Food Security and Agriculture Core Course
RESILIENCE

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Photo: Morgana Wingard
OBJECTIVES

• Articulate how shock, stressors and relative risk have an impact on outcomes we seek to achieve

• Identify how the agriculture sector programs contribute to the resilience capacities

• Understand how resilience relates to the GFSS Sustainable Agricultural-led Growth and Nutrition objectives
CHANGE IN FOOD SECURITY IN ETHIOPIA LOWLANDS DURING EL NINO DROUGHT

Households in communities reached by comprehensive resilience programs

Other households

LEARN MORE: WWW.US AID.GOV/RESILIENCE
GLOBAL FOOD SECURITY STRATEGY

**Goal:** Sustainably reduce global hunger, malnutrition, and poverty

**Objective 1:** Inclusive and sustainable agricultural-led economic growth
- IR 1 Strengthened inclusive agriculture systems that are productive and profitable

**Objective 2:** Strengthened resilience among people and systems
- IR 2 Strengthened and expanded access to markets and trade
- IR 3 Increased employment and entrepreneurship
- IR 4 Increased sustainable productivity, particularly through climate-smart approaches
- IR 5 Improved proactive risk reduction, mitigation, and management
- IR 6 Improved adaptation to and recovery from shocks and stresses

**Objective 3:** A well-nourished population, especially among women and children
- IR 7 Increased consumption of nutritious and safe diets
- IR 8 Increased use of direct nutrition interventions and services
- IR 9 More hygienic household and community environments

**Cross-Cutting Intermediate Results (IR):**
- CC IR 1 Strengthened global commitment to investing in food security
- CC IR 2 Improved climate risk, land, marine, and other natural resource management
- CC IR 3 Increased gender equality and female empowerment
- CC IR 4 Increased youth empowerment and livelihoods
- CC IR 5 More effective governance, policy, and institutions
- CC IR 6 Improved human, organizational, and system performance

**Complementary Results:**
Long-term food security efforts benefit from and contribute to complementary work streams that promote:
- Economic growth in complementary sectors
- Healthy ecosystems and biodiversity
- Stable democratic societies that respect human rights and the rule of law
- A reduced burden of disease
- Well-educated populations
SUSTAINABLE POVERTY ESCAPES

* Bangladesh

Households in rural areas, 1997–2010

- Remain out of poverty
- Fall back into poverty
- Churn around poverty line

Sources of resilience

- Household resources: Owning productive resources, such as land and livestock.
- Household characteristics: Smaller households and those in which the head of the household has an education.
- Household activities: Engagement in non-farm activities.
- Gender: Female-headed households are more likely to experience a sustained poverty escape than to backslide or to fall into poverty.
- Transfers: Female-headed households receiving remittances.

Ethiopia
Households in rural areas, 1997–2009

Uganda
All households, 2005–2012
USAID defines resilience as “the ability of people, households, communities, countries and systems to mitigate, adapt to and recover from shocks and stresses in a manner that reduces chronic vulnerability and facilitates inclusive growth.”

– USAID’s Building Resilience to Recurrent Crisis (2012)
SOURCES OF RESILIENCE

Photo: USAID
IR4: DETERMINANTS OF SUSTAINABLE AG PRODUCTIVITY GROWTH

Inputs and Input Markets
- Labor
- Land
- Water
- Improved genetics (e.g., seeds or breeds)
- Fertilizer
- Finance and capital
- Information
- Risk reduction (e.g., index insurance)

Environment
- Soil
- Weather
- Topography
- Agro-ecological zone
- Ecosystem services

Management
- Integrated pest management
- Water harvesting
- Mechanization
- Increased nutrient use efficiency
- Biological nitrogen fixation

Yields, off-take or equivalent
- e.g., primary productivity of crops, animal off-take, on-farm production per unit area

Production
- i.e., quantity available for sale or consumption
  - Harvest practices (e.g., sorting, handling)
  - Drying
  - On-farm storage
  - Post-harvest loss reduction

Output markets
- i.e., determines the value of the production
  - Off-farm storage
  - Value addition & processing

Increased Output Value/Input Costs

Sustainable Agricultural Productivity Growth requires pushes, pulls, and feedback loops among the components.
EXAMPLE: FMNR IN SAHEL

- Improves soil fertility and crop yields
- Provides animal fodder and shade for crops/livestock
- Reduces soil moisture loss and soil erosion

Photo: ICRAF, P. Savadogo
IR 5: IMPROVED PROACTIVE RISK REDUCTION, MITIGATION AND MANAGEMENT

- Early warning, early action and preparedness
- Financial services (credit, remittances, savings, insurance)
- Asset accumulation, protection and management
- Social capital
EARLY WARNING, EARLY ACTION AND PREPAREDNESS

• Early warning should be linked to early action and preparedness

• Examples:
  - Government-led shock-contingency plans and funding (e.g., Kenya-ASAL Drought Contingency Fund project)
  - Forecast-based financing

• Tools for early warning (e.g., FEWSNet, climate and weather services)
SHOCK RESPONSIVE PROGRAMMING

In the life of a project……

shocks are more likely to occur than not

price shock  
drought  
conflict/political shock  
flood  
disease outbreak  
pests (eg., fall army worm)

Photo: ILRI/George Wamwere-Njoroge
USAID Technical Resource:
Approaches and Tools to Shock Responsive Programming and Adaptive Mechanisms
FINANCIAL SERVICES & FINANCIAL INCLUSION

- Insurance
  - Indemnity
  - Index
  - Sovereign risk

- Savings and credit
  (e.g., VSLAs, micro-credit, emergency loans)

- Remittances

Photo: CARE
ASSET ACCUMULATION, PROTECTION AND MANAGEMENT

- Number and type is a strong predictor of resilience across contexts
- Strategies to increase
  - Livestock ladders
  - Land accumulation
  - Other market-based strategies
- Asset diversification

Photo: USAID
SOCIAL CAPITAL & SOCIAL NETWORKS

Bonding, bridging and linking social capital

SOCIAL CAPITAL

Example activities:

• Bonding
  - Providing “safe spaces” for women and girls to meet and share information

• Bridging (to link disparate groups)
  - Agricultural cooperatives
  - VSLAs

• Linking
  - Value chain approaches
  - Business networks

Photo: MCHIP/Karen Kasmauski
IR 6: IMPROVED ADAPTATION TO AND RECOVERY FROM SHOCKS, STRESSES

- Access to and use of risk information
- Ecosystem and natural resource management
- Diversifying livelihood risk
- Social protection and safety nets
- Aspiration and empowerment
- Human capital
ACCESS/USE OF RISK INFORMATION

- Improved understanding of medium to longer-term changes and trends
  - Demographic trends, urbanization, land-use changes
  - Conflict dynamics, environmental change
- Information supply and user demand
- Timeframes for decision-making
- Building stakeholder capacity to use data
LIVELIHOOD DIVERSIFICATION

Photo: USAID

Photo: Kelly Lynch

Photo: USAID Nepal

Photo: USAID/Wasif Hasan
Diversify livelihood risk, not just the number of livelihoods.
DIVERSIFYING LIVELIHOOD RISK

• Negative coping strategies:
  - “Hanging in” or “dropping out”

• Positive adaptive pathways:
  - Stepping up within agriculture through agricultural diversification
  - Stepping partially out of agriculture
  - Moving out of agriculture
SOCIAL PROTECTION/SAFETY NETS

- Enable poor and chronically vulnerable households to escape and remain out of poverty
- Can smooth household consumption
- Encourage engagement into higher risk/higher reward livelihoods and invest in increasing agricultural productivity
ASPIRATION AND EMPOWERMENT

Sources of resilience that transcend technical sectors are important.

Youth
Risk perception
Aspirations (or hope)
Self-efficacy
Female empowerment
Social capital
Social inclusion
HUMAN CAPITAL

• Investments in nutrition, health, and education

• Critical to breaking cycle of intergenerational poverty

Photo: USAID/Louis Erwin Stippel
KEY TAKEAWAYS

• Elevation of resilience to a GFSS Objective reflects
  - prioritizing building resilience to recurrent crises
  - broader relevance of resilience to ending hunger and poverty

• Resilience is not an outcome but an essential set of capacities needed to achieve and maintain well-being outcomes in the face of compound and complex risk

• Resilience is sector agnostic, but its roots in USAID are firmly in food security

• Evidence is clear that strengthening resilience requires working across and transcending sectors
QUESTIONS?
SHOCKS AND STRESSES
INTEGRATING NUTRITION INTO AGRICULTURAL MARKET DEVELOPMENT ACTIVITIES

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Photo: Winrock International
OPENING ACTIVITY

Nutrition-specific Interventions:
• What do nutrition-specific interventions target?
• At what level (e.g., individual, household, societal) do nutrition-specific interventions operate?
• What are some examples of nutrition-specific interventions?

Nutrition-sensitive Interventions:
• What do nutrition-sensitive interventions target?
• At what level (e.g., individual, household, societal) do nutrition-sensitive interventions operate?
• What are some examples of nutrition-sensitive interventions?
OBJECTIVES

• Increase understanding of nutrition-specific and nutrition-sensitive programming

• Increase ability to identify and apply nutrition-sensitive agriculture best practice in program design

• Increase understanding of the Multi-Sectoral Nutrition Strategy and where to locate relevant resources
WHY SHOULD WE CARE ABOUT NUTRITION?

45% of child deaths are due to undernutrition. There are many short-term and long-term consequences.

Source: Global Nutrition Report, 2016
THEY ARE FIVE

IMPROVED NUTRITION DRIVES ECONOMIC GROWTH

Investment = $1  Return = $16

CHANGING TRENDS IN NUTRITION

- Africa is the only region where the number of stunted children has risen.
- Western Africa accounts for half of the stunting increase in Africa between 2000 and 2016.

Number (millions) of stunted children under five, by United Nations region

CHANGING TRENDS IN NUTRITION

- Overweight children are on the rise in Africa and Asia.
- In Africa, the number of overweight children has increased by nearly 50% since 2000.

Number (millions) of overweight children under five, by United Nations region

USAID MULTI-SECTORAL NUTRITION STRATEGY
CONCEPTUAL FRAMEWORK

**OPTIMAL NUTRITION**

**ADEQUATE DIETARY INTAKE**
- Sustainable household food security
- Access to sufficient and nutritious foods
- Stability and resilience
- Adequate time, space, and support for care
- Appropriate education and knowledge

**LOW DISEASE BURDEN**
- Access to effective health services
- Delivery of essential health and nutrition services
- Healthy environment
- Access to safe water and sanitation
- Appropriate hygiene practices

**Nutrition Enabling Environment**
- Gender equality, women’s empowerment, and girls’ education
- Country commitment and capacity, leadership, financial resources for nutrition, knowledge and evidence, health and food systems, trade/private sector
- Socio-cultural, economic, environmental, and political context
HOW DOES AGRICULTURE AFFECT NUTRITION?

Food consumed
- calories
- protein
- micronutrients
- safety

Farm income invested in …
- diverse diet and nutrient-rich foods
- health and WASH services and products

Gender in agriculture
- maximizing women’s control of income
- managing demand of women’s time and energy
AGRICULTURE AS A FOOD SOURCE: HOMESTEAD FOOD PRODUCTION

• Producer households more likely to consume a diversity of foods than non-producing households
• Home production associated with better household and women’s dietary diversity; however market access may play a more important role in dietary quality
• Production decisions influenced by market prices, relative costs and risks, productive assets, preferences and cultural norms
• Processing and storage impact food access and nutrient content
HIGH AGRICULTURAL PRODUCTION AND MALNUTRITION CAN BE COUNTER-INTUITIVE

Food Production in Tanzania

Prevalence of Childhood Malnutrition in Tanzania

AGRICULTURE AS A SOURCE OF INCOME

- Income can have a positive, negative or neutral effect on nutrition
- Role of markets
- Assumes services are accessible, affordable and of high quality
COST OF GOOD NUTRITION

Annual Cost of Diet for Typical Family in Burera District, Rwanda (2011)

- **Energy only diet**: 205,500
- **Minimum cost nutritious diet**: 352,300
- **Locally appropriate cost-optimized nutritious diet**: 535,400

Source: Save the Children, UK. A cost of diet analysis in a northern highland district of Rwanda, 2011
COST OF GOOD NUTRITION

- Average household size: 7
- 50% of population earns < $3.13 / day
- 15% of population earns < $1.50 / day

- Most expensive foods in lowest-cost nutritionally best diets: eggs, chicken, Incaparina (commercially produced fortified corn- and soy-based flour), tamalito (maize-based food), and tortilla

AGRICULTURE AFFECTS GENDER

Control over assets and use of income
• Involvement in decision-making improves diets for women and children

Time use & childcare
• Tension between earning income and childcare

Female energy expenditure
• Physical work compromises nutrition for pregnant and lactating women
HOW DOES WASH AFFECT NUTRITION?

• WASH is critical to helping to improve nutrition outcomes

• Poor WASH can affect a child’s nutritional status via:
  - Diarrhea
  - Intestinal parasitic infections
  - Environmental enteric dysfunction
  - Diverting time away from child care

• Simple WASH actions address both immediate and underlying determinants of malnutrition

• Food and agricultural systems provide opportunities to promote WASH and prevent exposure to contaminated food and water
HOW DOES FOOD SAFETY ENHANCE HOUSEHOLD NUTRITION?

QUIZ!

31 = 33

40% = 33%
CAUSES OF FOODBORNE DISEASE

Source: Havelaar et al., 2015
FOOD SAFETY & HEALTH CONCERNS

• Diarrhea: Why is it important to control?

• Only up to 60% of diarrhea can be attributed to WASH-related issues. The remaining 40% may be related to food contamination.

Photo: USAID
FOOD SAFETY & DIET DIVERSITY

High

Low

Food Safety concerns

Diet Diversity

High

Source: Kablan, A.
FOOD SAFETY, ENVIRONMENTS & PEOPLE
KEY PRINCIPLES FOR LINKING AG/NUT
CONSIDERATIONS FOR DESIGN

All sectors have a role to play!
1. KNOW YOUR CONTEXT

- Nutrition “status”: Who is malnourished?
- How they interact with food market systems
- Market and enabling environment constraints
- Sources of risk and stress
- Who is doing what where?
- Host country support and commitment
- Set and monitor realistic nutrition targets
2. NUTRITION-SPECIFIC + SENSITIVE

- Evidence-based, nutrition-specific and nutrition-sensitive interventions must be simultaneously programmed
- Include nutrition-sensitive ag interventions, outcomes and indicators
- Link with nutrition-specific activities in co-located areas

Frameworks, principles and pathways should be referenced to help check assumptions and plan(s)
3. WASH

• Improvements in WASH practices and water resource management can positively affect nutritional outcomes

4. CONSULT AN EXPERT!

• Addressing nutrition can be complex

• csinutritiondivision@usaid.gov
5. SUSTAINABLE PRODUCTION & CONSUMPTION OF NUTRITIOUS FOODS

• Impact on local markets is crucial
• Avoid doing harm to the natural resource base: climate-smart ag!
• Generate demand and improve supply
• Strengthen the enabling environment to ensure food safety and quality
6. DIETARY DIVERSITY & ANIMAL SOURCE FOODS

Improving dietary diversity is key, especially nutrient-rich foods and a good source of protein, particularly animal source foods.
7. PLACE BEHAVIOR CHANGE AT THE CENTER OF DESIGN

- Prioritize whose behavior(s) or practices might best address immediate and underlying contributors to undernutrition

- Learn more about behavior change through the Accelerating Behavior Change in Nutrition-Sensitive Agriculture online training!
8. THINK OUTSIDE THE ZOI

- Interventions must consider food sources produced outside the ZOI, but on which communities depend for optimal nutrition

- Integrated nutrition programming in Feed the Future ZOI must target:
  - availability
  - access
  - utilization
  - stability
  - affordability
  - local market infrastructure
  - food system
9. GENDER EQUALITY & WOMEN’S EMPOWERMENT

• Gender norms can limit opportunity
• Must engage women and men
10. IMPROVING HYGIENE

- Agricultural interventions can enhance nutrition, but can also unintentionally harm nutrition. Important to consider WASH and food safety, especially of ASFs.

11. FOOD AND AGRICULTURAL POLICIES

- Increase incentives
- Protect and empower women and the poor
PROMOTE MULTI-SECTORAL COLLABORATION AND COORDINATION

Develop and support specific strategies for collaboration
• clear terms and expectations
• linking nutrition-specific and nutrition-sensitive interventions and investments

What doesn't get measured doesn't get done

Coordination and collaboration is necessary at different levels!
CASE STUDY ACTIVITY: MATRIX

Participant’s manual, page ____

Photo: USADF/Jennifer Katchmark
“THE AVOIDANCE OF SMALL MISTAKES MAKES THE LARGE ONES MORE SEVERE.”

– Nassim Nicholas Talib, Antifragile
EVALUATIONS
U.S. GOVERNMENT PARTNERS