



# Improving Nutrition through Agriculture and Food Systems

## Making agriculture and food systems nutrition-sensitive: key interventions

Text-only version

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## Learning objectives

By the end of this lesson you will:

- identify key entry points for "nutrition-sensitive" intervention areas in agriculture and the food system; and
- provide concrete country examples of nutrition-sensitive programmes and policy measures.

## Introduction

How can we put into practice the Key Recommendations for improving Nutrition through Agriculture and Food systems?

A broad range of nutrition-sensitive food and agriculture are implemented around the world.

## Nutrition-sensitive interventions

The following interventions have a great potential for supporting nutrition

<i>Intervention areas</i>	<i>Actors</i>
➡ <b>Food waste reduction</b>	Our supermarket donates unsold foods to charities and food banks.
➡ <b>Nutrition education</b>	In our women's group, we learn how to prepare cheap and nutritious complementary meals for our babies using our local foods.
➡ <b>Biofortification</b>	In our research station, we breed to improve the levels of nutrients in cereals and other staple crops.
➡ <b>Trade for nutrition</b>	Our tariff structure facilitates import and export of nutritious foods in the region.
➡ <b>Food quality, safety &amp; hygiene</b>	In our restaurant, we are regularly visited by inspectors to ensure compliance with national safety standards.
➡ <b>Biodiversity for nutrition</b>	In our community, we gather and grow a diversity of traditional varieties of crops and plants, which are highly nutritious.
➡ <b>Value chains for nutrition</b>	We want to prevent nutrient loss at each step of our value chain and to adapt our business strategy to make sure that

	our nutritious products reach low-income consumers.
➡ <b>Social protection for nutrition</b>	I benefit from a cash transfer program and receive vouchers to buy fresh foods.
➡ <b>Nutrition-sensitive food storage and processing</b>	In my enterprise, we adopt processing, preservation and packing methods that optimize the nutritional qualities of food.
➡ <b>School food and nutrition</b>	At school, we eat meals prepared with locally grown fresh foods.
➡ <b>Urban and periurban agriculture</b>	I grow vegetables with my neighbors on a community land near the city center.
➡ <b>Food fortification</b>	In my country, we add iodine to salt and iron and folic acid to flours.
➡ <b>Income generation for nutrition</b>	I sell part of my groundnut production to buy other foods in order to diversify the household diet.
➡ <b>Women empowerment and gender</b>	Having learnt about labour saving technologies has helped me reduce my workload and spend more time with my children.
➡ <b>Food labeling, marketing and advertising practices</b>	I am working on a policy to regulate labelling of highly processed foods and to ensure that they are not marketed to children.
➡ <b>Promoting healthy diets through food price policies</b>	In our country, extra taxes are applied to ultra-processed foods to discourage their purchase.
➡ <b>Diversification and sustainable intensification of agricultural production</b>	I use mixed crop and livestock farming systems with a special focus on nutrient dense crops.

Each of these interventions consists of a set of policies, investments and programmes. Programmes on the ground will only have a sizable impact when supported by an enabling environment<sup>1</sup>. In other words, the programme and policy sides need to go hand in hand to ensure that the intervention is effective, sustainable and scalable.

<sup>1</sup> **The enabling environment** for food security and nutrition comprises commitments and capacities across a range of dimensions such as policies, programmes and legal frameworks; mobilization of human and financial resources; coordination mechanisms and partnerships; and evidence-based decision making. Source: SOFI 2014

The interventions are organized according to the **functions of the food system and as cross-cutting issues**. However, as you will see, many of them relate to **several functions** and require the engagement of several actors.

<b>Consumer demand, food preparation and preferences</b> <ul style="list-style-type: none"> <li>✓ Nutrition education and behaviour change communication</li> <li>✓ Income generation for nutrition</li> <li>✓ Nutrition-sensitive social protection</li> <li>✓ School Food and Nutrition</li> <li>✓ Nutrition-sensitive humanitarian food assistance</li> </ul>	<p>⇒ <b>Nutrition-sensitive value chains</b></p> <p>⇒ <b>Women's empowerment and gender equality</b></p>	<b>Food production</b> <ul style="list-style-type: none"> <li>✓ Diversification and sustainable intensification of agricultural production</li> <li>✓ Biodiversity for food and nutrition</li> <li>✓ Biofortification</li> <li>✓ Urban and periurban agriculture</li> </ul>
<b>Food trade and marketing</b> <ul style="list-style-type: none"> <li>✓ Trade for nutrition</li> <li>✓ Food marketing and advertising practices</li> <li>✓ Food price policies for promoting healthy diets</li> <li>✓ Food labelling</li> </ul>	<p>⇒ <b>Food loss and waste: prevention, reduction, and management</b></p> <p>⇒ <b>Food quality, safety and hygiene</b></p>	<b>Food handling, storage and processing</b> <ul style="list-style-type: none"> <li>✓ Nutrition sensitive post-harvest handling, storage and processing</li> <li>✓ Food fortification</li> </ul>

**TIP: Do all these intervention areas have a positive impact on nutrition?**



Evidence of nutritional impact for these types of interventions is still being gathered through a growing body of research. Evidence exists of strong potential **positive impact on individual nutritional status** for some interventions (e.g. dietary diversification, nutrition education, point of use fortification, biofortification, fortified complementary foods). For other interventions, such as fruits and vegetables gardens, homestead animal rearing, there is evidence **of positive impacts on key determinants of nutrition**, such as dietary diversity.

In general, available evidence shows that while these interventions can be *necessary* to improve individual nutritional status, they are seldom *sufficient*. For example, an intervention to diversify

food production can improve access to diverse foods but the impact on diet quality may be limited unless accompanied by nutrition education. And the impact of food diversification with nutrition education on individual nutritional status may be limited if poor hygiene and sanitation remain a problem.

Furthermore, effectiveness and thus impact will **depend on the relevance of the intervention** to the local context, the **quality of the design and implementation**, as well as **interactions with existing interventions and policies**. The choice of entry points and interventions will depend on local nutritional needs and diets, and on the agroecological, socioeconomic and cultural context you work in.

## Nutrition-sensitive interventions: case studies

Back from their world tour, Marta and Erik gather with some friends, and tell them what they have seen. Interestingly, all of them have a relevant experience to share.



*I am Ivonete and work for the Ministry of Education in Brazil.*

*I am Venita and work for a humanitarian NGO in Haiti.*

*I am Samuel and work for a development partner in Zambia.*

Case study: **RAIN - Realigning Agriculture to Improve Nutrition (RAIN)** in Zambia.

The project is based on an integrated approach and includes these three main interventions:

- ➡ Diversification of homestead production and rearing small livestock such as goats and chicken, encouraging households to move away from maize monocropping.
- ➡ Nutrition support to mothers on the importance of nutrition in the first 1000 days of a child's life, on how to prepare nutritious meals for their children and other nutrition messages.
- ➡ Gender training for communities, leaders, women's groups and men for creating an environment that respects women especially when they are pregnant and caring for children.



### **A short project background**

The RAIN project, a collaborative effort between Concern Worldwide and IFPRI, aims at preventing child stunting through interventions mainly focusing on agriculture, with strong

linkages to nutrition and health interventions in Mumbwa District, Central Province.

Approximately 5000 households with pregnant women and/or children below the age of two years have been reached. This is an example of program where the main focus is on **household production of nutritious foods for own consumption**.

- ◆ **Women farmers:** organized in groups, they produce vegetables and animal products for household consumption and receive training for specific agriculture and nutrition skills.
- ◆ **Partner NGOs** (Mumbwa Child Development Agency, Women for Change, and Concern Worldwide Zambia) purchase and provide inputs, and lead overall implementation.
- ◆ **Smallholder model farmers (SMFs - usually women):** provide training on agriculture with a focus on vegetable/fruit and small animal production, using their farms as demonstration and training sites.
- ◆ **Community health extension workers:** provide nutrition education.
- ◆ **Partner research institute (IFPRI)** is responsible for the M&E component of the project.
- ◆ **Mumbwa District Nutrition Coordinating Committee** (Ministries of: Agriculture and Livestock, Health, Community Development and Maternal & Child Health, and civil society) promote coordination between officials in the agriculture, health and community development sectors at district level in Mumbwa and then cascading down to extension workers at community levels.

*Main source: Realigning Agriculture to Improve Nutrition. Intersectoral Coordination and Alignment for Nutrition. Project Brief No 3*

### ***What are the three key intervention areas covered by the RAIN project?***

To increase its impact on nutrition, the project has combined a production-related component with nutrition education and gender empowerment. In the future, linkages to markets and to microfinance services will be facilitated as agricultural production increases. This will require leveraging other functions of the food system. An evaluation of the project has also shown that production, nutrition education and women's empowerment alone are not enough to shift stunting, and a bigger focus on other sectors such as water, sanitation and hygiene is needed. This will require working multisectorally to address all determinants of child malnutrition.

### **Case study: ACF Fresh Food Voucher Program - KOUAPON MANGE FRE in Haiti**

The project provided fresh food **vouchers** to 15.000 households in Port-au-Prince and Gonaïves for redemption in four selected markets. The organization also delivered targeted training to various market

agents to ensure adequate supply. The project was implemented alongside other ACF nutrition activities including blanket supplementary feeding, "baby tents" for breastfeeding support, public health promotion and nutrition education. **Objectives** of the project were to:

1. mitigate the risk of undernutrition through improved **access to diversified food and nutrition education**
2. stimulate the **local market**

The following **actors** were involved:

- **ACF** provided to target households vouchers for fresh foods (rich in micronutrients), but also for staple foods (energy), to be spent in 4 selected markets. The organization also delivered targeted training to various beneficiaries/partners, and managed payments to transfer agencies. ACF ensured overall project coordination, implementation and monitoring.
- **Urban households** received vouchers coupled with nutrition education sensitization sessions. A number of households were also involved in an innovative urban garden pilot project to grow fresh foods in urban areas.
- **Traders and retailers** ensured the delivery of fresh fruits and vegetables, and sold those foods in exchange of vouchers. They also received training on food safety management and marketing skills.
- **Local money transfer agencies** acted as financial partners. They redeemed vouchers to vendors (acting as an intermediary with ACF) through dedicated voucher exchange points located near the selected markets.

The project complemented existing humanitarian food and nutrition security responses, including in-kind food distributions.

Main source: ACF (2012) Haiti - Fresh Food Vouchers to strengthen diet diversification and improve resilience. The potential of public-private-civil society partnerships in humanitarian emergencies: an NGO perspective drawing from emergency programming in Port-au-Prince, Haiti. Hanna Mattinen & Julien Morel in UNSCN News 39 - Nutrition and Business. How to Engage? late 2011



Ivonete,  
Venita and

"This is interesting because, instead of setting up a parallel agency-run distribution system, your project leveraged local private sector expertise and market capacities."

"Yes, it was important to address lack of demand and weak trade of nutritious foods, especially since we target an urban area where consumers purchase most of their food."

"This suggests that even in an emergency, we can work with the food system. This model



Samuel is also relevant for long term social protection transfers in stable contexts.”

### **Case study: National School feeding programme in Brazil**

After the approval of the School Feeding Law in 2009, school feeding programmes have been institutionalized and access to school meals is guarantee for all pupils and students from nursery to high school. Pupils receive at least 20% of their daily nutritional requirements (depending on their school time). 30% at least of the food is purchased from family farmers and rural family enterprises.

Programme pillars are:

- 1) support to local family agriculture;
- 2) provision of in-school meals;
- 3) promotion of healthy eating habits;
- 4) coordination, mobilization and social control.

#### ***Actors and functions around the food system are involved!***

- ✍ **Farmers**, including smallholders, family farmers and collective and peri-urban farms, with their cooperatives and organizations grow and supply diverse, fresh food (30% of food provided at school must be from smallholders).
- ✍ **Ag extension workers, universities and NGOs** train local producers.
- ✍ **Cooperatives of suppliers and wholesalers** collect food, analyze quality and safety, **National/local level cooperatives of suppliers and wholesalers** act as storage, wholesaler and commercialization entities; collect food, analyze quality and safety and distribute to schools.
- ✍ **School Feeding Councils in the community**, members are: student, parents, teachers, civil society (church, rural union, neighborhood association, clubs) and state/municipalities officers. The councils are deliberative and autonomous bodies. The main purpose of their work is to supervise programme implementation, oversee the use of funds and ensure programme quality.
- ✍ **State and municipal education departments and the schools** are responsible for the daily running of the school feeding programme; do Public tender for local procurement and establish contract with farmers.
- ✍ **Ministry of Education** is responsible for the programme at the national level.

- ✎ **Ministries of Health, Agriculture, Social Development and Finance** closely collaborate with the Ministry of Education for aspects related to their institutional mandates (e.g. MoA supports family farming production).
- ✎ **National Fund for Education and Development** coordinates the project and allocates financial resources for school feeding to Brazil's 27 states and 5 570 municipalities, sets nutritional s and is responsible for monitoring and evaluation. It provides guidance, based on the school feeding law, to local councils about students' nutritional needs, local purchases from family farming, and food and nutrition education.
- ✎ **Pupils** are the final beneficiaries; they receive meals, manage school gardens as a pedagogical tool, and learn about healthy eating for life.
- ✎ **Teachers** deliver nutrition education including, where possible, through school gardens to learn how to grow healthy foods.
- ✎ **School cooks** plan and prepare healthy and nutritious meals.
- ✎ **Nutritionists** plan healthy menus, deliver specific training to cooks on nutritional and sanitary aspects and provide food and nutrition education materials to teachers to be able to deliver lessons on this subject.

#### The actors around the categories

Teachers	Pupils	School cooks	Nutritionists	<b>Consumer demand, food preparation and preferences</b>
<b>Food production</b>	Ag extension workers, universities and NGOs	Farmers		Cooperatives of suppliers and wholesalers
				<b>Food handling, storage and processing, trade and marketing</b>
School Feeding Councils in the community	State, municipal education departments, schools	Ministries	National Fund for Education and Development	<b>Programme coordination</b>

Although the entry point is a school feeding initiative, the whole food system is leveraged, and the broader community is involved. The first programme beneficiaries are pupils, who can access varied and healthy meals. The programme also helps generating income for farmers, and the additional income can help them buy more nutritious foods, provided that they are educated and motivated to do so. A

potential spillover effect is increased supply of nutritious food that can make healthy diets more accessible for all the community.

## **Actors in the food system**


As seen previously, actors in the food system are very diverse and include communities, civil society, government bodies, private sector, research institutes, academia and many others.

<p>Actors involved in the choice, preparation and consumption of food include:</p> <ul style="list-style-type: none"><li>▶ rural and urban consumers</li><li>▶ main household caregivers (e.g. mothers)</li><li>▶ consumer associations</li><li>▶ civil society</li><li>▶ community leaders</li><li>▶ community agriculture and health extension workers</li></ul>	<p>Actors involved in food production include, among other:</p> <ul style="list-style-type: none"><li>▶ research institutes</li><li>▶ seed companies</li><li>▶ agro-dealers</li><li>▶ informal seed vendors</li><li>▶ farmers</li><li>▶ fishermen</li><li>▶ livestock keepers</li><li>▶ community based organization</li><li>▶ indigenous people</li><li>▶ cooperatives</li><li>▶ ministry of Agriculture</li></ul>
<p>Actors involved in food trade and marketing include:</p> <ul style="list-style-type: none"><li>▶ informal &amp; village traders</li><li>▶ formal traders including import-export companies</li><li>▶ wholesalers</li><li>▶ street food vendors</li><li>▶ small shops, food caterers, supermarkets and other retailers</li><li>▶ marketing &amp; advertising companies</li><li>▶ ministries of trade/industry</li></ul>	<p>Actors involved in food handling, storage and processing include:</p> <ul style="list-style-type: none"><li>▶ farmers</li><li>▶ village-based micro processors/millers</li><li>▶ cooperatives</li><li>▶ commercial factories/big food manufacturers</li><li>▶ food technologists</li><li>▶ inspectors</li><li>▶ ministry of trade/industry</li></ul>

## Nutrition-sensitive planning

It's time to use these good practices and the 10 Key Recommendations to support Ismail, Nayece and Fatuma in improving their families' nutrition. Let's see how Marta and Erik are using what they have learned to start planning in a more nutrition-sensitive way

There is a large programme on maize production intensification to increase farmers' income going on in Ismael and Nayece's community.

 **"In this programme, little attention has been paid to ensure that the **increase in farmers' income will translate into improved household health and nutrition**, nor to prevent the **displacement of locally important diverse foods by maize monocultures**."**

Marta

**Marta has proposed to revise the programme to make it nutrition-sensitive**, using the 10 Key Recommendations on nutrition-sensitive programming as a starting point. In order to make the maize intensification program nutrition-sensitive, she proposes the following measures...

- ✓ Promotion of the intercropping of maize with beans to enhance soil fertility, *Maintain/improve natural resource base (5)*
- ✓ *Diversify production/increase nutrient-dense crop (7)*...which will also increase availability of protein and micronutrient-rich legumes. Furthermore, participating households will receive a home garden kit with vegetable seeds.
- ✓ Prior analysis of crops and consumption patterns in order to prioritize varieties according to nutrient value, agronomic conditions, farmers' preferences and local taste *(2) Context assessment*.
- ✓ *Empower women (6)* with a focus on crop varieties traditionally grown by women.
- ✓ The programme will also facilitate creation of market outlets for both maize and diverse foods *expand market and market access (9)*.
- ✓ *Target the vulnerable (3)* including selling to local schools and hospitals, in turn increasing access to food for children and sick people.
- ✓ This component will require joint work with the departments of agriculture, education and health *Intersectoral collaboration (4)*.
- ✓ A sensitization component will be included to encourage farmers to save part of their production for home consumption and use additional income to purchase nutritious foods on local markets. Training will include cooking demonstrations *Nutrition education (10)*.


- ✓ *Processing and preservation (8)* as well as demonstration of nutrition-sensitive preservation and processing techniques.
- ✓ To make this nutrition-sensitive approach really work, the program will have an explicit nutrition objective. Progress will be tracked through measuring dietary diversity before the beginning of the program and during implementation. *Objective and indicator (1)*

Erik would like to improve the nutritional status of consumers, like Fatuma and her family, and reduce the risk of overweight and obesity. He thinks they need to address two important factors that are behind overweight and obesity: inadequate child **food labelling and irresponsible marketing and advertising** to children. Erik has proposed to develop a strategy to improve labelling, marketing and advertising of packaged foods for healthy diets. He should include the following options in this strategy to improve labelling, marketing and advertising of packaged foods for healthy diets:

- ➔ A **food labelling law** mandating all packaged foods to have the list of ingredients, the serving size, calories and nutrient content (with % of daily allowance specified) on the back of the pack.
- ➔ A **children's commercial communications code** banning promotion of foods high in fats, sugar and salt on children's TV and radio programmes, and the use of promotional strategies such as cartoons, interactive games and toys.
- ➔ On the basis of national dietary guidelines, a **law of nutritional composition of packaged food products** regulating content of ingredients such as saturated fats, sugar and sodium. This includes a warning message on the package signaling "HIGH IN" to inform that the product exceeds the set limits.

The other two measures can also help addressing malnutrition, especially overweight and obesity. However, they are more intended to address other factors influencing diets of urban poor, such as unhealthy meals prepared and served at school, and more generally unhealthy school environments, and the unbalanced formulation of ready-to-eat street foods (i.e. high in fat and sugar).

Most of the provisions of the Chilean Strategy for healthy eating are established by the law on Nutritional Composition of Food and Advertising and regulatory norms for its application.

 “My strategy was inspired by a real policy, implemented in Chile, a country which has taken nutrition very seriously”  
*Eric*

### **Food labelling**

Producers and retailers are required by law to provide a list of the nutrient content of pre-packaged food products. A warning message is added to products per category that exceeds established limit.

### **Mandatory standards for food available in schools, including sales restrictions**

Sale of foods and beverages "high" in calories, saturated fat, sugar and sodium content (as established by law) is prohibited in schools.

### **Health-related food taxes**

A tax is applied to sugary drinks with high sugar content.

### **Voluntary reformulation of food products**

Governments and bakers have agreed on a voluntary target for salt reduction. An assessment has demonstrated the effectiveness of the policy.

### **Mandatory regulation of food advertising to children**

Advertising directed to children under the age of 14 of foods in the "high in" category is prohibited. This includes TV programs or websites directed to children, promotional strategies and incentives such as cartoons, animations and toys, and advertising of foods in schools.

### **Nutrition counselling in primary care**

National food-based dietary guidelines are promoted in the health care sector. Specific guidance has been developed for the provision of advice in healthcare settings, including on healthy diets.

### **Public awareness on healthy eating**

Chile has a national food dietary guideline and a public awareness campaigns on healthy eating known as "Choose to Live Healthily" and another one specifically on fruit and vegetable consumption.

Source: World Cancer Research Fund International. Nourishing Framework

## **Conclusion**

What a journey since we met Ismael, Nayece and Fatuma! You have identified a number of food system-related factors that influence nutrition, and you may now have ideas on how to incorporate nutrition in programmes and policy measures. So, what's next?

In the next and last lesson “**A conducive international environment for nutrition**”, you will gain confidence in pushing forward this nutrition agenda in your country.

How can we convince people around us that we need to do more on nutrition?

## Summary

A broad range of interventions in agriculture and food systems can help to improve nutrition outcomes. These interventions can be classified according to **their primary entry point** in the food system.

However, nutrition sensitive interventions usually span most if not all food system **functions**, and require engaging numerous **actors** across the food system.

These interventions consist of a **set of policies, investments and programmes** that together establish the required conditions and capacities at field, policy and institutional levels for achieving sustainable nutrition impact at scale.

It is only through an integrated and multistakeholder approach that leverages a coherent set of nutrition-sensitive interventions that we will begin to effectively address the diverse factors underlying malnutrition.