply to structured markets. The project has interventions in the areas of capacity building, increasing production, support to market access and nutrition education. The nutrition-sensitive component of the project was enhanced to respond to the nutrition challenges encountered in the field while implementing the project. The project targeted women of reproductive age, as well as pregnant and lactating mothers.

Methodological approach

The nutrition-sensitive components of the project:

- Promote livelihood diversification among 24 mother-to-mother groups
- Support establishment of kitchen gardening and small livestock keeping
- Engage in nutrition education to promote the consumption of vegetables produced and livestock products

Step by step implementation:

- Visit the county and identify households with vulnerable women of reproductive age between 15 and 45 years of age, and pregnant and lactating women
- Undertake a baseline assessment to understand the women's food consumption patterns and identify of nutrient gaps in their diets
- Develop nutrition training materials depending on the nutrient gaps identified
- Undertake training sessions for the women
- Support the setup of kitchen gardens and farming of diverse fruits and vegetables
- Provide agricultural training to the women so that they could continue production in the long term
- Train women on financial management, marketing, and value addition of crops grown.

Results and impacts

- There has been improved Household Dietary Diversity Score (HDDS) among the participating households from 4.5 in 2019 to 6.4 in 2020
- Increase in kitchen gardens established from 8.7 percent to 67 percent between 2019 and 2020.

Key challenges

There was a need to support piping of water so that the water source could be close to the community members. Furthermore, there was the need to install a solar system to facilitate the pumping of water. These were added costs to the project. This was also seen as a key element to enhance the project sustainability.

Key learning

The project needs to continue supporting farmers who are already in groups by providing continuous training in different topics, increasing access to inputs and addressing other needs. This will enable the farmers to be self-reliant.

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Implementing partners: Welthungerhilfe

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CASE STUDY 9: LIVESTOCK PRODUCTION

Title: Dairy Farming as a Sustainable Anchor of Nutritional Sensitive Agriculture

Implementing Organization: Welthungerhilfe

Project period: 2018-2023



Context

The dairy industry in Vihiga County is dominated by small-scale farmers who produce over 90 percent of the local milk. The local production accounts for about 30 percent of the local milk consumption requirements. The county has a total of 163,000 cows (both indigenous and improved breeds), producing 31,452,520 million litres of milk valued at KES. 1.729 billion.

Welthungerhilfe implemented the project titled ‘The entrepreneurial development of the dairy value chain and support to women and youth employment’. The overall goal of the project was to contribute to reducing poverty and improving the livelihoods of poor rural households in the target region of Vihiga County in Western Kenya, who depend substantially on the production and trade of dairy products for their livelihoods. The project targeted 2,500 smallholder farmers organized in Self-Help Groups and Community Based Organizations, Dairy Farmer Cooperatives, and 500 in-school and out-of-school youth.

Methodological approach

Nutrition-sensitive component of the project:

- Increasing food availability and diversity with an emphasis on nutrient-dense crops and products.
- Providing information and training to change and adopt healthier nutrition behaviours.
- Creating markets and demand for consumption of nutrient-rich foods.

Step by step implementation:

- Understanding of the local nutrition situation through collaboration with the health department (nutrition unit) in the county. Development of a joint strategic plan, which set clear targeting criteria, traced the impact pathway that addresses the causes of malnutrition and set a measurable indicator.
- Support the targeted 2500 vulnerable households with subsidized inputs (farm equipment for cultivation and indigenous vegetable seeds) within the target period.
- Support value addition, processing and marketing of surpluses through trainings in hygienic milk processing as well as food preparation
- Capacity building of communities on diverse kitchen garden technologies, crop and animal production, utilization of agriculture produce, preservation and marketing.
- Trained communities on good nutritional practices which will include food hygiene and handling, cookery, and balanced diets
- Trained communities on utilization of animal by-products, specifically cow dung in the production of organic farm manure for use in home and kitchen gardens.
- Trainings in food preparation methods, food enrichment, nutrient interaction, nutrient deficiencies as well as hygiene and sanitation were conducted.

Results and impacts

- Increased food availability and diversity of nutrient-dense crops and products: Farmers recorded increases in milk yields from 5 litres/cow/day in 2018 to 15 litres/cow/day in 2020.
- The project supported training through Behaviour Change Communication specifically on maternal and child health undernutrition practices. Nutritional information booklets, packages and food preparation recipes were provided to beneficiaries for future reference in their homes.
- 80 percent adoption rate was reported in our project mid-term evaluation study for interventions relating to kitchen garden setup and food preparation; with most farmers reporting improved produce and skills in food preparation.
- The integration of nutrition activities in the dairy programme provided a key platform for intersectoral coordination for nutrition.
- Increase in income resulting from the diversification of farm producer by dairy farmers into the market.

Challenges

- Limited land sizes because of the huge population density limit the extent to which food can be produced in large quantities.
- Limited technical capacity of nutrition resource persons at the county level. Policymakers have also allocated minimal resources for nutrition programmes.
- Most farmers were reluctant to adopt high-yielding improved cattle breeds with the belief that they are prone to diseases and are expensive to maintain in terms of feeding and health care.
- Most of the trained cohort were of an advanced stage thereby limiting understanding of food groups identification and their importance.
- Some farmers were stuck to the old methods of food preparation.

Sustainability

- Institutional sustainability: The involvement of county government staff in the training of farmer groups on various nutrition-sensitive agriculture areas as well as policy makers created awareness and appreciation on the importance nutrition education in communities and the need for institutionalization, prioritization and support for nutritional activities by the county government of Vihiga.
- Economical sustainability: Production of quality diversified farm produce in addition to milk provided our farmers with more income sources and new market ventures
- Environmental sustainability: implementation of a circular farm economic model where dairy cows are fed on crop by-products; and animal by-products such as cow dung are used in the production of organic manure for kitchen and home garden establishment. Secondly, training on the use of biogas has minimized use of firewood reducing felling down of trees for wood by our beneficiaries.

Key learning:

- Having a champion of the initiative at the political level was key to driving the agenda, raising awareness and mobilizing resource.
- Nutrition-sensitive agriculture is more effective when it includes nutrition and health Social Behaviour Change Communication and Women Empowerment interventions.
- Greater impact on child nutritional status is achieved when programmes incorporate health and Water, Sanitation and Hygiene.
- A comprehensive monitoring and evaluation strategy with disaggregated data should be incorporated from the design stage.
- Nutrition-sensitive approaches require multisector and multi-stakeholder (including media and civil society) involvement. Awareness raising across sectors is vital.

Financial partner: German Federal Ministry for Economic cooperation and Development (BMZ).

Implementing partner: Welthungerhilfe, Vihiga Dairy Farmers Cooperative Society Limited

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REFERENCE

Agricultural Sector Development Support Programme “Vihiga County Cow milk strategic and integrated value chain action plan report” March 2019, Page 5.

CASE STUDY 10: FISHERIES & AQUACULTURE

Title: Promoting Agricultural Diversification through the Aquaculture Value Chain

Implementing Organization: Food and Agriculture Organization of the United Nations (FAO)

Project period: 2014-2017



**Food and Agriculture
Organization of the
United Nations**

Context

Aquaculture production is an agricultural activity with the potential to boost nutritious food production, livelihood diversification and income generation. Sustainable, integrated and innovative practices to enhance youth entrepreneurship were needed, as well as supporting mechanisms to enable farmers to produce nutrient-dense foods for school children, the community at large, domestic and regional markets.

The aquaculture project was implemented by FAO in Burundi, Kenya, Rwanda and Uganda. Its aims were to promote greater diversity and intensification of the aquaculture value chain and poultry value chain, improve nutrition and offer better job prospects for young people. The key objectives of the project included: improving household incomes and access to diversified foods; increasing the production and consumption of fish and eggs through integration into school meal; and increasing production capacities of farmers in aquaculture value chains.

Methodological approach

Nutrition-sensitive component:

- The project focused on increasing local production and consumption of fish. This was done through training on their rearing, setting up fish ponds in schools, and including fish in school meals.

Step by step implementation:

Throughout the project, several training sessions, workshops and exchange visits were carried out to provide various market actors with market linkage and business development skills on fish value chains.

Community implementation:

- The selection of participants was done in liaison with the beneficiary local leaders.
- Intensive training for all beneficiaries on current innovations in production and post-harvest handling.
- The project established youth microenterprises and out-grower models to meet both demand and supply of fingerlings.
- Several fish producers were certified by their respective government authorities to ensure technological and sanitary sustainability.
- Market opportunities, such as contract farming, supermarkets, roadside markets, hotels and restaurants as well as regional agriculture markets, were also identified and /or enhanced for sale of fish.
- Aquaculture and fisheries value chain studies were carried out and being implemented.

School implementation:

- Various schools established school ponds to rear fish and incorporate them into the school meals.
- The project trained the schoolteachers and support staff (e.g., chefs, matron), on relevant skills in fish rearing, consumption, and entrepreneurship.
- The three schools that were already implementing the school feeding programme were supported with fish production inputs and close monitoring was availed through the director of the fisheries office.
- Each group of households started to prepare a meal once a week in “a village kitchen” where they brought together children (especially under 5 years of age) and fed them together with the nutritious food which included fish, beans, vegetables and cooked eggs.
- FAO recipe books and other value-added products were used in the trainings.

Capacity-building approaches

1. Two leading private aquaculture companies in Kenya (Jewlet and Mwea Aqua Fish Farm) received technical training on fish hatcheries and were introduced to improved cost-effective technologies.
2. Farmers and fisheries officers participated in both in-county and international learning exchange visits to share their experiences on different aspects of the value chains. based Farming systems, construction, and new technology

Results and impacts

- Fish hatcheries that were supported are making fingerlings more available
- The two fish hatcheries organizations that received training increased their own production of fingerlings by an average of 70 percent. They also provided training services to 20 other much smaller farms, enabling them to develop their own hatcheries which were certified by the government. Total table size tilapia and fish production in 2017 was estimated at 65.35 metric tonnes (Tilapia and catfish)
- A total of 69 youths were employed through the fish value chain interventions. Three schools included fish in the school meals at least once a week, and 85 fish rearing farms were set up.

Challenges

- There was an inadequate number of employees with sufficient nutrition knowledge and skills.
- Many extension officers felt that nutrition messages fell outside their routine activities and distracted them from their core services.
- Traditional habits and beliefs were not easy to break.
- Nutrition outcome monitoring and evaluation were not well integrated in the project from the beginning.
- The project also boosted the financial empowerment of women as they diversified their livelihoods through fish farming and were also involved in marketing and transport components of the value chain.

Sustainability

There was a gradual withdrawal of support to the community activities as farmers were encouraged to take ownership. Beneficiaries integrated aquaculture with other activities - such as agroforestry, poultry, pig rearing and vegetable farming - as an ecosystem approach to develop agriculture and forestry activities.

Key learning

- Offering technical training to farmers enables them to utilize the skills even after the end of the project.
- Setting up monitoring systems from a project's inception ensures data is collected throughout the project and evidence of key outcomes are recorded.
- Strengthening nutrition and other training components in livelihood-based projects ensures that the income generated from the interventions is used to improve the business and improve household access to diverse foods.

The Project is financed by African Solidarity Trust Fund (ASTF)

Project was implemented by: FAO, State Department of Fisheries, Aquaculture and Blue Economy and County Governments of Homa Bay, Kakamega, Kirinyaga, Embu, Tharaka Nithi

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REFERENCE

Final project report – GCP/SFE/001/MUL (The production was from the small-scale farmers/producers in the project beneficiary counties)

CASE STUDY II: POST HARVEST, STORAGE, FOOD PROCESSING

Title: Value Addition of Orange-Fleshed Sweet Potato for Local Consumption

Implementing Organization: Kenya Agricultural and Livestock Research Organization (KALRO)

Project period: 2014 - 2020



Context

Vitamin A deficiency is a major public health problem in Western Kenya, especially among children under 5 years, and pregnant and lactating women. Possible locally available sources of Vitamin A rich foods include sweet potatoes, dark green leafy vegetables and papaya. The introduction of Orange-Fleshed Sweet Potato (OFSP) varieties along with training on processing, consumption and nutrition could significantly contribute to the alleviation of vitamin A deficiency. However, due to the high perishability of the roots after harvest, post-harvest losses are high. Appropriate post-harvest handling and value addition technologies can ensure a sustainable supply of sweet potato for household consumption and the market. Processing into diversified value-added products can also increase the consumption of OFSP. KALRO implemented this project to support the Value Addition of OFSP in Western Kenya. The main goal of the project was to promote the use of Vitamin A-rich sweet potato varieties to provide a year-round, sustainable source of Vitamin A in the diets of communities in Western Kenya. The project targeted small-holder farmers, traders, food processors and the hotel industry among others.

Methodological approach

Nutrition-sensitive components of the project:

- Introduction of high Vitamin A sweet potato varieties to farmers' groups.
- Nutrition education to target households.
- Capacity building of farmers on sweet potato post-harvest handling to reduce losses and waste.
- Promotion of sweet potato processing to optimize pro-vitamin A carotenoid retention, and develop various value-added products to increase consumption.



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RIGHT primary school pupils being trained on value addition of Orange-Fleshed Sweetpotato

Step by step implementation:

- Project setup activities
- Development of training materials
- Capacity building and training of trainers and farmers on sweet potato postharvest handling, processing, value addition and utilization
- Nutrition education sessions and preparation of local OFSP recipes
- Establishment of demonstration plots and promotion of OFSP varieties (such as ejumula, SPK 004, vtaa, and kabode) among farmers' groups
- Supporting the processing of OFSP into value added products such as mandazi, chapati, bread and extruded snacks
- OFSP promotion in schools through the setup of demonstration plots and inclusion of OFSP in school meals.

Results and impact:

- Increased adoption of post-harvest handling and value addition technologies
- Increased incomes generated from value added OFSP products
- Development policies and standards: For example- The Blending of Maize and Wheat Flours policy regulations 2019 and development of sweet potato standards
- Increased incomes among the farmers and the groups involved in food processing
- Increase in nutrition knowledge and cooking skills among project beneficiaries



Orange-Fleshed Sweet Potato as part of school meals in secondary schools in western Kenya

Challenges

- The sweet potato was regarded as a neglected crop leading to a lack of investment in its promotion
- Negative attitudes that create a challenge in promoting the consumption of OFSP among the population
- Weak research-extension-farmer linkages
- Limited appreciation of nutrition-sensitive agriculture by development agents.

Sustainability

Sustainability was ensured through various mechanisms:

- Women received exposure to and training the preparation of various sweet potato recipes, so that they can continue producing on their own.
- Farmers participated in policy and strategic planning meetings to influence county governments to support sweet potato value chains. Some counties have prioritized the sweet potato in their County Integrated Development Plans (CIDPs).

Replicability and upscaling

The practice has been successfully replicated to other farmers in Bungoma, Kakamega, Siaya, Samburu, Turkana and Makueni counties. Ndihiwa and Rongo sub-counties in South Nyanza have adopted the production and consumption of OFSP. These are sold in supermarkets, local food markets and supplies through contract farming.

Key learning

Promoting consumption of value-added products made from Orange-Fleshed Sweet Potato is a cheap and locally available option for combating Vitamin A deficiency.

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CASE STUDY 12: POST HARVEST, STORAGE, FOOD PROCESSING

Title: Food Processing - Nutritious Cassava
(Gluten, Dairy & Sugar-free) Cookies

Implementing Organization: Green Without Borders

Project duration: 2015 to date



Agribusiness | Innovation | Sustainability

Context

The global gluten-free products market size valued at USD 5.95b in 2021 is projected to reach USD 13.65 billion by 2030, exhibiting a Compound Annual Growth Rate of 9. percent during the forecast period, according to a2022-2030 Forecast report published by Grand View Research, Inc. The rising prevalence of lifestyle-related diseases (chronic and non-communicable diseases) has contributed to increasing gluten-free product demand.

Gluten-free diet baked products are essential for managing different medical conditions including celiac disease. These food products are also made from other nutritious sources of starch and enriched with protein and micronutrient-rich ingredients. These are critical for improving the health and nutritional status of vulnerable populations i.e., children under 5 years, pregnant and lactating women.

Green Without Borders is a social enterprises business registered in Kenya on 20th September 2015 as a small and medium enterprise (SME). Green Without borders main idea is to promote high social impact nutritious products. The SME was founded by Mr. Andrew Egala, based on his experience in Africa on various value chains innovations incubation management and commercialization. The organization aims to contribute to the reduction of malnutrition burden at household and national level through making organic products easily available for consumers.

Methodological approach

Nutrition-sensitive component of the business process:

Production of nutritious gluten-free products based on locally available foods such as cassava, chickpea, honey, peanuts among others.



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Challenges

Some of the challenges the SME faces include:

- Lack of awareness of gluten-free products among the general population
- Slow adoption and adaption of gluten-free products in the market
- Limited value addition to underutilized/forgotten foods and cost-processing implications due to access
- Hyped mono-crop farming as food and security measures vrs multi-crop production ecosystem

Sustainability

The business enhances the sustainability of the business:

- socially by manufacturing or processing nutrition products from raw foods that communities can relate with, for example cassava, orange sweet potatoes, banana, etc.
- economically by creating market linkages for communities that produce cassava, chickpea, honey, groundnuts and flax seeds. This increases incomes and consequently impacts on the socio-economic status of the farming households.



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CASE STUDY 13: FOOD SAFETY

Title: Promoting Hygienic Milk Production

Implementing Organization: Kenya Agricultural and Livestock Research Organization (KALRO)

Project period: 2017 to 2019



Context:

Milk is a nutritious food that is consumed by all communities worldwide. It provides high-quality protein, minerals (notably potassium and calcium) and vitamins B₁₂ and D, which are deficient in many diets. Most of the milk for human consumption is derived from cows. Other livestock notably goats and camels also provide humans with nutritious milk that in addition is believed to have therapeutic advantages.

In Kenya, about 80 percent of the milk is marketed informally thus bypassing the formal safety and quality checks. Consequently, most households consume unprocessed milk which is cheaper and easily accessible. There is a need to ensure hygienic production of milk at the farm level and during handling and marketing in order to minimize contamination and public health hazards associated with the consumption of unprocessed milk.

KALRO implemented a project to support production of hygienic milk in the Nandi and Kisumu regions of Kenya. The overall objective of the project was to determine and control residues and contaminants in milk for improved health and productivity of animals and humans. The target beneficiaries were dairy farmers in the study sites, milk processors, and consumers of milk.

Methodological approach

Nutrition-sensitive component of the project:

- The project sensitized farmers on the effects of unclean milk and trained them on how to produce, handle and store milk to maintain quality.

Step by step implementation:

In the selected regions:

- Farmers were informed about the project and requested to participate. Households were selected with the assistance of the local administration and the county extension officers. The number of smallholder dairy farms included in the study was calculated using the method of Goodchild et al (1994)¹ to give a minimum of 34 dairy farms per county although this was increased to 64 to take care of any clustering effect.
- Questionnaires were administered to the participating farmers. In total 115 questionnaires were administered (64 in Kisumu and 51 in Nandi). The questionnaires focused on information on cattle rearing, feeds and feeding, milking practices, milk handling and storage. The personnel at milk-handling facilities were also interviewed. A total of 22 questionnaires were administered at milk handling and selling facilities (9 in Kisumu and 13 in Nandi). In addition, lactating cows in the selected farms were tested for mastitis and udder quarter milk samples collected for laboratory analysis. A total of 263 cows were tested for mastitis (134 in Kisumu and 129 in Nandi). Furthermore, 'on the spot' examination of milk revealed physical contaminants, organoleptic characteristics of milk and presence of sub-clinical mastitis (SCM) in cattle, and freshness of milk at milk handling facilities.



Administering questionnaire



On-the-spot CMT testing for mastitis

- Milk samples were aseptically taken in bijoux bottles and transported in cool boxes for laboratory analyses.



Laboratory isolation of bacteria from milk samples

- Samples were also tested for the presence of heavy metals, pesticide residues, and mycotoxins.

Capacity development components of the project included:

- Development of guidelines to minimize contaminants in milk. The guidelines may be found on this site: <https://www.kalro.org/guidelines-for-reducing-contaminants-in-raw-cattle-milk/>
- Training agricultural extension staff on minimization of milk contaminants.
- Training farmer groups on milk handling and safety in order to reduce contamination.

Results and impact:

- The results from the laboratory based on the samples collected provided evidence of the presence of contaminants in raw cow milk. Microbial contamination associated with mastitis in milking animals was found to be a major source of bacterial contamination in all the study areas. In Nandi County clinical and sub-clinical mastitis (SCM) had a cow level prevalence of 4 percent (5/129) and 41 percent (53/129) respectively while in Kisumu only SCM was diagnosed with a cow level prevalence of 33 percent (44/134). Aflatoxin (AFM_I) was detected in varying levels among collected milk samples, with some containing toxic levels of AFM_I according to both the EU 165/2010 and CODEX Alimentarius 1993-1995 standards for maximum levels of aflatoxin M_I in milk. The concentration of heavy metals such as mercury, lead, cadmium and arsenic in the tested samples varied, with lead and cadmium showing detectable levels. No drug residues, mercury or arsenic were identified.
- Though the project ended before an impact assessment was carried out, anecdotal information indicated that cases of sub-clinical mastitis had reduced after the intervention.

Sustainability

- The project built the capacity of the agriculture extension officers so that they could reach more farmers with this information.
- The project promoted the use of simple pen-side tests to detect microbial contamination of milk mainly associated with mastitis. It is not yet available to farmers as some fine tuning is being done before roll out.

Key learning

- Farmers benefit from periodic sensitization by extension staff and farmer cooperatives so as to appreciate the problem of microbial contamination;
- Microbial contamination is not obvious, and affordable, readily available pen-side diagnostic kits can make a big difference.

Financial partners: USAID
Implementing partners: KALRO

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REFERENCES

Goodchild, M.F., Butteneld, B. & Wood, J. 1994. Introduction to visualizing data validity. In H. Hearnshaw & D.J. Unwin, eds. Visualization in geographical information systems, pp 141-149. Chichester, Wiley.

CASE STUDY 14: FOOD SAFETY

Title: Improving Counties' Capacity to Rapidly Test Foods for Safety and Quality to Promote and Safeguard Public Health
Implementing Organization: World Food Programme
Project period: 2018-2023



Context

The Food Safety and Quality (FSQ) Initiative is an integral component of WFP's sustainable food system programme in Kenya and aims to ensure that food systems in the arid and semiarid lands are resilient, efficient, and inclusive, enabling people to consume food that is both safe and nutritious. The FSQ Initiative began in Kenya in 2017 as part of WFP's handover of the management of the School Meal Programme to national and county governments. To ensure the safety and quality of foods consumed in schools, a sub-committee of the National Food Safety Coordination Committee (NFSCC) with participation of county governments and support from WFP developed a National School Meals Food Safety and Quality Assurance Guideline. This provides practical guidance for school management committees, food suppliers and public health officers (PHOs) on the effective implementation and management of food safety and quality regulations for the Home-Grown School Meals (HGSMP) which benefits 1.6 million children in the arid and semi-arid lands.

WFP has also been strengthening national and county governments' capacities on a more robust and effective FSQ infrastructure and food waste mitigation (post-harvest loss management). This aims to improve FSQ practices through theoretical and practical trainings devoted to public health officers on FSQ aspects and provide Blue Box Kits to establish mini laboratories that deliver field inspection, sampling, and testing equipment to the county ministries of health.

There are 406 PHOs in 15 counties who have been trained to assess risks, identify hazards, sample scientifically, and conduct an array of rapid tests to inform quick decision-making which saves lives.



PHOs taking practical qualification tests in the analysis of mycotoxins.

Blue box kit containing grading and testing equipment which includes: precision weighing scale, grain sampling scoop, grain sampling probe, riffle dividers, mycotoxin reader, measuring cylinders, filter funnels, sieves, mycotoxin kits, ethanol, digital moisture meter, electric grinder, beakers, micropipette, sterile microcentrifuge Eppendorf tubes, disposable plastic tips, and decontamination buckets.

Methodological approach

Nutrition-sensitive component of the project:

Food safety is crucial for optimal health and nutrition of the population. The capacity to rapidly test for these mycotoxins even at the sub-county level enabled prompt decision-making on withdrawal of contaminated foods from circulation resulting in the populations consuming safe nutritious foods.

Step by step implementation:

- Procurement of blue box equipment and reagents.
- Training of public health officers to assess risks, identify hazards, sample scientifically, conduct surveillance, and undertake rapid mycotoxin (aflatoxin & fumonisin) testing.
- Qualification and certification of the public health officers to test and produce credible, reliable mycotoxin analyses and can be gauged against their peers internationally.
- Establishment and set up of minilabs.
- Supporting food surveillance and testing at the county level.
- Training farmers, food business operators, and consumers on food safety.
- Data sharing and monitoring activities.

Results and impact

- There were 406 public health officers (PHOs) in 11 counties trained on a comprehensive FSQ curriculum.
- WFP continued to provide technical assistance towards the development of the National Food Safety Surveillance System (NFSSS) that will be a repository for data analysis undertaken within the country from the accredited government laboratories and WFP/County established mini labs; it will be an effective mechanism/system for data management, food safety surveillance, incidence reporting, and management.
- There was the set-up of food safety and quality infrastructure: 31 mini laboratories equipped in Turkana (6), Marsabit (7), Tana River (4), Baringo (2), Makueni (2), Isiolo (2), Garissa (3), Wajir (2), Mandera (2) and Nairobi (1) with food sampling, grading and fumonisin and aflatoxin testing equipment.
- Dissemination of the Kenya School Meals Food Safety & Quality Guideline to County PHOs and FSQ focal points in 26 Counties and the printing of 2,500 copies of the guideline.
- WFP supported Marsabit, Wajir, Tana River, Mandera and Garissa County Governments to develop FSQ strategies. The strategies support in advocating for the county to budget and allocate funds for the running of the minilabs and other FSQ activities.

Key challenges

- Counties lack the capacity to replenish test kits for testing of aflatoxin, therefore interrupting the food safety surveillance and testing interventions. This will reverse the gains made.
- Limited knowledge of food safety among the general population.

Key recommendations:

- In collaboration with the Ministry of Health and other relevant stakeholders, map critical points of contamination along the supply chain and develop mitigation action plans to prevent and reduce mycotoxin contamination in food and drive full compliance to Kenya Standards and the East Africa Standards for the food commodities.
- Continue sensitization programmes for targeted market actors on good agricultural practices, pre- and post-harvest handling, and proper storage to achieve and preserve food safety and quality.
- Advocate for adoption of innovative produce drying techniques for farmers to boost efforts towards ensuring adequate drying before storage and post-harvest loss management.
- Forge strategic partnerships with relevant stakeholders to support counties in ensuring continuous robust food safety and quality surveillance, and rapid testing to inform decision making.
- Champion establishment and sustainability of more mini laboratories for access by various market level actors including farmers, aggregators, and warehouses for rapid analysis of foods before storage and distribution/sale.

Sustainability

County governments need to prioritize food safety and quality interventions in the county integrated development plans (CIDPs) to enable adequate allocation of human and financial resources to maintain laboratory operations.

Currently the PHOs have adequate capacity to grade and analyze for mycotoxins in grains. The equipment provided has capacity for testing additional food safety parameters for mycotoxins in milk.

Key recommendations:

- The general population lacks awareness of food safety hazards that may lead to acute health effects. A lot of capacity strengthening is required to create awareness of these hazards and mitigation measures to prevent food contamination.
- There is a need to continually build the capacity of stakeholders along the food value chains on how to minimize contamination of food.

Implementing partners: WFP in collaboration with University of Nairobi, National Ministry of Health, and county governments of Turkana, Tana River, Marsabit, Baringo, Makueni, Isiolo, Samburu, Garissa, Wajir, Mandera, Nairobi, Kitui, Homabay, Kisumu and West Pokot Counties

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CASE STUDY 15: VALUE CHAINS, TRADE, MARKETING

Title: Linking Potato Farmers to Processors using Contract Farming through the Nutrition-Sensitive Potato Partnership Project (NuSePPP)

Implementing Organization: GIZ

Project period: 2016-2023



Context

In Kenya, the potato is the second most important food crop cultivated by over 800,000 farmers in the Central Highlands and parts of the Rift Valley, mainly for food and income. The potato is a nutritious food and can be prepared in many forms and consumed with other foods. However, farmers face challenges due to market control by middlemen.

GIZ implemented a nutrition-sensitive Potato Partnership Project in the counties of Nyandarua, Bungoma, Trans Nzoia, and Elgeyo Marakwet. The goal of the project was to enhance diversity of food consumed by 19,000 people, 40 percent being women between 15 to 49 years. The project also aimed at increasing nutrition knowledge and improving nutrition practices on family nutrition for at least 20,000 persons.

Methodological approach

Nutrition-sensitive component:

The project emphasizes good nutrition and hygiene and equips the farmers with skills in how to acquire nutritious and diverse diets and to use the income from potato sales to buy nutritious foods that they do not produce on their farms.

The nutrition training is done using an approach called Community Dialogue which targets the farmers to adopt proper nutritional behavioural changes aimed at improving the overall state of nutrition.

Step by step implementation:

The project was implemented through two approaches: (1) The Agriculture Extension approach using Farmer Field and Business Schools approach; and (2) Community Dialogue approach.

1. Agriculture Extension approach:

This approach entailed organizing farmers in groups and training them throughout the crop season on good agricultural practices to increase potato productivity. They were also trained in business skills and were linked to supply processors through contract farming.

This component was preceded by Training of Trainers for ward agriculture officers and crops' Officers, as well as training of lead farmers and the establishment of Farmer Field and Business Schools. Over a duration of three and a half months, 15 sessions on different topics were covered through the Farmer Field and Business Schools training. The farmers continued to receive technical assistance from the ward agriculture officers, crop officers and the lead farmers.

2. Community Dialogue approach:

The farmers were taken through nutrition training to enable them adopt diversity in production so as to improve food access and their dietary diversity.

Capacity building interventions included:

- Development of training content and Training of Trainers for five days on agri-nutrition. The role of Home Economists was backstopping the Nutrition Trainings and trainings on Value Addition
- Training Community Health Volunteers on agri-nutrition and facilitation skills
- Supporting the Community Health Volunteers to form a Community Dialogue Group of 15 members whose monthly meetings focus on nutrition-related issues.



Photo showing different Nutritious products prepared out of Potato during Community Dialogue Trainings

Contract farming for the potato farmers

The project facilitated contract arrangements for over 2,500 farmers with different processors including Sereni Fries, Kinangop Fries, Gae Foods, Smart Aggregator, and Mamlaka Foods among other buyers.

On average, the majority of the farmers engage in contract farming on one acre and are thus able to supply an average of 10 tons of potatoes in each season at a pre-negotiated contract price of KES. 25 per Kg. This is higher than the average of KES. 10 per kg that they normally receive when they sell through middlemen. The majority of the processors deal in fresh-cut chips with others having a crisps-processing line.



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Photo showing a Farmer Field and Business School (FFBS) training

Results and impact:

- An estimated 13,000 farmers (out of the targeted 23,000) were trained on good agricultural practices and were able to raise their yields from an average of 8 tons per acre to 12.1 tons per acre;
- About 2,500 farmers have been linked to direct markets through contract farming. This has increased their incomes from an average gross income of KES. 100,000 per season to a gross income of KES. 250,000 per season;
- An estimated 15,000 out of the 25,000 persons were reached with nutrition messages. The project is yet to measure the impact of the messages on the knowledge and practices related to family nutrition.

Challenges

- Many of the Home Economists from the Ministry of Agriculture who are well equipped with knowledge on Value Addition and demonstrations got redeployed to other functions within the counties, and others retiring (and with no replacements) leaving a huge skills gap.

Sustainability

To enhance the sustainability of the actions:

- The project was entrenched into the county government departments of Agriculture and Health as a means of institutionalization.
- In marketing, the project worked with the off-takers and the processors to ensure continuity in working with farmers to sustain demand for the raw materials supplied by the farmers.'
- The Project worked closely with the National Potato Council of Kenya (NPCK) which is a potato platform coordinating body thus ensuring continuity of sharing the lessons learned.

Key learning

Working with the different stakeholders- the government, private sector and the potato coordination platform - is key to ensuring the success of the project and in enabling the potato farmers to access markets at a fair price.

The Project is financed by German's Ministry of Economic Cooperation (BMZ)
Implemented by German International Technical Cooperation (GIZ)

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CASE STUDY 16: VALUE CHAINS, TRADE, MARKETING

Title: Making Value Chains Work for Food Security and Nutrition
Implementing Organizations: Alliance of Bioversity International, CIAT and KALRO
Project period: 2016 to 2019



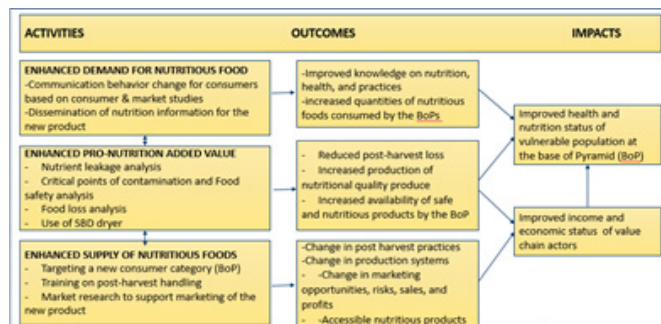
Context

A nutrition-sensitive Value Chain Project implemented by CIAT, the Alliance of Bioversity International and KALRO aimed at generating evidence by integrating the activities of different stakeholders across the agricultural and nutrition sectors in Kenya and Uganda. Solutions were developed through public-private collaboration and the value chain concepts. Frameworks were enriched by a stronger consumer focus, particularly on nutrition. The project had a goal of improving diets of vulnerable rural and urban consumers at the base of the pyramid (BoP), especially women of reproductive age (15-49 years) and young children in the informal settlements of Nairobi and Kampala.

Methodological approach

Nutrition-sensitive components of the project:

- Developing nutritious multi-composite products by private sector SMEs and researching to identify the nutrition gap among the target base of the Pyramid (BoP) consumers in Kenya and Uganda.
- Linking the private sector with smallholder farmers for the supply of raw materials and to support inclusive trading using CIAT’s LINK methodology.
- Use of efficient solar driers to reduce post-harvest loss, nutrient leakage, and contamination along the food value chains and during processing.



Testing of the Solar bubble drier used by value chain actors and processors in drying commodities, at the Azuri Health Ltd. Factory. Photo Credit: C.Chege/ CIAT

Step by step implementation:

Step 1: Nutrition situation analysis: The nutrition status of the target group was assessed.

Step 2: Commodities with a nutrition improvement potential, market potential, income generation potential, gender sensitivity, and are sensitive to environment and climate.

Step 3: A nutrition-sensitive value chain analysis was conducted.

Step 4: Types of interventions were selected based on cost-effectiveness, target group, tensions and trade-offs.

Step 5: Putting the interventions and project together.

Results and impact:

The impact of the project on the nutrition status of the target consumers was not conducted. However, results on some intermittent outcomes are as shown below:

Consumers: Three safe, nutritious, and affordable porridge flour developed and made available to BoP consumers in Nairobi and Kampala slums.

Processing SMEs: An increment in the employment number of sales agents; increased product range, market, processing capacity/facilities by SMEs; Market access and capacity building to farmer groups supplying the raw materials and; reduced contamination.

Farmers: Increase in sales, diversity in product portfolio including pre-processing of fresh produce (amaranth leaves); improved incomes for youth and women (farmers groups), reduced post-harvest loss, and reduced contamination (due to training on food safety and use of solar drier).



Porridge flours developed by the private sector SME processors in Kenya (first photo) and Uganda (second photo)

*Photo Credit: T.Mukunya/
Azuri health and D.Kinambu/
Nutreal Ltd.*

Challenges: Marketing efforts by the SMEs were restrained by limited funds, and low nutrition awareness especially among BoP consumers limited the uptake of the products. Balancing between public and private sector interests where public sector wants to make technology and products available and affordable to consumers and private sector is in business, and funding for promotion of nutritionally dense foods is constrained by limited funds from the private sector.

Sustainability: For the interventions to be sustainable: there has to be an appropriate linkage of actors along the target value chains; the technologies and innovations introduced should not harm the environment. Introduce technologies and innovations that do not harm the environment; the interventions should be aligned with food system actors who are already conducting such activities, such as private sector SMEs in those businesses. This would make the activities and interventions economically sustainable.

Key learning

- Local value chains and markets experts should be able to: (a) Understand the private sector's mindset and needs and (b) Identify organized farmer groups, strengthen their productive and entrepreneurial capacities and link them to private sector buyers Public sector partners' interest is mainly public good projects whereas private sector interests are commercial. Hence partnership between the two works well when there are incentives. The private sector must also identify nutrition as a business opportunity.
- Poor consumers are willing to pay more for nutritious foods especially when they have nutrition information.
- Consumers and producers are not aware of the post-harvest loss, nutrient leakages and contamination occurring along the value chains. They need to be sensitized on this.
- It is important to increase market sensitization in the BoP area to increase the purchase of nutritious foods.
- Conducting a situational assessment is important to identify consumer behaviour.

Donor: BMZ/GIZ and A4NH

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CASE STUDY 17: GENDER IN AGRICULTURE

Title: Gender and Nutrition Mainstreaming through Climate Smart Micro-Project Investments Implemented Under Kenya Climate Smart Agricultural Project (KCSAP)
Implementing Organization: Ministry of Agriculture, Livestock, Fisheries and Cooperatives
Project period: 2017-2023

REPUBLIC OF KENYA



Context

The Food and Agriculture Organization (FAO, 2010) and the 2012 *World Development Report* (World Bank 2012) identify gender as one of the major factors holding back agricultural productivity and perpetuating poverty and hunger in many regions, particularly in Sub-Saharan Africa (SSA). It is based on this recognition that the Kenya Climate Smart Agricultural Project (KCSAP) emphasized on gender mainstreaming and social inclusion to ensure that women and other vulnerable and marginalized groups participated and benefited from the project investments.

KCSAP was a Government of Kenya (GoK) project whose objective was to increase agricultural productivity and build resilience to climate change risks in the targeted smallholder farming and pastoral communities in Kenya, and in the event of an eligible crisis or emergency, to provide immediate and effective response. The micro-project investments targeted beneficiaries organized in common interest groups (CIGs) and vulnerable and marginalized groups (VMGs), with the aim of enhancing adoption of climate-smart technologies, innovations, and management practices (TIMPS). These CIGs and VMGs groups included both men and women farmers with the membership of women being 55 percent. This project was implemented in 24 counties in Kenya, six wards in at most 3 sub-counties in each county.

The specific nutrition-sensitive objectives was to contribute towards increased production of diverse foods through adoption of TIMPs and enhancement of beneficiaries' access to the basic inputs. It was envisaged that this would contribute towards the nutrition security within their households.

Methodological approach

Nutrition-sensitive components of the project:

The enterprises promoted the project's priority value chains: exotic and indigenous vegetables; multi-story gardens and pyramid gardens; fruit trees; improved indigenous poultry; dairy goats; aquaculture in lined water pans; apiculture; beans and rabbits.

The gender component of the project focused on enhancing the participation of women, youth and other categories of VMGs in the project investments. Through such participation, the women accessed TIMPs extension services and basic inputs for increased productivity. The inputs accessed through the micro-project investments and adaptive research initiatives towards nutrition mainstreaming included- seeds, seedlings, multistorey kitchen gardens, chicks, fingerlings and fish pond liners, water tanks as well as simple farm machinery (chaff cutters, grass cutters, walking tractors, weeders, threshers, incubators, etc). These inputs and equipment contributed towards better nutrition outcomes in terms of household food accessibility and more preparation time by the women as a result of the reduced time and labour in agricultural production.

Step by step implementation:

The approaches used to implement the nutrition-sensitive component of the project included:

1. The use of participatory approaches during the development of a micro-project proposals that enabled both men and women to contribute their views and needs regarding the inputs to be purchased.
2. Vetting of the micro-project proposals by the County Technical Advisory Committees (CTAC) to ensure they are technically sound prior to approval and submission for funding by the county project coordinating units.
3. The service providers gave the technical support to the groups towards effective implementation of the micro-projects.
4. Regular monitoring and support was undertaken by all stakeholders during micro-project implementation.



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Photo 1: A Pyramid Kitchen garden in Baringo County



© KCSAP Photo Gallery

Photo 2: Farmer Training on how on constructing a pyramid kitchen garden, in Baringo County

Results and impacts

For the KCSAP gender mainstreaming and the nutrition sensitive actions, the sustainability strategies included:

- Targeting of micro-project investments to beneficiaries organized into community interest groups (CIGs) and vulnerable & marginalized groups (VMGs) that in addition to project funding have laid out their own sustainability mechanisms such as table banking and money-go-rounds (rotating savings and credit associations- ROSCAs).
- Equipping the Community-Driven Development Committees (CDDCs) within each ward with the necessary capacity to sustain the group-based approach of purchasing the inputs required by farmers.
- Introduction of a financial inclusion and management grant (FIMG) under the CDDCs to management to enhance farmers access to credit.
- Sensitizing CIGs/VMGs on the need to federate into farmer producer organizations (FPOs) that also received project funding
- Gender awareness creation at the CIG/VMG /FPO level towards reduction of the existing gender/social inequalities
- Availing a tripartite extension services delivery model to include the public service providers, contracted service providers (SPs), and lead farmers in each group.
- The Community Value Chain Development Committees (CVCDCs) have been established for each priority value chain.



Photo 3: A CIG receiving farm inputs in Kakamega County



Photo 4: Mechanization - Small farm inputs that minimized rudgerery

Replicability and upscaling

It is expected that the lead farmers approach alongside the farmer-to-farmer extension will highly contribute towards upscaling the project efforts to all farmers within the targeted wards and beyond.

Key learning

To enhance the benefits to women in agricultural development initiatives and its impact on nutrition mainstreaming, there is a need to accompany such initiatives with some initial basic inputs such as seed and breeding stock to catalyze high uptake levels. The integration of nutrition-sensitive components should start right from the design of the project and emphasized at every stage of the project cycle up to implementation, monitoring and impact evaluation.

Donor: World Bank

Implementing partner: Government of Kenya

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CASE STUDY 18: INDIGENOUS FOOD SYSTEMS

Title: Mainstreaming Biodiversity for Food and Nutrition

Implementing Organization: Kenya Agricultural & Livestock Research Organization

Project period: 2012-2018



Context

Many complex and diverse food systems are endangered today, as they are on threatened biologically diverse environments. Kenya is endowed with a rich diversity of food plant species yet only a limited number of plant species (predominantly maize, beans, and potato) are cultivated by farmers for food grains, legumes and vegetables.

Traditional knowledge on indigenous or local agrobiodiversity is rapidly declining, and with increasing globalization in food culture, diets and farms have become less diverse as monoculture is encouraged. Studies have shown that dietary diversity is associated with consumption of diverse foods and contributing to improved nutrition. Effective food-based strategies are one of the most sustainable nutrition interventions, as long as nutritionally adequate diets based on local foods can be successfully identified and promoted.

The project, implemented by KALRO in partnership with other national and international organizations, successfully generated documents and created widespread awareness of the beneficial nutrients which many of the traditional food plant species contain. The project aimed to support traditional food systems through capacity building of communities with a focus on schools and school children. It also sought to document traditional resource management practices, conservation tools and knowledge management. These were long-term projects spread over 10-15 years (some still ongoing). The projects targeted different stakeholders including policymakers, school children, communities, academic institutions etc.

Methodological approach

Nutrition-sensitive components of the project:

- Involving the youth in school gardens by providing seeds and indigenous vegetables.
- Using nutrition composition data to enhance nutrition education.
- Establishing indigenous vegetable plots at dispensaries/clinics to serve as demonstration plots.
- Documenting traditional foods through interviews, food fairs, recipes and digital photography.
- Advancing local conservation efforts such as tree planting of indigenous and useful foods.

Step by step implementation:

- Conducting biodiversity stakeholder mapping and consultation meetings.
- Conducting baseline studies documenting on-farm and dietary diversity, food composition, barriers and opportunities for adoption of improved diets.
- Developing education materials and awareness creation of the benefits of diverse diets based on locally available agro-biodiversity (food fairs, open days, and cultural fairs).
- Developing and implementing a monitoring system for dietary, on-farm and community diversity.
- Documenting traditional knowledge/use, and monitoring cultivated and wild agrobiodiversity.
- Enhancing farm crop diversity through on-farm participatory characterization and conservation of priority local agro-biodiversity.

Results and impacts

Different projects have achieved the following:

- Contributing to the development of key documents such as the updated Food Composition Table for Kenya, recipe books that incorporate indigenous foods from different communities, and the first biodiversity policy in Busia County.
- Developing mobile applications (MobileApps) for underutilized crops such as guava, gooseberry, and the spider plant.
- Gooseberry is now commercialized by over 20 private sector firms and fruit are sold in various markets including supermarkets and improving its value chain from production to processing into jam, juice, chutney, yoghurt, dried fruit.
- Guava has also been taken up with several products sold in supermarkets and academia capacity building student on development of products such as wine, juice and yoghurt.
- The consumption of indigenous vegetables 5 days weekly among 540 students in one secondary school, up from none before the intervention.
- Contributing to databases and knowledge systems on dietary, farm diversity and nutrient composition of traditional foods.
- Increase by 27 percent in the area underutilized indigenous vegetable production in Busia County.
- Collaborating in research and development to transform African leafy vegetables, some of which are now sold in supermarket chains and are routinely served in restaurants and hotels across the country.
- A new area of research on underutilized crops is now in place in KALRO with an emphasis of propagation of these crops to contribute to increase utilization and subsequent conservation.

Challenges

- Communities allowing loss of biodiversity.
- Inadequate funds to support the continuous consultation of partners and outreach to larger populations despite demand.
- Over dependency of communities on external support.

Sustainability

From project inception, participation of communities and other stakeholders is central to assure that any activity to improve dietary patterns is culturally acceptable, affordable and safe. And that the communities are able to continue on their own even after the project.

Key learning

- It is important to promote proper food preparation skills in order to reap maximum benefit from its nutrition contents.
- Linking farmers to markets provides an opportunity for indigenous crops to provide farmers with an income and to enhance sustainability.
- Availability of food composition and nutrition situation data is important to support mainstreaming of biodiversity and its improvement of the populations' nutrition outcomes.
- Biodiversity should be mainstreamed in the county agricultural and nutrition programmes- as it is in Busia County.

FAO, UNEP, UNDP, Bioversity International, The World Bank, USAID FtF, Harvest Plus, IFAD, PABRA, IITA, National Museums of Kenya, a number of Kenyan Universities, non-governmental organizations working in the field of agriculture and nutrition, private sector actors (supermarket chains) and local departments of the Ministries of Agriculture, and Health (nutrition unit)

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CASE STUDY 19: SOCIAL PROTECTION

Title: Nutrition Improvements through Cash and Health Education (NICHE)

Implementing Organization: UNICEF

Project duration: 2018 to 2024



Context

The Kenyan government's social protection approach includes the provision of cash to vulnerable households. This is done through four programmes embedded as the National Safety Net Programme (NSNP) which includes the Cash Transfer Programme for Orphans and Vulnerable Children (CT-OVC), Cash Transfer for the Elderly (CT-Elderly), Cash Transfer for the Handicapped (CT- Handicapped), and the Hunger Safety-Net Programme (HSNP). In the CT-OVC, CT-Elderly, and CT-Handicapped programmes, beneficiary households receive KES. 2,000 every two months.

From January 2017 to January 2018 a pilot study was done which aimed at including nutrition sensitivity in the delivery of the social protection cash transfer programmes. The objective of the pilot on the Nutrition Improvements through Cash and Health Education (NICHE), was to test whether providing additional cash assistance enhanced with nutrition counselling can improve nutritional well-being among most vulnerable households.

The Pilot

The pilot was undertaken in Kitui County, from January 2017 to June 2018. The pilot targeted 1,560 beneficiary households of the Cash Transfer Program for Orphans and Vulnerable Children (CT-OCV) with children under two and/or pregnant and/or lactating women. A Randomized Controlled Trial (RCT) approach was utilized to implement the pilot.

Key results: Improved child feeding practices (EBF and complementary feeding) and maternal dietary intakes, as well as improvements in hygiene and health-seeking behaviours. Although NICHE-I demonstrated improvements in secondary outcomes, there were marginal reductions in stunting.

Lessons learned: Implementation was smooth as it used the existing government CT-OVC programme, the collaboration between NICHE partners, and the government partners facilitated rollout, while the involvement of County Governments facilitated smooth fieldwork. Targeting nutritionally vulnerable households with a child under 24 months or a pregnant or lactating woman improved nutritional outcomes of women and children; Combining intensive nutrition counselling every two weeks through home visits by community health volunteers with a cash top-up of KES.1,000 every two months (additional to regular cash assistance) was a more effective nutrition intervention

Scale-up

Leveraging from the outcomes of the evaluation of the NICHE pilot in Kitui, NICHE-II scale-up led by government along with UNICEF's technical assistance has been undertaken in five counties - (Marsabit, Turkana, Kilifi, West Pokot, and Kitui).

Methodological approach

Nutrition-sensitive components of the project

- Project targeting: Households with a child under 24 months or a pregnant or lactating woman;
- Provision of intensive nutrition counseling every two weeks through home visits by community health volunteers;
- A cash top-up of KES.1,000 every two months (additional to regular cash assistance of KES.2,000 every two months). Nutrition counselling is geared towards empowering households to enhance their financial expenditure for food and nutrition-related services.

The nutrition-sensitive objectives of the project included:

1. Strengthening the Community Health Strategy in the five NICHE counties to deliver High Impact Nutrition Interventions for Cash Beneficiaries.
2. Providing households receiving cash transfers with nutrition counselling to improve the nutritional status of Pregnant and Lactating Women and children under two years.

Capacity development approaches

Nutrition counselling is delivered through the Baby Friendly Community Initiative (BFCI) approach – an MoH initiative that aims to strengthen routine community nutrition services. CHVs deliver the counselling during home visits every two weeks supported by Community Health Extension Workers (CHEWs), and mothers also participate in community mother support groups. A Social Behaviour Change Communication (SBCC) strategy and materials have been developed to support these activities.

Results and impact

By the end of May 2022, over 12,000 households had been enrolled in the NICHE programme in fifteen sub-counties with cash top-up payments starting in July 2021 to cover the period March to April 2021 and fortnight nutrition counselling home visits.

Community Health Extension Workers (CHEWs) and Community Health Volunteers (CHVs) were trained to facilitate the delivery of the community-based nutrition counselling. In the context of the current food insecurity crisis in programme areas, CHVs have also been trained to provide Minimum Upper Arm Circumference (MUAC) screening for the early detection and referral of wasted children. Although this was not in the original design of the programme, this has been a necessary adaptation in response to the current crisis. Figure 11 illustrates the topics covered in the NICHE programme.



Figure 11: Nutrition counselling topics in NICHE

Sustainability

The establishment of a Memorandum of Understanding (MoU), coordination structures such as the National Technical Advisory Committee and Joint Secretariat at the national level, and county coordination structures offer both ownership and accountability for the different government ministries involved with the programme.

An operations manual has been developed for programme staff to support standardized as well as enhanced implementation. This also builds the capacity of government field personnel to sustain standard programme implementation in the absence of UNICEF's technical assistance. The government's health work force capacity is also sustainably built by training CHEWs as trainers who then cascade training to all CHVs in the area. To support implementation of the child protection element, Child Protection Volunteers (under the Directorate of Children's Services) and Lay Volunteer Counsellors (under the Directorate of Social Development) are being trained to provide group parenting sessions.

A formative evaluation of the pilot and initial phase of the current expanded phase of NICHE has been undertaken to draw lessons learnt as the programme is being expanded.

Key learning

Key lessons learned in NICHE implementation include the following:

1. Piloting at a smaller scale before scaling up enabled establishment of the effectiveness of the approach as well as operational challenges.
2. Bringing all sectors together in the early stages for planning and joint decision-making was crucial for ownership.
3. Aligning the NICHE programme with the already existing sector strategies and plans fostered ownership by the government;
4. Leveraging existing partnerships between government and development partners offered a resource base for undertaking the implementation at scale.
5. The programme has shown good performance with funds being transferred regularly and on time. However, there is evidence that the cash transfer value is too small to impact household behaviour.
6. Some evidence also suggests that further integration between social protection, health and nutrition staff is needed at sub-national levels to fully link cash transfers with nutrition counselling and other sectoral services. An impact evaluation along with a cost efficiency analysis is planned to be undertaken in 2024.

Implementing partners:

The current on going scale-up to five counties was embedded within Kenyan Social Economic Inclusion Programme (KSEIP), an initiative by the Ministry of Public Services, Gender, Senior Citizens Affairs and Special Programmes (MPSGSCS)

NICHE is being implemented under the leadership of the (MPSGSCS and with mutual engagement with Ministry of Health (MOH), as a strong implementing partner.

Financial partners: The World Bank and Foreign Commonwealth Development Organization (FCDO).

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CASE STUDY 20- RESILIENCE

Title: Strengthening the Resilience of the Livelihoods of Agro-Pastoralists Communities in Eastern Africa (SRAPLEA)
Implementing Organization: Welthungerhilfe
Project period: 2017 to 2021



Context

The SRAPLEA programme aimed to strengthen resilience and improve livelihoods, wellbeing, food and nutrition security of groups of agro-pastoral Communities in arid and semi-arid areas of Ethiopia, Kenya, and Uganda. The programme, implemented by Welthungerhilfe, focused on the most vulnerable and marginalized yet resilient communities, emphasizing women, young people and families that had lost all their livestock and were struggling to survive as pastoral and agro-pastoral dropouts. In Kenya, the project was implemented in Turkana and Marsabit counties.

The water user association sought to benefit from the water project when the project ventured into the area to install a water supply system after a needs assessment exercise was completed. *“We had to find a way to pull water from the borehole to irrigate our vegetables and fruits,”* says Water Users Association Chairman Issack Hassan.

With this positive attitude from the community, the organization was motivated to expand activities to include training and encouraging the community to farm more with the increased water supply.

Methodological approach

Nutrition-sensitive component:

- Building of the SACCO members’ capacity to venture into climate-smart agriculture and cultivate vegetables and fruits to supplement their mainly animal-source diets
- Nutrition education and cooking demonstrations.

Step by step implementation:

- Community needs and priorities were identified and assessed
- Community activities included rangeland management, as well as training and engagement in fruits and vegetable farming.
- Setting up of rainwater harvesting storage tanks for agricultural activities including vegetable and fruit farming.
- Water supply systems were built or rehabilitated, including boreholes, livestock watering places, and rock catchments.
- Community members were made aware of rights to clean water and sustainable sanitation.

The project built the capacity of the Water Users Association groups (3 in Turkana and 2 in Marsabit) on different topics such as setup and management of kitchen gardens, financial management, village savings and loan associations, nutrition education, food preparation and climate-smart agriculture.

Results and impact

The programme reached 18,608 individual (6,339 male and 12,269 female) in 37 communities. Outcomes were:

- Improved and diversified crop production, including vegetables and fruits.
- Increased food security and household dietary diversity.
- Increased household incomes enabling parents to pay school fees.
- Improved access to safe water for domestic use leading to reduced water-borne diseases and enhanced agriculture production. For example: Kenisa location (Kenisa and Harsako Villages on the Kenyan and Ethiopian side, Alobula, Bururi, and Funan Ntima villages), and Moyale Kenya and Moyale Ethiopia towns can now access the water whose supply has been extended by the water association following the high yielding (36M³/Hr) borehole and completing the water system reaching 9,434 beneficiaries.

Challenges

- During cold and rainy seasons, there is insufficient sun to provide solar power for the pumping of water to the farms.
- Transporting the produce to markets is expensive and unreliable. The community members incur losses due to increased production and limited markets, despite their crops doing so well in the farms.
- Crop pests and diseases invaded most farms contributing to losses.

Sustainability

- Villages can now access the water whose supply has been extended by the Water association/Sacco following the high-yielding (36M³/Hr) borehole and completing the water system-including piping, borehole drilling etc.
- Using proceeds from the sale of their crops, the community can maintain the water system enabling them to continue farming without fear of drought or missing water for their crops.
- Planting of trees has also been highly encouraged to improve the environmental conditions in the project areas.
- The programme increased water infiltration and retention in the rangeland and water catchment areas and facilitated measures to improve rangeland. In the latter case, this included the introduction/test of adapted grass varieties and reforestation.

Key learning

- With capacity building, training, and provision of water, the agro pastoralist's communities can diversify their livelihoods by engaging in farming, therefore improving their resilience;
- With nutrition training, pastoral communities are willing to consume fruits and vegetables as part of their diets. This will have a long-term impact on nutrition outcomes.

Implementing partners:

The German Federal Ministry of Economic Cooperation and Development (BMZ)

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Kenya Climate Smart
Agriculture Project

CASE STUDY 21 - RESILIENCE

Title: Improving Community Resilience through Green Grams Value Chain in Tharaka Nithi County

Implementing Organization: Ministry of Agriculture, Livestock, Fisheries and Co-operatives

Project duration: 2017-2022

Context

The Kenya Climate-Smart Agriculture Project (KCSAP) was a Government of Kenya (GoK) project, whose objectives was to increase agricultural productivity and build resilience to climate change risks in targeted smallholder farming and pastoral communities, and in the event of a crisis or emergency.

KCSAP supported the development, validation, and adoption of context-specific climate-smart agriculture (CSA), and Technologies, Innovations, and Management Practices (TIMPs). The intent was to target small holder farmers (beneficiaries) as well as develop sustainable seed production and distribution systems. The project aimed at improving resilience for communities through increased productivity and better marketing for improved incomes, hence beneficiaries used the incomes to diversify livelihood options and support the household needs.

Methodological approach

The nutrition-sensitive component of the project included:

- Trainings on how to prepare nutritious meals from green grams
- Trainings on how to produce green grams for the markets and using income used to purchase more nutritious food.

Step by step implementation:

- Facilitating soil testing at demonstration plots whose results showed that soils were low in organic matter and other essential elements.
- Enhancing the adoption of Technology, Innovation, and Management Practices (TIMPs) in Green Gram Farming.
- Availing through service providers (SP), demonstration materials (certified seeds, foliar nutrient sprays, rippers, threshers, and hermetic storage bags).
- Training provided by the Service Providers (SP) through demonstrations and field days on ripping, soil conservation, Integrated Pest Management (IPM), threshing, and storage using hermetic bags.

Key Results and impacts

- Green grams production increased between July to October 2019 to an average of 3.5 bags per acre from 1 bag per acre due to surface water harvesting through ripping.
- The project increased green gram production from 1,725 tons (2017) to 1,830 tons (2021).
- The project was able to achieve a total of 10, 642 acres used for production of green grams.
- By 2021, the project had increased farmer incomes from green grams by 16 percent. This was from KES 118.6 million to KES 137.7 million.
- The introduction of mechanical threshers significantly reduced, the labor for threshing - including sorting and contamination with soil and stones - as using threshers reduces contacts with the ground.
- Farmers stored produce longer by 3 months as they awaited price increases enabling them to negotiate prices with buyers. For example, in September 2020 farmers were selling green grams at KES. 90.00 per kilo (compared to KES. 40-45 per kilo, earlier);
- The community investment groups came together to form Producer Organizations (POs), and presented a proposal (Enterprise Development Plan) for support with a green grams processing facility to further increase quality, presentation and prices.
- A seed supply system (community-based seed system) was initiated with four groups starting clean seed production as demand has gone up.



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Use of green grams mechanical threshing technology to reduce post-harvest losses

Sustainability

- Strengthening of the extension services which are critical to the uptake and upscaling of the CSA and TIMPs: The project found that a hybrid extension architecture and lead farmers are critical for sustainability. Different agents were involved in providing services including Community-Based Extension Service Providers. Other agents were lead farmers (who engaged in peer-to-peer extension-similar to the Village Based Advisors (VBA - AGRA), contracted service providers, and county government extension staff.

Key learning

- A holistic value chain development approach is critical to increasing productivity and reaping the accrued and spiral benefits of building the resilience of communities.
- Small Holder Farmers need intervention through the continuum of any value chain, whether crops or livestock based.
- The integration of Climate-Smart Agriculture Technology Innovation and Management Practices (TIMPs) with a hybrid extension architecture enabled the reaping of optimal outcomes and long-term impact.
- Digital services should be embraced for extension services, capacity building, and dissemination of information; as well as for input and output markets (access, timely, affordable, and minimal value chain actors' interaction) to enhance efficiencies.

Donor: World Bank, Government of Kenya
Implementer: Government of Kenya

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CASE STUDY 22- DO NO HARM

Title: Do No Harm - The Case of Beneficiary Data Management
Implementing Organization: World Food Programme
Project duration: 2020 - 2021



Context

As Kenya reported its first case of COVID-19 on 12 March 2020, an estimated 1.7 million Kenyans were projected to be affected in the urban informal settlements. Typically, in urban areas, the most significant shocks faced in terms of food security and nutrition are the increase in food prices and decrease in income or job losses. Malnourished pregnant women and young children, particularly those in congested areas such as informal settlements, patients with TB/HIV, and malnourished elderly were at significantly higher risk of COVID-19 and other infections. The nutrition sector underscores the importance of ensuring continuity in the provision of essential and lifesaving services to risk populations as part of the COVID-19 response.

WFP Kenya implemented a cash transfer programme between June 2020 to May 2021 in the urban and informal settlements in Nairobi. The organization provided cash transfers of KES.4,000 per month for four months to approximately 70,500 targeted households which had lost their incomes and livelihoods. Transfers covered at least 50 percent of the minimum food basket (MFB) for urban populations and were aligned to the transfers provided by the Government of Kenya in the same areas. The cash transfers targeted clients from Integrated Management of Acute Malnutrition (IMAM) programmes, as well as HIV and Tuberculosis clients in Nairobi. The cash transfers aimed to assist the vulnerable populations to improve their diets through better access to food, and increased expenditure on health and livelihoods.

Methodological approach

Nutrition-sensitive component of the Do No Harm project:

The beneficiary data collected had to be protected and only used for the purposes it was intended for, therefore safeguarding it from corruption and unauthorized access. This guarded the beneficiaries from abuse and harm and protected the organization from reputational risks.

How Do No Harm approach was implemented in the project:

Health and nutrition records are particularly sensitive and can cause irreparable damage to an individual or community if mishandled or irregularly accessed:

- Internally, the staff who were interacting with the data were trained and sensitized on the internal guidelines of beneficiary data protection as well as the Kenya Data Protection Act 2019.
- The staff signed an oath of confidentiality that legally prohibited them from using the data or sharing it with unauthorized persons. Other government partners were also trained and sensitized on the same.

- The beneficiaries were also sensitized and assured of the controlled use and management of their data, and of their voluntary participation in the project. For those that were comfortable enrolling in the programme, they were asked to sign consent forms. They were also made aware of their right to withdraw their consent at any given time.
- Data sharing agreements were the basis for any sharing of data with the government and other agencies. Only minimum and required data were shared with the relevant parties while in some instances encrypting was done and proper disposal procedures emphasized.
- Data were stored in a secured location within the WFP servers which are equipped with all the necessary safety and security features, and controlled access.

Results and impacts

There was no breach in beneficiary data which contributed to building trust and deepening partnerships among the agencies involved in urban programming, including the Government and communities.

Key learning

It was noted that there was a need for the Government to invest in health management systems at all facilities to enable easy capturing and follow-up of clients as well as analysis of data and trends. Clear guidelines are needed to ensure client data is kept secure at the facility level and that the Do No Harm principle is adhered to. This increases trust and uptake of the services.

Financial partners: USAID's Bureau for Humanitarian Assistance together with the Government of Finland.
Implementing partners: WFP and the Nairobi Metropolitan Services

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CASE STUDY 23: RELIEF/ HUMANITARIAN TO DEVELOPMENT

Title: Linking Emergency Work to Development: Sustainable use of Insect Barrier Technology to Curb Desert Locust Infestation on Vegetable Kitchen Gardens

Implementing Organization: Food & Agriculture Organization of the United Nations

Project duration: 2020-2021



**Food and Agriculture
Organization of the
United Nations**

Context

Plants in the arid and semi-arid environs are often exposed to perennial parasitic attacks by vector-bearing insects searching for sap for survival. The use of insect barrier technology also known as IPM (Integrated Pest Management) method to control and manage the sucking insect pests have proven successful such as in fighting aphids, leafhoppers, whiteflies, midges, butterflies, moths, thrips and desert locusts. The method is a sustainable practice to safeguard vegetable kitchen gardens in the arid and semi-arid areas by providing an ambient micro-climate that enables vegetables to thrive. FAO implemented this emergency-related project to control desert locusts and reduce crop destruction by the locusts in Marsabit County between October 2020 and May 2021. This methodology was used to support households in Marsabit in setting up their kitchen gardens during the locust invasion and enabled them to have access to vegetables during that season.

Methodological approach

Nutrition-sensitive components of the project:

- Promotion of diverse vegetables for production in the kitchen gardens.
- Integration of nutrition education into the project to improve food preparation methods among the communities.

Step by step Implementation:

1. Identification of areas affected by the desert locusts in Marsabit County, and recruitment of households into the project. Beneficiary identification and registration were jointly conducted by the Local Administration, Service Provider, Department of Agriculture and FAO.
2. Sensitization through *barazas* (public meetings) on Desert Locust Management and trained Desert Locust Scouts recruited from the affected communities. The scouts reported on the presence and absence of desert locusts. Marsabit County hosted 116 such scouts. Through collaboration with the Department of Agriculture, training sessions on good agricultural practices, food utilization, and preservation were also conducted in Laisamis, Moyale, North Horr, and Saku sub-counties.
3. Supporting the households to establish kitchen gardens under a shade net, following the following steps:
 - A 10 by 10 metre plot, well-drained and aerated without waterlogging, and 3.5 metres in height was prepared.
 - Size of the net enough to cover 10 by 10-meter square plot is roughly 450 meter square size in area and ultraviolet light stabilized were sourced.

- Treated poles were identified as frames to hoist the shade nets to cover the prepared 10 by 10 metre plots. The shade netting was installed with 1 roll of chicken wire per plot to reinforce the perimeter wall from the ground, and aluminium metal was used to frame the roof.
- Firmly tuck in the side netting to ensure the structure is firm and fastened on the frame.
- The programme purchased certified seed from a licensed agro-dealers. Each household received 10gms of seed.

By following this methodology, the vegetables grew free from parasitic insects including the desert locusts. Post-training monitoring was conducted jointly with the Service Provider, CARITAS Diocese of Marsabit, and extension officers from the Department of Agriculture. This was geared for scale-up in the upcoming October to December 2021 season. On-farm demonstrations, cook-outs, food utilization, presentation, and preservation were conducted in all the four sub-counties of Marsabit County.



Shade netting an effective barrier to ward off desert locust. See insects stuck on the net above.



Hybrid Kitchen Garden design fenced with twigs, chicken wire & shade net, in Kalacha village, North Horr.

Results and impacts

- There was an increase in household vegetable yields, thanks to the use of certified seed and good agronomic practices;
- The households adopted improved skills and practice regarding preparing, cooking and preserving vegetables.

Challenges

- The desert locust infestation was a shock and it affected food production at the household level. Other dual shocks were the COVID-19 pandemic and drought which happened in rapid succession. This shifted attention from the desert locust programme to the response to contain the twin shocks.
- Community beliefs and customs around livestock grazing affected smooth implementation of the project, as livestock would sometimes eat the vegetables in the kitchen gardens that are not fenced.
- Circulation of substandard farm inputs to farmers – such as from sub-standard seeds to inferior shade nettings which could not withstand UV rays - led to reduced crop yield.

Sustainability

- At the programme planning and implementation stage, the project involved the community beneficiaries and host county department officials at every stage.
- Stakeholders received training on the viable IPM technologies such as use of the insect barrier will be passed down to successive generations to scale up adoption; mainstream nutrition education throughout the agricultural training.
- Staging strategic field demonstrations during farmer open days allowed success stories to be showcased for purposes of celebration of results by stakeholders.
- Identification of local solutions for resource-poor households. For example, at the local level farmers who could not afford to purchase shade, used old mosquito nets to safeguard their kitchen gardens. See Figures 9 and 10.

Key learning

A complete kitchen garden package for agro-pastoralists should include; shade netting range of 16 -35 percent, fencing component, and certified seeds.

The Project is financed by European Union and
Implemented by FAO, CARITAS Diocese of Marsabit.

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CASE STUDY 24- RESEARCH TO DEVELOPMENT

Title: Use of Kenya Food Composition Tables in Decision Making

Implementing Organization: Ministry of Health and Food & Agriculture Organization of the United Nations

Project duration: 2015-2018

REPUBLIC OF KENYA



Food and Agriculture
Organization of the
United Nations

Context

Composition data are the basis for almost all aspects of nutrition and represent the basic tools to improve nutrition, health, and food security in all populations. The history of food composition data in Kenya dates back to 1951 with the publication of a medical lab report from D. Harvey. The publication presented the analysis of certain local foods. In 1987, Jansen et al reviewed the chemical analysis of foods in their book “Food and Nutrition in Kenya.” In 1993, the first food composition table “National Food Composition Tables and The Planning of satisfactory Diets in Kenya” was developed by Dr. Jaswati Kaur Sehmi. While the greatly expanded the previous two food composition datasets, it lacked certain components such as zinc, fatty acids and phytates. Data presentation was also not user-friendly. The Food Composition Tables 2018 was developed through review and updated the Kenya FCT of 1993. This current FAO-funded project built and expanded on these earlier publications, and was implemented from 2015 to 2018.

Methodological approach

Nutrition sensitive component of the project:

Food composition tables are an integral part of food and nutrition programming. They are useful in planning for nutrition-sensitive intervention in the agricultural sector especially in breeding and production of highly nutritious foods, nutrition education, product development and food labelling by the food industries, and training by academia among other ways.

Step by step Implementation:

1. A steering committee with representation from line ministries, research organizations, universities, and NGOs was formed under the Division of Nutrition and Dietetics.
2. The Kenya FCT (1993) was transferred into an excel worksheet which formed the basis for the changes to be made.
3. The team engaged in primary and secondary data collection through the following activities: training of food samplers, facilitating the sampling of foods at market level, sample collection and analysis, review of literature from universities and other research institutions, data analysis and data compilation.
4. An elaborate process of prioritization of food for inclusion in the tables as well as for analysis was put in place.
5. A food analysis protocol was developed with the following elements: selection of 10 regions representative of the country; selection and training of food samplers; Pretesting the food sampling process in markets, food handling, and transportation.
6. Food sampling in ten representative regions was carried out. The 62 food types, each of them

sampled from each of the regions were delivered to the National Public Health Laboratory for holding before shipping to the SGS laboratory in Mombasa for preparation and analysis in SGS laboratories in Mombasa, Germany, and Thailand.

7. The analytical results from SGS were shared back and reviewed by the technical team.
8. Compilation of the new data, an update of old KFCT data, and 2-3 high-quality food composition tables from other countries were used as reference checks.
9. An accompanying recipe book was developed.

Capacity development approaches

Multiple types of training were conducted for the different groups as follows:

- The steering committee members attended in-country workshops and online courses on food composition data.
- The lead technical personnel received food composition data training in the Netherlands.
- Food samplers from 10 regions underwent an initial training followed by a refresher course during the second food sampling phase.

Challenges

- The main challenge was lack of proper documentation in the previous data of food composition tables.
- The cost of analyzing foods was also very high considering the available budget.

Use of the results to inform programmes/decision making

The food composition tables have been used in many interventions, for example:

- Key universities in Kenya have been sensitized on the KFCT 2018 and are using it in teaching, especially in food science, nutrition, and dietetics.
- Food processing SMEs trained on food composition for use of the food composition tables in food labelling.
- The data has been used in the development of national policies and programmes such as the school meal programme.
- Implementing partners have used them to develop projects and to determine nutrient-dense foods to promote in their projects.
- Health facilities and community-level training personnel have used the tables in nutrition education.

Key learning

- Continuous investment in food analysis and food composition enables the development of sound data to inform food-related decisions;
- Stakeholders need capacity building support on how to use food composition data in decision-making;
- Data should be packaged in simple nutrition messages that the general population can understand.

Implementing partners: Ministry of Health, Kenya Agricultural and Livestock Research Organization (KALRO) and FAO
Financial partners: FAO

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CASE STUDY 25- FFS

Title: Integrating Nutrition Education and Awareness into Farmer Field School (FFS) Programmes

Implementing Organization: Food and Agriculture Organization of the United Nations (FAO)

Project duration: 2020-2023



**Food and Agriculture
Organization of the
United Nations**

Context

The Kalobeyei Integrated Settlement was opened in Turkana County Kenya in 2016 to promote the integration of refugees and the host population. The Kalobeyei Integrated Socio-Economic Development Plan (KISED), led by the Government of Kenya, UNHCR, and partners, is the model used to offer integrated market-based self-reliance opportunities for Kalobeyei (Betts et al., 2019). The three-year project was funded by the European Union and implemented in collaboration with UNHCR, WFP, and the Government of Kenya. Through Farmer Field Schools (FFS), households improved their knowledge, skills, and attitudes on food production, nutrition, and change in practices.

In 2016, the Kalobeyei Integrated Settlement was inaugurated in Kenya's Turkana County to facilitate the integration of refugees and the local population. The Kalobeyei Integrated Socio-Economic Development Plan (KISED), led by the Government of Kenya, UNHCR, and partners, is the model used to provide Kalobeyei with opportunities for integrated market-based self-reliance (Betts et al., 2020). The European Union funded and implemented the three-year project in collaboration with UNHCR, FAO, WFP, UN-HABITAT and the Kenyan government. By taking part in hands-on learning activities at Farmer Field Schools (FFS), both refugees and host community households greatly improved their knowledge, skills, and attitudes about food production, nutrition and hygiene, and eating a variety of foods.

The overall project intervention was to build among the refugees and host communities in Kalobeyei a sense of self-reliance in food and nutrition security. FAO and Turkana County departments of Agriculture, Livestock Production, and Health worked together to implement nutrition-sensitive interventions through the FFS approach. The project also focused on strengthening the application of Social and Behaviour Change Communication (SBCC) strategies to contribute to the improvement of kitchen gardening, nutrition-sensitive retail engagement, and complementary food safety and quality.

The overall objective of the project was to instill in the refugees and host communities of Kalobeyei a sense of food and nutrition security and independence. FAO and the Turkana County departments of Agriculture, Livestock production, and Health collaborated to implement nutrition-sensitive FFS interventions. The project also wanted to improve how Social and Behaviour Change Communication (SBCC) strategies are used to improve kitchen gardening, nutrition-sensitive retail engagement, and the safety and quality of supplementary foods. This was accomplished by incorporating nutrition education into the project's agronomy, livestock development, agribusiness, and cross-community learning activities. In addition, nutrition facilitators were linked to market suppliers of agricultural commodities so that they could provide essential commodities for improving household and community nutrition.

Methodological approach

Nutrition-sensitive component of the project:

Implementation of nutrition-sensitive farmer field schools which integrated nutrition education, promotion in the diversification of production, household food preparation, hygiene, and improved behaviour towards healthy diets.

Step-by-step implementation:

- The approach began with assessing community needs, i.e., food, income, nutrition status, environmental challenges, crops and livestock factors of production, and extension systems. Other areas assessed are livelihoods with significance given to nutrition, social beliefs and practices, community organization and cultures.
- Guidelines for selecting community agents to be trained as nutrition and Farmer Field School facilitators were developed jointly by the government and partners.
- During the training of facilitators, the nutrition content was integrated with the FFS training curriculum.
- Upon return from the initial training, nutrition and FFS facilitators developed a joint community sensitization programme to select and register community members in Farmer Field School groups.
- During action planning, the facilitators ensured that the nutrition aspect fitted in the long season learning programmes for the FFS groups.
- Training manuals for facilitators were developed through consultative sessions with government departments.
- Nutrition and FFS facilitators were also trained on Participatory Monitoring and Evaluation (PM&E) to strengthen objectivity in planning, community projects performance management, and reporting.
- The approach begins with the evaluation of community requirements, such as food, income, nutrition status, environmental challenges, crop and livestock production factors, and extension systems. Other areas evaluated include means of subsistence, with a focus on nutrition, social beliefs and practices, community organization, and cultures.
- The government and its partners developed guidelines for selecting community agents to be trained as nutrition and Farmer Field School facilitators.
- During facilitator training, the nutrition module was added to the FFS training curriculum, and synergies and complementarities with agronomy, livestock development initiatives, and facilitation skills approaches identified and explored.
- After completing the initial training, the nutrition and FFS facilitators developed a joint community sensitization programme to select and register community members for Farmer Field School groups.
- Facilitators ensured that the nutrition aspect was incorporated into the FFS groups' season-long learning programme during action planning. As a result, beneficiaries were able to learn, produce and utilize different crop varieties and livestock based livelihoods for purposes of improving their nutrition well-being in both wet and dry season of the year.
- Through consultations with government departments, nutrition facilitator training manuals were developed and distributed. The manuals are used to reach a large number of individuals who continue to benefit from practical training and experiential learning on nutrition.
- Nutrition and FFS facilitators received training on Participatory Monitoring and Evaluation (PM&E) to enhance objectivity in planning, performance management, and reporting for community projects.

Results and impact:

- The establishment of demonstration plots at Community Farms and Health Centres managed by FFS groups empowered households to produce nutrient-dense foods and participate in dietary diversification campaigns on food production, processing, preservation, storage, and healthy food consumption.
- Farmer Field Schools increased the number of households benefitting from nutrition intervention by 100 percent from 2,000 in the first phase of the project to 4,000 in the next phase. This was a crucial achievement of integrating nutrition in farmer groups, learning, and training methodologies.
- Government agri-nutrition programmes in the community were quickly disseminated and coordinated because of the integration of nutrition in agriculture;
- Different refugee nationalities and host community members are working together through Farmer Field Schools and Cooperatives. This has improved integration between refugees and the host community, which has resolved conflicts that emerge among the two groups.
- The establishment of demonstration plots at Community Farms and Health Centres managed by FFS groups enabled households to produce nutrient-dense foods and participate in dietary diversification campaigns on food production, processing, preservation, and healthy food consumption.
- Farmer Field Schools increased the number of households benefitting from nutrition intervention from 2,000 in the first phase of the project to 4,000 in the next phase (100 percent increase). This was a significant accomplishment of integrating nutrition into farmer groups, learning, and training methodologies.
- Government agri-nutrition programmes in the community were rapidly disseminated and coordinated through the use of the FFS methodology and nutrition facilitators. Integrating nutrition into agriculture enabled farmers to cultivate and sell high-value crops. This practice improves household access to nutrient-dense agricultural products on the farm and in the marketplace.
- Refugees and host community members are collaborating through Farmer Field Schools and Cooperatives. This has enhanced integration between refugees and the host community, thereby resolving any resulting conflicts between the two groups.

Challenges

- The dietary preferences in some of the refugee and host communities were limited, reducing the levels of diet diversification. For instance, host community pastoralists prefer meals with livestock products than with vegetables.
- For nutrition training, the lack of funds to sustain foodstuffs for practical sessions was a challenge. However, households contributing the required foodstuffs for practical training was a more sustainable approach. During good harvest seasons, mobilization of foodstuffs from beneficiaries for practical purposes was made possible.
- On restricted dietary preferences, Social and Behaviour Change Communication (SBCC) strategies, along with on-going training and exposure, are increasing household food preference among refugees and the host community. After learning the nutritional benefits of various foods, many households are cultivating unfamiliar crops and consuming foods they previously disliked. This is a shift in dietary diversity caused by nutrition education and training.
- The inability to purchase food for practical nutrition training sessions due to a lack of funds posed a challenge. Nevertheless, it was more sustainable for households to provide the necessary food items for practical training. During times of bountiful harvest, beneficiaries' food could be mobilized for practical purposes. Currently, FFS groups mobilize their locally available goods to educate indigent households on nutrition, food handling, preservation, and utilization.

Sustainability

- Strengthening the economic capacities of households and groups enables them to manage their livelihoods well, use production and household resources to support nutrition training sessions, diversify their livelihoods, and make use of the available market opportunities to improve incomes.
- The ways of life of the refugees, host populations, special and vulnerable groups include their cultural activities, staple foodstuffs, preparation of meals, and hygiene standards. Understanding these will help identify areas for social change to facilitate uptake of nutrition knowledge and adoption of practices.
- Strengthening the economic capacities of households and groups allows them to effectively manage their livelihoods, utilize production and household resources to support nutrition training sessions, diversify their livelihoods, and take advantage of market opportunities to increase their incomes.
- The lifestyles of refugees, host populations, and vulnerable and special groups include their cultural activities, staple foods, meal preparation, and hygiene standards. Understanding these will aid in identifying areas in need of social change in order to facilitate the adoption of nutrition knowledge and practices.

Key learning

- Farmer associations are effective in disseminating nutrition knowledge and skills to their members. Farmer Field School (FFS) methodology efficiently delivers nutrition education among farmers and facilitates practical learning at the farm and household levels;
- Development agencies are working together with government departments, especially Agriculture, Livestock production, and Health, which are vital in realizing community projects;
- Linking nutrition facilitators with crop and livestock value chains traders increases awareness of nutrition among agripreneurs, making them consider trading highly nutritious and safe products for consumers;
- There is a need for continuous Social Behaviour Change Communication for nutrition to improve attitudes and practices towards proper family nutrition.
- Associations of farmers are effective at disseminating nutritional knowledge and skills to their members. Farmer Field School (FFS) methodology efficiently delivers nutrition education to farmers and facilitates farm- and household-level experiential learning.
- Development agencies are collaborating with government departments, especially the county departments of Agriculture, Livestock production, and Health, which are crucial for food, income, and nutrition security in the community.
- Connecting nutrition facilitators with crop and livestock value chain traders increases the awareness of nutrition among agripreneurs, prompting them to consider trading highly nutritious and safe foods for consumers.
- Continuous Social and Behaviour Change Communication for nutrition is required to improve attitudes and practices regarding proper family nutrition.

Financial partners: European Union
Implementing partners: Turkana county government, UNHCR, WFP, FAO

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CASE STUDY 26- POLICY ADVOCACY

Title: Advocacy and Policy Engagement for Nutrition - Establishment of a Parliamentary Caucus for Nutrition in Kenya
Implementing organization: Scaling Up Nutrition - Civil Society Alliance
Project duration: 2020-2021



Context

The Constitution of Kenya article 43 (1) gives every person the right to the highest attainable standard of health, freedom from hunger, and access to adequate food of acceptable quality. The government is committed to creating an enabling environment for citizens to realize these rights as evidenced in the Vision 2030, Kenya Health Policy (2014–2030), and the national Food and Nutrition Security Policy, 2012. The Kenya Health Policy (KHP) and the Food and Nutrition Security Policy (NFNSP) outline some of the key measures the government will put in place for realization of Vision 2030.

Under the leadership and coordination by Nutrition International, the SUN CSA has provided an unprecedented opportunity to build varied levels of political leadership and commitment to address under nutrition in Kenya. These includes realignment of in country institutional arrangements necessary for SUN and increased support for implementation of newly formulated nutrition action plans at national and sub-national level. National multi-sector coordination platforms have been established to strengthen an enabling environment to address under nutrition. Relevant legislation has been enacted with increased investments in domestic and external resources for nutrition.

Mobilization of the Kenya parliamentary caucus on nutrition is an initiative of the advocacy and policy engagement initiative that was funded by UNOPS under the SUN pooled fund and implemented by the Scaling Up Nutrition – Civil Society Alliance (SUN CSA), between May 2020 and January 2021 in a consortium with Nutrition International, Action Against Hunger, UNICEF and GAIN.



Figure 15: Health Committee and Members of Parliamentary caucus for Nutrition

Steps in establishing the Caucus

1. Identification of the policy/legislative gaps: A landscape analysis of the existing policies/bills that support or hinder the implementation of nutrition in the country and the status of implementation was done.

The Parliamentary Caucus for Nutrition

Parliament plays a critical role in legislation and budgeting, and offers oversight over the executive in line with Article 221 of the Constitution. Parliamentarians can serve as nutrition champions to accelerate commitment to nutrition, ensure nutrition remains a priority agenda at national and county levels, and disseminate nutrition information at the community level.

Members of the Nutrition Caucus are drawn from both National assembly and senate. Some of the members are also members of various house committees like Health committee, Budget Committee and Agriculture committee which are very critical in supporting nutrition in Kenya.

The goal of the caucus: To bring like-minded and interested members of parliament and stakeholders together to discuss legislative gaps, budget gaps and, programme implementation gaps that hinder the achievement of optimal nutrition.

Objectives

- Integration of nutrition into development strategies across all sectors. Inclusion of nutrition in policy proposals, adoption, funding, and implementation;
- Shifts in social norms: Knowledge, attitudes, values, and behaviours that comprise the normative structure of culture and society;
- Increased funding for nutrition interventions from government and external sources and enhanced capacity for strategic planning and implementation of nutrition actions;
- Strengthened coordination: Alliances among partners may vary in levels of coordination, collaboration, and mission alignment and can include non-traditional alliances.
- Ratification of Caucus - attach or make reference to the letter from the speaker

2. Budget analysis and financial tracking for nutrition: Regional and county level budget analysis and financial tracking for nutrition to identify financial and accountability gaps was undertaken.
3. Development of a concept note on the need for parliamentary caucus/ justification.
4. Identification of a focal parliamentarian for nutrition-related matters: Several meetings with MPs from the national assembly and senate were held to identify a willing and self-driven MP who would be able to mobilize other MPs to participate in nutrition-related activities and sensitization.
5. Mobilization of Members of Parliament (MPs): The focal person in parliament supported the mobilization of MPs for the initial meeting to discuss the nutrition situation in the Country and introduce the importance of focusing on nutrition and disseminate some nutrition materials.
6. Formation of Parliamentary Caucus for Nutrition: SUN CSA developed a concept and programme that were agreed upon by stakeholders and the focal parliamentarian.
7. Capacity development approaches applied in this process: There were virtual and in-person sensitization sessions held for the MPs who also received nutrition-related training materials.

Results and impact:

The engagement process is still ongoing therefore none was recorded yet.

- Members of Parliament were engaged in the lead up to UN Food systems summit. Parliamentarians gave two commitments to further food systems. (i). Engage more with relevant parliamentary committees such as Finance, Education, Health and Agriculture to champion the nutrition agenda and (ii) Identified four champions to join the SUN nutrition champions to further engage in matters nutrition.
- Engaged members of Parliament towards Nutrition for Growth (N4G). We held a 3-day retreat with them out of which they made 11 long term commitments towards ensuring that nutrition is made a priority in the country.
- We have witnessed increased conversation in Parliament on issues related to Breast Feeding where Parliament have established a breastfeeding room. This has encouraged other government parastatals (National construction Authority, Communications Authority of Kenya and Kenya Railways) and Del Monte to establish breastfeeding rooms.



Hon Zuleikha Hassan giving speech during launch of lactation room at Communication Authority of Kenya. She is the chair of Parliamentary caucus for Nutrition.



Hon Zuleikha Hassan and Hon Millie Odhiambo during launch of lactation room at Communication Authority of Kenya. Both are members of Parliamentary Caucus for Nutrition.

Challenges

- Mobilization of members of parliament and other high-level decision-makers is not easy because of their competing tasks and interests. Their tight and unpredictable schedules do not allow for engagement of more than 3 hours at a time
- Resources to have a retreat with the MPs have not yet been secured
- Nutrition legislation is time-consuming
- Participation in the caucus is voluntary with no direct benefits to the MPs and therefore, keeping MPs interested in the nutrition cause is a challenge.

Key learning

- Identify an MP who is enthusiastic about nutrition and understands the role of nutrition to lead the process
- Use the identified MP to help mobilize other like-minded MPs
- Develop materials and organize sessions to strengthen the capacity of MPs to understand the role of nutrition in growth and economic development
- Consider identifying nutrition champions from the onset during the induction of new MPs
- Consider a framework to institutionalize the nutrition caucus in parliament.



Engagement of members of Parliamentary Caucus for Nutrition towards commitment for Nutrition for Growth.

Donor: Scaling Up Nutrition -Civil Society Alliance (SUN CSA)

Implementing agency: Nutrition International, Action Against Hunger, UNICEF and GAIN

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CASE STUDY 27- RESOURCE MOBILIZATION

Title: Advocacy and Policy Engagement for Nutrition – Domestic Resource Mobilization for Nutrition in Kenya

Implementing organization: Nutrition International & Scaling Up

Nutrition - Civil Society Alliance (SUN CSA)

Project duration: 2013- Ongoing



Background:

Kenya has made significant commitments to respond to the burden of malnutrition. Government priorities reflect a shift from the hitherto existing focus on infrastructural responses to health and nutrition. The vision is to ensure that all Kenyans are food secure by the year 2022. The Food Security bill (2014) obligates national and county governments to promote childhood nutrition to the extent of their mandate as set out under the constitution. Kenya transitioned to the devolved system of governance with 47 autonomous counties in 2013. With considerable budgetary autonomy in determining how they plan, budget, allocate, and spend funding from national government transfers as well as locally raised revenue, county governments have a critical role in the success of nutrition programmes. County governments are also responsible for translating national nutrition and health policies and strategies into county priorities and plans.

The Kenya Nutrition Action Plan (KNAP) 2018–2022 is a costed multisectoral plan that identifies nutrition interventions to be implemented by various sectors, coordination framework, a monitoring and accountability framework with targets aligned with WHA and SDA commitments. Aligned with KNAP, 28 counties have been supported by CSA and partners to develop County Nutrition Action Plans (CNAPs) 2019–2023. The CNAPs identifies and costs context specific nutrition interventions across sectors creating a framework for resource mobilization (RM) at sub-national level where implementation happens.

SUN CSA has supported resource Mobilization (RM), targeting not only donors but also national and county government institutions. Advocacy and RM activities target policymakers, planners, and decision-makers in relevant sectors, including health, agriculture, social protection, and education among others. The focus is on consolidating information on sources of funding for nutrition, establishing baseline funding levels, addressing fragmentation of resources, facilitating effective use of available resources and advocating for increased budget allocation to nutrition.

National level: Resource Mobilization for nutrition at the national level started in 2013 and was led by the government’s Scaling Up Nutrition (SUN) Focal Point and the SUN Secretariat, supported by the national SUN Advisory Committee.

Combating malnutrition requires multisectoral approach from government and donors. The government allocated funding through various sectors such as: school health and school meal programmes under the Ministry of Education; agriculture-nutrition activities under the Ministry of Agriculture; and nutrition actions under the Nutrition Division of the Ministry of Health, however the development partners and donor commitments were predominantly for nutrition specific actions. The projects were designed and implemented in collaboration with

the government and partnering organizations.

Subnational level: The CNAPs were used to estimate required budget envelopes across sectors, coordination frameworks for improving efficiencies in resource utilization. Nutrition investments cases and policy briefs were used to sensitize key legislators and government policymakers on the benefits of investing in nutrition. This was the first time that the SUN CSA and SUN partners were systematically advocating for and promoting the establishment of specific nutrition budget lines and allocations at the county level, quantifying a baseline figure for each county, and starting a system for monitoring funding and use of the funds.

Methodological approach

Nutrition-sensitive components of the project:

As a result of these efforts by the government and SUN CSA partners, 23 counties have developed their CNAPs. Of those 23 counties, 22 counties have already launched their plans, all of which have committed to increasing government resources for nutrition-specific and nutrition-sensitive programmes.

The 23 counties were: 1. Busia 2. Isiolo 3. Kakamega 4. Elgeyo Marakwet 5. Kajiado 6. Kwale 7. Makueni 8. Nairobi 9. Nandi 10. Vihiga 11. Narok 12. Tharaka Nithi 13. Nyeri 14. West Pokot 15. Murangá 16. Bomet 17. Embu 18. Kiambu 19. Nakuru 20. Wajir 21. Mandera 22. Marsabit 23. Samburu

These efforts were supported by Nutrition International in Busia, Vihiga, Makueni, Kiambu, Embu, Murang'a, Nakuru, Bomet, Kajiado, Elgeyo Marakwet and Nandi . Through a matching fund modality 11 county governments have committed to financing nutrition to the tune of KEST. 490 million (approximately US\$4.9 million) for three years, creating clear budget lines to track nutrition expenditure managed under a special purpose account for nutrition.



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*Launching of Kiambu CNAP in the presence of Governor Dr James Nyoro***Methodological approach**

The following steps were developed by Nutrition International to guide the process Support development of the Kenya National Nutrition Action Plan.

- Support development of County Nutrition Action Plans: The SUN CSA and Nutrition International supported the development of county-level plans based on the national plan, ensuring evidence-based interventions and county priorities were observed;
- Development of county investment cases: The SUN CSA and Nutrition International supported the development of county advocacy tools to help in sensitizing policymakers to support in mobilizing resources at the county level.
- Advocacy efforts/ sessions with policymakers and members of parliament: The SUN CSA and Nutrition International had several meetings/advocacy sessions with governors (County executive), members of the county assembly, and departments of finance at the county level to ensure the local plans were funded;
- Development and negotiation of matched funding arrangements with counties reflected in financing agreement.

Results and impact:

While the engagement process remains ongoing, there are highlights as follows:

- Counties have committed over USD 5 million towards nutrition interventions, mainly on nutrition-specific interventions.
- Nutrition champions have been selected from the county assemblies and gubernatorial offices to promote nutrition at various levels.
- Three counties (Vihiga, Isiolo and Kajiado) are in the process of developing nutrition bills to support the institutionalization of nutrition financing.



Launching of Murang'a CNAP

Challenges

The following challenges were identified during Kenya's RM efforts:

- Limited funding to support SUN work at the national level.
- Slower launch progress of county CNAPs and advocacy events due to COVID-19.
- Lack of an active SUN Donor Convener at the moment, which has slowed down Resource Mobilization efforts for nutrition at the national level.



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Round table discussion with Kajiado team led by Governor Joseph Jama Ole Lenku on Domestic Resourcing for Nutrition.



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Round table discussion with Kajiado team led by Governor Joseph Jama Ole Lenku on Domestic Resourcing for Nutrition.

Key learning

The following factors are some of the keys to Kenya's success in nutrition resource mobilization:

- Kenya's strong dedication to the devolution of administrative, political and financial power to subnational levels also extends to respective policies, regulations, and capacity support
- there is continued attention to nutrition matters by the government at national and county levels, combined with recent commitments to acceleration
- there are national-level strategic documents (multisectoral KNAP), which can be contextualized for the subnational level
- there is the presence of an active and well-coordinated Civil Society Alliance, with strong technical and facilitation support, skills, and a focus on advocacy efforts
- there is opportunity for county governments to seek matching grants by partners (such as Nutrition International) to complement county government efforts, in addition, to support grants available from various partners.

Donor: FCDO, Gov. of CANADA and UNOPS
Implementing agency: Nutrition International,
Scaling Up Nutrition -Civil Society Alliance (SUN
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CASE STUDY 28-NSA INDICATORS

Title: Monitoring and Evaluation of Nutrition-Sensitive Agriculture programmes: The Case of the Accelerated Value Chain Development (AVCD) Programme

Implementing organization: International Livestock Research Institute (ILRI) in partnership with other Consortium of International Agricultural Research (CGIAR) centres

Project duration: 2015-2021



Context

The Accelerated Value Chains Development (AVCD) programme was funded by Feed the Future (FtF) initiative of the United States Agency for International Development (USAID) for 5 years 9 months (between 2015 and 2021) to implement nutrition-sensitive interventions in 21 counties in Kenya. The AVCD programme was implemented by a consortium of CGIAR centres which included: International Crops Research Institute for Semi-Arid Areas Tropics (ICRISAT), and the International Potato Center (CIP), under the leadership of ILRI. It focused on four value chains and their respective commodities. The value chains were livestock, dairy, root crops (Orange-Fleshed Sweet Potato and Potato) and drought-tolerant crops (groundnuts, finger millet, pearl millet, pigeon pea, cowpea, and green gram). The aim was to contribute towards the reduction of poverty through inclusive agricultural growth, enhanced resilience and improvement of nutrition in counties in Kenya. In the latter case, there were three areas of focus namely, production, income and women's empowerment.

The nutrition goal of the programme was to improve the nutrition of women of reproductive age (15-49 years) and children below 2 years of age (0-23 months) through:

- i) Consumption of safe nutritious diets;
- ii) Promotion of appropriate infant and young child feeding practices in the AVCD intervention sites.

Monitoring and evaluation of the nutrition-sensitive indicators

- Outcome and output indicators were collected for programme monitoring.
- The continuous monitoring tool was developed in a consultative process with government counterparts and other key partner organizations implementing NSA in the counties. This data was collected from the caregivers/mothers of children 0-23 months through Community Health Volunteers (CHVs) then to Community Health Extension Worker (CHEW) then to Sub-County and county Nutritionist and finally to AVCD Monitoring System.
- Quarterly meetings were held with CHVs, CHEWS, nutritionists, and home economists to discuss challenges, as well as review and improve the quality of the data and messaging.
- Annual project surveys at household level were conducted during the same month in each year (in order to address seasonality variations).
- Households were randomly selected through a two-stage stratified random sample design. Beneficiaries were clustered by county and type of intervention, then random sampling was conducted to identify the households from which to collect data.

• Tools were developed and pretested, pretesting was conducted in the project counties but in areas where data collection would not be done. The FAO tool was adapted and used to collect consumption data through a 24-hour dietary recall from household members. Similarly, practices on infant and young child feeding and care were also collected. Indicators collected and respondents interviewed were as follows:

Indicator	Respondent	What it measured	What it informed AVCD
Minimum dietary diversity for women (MDD-W)	Women of reproductive age (WRA) aged 15-49 years	The proportion of women who consumed food items from at least five out of the ten defined food groups the previous day or night.	A proxy indicator for higher micronutrient adequacy, one important dimension of diet quality.
Minimum dietary diversity for children (MDD-C)	Mothers/primary caregivers of children 6-23 months of age	The proportion of children 6-23 months of age who have consumed at least four out of seven pre-defined food groups the previous day or night.	It is an indicator of a diet's micronutrient adequacy, an important dimension of its quality.
Household dietary diversity (HDD)	Mother of the household/responsible for meal preparation.	Food consumption at household level The socio-economic status of the household.	A proxy measure of household food access

Data analysis

The collected data was analyzed using the standardized approach by FAO (<https://www.indikit.net/document/4-guidelines-for-measuring-household-and-individual-dietary-diversity>).

• To calculate **Minimum Dietary Diversity for Women (MDDW)**, the foods consumed by women of reproductive ages were grouped into 10 specific groups to know the proportion of



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women who consumed 5 out of 10 of the specific food groups. The food groups are: grains, roots, and tubers; pulses; nuts and seeds; dairy; meat, poultry, and fish; eggs; dark leafy greens and vegetables; other Vitamin A-rich fruits and vegetables; other vegetables; and other fruits.

• To calculate **Minimum Dietary Diversity for Children (MDD-C)**, the foods consumed by the children were grouped into 7 specific groups to the proportion of the children who consumed 4 out of the 7 food groups.

• To calculate **Household Dietary Diversity Scores (HDDS)**, the foods were grouped into 12 selected foods, and households were assessed according to the number of food groups they consumed. The households were further categorized into quartiles depending on their income levels. The selected foods were: cereals; roots and tubers; vegetables; fruits; meat, poultry, offal; eggs; fish and seafood; pulses, legumes, nuts; milk and milk products; oil/fats; sugar/honey; and miscellaneous.

Results and impacts:

Indicator 1: MDDW

Minimum Dietary Diversity for Women (MDDW)



The graph shows the trends in MDD-W for the Livestock Value Chain component of the AVCD programme in 5 counties in Northern Kenya. There has been a gradual increase in women's dietary diversity score from 2016-2019 with a slight drop in 2020 in which availability and access to nutritious foods were affected by COVID-19.

The project had targeted to achieve 30 percent of the female participants consuming a diet of minimum diversity. The project achieved 53 percent. This surpassed the target by 23 percent.

Indicator 2: MDD-C

Minimum Dietary Diversity for Children



The study assessed the consumption of 7 food groups: Grains, roots, and tubers, legumes and nuts, Dairy products, Flesh foods, Eggs, Vitamin A rich fruits, vegetables, and other fruits.

The mean number of food groups consumed by children between 6-23 months was 2.97.

MDD-children 6-23 months

There was a drop in the children's MDD in 2020 and this is attributed to COVID-19 that distracted access

Indicator 3: HDDS

Household Dietary Diversity Scores (HDDS)

The HDDS measures the adequacy of micronutrients in the diet and reporting the main number of food groups consumed on the previous day by children between 6-23 months. The household dietary diversity is calculated as:

$$\frac{\text{SUM of HDDS}}{\text{The total number of households interviewed}}$$

The total number of households interviewed

The study assessed the consumption of 12 food groups: Roots and Tubers, Cereals, Fruits, Fresh Meat, Eggs, Fish and Seafood, legumes and Nuts, Milk and Milk products, Oils/Fats, Sugar/Honey dark, and others. The mean number of food groups consumed by the interviewed households was 6.15 in 2020

Challenges encountered in monitoring nutrition-sensitive indicators

- The movement of households in the pastoral settings made it difficult to trace beneficiaries for follow up
- Regular physical meetings were costly due to the vastness of the Arid and Semi Arid Land areas- for the case of the livestock value chain
- Getting caregivers in crop farming communities in Western Kenya during planting and weeding seasons was difficult because they prioritized these activities

Sustainability

- Working within existing government structures builds the capacity of the county staff and enhances sustainability, as was the case with ToT training and the use of CHVs to collect data.
- The county government needs to take necessary policy reforms to institutionalize community agri-nutrition messaging through allocating budget to facilitate CHVs stipends. Motivating CHVs would help strengthen and expand agri-nutrition outreaches for improving nutrition outcomes. Also consider recruiting more agriculture extension workers to support in Agri nutrition messaging.

Key learning

- Establishing robust monitoring and evaluation systems within an NSA programme helps to inform all programme components and shows potential interlinkages e.g., an increase in milk productivity in Dairy Value Chain interventions leads to an observed increase in household milk consumption which assumes a potential association with either nutrition education or increased availability or both. There are detailed studies being conducted to inform these assumptions.

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Implementing agency: ILRI and other CGIAR Centres

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ANNEXE 2

Definition of Indicators

- **Access to drinking water:** percentage of households with access to improved drinking water source within or immediately near the household.
- **Access to hygienic sanitation facilities:** percentage of population using an adequate sanitation facility.
- **Breastfeeding indicators:** Frequency, duration, or completeness of breastfeeding.
- **Coping Strategies Index (CSI):** A measure of the severity of the experience of food insecurity and the subsequent local adaptation. It is used to identify vulnerable households and estimate long-term changes in food security.
- **Diarrhoea:** Percentage of children under 36 months with diarrhoea within the previous two weeks.
- **Diversity of crops and livestock produced:** simple count of species produced over the last 12 months (crops, plants and animals);
- **Diversity of food produced on farm:** A measure of availability of diverse nutritious food.
- **Handwashing behaviours:** percentage of child caregivers and food preparers with appropriate handwashing behaviour.
- **Household Dietary Diversity Score (HDDS) :** Household access to and consumption of a variety of foods.
- **Minimum Acceptable Diet (MAD) for children under 2 years:** a combination of standards of (i) dietary diversity (a proxy for nutrient density); and (ii) feeding frequency (a proxy for energy density) by breastfeeding status. It provides a useful way to track progress while simultaneously improving the quality and quantity dimensions of children's diets.
- **Minimum Dietary Diversity Score for Women (MDD-W):** A measure of dietary quality, which reflects overall nutrient adequacy and dietary diversity. It does not reflect adequacy of specific target nutrients.
- **Presence of animals near household:** Indicates risk of environmental enteropathy (i.e- the risk of illness).
- **Prevalence of diabetes type 2:** proportion of individual in the population with diabetes
- **Prices of specific foods in markets:** A tracking of whether specific foods of interest are affordable, such as those promoted by an intervention.
- **Production of target nutrient-rich food:** A measure of availability of specific micronutrient-rich food of interest in farms
- **Stunting:** Height for Age for children less than 5-year age
- **Wasting:** Weight for height for children less than 5-year age
- **Women's control of resources:** The extent to which women control decisions around how income is used. Methodology is not standardized
- **Women's time use and labour:** Percentage of time spent daily in household on paid and nonpaid activities, disaggregated. Division of labour and responsibility within the household.

ANNEXE 3

MDD-W Model Questionnaire

(Adopted from FAO and FHI 360. 2016. Minimum Dietary Diversity for Women: A Guide for Measurement. Rome: FAO. (<http://www.fao.org/3/a-i5486e.pdf>).

Required – Rows A–N (14 rows) will be aggregated during analysis into the ten MDD-W food groups			
	Food categories	Description/examples to be adapted Consult Appendix 2 and replace the example foods below with items commonly consumed in the survey area(s).	Consumed Yes = 1 No = 0
A	Foods made from grains	<i>Porridge, bread, rice, pasta/noodles or other foods made from grains</i>	___ yes (1) ___ no (0)
B	White roots and tubers and plantains	<i>White potatoes, white yams, manioc/cassava/yucca, cocoyam, taro or any other foods made from white-fleshed roots or tubers, or plantains</i>	___ yes (1) ___ no (0)
C	Pulses (beans, peas and lentils)	<i>Mature beans or peas (fresh or dried seed), lentils or bean/pea products, including hummus, tofu and tempeh</i>	___ yes (1) ___ no (0)
D	Nuts and seeds	<i>Any tree nut, groundnut/peanut or certain seeds, or nut/seed “butters” or pastes</i>	___ yes (1) ___ no (0)
E	Milk and milk products	<i>Milk, cheese, yoghurt or other milk products but NOT including butter, ice cream, cream or sour cream</i>	___ yes (1) ___ no (0)
F	Organ meat	<i>Liver, kidney, heart or other organ meats or blood-based foods, including from wild game</i>	___ yes (1) ___ no (0)
G	Meat and poultry	<i>Beef, pork, lamb, goat, rabbit, wild game meat, chicken, duck or other bird</i>	___ yes (1) ___ no (0)
H	Fish and seafood	<i>Fresh or dried fish, shellfish or seafood</i>	___ yes (1) ___ no (0)
I	Eggs	<i>Eggs from poultry or any other bird</i>	___ yes (1) ___ no (0)
J	Dark green leafy vegetables	<i>List examples of any medium-to-dark green leafy vegetables, including wild/foraged leaves</i>	___ yes (1) ___ no (0)
K	Vitamin A-rich vegetables, roots and tubers	<i>Pumpkin, carrots, squash or sweet potatoes that are yellow or orange inside (see Appendix 2 for other less-common vitamin A-rich vegetables)</i>	___ yes (1) ___ no (0)
L	Vitamin A-rich fruits	<i>Ripe mango, ripe papaya (see Appendix 2 for other less-common vitamin A-rich fruits)</i>	___ yes (1) ___ no (0)
M	Other vegetables	<i>List examples of any other vegetables</i>	___ yes (1) ___ no (0)
N	Other fruits	<i>List examples of any other fruits</i>	___ yes (1) ___ no (0)

Other food categories, not included in construction of MDD-W

Optional; inclusion to be determined by survey designers during adaptation process			
	Food categories	Description/examples to be adapted Consult Appendix 2 and replace the example foods below with items commonly consumed in the survey area(s).	Consumed Yes = 1 No = 0
O	Insects and other small protein foods	<i>Insects, insect larvae/grubs, insect eggs and land and sea snails</i>	___ yes (1) ___ no (0)
P	Red palm oil	<i>Red palm oil</i>	___ yes (1) ___ no (0)
Q	Other oils and fats	<i>Oil; fats or butter added to food or used for cooking, including extracted oils from nuts, fruits and seeds; and all animal fat</i>	___ yes (1) ___ no (0)
R	Savoury and fried snacks	<i>Crisps and chips, fried dough or other fried snacks</i>	___ yes (1) ___ no (0)
S	Sweets	<i>Sugary foods, such as chocolates, candies, cookies/sweet biscuits and cakes, sweet pastries or ice cream</i>	___ yes (1) ___ no (0)
T	Sugar-sweetened beverages	<i>Sweetened fruit juices and "juice drinks", soft drinks/fizzy drinks, chocolate drinks, malt drinks, yoghurt drinks or sweet tea or coffee with sugar</i>	___ yes (1) ___ no (0)
Required			
	Food categories	Description/examples to be adapted Consult Appendix 2 and replace the example foods below with items commonly consumed in the survey area(s).	Consumed Yes = 1 No = 0
U	Condiments and seasonings	<i>Ingredients used in small quantities for flavour, such as chillies, spices, herbs, fish powder, tomato paste, flavour cubes or seeds</i>	___ yes (1) ___ no (0)
V	Other beverages and foods* <i>(optionally, specify if not listed)</i>	<i>Tea or coffee if not sweetened, clear broth, alcohol</i> <i>Pickles, olives and similar</i> _____	___ yes (1) ___ no (0)

*If rows O, P, Q, R, S and/or T are not included, examples for the "Other beverages and foods" category must be expanded to include these types of items.

The final two rows ("Condiments and seasonings" and "Other beverages and foods") should always be included on the questionnaire.

ANNEXE 4

Draft Training Programme

AGRI-NUTRITION IMPLEMENTATION STRATEGY DISSEMINATION AND NUTRITION-SENSITIVE AGRICULTURE TRAINING

DATE / TIME	SESSION	RESPONSIBLE	FORMAT
MONDAY			
8:30-9:00	Registration and welcoming the participants		Registration
9:00- 9:10	Setting the scene		Discussion
9:10-9:20	Opening remarks		Remarks
9:20- 10:30	ANIS dissemination Introduction to Agri - Nutrition implementation strategy (ANIS)		Presentation
10:30-11:00	Health Break		
11:00 - 12:30	Presentation on ANIS		Presentation
12:30-13:00	NSA Training Introductory quiz and presentation of quiz results		Presentation/Online
13:00-14:00	Lunch break		
14:00 - 14:45	Session 1: Introduction to NSAFS • Definitions of key concepts		Presentation
14:45 - 15:00	Sustainable healthy Diets		
15:00 - 15:30	Food and nutrition situation in Kenya, food and nutrition policies		Presentation
15:30 - 17:00	Session 2 Nutrition situation analysis • Introduction • Agreeing on causes of malnutrition for joint action-problem and solution trees • Link Nutrition Causal Analysis		Presentation
17:00pm	End of day		
TUESDAY			
0830 - 10.30	Group work: • Building a problem tree by livelihood group (1hour min) • Building a solution tree (15 min)		Group discussion
10:30 - 10:45	Health break		
10.45 - 11.45	Feedback from group exercise		Presentation

11:45-12:30	Session 3: Food and nutrition policy landscape and governance <ul style="list-style-type: none"> • International and regional nutrition architecture • Food security and nutrition policy framework • Food and nutrition governance. 		
12:30 - 13:15	Session 4: Transforming Agriculture and Food systems for better Nutrition Outcomes: <ul style="list-style-type: none"> • Agriculture to Nutrition Pathways + case studies • Gender considerations for nutrition sensitive programming + case studies 		Presentation
13:15-14:15pm	Lunch break		
14:15-14.45	Key recommendations for improving nutrition through agriculture and food systems		Presentation
14:45 - 15.15	Session 5: Selected nutrition sensitive interventions <ul style="list-style-type: none"> • Dietary diversification, Recipe Development and Meal Planning • Case study 		Presentation
1515 - 1545	Food fortification and bio-fortification + case studies		
1545 - 1615	Nutrition education and behavior change + case studies		Presentation
17:00	End of day		
WEDNESDAY			
08:30-8:45	Combined day 1 and 2 Recap	Participants	Presentation
08:45 - 0930	<ul style="list-style-type: none"> • School food and nutrition • Do no Harm • Case studies 		Presentation
0930 - 10:30	Session 6: Options of interventions: <ul style="list-style-type: none"> • Crop production • Indigenous food systems • Case studies • Presentation 		
1030 - 1045	Health break		
10:45 - 1200	<ul style="list-style-type: none"> • Livestock Production • Food and feed safety • Postharvest, Food Processing and preservation • Linking research to development • Case studies 		

1200 - 1230	<ul style="list-style-type: none"> • Fisheries and aquaculture + case study 		
1230 - 1330	Cross cutting themes: <ul style="list-style-type: none"> • Value chain, trade and marketing + case study 		Presentation
13:30-14:30	Lunch Break		
14:30 - 1530	<ul style="list-style-type: none"> • Social protection programming + case study 		Presentation
1530 - 16:30	<ul style="list-style-type: none"> • Resilience • Linking relief/humanitarian and development • Case study 		Virtual Presentation
17:00	End of Day		
THURSDAY			
8:30-8:45	Recap of Day 3		Presentation
0845 - 10.00	<ul style="list-style-type: none"> • Farmer Field Schools methodology + case study 		
10:00-10:30	Health Break		
1030 - 1145	<ul style="list-style-type: none"> • Documenting good practices • Case study: NSA manual Case studies in as a case study) 		Presentation
11:45- 13:00	Session 7 Nutrition governance and advocacy, Budgeting and Resource mobilization		
13:00-14:00	Lunch Break		
14:00 -15:00	Session 8: Tracking progress and measuring outcomes <ul style="list-style-type: none"> • Basic concepts for monitoring and evaluation 		Presentation
15.00 - 16:30	<ul style="list-style-type: none"> • Key nutrition sensitive agriculture indicators - group work 		Group work
17:00	End of Day		
FRIDAY			
8:30-8.45	Recap of day 4		Presentation
08:45-09:45	<ul style="list-style-type: none"> • Feedback from group work 		
09.45 - 11.00	<ul style="list-style-type: none"> • Indicators for monitoring and evaluating nutrition in agriculture and food systems programmes and interventions • Key considerations for selecting nutrition sensitive agriculture indicators 		Presentation
11:00-11:30	Health break		
11.30 - 1230	Session 9: Concrete actions to strengthen NSA for each county - Group work		Group work
12.30 - 13.00	Feedback from group work		

1300 - 1400	Lunch		
14.00 - 15.00	<ul style="list-style-type: none">• Post workshop quiz and Evaluation• Presentation of quiz results		
13:00	Workshop Closure: XXXXX		

ANNEXE 5

Technical Review Team

Organization	Members
FAO	Angela Kimani (co-lead) Irene Kimani (co-lead) Angela Theuri Kama Chepe
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Partners

REPUBLIC OF KENYA

