AGRILINKS




Yes, G-CAN! Endorsing Food Security With Gender-Responsive and Climate-Resilient Agriculture

Speakers:	Meredith Soule, USAID Bureau for Food Security; Claudia Ringler, Tim Thomas, Elizabeth Bryan, IFPRI; Jessica Fanzo, Johns Hopkins University
Moderator:	Julie MacCartee, USAID Bureau for Food Security
Facilitator:	Carla Fernandez de Castro, KDAD
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Meredith Soule

Meredith Soule is the Technical Division Chief within the USAID Bureau for Food Security's Country Strategy and Implementation Office. In this role, she provides strategic direction for BFS investments in nutrition, gender, climate smart agriculture and agricultural innovation systems. Before joining USAID, she worked at the USDA Economic Research Service and the International Center for Research in Agroforestry (ICRAF) in Nairobi. She holds a Ph.D. in Agricultural and Resource Economics from the University of California at Berkeley.

Global Food Security Strategy

- Strategy developed over 10 weeks by **11 Feed the Future agencies and departments**
  - **External consultations held** with key nongovernmental and private sector stakeholders
  - **Reflects learning and analysis** over the past year
- Strategy covers **FY2017-FY2021**
  - Includes **implementation plans** for individual agencies and departments outlining each's financial, technical, and in-kind contributions to the strategy for FY17
  - Builds on Feed the Future experience and reflects changes in global context since 2009

New Results Framework 2017-2021

Goal: Sustainably reduce global hunger, malnutrition, and poverty

Objective 1
Inclusive and sustainable agricultural-led economic growth

Objective 2
Strengthened resilience among people and systems

Objective 3
A well-nourished population, especially among women and children

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

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

Illustrative Activity Outcomes: Building Blocks to Achieve Our Goals

Objective 1

- Increased sustainable productivity of all types of small-scale producers (also Obj 2)
- Stronger inclusive market systems (also Obj 2)
- Increased access to business development and financial services (also Obj 2)
- Improved infrastructure, including digital and other ICT solutions (also Obj 2)
- More efficient land, water, and input use
- Technology and innovations developed through research and adapted to local conditions
- Increased access to and wide adoption of inputs, and other technology and innovation
- Expanded access to knowledge through agricultural extension
- Increased access to market infrastructure, such as improved storage systems and basic retail marketing structures
- Reduced time and cost of moving goods across borders
- Improved quality of produce that meets market standards

Objective 2

- Increased use of risk management services and practices
- Improved safety nets (also Obj 1,3)
- Improved social capital (also Obj 1, 3)
- Diversified livelihood risk (also Obj 1)
- Expanded livelihood opportunities (also Obj 1)
- Application of risk reduction tools such as improved water management and drought/flood tolerant seeds (also Obj 1)
- Increased household and community assets, including savings
- Improved access to communal natural resources
- Improved use of early warning information
- Increased access to hazard, index, and other insurance
- Increased adoption of climate-smart practices (also Obj 1)

Objective 3

- Improved access to diverse and nutritious foods
- Increased demand for diverse and nutritious foods
- Improved access to nutrition services
- Improved demand for health services
- Improved infant and young child feeding practices and women's diets
- Increased commercial production of safe and nutritious food products, including fortified food (also Obj 1)
- Increased availability of evidenced-based food information for consumers (also Obj 1)
- Improved food safety systems (also Obj 1)
- Improved safe handling practices (also Obj 1)
- Improved access to clean water
- Improved access to sanitation
- Schoolchildren nourished through school feeding programs (also Obj 2)
- Improved access to handwashing facilities

Cross-Cutting Intermediate Results

CC IR 1 Strengthened global commitment to investing in food security
- Increased public and private investment in food security
- Strengthened bilateral and regional investment platforms

CC IR 2 Improved climate risk, land, marine, and other natural resource management
- Improved land and soil management
- Improved sustainable management of wild fisheries
- Improved and sustainable utilization of ecosystem services

CC IR 3 Increased gender equality and female empowerment
- Increased women's leadership skills and opportunities
- Increased women's decision-making power
- Strengthened women's access to financial services

CC IR 4 Increased youth empowerment and livelihoods
- Improved youth entrepreneurial skills
- Improved access to nutrition services for adolescent girls

CC IR 5 More effective governance, policy, and institutions
- Natural resource governance, including land and marine tenure
- Improved evidence-based policies
- Improved institutional architecture
- Improved mutual accountability systems
- Well functioning sanitary and phyto-sanitary systems
- Strengthened regional harmonization

CC IR 6 Improved human, organizational, and system performance
- Improved research, policy, regulatory, education, finance, data, and extension systems
- Improved skills for producers, scientists, civil society, private sector, and government actors
- Promotion of science, technology, and innovation

Claudia Ringler

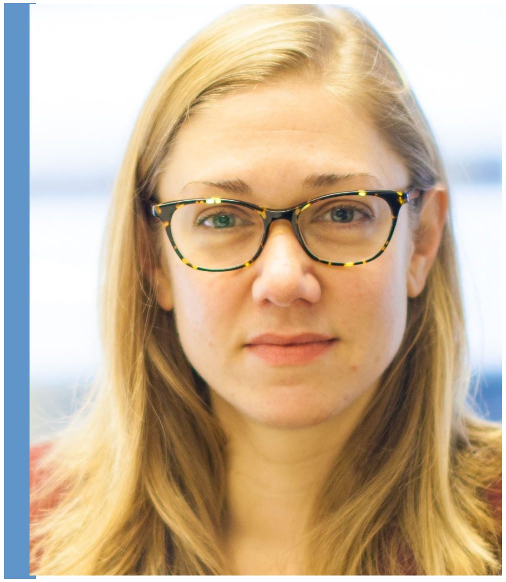
Claudia Ringler is Deputy Division Director of the Environment and Production Technology Division at the International Food Policy Research Institute (IFPRI). She also manages IFPRI's Natural Resource Theme and co-leads the Institute's water research program. She works on enhancing resiliency of human and natural systems as a flagship co-lead under the CGIAR Research Program on Water, Land and Ecosystems (WLE). Over the last two decades, Claudia's research has focused on the implications of and trade-offs between growing natural resource scarcity and water, energy and food security in developing counties. She has more than 100 publications in these areas. Claudia holds an M.A. degree in International and Development Economics from Yale University and a Ph.D. in Agricultural Economics from the Center for Development Research, University of Bonn, Germany.

Timothy Thomas

Timothy Thomas is a Research Fellow in the Environment and Production Technology Division of the International Food Policy Research Institute (IFPRI). He currently leads the IMPACT modeling team. IMPACT is a global economic model which evaluates the impact of climate change on agriculture, food availability and under-nutrition, taking into account GDP, population and change in agricultural technologies. He was one of the lead authors of three books on climate change and agriculture in Africa and has done similar studies for the Pacific Islands, Latin America and Central Asia. Prior to coming to IFPRI, Tim worked a number of years at the World Bank, studying tropical deforestation and rural development. Tim has a Ph.D. in Agricultural Economics from the University of Maryland College Park.

Jessica Fanzo

Jessica Fanzo is the Bloomberg Distinguished Associate Professor of Global Food and Agriculture Policy and Ethics at the Berman Institute of Bioethics, the Bloomberg School of Public Health and the Nitze School of Advanced International Studies at The Johns Hopkins University. She also serves as the Director of the Global Food Ethics and Policy Program. Prior to joining Johns Hopkins, Jessica was an Assistant Professor of Nutrition in the Institute of Human Nutrition and Department of Pediatrics at Columbia University. She also served as the Senior Advisor of Nutrition Policy at the Center on Globalization and Sustainable Development at the Earth Institute. Prior to coming to academia, Jessica held positions in the United Nations World Food Programme and Bioversity International, both in Rome, Italy. Jessica has a Ph.D. in Nutrition from the University of Arizona.



Elizabeth Bryan

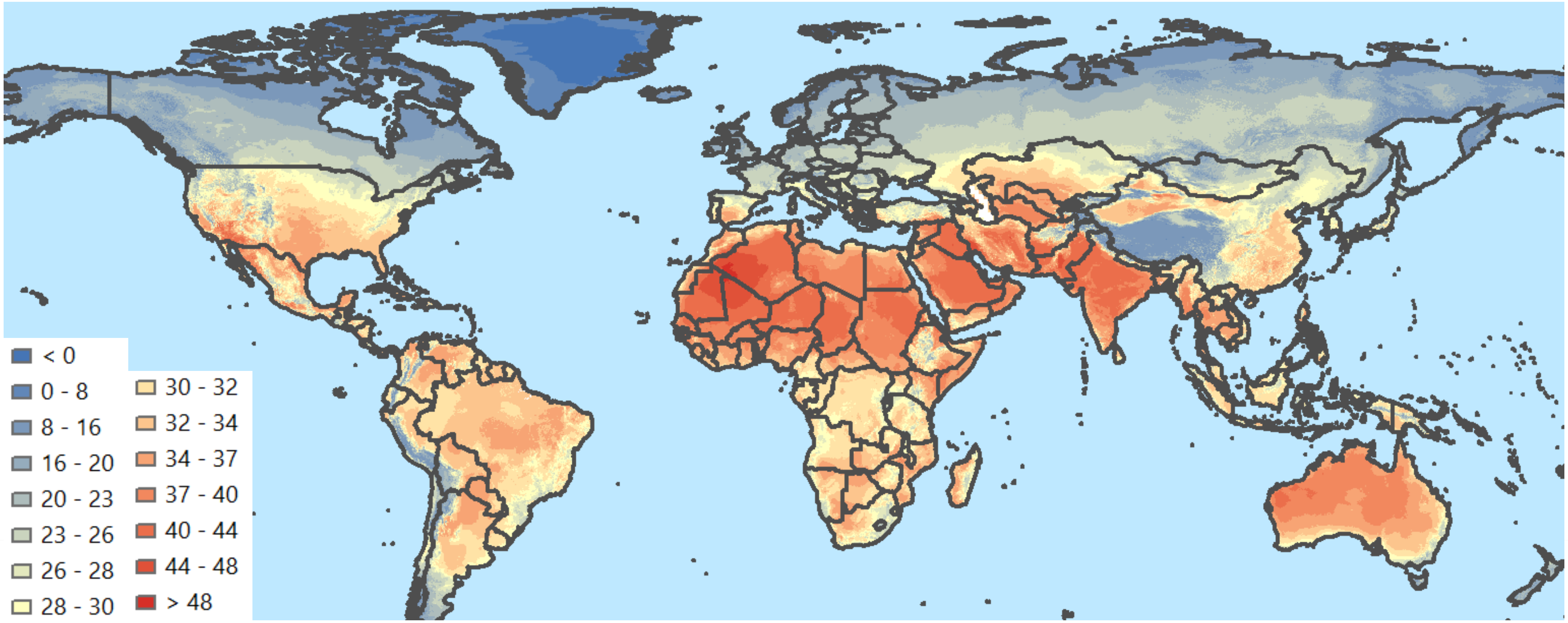
Elizabeth Bryan is a Senior Research Analyst in the Environment and Production Technology Division at the International Food Policy Research Institute (IFPRI) where she is conducts policy-relevant research on sustainable agricultural production, natural resource management, small-scale irrigation, climate change adaptation and gender. Her current work focuses on trade-offs and synergies across the intersection of climate-smart agricultural production, nutrition, gender, and the environment. Prior to joining IFPRI, Elizabeth worked as a consultant for the Poverty Reduction Group of the World Bank and the Latin American Program of the Woodrow Wilson International Center for Scholars. She has published numerous articles on climate change adaptation, gender and climate change and trade-offs in biomass energy uses in sub-Saharan Africa. Elizabeth holds an M.A. in International Development with a concentration in Development Economics from American University.

What G-CAN Does

1. Process/template for FTF focus countries to help understand **climate science and implications for CSA programming** that integrates nutrition and gender
2. An **innovative framework** for integrating gender and nutrition into CSA decision-making
3. Enhanced effectiveness and sustainability of investments in focus countries, based on **country/Mission tailored analyses** and assessment of the potential for agricultural technologies
4. Enhanced use of **FTF open data to improve our understanding of ZOI** for better program planning

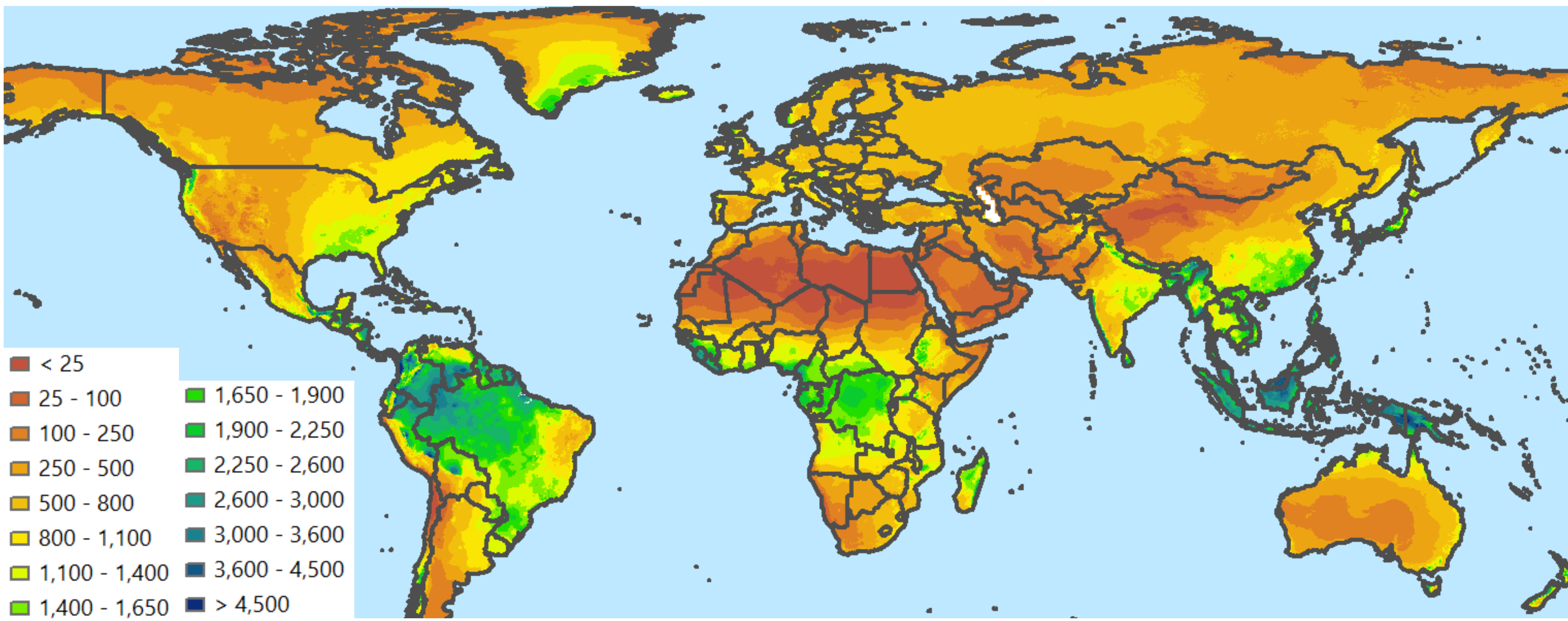
Climate

Mean daily maximum monthly temperature, warmest month, 1950-2000, ^{0}C



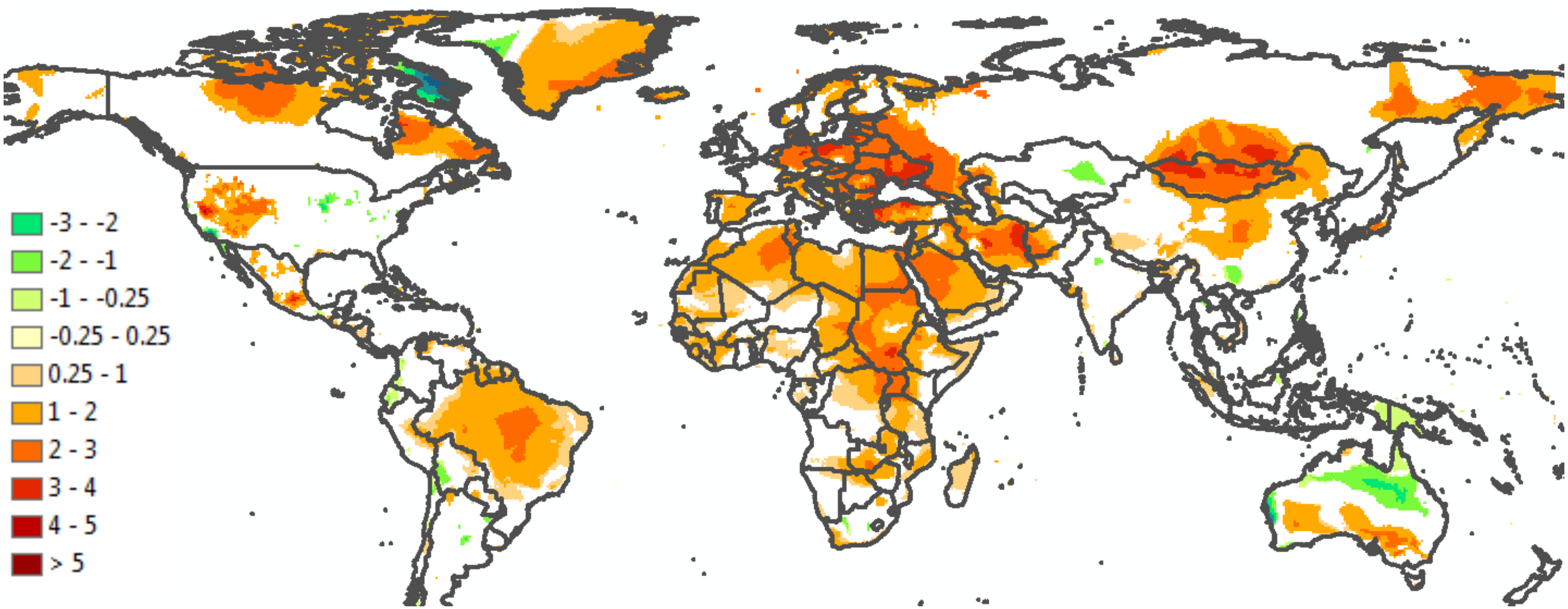
Climate

Mean annual precipitation, 1950-2000, millimeters



Climate Change in the Present

Mean daily maximum temperature trend for the warmest month of the year, reflecting the 30-year trend, 1980 to 2010, ^{0}C



FEED THE FUTURE
The U.S. Government's Global Hunger & Food Security Initiative

Detailed Spatial Analysis of CLIMATE Data

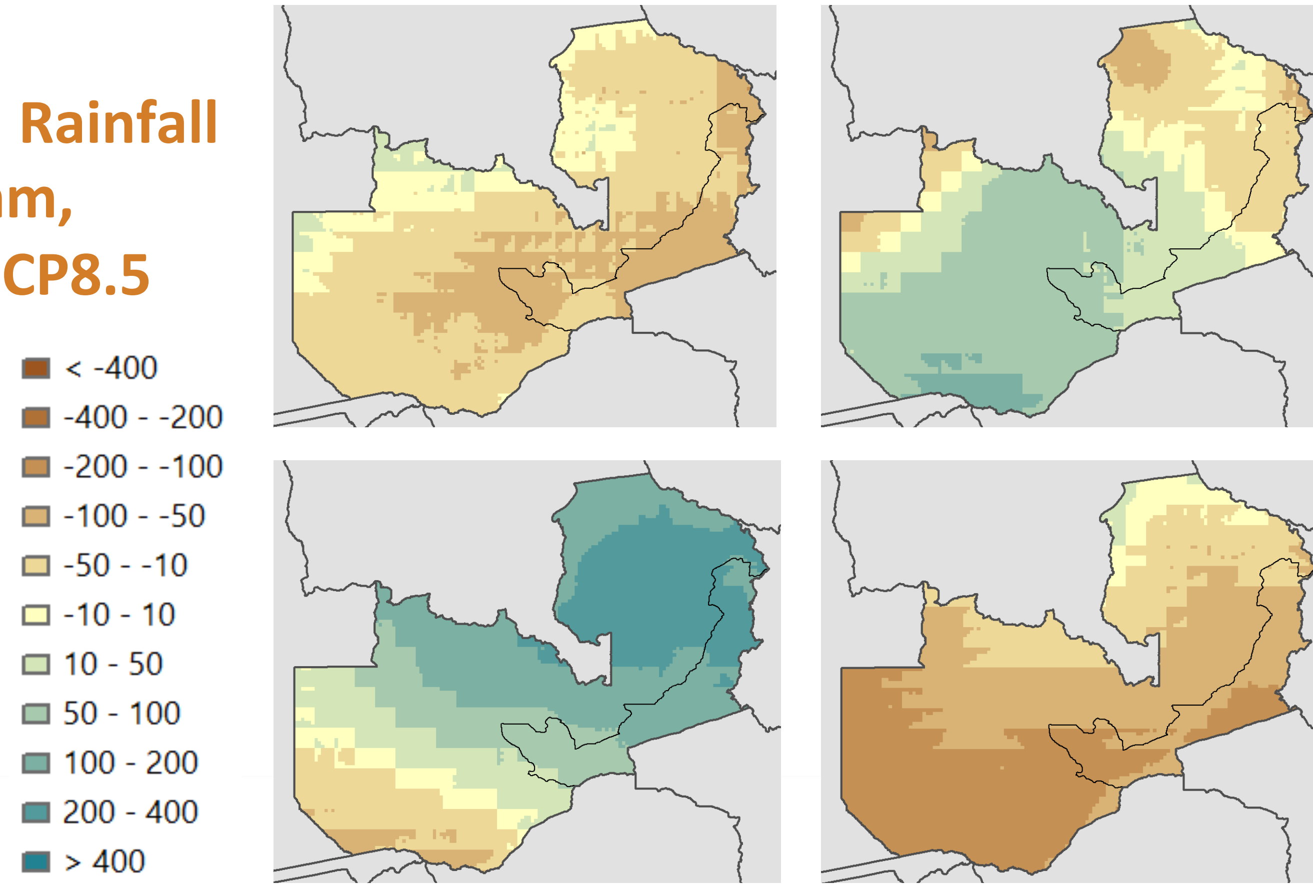
Zambia, Temperature change, ^{0}C, 2000-2050, RCP8.5

Climate models, clockwise, from top left: GFDL, HadGEM, MIROC, and IPSL.

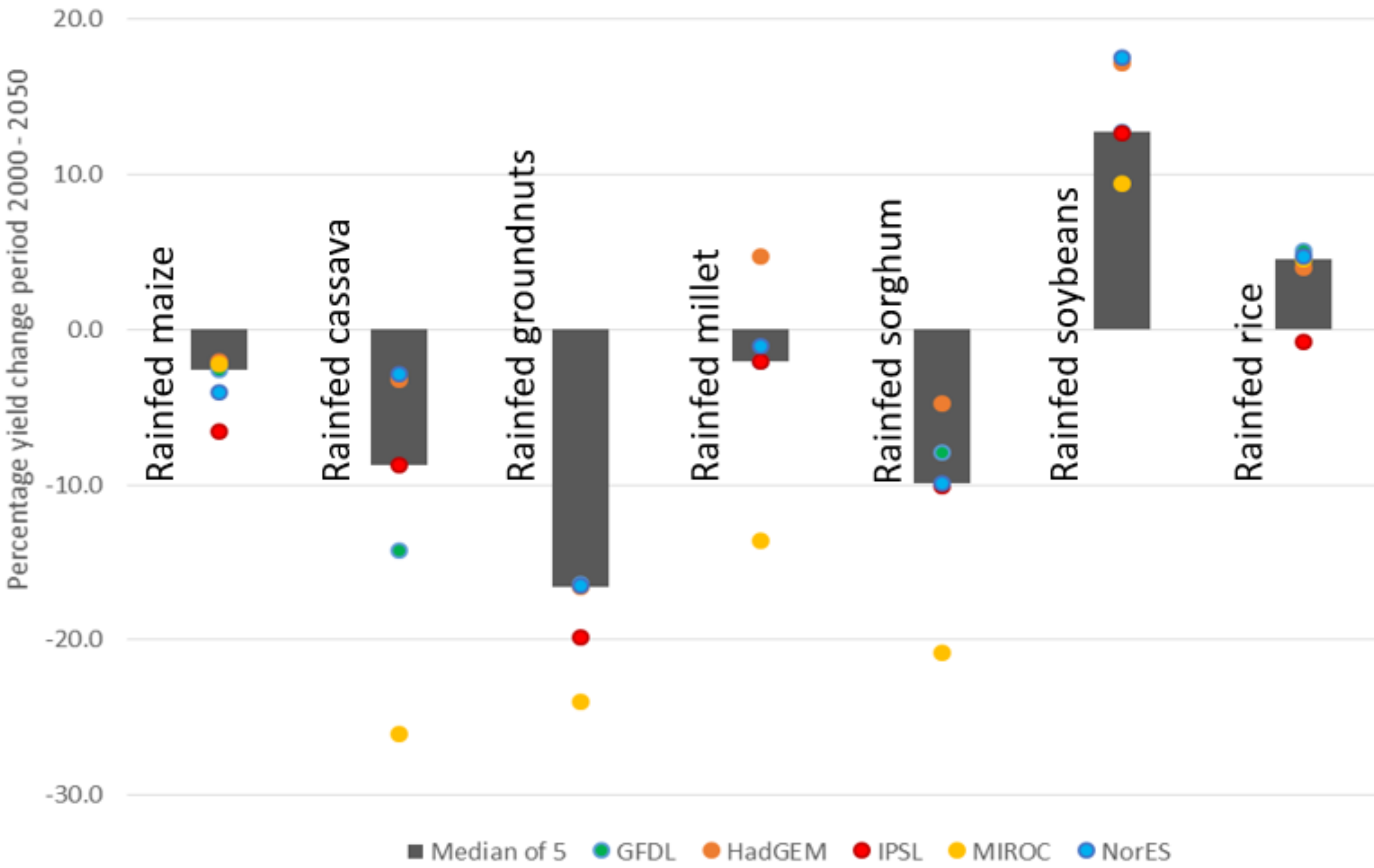
Detailed Spatial Analysis of CLIMATE Data

Zambia, Annual Rainfall change, mm, 2000-2050, RCP8.5

Climate models, clockwise, from top left: GFDL, HadGEM, MIROC, and IPSL.



Consolidated Data From Multiple Models (Zambia)



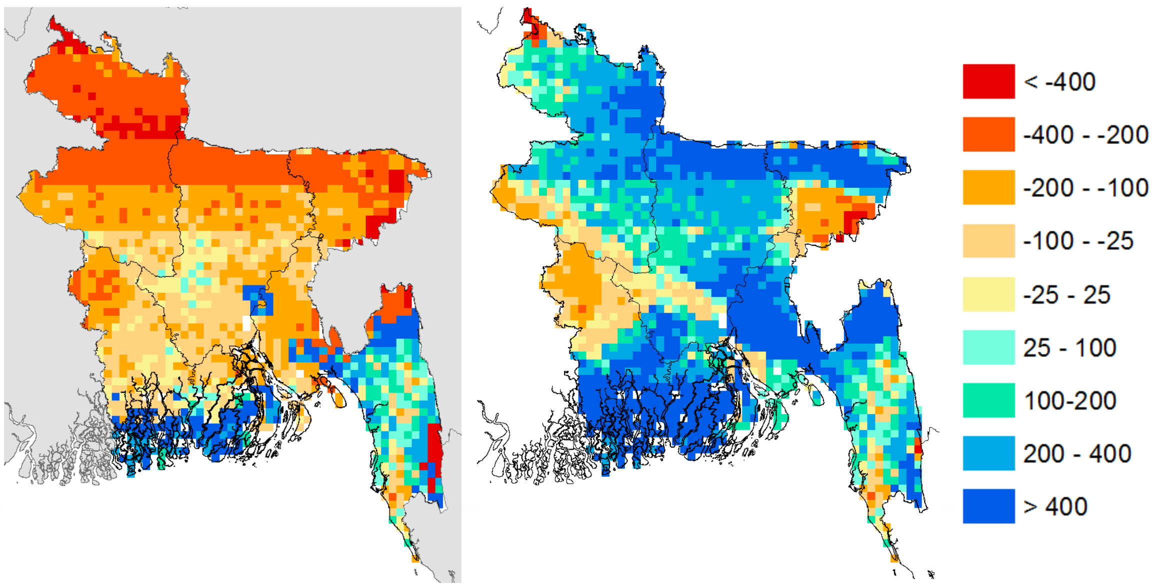
Percent yield change due to climate change for different GCMs, period 2000 – 2050 (AGMIP)

Advantages of Pixel-Based Approach

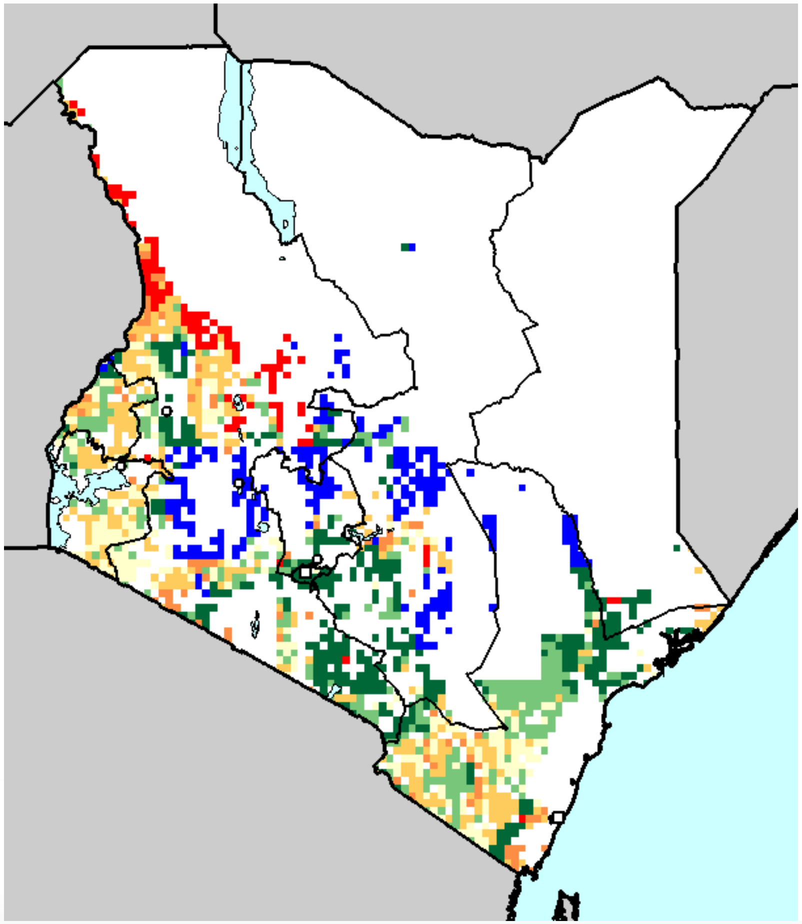
Discovered gains to exploit from climate change in Bangladesh

Potential improvement in kg/ha from changing planting month for boro (winter irrigated) rice.

Left, without change; right, with planting 2 months earlier (with a variety suited for the new climate). MIROC.



Hotspots, Opportunities, and Early Planning

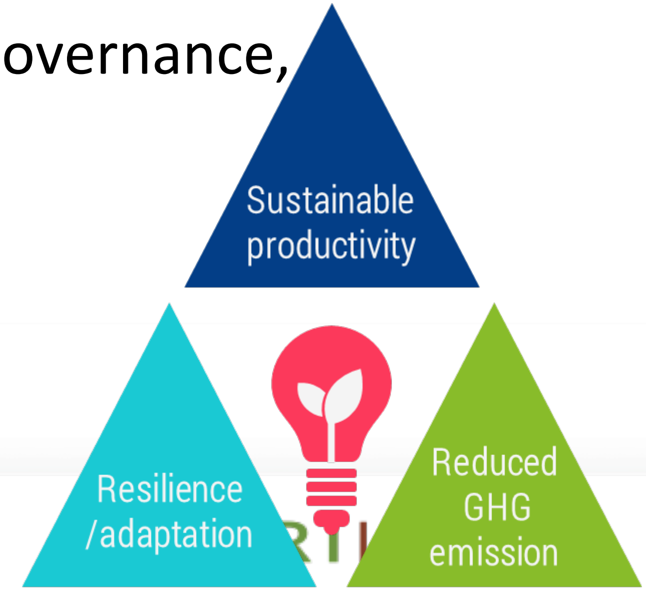


Kenya

- Baseline area lost
- Yield lost > 25% of baseline
- Yield lost 5% to 25% of baseline
- Yield change within 5% of baseline
- Yield gain 5% to 25% of baseline
- Yield gain > 25% of baseline
- New area gained

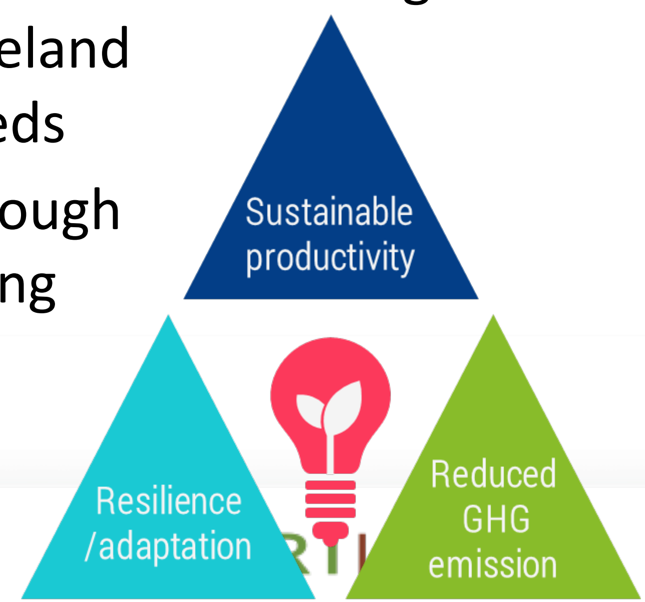
Climate Smart Agricultural Approaches

- Initially very prescriptive in nature: a menu of practices/ technologies from which to choose
- Evolved in a more "holistic" approach which includes systems, value chains, and landscapes
- At IFPRI we began by looking at the biophysical/production side and now…
- Landscapes, risk management, institutions/governance, value chains, gender, and nutrition



Climate Smart Agricultural Approaches—Zambia INDC

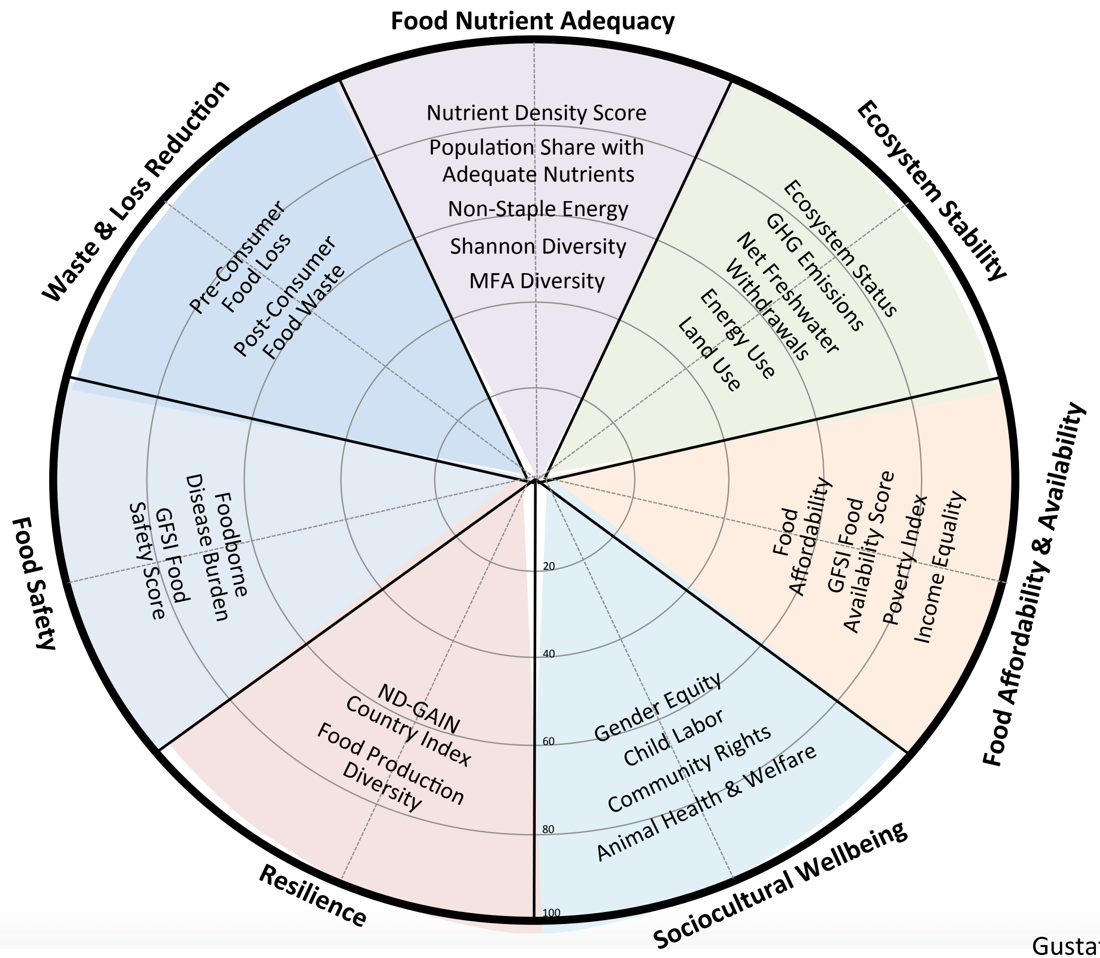
- Promote CSA practices through conservation agriculture, agroforestry, use of drought tolerant varieties, WUE management and fertilizer use efficiency management
- Promote crop landraces of cassava, maize, sorghum, finger millet, beans, cowpea and their wild relatives
- Promote livestock CSA practices through: improved feed management, improved animal health, improved rangeland management and use of drought-tolerant breeds
- Promote sustainable aquaculture practices through improved water management, improved feeding regimes and use of appropriate stocks



It Is rare for Climate Change Modeling, Scenarios & Research…

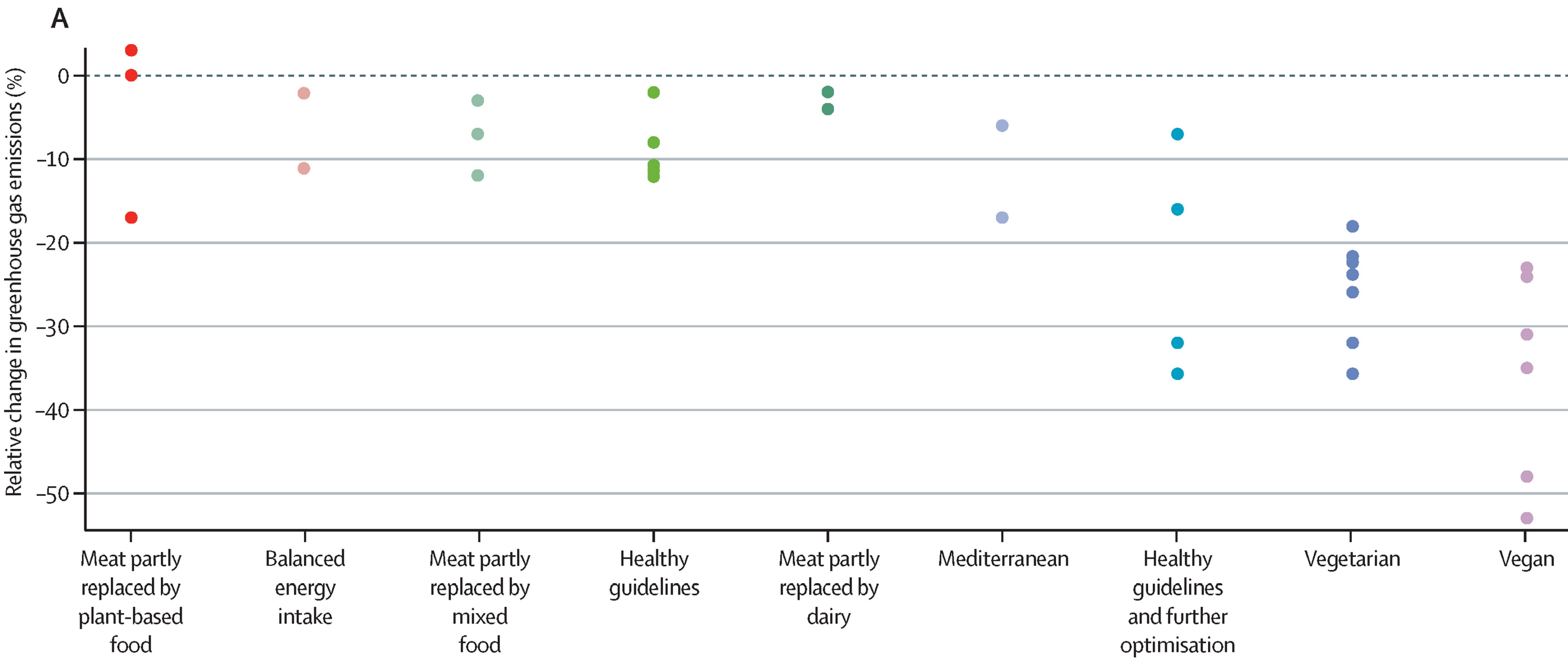
1. To build in **nutrition** outcome indicators and **dietary** metrics
2. To examine climate change impacts **on diets**: their quality and diversity (usually the other way around or more broadly at quantities of crops/animals produced)
3. To understand "near term" effects of **seasonality** which have significant influences on nutrition outcomes and access to healthy, diverse diets
4. To react to rapid changes in **food prices and volatility** which has longer term broad impacts on nutrition and social equity
5. To understand the vulnerability of the **entire food system** with regard to ensuring healthy diets

1. Inclusion of Nutrition & Diet Outcomes



Gustafson et al Sustainability 2016

2. Effects of Diet Type on Climate Change but What About the Other Way Around?

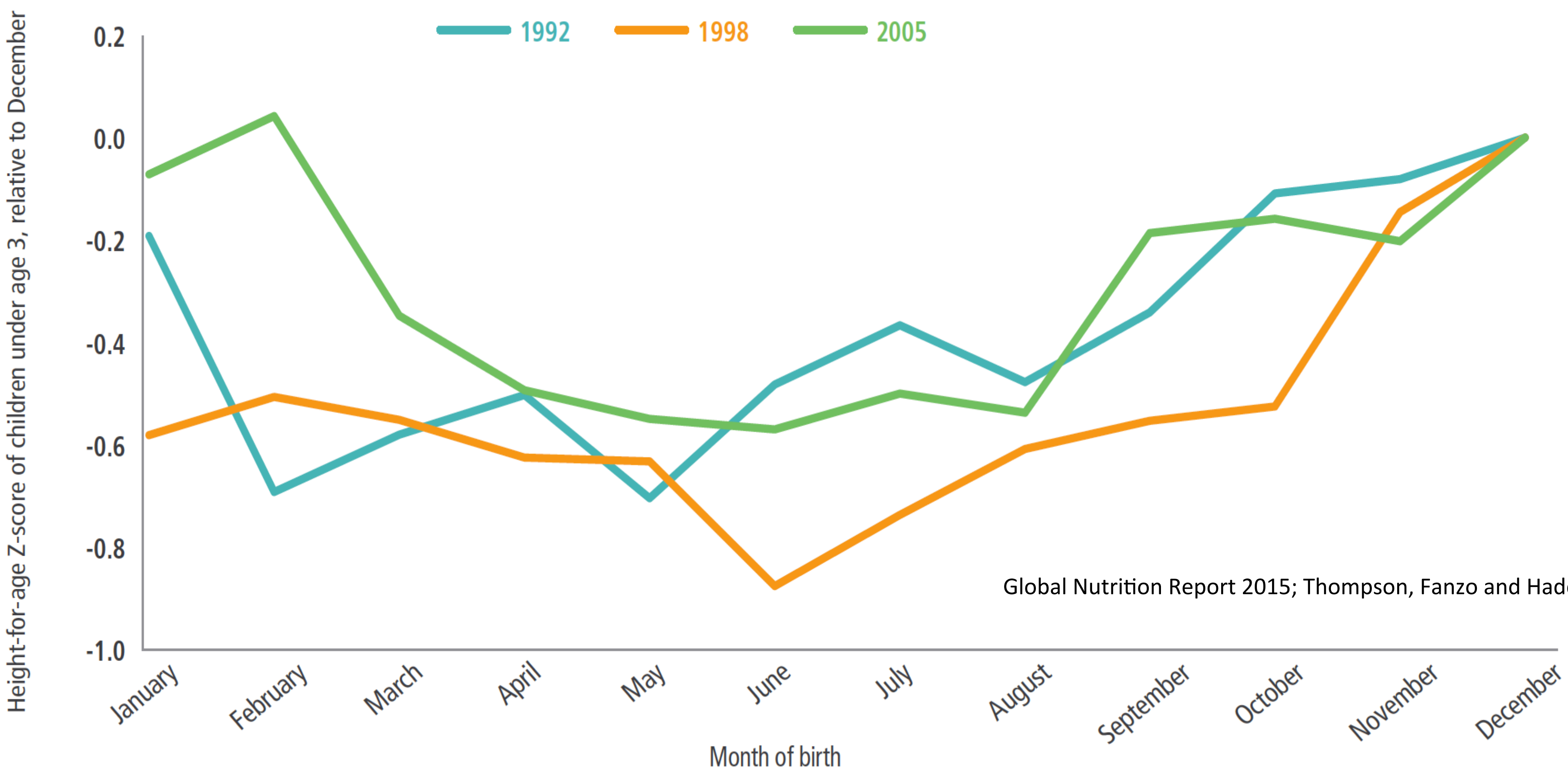


Whitmee, S., et al (2015). The Rockefeller Foundation–Lancet Commission on planetary health.

Gustafson et al Sustainability 2016

3. Nutritional Status & Seasonality

Extreme events including droughts and floods have significant impacts on year to year (or even month to month) variability of nutritional status



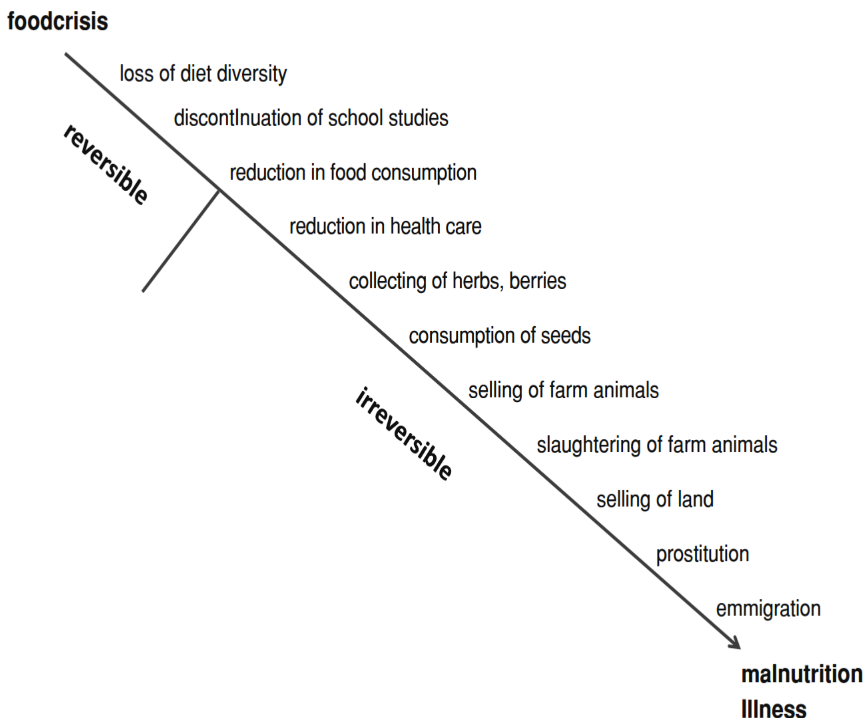
Global Nutrition Report 2015; Thompson, Fanzo and Haddad

4. Seasonality Affects Food Prices & Their Volatility

In most contexts, food prices are determined by market factors. They fluctuate by season and year, responding to supply-demand interactions.

Food price volatility is associated with the underlying variability inherent in agricultural production, i.e. due to seasonality, variable weather, incidence of pests and diseases, etc.

Food price volatility poses risks for everyone – from farmers to consumers



Global Panel. 2016. Managing Food Price Volatility: Policy Options to Support Healthy Diets and Nutrition in the Context of Uncertainty. Policy Brief. London, UK: Global Panel on Agriculture and Food Systems for Nutrition; Hauenstein Swan, S., and B. Vaitla. "The justice of eating. Hunger Watch report 2007-08." (2007); Hendrix C (2016) When Hunger Strikes: How Food Security Abroad Matters for National Security at Home. The Chicago Council on Global Affairs, Chicago USA; Breisinger, Clemens, Olivier Ecker, Perrihan Al-Riffai, and Bingxin Yu. Beyond the Arab awakening: policies and investments for poverty reduction and food security. Intl Food Policy Res Inst, 2012.

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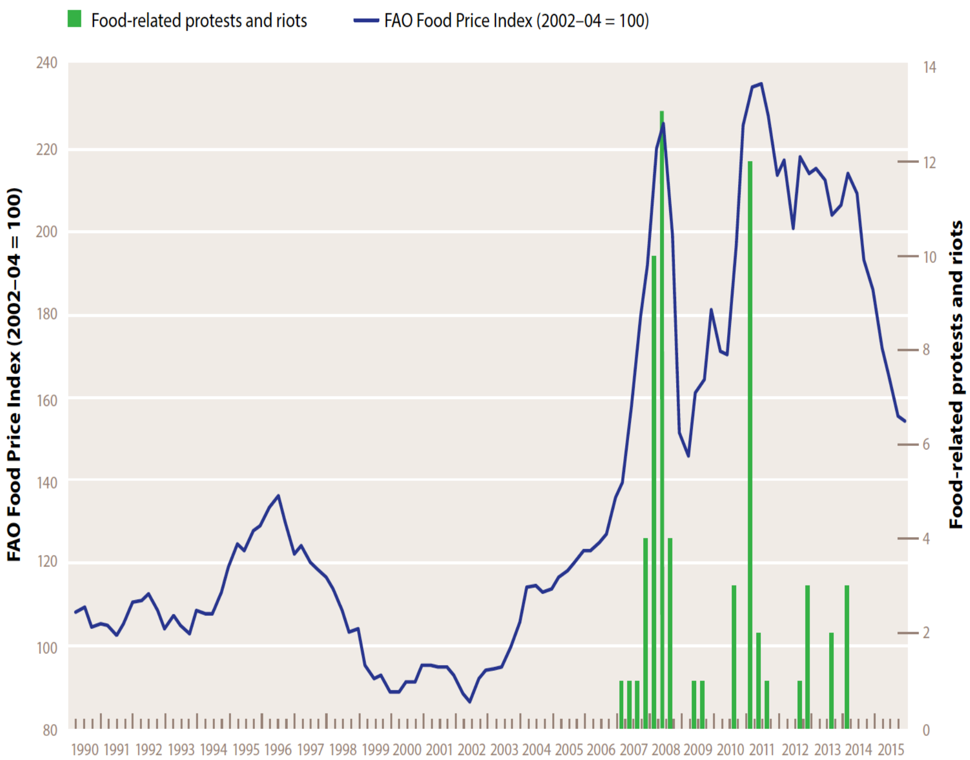

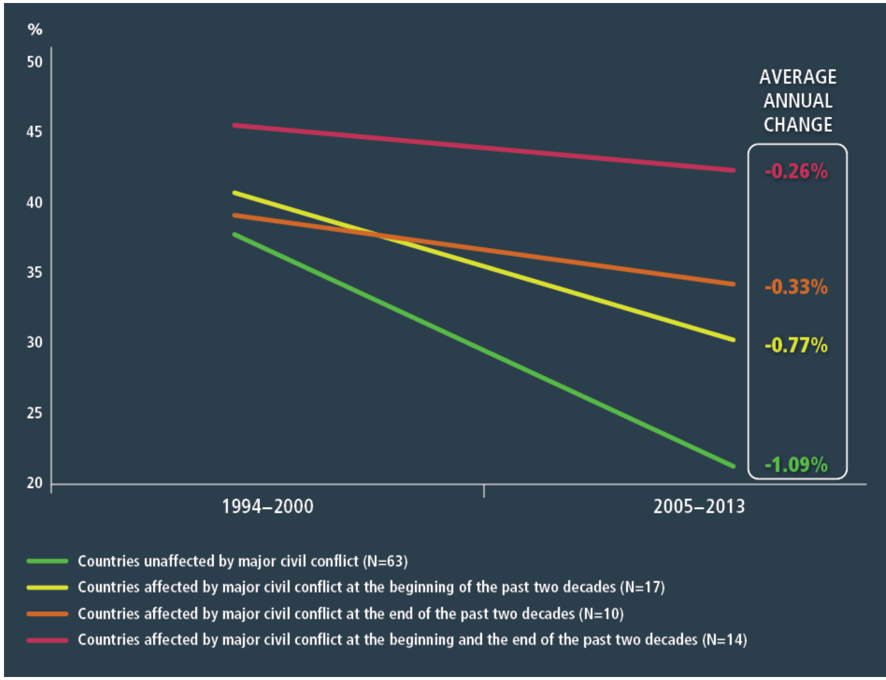

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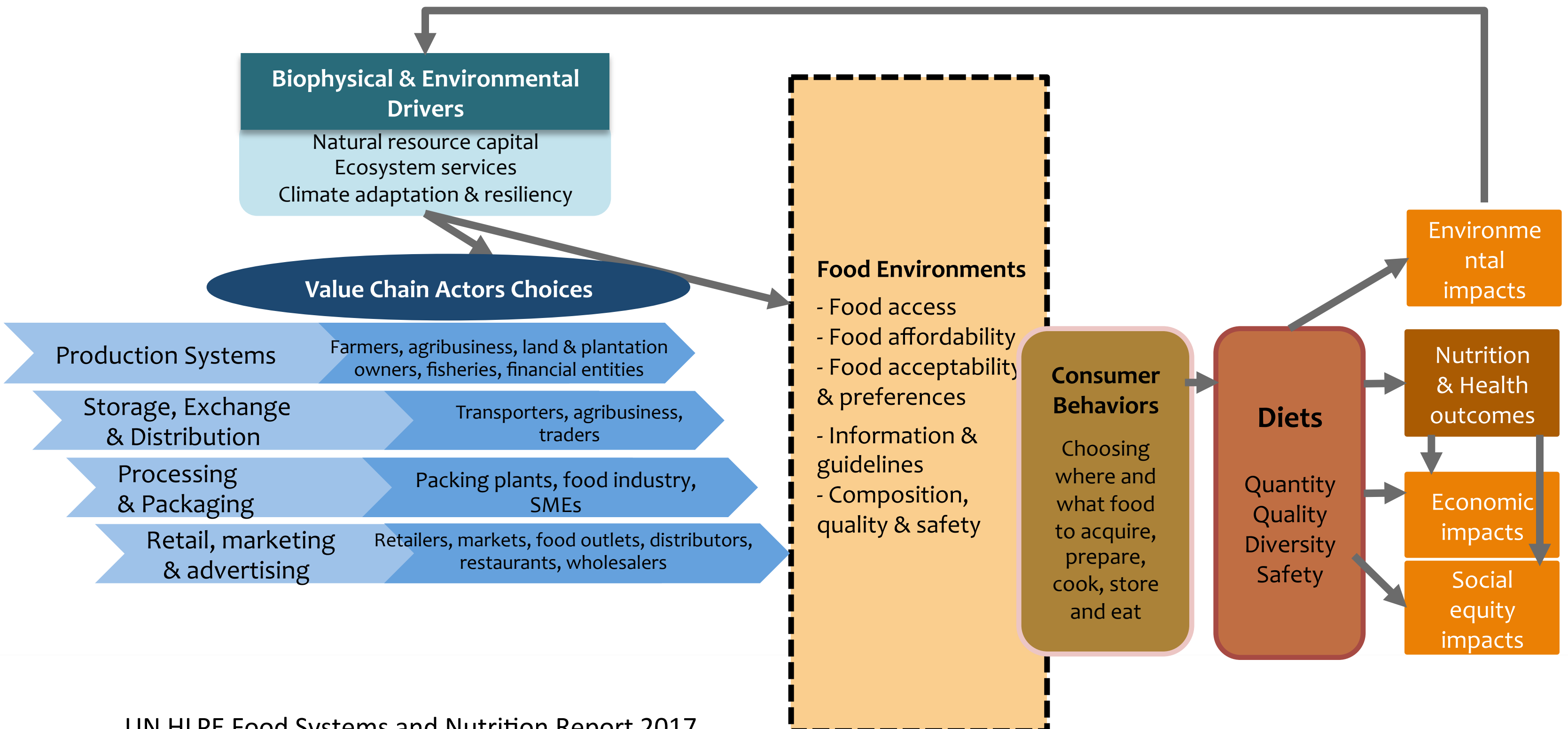
5. The Vulnerability of the Food System



UN HLPE Food Systems and Nutrition Report 2017

Climate, Nutrition Smart Value Chains

Maximize nutrition "entering" the food value chain

Input Supply	Production	Post Harvest Storage	Processing	Distribution	Marketing and Retail	Consumption Food Utilization
Improved varieties, bio-fortification, fertilizer, irrigation	New production locations, diversification, CO_2 fertilization, focus on women farmers, extension	Aflatoxin control, refrigeration	Fermentation, drying, fortification, product reformulation (reduce salt, sugar, unhealthy fats)	Moving food from areas of shortage to areas of surplus, targeting of vulnerable groups	Messaging on the importance of nutrition and sustainability, benefits of certain foods	Home fortification (fish powders), training in nutritious food preparation, time mgmt, food preservation
Lack of access to inputs (seeds, fertilizer, irrigation, extension)	Limited available land, soil degradation, loss of biodiversity, temperature and water stress, CO_2 effects	Contamination, spoilage, increased electricity demands, damage from extreme weather events	Improper processing of foods, nutrient losses during milling, combination with unhealthy ingredients	Climate impacts on transportation and retail infrastructure, export/import impacts on prices and availability	Advertising campaigns for unhealthy foods, loss of small food retailers	Lack of knowledge of nutrition, nutrient losses during preparation, increased diarrhea & enteropathy

Minimize nutrition "exiting" the value chain

Source: Fanzo, Downs and McLaren 2017

Zambia Nutrition Profile

Priorities

Global Hunger Index: Score 39 (Alarming) – ranked third out of 118 countries (descending order of hunger)

Stunting in children under 5 years: 40% (WHO cutoff ≥20%)

Anemia in women of reproductive age: 29.2% (WHO cutoff ≥20%)

Micronutrient deficiencies (as of 2011)

Children

- Iodine (<100 mcg/L): 14%
- Iron deficiency anemia (HB<11g/dL): 58%
- Vit A (serum retinol < 20 mcg/dL): 54% (2003)

Women

- Iron deficiency anemia – pregnant women: 36%
- Iron deficiency anemia – non-pregnant women: 28%
- Vit A (serum retinol < 20 mcg/dL): 13% (2003)

 Global Nutrition Report 2016; Haggblade et al 2016.

Zambia: Entry Points for Climate Smart Nutrition Approaches

Production diversity - RAIN project – Mumbwa District.

Positive association with dietary diversity in young (6-23 months) and older children (24-59 months)

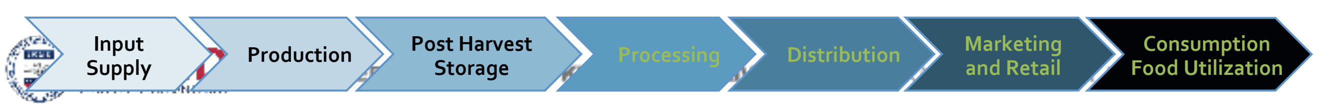
Positive inverse relationship with stunting but not wasting in older children

Consumption of animal-source food (ASF)

Fish is the most commonly consumed ASF (pregnant women and children), consumed by 41% of households

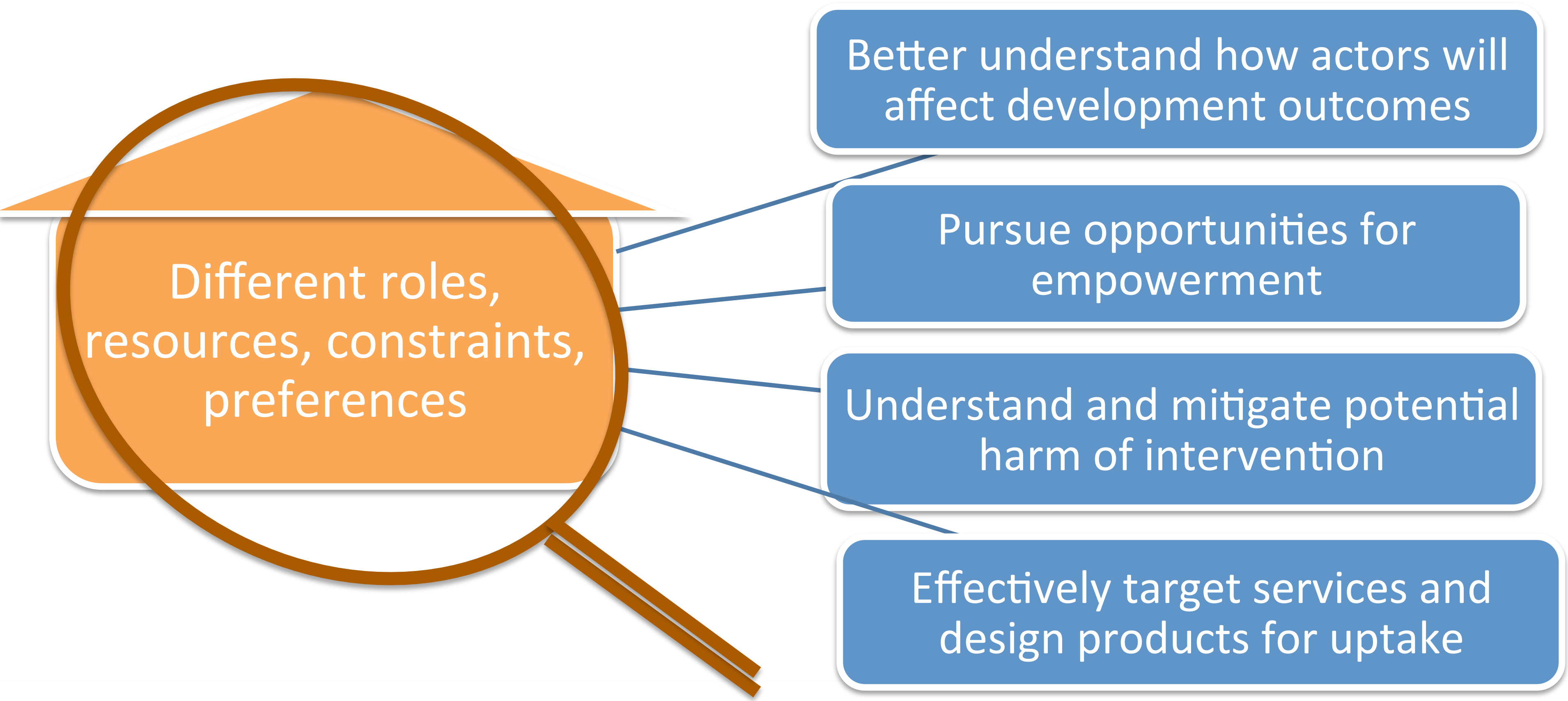
Poorer households consume more fish (37% share of ASF consumed) compared to more affluent households.

→What is the potential to expand aquaculture and consumption of small fish for improved nutritional status?



Longley et al 2014;
Hichaambwa 2012 (IAPRI)
Kumar et al 2015

Why Understand Gender Differences?



Gender: What Do We Know and Where Are the Gaps?

- Research shows there are considerable gender differences in terms of:
  - Vulnerability/impacts of climate change (limited evidence)
  - Adaptive capacity (including external and internal constraints to adaptation) (growing evidence)
  - Distribution of benefits and costs of CSA (limited evidence)
- The extent to which women participate in CSA also influences well-being outcomes (e.g. nutrition, food security, empowerment) (limited evidence in the context of climate change)
- Gender integration into programs and projects is often lacking (growing evidence)

Women's Adaptive Capacity Is Lower (Zambia)

User Characteristics (perceptions, human capital etc.)

- 66% of women are literate vs. 83% of men (DHS 2015)
- Many female-headed households (25%), more likely to be poor (FTF FEEDBACK 2013)

Access to Information and Technology

- Men more likely than women to receive training on conservation agriculture (Curtis et al. 2015)

Institutional Environment

- System of statutory and customary inheritance laws—customary laws disadvantage women (especially married women)
- Social norms about mobility may hinder women from participating in the market (Curtis et al. 2015)
- Women's access to aquatic agricultural systems is limited (Cole et al. 2015)

Unpacking the Adaptation Arena: Who Decides and Who Benefits from CSA?

ENABLING ENVIRONMENT

Access
- Right to adopt a technology

- Who is allowed to own, buy, or rent the technology

INTRA-HOUSEHOLD BARGAINING SPACE

Management
- Right to regulate internal use patterns

- How, when, and where the technology is used

Exclusion
- Right to determine who can access the technology

- Who uses the technology

Alienation
- Right to sell, lease, or give away the technology

- Who can alienate or profit off the technology as an asset

Withdrawal
- Right to obtain products of the technology

- How to use outputs and income from outputs

Women Have Less Influence Over Climate Change Responses: Zambia

Women in Zambia are less likely to adopt improved technologies and practices

Preferences/Interests Differ

- No evidence from Zambia on gendered preferences for responding to CC/shocks

Different Access to Resources

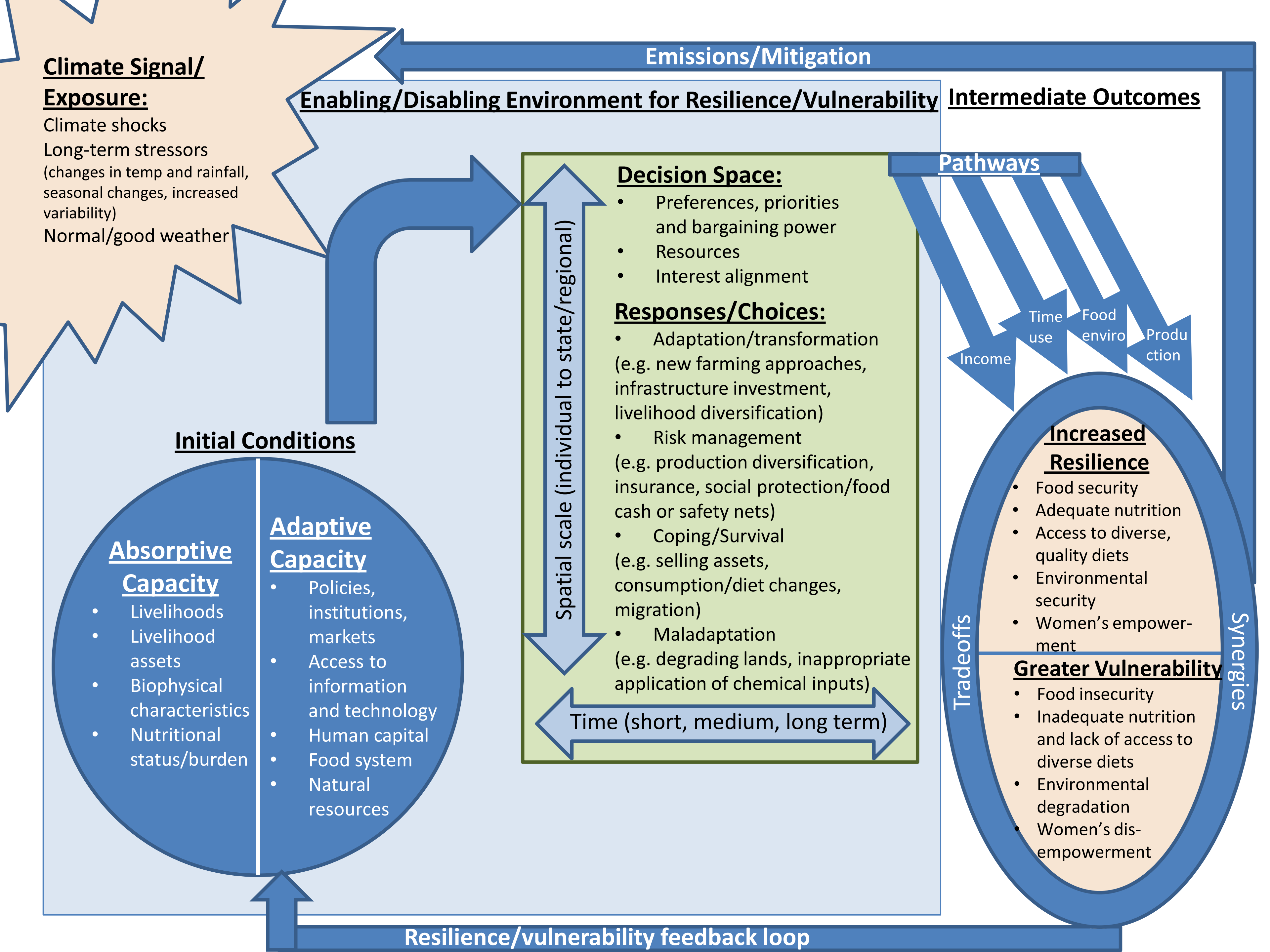
- Men have more access to credit, land, labor, and productive assets (Namonje-Kapembwa and Chapoto 2016)
- E.g. only 10% of plots in MHH are controlled by women (Hichaambwa et al. 2015)

Different Bargaining Power

- Gender inequality is most pronounced in access to and decisions on credit, workload, and control over assets (WEAI results, FTF FEEDBACK 2013)
- Skewed distribution of men and women in leadership positions in the agriculture and natural resources sectors (Dlamini and Samboko 2016)
- Domestic violence is high: half of women and one third of men believe it is justified under certain conditions (DHS 2015)

Gender, CSA and Nutrition: Key Research Gaps

- Need more evidence on the gender-differentiated impacts of shocks and longer term climate change
- More research on intersectionality: what are the constraints and preferences of different groups of women?
- What are the entry points for increasing women's participation in CSA both outside and within the household?
- What are the food and nutrition security and other well-being outcomes when women are more engaged in CSA? (e.g. closing the gender gap? Greater resilience? Better food security? Better diets?)
- Frameworks and tools can help with this!


Emissions/Mitigation
Climate Signal/ Exposure:
Climate shocks
Long-term stressors
(changes in temp and rainfall, seasonal changes, increased variability)
Normal/good weather
Enabling/Disabling Environment for Resilience/Vulnerability
Intermediate Outcomes
Pathways
Decision Space:
• Preferences, priorities and bargaining power
• Resources
• Interest alignment
Responses/Choices:
• Adaptation/transformation (e.g. new farming approaches, infrastructure investment, livelihood diversification)
• Risk management (e.g. production diversification, insurance, social protection/food cash or safety nets)
• Coping/Survival (e.g. selling assets, consumption/diet changes, migration)
• Maladaptation (e.g. degrading lands, inappropriate application of chemical inputs)
Spatial scale (individual to state/regional)
Time (short, medium, long term)
Income
Time use
Food enviro
Produ ction
Initial Conditions
Absorptive Capacity
• Livelihoods
• Livelihood assets
• Biophysical characteristics
• Nutritional status/burden
Adaptive Capacity
• Policies, institutions, markets
• Access to information and technology
• Human capital
• Food system
• Natural resources
Increased Resilience
• Food security
• Adequate nutrition
• Access to diverse, quality diets
• Environmental security
• Women's empower-ment
Greater Vulnerability
• Food insecurity
• Inadequate nutrition and lack of access to diverse diets
• Environmental degradation
• Women's dis-empowerment
Tradeoffs
Synergies
Resilience/vulnerability feedback loop

TOP TAKE-AWAYS

1 Global Food Security Strategy

Requires us to strengthen climate resilience in all Feed the Future activities

2 We can act on climate change

Climate models show consistent warming trends, allow to assess the impact on productivity – and reasonable agreement in results

3 Heterogeneity matters

There is considerable spatial heterogeneity, leading to both winners and losers, climate opportunities and climate hotspots

4 Climate Smart Approaches

Understanding of climate smart approaches has increased; but insufficient knowledge on gender and nutrition outcomes; need a net increase of climate-smart nutrition and women's empowerment along the value chain

5 Policy alignment

Gender and nutrition sensitive Climate Smart Approaches need to be cognizant of and support national and global strategies

6 Vulnerability context

Climate smart approaches need to include safety nets and support for the most vulnerable

7 Metrics

We need better metrics to measure changes across the climate change-nutrition-gender nexus

Questions and Answers

JOIN THE DISCUSSION

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Contact: jmaccartee@usaid.gov

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