Linking Agriculture and Nutrition

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Addis Ababa, Ethiopia June 7, 2012

Why should agriculturalists care about nutrition?

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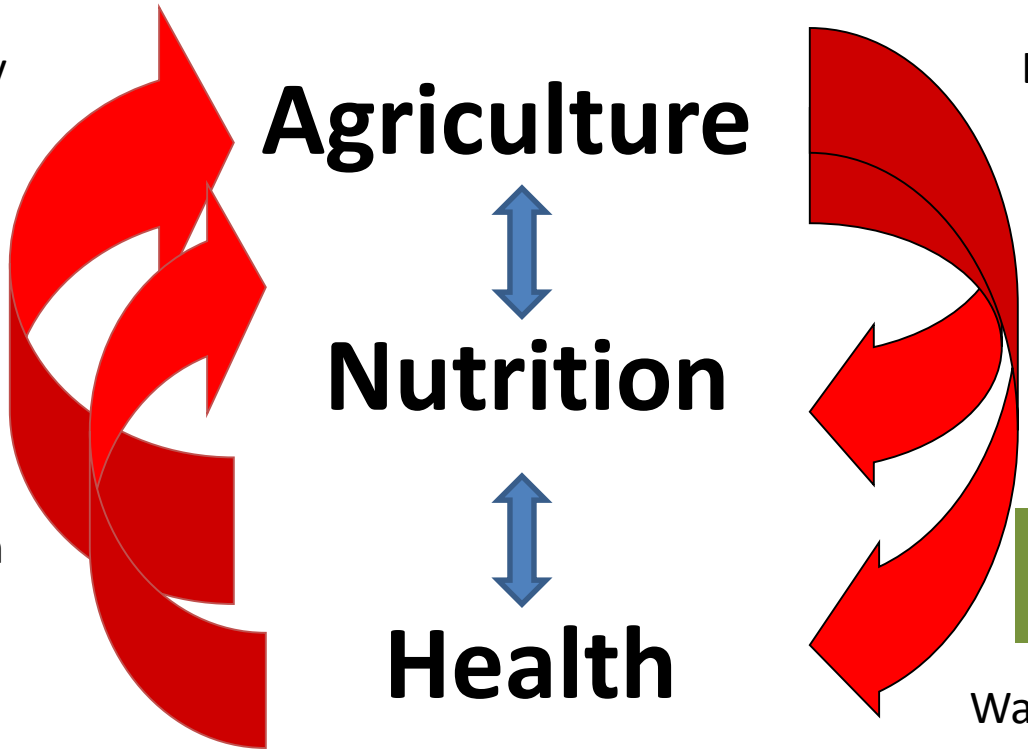
Agriculture – Nutrition – Health

HEALTH & NUTRITION BENEFITS AGRICULTURE THROUGH:

- Productivity
- Risk taking
- Education
- Cognition
- Endurance
- Physical strength



AGRICULTURE BENEFITS NUTRITION + HEALTH THROUGH:

- Livelihoods
- Income
- Employment
- Food security
- Dietary diversity
- Gender equity

AGRICULTURE POSES RISKS:

- Water-related diseases
- Food-borne diseases
- Zoonotic diseases

Agriculture and nutrition are both central elements of food security

Pillars of Food Security

- Availability
- Access
- Utilization
- Stability

Food for Peace Strategic Objective:

Food insecurity of vulnerable populations reduced

Universal MYAP (Multi-Year Assistance Program) indicator: % underweight status of children aged 0-5

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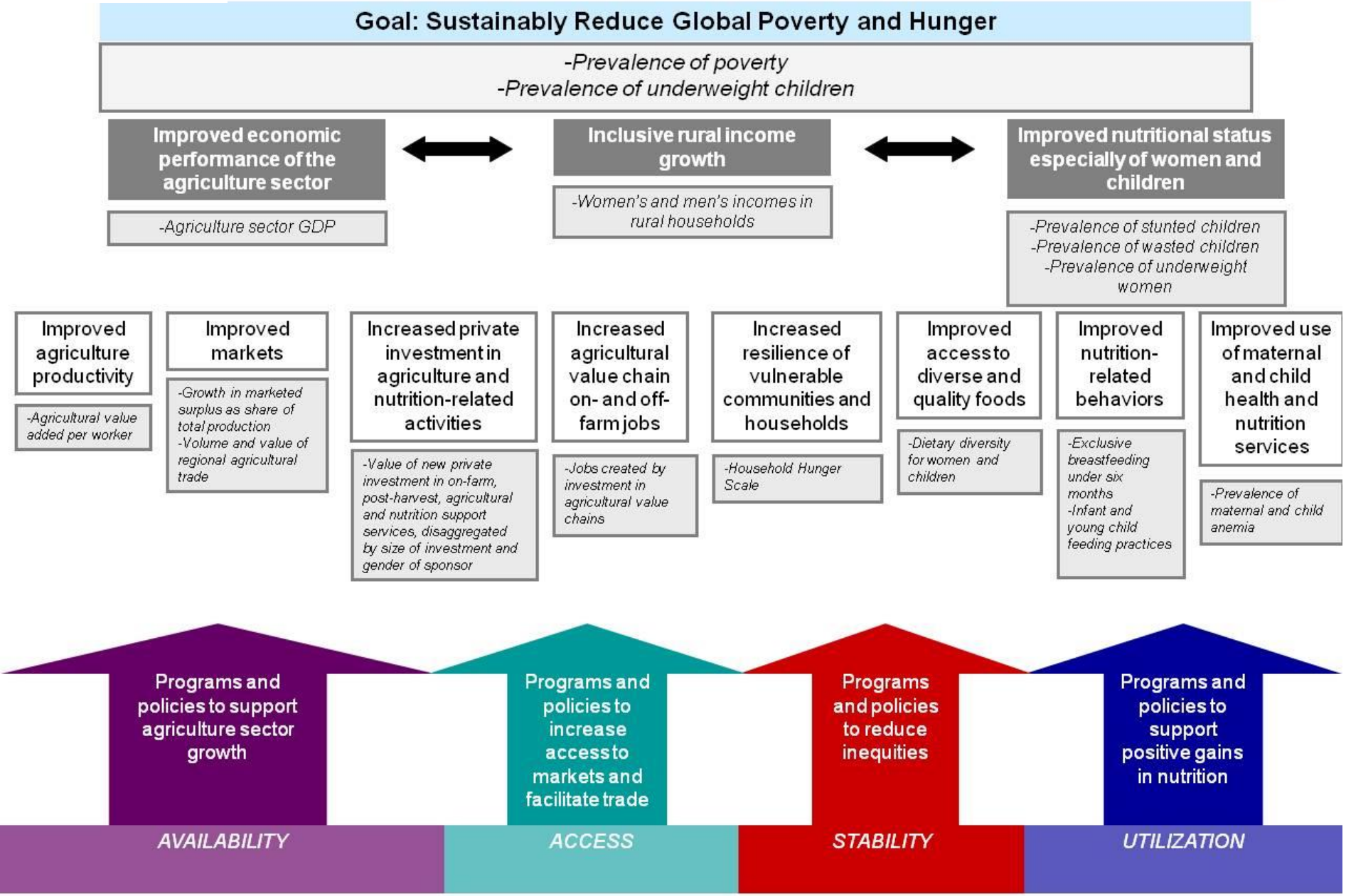
FEED THE FUTURE RESULTS FRAMEWORK: GOALS, OBJECTIVES AND INDICATORS



What are the objectives of agricultural programming?

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Increased agricultural income and nutrition: are there links?

A market-focused agricultural strategy – which increases farmer incomes – can indeed have positive health and nutrition impacts.

One study found that, when agricultural value-added per worker increased from $200 to $500per year, the percentage of malnourished people in the population fell from 35% to 20%.

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However…

The same change in malnutrition was found when GPD growth occurred at the same rate (*agricultural* growth in particular does not have intrinsically larger effects)

Another study found that, while GDP growth causes a fall in stunting, agricultural growth had no impact.

Country examples:

Agricultural value added increases $100/person, malnutrition decreases 15-20%:

Malawi, Vietnam, Bangladesh

Agricultural value added increased, malnutrition rose:

Guatemala, India, Egypt

Why is agricultural income insufficient for good nutrition?

- While farmers can spend extra income on food, they often spend that money on staples, or non-nutritious foods such as sugar.
- Mercy Corps example: In Alta Verapaz in Guatemala, where stunting rates are 60%, farmers sell the tomatoes they grow and buy more rice and beans.

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Connectors between agricultural development and nutrition

- Increased food for home consumption
- Increased income to spend on food
- Reductions in market prices because of increased production
- Shifts in food preferences: greater diversity, more nutritious choices
- Shifts in control of resources in household

Strong link to **gender** for all these connectors

Experiences from programs linking agriculture with nutrition

- Formally
- Informally

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Linking Agriculture and Nutrition

Programs with a focus on agricultural productivity can incorporate nutrition in several ways:

- **Biofortification**
- **Nutrition education**
- **Homestead food production**
- **Nutritionally sensitive value chains**

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Biofortification for Improved Nutrition

- Biofortification is the process of breeding crops that are rich in bioavailable micronutrients.
- Interventions utilize the use of staple foods, such as rice, maize, wheat, and cassava to directly improve nutrition outcomes.
- These staples are a good source of energy but not of micronutrients.

Why Biofortification?

- addresses the root causes of micronutrient malnutrition
- targets the poorest and most vulnerable
- uses built-in delivery mechanisms
- scientifically feasible
- cost effective
- complements other ongoing methods of dealing with micronutrient deficiencies
- does not require change in diet/ behavior of targeted beneficiaries

Nutrition Education

- Evidence has shown that programs which integrate nutrition education show better results on improving nutrition.
- Interventions that successfully **translate increased production into better nutrition outcomes**, especially for children, usually incorporate **communication strategies** that relate the significance of positive or negative behaviors to health and nutrition.

Nutrition Education (2)

- One study compared 30 agricultural interventions that measured impact on nutrition and found that most of these interventions increased production, but did not necessarily increase nutrition or health within participating households.

- It did find however, that of the 19 interventions that improved nutrition, 14 of them included an investment in education.

A review of the effectiveness of agriculture interventions in improving nutrition outcomes. Peter R Berti*, Julia Krasevec and Sian FitzGerald. Public Health Nutrition: 7(5), 599–609. 2003

Homestead Food Production

- Applicable for households with limited land access.
- Good way to increase dietary diversity and targeting specific nutritional needs (e.g., Vitamin A deficiency).
- Often complementary with women's traditional roles/ area of responsibility – gardens and small livestock. This can mean that women will have a greater decision making role on use of food for consumption or sale.

Nutritionally Sensitive Value Chains

Why use a value chain approach?

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Nutritionally Sensitive Value Chains

- A **sustainable** approach to address problems of poor diet quality and resulting micronutrient malnutrition. The nutrition community efforts to address malnutrition have often focused on quick fixes.
- The value-chain approach is a way to tackle key underlying determinants of under-nutrition — the lack of access to high-quality foods and balanced diets.

Improving the bean value chain in Kamuli district of Uganda

Enhancing nutritional value and marketability of beans through research and strengthening key value-chain stakeholders in Uganda

Objectives:

Overall: Improve sustainable livelihoods in rural communities

Nutrition related objectives:

- Improve bean quality and yields
- Enhance nutritional value and appeal of beans
- Increase market access and consumption

Source: Case study: Enhancing nutritional value and marketability of beans through research and strengthening key value-chain stakeholders in Uganda. Robert Mazur, Iowa State University, Dorothy Nakimbugwe, Makerere University, Uganda Michael Ugen, National Crops Resources Research Institute, Uganda, Henry KizitoMusoke, Volunteer Efforts for Development Concerns, Uganda

What are some ways in which the Kamuli farmers could integrate nutrition into their bean value chain?

Actions along value chain to lever improved nutrition outcomes

Production: work on improving varieties to boost yield

Post-harvest handling: analysis of nutrient quality at different post-harvest stages

Processing: analyses to identify best practices to maximize retention of nutrients and reduce/eliminate anti-nutrients; development of quick cooking bean flour

Consumer demand: survey to understand preferences and demand, awareness of nutritional and health benefit, cooking trainings

Price premiums for nutritious foods

- Uganda, Mozambique: HarvestPlus began distributing biofortified sweet potatoes in 2007.
- They are advertized as containing “extra Vitamin A.”
- They sell for 10% more than other sweet potatoes.

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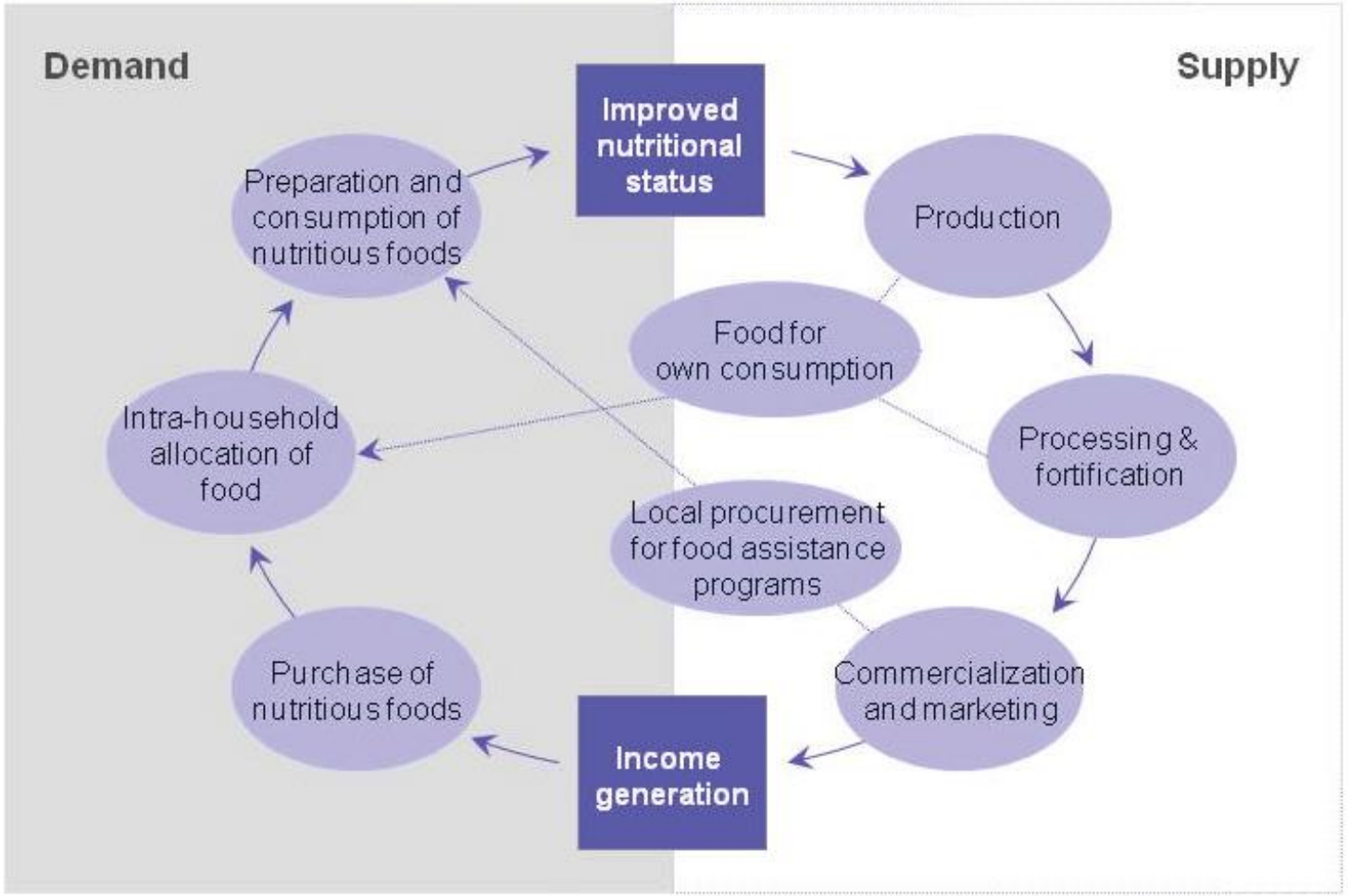
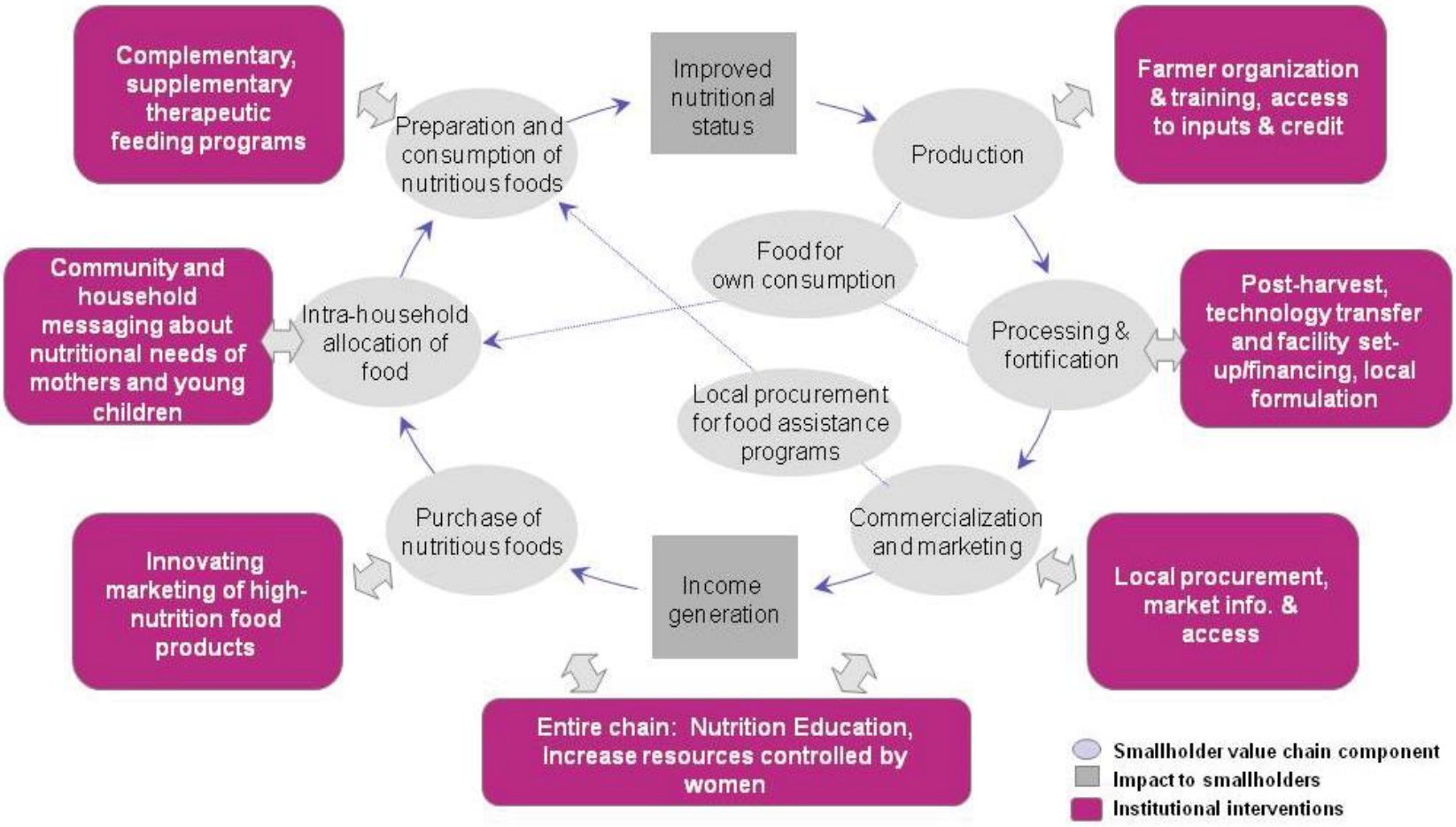
The smallholder value chain linking supply and demand for nutritious foods at the household level



Interventions to target each component of the value chain



Case Study: Orange-Flesh Sweet Potatoes

Context: Two-year intervention in drought-prone areas in Central Mozambique, which is characterized by high levels of child malnutrition, a monotonous diet with cassava as the primary staple, and very poor resource base.

Vitamin A deficiency rate was 58% at baseline. White-fleshed sweet potatoes were already widely cultivated and consumed in the area.

Case study: Increasing production, availability and consumption of vitamin A-rich orange fleshed sweet potato in Mozambique and Uganda. Andrew Westby, Claire Coote, Keith Tomlins, Natural Resources Institute, University of Greenwich, UK

OFSP Interventions

- Free OFSP vines distributed to farmers via farmers' associations
- Multiple communication channels to stimulate demand: community theatre, radio spots, visible presence at local markets, and nutrition extension
- Agricultural and nutrition extension services, including production, storage, processing commercialization, and marketing
- Nutrition extension included with the goal to improve infant and young child feeding practices using OFSP.

OFSP Results and Impact

- 90% of intervention households produced OFSP (11% by control), and of these 30% sold OFSP
- Yields were similar to white-fleshed sweet potatoes
- OFSP was the cheapest source of vitamin A in local markets
- Intervention children were 10 times more likely to eat OFSP frequently
- Vitamin A intakes among intervention children were 8 times higher than controls; energy intakes and intakes of several other micronutrients were also higher
- Prevalence of low serum retinol among young children decreased from 60% to 38%; no change was noted in control group

OFSP Lessons Learned; Questions for Future

- Limited incentive for farmers to preserve vines for the next planting season, as they were free
- Sustainability depends on the ability and willingness of farmers to invest in improved vine conservation and multiplication or willingness to pay for vines
- Intensive extension package – research is needed to identify the lowest cost and most cost-effective interventions that can achieve nutritional impacts
- Further research is needed to determine whether adoption of OFSP is sustained without continual input on the demand creation side.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