Ending Hunger and Undernutrition: Achieving SDG 2

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• Rates of hunger and poverty declining
• Agriculture-Nutrition linkages
• Stunting rates coming down, but still high
• Global Commitment in SDG 2
• Global Food Security Act signals US support
Poverty and hunger declining –but Africa lags

Prevalence of undernourishment (%)

- World: 20% in 1990-92, 10% in 2012-14
- Africa: 30% in 1990-92, 20% in 2012-14
- Asia Pacific: 10% in 1990-92, 5% in 2012-14
- LAC: 15% in 1990-92, 5% in 2012-14

Source: FAO 2015

Prevalence of poverty (US $1.25/day, 2005 PPP), (%)

- East Asia: 60% in 1981, 40% in 2011
- South Asia: 70% in 1981, 50% in 2011
- SSA: 80% in 1981, 60% in 2011
- World: 50% in 1981, 30% in 2011

Source: PovCalNet 2015

Hidden Hunger Index (micronutrient deficiencies)

- Magnitude of Hidden Hunger:
  - Mild
  - Moderate
  - Severe
  - Alarming High
  - Data not available

Source: Muthayya et al. 2015
About **870 million** people suffer from chronic hunger

**More than 3.5 million** children die from undernutrition each year

The world’s population will increase to more than **9 billion by 2050**

Food production will have to **increase by 60% by 2050** to feed the world

Agricultural production will be significantly impacted by **climate change**
Food Security Innovation: Research

3 Major Research Programs
- Program for Climate Resilient Cereals
- Program for Advanced Research on Plant & Animal Diseases
- Program for Productive Legumes

Program anchoring research in key farming systems
- Program for Sustainable Intensification
- Program for Policy Research and Support
- Program for Human and Institutional Capacity Building
- Program for Nutritious and Safe Foods

Integrated Cross-Cutting Programs
Building on Feed the Future Success

• July 2016 enactment of the **Global Food Security Act** (GFSA) of 2016
  • Passed with broad **bipartisan majority**
  • **Institutionalized** the Feed the Future approach to improving food security and nutrition

• Required a whole-of-government, five-year **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
- 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 2
Strengthened resilience among people and systems

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

Effective response to emergency food security needs

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
What Works to Reduce Undernutrition?

- **Nutrition-specific** interventions are those that address the immediate causes of undernutrition:
  - Health Status
  - Nutrient Intake

- **Examples**
  - Infant and Young Child Feed Practices/ENA
  - Micronutrient fortification/supplementation: Iron, Zinc, Vit. A
  - Integrated Management of Child Illness
  - Community Management of Acute Malnutrition
Contribution of Different Sectors to Improving Nutrition Globally

Food: 32%
Water & Sanitation: 35%
Women’s Education + status: 33%

116 developing countries (1970-2010)

Source: Smith and Haddad, 2013

Marie Ruel, IFPRI
Nutrition-Sensitive Agriculture

- Target production of nutrient-rich foods, ideally those that include nutrients lacking in diet
- Include behavior change communication component specifically aimed at consumption of target crops
- Ensure target food availability and affordability in local markets and support consumption education
- Measure outcomes, including intermediate targets such as consumption and market availability
Adaptation: We must first adapt to existing climate variability

The previous El Niño caused 35 billion USD in global economic losses.

By the end of 2016 an estimated 40 million people were expected to be food insecure in southern Africa.
Climate Varies Over Time: Which variation is most important? (Precip)

Example: Observed Annual **Rainfall** in the Last 100 Years

- **Trend (“Climate Change”)**
  - 5 – 10%

- **Interannual (year to year)**
  - 60 – 90%

- **Decadal**
  - 10 – 35%

Example: Annual Precipitation over the Sahel

Rainfall (mm)

Interannual Variability
290mm from one year to next
55% of total

Decadal Variability
250mm in 20 years
27% of total

“Climate Change”
180mm in 100 years
18% of total
Stress Tolerant Maize during El Niño

SC513 Murewa, Zimbabwe CZH132018
Conservation agriculture (CA) systems during El Niño

2 t ha⁻¹ yield benefit of conservation agriculture in Malawi

Drought tolerant varieties make better use of residual soil moisture
Rhoda Mang’anya supports 7 people on ~1/2 ha. Today she uses improved maize varieties and fertilizers, but only because of what else she does.
“I started keeping pigs and goats to support my children in school...and buying of salt, sugar, soap, relish.”
Resilient legumes = more biomass = resilient soils = higher, more reliable yields

Ollenburger and Snapp, 2015
Addressing infectious diseases in animals

- Improve livestock management
- Breed resistant animals
  - New genomics tools
- Develop vaccines
  - Thermostable for improved transport
We have to intensify agriculture, but sustainably

- The challenge is to achieve sustainable transformation via smallholder farmers
- Existing and future technologies are essential
- Farmer choice—seeds, fertilizer, breeds
- Resource-use efficiency (water, fertilizer, fuel)
- Context for technology scale-up is crucial
- Integration of multiple technologies is needed
- Information—weather, market, extension
- Reduce risk—catalyze investment at all levels
Please See our Feed the Future Website

Thank You!

www.feedthefuture.gov