INTEGRATING NUTRITION AND AGRICULTURE

NUTRITION SENSITIVE VALUE CHAINS

ZAMBIA CASE STUDY

COLLABORATIVE ACTION IN DEPLOYING BIOFORTIFIED CROPS

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OUTLINE OF PRESENTATION

» Context: Background information

» Biofortification science

» Nutrition sensitive value chains - Zambian experience with Vitamin A Maize

» Lessons, opportunities, challenges and recommendations
ZAMBIA STATISTICS

Population: 13 million

Small holder Farmers: 1.2 – 1.4 million

Economy: Copper and Agriculture – supports 70% livelihoods

Crops: Maize, Gnuts, Beans, Millet, Cassava

CONTEXT

Life Expectance: 40 years
Cassava 22%
Cotton 8%
Groundnuts 9%
Maize 44%
Millet 3%
Mixed Beans 3%
Sorghum 2%
SoyaBeans 3%
Sunflower 2%
Wheat 2%
Sweet Potatoes 2%

ZAMBIA CROPPING PATTERN ACCOUNTS FOR 57%
DAILY CALORIC INTAKES TAKES AT LEAST 43% OF AGRICULTURAL BUDGET
**CONTEXT - NUTRITION**

**STUNTING**
- 45% National average for children under 5 years. 21% being severe.

**VITAMIN A DEFICIENCY**
- 54% of children under 5 years severely affected

**ANEMIA PREVALENCE**
- Children 6 – 59 months = 46.9%
- (1999) among pregnant women = 50% of women attending antenatal clinics are affected

**UNDERWEIGHT**
- 15% of children under 5
Food Security with limited Nutrition Security

Zambia white maize production has been outstripping annual maize requirements
RESPONSE TO UNDERNUTRITION
SOME HIGH IMPACT INTERVENTIONS

Dietary Diversity
DIETARY DIVERSITY

» Cook books are distributed and utilisation workshops are conducted by MAL and Partners

» Utilisation of fish and animal sources of micronutrients is promoted. Milk is included in school feeding programs. Fish provides 30% of protein needs in local diets.
RESPONSE TO UNDERNUTRITION
SOME HIGH IMPACT INTERVENTIONS

Supplementation

Dietary Diversity
Twice per year children under 5 years receive Vitamin A capsule supplements. Achieves a geographical coverage of about 90%. It is estimated that supplementation results in 23% reduction in mortality.
RESPONSE TO UNDERNUTRITION
SOME HIGH IMPACT INTERVENTIONS

Supplementation

Commercial Fortification

Dietary Diversity
COMMERCIAL FORTIFICATION

» By mandate, refined sugar in Zambia is fortified with Vitamin A

» Several other commercial products are fortified with Vitamin A
UNDERNUTRITION!!!!!!!!!!!!!!

**STUNTING**
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**UNDERWEIGHT**
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RESPONSE TO UNDERNUTRITION:
SOME HIGH IMPACT INTERVENTIONS

- Supplementation
- Commercial Fortification
- Dietary Diversity
- Biofortification

[Image: Illustration of puzzle pieces representing different interventions]
Biofortification is an agricultural approach to better nutrition.

Uses **conventional breeding** to select for higher vitamin and mineral contents in staple crops (is not GMO)

Focuses on 3 micronutrients that are most limiting: vitamin A, zinc, and iron

Targets people who eat large amounts of staple foods daily and who mostly live in rural areas

Offers a one-time research investment to develop crops; recurrent costs are low
BIOFORTIFIED CROPS FOR ZAMBIA

- **Provitamin A Maize** (2012)
- **Provitamin A Sweet Potato** (2012)
- **Iron (Zinc) Beans** (2013)
Figure 5: Impact of REU Intervention on mean vitamin A intakes (μg Retinol Activity Equivalents (RAE)/day), Mozambique and Uganda.
COMMERCIALISATION OF ORANGE MAIZE IN ZAMBIA

GV665A
- SEEDCO
- Tasked to produce 100mt in 2014

GV664A
- ZAMSEED
- Tasked to produce 100mt in 2014

GV662A
- KAMANO SEED
- Tasked to produce 50mt in 2014
ACTORS IN VITAMIN A MAIZE VALUE CHAIN

Partnerships with MAL, MoH, MoE, Com Dev, NGOs

Partnerships with WFP, World Bank, Millers, Retail shops

FROM RESEARCH

TO CONSUMPTION
Advocacy and promotional campaigns for scaling up nutrition

Policy analysis and formulation

Delivery of services, e.g. linking farmers to markets, post harvest handling etc

Implementation of government and donor funded projects

Knowledge and information sharing and dissemination

Mobilization of resources to address/resolve malnutrition
» Consumption patterns and attitudes for new crops are a difficult to change. Using diverse sources information (NGOs, Public, Private, CBOs etc) works better.

» Even rural populations respond to nutrition information.

» Multi-stakeholder collaboration across private, public and NGO sectors is crucial to drive adoption of nutritious crops.
At least 100,000 farmers growing and consuming by 2015