



RESEARCH PROGRAM ON
**Climate Change,
Agriculture and
Food Security**



Viewing Climate Change Resilience Through a Gender Lens

Gender, Climate Change, And Nutrition Integration Initiative (GCAN)
Main Findings

May 17th, 2021

Elizabeth Bryan

Senior Scientist – Environment Technology Production Division

International Food Policy Research Institute



USAID
FROM THE AMERICAN PEOPLE



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

What does the Gender, Climate and Nutrition Integration (GCAN) Initiative do?

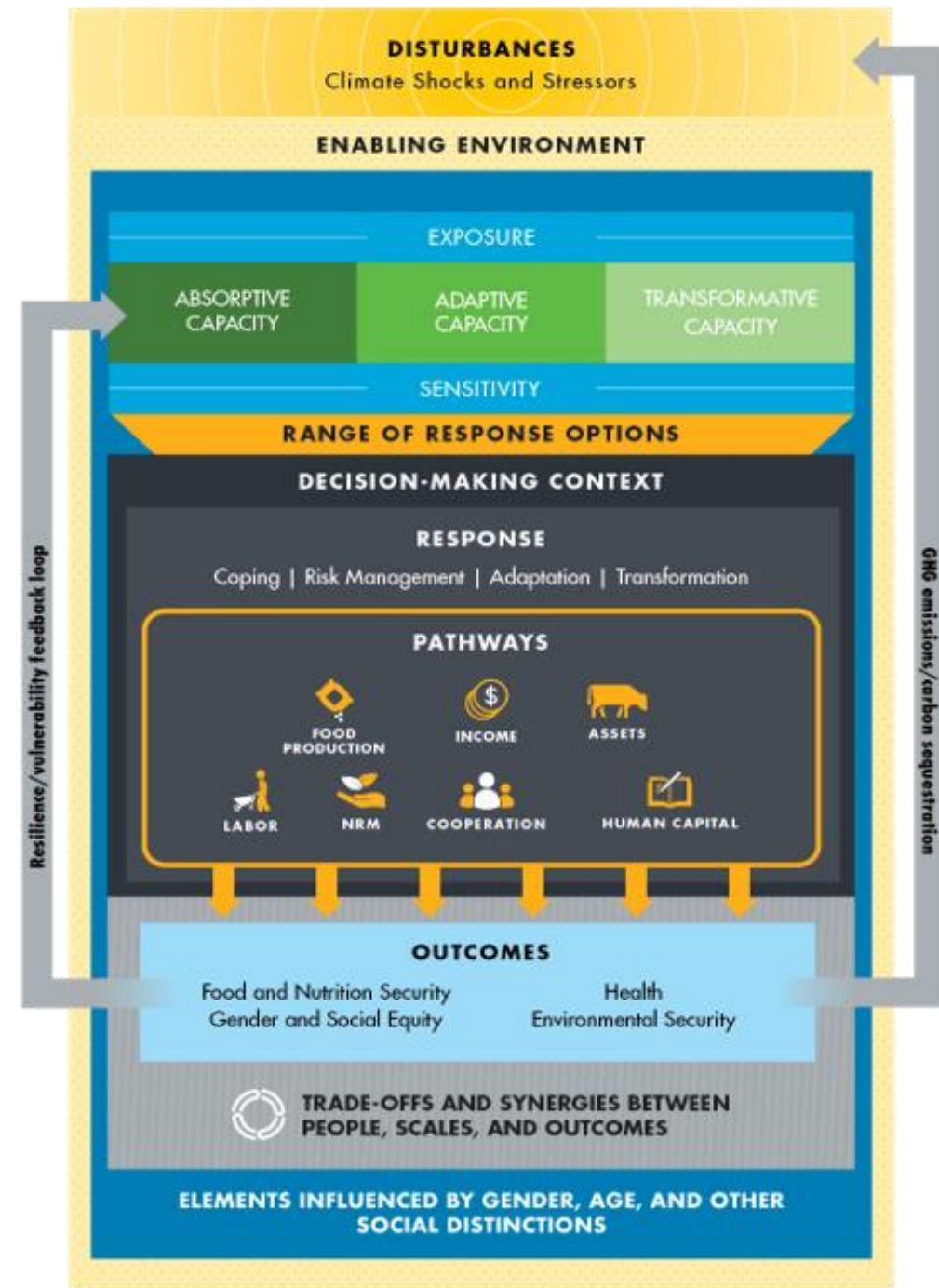
1. Advisory services to USAID RFS and missions on Climate Change, Women's Empowerment and Nutrition
2. Strategic research on key climate-gender-nutrition linkages (f.ex. aflatoxins; role of gender in climate adaptation strategies, etc.)
3. Increased use of Feed-the-Future data (student papers, hackathons, standardizing (i.e. incorporating biophysical data to support interlinked climate-HH data analysis) and (re)publishing FTF datasets)
4. Support Covid-19 response through gendered phone surveys in rural areas of 7 FTF countries

Why is a gender and nutrition lens important in the context climate change resilience?

- Ensure social inclusion and gender equity: *who is adopting and benefitting from climate-smart agriculture (CSA) and who is not?*
- Mitigate potential harm: *how can we identify climate risks and reduce unintended negative consequences of CSA related to gender and nutrition?*
- Enhances CSA effectiveness and impact: *how can we maximize the contribution of both men and women?*
- Achieve co-benefits/other development outcomes: *how will CSA maximize nutrition benefits through improvement in health, diets, and care?*

Gender Climate Change And Nutrition (GCAN) Framework

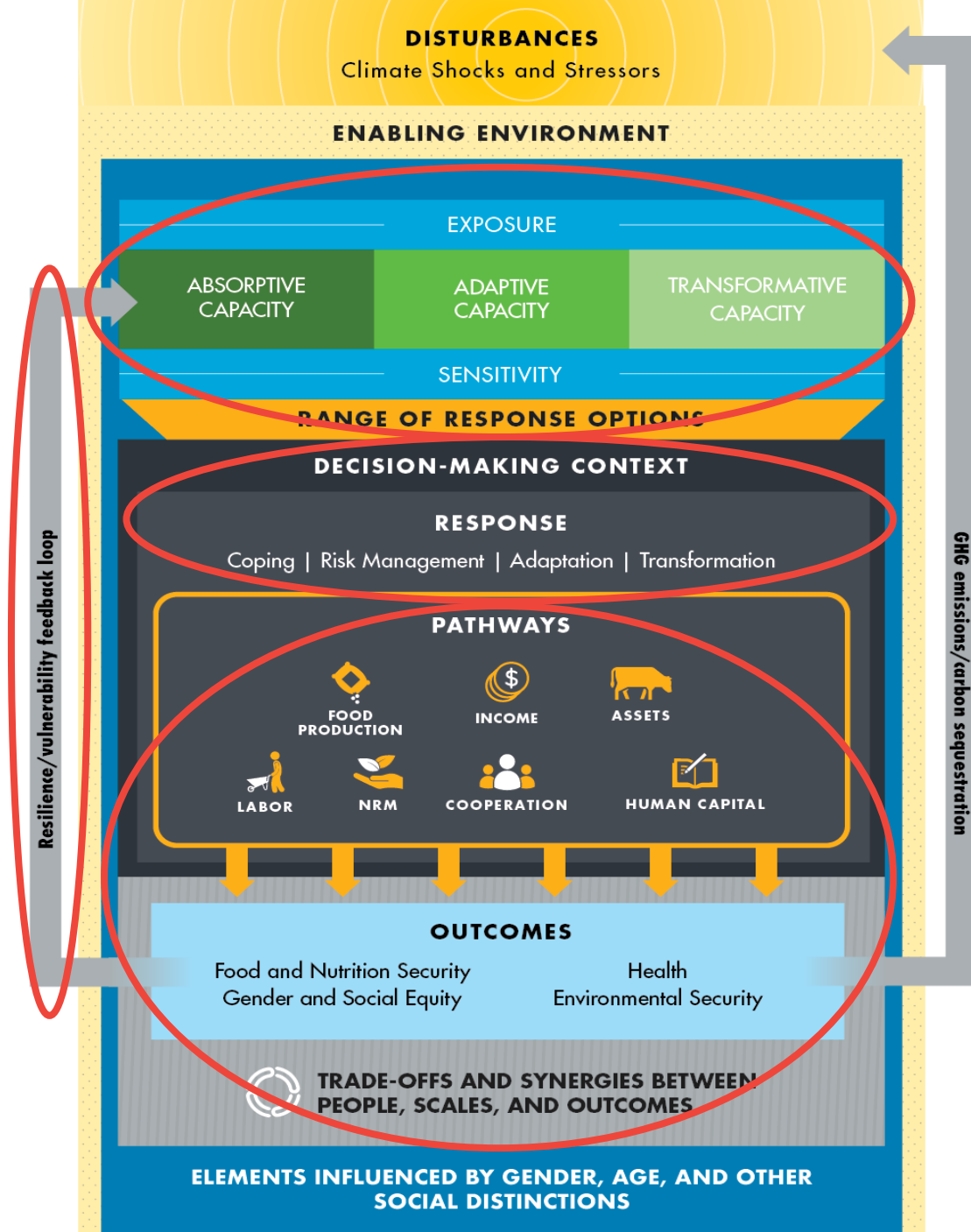
- The impact of climate shocks and stressors on people follow different pathways that are influenced by different factors:
 - Exposure and sensitivity
 - Resilience capacities
 - Decision-making context
 - Responses
- Resilience is dynamic: well-being outcomes influence future resilience capacities



Gender Climate Change and Nutrition (GCAN) Framework: Gender Dimensions

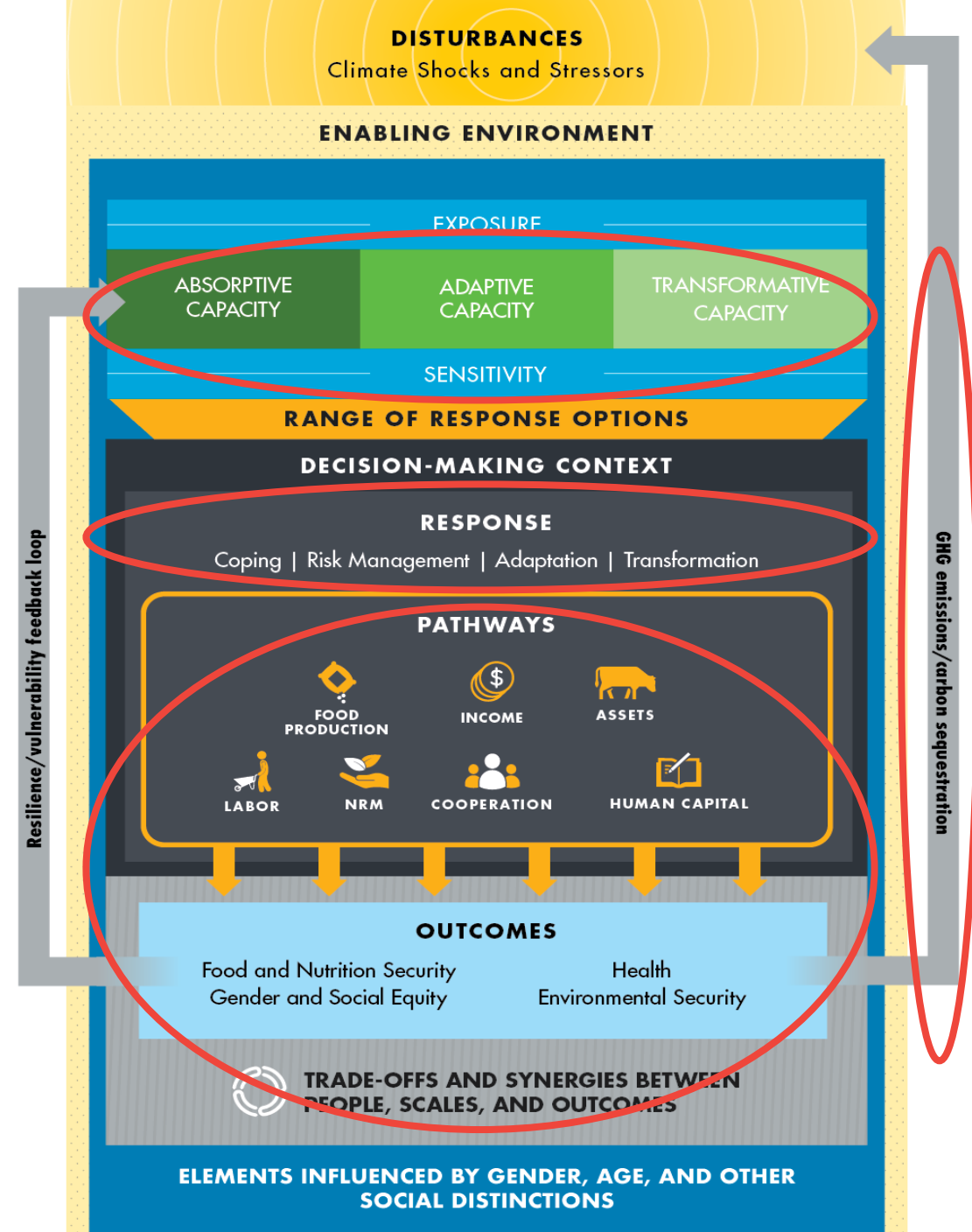
Men and women have different:

- Exposure and sensitivity to shocks and stressors
- Capacities to respond
- Preferences and needs
- Response choices
- Well-being outcomes
- Feedback loops

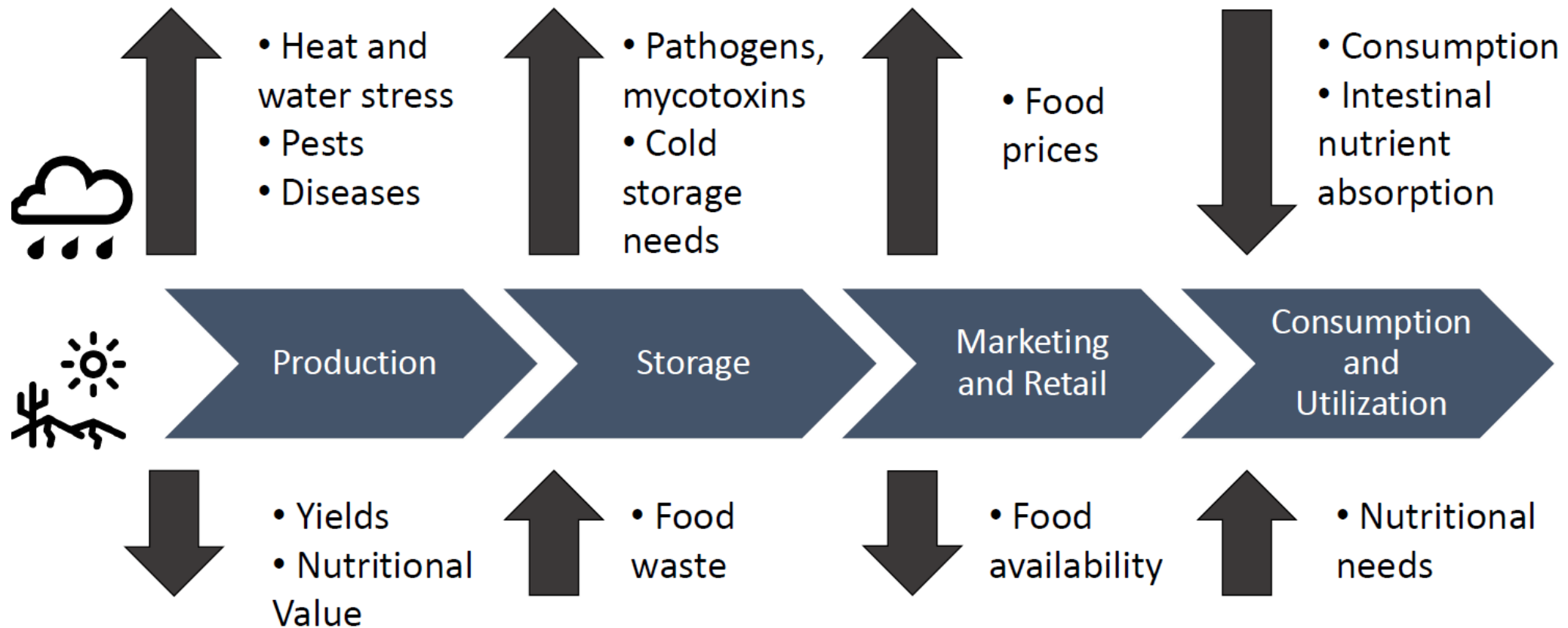


Gender Climate Change and Nutrition (GCAN) Framework: Nutrition Dimensions

- Nutrition influences sensitivity and capacities:
 - Sensitivity to shocks
 - Physical capabilities and productivity
- Climate response strategies have implications for nutrition
- Undernutrition is a consequence of climate change
- Link between diet choices and environmental outcomes (e.g. GHG emissions)



Disruptions to Food System, Food Environments and Diets



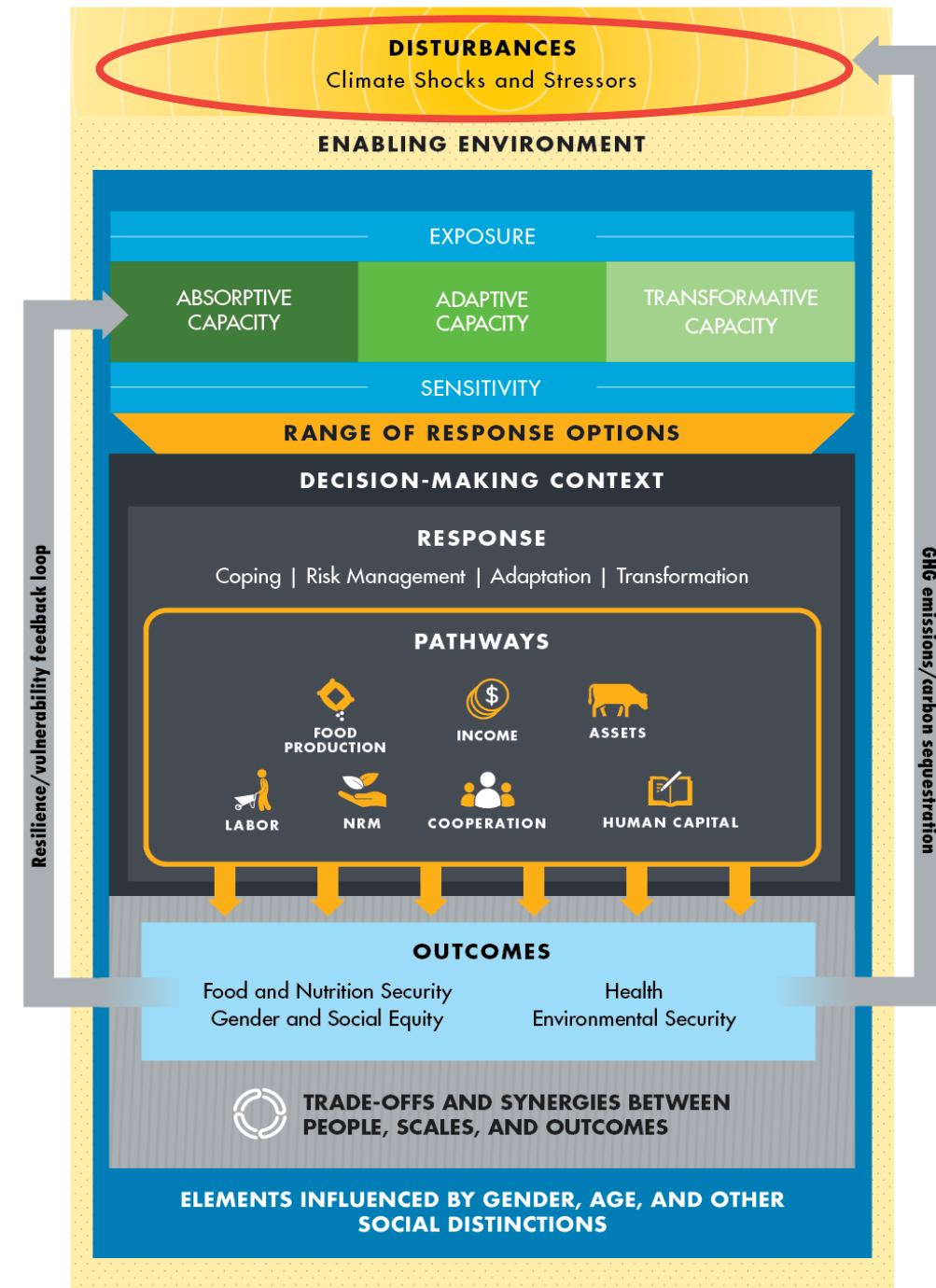
Fanzo et al. 2017

Applications of GCAN Framework & Associated Tools

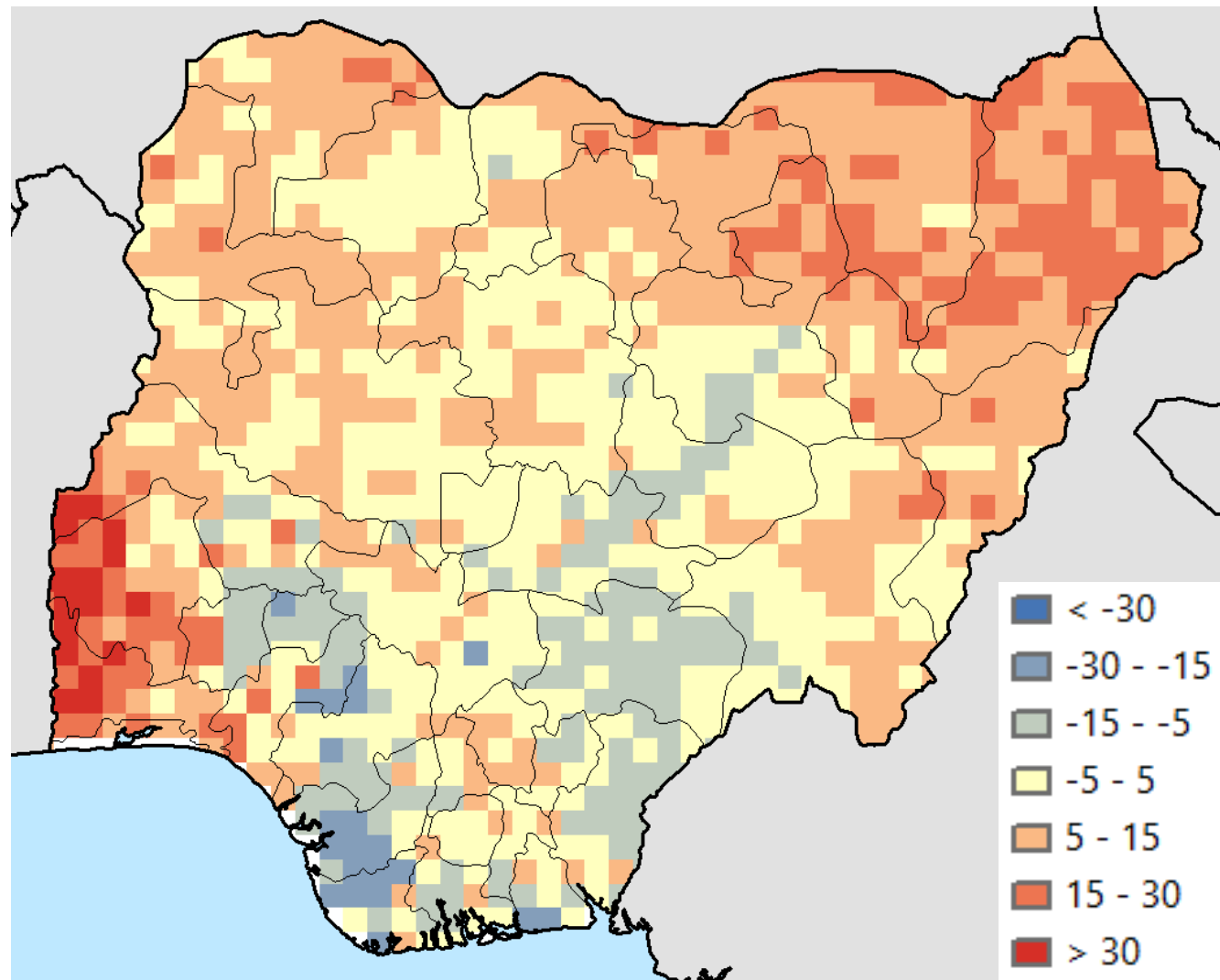
- Guide engagement with USAID missions during week-long engagements
 - Support climate risk screening with gender and nutrition lens
 - Identify research gaps on key elements and relationships in the country context
- Support integration of gender and nutrition in design, implementation, and M&E of programs (e.g. IFAD, Mercy Corps)
- Assess climate-nutrition linkages for Mongolia (UNICEF/FAO upcoming)
- Develop tools for practitioners (e.g. playbook for IFAD)
- Framing research on gendered impacts of Covid-19
- Adaptation of framework to broader resilience framing
- Adaptation of framework to food systems thinking

Climate Assessment

- Historical climate trends (temperature, precipitation, frequency of extreme events, shifts in growing season)
- Projected climate changes (magnitude, uncertainty)
- Impact on key crops, fish, livestock and other livelihood activities
- Indirect effects (e.g. aflatoxin, trade disruptions)

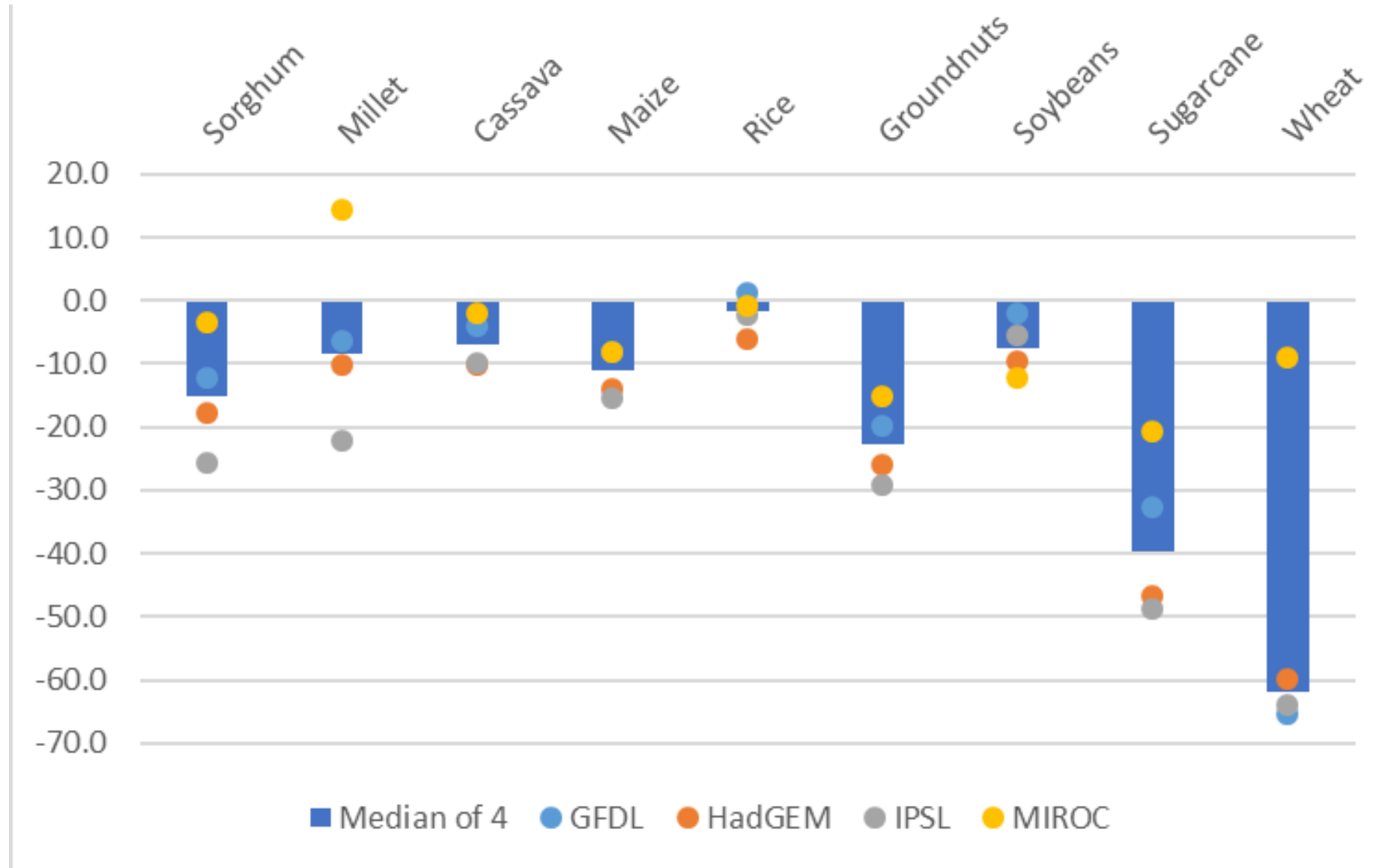


Example Nigeria: Predicted change in length of rainy season to 2025 (based on request of near-term CC impacts)



Northeast and Southwest gain by 5-30 days, other parts stay the same or lose up to 5 days, statistically significant for Northeast

Example Nigeria: Climate Change Impacts on Selected Rainfed Crops, 2000-2050



Source: Thomas 2019

Example Ad-hoc Support: Climate Risk Screening Tool

Climate Risk Screening and Management Tool for Project Design

PROJECT CRM TOOL OUTPUT MATRIX: CLIMATE RISKS, OPPORTUNITIES, AND ACTIONS

* = A required element, according to the Mandatory Reference				# Project elements may include Purpose / Sub-purpose, Areas of Focus, or Activities / Mechanisms, etc.		
1.1: Defined or Anticipated Project Elements*	1.2: Time-frame	1.3: Geography	2: Climate Risks*	3: Adaptive Capacity	4: Climate Risk Rating* [Enter rating for each risk: High, Moderate, or Low]	5: Opportunities*
[List defined or anticipated project elements]# Example: Improving livestock productivity	[List time-frame] Example: 0-15 years	[List geog. scope] Example: Rural	[Enter description of climate risks] Example: Heat stress due to increasing extreme temperatures. Mortality from increasingly frequent/severe drought.	[Enter description of Information Capacity, Social and Institutional Capacity, Human Capacity, and Financial Capacity] Example: Farmers have low access to insurance and many do not have alternate sources of income.	[Select rating]	[Enter description] Example: Drought early warning systems. Conflict prevention with Democracy and Governance programs as water becomes scarcer. Leverage the government's increasing focus on climate change adaptation and agricultural extension.

Examples Strategic Research: Tanzania- Heat stress exerts heterogeneous effects by gender, agricultural activity and household structure

Following a heat stress episode:

Men's family labor supply reduces by 1.4 days per ha

Women's family labor supply does change significantly

Labor more prominent resource of women than men (in many cases)

There is a reduction in both male and female hired labor

Households with only adult females increase their family labor by 1.5 days per ha



Examples Strategic Research: Role of Gender and Climate Change in Critical Aflatoxin Concentrations

Niger, Burkina Faso, Guatemala, & Honduras

Aflatoxin risks are increasing with climate change

Water stress greatly increases the frequency of critical aflatoxin concentration during production

After a certain level of rainfall, there is little risk of aflatoxins in production; extreme rainfall can of course increase disease risk

Women have key roles in post harvest



Examples Strategic Research: Awareness and Adoption of CSA practices in Bangladesh, by Sex of the Respondent

Practices	% respondents aware of practice		% of respondents who are aware that adopted practice	
	Men	Women	Men	Women
<i>Crop choice</i>				
Planting stress-tolerant varieties	0.03	0.02	0.33	0.17
Improved, high yielding varieties	0.64	0.42 ^{***}	0.57	0.46 ^{**}
<i>Water and soil fertility management</i>				
Irrigation	0.98	0.98	0.63	0.54 ^{**}
Leaving crop residue	0.58	0.54	0.43	0.41
Composting	0.81	0.71 ^{***}	0.37	0.40
Livestock manure management	0.64	0.60	0.50	0.37 ^{***}
More efficient use of fertilizer	0.89	0.56 ^{***}	0.84	0.65 ^{***}
No till/minimum tillage	0.31	0.28	0.06	0.04
<i>Other practices</i>				
Improved feed management for livestock	0.31	0.27	0.54	0.71 ^{**}
Integrated pest management	0.79	0.63 ^{***}	0.49	0.47
Grain storage	0.43	0.38	0.19	0.62 ^{***}
Tree planting	0.57	0.43 ^{***}	0.08	0.05
Improved cookstoves	0.71	0.70	0.06	0.05

^{***}Significant at $p < 0.01$, ^{**} significant at $p < 0.05$, and ^{*} significant at $p < 0.10$

Examples Strategic Research: Women's empowerment can expand crop diversification as a climate adaptation strategy

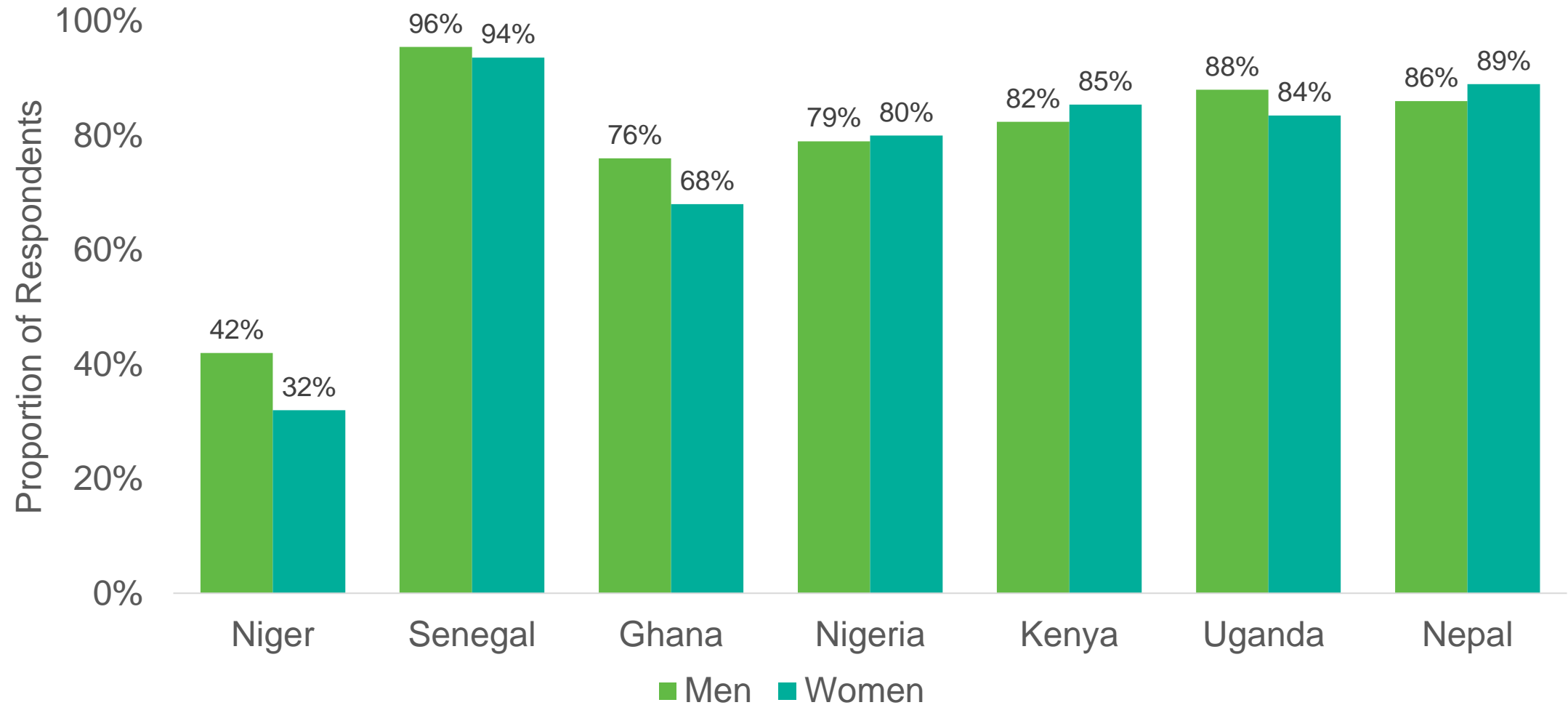
Women's involvement in agricultural decisions and groups is associated with greater crop diversification:

an increase in land allocated
to fruits and other uses

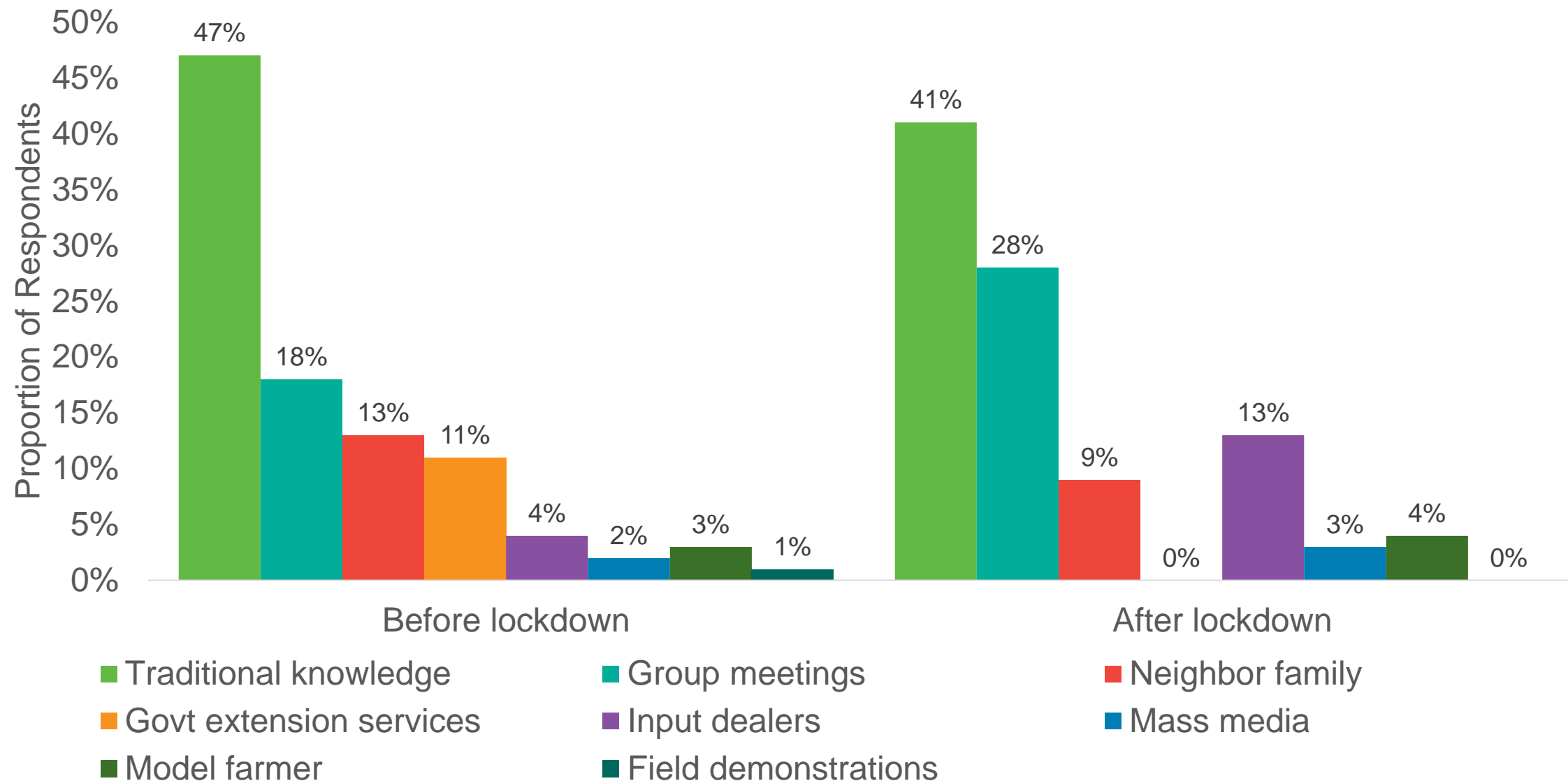
a decrease in land
allocated to cereals



Examples Covid-19 Response: Gendered phone surveys in 7 FTF countries- Income shocks are pervasive in rural areas for both men and women



Examples Covid-19 Response: Women's sources of agricultural information in India before and after Covid-19 (based on phone surveys)



Examples Covid-19 Response: Women's already low access to formal agricultural extension was reduced further in the pandemic (India & Nepal)

Nearly 50% of farmers report negative impacts due to unavailability of information

Increased reliance on informal and unorganized sources of extension during lockdown

Building gender-responsive extensive systems critical for crisis preparedness

Women-led, group and community-based approaches to extension hold promise



2021 Work Plan

- Direct support: Online **operationalization of the GCAN Framework** with examples
- Assessment of the **role of ICTs in overcoming gendered information gaps**: for 4-6 FTF countries, GCAN will develop Country Factsheets on the evidence of gender digital divide and their implications for agriculture and food systems
- Gendered Implications of **Agricultural Commercialization** (assess how women's resource rights and control over resources are affected through rapid commercialization of agriculture in key USAID focal countries using WEAI and LSMS datasets)
- Women's Empowerment through strengthening the **goat value chain?** Example of Senegal



Woman holds a baby goat in Senegal
Source: Heifer International

Key Research Gaps on Climate, Gender, and Nutrition

- Gendered impacts of climate smart agricultural practices, including mitigation strategies (e.g. gendered impacts of labor devoted to livestock management under a warming climate)
- Impacts of women's empowerment on climate resilience measures and outcomes
- Effects of climate variability on production, nutrition, and labor allocation
- Metrics for agricultural adaptation and mitigation
- Low-emission development strategies at national level that support mitigation goals without harming agricultural and economic growth



FOR MORE INFORMATION:

Visit the GCAN website

<https://gcan.ifpri.info/>

Sign up to the GCAN newsletter!

<https://gcan.ifpri.info/gcan-newsletter/>