



Improving Nutrition Through Multisectoral Approaches Agriculture and Rural Development

This guidance brief calls on Bank TTLs to take action on the following fronts:

- Incorporate nutrition sensitive analysis and activities into the design of Agriculture and Environmental Services (AES) projects, as well as in the food-security policy dialogue.
- During the project, periodically measure the progress of activities affecting nutrition using relevant output and outcome indicators (e.g. food consumption indicators) at a minimum at baseline, mid-term and project completion.
- Ensure that agriculture projects and policies do not unintentionally harm nutrition.

What is nutrition sensitive agriculture?

Nutrition sensitive agriculture aims to maximize the impact of nutrition outcomes for the poor, while minimizing the unintended negative nutritional consequences of agricultural interventions and policies on the poor, especially women and young children. It is agriculture with a nutrition *lens*, and should not detract from the sector's own goals. The agriculture sector is best placed to influence food production and the consumption of nutritious foods necessary for healthy and active lives. AES projects may also affect water quality, disease occurrence, food safety, and women's time use (which, in turn, affects child care practices) – each of which are important for nutrition.

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Principles for Nutrition Sensitive Agriculture

1. **Invest in women:** safeguard and strengthen the capacity of women to provide for the food security, health, and nutrition of their families.
2. Increase access to and year-round availability of **high-nutrient content food**.
3. Improve nutrition knowledge among rural households to enhance **dietary diversity**.
4. Incorporate **explicit nutrition objectives and indicators** into agricultural project and policy design.



Malnutrition is poor nutritional status caused by nutritional deficiency (undernutrition) or excess (overnutrition). This guidance brief focuses on **undernutrition**, which results from inadequate quantity and/or quality of food, disease, and inadequate care/feeding practices, and that is manifest in the form of low height-for-age (stunting), low weight-for-age (underweight), low weight-for-height (wasting), and/or micronutrient deficiencies (also referred to as “hidden hunger”).

Consequences of undernutrition

- **Single largest cause of child deaths.** Undernutrition contributes to at least 35% of child deaths globally.
- **Lost human capital.** Individuals undernourished as children have poorer cognitive development, lower school attainment and IQ, and lower productivity and income as adults. They are also more likely to have undernourished children, perpetuating poverty.
- **Lost economic growth.** Undernutrition costs an estimated 2-3% of GDP in many low-income countries.
- **Irreversible damage during the “first 1,000 days”.** Vitamin and mineral deficiencies experienced during pregnancy and the first two years of life will have severe and often irreversible consequences to a child’s development.
- **Important for all.** Everybody affects nutritional outcomes of the “first 1,000 days”, e.g. girls (who will become mothers), adult caretakers (who care for and feed infants), and adults (who provide for their families). Undernutrition also diminishes an adult worker’s productivity by exacerbating disease or through chronic fatigue and reduced work capacity in the case of iron deficiency anemia.

Examples of nutrition sensitive agriculture:

Dietary diversity promotion, e.g., backyard gardens, horticulture, pulses, livestock, dairy, fish, and healthy indigenous foods, with **nutrition/home economics extension services; biofortification, food fortification**, e.g., cereals, vegetable oils, milk, market-based food products; **women-focused agriculture**.



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Agriculture affects nutrition outcomes to varying degrees through several pathways. Evidence to date has shown that among the five main pathways, household consumption and women's empowerment (including women's control of economic resources) are the two linked most closely to nutritional status, and yield the greatest results in decreasing malnutrition.

Pathways linking agriculture to nutrition	
Pathway	Strength of pathway
1. Increase macroeconomic growth overall	Modest effect. Doubling per capita agricultural income is associated with an approximately 15-21% decline in stunting on average, which would result in very slow and uneven progress in reducing undernutrition.
2. Increase access to food by higher production and decreased food prices	Modest effect. Of the countries meeting the MDG1 target to halve hunger, fewer than one-third are on track to meet the MDG1 target to halve undernutrition, demonstrating the limited translation of national-level grain availability to nutritional improvements.
3. Increase household income through selling agricultural products	Variable effects. On average, income poverty and undernutrition are correlated, but increases in household income do not necessarily lead to improved nutritional status of its most vulnerable members. Increasing women's income has stronger positive effects on nutritional status. Existing empirical evidence shows commercialization based on cash crops has limited nutritional effects on vulnerable individuals in producer households.
4. Increase nutrient dense food production for household consumption	Some evidence. The best evidence to date is found from increasing small-scale production of nutrient-dense foods. Nutrition education enhances dietary consumption and the potential for consumer demand.
5. Empower women through targeted agricultural interventions	Strong evidence. Over 50% of the reduction in child underweight from 1970-1995 is attributable to improvements in women's status. In agricultural activities, increasing women's discretionary income and reducing women's time and labor constraints appear to be especially important to improve nutrition.



Client demand for nutrition-sensitive agriculture

There is increasing attention to addressing undernutrition through agriculture that will likely raise client demand. Important initiatives include:

- The Scaling Up Nutrition (SUN) global movement, with attention to multisectoral action.
- The Zero Hunger Challenge launched by the UN Secretary General to end hunger and malnutrition within our lifetimes
- Development of country CAADP plans (Comprehensive African Agriculture Development Programme) that include nutrition in Pillar 3 (Food Supply and Hunger).
- CGIAR research program (CRP-4), Agriculture for Improved Nutrition and Health (A4NH).
- Nutrition mainstreaming as a FAO corporate priority.
- Multiple development partners have recently developed agriculture-nutrition guidance and tools.

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Homestead food production in South Asia: Improving food security and nutrition through multiple pathways

Homestead food production projects in Bangladesh — implemented by Helen Keller International and partner CSOs—have resulted in higher vitamin A status, increased women’s income, and increased energy intakes for vulnerable household members. These projects achieved positive nutrition results with a combination of increased year-round food availability and nutrition education. Households with homestead gardens—sometimes complemented with small-scale animal husbandry—grew a greater variety and amount of foods, many of which provided vitamin A and other micronutrients. Nutrition education, and the fact that women managed the gardens and were the primary decision-makers about their use, helped to ensure the foods were consumed. Women also used income from selling the gardens’ produce to purchase other nutrient-dense foods such as lentils and animal-source foods. The homestead food production model has helped millions of people in vulnerable populations to improve year-round food security.



Brazil’s biofortification program: From farm to fork

EMBRAPA Food Technology of the Brazilian Agricultural Research Corporation—under Brazil’s Ministry of Agriculture, Livestock, and Food Supply—is leading the BioFORT project. Its goal is to increase the vitamin and mineral content of foods that are already part of the Brazilian population’s diet and to promote their consumption by the population and in school meals. The foods selected for biofortification across 11 regions of Brazil include maize, sweet potato, pumpkin, wheat, cowpea, cassava, beans, and rice. Each is bred using conventional breeding practices to produce varieties with higher nutritional content and equivalent or better agronomic qualities, including yield.

The state of Sergipe has one of the lowest Human Development Index scores in the country. The daily energy and micronutrient consumption is inadequate among schoolchildren and teenagers. Sergipe was selected as a test site to pioneer the integration of biofortified crops into the school feeding system. The use of high vitamin A cassava and sweet potato, high iron and zinc cowpea, and common bean are being tested in school meals to help students increase their intake of calories and essential micronutrients.

Other project teams are developing and testing commercial products with biofortified varieties, such as breads, snacks, and meals of precooked instant soups and porridges. The R&D effort also tests different preparation and packaging solutions to ensure the preservation of micronutrients.



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Do no harm considerations

During the design phase, AES project teams can assess potential harms and develop mitigation strategies appropriate for the context. Monitoring for potential harmful impacts during project implementation also will provide information important for triggering mitigation strategies.

Agricultural productivity, focused primarily on staple grains, does not necessarily reduce undernutrition. Policies that strongly favor staple grains over other crops or foods may skew the balance from nutritious foods, e.g., horticulture, pulses, livestock, dairy, fish, and healthy indigenous foods. These foods do not receive preferential treatment such as subsidies for staple grains, and basic agricultural research/education exclusively focused on staple grains. Further unintended negative consequences caused by AES projects include the following:



Nutrition-sensitive agriculture in practice	
Observed negative impacts	Possible mitigation measures
Irrigation projects may increase hydrophilic vector-borne disease, e.g., malaria, schistosomiasis, and Japanese encephalitis	<ul style="list-style-type: none"> • Include analysis of hydrophilic vector-borne diseases in environmental safeguard analysis; ensure mitigation measures are established
Animal husbandry projects may increase the risk of zoonotic diseases	<ul style="list-style-type: none"> • Strengthen mitigation measures and risk management framework for zoonotic infections in program design
Reduction in women's access to resources if projects shift production toward male-dominated crops	<ul style="list-style-type: none"> • During project social or gender analysis, determine who is benefiting from intervention activities and develop strategies to ensure equitable intra-household access to resources
Reduction in women's time available for child care, impacting child health and nutritional status	<ul style="list-style-type: none"> • Include women's time use in project gender analysis to determine women's labor time requirement • Introduce timesaving technologies for tasks commonly performed by women
Production increase/price reduction in calorie-dense foods may unfavorably alter dietary quality and contribute to obesity and chronic diseases	<ul style="list-style-type: none"> • Promote production and consumption of micronutrient-rich crops • Include food consumption indicators in project's Results Framework to monitor consumption trends which could affect likelihood of obesity and chronic disease

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Incorporate indicators in AES to monitor nutrition

Because of the agriculture sector's strong role in addressing dietary constraints to good nutrition, food consumption indicators are central measures of nutrition-relevant impact for AES projects. Anthropometry and biochemical measures are important *if* a project goal is to decrease stunting, underweight, or vitamin and mineral deficiency rates, and if sufficient sample sizes permit adequate power. For most AES projects, **using food consumption indicators is a practical option to provide relevant information about nutrition-related impacts.** Suggested food consumption indicators include:

- **Simple, project-specific indicators** based on project interventions, e.g., number of days the previous week when any amount of X (nutritious food) was consumed.
- **Dietary Diversity Scores** consist of a simple count of the different food groups that a household or an individual has consumed over a given period of time (usually 24 hours). The *household* dietary diversity score reflects the food access dimension of food security, while *individual* scores have been

validated as a measure for calorie and nutrient adequacy of the diet. These scores are being used in WHO, FAO, and USAID Feed the Future projects.

- **Food Consumption Score** is a composite score based on dietary diversity, food frequency, and the nutrient content of different food groups consumed by the household. It has been validated against per capita calorie consumption and asset and wealth indices. The score is being used by WFP in their surveillance activities.
- **Months of Adequate Household Food Provisioning** indicator measures household food accessibility throughout the past year, and reflects the seasonality aspect of food security. It has been incorporated as a standard impact indicator in all Africare's food security programs.
- **Household Hunger Scale** is a measure of the degree of household food insecurity over a recall period of four weeks. It has a strong relationship with household income and wealth scores, and is being used by FAO and USAID Feed the Future projects.



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