

Enhancing the Nutritional Impact of Agriculture Investment Programmes

Checklist and guidance for programme formulation

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Introduction

The persistence of high levels of undernutrition – manifested in high levels of chronic and acute undernutrition as well as micronutrient deficiencies – combined with an increasing prevalence of overweight and, has led to unprecedented political commitment to address malnutrition through multi-sectoral and multi-stakeholder efforts.

The food and agriculture sector is primarily responsible for feeding people well by increasing availability, affordability, and consumption of diverse, safe, culturally appropriate, nutritious foods and diets without harming the environment. But the question remains as to how food and agriculture programmes and investments can most effectively contribute to improving nutrition.

The Food and Agriculture Organisation (FAO), in consultation with Civil Society Organisations, Non-Governmental Organisations, government staff, donors, UN agencies, and particularly the Agriculture to Nutrition Community of Practice, has developed a set of 10 key recommendations to ensure effective agriculture-nutrition linkages (*see next page*). These recommendations have been formulated following an extensive review of available guidance on agriculture programming for nutrition conducted by FAO and summarised in the “Synthesis of Guidance on Maximizing Nutrition Impact through Agriculture”¹, and through consultation with a broad range of partners (CSOs, NGOs, government staff, donors, UN agencies) in particular through the Ag2Nut Community of Practice. They are also referred to as “guiding principles” by some partners.²

This document is designed to serve as a tool to guide programme planners who are aiming to apply these recommendations in the design of agricultural investments. It is structured around the programming cycle (situation appraisal, programme design, and programme review) and includes key questions, accompanied by tips and references, that can assist programme design missions in:

- identifying the information needed during situation appraisal to inform the design of a nutrition-sensitive agriculture programme
- guiding the definition of objectives, target groups, choice of interventions and implementation modalities
- and critically reviewing already designed programmes with a “nutrition lens”.

These tips are primarily sourced from the “Synthesis of Guidance on Maximizing Nutrition Impact through Agriculture” (FAO, 2013)¹ and many more can be found in this reference document.

¹ See : <http://www.fao.org/docrep/017/aq194e/aq194e00.htm>

² E.g. in this document: <http://cta.int/images/publications/Agriculture-Nutrition-ICN2%20%281%29.pdf>



KEY RECOMMENDATIONS FOR IMPROVING NUTRITION THROUGH AGRICULTURE AND FOOD SYSTEMS

Food systems provide for all people's nutritional needs, while at the same time contributing to economic growth. The food and agriculture sector has the primary role in feeding people well by **increasing availability, affordability, and consumption of diverse, safe, nutritious foods and diets**, aligned with dietary recommendations and environmental sustainability. Applying these principles helps strengthen resilience and contributes to sustainable development.

Agricultural programmes and investments can strengthen impact on nutrition if they:

1. **Incorporate explicit nutrition objectives and indicators into their design**, and track and mitigate potential harms, while seeking synergies with economic, social and environmental objectives.
2. **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. Context assessment can include potential food resources, agro-ecology, seasonality of production and income, access to productive resources such as land, market opportunities and infrastructure, gender dynamics and roles, opportunities for collaboration with other sectors or programmes, and local priorities.
3. **Target the vulnerable and improve equity** through participation, access to resources, and decent employment. Vulnerable groups include smallholders, women, youth, the landless, urban dwellers, the unemployed.
4. **Collaborate and coordinate with other sectors** (health, environment, social protection, labor, water and sanitation, education, energy) and programmes, through joint strategies with common goals, to address concurrently the multiple underlying causes of malnutrition.
5. **Maintain or improve the natural resource base** (water, soil, air, climate, biodiversity), critical to the livelihoods and resilience of vulnerable farmers and to sustainable food and nutrition security for all. Manage water resources in particular to reduce vector-borne illness and to ensure sustainable, safe household water sources.
6. **Empower women** by ensuring access to productive resources, income opportunities, extension services and information, credit, labor and time-saving technologies (including energy and water services), and supporting their voice in household and farming decisions. Equitable opportunities to earn and learn should be compatible with safe pregnancy and young child feeding.
7. **Facilitate production diversification, and increase production of nutrient-dense crops and small-scale livestock** (for example, horticultural products, legumes, livestock and fish at a small scale, underutilized crops, and biofortified crops). Diversified production systems are important to vulnerable producers to enable resilience to climate and price shocks, more diverse food consumption, reduction of seasonal food and income fluctuations, and greater and more gender-equitable income generation.
8. **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.
9. **Expand markets and market access for vulnerable groups, particularly for marketing nutritious foods** or products vulnerable groups have a comparative advantage in producing. This can include innovative promotion (such as marketing based on nutrient content), value addition, access to price information, and farmer associations.
10. **Incorporate nutrition promotion and education** around food and sustainable food systems that builds on existing local knowledge, attitudes and practices. Nutrition knowledge can enhance the impact of production and income in rural households, especially important for women and young children, and can increase demand for nutritious foods in the general population.

Agriculture-Nutrition Community of Practice (Ag2Nut CoP). 2013. Key Recommendations for Improving Nutrition through Agriculture and Food Systems. Available at: http://unscn.org/files/Agriculture-Nutrition-CoP/Agriculture-Nutrition_Key_recommendations.pdf

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SITUATION APPRAISAL

The first step in designing a nutrition-sensitive intervention consists of a thorough analysis of the context, in particular of the nutritional problems that affect different parts of the population, their multiple causes, and the social and institutional context that shapes the food and nutrition security situation. This first section therefore corresponds to the application of Key Recommendation #2. The situation appraisal should also include information that helps inform the application of the other 9 key recommendations.

- ✓ **Key recommendation 2: Assess the context at the local level, to design appropriate activities to address the types and causes of malnutrition**

1. Institutional, policy and programme context

Improving nutrition requires investing in different sectors, including food and agriculture, health, water and sanitation, education, and social affairs. Interventions in the food and agriculture sector need to be coordinated with those in other sectors to meet the various basic needs of vulnerable populations.

Identifying which institutions are responsible for, or involved in, food and nutrition security interventions is the first step of a situation analysis, as it enables the programme formulation team to identify sources of information and partners. Furthermore, in most – if not all- contexts, many interventions have already been implemented, and any new programme should build-on lessons learnt and complement those already on the ground.

Questions:

- Which are the main ministries and other governmental institutions involved in food and nutrition security policies and programmes, at the central, district and local level?
- Which are the main development partners (donors, UN, NGOs, academia, CSOs) involved in food and nutrition security and what are their areas of work?
- Which are the main private sector entities (including farmer organisations) involved in food and nutrition security interventions and how are they engaged?
- Which are the main guiding policy and programming frameworks related to food and nutrition security? What is their status of application / implementation?
- Which coordination mechanisms deal with food and nutrition security-related issues?

Tips:

- Ministries that are usually involved in food and nutrition security include: Ministry(ies) of Agriculture, Livestock, Fisheries, Forestry; Health; Social Affairs, Women's Affairs; and Education.
- Where the Renewed Efforts Against Child Hunger (REACH) partnership and/or Scaling Up Nutrition (SUN) Movement are present, the facilitator(s) are useful key informants as they support the mapping of who does what in nutrition.

2. The nutritional situation in the country/programme area

Understanding the nutrition profile of an area is essential to inform the definition of programme objectives related to nutrition (link to Key Recommendation 1: *Incorporate explicit nutrition objectives and indicators into their design, and track and mitigate potential harms*).

Questions:

- What is the prevalence of malnutrition in the country / programme area?
 - Acute malnutrition /wasting (severe and moderate)
 - Chronic malnutrition / stunting
 - Micronutrient deficiencies among preschool-age children and women (especially anemia, iodine deficiency and vitamin A deficiency, zinc deficiency)
 - Overweight among children and adults
 - Underweight among women
- Are there any seasonal or gender patterns in rates of acute malnutrition? How are these explained?
- Are certain geographical areas more affected by malnutrition than others?(If yes, which ones and why?)
- Are certain livelihood groups and/or socio-economic groups (e.g. smallholders, landless, urban residents living on petty trade, unemployed, ethnic minorities) more affected by malnutrition than others? (If yes, which ones and why?)

Once rates of malnutrition are identified, it is important to determine the major causes of malnutrition in the area or population group that may be targeted by the project. These may be related to diet and food access, but also may be related to issues of infectious diseases or feeding / caring practices. These could be related to women's time and workload. Ideally, a nutrition situation report is already available and the project team can refer to it. If not, addressing the questions presented in the following sections can help determine some of the major determinants of malnutrition.

Where to find the information:

- Nutrition surveys, disease surveillance, nutrition policy and strategy documents, and attendance records of nutrition rehabilitation centres, usually available from the Ministry of Health, UNICEF and/or WHO.
- The following websites:
 - UNICEF ChildInfo: http://www.childinfo.org/malnutrition_nutritional_status.php
 - UNICEF Tracking Progress on Child and Maternal Undernutrition (2009) http://www.unicef.org/publications/files/Tracking_Progress_on_Child_and_Maternal_Nutrition_EN_110309.pdf
 - World Bank Nutrition Country Profiles (2010-2011) www.worldbank.org/nutrition/profiles
 - World Bank World Development Indicators: <http://data.worldbank.org/>
 - WHO nutrition databases: <http://www.who.int/nutrition/databases/en/index.html>
 - WHO Non-Communicable Diseases country profiles (2011) http://www.un.org/en/ga/ncdmeeting2011/pdf/ncd_profiles_report.pdf
 - FAO (2014) Food and nutrition in numbers - pocketbook (<http://www.fao.org/3/a-i4175e.pdf>)
- Key informant interviews with professionals from the Ministry of Health, UNICEF, NGOs working in nutrition programmes; local clinics; professionals from the Ministry of Agriculture, FAO, FEWSNET, and WFP VAM staff can also have good information on livelihood zones and groups which can be more vulnerable to malnutrition.
- Consultation workshop with stakeholders working in food and nutrition security.

3. Health and sanitation environment, including food safety

Questions

- What are the most prevalent diseases? (e.g. malaria, HIV/AIDS, diarrhoeal diseases, acute respiratory infections (ARI), chronic diseases). Specify the prevalence and severity of major diseases if possible.
- Where do households access drinking water? Is there piped water supply? Is the water clean or contaminated (with biological or chemical contaminants)?
- Who gathers water, for agricultural and household use?
- Do agricultural or agro-industrial activities influence the water supply, either in quantity or quality?
- Do animals live in or near the household (especially where young children may be playing)?
- Are there risks of zoonotic disease?
- Do households have access to and practice regular deworming?
- Do households have access to latrines? Do households use the latrines?
- Do households have access to soap? Do they practice handwashing (i.e. before handling, preparing and eating food, feeding children, using latrine, touching and handling animals)?
- Are there differences between localities, socio-economic status or gender?
- Are there any food safety issues in the food supply? E.g. chemical or microbiological contaminants

Where to find the information:

- Demographic and Health Surveys or Multiple Indicator Cluster Surveys or other health surveys that include data on water supply.
- Depending on the strength of surveillance and monitoring systems, data on zoonotic diseases and food microbiological and chemical contamination at the national or regional level may be found from the World Health Organization Global Environment Monitoring System on Food Contamination Monitoring and Assessment Program.
- Observation
- Key informant interviews (with Ministry of Health personnel, NGOs, local research institutes) and focus group discussions

4. Food consumption patterns and dietary needs

Questions

- What are the most commonly eaten foods in the local diet?
- What does the local food plate look like (e.g. how much of it is occupied by cereals) and how does it compare to the local dietary guidelines? Does the local diet allow people to meet their nutritional needs, in terms of diversity, energy, protein, and micronutrients? If not, which foods, food groups or nutrients seem to be lacking in the local diet?
 - Are there local or gender differences? Which are the vulnerable groups in the population in terms of nutrition and why?
 - Are specific foods (including cultivars, varieties or breeds, or wild or underutilized foods) which could be used to solve existing nutritional problems, especially if more produced, processed and consumed? Are they accessible to the population? Can they be grown in the area or transported into the area?
- Are breastfeeding and complementary feeding practices for children under two years of age adequate in terms of frequency of feeding, energy density, and diversity?
- Are pregnant and lactating women able to meet their heightened dietary needs?
- Do any cultural practices and food taboos limit consumption of certain foods by particular groups or individuals?
- Are food consumption patterns changing? If yes, in what way? (e.g. increasing demand due to population increase; changes in diet linked to urbanisation and growing reliance on markets, increased consumption of imported foods)
- What proportion of the diet is composed of industrially processed ultra-processed foods (e.g. soft drinks, chips) or alcoholic beverages?
- Does a national or regional food composition table exist? Is it up-to-date and of good quality? Does it contain all foods consumed in the population including wild foods or frequently consumed varieties?
- Does the national or regional dietary guideline exist? Is it of good quality? Does it contain important nutrition messages and is it disseminated well?

Where to find the information:

- National or local dietary guidelines (if available)
- Surveys: Household Consumption and Expenditure Surveys, other dietary surveys that may have been conducted by local/regional universities or other researchers. Note that the type and quality of information available will depend on the survey methodology.
- DHS or MICS or other nutritional surveys that include data on child feeding practices.
- Food composition tables and databases - repository at INFOODS website <http://www.fao.org/infoods/infoods/tables-and-databases/en/>
- Nutritional requirements <http://www.fao.org/ag/humannutrition/nutrition/en/>
- Key informant interviews and focus group discussions
- Information on demographic trends (increase rate, composition, urbanisation, migration) can usually be collected from a national institute of statistics.
- Research reports on local food consumption patterns

Tips:

Information on food consumption patterns is often unavailable. In such cases, it may be relevant to include a study of food consumption patterns in the project area during the project preparation or as part of the project inception to establish a baseline (in view of future impact evaluations) and to inform the implementation of certain project activities (e.g. choice of crops to be promoted; content of nutrition education...).

5. Food availability and seasonality

Questions:

- What foods are produced in the country/programme area, and during which season? Are foods from all food groups produced? (cereals, tubers/starchy roots, fruits, vegetables, legumes/nuts, dairy products, eggs, meat/fish, oil/fat). What are the seasonal patterns of food availability? Are there times of food scarcity, for which foods and for how long?
- Are produced foods mostly consumed by the household, sold, or both?
- What kinds of foods can be produced in local agro-ecological conditions, considering climate, soil health, rainfall, etc. What are the most climate resilient crops that can be grown? What are the main constraints to food production?
- What foods are most commonly available in the markets, stores and from street vendors?
- What foods are typically purchased and what are the main constraints to accessing them (income, distance, scarcity etc.)?
- Are foods stored and/or processed to increase availability throughout the year? If yes, which ones? Is the storage or processing done at household, community or industrial level? What are major challenges in storing and preserving foods?

Where to find the information:

- Reports of crop assessments and livestock censuses
- Market price data collected periodically by agricultural extension agents, department of agriculture marketing, or the bureau of statistics
- Visits to local markets
- Key informant interviews with local producers, processors and retailers
- Comprehensive Food Security and Vulnerability Assessments track staple grain availability and prices at multiple points in time throughout the year

Tips:

- Use existing or prepare an agricultural calendar with local agronomists and a calendar of local food availability (including both local production and market availability) through a participatory exercise with local professionals or communities
- Compare the calendars with seasonal patterns of acute malnutrition (if available)

6. Household access to food

Questions:

- How do households access food? (through homestead production, collection, barter, purchase, gifts, food aid)? What is the relative importance and reliability of each source?
- Do middle and low-income households have sufficient purchasing power to buy their required food and other essential items?
- What are the prices of the major food items? Are there differences by location and season? Are certain food groups (e.g. animal products, fruit and vegetable) unaffordable for middle and low-income households? Are food prices increasing / likely to increase?
- What are the main income sources of local households (employment, sale of own production, remittances, loans, income-generating programmes...) and how reliable are they?
- Do households have safe access to food markets (distance, transportation means, cost)?
- Are household strategies for accessing food changing? If yes, how? (e.g. increasing reliance on purchased foods and supermarkets)

Where to find the information:

- Surveys: Household Consumption and Expenditure Surveys, Comprehensive Food Security and Vulnerability Assessments and other food security or livelihoods assessments. Note that many food security assessments primarily track the quantity of staple grains or dietary energy. Other information sources are needed to track availability and affordability of a variety of foods. Key informant interviews and focus groups with local community members and professionals from the food and agriculture sector.

7. Gender and care practices

Questions

- How do women compare with men with regards to educational status, rights, access to resources, and decision-making power?
- What are the roles and responsibilities of different household members?
- Related to agricultural work, what is the largest labour burden for women and what are the opportunities and/or obstacles to increase their income or reduce drudgery?
- What constraints do women face in securing adequate food for their family?
- Who takes care of dependents (children, elderly, sick) in the household, and at community level (community structures and kinship networks)?
- How much time mothers devote in childcare and feeding?
- Do women have access to reproductive health services and family planning?
- Which households face problems providing adequate care for all family members? (E.g. households having a high number of dependents compared to the number of working-able individuals)?

Where to find the information:

- Gender studies
- Key informant interviews and focus groups

Tips:

- Women's workload often constrains the quality of care women are able to provide (e.g. it is difficult to feed children frequently if busy in the fields, fetching water, etc.).
→It is useful to construct a daily or weekly agenda of women's activities. This helps assess the risk of a project increasing women's workload which can have negative impacts on care, and to identify opportunities for reducing workload (e.g. labour-saving technology)

8. Access to productive assets and marketing opportunities: equity issues

Questions:

- Do vulnerable households/groups identified have access to productive assets, namely land, water, agricultural inputs and extension services?
- Do they have the possibility to engage in small-scale gardening or small livestock raising or pond aquaculture/fish ponds?
- Do they have the opportunity to engage in off-farm activities, such as food processing and retail?
- What are the constraints to market access among various population groups?
- Does the existing infrastructure and security enhance or hinder the access to productive assets, income generation activities, or marketing of foods?
- Note: the answers to these questions may vary by group or community.

Where to find the information:

- Food security surveys and studies
- Key informant interviews and focus groups

9. Policy frameworks and regulations

Note: Many of the following questions may be difficult if not impossible to answer, as there are very few studies on the nutritional impact of food and agriculture policies (and even limited data, notably on food consumption, that would make such analyses possible). However, it can be useful to have these questions in mind and... there may be rare cases where such research has been carried out!

Questions:

- Which policies exist in nutrition, food, agriculture or other sectors mentioning explicitly nutrition as target, means or as entry point for policies? Are policy frameworks designed to increase the production of a wide variety of micronutrient rich foods, make them available at affordable prices and/or increase intakes of micronutrient rich foods?
- Do any policy frameworks or regulations have a significant impact on households' food consumption patterns and strategies for accessing foods? If so, which ones? (examples include food subsidies; agricultural input subsidies; social protection programmes (in the form of vouchers, cash, and/or food); trade policies; regulations on food quality and safety (or absence thereof).
- What are the positive and negative impacts of these policies on households' consumption patterns?
- Are there any major policy issues (e.g. food safety regulations; nutrition composition of food rations given through social protection programmes) that are not addressed by current policy frameworks?
- What implications may these policies (or lack of) have for programme formulation?
- How can projects influence the policy and decision making process? What are the most pertinent arguments for policy makers to change national or international policies?

Where to find the information:

- Review of major policy documents
- Key informant interviews with policy-makers, professionals from the food and agriculture sector, civil society, consumer organisations, local households.

Tips:

- It is often the case that policies and regulatory frameworks have both positive and negative impacts, and/or have different impacts on various populations groups. For example subsidies on staple foods can lighten households' expenditures but lower diet diversity as households increase the proportion of carbohydrate-rich foods at the expense of other food groups. The balance of positive/negative impacts should be evaluated taking into account a variety of issues (economics, environmental implications...), including the major nutrition and health problems among the population.
- If projects are to be up scaled or become sustainable, they might need a policy framework.

PROGRAMME DESIGN

This section provides guidance on how to design a nutrition-sensitive agricultural investment (definition of objectives, impact indicators, interventions, and implementation modalities as they relate to nutrition). Guidance is provided for each of the 10 Key Recommendations.

○ Defining project objectives and impact indicators

- ✓ **Key recommendation 1: Incorporate explicit nutrition objectives and indicators into their design, and track and mitigate potential harms**

Questions

- What is/are the programme's main objective(s)?
- Is nutrition considered as part of the objective(s)? How?
- What is/are the impact pathway(s) through which the programme is likely to impact nutrition? (in particular links between increased production/income and household food access and food consumption, including biodiversity)
- What specific nutrition objectives are relevant to the nutrition problems that have been identified during the situation appraisal, and are realistic based on program impact pathways?
- What nutrition indicators can be used to measure the achievement of these objectives? Are baselines available that allow you to set realistic targets? How will you collect the information necessary to measure the indicators?

Tips:

- The use of nutritional status as an impact indicator: considering that health and care have a strong influence on nutritional status, unless the agriculture intervention is part of a wider, multi-sectoral programme, it can be difficult to aim for improvements in nutritional status.
- Food and agriculture interventions can aim to improve the quality of diets (in adequacy, diversity, moderation, and safety), but the impact pathways describing how this will be achieved need to be clear.
- Nutrition-relevant impacts may occur in non-food outcomes, such as women's empowerment, reduction in disease risk or improved care practices. The M&E should include at least a qualitative assessment of these to ensure no harm.
- Several indicators may be needed to measure impact and understand impact pathways. Information on feeding behaviours (especially of young children) is particularly important.
- It is recommended to call upon evaluation experts to determine the choice of indicators, methods of data collection, sampling and to set targets.

Commonly-used indicators:

Diet and food consumption (*annex to be added of relevant indicators and where to find them*)

- Dietary Diversity Scores
 - Individual Dietary Diversity Score to assess dietary quality. These are commonly collected for women and children
 - New validated indicator for minimum dietary diversity for women: <http://www.fantaproject.org/monitoring-and-evaluation/minimum-dietary-diversity-women-indicator-mddw>
 - (FAO is currently producing an indicator guideline for this)
 - Household Dietary Diversity Score to assess household access to food
 - http://www.fao.org/fileadmin/user_upload/wa_workshop/docs/FAO-guidelines-dietary-diversity2011.pdf
- Food frequency of target foods (number of days in the previous week where any amount of X food was consumed)
- Meal frequency (take care in defining “meals”)
- IYCF indicators (see WHO et al. 2003)
- Consumption of vitamin A-rich foods for young children or women (see HKI methodology)
- Consumption of iron-rich foods for young children or women
- HFIAS (FANTA)
- HHS (FANTA) – only for highly food insecure/hungry areas.
- Months of adequate household food provisioning (MAHFP) (FANTA)

Sickness and health

- Sanitation, health, home facilities
- Water quality
- Incidence, prevalence and, severity of illness

Gender

- Gender of project participants
- Women’s access to land and other productive assets
- Women’s control over cash from agricultural activities (e.g. intra-household allocation of income between men and women, or the extent of women’s ability to make decisions about purchases)

Other

- Changing seasonality of income, labour use and micronutrient-rich food availability
- The Nutritional Functional Diversity Index, developed by the Earth Institute at Columbia University (Remans, Flynn, 2011), which quantifies the depth and breadth of agro-biodiversity according to dietary usage.

Nutrition-sensitive agriculture investment programmes should not only seek to improve nutritional outcomes, they should – at a minimum- ensure that they *do not harm* to the nutritional status of the project stakeholders, whether direct or indirect (e.g. producers, but also consumers).

Types of harm that may arise from agricultural interventions:

- Specialization in staple foods or cash crops leads to a decrease in the production of other, micronutrient-rich crops, and thus to a loss of dietary diversity (see section 6 on diversification)
- Increased production of staple foods leads to greater incentives (through increased availability and reduced food prices) for over-consumption of carbohydrate-rich foods and contribute to obesity and chronic disease (see section 6 on diversification).
- Over-burdening women who are also responsible for the care of young children, can have negative effects on optimal infant feeding (see section 3 on gender).
- Projects that require participants to make an initial investment may exclude smallholders and widen resource gap between wealthy and poor farmers (see section 2 on equity).
- Mechanization may increase unemployment among landless (see section 2, on equity).
- Agrochemicals can have serious health consequences. Danger could be mitigated through the use of protective gear and training, or agro-ecological approaches (see section 5 on natural resources).
- Agrochemicals may also reduce biodiversity, reducing opportunities for agroecological soil and pest management, and with potential consequences for productivity.
- Water use for agriculture can increase the risk of disease (malaria transmission, microbes and pollutants in wastewater) and zoonotic disease and parasites. These risks could be mitigated with bed nets, improved wastewater management, and veterinary services (section 5 on natural resources).
- Agricultural interventions can reduce natural resource availability and/or access. Such harmful impacts could be mitigated with sustainable production techniques (see section 5 on natural resources).
- Depending on the variety chosen, specialization in single varieties could reduce consumption of cultivars beneficial for various reasons (including nutrient content).

Tips:

Overall strategies to avoid causing harm:

- Go through a systematic process in the planning phase to identify potential unintended negative impacts on nutrition based on the context within which the programme is operating, and develop a mitigation plan.
- Have a well-functioning monitoring system to detect negative effects, to ensure timely mitigation efforts on unforeseen negative impacts.
- Have a clear nutritional goal to start with.
- Collaborate with health officials to provide information on health risks and solutions (which could be considered a specific type of mitigation plan).

Additional information:

- FAO impact evaluation course: <http://www.fao.org/spfs/learning-from-results/e-learning/en/>
 - CIRAD document “What risks do agricultural interventions entail for nutrition?” <http://www.spring-nutrition.org/publications/resource-review/updates/what-risks-do-agricultural-interventions-entail-nutrition>
 - IYCN “Nutritional impact assessment tool”: http://www.manoffgroup.com/4IYCN_Achieving-nutritional-impact-and-food-security_0211.pdf.pdf

○ Target areas and populations and equity considerations

✓ *Key recommendation 3: Target the vulnerable and improve equity*

Questions:

- Who will benefit from the programme?
- If vulnerable households are not the main beneficiaries, are there possibilities for them to benefit indirectly from the programme? (e.g. more food available at reduced prices at local markets; employment opportunities along the value chain)
- Is it possible that the intervention may benefit one group while harming another?
- Are there special considerations for indigenous peoples? Tribal communities?
- Are target groups also part of other programmes or interventions in the area? Could group meetings be combined or synergized in any way?

Tips:

Types of groups targeted may be:

- smallholder farmers, possibly via promoting appropriate technologies for smallholders, such as micro-irrigation.
- poor and/or food-insecure households
- landless labourers (e.g. avoiding labour displacement)
- urban and peri-urban food systems to expand access to nutritious diets
- marginalized groups such as indigenous and nomadic peoples
- youth for training in new technologies and gender roles
- women (see next section)

Programmatic approaches to improved equity include:

- credit and financial services, including insurance
- increasing smallholders' (and women's in particular) access to markets through transport, information and farmer organizations or cooperatives;
- increasing access to productive assets such as livestock, seeds and storage facilities
- improved access to water resources
- facilitating access to extension services and technology, especially for women
- social protection measures such as cash, food transfers and child care services
- investment in agricultural research that reflects the interests of smallholders, particularly women
- land tenure rights and policies
- water policies
- policies to increase extension services, financing, access to inputs and appropriate technologies for smallholders

○ Gender considerations and women's empowerment

✓ *Key Recommendation 6: Empower women*

Women's income and decision-making power is linked to improved nutrition for household members due to the role of women across cultures as providers and gatekeepers of household nutrition, child care, and health. Furthermore, gender equity concerns women's central role in translating agricultural inputs and outputs into nutrition impacts, and most fundamentally, is a basic human right.

Questions:

- How will women be involved/benefit from the programme? Are they likely to control income generated by the programme? Is this likely to result in an increased work load for them?
- How are men included in discussions to ultimately create/allow for a space for change to take place?

Tips: Ways to enable women's empowerment through agricultural programmes.

- In the planning stages of a programme, assess the trade-offs between childcare and agricultural production. Time and labour demands should be evaluated.
- Specific agricultural activities to reach women include:
 - Focusing on food crops grown by women. Non-staple minor crop production (including vegetables, fruit, legumes and traditional and indigenous food crops) and/or animal husbandry may be more likely to be female-controlled (depending on the local context). Home gardens are usually under women's control, and can therefore increase women's decision-making power about food consumption. *Caution: experience shows that when minor crops become a source of income, men may seek to control these resources. Involving men and women in the process through a comprehensive community based approach, and empowering women through strengthening women's producer groups, for example, can help ensure men and women benefit from these activities.*
 - Training and market opportunities for crops and animal products that women sell.
 - Improving women's access to extension services, technology, inputs, markets and information
 - Investing in technologies to reduce labour and time costs, especially for typically women's tasks such as weeding, harvesting, processing and food preservation. Some examples include lighter farm tools, drum seeders that allow for mechanized weeding, mechanized mills and water-harvesting technologies such as treadle pumps.
 - Strengthening women's income control (through the above activities)
- Other potential components of agricultural programmes related to women's empowerment:
 - Creating an enabling environment for childcare. Think about child care during training for women: this would include breastfeeding spaces, the engagement of fathers and mothers-in-law and other authority figures, and support to day care centres or the like for working women (especially urban women). Support men to increase their participation in care-giving.
 - Improving access to financial services
 - Including gender-sensitive social protection measures, such as providing extra food rations or vouchers, vouchers for services and multiple micronutrient sachets

Strategies to engage women in activities such as those listed above:

- Involve women at the design stage, and continue working with them directly during implementation. That way, women can identify appropriate mechanisms for addressing labour and other time constraints.
- Positive deviance as an approach to empower women directly through confidence in their own knowledge and abilities, so that they can translate opportunity into action.

○ Links to other programmes and sectors

✓ *Key Recommendation 4: Collaborate and coordinate with other sectors*

Impact on nutritional status cannot be achieved by food and agriculture programmes alone. Access to health, water and sanitation, education and social protection programmes are usually required. It is therefore important to seek synergies with other sectoral interventions, for example by targeting the same areas, or building complementarities (e.g. purchase from local farmers to supply local school canteens, school feeding/noon meal programs).

Questions:

- Is it possible to link activities with existing programmes and ongoing work of groups?
- Are mechanisms (existing or proposed) to facilitate coordination and communication among stakeholders available? At what level do they operate? Who is involved in this process?
- Are any opportunities for public-private partnerships to address food and nutrition security discussed?

Tips:

Multi-sectoral linkages may be strengthened through:

- shared indicators and accountability mechanisms
- shared funding for co-implemented projects
- multi-sectoral structures such as a national nutrition council or a multi-sectoral, multi-institution task force for joint investment planning
- consultation with nutrition or water and sanitation colleagues for technical expertise or collaboration on a baseline survey
- improved professional training through problem-based learning (i.e. building capacity for multi-sectoral thinking and work among sector staff)
- overlapping sector programmes in the same geographic area
- linking smallholder production to social protection schemes, for example through involving local producers in food-based safety nets
- specifying cross-sectoral collaboration as a condition in requests for proposals, and requiring identification of potential collaborators in the field
- multidisciplinary extension teams, and increased communication among nutrition, home economics and agricultural extension staff (through workshops, for example).

○ Maintaining and improving the natural resource base

✓ *Key Recommendation 5: Maintain or improve the natural resource base*

Activities should optimally use natural resources, contribute to climate change adaptation, and take measures to ensure that wild biodiversity is maintained and crops/agricultural practices do not degrade natural resource base. Water, soil, air, climate, and biodiversity are critical to the livelihoods and resilience of vulnerable farmers and to sustainable food and nutrition security for all. Water resource management is of particular importance to reduce vector-borne illness and ensure sustainable, safe household water sources.

Tips:

Examples of natural resource management methods relevant to nutrition include:

- **Improving soil health** through soil fertility and control of erosion. Suggested mechanisms include legume production and intercropping, integrated crop-livestock systems, economic support for inputs such as fertilizer, organic manure and composting, and sustainable land management techniques. Iodine, zinc and iron fertilizers can improve soil fertility and increase micronutrients in food crops grown in the soil, if soils are deficient in those nutrients.
- Equitable **access to water** and sustainable, pro-poor management of water resources. Micro-irrigation (e.g. rainwater harvesting, low-cost drip systems, treadle pumps) may be useful.
- **Biodiversity conservation** is an ecosystem service for nutrition, because wild foods may contribute significantly to nutritional needs and income, and contribute to risk reduction and resilience. Conservation activities include agroforestry, using locally adapted varieties, strengthening indigenous food systems and use of underutilized foods, and supporting pest bio-control using natural pesticides (e.g. neem leaves, slaked lime) and natural pests and parasitoids. Efficient cookstoves, or using biogas for cooking and other purposes, can reduce the need for wood-gathering.
- Some possibilities for natural resource conservation incentives include pricing and distributing inputs according to local conditions and natural capacity of ecosystems; paying farmers for ecosystem services they provide; and well-functioning governance of land, plant genetic resources, irrigation and fisheries.

- **Programme options to increase access to diverse and nutritious foods**

- ✓ **Key Recommendation 7: Facilitate production diversification, and increase production of nutrient-dense crops and small-scale livestock**

Diversified production systems can be important for vulnerable producers to ensure resilience to climate and price shocks, more diverse food consumption, reduction of seasonal food and income fluctuations, and greater and more gender-equitable income generation.

- Would diversification at household level, community level, and/or market level be best suited to improve access to nutritious diets?
- Are there specific micronutrient-rich foods that are unavailable or too expensive?
- If they are available, are they given to young children (6 to 23 months)?
- What local resources / underutilized foods could be grown to improve diets and nutrient intakes?
- How can market access to nutritious food be increased for urban populations?

Tips:

Agricultural interventions that aim to achieve the following outcomes are recommended as means to improving access to nutritious foods:

- **Diversify production and livelihoods** for improved food access and dietary diversification, natural resource management, and other purposes.
- **Increase production of nutrient-dense foods**, particularly locally-adapted varieties rich in micronutrients and protein, chosen on the basis of context assessment and local nutrition issues.
 - **Horticultural crops** are highly recommended to improve micronutrient intakes and dietary diversity, to increase income and women's income control, and to reduce seasonality; homestead and market-oriented production are both likely to be positive. - *REWORD*
 - Produce **animal-source foods on a small scale** to improve intake of micronutrients, protein, and fat; keep production small-scale to avoid harms to the natural resource base and loss of control by women.
 - Promote the use of nutritious, **underutilized foods** to address malnutrition.
 - Increase **legume** production for their nutritional value (rich in energy, protein, and iron) and for their attribute of nitrogen fixation, which can improve soil fertility and yield and reduce inputs.
 - Invest in **biofortification** (especially through natural breeding) as a complement to other approaches.
 - Staple crop production may be necessary but insufficient because of its limited ability to improve dietary diversity.
 - Cash crops are not recommended as a strategy likely to improve nutrition, based on high risk of unintended consequences, particularly reduction in food security and dietary quality; mitigation strategies should go along with cash crop production.

- **Improve processing, storage, and preservation**

- ✓ **Key Recommendation 8: Improve processing, storage and preservation**

Appropriate processing, storage and preservation are essential to reduce post-harvest losses and improve or prolong access to and consumption of micronutrient-rich foods. Processing and storage techniques can preserve the nutrient content of food, and certain processing techniques can even increase it (e.g. roasting, germination and fermentation). Processing, storage and preservation can provide value addition and also increase income and profit margins, reduce seasonality of food insecurity, and improve food safety. Food processing and preservation can also help reduce food waste.

Notes:

- The higher the initial nutrient content of the raw foods, the higher it is in the processed food
- Vitamin content diminish through storage and cooking
- Milling reduces nutrient contents, e.g. fat, fibre, minerals and vitamins.
- Fermentation and germination can also help enhance nutrient bioavailability from grains, foods.

Tips:

Types of techniques relevant to nutrition:

- Controlling pests and disease, including aflatoxins, during post-harvest management
- Harvesting and handling
 - Efficiency in post-harvest handling
 - other “healthy harvesting” techniques, such as harvesting at maturity, avoiding damage and bruising, and not consuming or selling crops recently sprayed with pesticides
- Preservation and processing
 - Solar drying or shed-drying, with vegetables blanched before drying
 - Fortification or reduced milling
 - pressing oilseeds
 - Roasting and grinding of cereals, millets to reduce bulk and improve digestibility
 - fermentation of flour, porridges and milk
 - choose processing method which conserves best micronutrient content
- Transport and storage
 - Washing and drying fresh produce before storage, where applicable
 - using cool, dark, well-ventilated facilities protected against insects and rodents
 - storage of seed and planting materials
 - assure sufficient and timely transportation means after harvest
 - explore possibilities of better in situ storage to allow selling over a longer period after harvest to increase farmer’s income and food availability, e.g through cooperatives

Programmes can also invest in research to improve post-harvest management, including improved processing, storage and preservation techniques.

Conversely, food processing sometimes can also be detrimental to nutritional quality when the products that are made are high in added sugar, fat and salt/sodium.

- **Making value-chains nutrition-sensitive and increasing market access**

- ✓ **Key Recommendation 9: Expand markets and market access for vulnerable groups, particularly for marketing nutritious foods**

When working with individual value-chains focused on products destined for markets, the latitude for diversification is usually more limited. Even when value chains concern nutritious foods (e.g. fruit and vegetables), it is common that producers give precedence to sales. In some situations, however, market opportunities may be an incentive for farmers to produce (and potentially consume) nutritious foods they otherwise would not produce. Value chain and marketing interventions usually target farmers, producers, and retailers with sufficient assets that allow them to invest, produce at scale and be more competitive, and who are therefore not the most vulnerable population groups. This said, measures can be taken to enhance the nutritional contribution of investments in specific value-chains, by making value-chains nutrition-sensitive and yield nutritional benefits both for food suppliers (producers/processors/retailers) and consumers. In all cases, it is important to consider individual value chains as part of the wider food system to determine how they can contribute to improving local diets.

Tips:

The following actions can be taken to enhance the nutritional impact of a value chain:

- Production:
 - choice of varieties that maximize nutritional content
 - bio-fortification
 - generate on-farm employment for vulnerable groups
- processing:
 - choice of processing methods that enhance shelf-life with minimal nutrient loss
 - fortification (e.g. of cereal flours)
 - generate off-farm employment in processing
- marketing and retailing
 - increased market availability of the produced goods can reduce their prices for consumers
 - Increase market access and opportunities.
 - Generate employment for vulnerable groups, in particular women
- Nutrition education and consumer awareness:
 - Social marketing and demand creation for foods among smallholders can be a powerful tool. Promote the purchase and consumption of nutritious foods and good health practices, so that income is used to improve household health and nutrition
 - Food based dietary guidelines can serve as a useful planning tool in agriculture, health and education to sensitize/enhance supply and demand for healthy foods

An important contribution that investments in agricultural value chains can make to nutrition is by improving market access:

- for producers/processors/retailers – to help them sell their products and generate income which can be invested in better health, care and food consumption
- for consumers – to improve availability and affordability of nutrient-dense foods

Tips:

Ways to increase market access:

- Farmer associations, business training and inventory credit schemes to help smallholders achieve better prices, gain bargaining power and participate in decision-making processes.
- Small-scale processing and micro-enterprise, particularly for women (e.g. dried fruits, jams, juices)
- Produce marketable foods, as market viability is central to meeting needs for income as well as food. Assess the market potential for wild and underutilized foods, especially of high quality nutrient composition, and the domestication potential for wild foods.
- Market viability for nutritious foods that smallholders may have a comparative advantage in producing (e.g. low input) can be increased through promotion and social marketing to increase demand.
- Improve infrastructure (e.g. roads, irrigation, storage facilities, wholesale markets, electrification) to improve market access
- Expand market information systems
- Identify intra-household factors and bottlenecks to marketing and income for smallholders.
- Meet quality standards, such as through improved food safety (e.g. reducing aflatoxins)
- Food procurement operations by governments for stockholding or food aid as a potential market
- Explore new markets through policies and programmes. For example some school meal programmes include a certain % of locally produced foods.
- Strengthen functional linkages between farmers, food traders and processors (for instance, through enforceable contract farming systems).

- **Incorporate nutrition education, consumer awareness and capacity development**

✓ **Key Recommendation 10: Incorporate nutrition promotion and education around food and sustainable food systems that builds on existing local knowledge, attitudes and practices**

Including nutrition education in agricultural interventions is essential to encourage households to adopt good health and nutrition practices and make optimal use of available foods and income. Nutrition education is also a way to increase demand for local agricultural produce and encourage local suppliers (producers, processors, retailers) to supply nutrient-rich foods.

Nutrition education should include information on:

- Food selection taking into account habits, price, taboos and desired changes
- Nutrition in general, while developing good knowledge, attitudes and practices concerning nutrition
- Food requirements of different age and sex groups (in particular children under 2 and pregnant and lactating women) and the importance of eating a diversified diet
- Food preparation, including improved complementary feeding recipes (for children 6-24 months) and improved family recipes
- Food hygiene
- Home-based food processing and storage

Including measures in programme design to build capacity of local institutions working in the food and agriculture sector (government, non-governmental and private sector) to address nutrition issues is also important. This can be done through pre-service and in-service training and on the job learning / mentoring, during the programme.

Tips:

- You can consult the ministries of health, agriculture and education and their development partners to see which nutrition education materials already exist. If there is a need to develop new materials, it is important to do so with all three ministries and their partners to ensure coherent messages are given by all sectors
- Nutrition education can be disseminated through agriculture extension systems (e.g. Farmer or Pastoral Field Schools), women's groups, producer organizations, schools, the health system and the media.
- FAO promotes a practical approach to nutrition education, including cooking demonstrations. School gardens are an important way of sensitizing children to the importance of diversified food production and consumption and an indirect way of reaching households and communities.

Additional information:

- The Family Nutrition Guide: <ftp://ftp.fao.org/docrep/fao/007/y5740e/y5740e00.pdf>
- A New Deal for School Gardens: <http://www.fao.org/docrep/013/i1689e/i1689e00.pdf>
- Complementary Feeding: <http://www.fao.org/ag/humannutrition/nutritioneducation/70106/en/>

Many additional resources are available on:

<http://www.fao.org/ag/humannutrition/nutritioneducation/en/>

Key features to consider in the design of nutrition education activities:

What important topics education or training could address:

- awareness-raising on food handling and food safety
- healthy food choices and balanced diets
- nutritional requirements of different family members
- encouraging cultivation and consumption of locally-available nutrient-dense food, even if available nutritious foods are low status
- food preparation and storage, including cooking demonstrations
- reduction of post-harvest losses and long-term storage to maintain nutrient content
- strategies to increase and diversify family food supplies
- encouraging environmentally sustainable food consumption patterns
- health risks of highly processed foods and obesity/chronic disease; and
- care practices, breastfeeding and addressing food taboos

Note: The focus and content of messages should be determined through an assessment of local knowledge, attitude and practices related to food and nutrition security.

(See: <http://www.fao.org/docrep/019/i3545e/i3545e00.htm>)

How education and behaviour change efforts can be made successful:

- Base messages and strategies on an understanding of local perceptions about diet and nutrition, reasons for current behaviours and barriers to and opportunities for behaviour change. (Positive deviance approach is one option.)
- Have a concise set of clear, actionable messages
- Build on existing messages and guidelines in-country, such as essential nutrition actions (ENAs) or national food-based dietary guidelines
- Relate messages closely to the agricultural intervention, such as nutrition information about crops produced and ways of preparing and preserving them
- Release information through multiple channels at once
- Build an enabling environment for nutrition education through: investing in capacity-development for nutrition education, including nutrition training for agriculture, health and education extension agents; nutrition curricula in primary schools, which may include school gardens; and increasing the availability of fruits and vegetables.

Where to gather target communities:

- group-based activities (women's groups, marketing associations, microfinance clubs)
- schools
- home visits
- community gardens or other gatherings specifically organized for training sessions
- market days; religious centres; performances (e.g. dramas, storytelling); and mass media (radio, television, billboards, posters).

Who could give nutrition education training sessions:

- programme staff
- agricultural extension agents
- collaboration with health staff (community health workers, auxiliary nurses, birth attendants) or nutrition volunteers

PROGRAMME REVIEW

This section aims to provide guidance to professionals reviewing the design of agricultural investment programmes with a “nutrition lens”.

Nutrition Situation

- What are the main nutrition problems in the country/area which should be addressed by the programme? Are the key nutrition problems of the country/area discussed in the programme document?

Vulnerable Populations/Target Beneficiaries

- Are the vulnerable populations/target beneficiaries identified and targeted?
- If yes, who are they? Is information provided on their geographical location in the country? Is information provided on their number/% of total population? Do they correspond to groups that are most vulnerable to malnutrition? Are their dietary habits known as well as the composition of the consumed foods?

Nutrition Goals/Objectives/activities

- Is/are goal(s) specific to food and nutrition security stated in the programme document? If yes, please state it/them.
- Are there nutrition-specific objective(s)?
- Are specific nutrition activities/best practices identified that will be implemented to achieve the nutrition objectives and mitigate potential harm to nutrition? If yes, which ones? Do they effectively enhance the programme’s nutritional impact? (refer to the Key Recommendations for Improving Nutrition through Agriculture and guidance provided in the Programme Design section for more detail).

Institutional arrangements, partnerships and coordination

- Are existing/appropriate institutions for implementing nutrition activities identified?
- Are the partners/stakeholders/change agents (e.g., governmental ministries and agencies, NGOs, international donor agencies, etc.) that will collaborate in implementing nutrition activities/best practices identified?
- Are mechanisms (existing or proposed) to facilitate coordination and communication among stakeholders discussed? What level do they operate? Who is involved in this process?
- Are any opportunities for public-private partnerships to address food and nutrition security discussed?
- How could these partnerships be improved?

Nutrition capacity-development

- Are nutrition capacity development needs discussed of e.g. institutes, governmental organizations, NGOs, policy makers, consumers? If yes, please describe
- Are activities to develop nutrition capacity identified in the plan? If yes, please describe.
- How else could this capacity be improved?
- Are adequate capacity building material available in the country or at international level that could be used, e.g. FAO?
- Is there technical and operational guidance to strengthen nutrition investments?

Monitoring and evaluation

- Are indicators to measure the performance of the nutrition activities identified in the plan? If yes, which ones?
- Is the existing capacity in the country (within government, NGOs, etc.) for data collection and analysis discussed? If yes, which institutions are responsible for M&E?
- Is there an interagency mechanism to track investments and ensure coordination?
- Are modalities planned to strengthen this capacity if needed?

Resource implications

- What resources are allocated for nutrition-related activities in the programme document? If not, what additional resources are needed to achieve the stated objectives, outcomes, and targets (e.g., staffing, technical assistance, IT, capacity development, other)
- What are possible sources of financing including government budget, international donors (grant and loan, pooled funding), PPPs, and other innovative mechanisms? Community based revolving fund?