



CONCEPTUAL FRAMEWORK

Gender, Climate Change, and Nutrition Integration Initiative

Elizabeth Bryan, Sophie Theis, Jowel Choufani, Alessandro De Pinto, Ruth Meinzen-Dick, and Claudia Ringler

As both the current and future impacts of climate change are coming into focus, policymakers, communities, households, and individuals around the world are taking steps to prepare for and respond to these challenges proactively. While greater awareness now exists of the types of challenges climate change engenders, many decisionmakers still lack context-specific information on climate and the best approaches to address climate-related challenges without sacrificing other development goals. Agriculture is at once the sector most vulnerable to the negative impacts of climate change, while also being a significant contributor of greenhouse gas (GHG) emissions. Strengthening the climate change resilience of agriculture and agricultural livelihoods is imperative to ensure that other key development outcomes related to reducing poverty and improving food and nutrition security are achieved, and that the potential for conflict and displacement are minimized.

The Gender, Climate Change, and Nutrition Integration Initiative (GCAN) is a program of the International Food Policy Research Institute (IFPRI), supported by the United States Agency for International Development (USAID). GCAN aims (1) to support USAID missions and implementing partners in efforts to integrate climate science, gender, and nutrition into their agricultural programming activities to enhance the resilience of program outcomes; (2) to build the evidence base on the interlinkages between these key cross-cutting topics; and (3) to provide conceptual guidance, tools, and forums for further analysis of the linkages among climate resilience, gender, and nutrition.

To guide these activities, IFPRI has developed a conceptual framework that integrates climate resilience, gender, and nutrition, with input from USAID and its implementing partners.

The purpose of the framework is to identify and describe key elements of resilience, while highlighting the linkages with gender and nutrition. The goal of developing this framework is to provide stakeholders from different disciplines and backgrounds with a common point of reference for understanding these complex issues and their interlinkages. The framework can also be used to identify research and evidence gaps, and to highlight entry points for programs and projects that aim to influence outcomes, such as resilience, nutrition, or women's empowerment.

This policy note is based on Bryan et al. (2017), which develops the GCAN framework through a review of the literature on linkages among climate change, gender, and nutrition. In particular, this work draws on elements from four existing frameworks: the Frankenberger et al. (2014) resilience framework, IFPRI's gender and climate change framework (Behrman, Bryan, and Goh 2014), the Global Nutrition Report's climate change and nutrition framework (IFPRI 2015), and the SPRING Agriculture for Nutrition framework (Herforth and Harris 2014).

A Framework for Gender, Climate Change and Nutrition

Resilience is a dynamic, path-dependent concept; people's current state and their ability to respond to shocks and stressors will influence their well-being in the immediate future and their capacity to meet future challenges. Resilience depends on the initial state of absorptive and adaptive capacity when a given climate shock or stress is experienced; the portfolio of available options; the actions taken in response to the climate signal; and the outcomes of those responses,

www.feedthefuture.gov



USAID
FROM THE AMERICAN PEOPLE



RESEARCH PROGRAM ON
Climate Change,
Agriculture and
Food Security



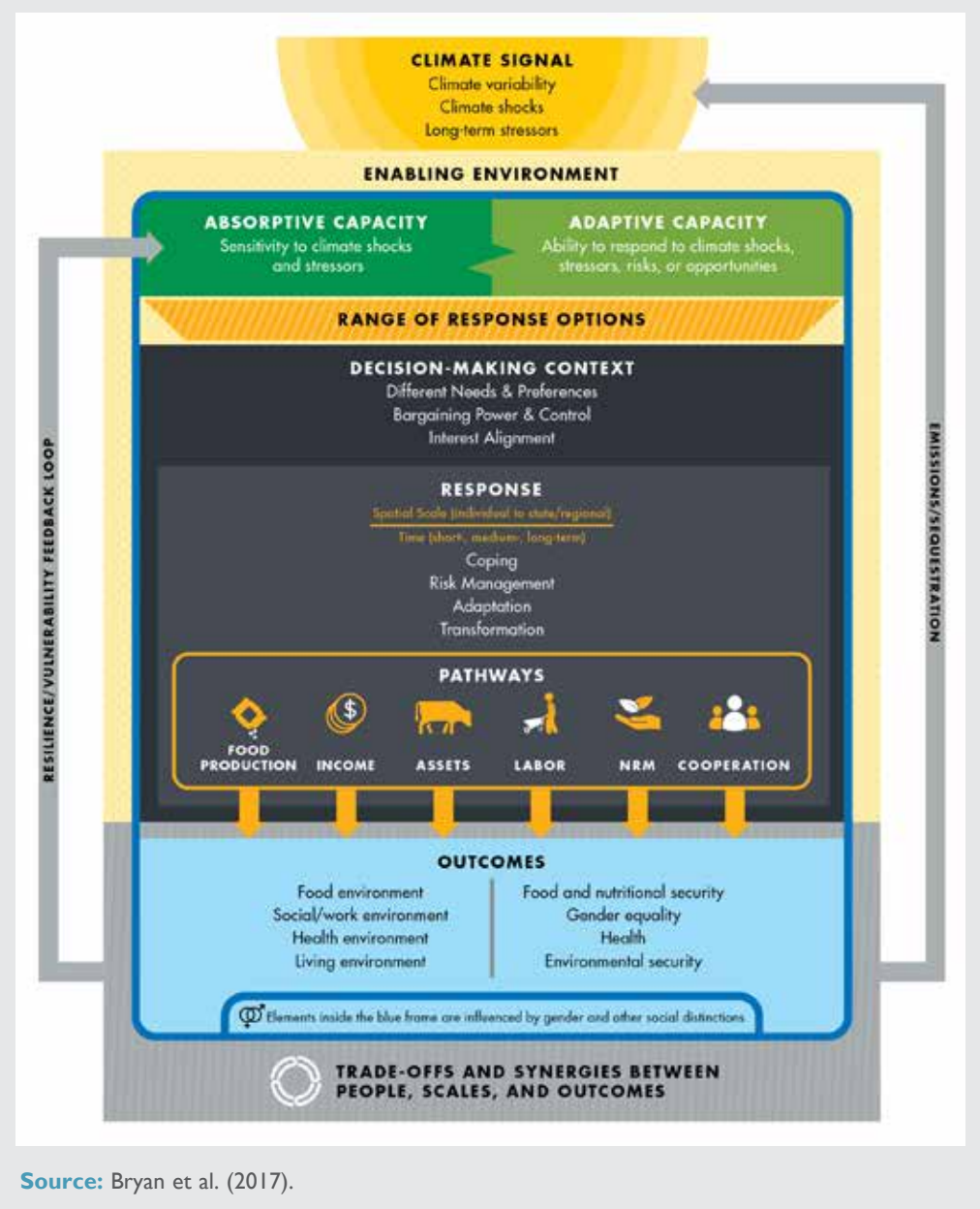
which influence the context in which future climate shocks and stressors are experienced. The GCAN framework can be adapted to other sources of risk and threats to livelihoods, such as food price shocks, political instability, and conflict. It can also be modified to illustrate a local context, development program, or a particular set of response options (for example, onfarm practices or technologies).

Numerous underlying factors determine the key elements of the framework. The generic version (Figure 1) does not attempt to define or list all these factors; they can be categorized in different ways and are likely to vary depending on the scale or context of analysis. Rather, in order to further explore the key elements of the general framework, Figures 2 and 3 adapt it to show the key variables at play at the household and policy levels, respectively. The specific details provided in the household and policy versions of the framework are not an exhaustive set of factors or characteristics that influence resilience at that level, but merely serve to illustrate the key elements of the framework. This policy note describes the key elements of the overarching framework, drawing on specific examples from the more detailed household- and policy-level versions of the GCAN framework.

The Climate Signal

The climate signal in Figure 1 represents climate volatility, shocks, and longer-term changes. These shocks or stressors can be characterized in many ways, such as by the scale and magnitude of the event or change. Long-term climate changes involve shifts in average temperature and rainfall conditions, as well as in the frequency of extreme weather events, such as droughts, floods, and storms. However, this framework not only focuses on long-term climate changes, but also aims to illustrate

FIGURE 1. Integrated framework for gender, climate change, and nutrition: generic version

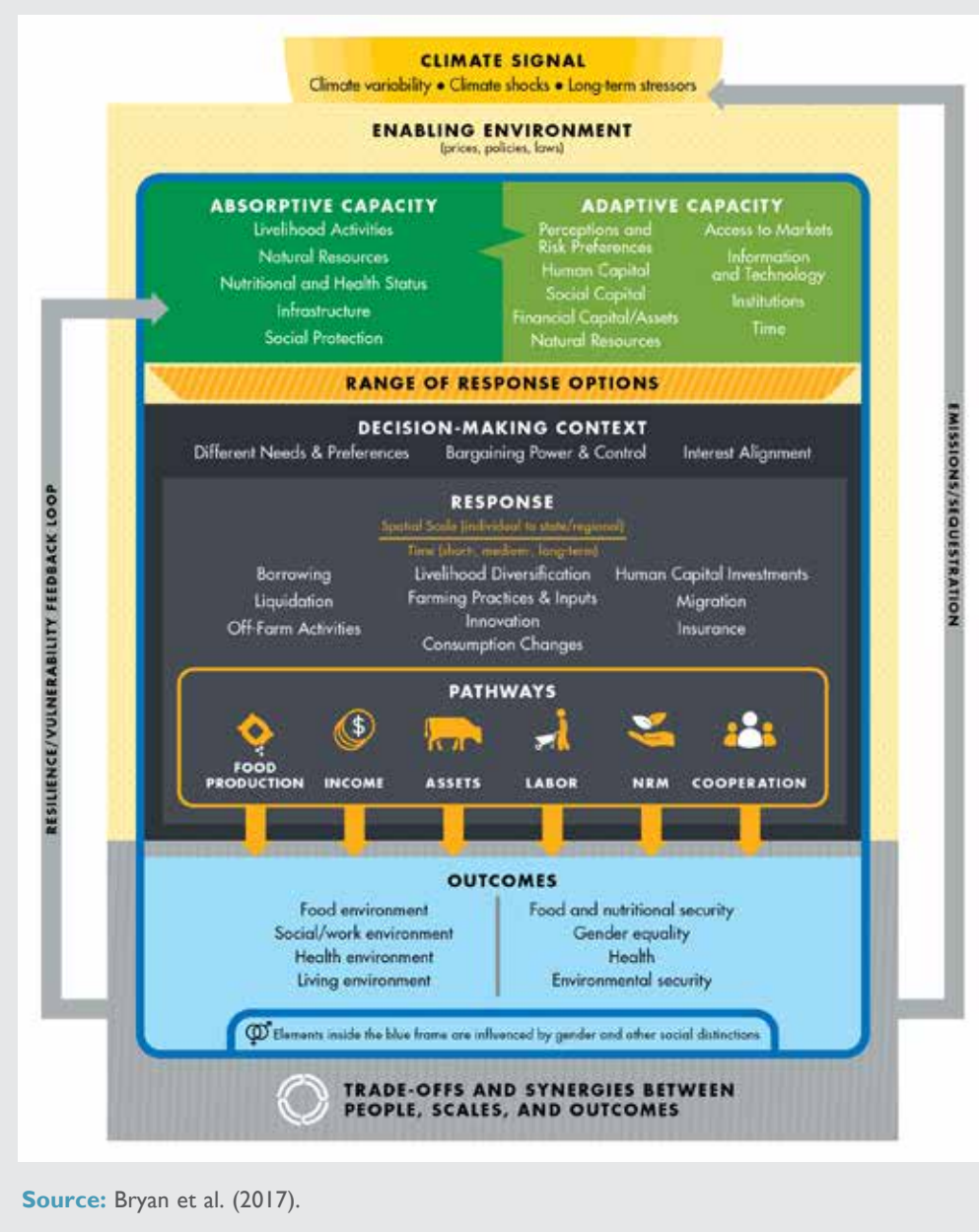


how patterns of climate variability and extreme weather events influence resilience.

The Enabling Environment

The effects of climate change occur within a particular context or enabling environment, which influences the ability of individuals and groups—across a broad scale—to absorb and respond to the impact of the changes they experience. Policies, laws, and other institutions all influence individual, household, and group responses to climate shocks and stressors (Figure 2). At higher

FIGURE 2. Integrated framework for gender, climate change, and nutrition: household-level version



Source: Bryan et al. (2017).

levels, such factors as international commitments, international aid flows, and the degree of political stability influence the resilience of nations and regions to climate shocks and stresses (Figure 3).

Absorptive Capacity

Absorptive capacity is defined as the sensitivity of individuals, groups, communities, countries, or regions to shocks and stressors—that is, factors that determine the extent to which different actors are directly affected by climate shocks

and stressors, and the extent of the changes they need to make to preserve or improve their well-being. For example, a smallholder farmer with a diversified livelihood that includes farm and nonfarm income sources may not experience as great a loss of income upon delayed onset rains as a neighboring farmer whose livelihood is dependent on a single rainfed crop.

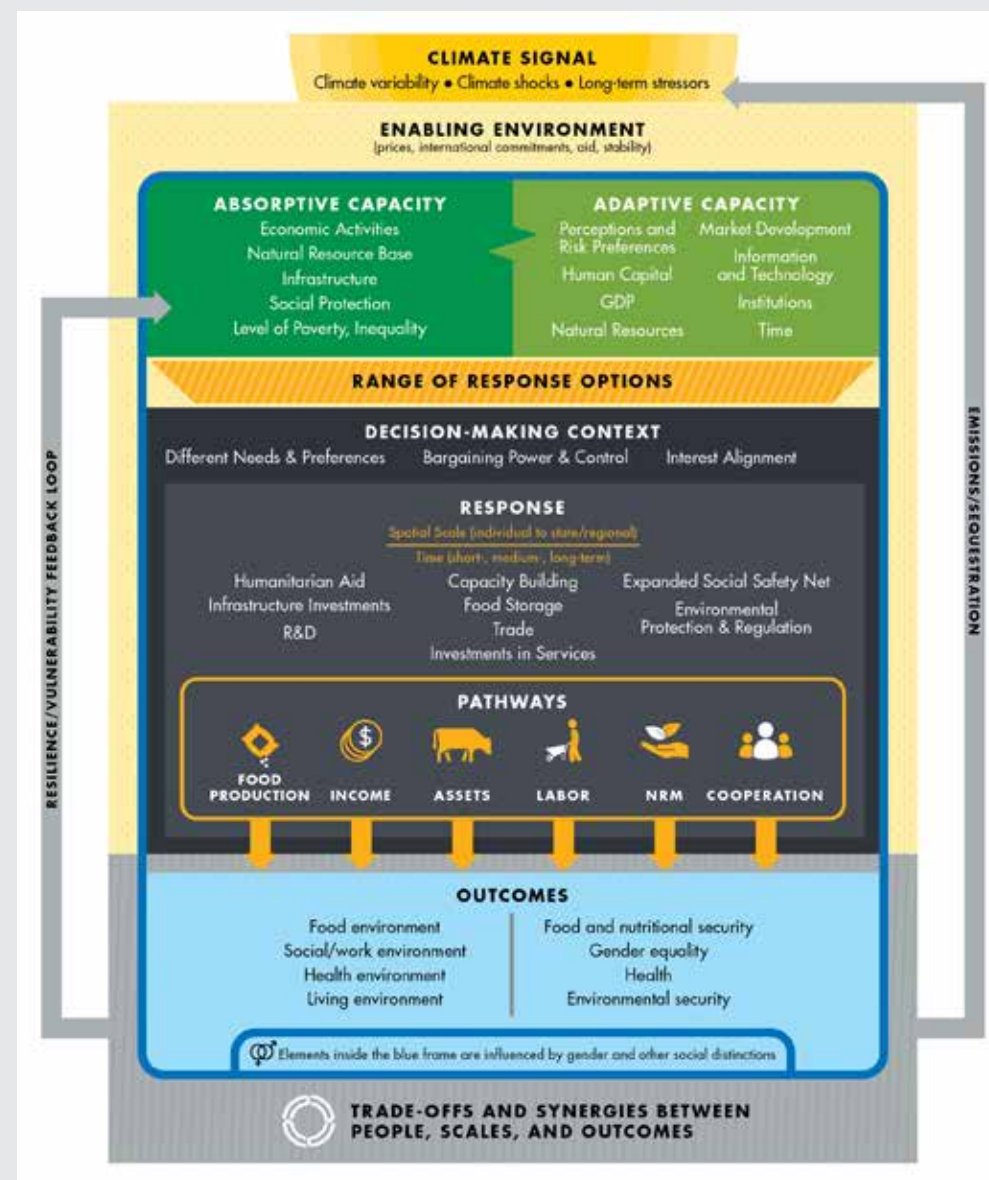
The health and nutritional status of individuals at the time of a climatic shock also affects their absorptive capacity—for example, whether or not they can withstand an increased risk of infectious disease. Health status is important to absorptive capacity because it affects the productivity of households and the time burden associated with providing care to the sick. Other factors, such as infrastructure and the strength of the social safety net also influence absorptive capacity at the household level (Figure 2). Absorptive capacity at the country level would be influenced by such factors as the structure of the economy, the natural resource base, the level of poverty or inequality, and relations with other countries in the region (Figure 3).

Adaptive Capacity

Adaptive capacity is defined as the ability of different actors or groups of actors to respond to climate

shocks, stressors, risks, or new opportunities. This ability depends on a variety of factors that interact in different ways based on social demographics, such as gender and age. At the individual or household levels, these factors include the capacity of individuals to perceive and understand climate risks, access to financial capital and assets, human and social capital, access to information and technology, and time constraints (Figure 2). At the state or policy level, factors influencing adaptive capacity include policymakers' perceptions and risk preferences, levels of

FIGURE 3. Integrated framework for gender, climate change, and nutrition: policy-level version



Source: Bryan et al. (2017).

gross domestic product, investments in science and technology, health systems, and access to markets.

High absorptive capacity reduces the urgency of adaptation. To a certain extent, high absorptive capacity can offset low adaptive capacity; conversely, low absorptive capacity necessitates a higher adaptive capacity to cope with change. Many of the factors that drive absorptive and adaptive capacity are positively correlated, so people with high absorptive capacity often also have a high adaptive capacity and vice versa.

Absorptive and adaptive capacity determine the range of response options available to decisionmakers from the individual to state levels. Important gender differences often limit the range of response options available to women. For example, women tend to have less access to information about climate, less knowledge about appropriate responses to climate challenges, and less access to agricultural technologies and resources. They are also less likely to be in positions of decisionmaking authority in community groups, institutions, and policymaking. These and other difficulties limit the potential contribution of women to increasing resilience at household, community, and national scales, and pose the risk that adaptation will occur in ways that do not reflect women's needs and priorities.

Response Options and the Decisionmaking Context

Different actors—including individuals, households, groups, communities, and policymakers—respond differently to the climatic challenges they experience or anticipate. Responses can take several forms, from actions directed toward coping with the immediate impacts of a climate shock or stress, to adaptive or transformative approaches that protect or improve livelihoods and well-being outcomes over the

longer run. *Coping responses* generally refer to strategies that utilize available resources, skills, and opportunities to address, manage, and overcome adverse climate stresses and shocks in the short to medium term. *Risk management strategies* involve plans, actions, or policies that aim to reduce the likelihood or impact of future negative events (or both). *Adaptation* involves adjustments to actual or expected climate stimuli in order to avoid harm or exploit potential benefits to return to, maintain, or achieve a desired state. *Transformative responses* aim to change the fundamental attributes of a system or context to improve

well-being outcomes, such as actions that address underlying social vulnerabilities.

Responses to climate shocks and stressors take place across different spatial scales from individual actions to state or regional responses. These actions can also be characterized by the time scale at which they occur. Some actions can be implemented in the short term, such as the decision to plant a new crop variety by an individual farmer or farm household, while others take time to implement, such as switching from annual crops to tree crops, or the development of new crop varieties.

The actions decisionmakers take in response to climate challenges often depend on complex negotiating processes in which different actors advocate for actions that meet their own needs, preferences, and priorities. Sometimes the interests of different actors overlap, but often they diverge. The ability of different actors to influence the outcomes of these decisionmaking processes depends on their own bargaining power and control over assets and resources. Disagreement among decisionmakers is likely to result in one or more individuals being dissatisfied with decisions that are made, and benefits might be skewed to individuals with more decisionmaking power.

Pathways from Climate Change Responses to Well-Being Outcomes

Actions taken in response to climate shocks and stressors potentially influence well-being outcomes through six possible pathways: (1) food production, (2) income, (3) asset dynamics, (4) labor, (5) natural resources, and (6) cooperation. Changes in farming practices, crops, or inputs in response to climatic shocks or changes have implications for food production at the farm level. In the absence of fully functioning markets, as is the case in many developing countries, these changes in food production can have dramatic impacts on food and nutrition security, health, and environmental security. Similarly, changes in income or assets (or both) as a result of responses to climate shocks and stressors influence nutrition and health outcomes, depending on who controls the income or asset. Livestock assets, in particular, may directly influence nutritional and health status—positively by increasing access to animal-sourced foods or negatively by worsening the water, sanitation, and hygiene (WASH) environment via exposure to disease and fecal matter, and by contributing to GHG emissions.

Many responses to climate challenges also have implications for labor allocation, which in turn influences outcomes, such as care practices (that is, the amount of time people—often women—spend caring for children or the elderly) and leisure time, an indicator often linked with well-being and empowerment. In

addition, responses that affect the management and use of natural resources also have implications for outcomes, such as the WASH environment and health status. Another key pathway pertains to the degree to which coordination or cooperation exists at the household, community, or broader scales. At the household level, such coordination would indicate greater cooperation among household members for common interests, whereas at the community level, it refers to cooperation around shared resources and social capital, which can greatly facilitate access to information, resources, and labor. At larger scales, cooperation could refer to coordination among regional states to ensure stable food supply through trade or crossboundary water management.

Well-Being Outcomes

The GCAN framework focuses on food and nutritional security, environmental security, gender equality, and health as the four final outcomes affected by climate change responses. Four interrelated “environments” mediate these outcomes: the food environment, the social/work environment, the health environment, and the living environment. The food environment refers to the availability of food, the quality of diets, access to food (including both market access and affordability), and the stability of the food supply over time. The social/work environment refers to shifts in livelihood roles and responsibilities of men, women, and children. The health environment includes both health stresses and healthcare practices and infrastructure. The living environment includes changes in the availability and quality of natural resources and physical infrastructure, such as health centers, schools, shelters from disasters, and sanitation systems.

Importantly, considerable linkages, tradeoffs, and synergies occur among environments, development outcomes, timeframes, and groups of people. For example, poor water quality in the living environment increases vulnerability to other health stresses; people may cope by seeking different water sources, which increases the burden on their time and, potentially, the risk to their security. Practices that improve food availability and access in the food environment through the increased use of chemical fertilizers or pesticides may have negative implications for environmental outcomes, such as water quality. Similarly, responses that may yield benefits in the short term, such as selling assets to meet consumptive demands, may improve nutritional status in the short term but have negative implications for food and nutritional security and health in the longer term.

Intergenerational tradeoffs also exist. For example, when women’s workloads increase to secure livelihoods in the face of climate change, negative implications can result for the health status of pregnant women and their infants. Moreover,

differences occur in terms of how the costs and benefits of the chosen response options are distributed among different groups of people. For example, responses to climate change and shocks may intensify or alleviate inequalities between men and women and necessitate an examination of who bears the brunt of shifts in time burdens, human energy expenditure, control over assets and income, and subsequent bargaining power and empowerment.

Application of the Framework

The GCAN framework shows that outcomes at any given point in time influence future absorptive and adaptive capacity, as well as future potential response options. Similarly, actions taken in response to existing climate conditions have implications for the trajectory of future climate changes by influencing GHG emissions and carbon sequestration. These feedback loops illustrate the dynamic nature of resilience or vulnerability to changing climate conditions, highlighting the fact that outcomes, such as nutrition and health status, are never static.

The flow of the elements of this framework, from top to bottom and back up again, can follow several possible scenarios. For example, actors may be able to increase their resilience to climate shocks and stressors due to high initial absorptive and adaptive capacity, which enables them to make changes that improve their well-being outcomes and, in turn, increase their future absorptive and adaptive capacity. Alternatively, vulnerability to climate shocks and stressors may increase given low absorptive and adaptive capacity and limited response options, which would cause well-being to deteriorate.

Adapting the framework to explore a specific shock or stress in the context of a particular community, program, or country can yield valuable insights into the potential consequences of that shock; how different people or groups may be affected; how they may respond; and what policies, programs, or actions might be implemented to improve well-being outcomes both short and long term.

References

- Behrman, J., E. Bryan, and A. Goh. 2014. "Gender, Climate Change, and Group-Based Approaches to Adaptation." In *Enhancing Women's Assets to Manage Risk under Climate Change: Potential for Group-Based Approaches*, edited by C. Ringler, A. Quisumbing, E. Bryan, R. Meinzen-Dick. Accessed September 2017. www.ifpri.org/publication/enhancing-women%E2%80%99s-assets-manage-risk-under-climate-change-potential-group-based.
- Bryan, E., S. Theis, J. Choufani, A. De Pinto, R. Meinzen-Dick, and C. Ringler. 2017. "Gender-Sensitive, Climate-Smart Agriculture for Improved Nutrition in Africa South of the Sahara," Chapter 9 in *2017 Annual Trends and Outlook Report (ATOR). A Thriving Agricultural Sector in a Changing Climate: The Contribution of Climate-Smart Agriculture to Malabo and Sustainable Development Goals*, edited by A. De Pinto, Washington, DC: International Food Policy Research Institute.
- Frankenberger T., M. Constan, S. Nelson, and L. Starr. 2014. *Current Approaches to Resilience Programming among Nongovernmental Organizations*. 2020 Conference Paper 7. Accessed September 2017. www.ifpri.org/publication/current-approaches-resilience-programming-among-nongovernmental-organizations.
- Herforth, A., and J. Harris. 2014. *Understanding and Applying Primary Pathways and Principles*. Improving Nutrition through Agriculture Technical Brief 1. Accessed September 2017. www.spring-nutrition.org/sites/default/files/publications/briefs/spring_understandingpathways_brief_1_0.pdf.
- IFPRI (International Food Policy Research Institute). 2015. *Global Nutrition Report 2015: Actions and Accountability to Advance Nutrition and Sustainable Development*. Washington, DC. Accessed September 2017. www.ifpri.org/publication/current-approaches-resilience-programming-among-nongovernmental-organizations.

Elizabeth Bryan (e.bryan@cgiar.org), **Sophie Theis** (s.theis@cgiar.org), **Jowel Choufani** (j.choufani@cgiar.org), **Alessandro De Pinto** (a.depinto@cgiar.org), **Ruth Meinzen-Dick** (r.meinzen-dick@cgiar.org), and **Claudia Ringler** (c.ringler@cgiar.org) are employed in the Environment and Production Technology Division of the International Food Policy Research Institute, Washington, DC, USA.

This publication was made possible by the generous support of the American people through the United States Agency for International Development (USAID) and is associated with the CGIAR Research Program on Climate Change, Agriculture and Food Security, which is carried out with support from CGIAR Fund Donors and through bilateral funding agreements. The contents are the responsibility of the authors and do not reflect the views of the International Food Policy Research Institute, USAID, or the United States Government.

Copyright © 2017 International Food Policy Research Institute. Licensed for use under a Creative Commons Attribution 4.0 International License (CC BY 4.0)